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Amphibiens d'Afrique centrale et d'Angola. Clé de détermination illustrée des amphibiens du Gabon et du Mbini. Illustrated identification key of the amphibians from Gabon and Mbini

by Thierry Frétey, Maël Dewynter, and Charles P. Blanc. Éditions Biotope, Mèze (www.biotope.fr)/Muséum national d'Histoire naturelle, Paris (www.mnhn.fr). 232 pp. Softcover. 85 Euros (approximately US \$107). ISBN 978-2-914817-51-6.

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As its title indicates, this new opus provides an overview of the batrachofauna of Central Africa (Cameroon, Central African Republic, Gabon, Democratic Republic of Congo, Equatorial Guinea, Republic of Congo, and São Tomé and Príncipe) and Angola. It also offers an identification key to the amphibians of Gabon and Mbini (the continental part of Equatorial Guinea)—a most welcome and useful addition, since a key for these countries has not thus far been available.

The book is divided into six chapters (the first five exclusively in French), respectively presenting: a brief introduction to the geography of the area covered (pages 10–16), a list of the amphibian species of the area, with a synthetic table showing their occurrence in the countries treated (pp. 17–45), a zoogeographical analysis of the Central African batrachofauna (pp. 46–62), remarks on conservation aspects (pp. 63–64, 97–101), natural history notes on species from Gabon and Equatorial Guinea (pp. 102–109), and an identification key to amphibians of Gabon and Mbini, in French (pp. 111–166) and in English (pp. 168–205), abundantly illustrated by good black and white drawings. On pages 65–96, color plates show good photographs of main ecological habitats and of 60 species in life, some of them illustrated by several photographs. The book is printed on glossy, high-quality paper and is solidly bound. The bibliography includes 636 references. It is followed by a section classifying references by country, an extremely useful feature if one wishes to build a good reference library on given countries.

The second chapter, on the distribution of amphibians, provides data at the species level, without details on the distribution of subspecies. The table listing species' distributions also lists synonyms. Frétey (pers. comm.) kindly drew our attention to a mistake in the synonymy provided for *Conraua goliath* (Boulenger, 1906) (Ranidae): *Rana (Conraua) niedeni* Parker, 1936 is not a synonym of the latter species, but of *C. robusta* Nieden, 1908. This chapter includes an interesting section on the rare species that should be searched for, mostly because they are still known only from their type series. Regarding *Leptodactylodon blanci* Ohler, 1999 (Arthroleptidae), Frétey et al. indicate that it is so far known only from its male holotype, but that Rödel indicated in a personal communication that more Gabonese specimens exist in the Berlin collections; these specimens are actually part of a series that one of us (OSGP) participated in collecting in Moukalaba-Doudou National Park (Burger et al. 2006).

The third chapter, on zoogeography, provides, among other useful features, a map showing the number of amphibian families, genera, and species per country, tables showing the levels of endemism per country, and a table providing details on the sites within the region for which the batrachofauna has been inventoried, including field effort for each. This section is missing references to several Gabonese sites that have been extensively inventoried, including Loango and Moukalaba-Doudou National Parks and the Rabi oilfields (Burger et al. 2006; Pauwels 2009).

The identification key includes all species (but does not treat subspecies) currently recorded from Gabon and Mbini, plus several species known from southern Cameroon and likely to be found in Gabon and Mbini. There is a short but useful introductory section explaining how to use the key. The key was designed for using only external diagnostic characters visible to the naked eye, making it possible to identify live animals in the hand. The key to all species is followed by a section specifically describing the external characters of the *Hyperolius* spp. found in Gabon and Mbini, as a help for these highly variable and difficult to identify frogs. In the English key on page 187, entry 73a, to *Hyperolius ocellatus* Günther, 1859 (Hyperoliidae) wrongly sends the user to Appendix E, as the species is actually dealt with in Appendix I. Entry 117b of the English key, to *Arthroleptis variabilis* Matschie, 1893 (Arthroleptidae) has an unfortunate mistyping: “atypical median clear line” should read “a typical median clear line.” In several instances (entries to *Leptodactylodon* Andersson, 1903 on p. 197 and to *Hyperolius kuligae* Mertens, 1940 on p. 202) in the English key, the word “large” has been used while the authors actually meant “broad,” due to a “false friend” translation from French. The English part of the book would have certainly benefitted from a language review by a native English speaker.

Some taxonomic changes are proposed by Frétey et al. in their book. They place *Leptopelis crystallinoron* Lötters, Rödel & Burger, 2005, an unusual tympanum-less species whose description was based on a single adult female, in the synonymy of *L. brevirostris* (Werner, 1898), with no other justifications than its external resemblance to *L. brevirostris* and the fact that Amiet informed them that he had already observed a *L. brevirostris* that was missing a tympanum on one side of the head, hence they compare *L. crystallinoron* to a “five-legged sheep.” Lötters et al. (2005) had, however, also stressed and illustrated striking differences in vomerine teeth shape. Having collected *L. brevirostris* in Gabon, including at the type locality of *L. crystallinoron* we noticed that *L. crystallinoron* was more massive and had a stronger dorsal granulation than *L. brevirostris*, in agreement with observations made by Lötters et al. (2005). In addition, several

additional *L. crystallinoron* specimens have been collected at the type-locality (Bell et al. 2010; Bell, pers. comm., 2010). It consequently seems that this synonymization by Frétey et al. is unjustified and does not serve to improve the already complex taxonomy of western central African *Leptopelis* spp. Moreover the key will not be usable for identifying *Leptopelis crystallinoron*, as the entry for *L. brevirostris* does not make any mention of *L. crystallinoron* and does not mention the existence of individuals without a tympanum. Similarly, although Frétey et al. treated them as distinct species in their synoptic taxonomic list, they mentioned that *Werneria submontana* Rödel, Schmitz, Pauwels & Böhme, 2004 (Bufonidae) “would be a subspecies of *Werneria preussi* (Amiet, pers. comm.),” and that *Cardioglossa alsco* Herrmann, Herrmann, Schmitz & Böhme, 2005 (Arthroleptidae) is “in all likelihood a synonym of *Cardioglossa pulchra* (Amiet, pers. comm.)” In the species list, page 26, *Cardioglossa manengouba* Blackburn, 2008 is listed as a synonym of *C. oreas* Amiet, 1972, again mostly based on a personal communication by Amiet, as indicated in a short footnote. All these vague statements would have deserved some proper justifications, as such they are just adding taxonomic confusion.

The *Kassina* sp. (Hyperoliidae) from Gabon mentioned by Frétey et al. in the species list (p. 35) and the identification key (pp. 124 and 175) without any further detail actually corresponds to the undescribed *Kassina* sp. mentioned by Burger et al. (2004, 2006) and Pauwels and Rödel (2007) from the Monts Doudou, as confirmed by Frétey (pers. comm.).

As the authors indicate on p. 17, they took into account all available batrachological literature from 1834 to December 2008, with only a few references from early 2009. During the gap between end of 2008 and the publication of the book in 2011, due to a lengthy editing treatment by the publishing house, only one reference was cited because it described three species from the region treated (Barej et al. 2010), and the authors insisted on having it mentioned in an addendum (T. Frétey, pers. comm.).

The map showing the protected areas in Central Africa (p. 98) does not show most of the national parks of Gabon; in 2002 a network of 13 national parks was created, which covers about 11% of the country's territory and houses 86% of the amphibian species known to occur in Gabon (Christy et al. 2008; Pauwels 2008; Pauwels and Rödel 2007).

The absence of commas in the authorships in the literature references renders some references very confusing, especially when there are multiple authors; this reference format, probably imposed by the publishing house, is certainly not to be encouraged.

The literature references list for São Tomé and Príncipe lists Haft and Franzen (1996), but this reference does not appear in the literature cited, so we list it below.

The taxonomical index provides an incomplete list of pages where taxon names appear in the work, for instance the listing of taxa in Table 2 (list of all species from Central Africa and Angola) is mostly not referred to in the index, the synonyms listed in the species list are not included, and the appearance of names in the English and the French keys is not at all referred to in the taxonomical index. The toponymic index unfortunately does not include the localities on the photos (the authors should by the way be congratulated for providing a locality for their photos, which too many authors still do not do). Mistypings are very few in the book, and are mostly concentrated in the English text.

We tried the key to identify ten Gabonese amphibian specimens; all could satisfactorily be identified except the two

Hyperolius spp. we had. In spite of the appendix dedicated to this genus, we encourage the key users to double-check their identifications with other literature reference on the genus *Hyperolius*, and the same should be done with other difficult genera such as *Leptopelis* and *Ptychadena*.

The few criticisms above should not obscure the fact that this new book represents a major step in the study of the batrachofauna of Gabon and Mbini, since the best tools available so far were mostly descriptions and keys developed by Jean-Louis Amiet and Jean-Luc Perret in various papers, often outdated, for Cameroonian amphibians. This new identification tool will undoubtedly allow a faster development of local species inventories and a better understanding of the distribution and conservation status of the amphibians of Gabon and Mbini.

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