

**A note on *Acanthodactylus guineensis* (Boulenger, 1887)
(Sauria: Lacertidae)**

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A note on *Acanthodactylus guineensis* (Boulenger, 1887) (Sauria: Lacertidae). - Despite the recently considerably increased knowledge of the distribution range of *Acanthodactylus guineensis*, scalation characters of all available specimens (67 specimens) of this rare lacertid lizard reveal no geographically correlated variation. *A. guineensis*, ranging from Mali to Cameroon, has to be regarded as monotypic. A lectotype is designated for *Eremias benuensis* Monard, 1949, a synonym of *A. guineensis*.

Key-words: Lacertilia - Lacertidae - *Acanthodactylus guineensis* - distribution - morphology - West Africa.

INTRODUCTION

In a recent paper, Böhme *et al.* (1996) recorded the West African subsaharan lacertid *Acanthodactylus guineensis* (Boulenger, 1887) for the first time from Burkina Faso and Mali (Fig. 1). This was a considerable extension of the known distribution range, as this species was formerly known only from Ghana, Nigeria (Salvador, 1982), Cameroon (Monard, 1949, 1951), and from Niger (Papenfuss, 1969) (see also Szczerbak, 1975). Its nomenclatural history (synonyms and main chresonyms) can be summarized as follows:

- 1887 *Eremias guineensis* Boulenger, Ann. Mag. nat. Hist. (5) 20, p. 51. Type locality: Brass, mouth of the Niger.
- 1918 *Eremias* ("Section" *Taenieremias*) *guineensis* - Boulenger, J. zool. Res. 3, p. 4.
- 1921 *Eremias* ("Section" *Taenieremias*) *guineensis* - Boulenger, Monogr. Lacertidae, II, p. 256, 257.
- 1949 *Eremias* (*Taenieremias*) *benuensis* Monard, Revue suisse Zool. 56 (38), p. 737. Type locality: Ngaouyanga and Bangouvé, Northern Cameroon (syn. after Szczerbak, 1975: 41).
- 1951 *Eremias* (*Taenieremias*) *benueensis* (sic) - Monard, Mém. Inst. franç. Afr. Noire, (Sci. nat.) 1, p. 135.
- 1967 *Eremias guineensis* - Dunger, Niger. Field 32 (3), p. 122.
- 1969 *Eremias guineensis* - Papenfuss, Wasmann J. Biol. 27, p. 296.
- 1975 *Taenieremias guineensis* - Szczerbak, Katal. afrik. jaszczurok, p. 41 (new combination).

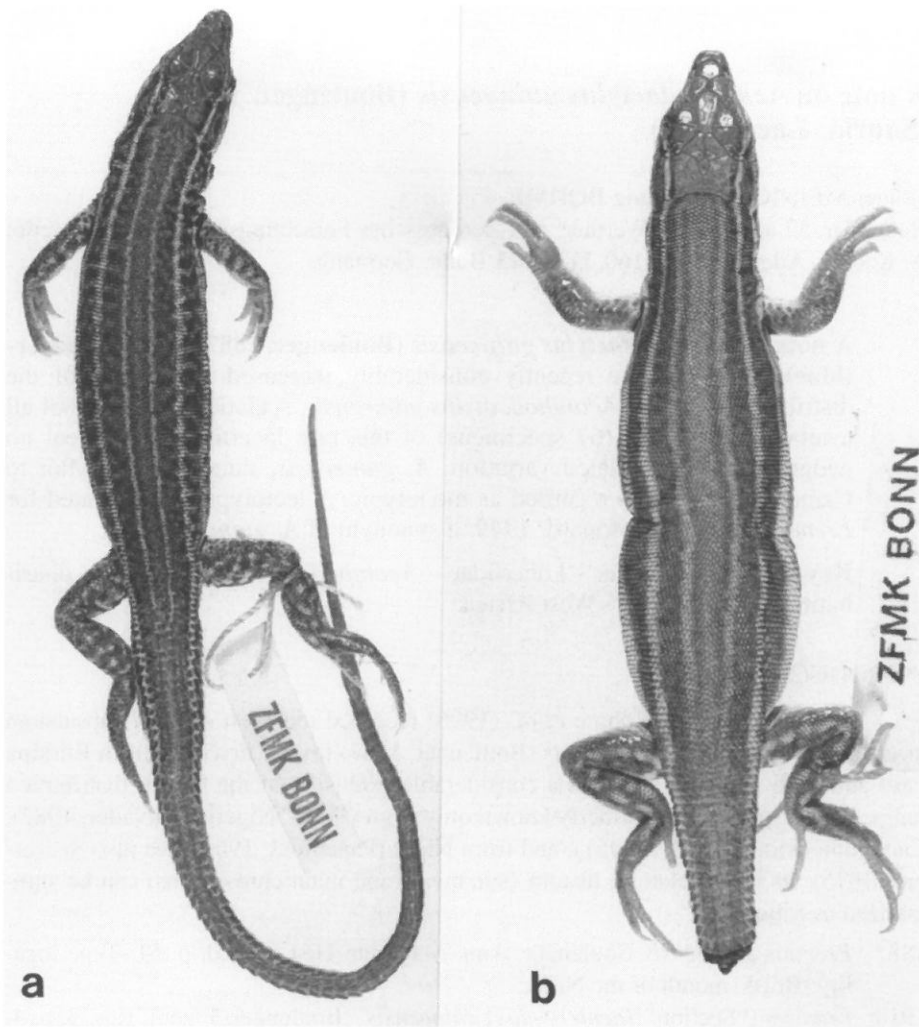


FIG. 1

The voucher specimens for the occurrence of *Acanthodactylus guineensis* in Burkina Faso (a: Daroha, ZFMK 38720) and Mali (b: Bandiagara, ZFMK 51176).

1982 *Acanthodactylus guineensis* - Salvador, Bonn. zool. Monogr. 16, p. 77 (new combination).

Two comments have to be made on this brief synonymy/chresonymy list:

1. The original spelling of the synonymous (fide Szczerbak, 1975) nominal taxon from Cameroon is (though linguistically incorrect) *benuensis* (see Monard, 1949: 737). The linguistically correct spelling *benueensis* was used by Monard (1949) in the subsequent pages, and constantly also in his second Cameroon paper (Monard, 1951: 135).

2. The type locality of *E. (T.) benuensis* is not, as stated by Papenfuss (1969), Ngaouyanga only, but (implicitly) Ngaouyanga and Bangouvé. This is due to the fact that a holotype had not been designated by Monard (1949). Hence, his series has to be considered as syntypic. As one specimen (his no. 998, female) has been described in detail, it is here designated as the lectotype. Originally deposited in the Musée d'histoire naturelle in La Chaux-de-Fonds (Switzerland), it is currently kept at the Muséum d'histoire naturelle in Geneva under MHNG 1055.62. Four remaining syntypes (currently paralectotypes), all from Ngaouyanga, are deposited at the Musée d'histoire naturelle in La Chaux-de-Fonds (MHNC 91.1005-8). Two remaining syntypes (currently paralectotypes) of the original series are missing and apparently lost.

The present note aims to summarize the distributional information on this species and to compare the available specimens from museum collections in regard to the variability of their morphological characters.

MATERIAL AND METHODS

A total of 67 specimens, deposited in the following collections, was examined:

- Zoologisk Museum, University of Copenhagen (ZMUC): 36 specimens (all from Nigeria);
- The Natural History Museum, London (BM): 22 specimens (17 from Nigeria, 5 from Ghana);
- Muséum d'histoire naturelle, Geneva (MHNG): 1 specimen (Cameroon);
- Zoologisches Forschungsinstitut und Museum A. Koenig, Bonn (ZFMK): 4 specimens (3 from Burkina Faso, 1 from Mali);
- Musée d'histoire naturelle, La Chaux-de-Fonds (MHNC): 4 specimens (all from Cameroon).

These specimens were checked with regard to 10 scale characters that have proven to be relevant in *Acanthodactylus* taxonomy (cf. Salvador, 1982): (1) ventral scales at midbody, (2) ventral scales from collar to anal shield, (3) dorsal scales at midbody, (4) scales under the 4th toe, (5) scales around finger, (6) femoral scales, (7) supraocular shields, (8) prefrontal shields, (9) nasal scales, and (10) supralabial scales anterior to subocular. Moreover, the locality data of these specimens, together with literature data or catalogue numbers of the museums where they are deposited, have been plotted into a map.

RESULTS AND DISCUSSION

DISTRIBUTION

Currently, *A. guineensis* is known from Burkina Faso, Mali, Niger, Ghana, Nigeria and Cameroon (Boulenger, 1887, 1921; Monard, 1949, 1951; Papenfuss, 1969; Böhme *et al.*, 1996, and this paper). The single locality records, numbered correspondingly on the map (Fig. 2), are:

- 1 Bandiagara, Mali (14.20N, 03.36W, Böhme *et al.*, 1996)
- 2 Daroha, near Bobo Dioulasso, Burkina Faso (12.03N, 00.21W, Böhme *et al.*, 1996)
- 3 Fada N'Gourma, Burkina Faso (11.10N, 04.17W, Böhme *et al.*, 1996)
- 4 10 miles NW of Tapoa on road to Tamou, Niger (12.29N, 02.24W, Papenfuss, 1969)

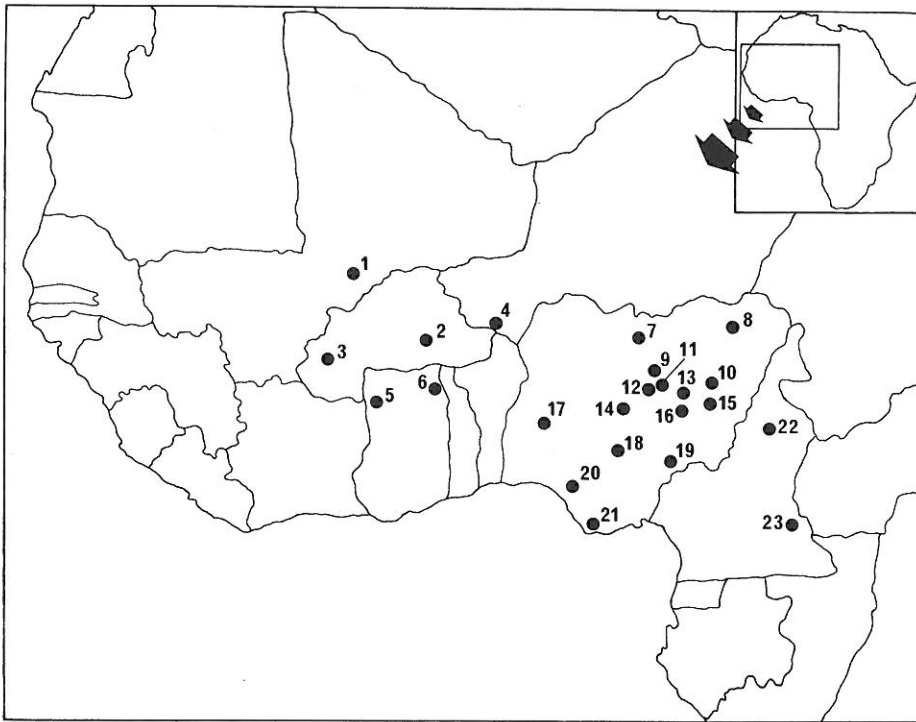


FIG. 2

Currently known distribution of *Acanthodactylus guineensis*; numbers correspond to localities mentioned in the text.

- 5 Wa, Ghana (10.03N, 02.30W, BM record, this paper)
- 6 Nakpanduri, S of Bowku, NE Ghana (10.37N, 00.10W, BM record, this paper)
- 7 Kano, near Jos, Nigeria (12.00N, 08.30W, BM record, this paper)
- 8 Maiduguri, Nigeria (11.51N, 13.09W, Dunger, 1967)
- 9 Zaria, Nigeria (11.05N, 07.42W, Dunger, 1967)
- 10 Bauchi, Nigeria (10.18N, 09.50W, BM record, this paper)
- 11 Jos, Nigeria (09.55N, 08.53W, Dunger, 1967)
- 12 Zonkwa S'Zaria, Nigeria (09.47N, 08.16W, Dunger, 1967)
- 13 Riyom near Jos, Nigeria (09.38N, 08.45W, ZMUC record, this paper)
- 14 Idah, Nigeria (09.26N, 07.22W, ZMUC record, this paper)
- 15 Bampur, Nigeria (09.21N, 11.02W, BM record, this paper)
- 16 Amper, Nigeria (09.21N, 09.40W, BM record, this paper)
- 17 Igbetti, Nigeria (08.44' N, 04.08W, ZMUC record, this paper)
- 18 Lokpe, Nigeria (07.31N, 07.01W, ZMUC record, this paper)
- 19 Tokum NNW of Lupwe, Nigeria (07.15N, 09.59W, ZMUC record, this paper)
- 20 Kwale, Nigeria (06.18N, 05.27W, BM record, this paper)
- 21 Brass, mouth of Niger, Nigeria (04.18N, 06.15W, Boulenger, 1887)
- 22 Ngaouyanga, Kamerun (07.54N, 13.35W, Monard, 1949)
- 23 Bangué, Kamerun (04.05N, 14.30W, Monard, 1949)

Two additional localities, viz. Kigawa river, and N'Shenfuri, both in "northern Nigeria" (BM 1930.10.6.9) could not be identified with our maps.

The currently known distribution of *A. guineensis* as summarized by Salvador (1982) must be extended by the material examined to the North-West (Mali, Burkina Faso) and to the East (Cameroon) (Böhme *et al.*, 1996; Szczerbak, 1975). Future investigations may discover this species also in Togo, Benin and possibly also in southwestern Chad. The material from Cameroon formerly described as *Eremias benuensis* Monard, 1949, is clearly *A. guineensis* (see also Szczerbak, 1975), because the diagnostic character of *Acanthodactylus* (supralabials in contact with nasals) as compared with *Eremias* (supralabials not in contact with nasals) fits the Cameroon specimens. The synonymization of *Eremias benuensis* Monard, 1947 with *Acanthodactylus guineensis* Boulenger, 1887 is therefore doubtlessly correct.

Salvador (1982) casted doubt on the type locality "Brass, mouth of the river Niger", because a river delta seemed to conflict with the general ecological requirements of *Acanthodactylus*. However, river deltas in West Africa may well contain dry and sandy places. Some currently known localities, particularly Idah, Nigeria (on the river Niger, approximately 320 km river upwards), or Bandiagara, Mali (on the banks of the river Yamé), are such sandy places. This type of habitat seems to be characteristic for *A. guineensis*, even if only rather small areas are available: data from labels of BM specimens are available for Zonkwa, Zaria Province, Nigeria (on a sandy path next to a well), and for Maiduguri, Nigeria (small sandy patches in peanut plantations). In general, the very southern distribution pattern of this species of an otherwise Saharo-Sindian genus argues for an origin that took place already during one of the multiple former extension phases of the Sahara, when it was even considerably larger than today (Böhme, 2000).

MORPHOLOGY

A. guineensis has (1) constantly ten longitudinal ventral rows at midbody; (2) the number of ventrals from head to tail ranges from 27 to 30; (3) the dorsal midbody scale count lies between 46 and 63; (4) there are between 17 and 20 scales under the 4th toe; (5) there are 3 rows of scales around finger; (6) the number of femoral pores ranges between 17 and 21; (7) the number of supraoculars is two (deviations discussed below); (8) there are two prefrontals, (9) three nasals, and (10) three to five supralabials anterior to subocular. The individual data have been summarized in Tab. 1.

Salvador (1982) stated correctly that *A. guineensis* has three nasals, but the accompanying drawing in his paper shows a different situation. The correct nasal pattern is figured here, drawn from the lectotype (BM 1962.1666) (Fig. 3). This specimen also has four supralabials anterior to the subocular. However, this character state is not constant, as Salvador (1982) had assumed, because also specimens with only three supralabials occur (e.g. ZFMK 57176). Six out of the 67 specimens examined have three sublabials on one side of the head and four on the other. Two specimens show a very small fifth scale inserted in front of the subocular on one side of their heads only.

Despite the considerably enlarged distribution range from where *A. guineensis* is now known, no recognizable trends that would allow recognition of subspecies can

Tab. 1: Scalation characteristics of the 67 specimens of *Acanthodactylus guineensis* examined. For the numbering of characters see "Material and Methods"

coll. no.	1	2	3	4	5	6	7	8	9	10
Mali										
ZFMK 57176	10	29	50	18	3	20	2	2	3	3
Burkina Faso										
ZFMK 38720	10	28	51	18	3	20	2	2	3	3
ZFMK 39028	10	30	50	18	3	19	2	2	3	3
ZFMK 59511	10	27	54	19	3	19	3,5 / 2	2	3	4
Ghana										
BM 1966.286	10	29	46	18	3	18	2	2	3	4
BM 1979.611	10	28	48	18	3	17	2	2	3	4
BM 1979.612	10	28	49	18	3	17	2	2	3	4
BM 1980.1009	10	30	-	18	3	-	2	2/3	3	4
BM 1980.1010	10	-	49	17	3	18	2	2	3	4
Nigeria										
BM 1930.10.6.9	10	28	50	20	3	18	2	2	3	4
BM 1946.8.6.31 type	10	-	-	18	3	19	2	2	3	4
BM 1961.952	10	28	51	18	3	18	2	2	3	3
BM 1961.1998	10	30	48	20	3	19	2	2	3	4
BM 1961.1999	10	28	56	19	3	19	2	2/3	3	4
BM 1961.2000	10	28	49	20	3	18	2	2	3	4
BM 1962.572	10	29	48	20	3	19	2	2	3	4
BM 1962.575	10	29	49	18	3	18	2	3	3	4
BM 1962.1661	10	-	-	20	3	18	2	2	3	4
BM 1962.1662	10	28	-	18	3	18	2	2	3	4
BM 1962.1663	10	28	49	18	3	20	2	2	3	4
BM 1962.1665	10	28	-	18	3	20	2	2	3	4
BM 1962.1666	10	28	48	18	3	20	2	2	3	4
BM 1962.1667	10	29	48	18	3	18	2	2	3	4
BM 1962.1668	10	29	49	18	3	18	2	2	3	4
BM 1962.1669	10	28	48	20	3	17	2	2	3	4
BM 1973.660	10	28	49	-	3	18	2	2	3	4
ZMUC R45167	10	30	48	18	3	18	2	2	3	4
ZMUC R45168	10	27	55	18	3	19	2	2	3	4
ZMUC R45169	10	28	49	20	3	18	2	2	3	4
ZMUC R45170	10	28	56	18	3	19	2	2	3	4
ZMUC R45171	10	28	54	20	3	18	2	2	3	4
ZMUC R45173	10	29	54	18	3	18	2	2	3	3
ZMUC R45175	10	27	58	20	3	18	2	2	3	4
ZMUC R45176	10	28	54	20	3	18	2	2	3	4
ZMUC R45177	10	28	63	20	3	17	2	2	3	4/3
ZMUC R45178	10	27	59	18	3	20	2	2	2	3
ZMUC R45179	10	28	59	18	3	19	2	2	3	4
ZMUC R45184	10	28	56	19	3	21	2	2	3	3/4
ZMUC R45185	10	29	50	18	3	19	2	2	3	4
ZMUC R45185	10	29	50	18	3	19	2	2	3	4
ZMUC R45186	10	29	59	17	3	19	2	2	3	4
ZMUC R45187	10	28	56	18	3	20	2	2	3	4
ZMUC R45188	10	26	52	19	3	19	2	2	3	4/5
ZMUC R45189	10	30	-	18	3	19	2	2	3	3
ZMUC R45190	10	30	55	20	3	17	2	2	3	5/4
ZMUC R45191	10	28	51	18	3	18	2	2	3	3/4
ZMUC R45193	10	28	54	20	3	20	2	2	3	4
ZMUC R45194	10	28	53	19	3	21	2	2	3	4
ZMUC R45195	10	27	50	19	3	19	2	2	3	4

coll. no.	1	2	3	4	5	6	7	8	9	10
Nigeria										
ZMUC R45196	10	26	56	20	3	20	2	2	3	4
ZMUC R45199	10	-	52	20	3	19	2	2	3	3/4
ZMUC R45200	10	27	60	20	3	18	2	2	3	4
ZMUC R45201	10	27	58	19	3	18	2	2	3	3
ZMUC 45202	10	28	59	20	3	20	2	2	3	4
ZMUC 45203	10	29	60	18	3	20	2	2	3	4
ZMUC R45204	10	27	60	18	3	17	2	2	3	3/4
ZMUC R45205	10	27	60	20	3	18	2	2	3	3
ZMUC R45206	10	27	57	19	3	19	2	2	3	3
ZMUC R45207	10	31	56	19	3	20	2	2	3	4
ZMUC R45222	10	28	56	18	3	19	2	2	3	4
ZMUC R45223	10	26	55	19	3	19	2	2	3	3/4
ZMUC V678	10	28	57	19	3	18	2	2	3	4
ZMUC V735	10	28	59	19	3	19	2	2	3	4
Cameroon										
MHNG 105562	10	29	54	19	3	19	2	2	3	4
MHNC 91.1005	10	29	51	18	3	21	2	2	3	4
MHNC 91.1006	10	29	56	19	3	20	2	2	3	4
MHNC 91.1007	10	29	54	19	3	18	2	2	3	4
MHNC 91.1008	10	28	57	19	3	18	2	2	3	4

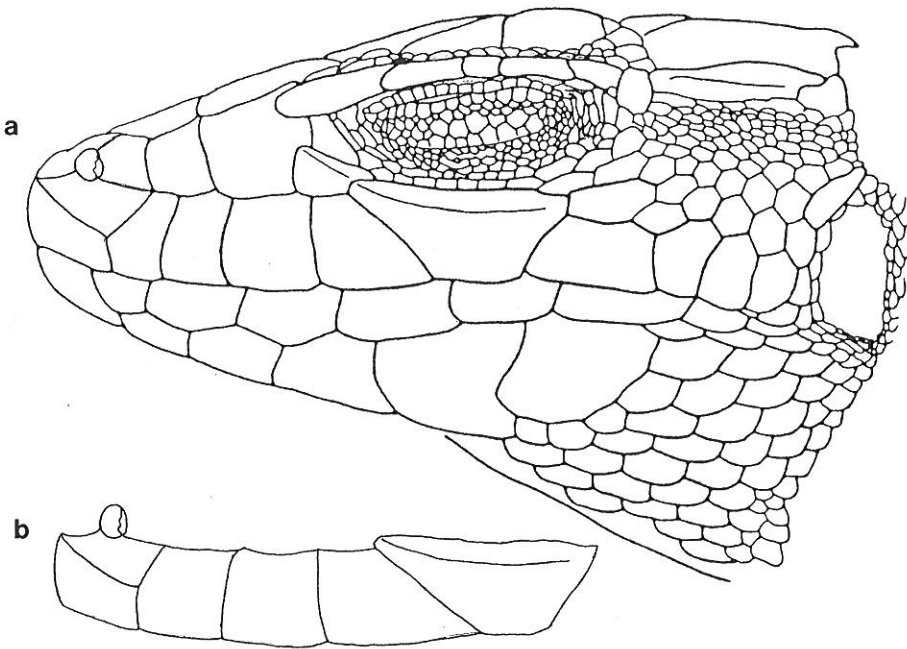


FIG. 3

Lateral head scales of *Acanthodactylus guineensis* (BM 1962.1666) from Nigeria as compared with the configuration of supralabials in ZFMK 57176 from Mali.

be found. Some scalation features investigated are rather variable (characters 2, 3, 4, 6, 10), while others (characters 1, 5, 7, 8, 9) are not. The only geographical correlation is an increasing number of the dorsal midbody scale count (3) from the Northeast towards Southwest, but this seems to be clinal and therefore taxonomically irrelevant. Another variable character is the number of supralabials (four vs. three) anterior to the subocular (10). But this character seems to vary individually rather than geographically, not only within populations, but even within the same individual (left/right asymmetry). Differences in colour pattern (Böhme *et al.*, 1996) seem to be correlated with the substrate the lizards are living on.

In conclusion, the analysis of the scale characters examined does not allow delimitations of populations or population groups in *A. guineensis* that might have evolved in geographic separation and genetic isolation from each other. This reflects the rather uniform shape of landscape in this part of arid West Africa where geographical barriers (mountain ranges, forests) are largely lacking.

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