

New record, range extension, and colouration in life of *Langaha pseudoalluaudi* (Reptilia: Colubridae) in north-western Madagascar

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Abstract

I present photographic records of a female *Langaha pseudoalluaudi* at Ankarafantsika National Park in north-western Madagascar. Until now this species was only known from the type specimen, which was collected in the region of Ambilobe in 1966. The colouration in life of *L. pseudoalluaudi* is greyish brown with brownish transverse markings, very similar to that of its sister taxon *L. alluaudi* from the south and southwest of Madagascar. The new record extends the distribution of *L. pseudoalluaudi* by 360 km to the southwest, demonstrating that this taxon is not restricted to north of the Sambirano rainforest belt. This indicates that speciation of the species pair *L. alluaudi* - *L. pseudoalluaudi* may have occurred along a north-south axis in western Madagascar.

Key words: Reptilia: Squamata: Colubridae: *Langaha pseudoalluaudi*; distribution; colouration in life; Madagascar.

The snake genus *Langaha* (Colubridae), endemic to Madagascar, is one of the most conspicuous snake genera. Both sexes have a protruding scaly annex at the front of the snout. In the female this nasal appendage is of leaf-like shape, becoming broader to the front and flattened transversely, but males have a spear-like, sharpened protrusion. Three species are known: *Langaha madagascariensis* BONATERRE, 1790, which has been collected from all regions of Madagascar, including Ankarafantsika; *Langaha alluaudi* MOCQUARD, 1901, which is known from the south and south-west of Madagascar (Menabe), and *Langaha pseudoalluaudi* DOMERGUE, 1988 which is only known from its type locality, region of Ambilobe, in the north of Madagascar (GLAW & VENCES 1994). Females of *L. alluaudi* and *L. pseudoalluaudi* have jutting supraocular scales, which *L. madagascariensis* has not. The protruding leaf-like nasal appendage of *Langaha alluaudi* females projects straight forward and arches slightly downwards laterally, whereas in *L. pseudoalluaudi* females the strongly arched nasal appendage projects in a slight angle upwards relative to the horizontal plane of the head. The nasal appendage is shorter in *L. pseudoalluaudi* than in *L. alluaudi* (DOMERGUE 1988), giving the head an overall shorter and more stunted appearance.

Langaha madagascariensis is the best known of the three species and does not seem to be particularly rare, although these arboreal snakes are cryptic and hard to find. This species is also exported for the international trade and kept in various public and private collections. *Langaha alluaudi* is much less known, so far only one photo of a live specimen has been published (BRADT et al. 1996, GARBUTT et al. 2001; see Fig. 1). So little information is available on that species that the "conservation assessment and management planning" meeting in Madagascar in May 2001 could not evaluate its conservation status and had to classify it as "insufficiently known" (CONSERVATION BREEDING SPECIALIST GROUP SSC/IUCN 2002). However, we know even less of *Langaha pseudoalluaudi*, one of the most enigmatic snakes of Madagascar: so far the species is only known from the type specimen, a female, which was collected in the region of Ambilobe in 1966 (DOMERGUE 1988).

On 1 June 2001 at 11 in the morning I found a presumably adult female snake of the genus *Langaha* with jutting supraocular scales on the ground, crossing an ox-cart track in a grassy patch of a degraded forest area in the northernmost corner of Ankarafantsika National Park, to the south-east of the village Beronono. I documented the specimen photographically, but could not take measurements and left it at the place where I had found it. Figures 2 and 3 show the head of that specimen. The strongly arched nasal appendage projects in a slight angle upwards from the head that has horn-like, jutting supraocular scales. These head structures conform to those of the head drawings in the original description of *L. pseudoalluaudi* (DOMERGUE 1988) and identify the specimen as belonging to that taxon. In comparison, a *L. alluaudi* female from the forest of Amborompotsy north of Morondava (Fig. 1) has a less arched, horizontal leaf-like nasal appendage which projects straight forwards, not in an angle upwards.

The bizarre head structures make *L. pseudoalluaudi* one of the most spectacular snakes of the world. If its head is viewed from the front, the appendages effectively dissolve the contours of the head and it is hard to recognise it as a snake head, it rather looks like the rotten stump of a twig. If *L. pseudoalluaudi* approaches its prey and focuses on it, the prey may have difficulties to recognise the snake visually. The prey of *L. pseudoalluaudi* is not known, but possibly includes lizards: captive *L. madagascariensis* for example accepted anoles, geckos and small mice (GLAW & VENCES 1994).

GLAW & VENCES (1994: 340) describe the colouration of *L. pseudoalluaudi* as “uniformly greyish brown”, in contrast to the colouration of *L. alluaudi* females, which they describe as “greyish brown with brownish transverse markings” (see Fig.1). The colouration and colour pattern of the specimen at Ankarafantsika (Fig. 4) does not fit this concept: the specimen is definitely not uniformly greyish brown, its colouration and colour pattern resembles more or less that of *L. alluaudi* - greyish brown with brownish transverse markings. However, in his original description of *L. pseudoalluaudi* DOMERGUE (1988: 143) already wrote: “Coloration brun gris, plus ou moins foncé suivant les zones, remarquablement homochrome des écorces d’arbre; elle est semblable à celle de *L. alluaudi*”. Thus, DOMERGUE (1988) did not describe the colouration of *L. pseudoalluaudi* to be “uniform” as suggested by GLAW & VENCES (1994), but to be “more or less dark depending on the zone”, and DOMERGUE already pointed out that the colouration of *L. pseudoalluaudi* is similar to that of *L. alluaudi*. The type specimen of *L. pseudoalluaudi* had been collected in 1966, but the species was only described in 1988. By then, colouration details may have lost clarity through preservation. According to DOMERGUE’s (1988) description I assume that, in life, the type specimen had a similar colouration and colour pattern to that of the Ankarafantsika specimen. The colouration and colour pattern of the Ankarafantsika specimen is not in conflict with the original description of *L. pseudoalluaudi*.

DOMERGUE (1988) points out that *L. alluaudi* is only known from the south and southwest of Madagascar, whereas *L. pseudoalluaudi* occurs in the north of the island, indicating that *L. alluaudi* and of *L. pseudoalluaudi* may be allopatric sister taxa. The type locality of *L. pseudoalluaudi* is the “région d’Ambilobe”. Ambilobe is in an area of dry to mesic deciduous forest just to the north of the Sambirano rainforest belt that separates the dry forests of the north from those of the west. Until now the distribution of the species pair suggested that speciation may have occurred through separation

of the two dry forest taxa by the Sambirano rainforest belt. This theory would be in agreement with RAXWORTHY & NUSSBAUM's (1994) suggestion that the distributional patterns of species-pairs of the snake genus *Pseudoxyrhopus* indicate speciation from regional, elevational, and relictual allopatry.

The new record of *L. pseudoalluaudi* in the northern most corner of Ankarafantsika National Park extends the known distribution of the species by 360 km to the southwest. Ankarafantsika and Ambilobe both belong phytogeographically to the Western Domain with dry deciduous forest as natural vegetation (KOECHLIN 1972). However, the Sambirano rainforest belt separates the two recorded localities of *L. pseudoalluaudi*. This suggests either that *L. pseudoalluaudi*, similar to *L. madagascariensis*, is not restricted to dry deciduous forests and also occurs in rainforest, or that the current distributional pattern reflects earlier corridors of dry deciduous forest through the Sambirano which served as dispersal corridors. More field data will be needed to answer this question, but several arid-habitat reptile species are presently isolated on either side of the Sambirano, including *Furcifer oustaleti*, *Oplurus cuvieri*, *Zonosaurus laticaudatus*, *Leioheterodon modesta*, and *Heteroliodon lava* (NUSSBAUM & RAXWORTHY 2000).

The northern-most known locality for *L. alluaudi* is Menabe (GLAW & VENCES 1994), close to 500 km to the southwest of Ankarafantsika, but phytogeographically also part of the Western Domain. The species pair of *L. alluaudi* and *L. pseudoalluaudi* is reminiscent of another pair of colubrid snake taxa: *Heteroliodon occipitalis* and *H. lava* show respective distributions in the south and southwest and west and northwest; as it is the case with *L. pseudoalluaudi*, *H. lava* is also known from only two specimens, one from Ankarana Special Reserve to the north of the Sambirano and the second from Antsalova in the west (NUSSBAUM & RAXWORTHY 2000). Although more distribution data will be needed to clarify the zoogeographic relationships of these snake taxa, the current indication is for both species pairs that speciation occurred along a north-south axis in western Madagascar. This region is phytogeographically relatively homogeneous and barriers of dispersal for snakes are currently not obvious. These unresolved issues underline the importance of more herpetological research in the west of Madagascar.

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Neunachweis, Arealerweiterung und Lebendfärbung von *Langaha pseudoalluaudi* (Reptilia: Colubridae) im nordwestlichen Madagaskar

Die Gattung *Langaha* (Colubridae) umfasst drei Arten: *Langaha madagascariensis* BONATERRE, 1790, die in allen Regionen Madagaskars gefunden wird, einschließlich dem Ankarafantsika National Park; *Langaha alluaudi* MOCQUARD, 1901, die vom Süden und Südwesten Madagaskars (Menabe) bekannt ist, und *Langaha pseudoalluaudi* DOMERGUE, 1988, die nur von der terra typica bekannt ist, der Region von Ambilobe in Nordmadagaskar (GLAW & VENCES 1994). Das



Fig. 1. Dorso-lateral view of head of *Langaha alluaudi*, forest of Amborompotsy, 1990. Photo: QUENTIN BLOXAM.

Dorso-laterale Kopfansicht von *Langaha alluaudi*, Wald von Amborompotsy, 1990. Foto: QUENTIN BLOXAM.



Fig. 2. Lateral view of head of *Langaha pseudoalluaudi*, Ankarafantsika.

Seitliche Kopfansicht von *Langaha pseudoalluaudi*, Ankarafantsika.



Fig. 3. Dorso-lateral view of head of *Langaha pseudoalluaudi*, Ankarafantsika.
Dorso-laterale Kopfansicht von *Langaha pseudoalluaudi*, Ankarafantsika.



Fig. 4. Dorsal view of *Langaha pseudoalluaudi*, Ankarafantsika.
Dorsalansicht von *Langaha pseudoalluaudi*, Ankarafantsika.

Typusexemplar von *L. pseudoalluaudi*, ein Weibchen, wurde 1966 gesammelt. Im Unterschied zu *L. alluaudi* ist der blattartige Nasenfortsatz etwas kürzer und projiziert relativ zum Kopf nicht gerade nach vorne, sondern in einem Winkel nach oben.

Ich bringe Fotonachweise einer weiteren weiblichen *L. pseudoalluaudi* vom Ankarafantsika-Nationalpark im nordwestlichen Madagaskar. Die bisher nicht dokumentierte Lebendfärbung von *L. pseudoalluaudi* ist graubraun mit transversalen, bräunlichen Flecken, sehr ähnlich der Färbung ihres Schwestertaxons *L. alluaudi* aus Süd- und Südwest-Madagaskar. Der Neunachweis erweitert die Verbreitung von *L. pseudoalluaudi* um 360 km nach Südwesten und zeigt, dass dieses Taxon nicht auf das Gebiet nördlich des Sambirano Regenwaldgürtels beschränkt ist. Das weist darauf hin, dass die Artbildung des Paares *L. alluaudi* – *L. pseudoalluaudi* entlang einer Nord-Süd-Achse in West-Madagaskar stattgefunden haben könnte. Diese Region ist phytogeografisch homogen (laubabwerfender Trockenwald) und es sind heute keine Verbreitungsbarrieren für Schlangen erkennbar.

Schlagwörter: Reptilia: Squamata: Colubridae: *Langaha pseudoalluaudi*; Verbreitung; Lebendfärbung; Madagaskar.

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