

Rediscovery and range extension of the Guinean skink *Trachylepis keroanensis* (Chabanaud, 1921) (Reptilia: Squamata: Scincidae)

**Johannes Penner^{1,2,*}, Joseph Doumbia³, N’Goran Germain Kouamé⁴, Laurent Chirio⁵,
Laura Sandberger-Loua¹, Wolfgang Böhme⁶ & Michael F. Barej¹**

¹ Museum für Naturkunde, Leibniz Institute Evolution and Biodiversity Science, Invalidenstr. 43, D-10115 Berlin, Germany

^{2,*} Corresponding author: University of Freiburg, Chair of Wildlife Ecology & Management, Tennenbacher Str. 4,
D-79106 Freiburg, Germany; johannes.penner@wildlife.uni-freiburg.de

³ Envisud Guinée; Quartier: Kipé T2 commune de Ratoma; 030BP:558 Conakry; République de Guinée

⁴ Jean Lorougnon Guédé University, UFR-Environnement, Department of Biology & Animal Physiology,
Daloa, BP 150, Côte d’Ivoire

⁵ P.O. Box 87811, Riyadh 11652, Saudi Arabia

⁶ Zoologisches Forschungsmuseum Alexander Koenig, Leibniz Institute of Animal Biodiversity, Adenauerallee 160,
D-53113 Bonn, Germany

Abstract. We report the rediscovery of the skink *Trachylepis keroanensis* (Chabanaud, 1921) 90 years after its description. For the first time pictures of live specimens are shown and the known, now extended, distribution is presented. The clear morphological differences (body shape, colouration and most notably ratio tail length to body length) towards *Trachylepis perrotetii* (Duméril & Bibron, 1839), which justify the species status, are confirmed.

SHORT NOTE

On the African continent and neighbouring areas, the genus *Trachylepis* is the most speciose one in the family Scincidae. The genus currently holds at least 80 taxa (Uetz et al. 2017) and occurs in all major biomes. However, taxonomy of many species is unresolved and likely to change in the future.

In West Africa twelve species of the genus *Trachylepis* are known, out of which eight can be found in Guinea (Böhme et al. 2011; Trape et al. 2012). Most of them are widespread and locally abundant. One exception is *Trachylepis keroanensis* (Chabanaud, 1921), which for a long-time was considered a subspecies of *Trachylepis perrotetii* (Duméril & Bibron, 1839).

Trachylepis perrotetii was first described in 1839 by Duméril & Bibron as *Euprepes perrotetii* and is distributed all over West African savannahs, to Central Africa and Sudan (Stoll 2008; Trape et al. 2012). The original description is based on a single specimen from Senegal (MNHN 2928). The genus name changed later to *Mabuya* Fitzinger, 1826; also erroneously spelled *Mabuia* (Cuvier 1829) or *Mabouya* (Duméril & Bibron 1839). See Bauer (2003) for a discussion on the correct genus name.

Nearly one century after the species description, the subspecies *Mabuya perrotetii keroanensis* was described by Chabanaud (1921; therein spelled as “*Mabuia Perroteti keroanensis*”). This author reported a number of herpeto-

logical specimens collected on a survey in south-eastern Guinea. In addition to *Mabuya perrotetii*, which he described as very common in the area, Chabanaud recognised the new taxon which he assumed to be closely related to the latter species. The description is based on two specimens, “Kérouané” was given as the type locality and the two syntypes are deposited in the Muséum d’Histoire Naturelle in Paris, France (MNHN 1921-323 & 1921-324). Distinguishing characters from the nominate taxon were a more slender body shape and a much longer tail in relation to snout-vent length. Moreover, colouration differed. *T. keroanensis* (Chabanaud, 1921) possessed a brown to olive back and brown to black longitudinal lines (Chabanaud 1921). In addition, it exhibited white supralabial scales which lead into a white lateral band ending at the groin. Contrastingly, *Trachylepis perrotetii* (Duméril & Bibron, 1839) was originally described as exhibiting a “brown greyish” dorsal colouration with yellowish blotches (Duméril & Bibron 1839; Fig. 1).

Nearly another century later, the genus name changed from *Mabuya* to *Trachylepis* (Bauer 2003). Recently, Böhme et al. (2011) provided an updated country wide check list for Guinea. In accordance with Stoll (2008) they noted that, based on the two syntypes, *Trachylepis keroanensis* (Chabanaud, 1921) is indeed very different to *Trachylepis perrotetii* (Duméril & Bibron, 1839) and resurrected the species, which was confirmed by Trape et al. (2012). However, in the standard reference database the

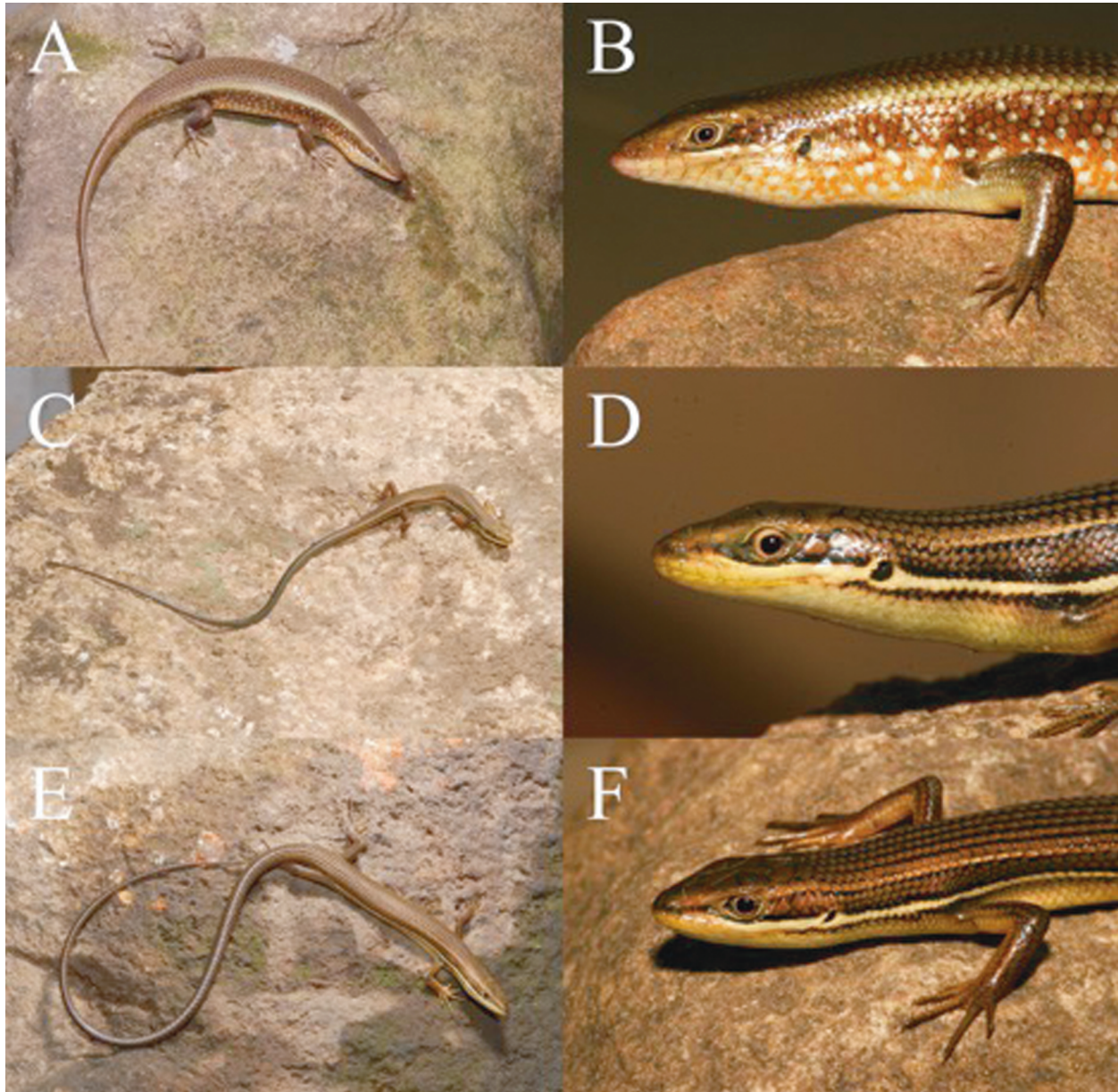


Fig. 1. Photographs of live specimens *Trachylepis perrotetii* (ZMB 83362: A & B) and *Trachylepis keroanensis* (ZFMK 96261: C & D; ZMB 82943: E & F).

taxon is still listed as a subspecies/synonym of *T. perrotetii* (Duméril & Bibron, 1839) (Uetz et al. 2017).

To our knowledge *Trachylepis keroanensis* (Chabanaud, 1921) has not been recorded since its description and was not mentioned anywhere else in the literature. However, the exact number of museum specimens remains unclear because it cannot be ruled out that some specimens of *T. keroanensis* (Chabanaud, 1921) were misleadingly classified as *T. perrotetii* (Duméril & Bibron, 1839). In addition, a second slender skink of similar size and body shape is known from Côte d'Ivoire and further eastwards (Trape et al. 2012) – *Trachylepis buettneri* (Matschie, 1893). *Trachylepis buettneri* was first collected in Bismarckburg (today near Konkoua, prefecture Sotouboua), Togo, and described by Matschie in 1893. Few differences exist (Tab. 1): mainly the black colouration on the back which consists of irregular black spots in *T. buettneri* (Matschie, 1893) (see photograph by Rödel in Trape et al. 2012) and of distinct lines in *T. keroanensis* (Chabanaud, 1921) (Fig. 1). *Trachylepis buettneri* (Matschie, 1893) seems also to be generally larger than *T. keroanensis* (Chabanaud, 1921) (Tab. 1). Head scales are very similar (Fig. 2).

From May to August 2011 three herpetological surveys were initiated in eastern Guinea. On four occasions

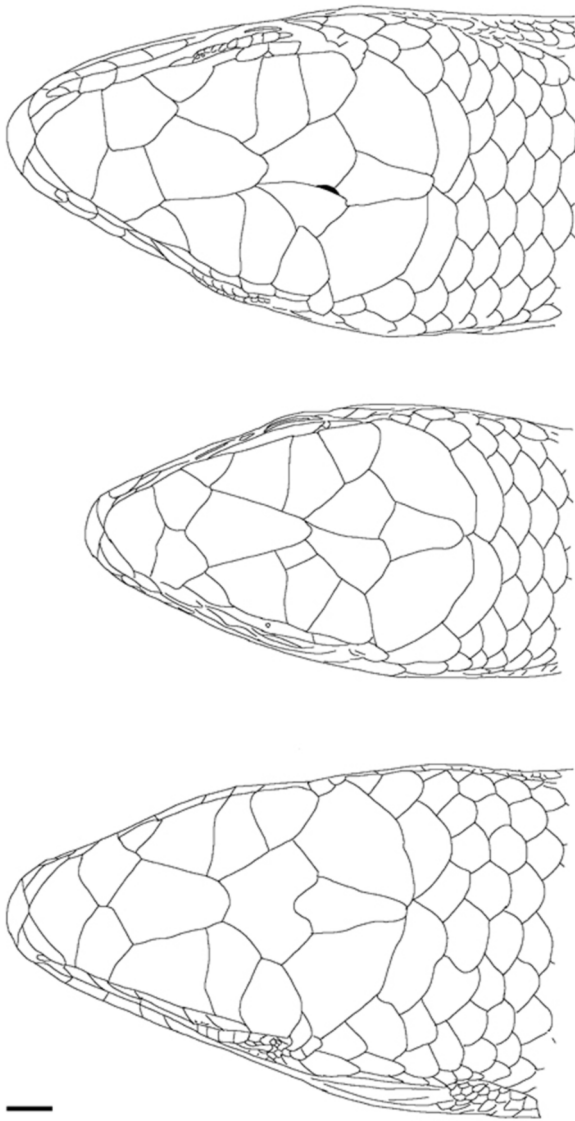


Fig. 2. Details of the dorsal head scales of the three taxa of slender long-tailed skinks. From top to bottom: *Trachylepis keroanensis* (ZMB 82943), *Trachylepis buettneri* (SMNS 08779) and *Trachylepis sudanensis* (AMNH R10934). The scale bar represents 1mm.

(24.6.11, 28.6.11, 18.7.11, 22.12.11) and at four sites *T. keroanensis* (Chabanaud, 1921) was found. Three sites are located around the town of Kérouané thus in close vicinity of the type locality. The fourth one is north of Kissidougou which is a larger town approximately 100km west of Kérouané, Fig. 3. Three specimens were found during the night, sleeping at 1m to 1.5m height in dense and high grasses (*Panicum* sp.) at altitudes of 454m a.s.l., 664m a.s.l. and 701m a.s.l. respectively. Interestingly, *Trachylepis buettneri* (Matschie, 1893) was found under similar circumstances in Comoé National Park in Côte d'Ivoire (Rödel et al. 1997). Specimens were caught by hand, pho-

tographed, euthanised, DNA samples extracted and then fixed in 4% Formaldehyde or 70% Alcohol. A fourth specimen was collected by local villagers in Founoukouroudou (545m a.s.l.) and was preserved as above. Specimens are currently stored in the collections of the Natural History Museums in Bonn (ZFMK), Berlin (ZMB), in the private collection of Laurent Chirio (Tab. 1) and in Paris (MNHN, type specimens).

Our records were located close to rivers and fields and place the species in the biome "Open broadleaved deciduous forest", also called Guinean savannah. The precise distribution and ecology remains unknown, and *T. keroanensis* (Chabanaud, 1921) is speculated to be a rare species with a larger distribution. Recently, this species was also recorded from Mali (Kayes Province: Harvey et al., unpublished) and based on the distribution of the biomes we speculate that its distribution might also extend into adjacent areas in Côte d'Ivoire. Whether *T. keroanensis* (Chabanaud, 1921) occurs in sympatry with *T. buettneri* (Matschie, 1893) or whether the two species exclude each other is also unclear. Furthermore, the exact taxonomic relationships between *T. perrotetii* (Duméril & Bibron, 1839), *T. buettneri* (Matschie, 1893), *T. keroanensis* (Chabanaud, 1921) and *T. sudanensis* (Schmidt, 1919) (a third skink of similar body shape to *T. buettneri* (Matschie, 1893) and *T. keroanensis* (Chabanaud, 1921), currently regarded as a synonym of *T. buettneri* (Matschie, 1893); see Uetz et al. 2017) require further investigations (Böhme et al. 2011).

Trachylepis sudanensis was described from Faradje, Garamba, South of Garamba River, Uele region and Yakuluku all in Sudan (Schmidt 1919) and according to the original description lacks the distinct dorsal colouration (present in *T. buettneri* and *T. keroanensis* (Chabanaud, 1921)). In the following we summarise the current knowledge.

Our findings confirm distinctness on the species level of *T. keroanensis* (Chabanaud, 1921) and *T. perrotetii* (Duméril & Bibron, 1839). The main distinguishing characters are body shape (slender in *T. keroanensis* (Chabanaud, 1921) and stout in *T. perrotetii* (Duméril & Bibron, 1839), the ratio between tail and body length (between 2.63 and 3.4 in *T. buettneri* (Matschie, 1893), *T. keroanensis* (Chabanaud, 1921) and *T. sudanensis* (Schmidt, 1919) but between 1.57 and 1.68 in *T. perrotetii* (Duméril & Bibron, 1839) as well as the different colourations. Colouration of live specimens is that only *T. perrotetii* (Duméril & Bibron, 1839) has regular white spots on the lateral side with a brown background on the upper half and an orange to yellow lower background on the lower half (Fig. 1). The other three species have a distinct white line on the lateral side but different dorsal colourations: black spots in *T. buettneri* (Matschie, 1893), black lines in *T. keroanensis* (Chabanaud, 1921) and uniform brownish in *T. sudanensis* (Schmidt, 1919).

Table 1. Selected measurements for the four species discussed. Literature records for *T. perrotetii* were chosen so that they represent proximate populations. The column “source” gives the collection numbers for the new specimens of *Trachylepis keroanensis* or the literature source (1 = Trape et al. 2012; 2 = Schmidt 1919). * Is a specimen in the private collection of Laurent Chirio. The following abbreviations (all measurements in mm) are used: ToLe = total length, SVL = snout-vent length, TaL = tail length, TaL/SVL = ratio of tail to body, HL = head length, HW = head width, SAM = scales around midbody, FLL = fore limb length, HL = hind limb length, SupC = number of supraciliar scales; R = right, L = left.

Species	Source	ToLe	SVL	TaL	TaL/SVL	HL	HW	SAM	FLL	HLL	SupC
<i>T. buettneri</i>	(1)	350	81	269	3.32	ND	ND	26 (rarely 28)	ND	ND	3–6 (mostly 5)
<i>T. keroanensis</i>	ZMB80183	238	56	182	3.25	11.7	7.8	29	22.1R	26.7R 22.0L	4 26.7L
<i>T. keroanensis</i>	ZMB82943	228	60	168	2.80	10.6	7.3	28	20.2R 20.3L	26.5R 26.4L	6
<i>T. keroanensis</i>	ZFMK92661	178	49	129	2.63	9.0	6.0	28	15.1R 15.2L	20.0R 19.8L	4
<i>T. keroanensis</i>	9114X*	NA	61.5	NA	NA	11	7.6	28	20.2R 20.1L	25.2R 25.2L	5/5
<i>T. keroanensis</i>	(1)	230	ND	ND	ND	ND	ND	28	ND	ND	5
<i>T. sudanensis</i>	(2)	257.3 (221–304) [n=8]	58.5 (50–78) [n=10]	199.1 (192–226) [n=8]	3.40 (2.90–3.84)	12.7 (11.7–15.0) [n=10]	7.8 (7.0–9.0) [n=10]	26 [n=8] or 28 [n=2]	18.1 (16–21) [n=10]	22.5 (20–25) [n=10]	5–7
<i>T. perrotetii</i>	(1)	420	157	263	1.68	ND	ND	28–30 30–32 32–36	ND	ND	6
<i>T. perrotetii</i>	(2)	232.8 (123–310) [n=17]	91.5 (47–123) [n=27]	143.6 (76–192) [n=17]	1.57 (1.56–1.62)	20.4 (11.5–28.0) [n=27]	13.5 (7–19) [n=27]	32–34 [n=27]	26.0 (14–33) [n=27]	33.3 (17–41) [n=27]	ND

Tissue samples of the morphologically similar *T. buettneri* (Matschie, 1893) (and topotypic material from its synonym *T. sudanensis* (Schmidt, 1919)) are not available, so herein we cannot revise the respective taxa but point out some morphological characters currently applied to distinguish the *Trachylepis* taxa of interest. The conservation status of *T. keroanensis* (Chabanaud, 1921) is unclear. Thus it is currently listed as “Data Deficient” on the IUCN global Red list (IUCN 2016) due to the absence of ecological information. The species is very rarely encountered in the field, suggesting that it might be threatened due to a possible low density and restricted distribution range. However, it is completely unclear what natural abundances are and how the species can cope with the current anthropogenic alterations of its habitat.

Acknowledgements. We would like to thank all field guides and involved parties who made the surveys possible. Our gratitude also includes the Guinean authorities who issued the relevant permits. Lauren Vonnahme (AMNH) kindly provided photographs of *Trachylepis sudanensis*. Andreas Schmitz and one anonymous reviewer provided helpful comments.

REFERENCES

- Arino O, Ramos Perez JJ, Kalogirou V, Bontemps S, Defourny P, Van Bogaert E (2012) Global Land Cover Map for 2009 (GlobCover 2009). European Space Agency (ESA) & Université Catholique de Louvain (UCL)
- Bauer AM (2003) On the identity of *Lacerta punctata* Linnaeus, 1758, the type species of the genus *Euprepis* Wagler, 1830, and the generic assignment of Afro-Malagasy skinks. *African Journal of Herpetology* 52: 1–7
- Böhme W, Rödel M-O, Brede C, Wagner P (2011) The reptiles (Testudines, Squamata, Crocodylia) of forested southeast of the Republic of Guinea (Guinée forestière), with a country-wide checklist. *Bonn zoological Bulletin* 60: 35–61
- Chabanaud P (1921) Contribution à l'étude de la faune herpétologique de l'Afrique Occidentale. *Bulletin du Comité d'Études Historiques et Scientifiques de l'Afrique Occidentale Française*. 445–472
- Cuvier, GJL (1829) *Le Règne Animal Distribué, d'après son Organisation, pour servir de base à l'Histoire naturelle des Animaux et d'introduction à l'Anatomie Comparée*. Nouvelle Edition [second edition]. Vol. 2. Les Reptiles. Dèterville, Paris, 406pp
- Duméril AMC, Bibron G (1839) *Erpétologie Générale en Histoire Naturelle Complète des Reptiles*. Vol.5. Roret/Fain et Thunot, Paris 871 pp

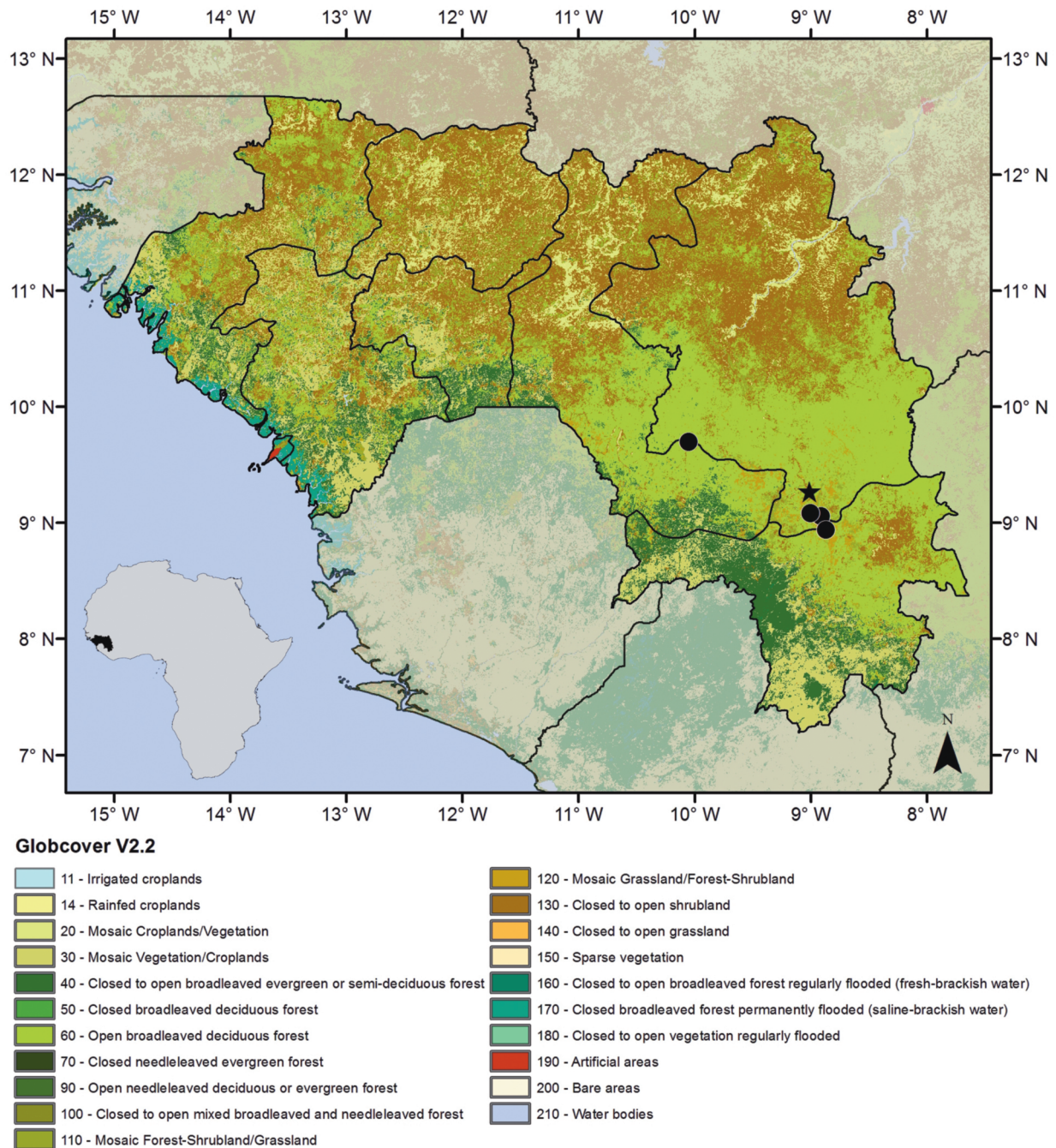


Fig. 3. Known occurrence records for the skink *Trachylepis keroanensis* in Guinea (its location on the African continent is depicted in black in the bottom left corner). Underlying is the global land cover map of 2009 (after Arino et al. 2012). The star represents the city of Kérouané.

Fitzinger LI (1826) Neue Classification der Reptilien nach ihren natürlichen Verwandtschaften. Nebst einer Verwandtschaftstafel und einem Verzeichnisse der Reptilien-Sammlung des K.K. Zoologischen Museums zu Wien. JG Heubner, Vienna, 66 pp

IUCN (2016) The IUCN Red List of Threatened Species 2016-3 Online at <http://www.iucnredlist.org/> last accessed on April 05, 2017

Matschie P (1893) Einige anscheinend neue Reptilien und Amphibien aus West-Afrika. Sitzungsberichte der Gesellschaft Naturforschender Freunde zu Berlin 6: 170–175

Rödel M-O, Grabow K, Hallermann J, Böckheler C (1997) Die Echsen des Comoé-Nationalparks, Elfenbeinküste. Salamandra 33: 225–240

Stoll F (2008) Taxonomie afrikanischer Skinke: Morphologie und Variation von *Trachylepis affinis* und *Trachylepis perroti*

- tetii* (Reptilia; Squamata; Scincidae). Unpublished MSc Thesis, TU Darmstadt 128 pp
- Trape J-F, Trape S, Chirio L (2012) Lézards crocodiles et tortues d'Afrique occidentale et du Sahara. IRD Éditions Marseille 503 pp
- Schmidt KP (1919) Contributions to the Herpetology of the Belgian Congo based on the Collection of the American Congo Expedition, 1909–1915. Part I: turtles, crocodiles, lizards, and chamaeleons. Bulletin American Museum of Natural History 39: 385–624
- Uetz P, Hallermann, J., Hošek, J (2017) The reptile database. Online at <http://www.reptiliaweb.org/> last accessed on April 05, 2017