

Scientific contributions

THE FIRST RECORD OF THE AFRICAN SHEATH-TAILED BAT *COLEURA AFRA* (PETERS, 1852) (MAMMALIA, CHIROPTERA) IN CAMEROON WITH INFORMATION ON ITS ECOLOGY



MATTHEW LEBRETON^{1,2}, ERIC MOISE BAKWO FILS^{3*}, JEAN MICHEL TAKUO² and JOSEPH LE DOUX DIFFO JOSEPH DIFFO LEDOUX²

¹ Mosaic, BP 35322, Yaoundé, CAMEROON. ² Global Viral Cameroon, BP 7039, Yaoundé, CAMEROON. ³ Department of Biological Sciences; Faculty of Sciences; University of Maroua; CAMEROON

*CORRESPONDING AUTHOR. E-MAIL ADDRESS: filbkw27@gmail.com

Coleura afra (Peters, 1852) is known from different localities across portions of sub-Saharan Africa. A colony of about 5,000 individuals of this species was recently identified in a cave, south east of Edea in the Littoral Region of Cameroon). This represents the first record of this species in Cameroon and helps bridge the distributional gap between other sites it is known from in West and East Africa. Some details are also presented on its ecology at the Cameroonian site.

Key words: first record, bat, *Coleura afra*, Cameroon.

Introduction

With some 1300 species, bats are the second most diverse group of mammals (SIMMONS, 2005). However, knowledge of the central African bat fauna remains sparse and the species occurring in Cameroon are poorly known (BAKWO FILS *et al.*, 2012, 2014). During the last 10 years, Cameroon has received increased attention by bat biologists and recent studies have detected species which were previously not known to be present (SEDLÁČEK *et al.*, 2006; BAKWO FILS, 2010; BAKWO FILS *et al.*, 2012, 2014; HASSANIN, 2014). These new records emphasize the need for additional studies in Cameroon, and demonstrate that the local bat fauna is still insufficiently sampled. Here we present another example of a taxon previously unknown from the country.

Materials and methods

During an ongoing surveillance visit on 7 December 2012 to a *Rousettus aegyptiacus* roost in Leplikoung (Latitude: 3.6524° N; Longitude: 10.2272° E) in the Littoral Region of Cameroon, we found a colony of about 5,000 *Coleura afra*. The colony was found in a cave in a rocky, forest-covered hill and about 3 km east of the village. The site actually includes two different caves, the larger occupied by the *C. afra* being about 5-6 m deep and 15 m large at the opening and narrowing to around 2 m. The cave was formed through fracturing of iron rich rock. The area is covered by lowland rainforest with an annual rainfall of 1600-2500 mm. While rainfall occurs throughout the year, maximum precipitation is recorded in September and minimum in December-January.

Two females were collected with mist nets to confirm identification using the keys of ROSEVEAR (1965), HAYMAN and HILL (1971) and MONADJEM *et al.* (2010). External characteristics of the voucher specimens were measured with a vernier caliper. The specimens are in the collection of Global Viral Cameroon (GV), specimen numbers: GV-CM-ECO06308 (Figure 1) and GV-CM-ECO06309 (Figure 2).

Discussion

We identified the animals collected in the Leplikoung cave as *C. afra* based on morphometric characters. In our specimens, the dorsal fur is deep sepia-brown and paler below. The forearm (FA) measurements of the voucher specimens are as follows: GV-CM-ECO06308 = 49.3 mm; GV-CM-ECO06309 = 51.6 mm.

The Emballonuridae are distinguished from all other small insect-eating bats by their characteristic tail which emerges from the interfemoral membrane before reaching the fringe (TAYLOR, 2000, MONADJEM *et al.*, 2010). *Coleura afra* is the smallest species of the family in Africa and is distinguished from all other Emballonuridae by the absence of a gular sack and radiocarpal pouches, a body weight of 10-12 g, its deep brown fur which is paler at the base than at the tip, its smaller size (FA < 55 mm) and the three pairs of lower incisors (MONADJEM *et al.*, 2010).

Coleura afra is the only *Coleura* known from mainland Africa and one of three members of the genus, which also includes *C. kibomalandy* Goodman *et al.*, 2012 from Madagascar and *C. seychellensis* Peters, 1868 from the Seychelles. The measurements of the Cameroon specimens do not exceed the variation range reported for *C. afra* by ROSEVEAR (1965); HAYMAN and HILL (1971); DUNLOP (1997), PATTERSON and WEBALA (2012).

Coleura afra is ranked as Least Concern (LC) in the IUCN Redlist (MICKLEBURGH *et al.*, 2008). Before its discovery in Cameroon, this species was known from scattered localities across sub-Saharan Africa: in the west from Ghana, Guinea Bissau, Togo, Benin, and Nigeria; in the east from western Central African Republic, Democratic Republic of Congo, Sudan, South Sudan, Somalia, Tanzania, Uganda and Kenya; in the south from Angola and Mozambique (ROSEVEAR, 1965; DUNLOP, 1997; GOODMAN *et al.*, 2008; SIMMONS, 2005; SINSIN and KAMPMANN, 2010; HAPPOLD, 2013; ACR, 2013). Along with a recently reported record of this species from Gabon (MAGANGA *et al.*, 2011) this record fills an important distribution gap between the west and east African records (see Figure 3).



FIGURE 1. Voucher specimen GV-CM-ECO06308 of *Coleura afra*, collected at Leprikoung and currently in the collection of Global Viral Cameroon.



FIGURE 2. Voucher specimen GV-CM-ECO06309 of *Coleura afra*, collected at Leprikoung and currently in the collection of Global Viral Cameroon.



FIGURE 3. Know distribution of *Coleura afra* (yellow) (MICKLEBURGH *et al.*, 2008) including the recent records from Cameroon and Gabon (indicated by red circles).

The few records of this species in mainland Africa have been from rocky habitats in woodland savannas, drier bushlands, thicket-scrub and grassy steppes (HAPPOLD, 2013). ROSEVEAR (1965) suggests that this species probably occurs in more varied vegetation types which have suitable day roost sites. The present record comes from a lowland rainforest area and confirms this view.

We could not determine how long *C. afra* had occupied the site, but they were not observed during a previous visit to the cave on 29 March 2009, when many hundreds of *R. aegyptiacus* were found and no other bat species was observed. We returned to the cave on 7 December 2012 and found only a few individuals of *R. aegyptiacus* and many *C. afra*. During our last visit on 8 June 2013 no *C. afra* were found, but thousands of *R. aegyptiacus*. While *C. afra* have been reported as a non-migratory species (McWILLIAM, 1987), our observations suggest that this species may have seasonal movements, a suggestion also supported by other authors (HAPPOLD 1987; SKINNER and SMITHERS, 1990).

Conclusion

Despite considerable work on Cameroonian bats, the recent addition of several taxa previously unknown from the country underlines that additional work is needed to have a good understanding of the diversity of species present in the country. Further, additional research is urgently needed to understand the role of bats in disease emergence and pest management ecology.

Acknowledgements

The Ministry of Forestry and Wildlife and the Ministry of Scientific Research and Innovation in Cameroon provided permits for this research. The work was conducted by Global Viral under the coordination of Ubald Tamoufe, in partnership with the Military Health Research Center (CRESAR) and with funding from Metabiota Inc. This research was made possible by the generous support of the American people through the United States Agency for International Development (USAID) Emerging Pandemic Threats PREDICT program. The contents are the responsibility of the authors and do not necessarily reflect the views of USAID or the United States Government.

Bibliography

- ACR. 2013. *AFRICAN CHIROPTERA REPORT 2013*. AfricanBats, African Chiroptera Project, Pretoria. i-xix + 6330 pp.
- BAKWO FILS, E. M. 2010. The bats of Cameroon: proving the benefits of the forgotten fruit bats. *Bats* **28** (2): 11 - 13.
- BAKWO FILS, E. M., A. BOL A. ANONG and F.-N. TCHUENGUEM FOHOUE. 2012. The first record of the Giant House Bat *Scotophilus nigrita* (Schreber, 1774) in Cameroon (Mammalia: Chiroptera). *Biodiversity Journal* **3** (1): 55 - 58.
- BAKWO FILS, E. M., A. G. BOLA. ANONG, D. B. TSALA, B. B. GUIEKÉ, D. E. TSALA and A. K. FOTSO. 2014. Diversity of bats of the Far North Region of Cameroon – with two first records for the country. *Biodiversity* **15** (1): 16-22. DOI: [10.1080/14888386.2014.889578](https://doi.org/10.1080/14888386.2014.889578).
- DUNLOP, J. 1997. *Coleura afra*. *Mammalian Species* **566**: 1 - 4.
- GOODMAN, S. M., S. G. CARDIFF and F. H. RATRIMOMANARIVO. 2008. First record of *Coleura* (Chiroptera: Emballonuridae) on Madagascar and identification and diagnosis of members of the genus. *Systematics and Biodiversity* **6** (2): 283 - 292. DOI: [10.1017/S1477200008002715](https://doi.org/10.1017/S1477200008002715).
- HAPPOLD, D. C. D. 1987. *The mammals of Nigeria*. Oxford: Clarendon Press, 402 pp.

- HAPPOLD, M. 2013. *Coleura afra* African Sheath-tailed Bat. In HAPPOLD, M. and D. HAPPOLD [Eds]: *Mammals of Africa. Volume IV. Hedgehogs, shrews and bats*. Bloomsbury Publishing, London: 422 - 424.
- HASSANIN, A. 2014. Description of a new bat species of the tribe Scotonycterini (Chiroptera, Pteropodidae) from Southwestern Cameroon. *Comptes Rendus Biologies* **337** (2): 134 - 142. DOI: [10.1016/j.crv.2013.12.006](https://doi.org/10.1016/j.crv.2013.12.006).
- HAYMAN, R. W. and J. E. HILL. 1971. Order Chiroptera. Pp. 1 - 73. In: MEESTER, J. and H. W. SETZER [Eds]: *The Mammals of Africa. An identification manual. Part 2*. Smithsonian Institution Press. Washington, D.C.
- MAGANGA, G.D., M. BOURGAREL, G. E. ELLA, J.F. DREXLER, J.-P. GONZALEZ, C. DROSTEN and E.M. LEROY. 2011. Is Marburg virus enzootic in Gabon? *Journal of Infectious Diseases* **204** (Suppl. 3): S800 - S803. DOI: [10.1093/infdis/jir358](https://doi.org/10.1093/infdis/jir358).
- McWILLIAM, A. N. 1987. The reproductive and social biology of *Coleura afra* in a seasonal environment. Pp. 324 - 350. In FENTON, M. B., P. RACEY and J. M. V. Rayner [Eds]: *Recent advances in the study of bats*. Cambridge University Press, Cambridge.
- MICKLEBURGH, S., A. M. HUTSON, P. A. RACEY, S. CARDIFF and W. BERGMANS. 2008. *Coleura afra*. In IUCN 2009: IUCN Red List of Threatened Species. Version 2009.2. <www.iucnredlist.org>.
- MONADJEM, A., P. J. TAYLOR, F. P. D. COTTERILL and M. C. SCHOEMAN. 2010. *Bats of Southern and Central Africa. A biogeographic and taxonomic synthesis*. Wits University Press, Johannesburg: i - xii; 1 - 596.
- PATTERSON, B. D. and P. W. WEBALA. 2012. Keys to the Bats (Mammalia: Chiroptera) of East Africa. *Fieldiana: Life and Earth Sciences* **6**: 1 - 60.
- ROSEVEAR, D. R. 1965. *The Bats of West Africa*. Trustees of the British Museum (Natural History), London, i - xvii, 1 - 418.
- SEDLÁČEK O., D. HOŘÁK, J. RIEGERT, J. REIF and I. HORÁČEK. 2006. Comments on Welwitsch's mouse-eared bat (*Myotis welwitschii*) with the first record from Cameroon. *Mammalian Biology* **71** (2): 120 - 123. DOI: [10.1016/j.mambio.2005.11.004](https://doi.org/10.1016/j.mambio.2005.11.004).
- SIMMONS, N. B. 2005. Order Chiroptera. Pp. 313 - 529. In: WILSON, D. E. and D. M. REEDER [Eds]: *Mammal species of the World: a taxonomic and geographic reference*. Third Edition. Smithsonian Institution Press, Washington, D.C.
- SINSIN, B. and D. KAMPMANN [Eds.] 2010. *Atlas de la Biodiversité de l'Afrique de l'Ouest - Biodiversity Atlas of West Africa*. Tome | Volume I: Benin.
- SKINNER, J. D. and R. H. N. SMITHERS. (1990). *The Mammals of the Southern African Subregion*. University of Pretoria -Pretoria: i - xxxii; 1 - 771.
- TAYLOR, P. J. 2000. *Bats of Southern Africa*. University of Natal Press, Pietermaritzburg: i - vii; 1 - 206.

Submitted: 22 September 2014

Accepted: 25 October 2014

Managing Editor: V. Van Cakenberghe