

In a recent review of East African reptiles (SPAWLS et al. 2002), the range of *T. brevicollis* was shown to extend through northern and eastern Kenya, with three isolated localities in northern Tanzania (Bulyanhulu, south of Smith Sound; Serengeti; and Tarangire). The first two localities are relatively close to the new material from Klein's Camp, and may therefore be referable to *T. dichroma*. The Klein's Camp population extends the species' distribution approximately 170 km WSW of the nearest Kenyan population (Nairobi National Park; WASONGA & MALONZA 2006) and 190 km NW of the centre of the restricted type locality. Whether these populations are confluent remains unknown. WASONGA & MALONZA (2006) noted that Kenyan populations were scattered, and appeared to be restricted to arid and semi-arid lands in the south-central, eastern and northeastern regions. Similar large skinks have been seen (AK) inhabiting termite mounds in open grassland in the Mara, all in open grassland, but whether they are *T. brevicollis* or *T. dichroma* is unknown.

SPAWLS et al. (2002) records the altitudinal limit of *T. brevicollis* (including *T. dichroma*) as up to 1500 m asl, but sites for *T. dichroma* at Klein's Camp are all above 1750 m asl, and most over 1800 m asl. Further surveys are necessary to determine the ranges of *T. brevicollis* and *T. dichroma* within Tanzania, and also to determine whether the low midbody scale row counts (30-32) in specimens from Garrisa, Tana River Valley, eastern Kenya (WASONGA & MALONZA 2006) have taxonomic significance.

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### Studies in African *Agama* I. On the taxonomic status of *Agama lionotus usambarae* BARBOUR & LOVERIDGE, 1928

BARBOUR & LOVERIDGE (1928) described *Agama colonorum usambarae* based on a series of 22 specimens (holotype: Museum of Comparative Zoology, Cambridge/Mass. [MCZ R-24129]; paratypes: MCZ [R-24130-39], Field Museum of Natural History, Chicago [FMNH 12280-7]) from Soni, near Lusotho at the Usambara Mountains in Tanzania. Eight paratypes come from Mnazi, the northern side of the Usambara Mountains; the other paratypes from the same locality as the holotype. Three more paratypes, not catalogued at the time of the description, were located at the MCZ. Meanwhile one of them got the number MCZ R-166832 (ROSADO; pers. comm.). The other two paratypes are stored at other institutions: one was exchanged with the Transvaal Museum (TM 16656) (MASHININI; pers. comm.), the other is now located in the collection of the Zoological Museum Hamburg (ZMH R04419) and was examined for this study. All three have the same locality as the holotype.

Through the recognition of *Agama colonorum* as a replacement name for *Lacerta agama* LINNAEUS, 1758 by DAUDIN (1802), *A. colonorum usambarae* was regarded as a subspecies of *Agama agama* and believed to be endemic to the Usambara Mountains (BROADLEY & HOWELL 1991) in Tanzania. After the overdue separation of the *Agama lionotus* complex from *Agama agama* sensu strictu by BÖHME et al. (2005), its taxonomic status was changed to *Agama lionotus usambarae*. Since its description nobody

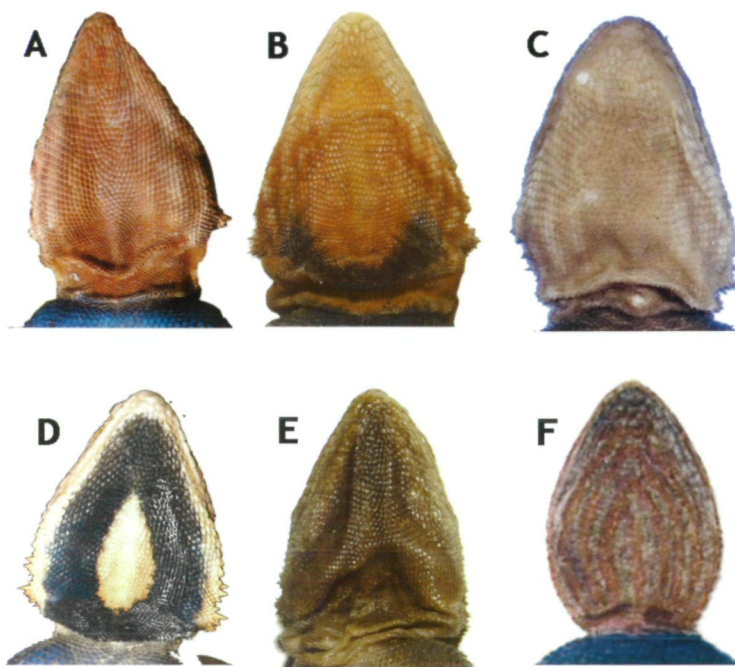


Fig. 1: Colour pattern of the throat of adult males of the *Agama lionotus* complex.

A – *A. l. lionotus* (ZFMK 83646); B – *A. l. elgonis* (ZFMK 82065); C – *A. l. usambarae* (holotype MCZ R-24129); D – *A. l. dodomae* (ZFMK 83706); E – *A. l. ufipae* (holotype MCZ R-30741); F – *A. l. usambarae* (original drawing of the holotype). ZFMK - Zoologisches Forschungsmuseum Alexander Koenig, Bonn.

has worked on the taxon and additional material was apparently not collected. So, *Agama l. usambarae* is only known from the type series.

In the original description, the type series was compared with 32 specimens of *Agama agama* from West and Central Africa (Senegal, Liberia, Cameroon, Gabon and Congo), with the following results: The type series showed (1) much broader head of old males; (2) more depressed body, though not as depressed as in *lionotus*; (3) median rows of dorsal scales less keeled than in the typical '*colonorum*'; (4) dorsal scales only slightly mucronate, not ending in such long spines as in '*colonorum*'; and (5) crimson coloring of the head of males as against the brick-red of Liberian specimens.

Only the second character refers to the nominate form of *A. lionotus* as currently recognized, but the authors did not define the subspecies used in their comparison. All other characteristics refer to typical '*Agama*

*colonorum*' (= *Agama agama* sensu strictu), because the comparative material was from West and Central Africa and did not include East African specimens. The examination of the type material clearly indicates that *A. lionotus usambarae* belongs to the *Agama lionotus* complex, so it was only to be compared with the subspecies referred to as *Agama lionotus*. BÖHME et al. (2005) regarded the following taxa belonging to this complex: *A. lionotus lionotus* BOULENGER, 1896; *A. lionotus dodomae* LOVERIDGE, 1923; *A. lionotus elgonis* LÖNNBERG, 1922; *A. lionotus ufipae* LOVERIDGE, 1932; and *A. l. usambarae*. These subspecies are easily distinguished by the color pattern of the throat of adult males (see Fig. 1). The nominotypical subspecies has a crimson coloration with darker V-shaped lines following the outline of the lower jaw. *Agama l. elgonis* displays the same coloration, however with a dark U-shaped bar on the base of the throat. In contrast, *Agama l. dodomae* has a



Fig. 2: The underside of adult males of the *Agama lionotus* complex.

From left to right: *A. l. ufipae* (holotype MCZ R-30741); *A. l. dodomae* (ZFMK 83706); *A. l. elgonis* (ZFMK 82065); *A. l. lionotus* (ZFMK 83646) and *A. l. usambarae* (paratype ZMH R04419).

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dark metallic-blue throat with a cream to red colored central rhombus. *Agama l. ufipae* shows a uniform dark, throat, in nature probably also metallic-blue with three dots at the base. From this broad scale comparison, *A. l. usambarae* is most similar to the nominotypical form and has to be compared with the latter in detail. Already BARBOUR & LOVE-RIDGE (1928) pointed out that the characters length of the longest spines in the ear region relative to the diameter of tympanum and the elongate scales on the middle of the snout are of little discriminating value because of high variability.

In general, African agamids show high variation in scale counts. In a series of 64 specimens of *Agama l. lionotus* the scale counts around midbody vary between 67 and 91, with an average of 76.8 in the males and 75.6 in the females (BURMANN 2006 and own unpubl. data). In this respect the type series of *Agama l. usambarae* varies from 70 to 80 with an average 76 in the males and 74 in the females. Hence, the values of the

type series lie within the range of the counts of *A. l. lionotus* and have nearly the same averages. This is also true with the preanal pores. Males of *A. l. lionotus* have usually one row (sometimes two rows) with 10 to 16 pores (15 to 29 if there are two rows) and an average of 12.6 pores per row. The holotype of *A. l. usambarae* presents a single row of 12 preanal pores and there are 10 to 14 with an average of 12 in a single row in the paratypes.

On the basis of the above counts, the distinction of the nominal subspecies *lionotus* and *usambarae* is not warranted. A more useful discriminating character in the *lionotus* complex seems to be the coloration in adult males, especially of the throat. However, as mentioned above, the color pattern of the throat is the same in *A. l. usambarae* and the nominotypical subspecies. The same applies to the tail which is ultramarine at the base followed by a narrow white and ultramarine banding in all taxa of the *A. lionotus* complex.

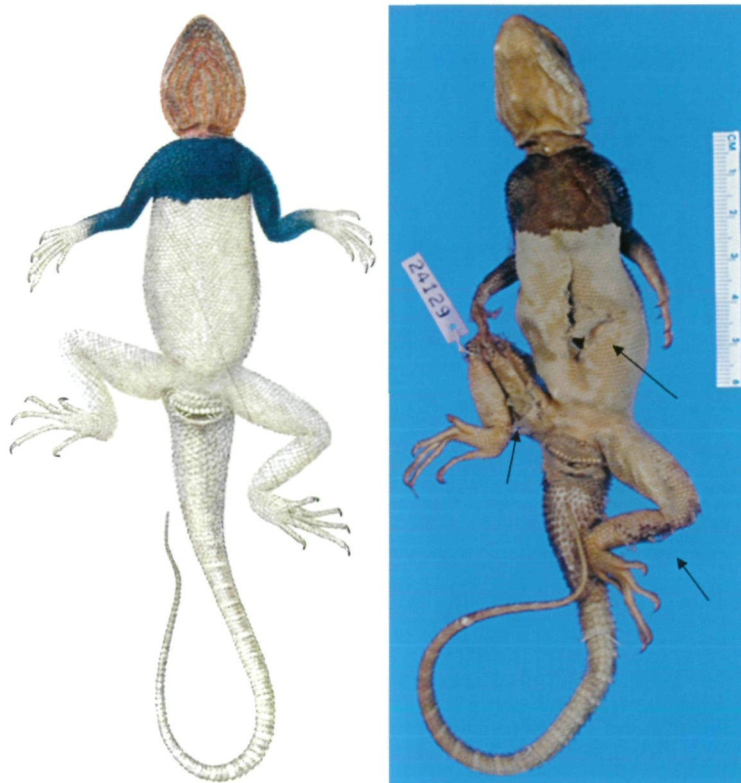


Fig. 3: The underside of *Agama lionotus usambarae* BARBOUR & LOVERIDGE, 1928 according to the original drawing (left) and as presently shown by the preserved holotype (MCZ R-24129, right); the arrows point to areas of skin shedding.

The only difference in color pattern between *Agama l. lionotus* and the holotype of *Agama l. usambarae* is the strikingly dichromatic underside in the latter (see Fig. 3). As mentioned in the original description, the breast of the type, including underside of fore limbs to wrist and from gular fold to an imaginary straight line between the axillas, is ultramarine in color. The rest of the belly, excluding the base of the tail, is white, as is depicted in the original description (see Fig. 3). This is in fact different from the uniform ultramarine underside of *Agama l. lionotus*. However, BARBOUR & LOVERIDGE (1928) mentioned that in the paratype series one specimen has an inverse coloration and in the remaining adults the whole belly, except a median preanal patch, is bright ultramarine in color. Closer examination of the holotype clearly shows (see

arrows in Fig. 3) that its dichromatic ventral coloration is in fact an artifact due to skin shedding and a comparison between the paratype and vouchers of the *A. lionotus* group did not show any differences (see Fig. 2).

In view of these observations, *Agama lionotus usambarae* BARBOUR & LOVERIDGE, 1928 is not a valid subspecies and has to be regarded as a synonym of *Agama lionotus lionotus* BOULENGER, 1896.

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## First record of *Hemidactylus mindiae* BAHÄ EL DİN, 2005 from Jordan

*Hemidactylus turcicus turcicus* (LINNAEUS, 1758) was traditionally believed to be the only Jordanian taxon of the genus *Hemidactylus* OKEN, 1817. It is considered as a common reptile species distributed widely in all main ecozones of Jordan (e.g. DISI 1996; DISI & AMR 1998; DISI et al. 1999, 2001, 2004). However, the situation seems to be more complex. Using mitochondrial DNA sequences, CARRANZA & ARNOLD (2006) found 4.4 % genetic divergence between their specimens from Dair al Khaf (32°19'N, 36°53'E; northern Jordan) and Wadi al Burbeytah (30°59'N, 35°42'E; central part of western Jordan) and all other investigated samples of *H. t. turcicus* which covered an essential part of the range of this form. This finding indicates that the taxonomic status of the Jordanian form of *H. turcicus* is not clear.

CARRANZA & ARNOLD (2006) used the name *Hemidactylus turcicus lavadeserticus* MORAVEC & BÖHME, 1997 for the specimen of *Hemidactylus* originating from Dair al Khaf. However, determination of this individual was not based on an appropriate examination of the relevant material. *Hemidactylus t. lavadeserticus* was described

from southern Syria from the area of the black lava desert east of Jabal Duruz (ca. 30 km northwest of the Jordanian border) and its occurrence in the basalt desert of Jordan and Saudi Arabia has been expected (MORAVEC & BÖHME 1997). The three specimens of *Hemidactylus* collected at Dair al Khaf (margin of basalt area of northern Jordan), which are deposited in the collection of the National Museum in Prague (NMP6V 72130/1–3) and include also the specimen sequenced by CARRANZA & ARNOLD (2006) resemble *H. t. lavadeserticus* in colouration. A similar colour form can be found also among the three specimens (NMP6V 72131, 72740/1–2) obtained from the nearby locality of Jawa (32°20'N, 37°02'E). Nevertheless, all these individuals clearly differ from the type specimens of *lavadeserticus* (NMP6V 34831/1, 35540/1–4; ZFMK 64409) in the following morphological features (measurements in mm): larger body size (max. male SVL = 49.5 versus 48.0, max. female SVL = 50.5 versus 48.5); less depressed head (head depth: 44.4–54.8 % of head length measured from snout to posterior edge of ear opening,  $n = 6$  versus 35.8–44.6 %,  $n = 6$ ); larger and more prominent dorsal tubercles; lower number of lamellae under 1st toe (6–7,  $n = 6$  versus 7–8,  $n = 6$ ) and 4th toe (10–11,  $n = 6$  versus 10–12,  $n = 6$ ); higher number of preanal pores (7–8,  $n = 2$  versus 6,  $n = 3$ ); higher number of tail segments bearing 6 tubercles ((3)6–8,  $n = 5$  versus 2–5,  $n = 6$ ); and anterior postmentals being in contact with 1st lower labials ( $n = 6$ , there is a punctual contact with the 2nd lower labial on the left side in NMP6V 72740/1). Thus, the occurrence of *H. t. lavadeserticus* in Jordan remains to be proved.

Recently, BAHÄ EL DİN (2005) described a new gecko *Hemidactylus mindiae* BAHÄ EL DİN, 2005 from the mountain range of southern Sinai. A thorough examination of the material of *Hemidactylus* available from the area of southern Jordan revealed occurrence of this species (Fig. 1) also within the Jordanian borders. In all, five voucher specimens of *H. mindiae* from two localities are deposited in the collection of the National Museum Prague: NMP6V 71323/1–2, 1 female, 1 subadult, Jordan, Jabal Ghazali, 29°31'N, 35°25'E, 16–26 June 2000, Leg. D. MODRÝ; NMP6V 72739/

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