A Comment on the Status of "Colobus polykomos dollmani"in Côte d'Ivoire

Authors: Oates, John F., and McGraw, W. Scott

Source: Primate Conservation, 24(1) : 73-76

Published By: Conservation International

URL: https://doi.org/10.1896/052.024.0104

Primate Conservation 2009 (24): 73–76

A Comment on the Status of "*Colobus polykomos dollmani*" in Côte d'Ivoire

John F. Oates[1,2] and W. Scott McGraw[3]

[1]*Department of Anthropology, Hunter College, City University of New York (CUNY), New York, NY, USA*
[2]*Department of Anthropology and Geography, Oxford Brookes University, Oxford, UK*
[3]*Department of Anthropology, The Ohio State University, Columbus, OH, USA*

Abstract: The report by Sery *et al.* (*Primate Conservation* 21: 55–61, 2006) that *Colobus polykomos dollmani* had been observed in southern Côte d'Ivoire during surveys in 2003–2004 is questioned. Not only is this taxon of the black-and-white colobus monkeys of uncertain validity (being regarded by some authors as a set of hybrids between *Colobus polykomos* and *C. vellerosus*), but Sery *et al.* also do not provide sufficient evidence on the features of the monkeys they observed for these to be reliably assigned to a taxonomic entity. Whether or not *C. p. dollmani* is a valid taxon, future research in the region between the Sassandra and Bandama rivers should be encouraged so as to clarify the affinities of any remaining black-and-white colobus populations and to formulate concrete plans for the conservation of any evolutionarily distinctive populations located.

Key words: Black-and-white colobus, taxonomy, geographic distribution, *Colobus polykomos dollmani*, *Colobus vellerosus*, Côte d'Ivoire

In an important article in *Primate Conservation*, Sery *et al.* (2006) reported on the results of primate surveys they conducted in 2003 and 2004 in three forest reserves (Dassiéko, Bolo and Niégré) and one national park (Marahoué) located between the Sassandra and Bandama rivers in Côte d'Ivoire. The authors listed the potto, seven forest monkey species, the olive baboon, the green monkey and the chimpanzee as each being present in at least one of the four survey sites, based on the verbal reports of local people (particularly hunters), or the presence of bushmeat in nearby villages. The only species which they noted as having seen or heard themselves in the field were: Lowe's monkey (*Cercopithecus campbelli lowei*), the spot-nosed monkey (*C. petaurista petaurista*), the white-naped mangabey (*Cercocebus atys lunulatus*), the olive baboon (*Papio anubis*), the olive colobus monkey (*Procolobus verus*), and Dollman's black-and-white colobus monkey (*Colobus polykomos dollmani*).

Sery *et al.* (2006) stated that the main aim of their survey was to gather information about the status of *Colobus polykomos dollmani* between the Sassandra and Bandama. They noted that they observed one group of this monkey in the Bolo Forest Reserve (5°07'–5°26'N, 5°47'–6°03'E). They also noted that local people reported that they had seen this colobus in Dassiéko Forest Reserve in 2003, that it was present (but rare) in Niégré Forest Reserve, and that in Marahoué National Park it had last been seen in 2002 (see Figure 1 for the location of these sites). Sery *et al.* said that hunting and habitat destruction are the main threats to the survival of this subspecies and other taxa, and argued that, without immediate and vigorous action, *C. p. dollmani* will probably be extinct in the near future.

We share the concerns of Sery *et al.* (2006, 2008) for the survival of the primates and other wildlife in the forests of Côte d'Ivoire, and agree that better protection of remaining forests and wildlife should be a very high priority. We disagree with them, however, in parts of their evaluation of the status of *C. p. dollmani*. Not only is this taxon of somewhat doubtful validity (as Sery *et al*. [2006] themselves acknowledge), but we think that Sery *et al*. may be in error in portraying the range of this population as occupying the entire moist forest zone between the Bandama and Sassandra rivers. In particular, we are not yet convinced about its existence in the vicinity of the Bolo, Dassiéko and Niégré reserves on the eastern side of the lower Sassandra River, in the absence of a careful description of the black-and-white colobus monkeys observed there.

Colobus polykomos dollmani was named in 1927 by Ernst Schwarz based on two specimens collected by Willoughby P.

Lowe close to the Bandama River, west of Bouaké, in 1922 (Schwarz 1927); these specimens are now in the Natural History Museum, London. Prior to Schwarz's description, only two kinds of black-and-white colobus monkey were generally considered to be present in the Upper Guinea forests of West Africa (see, for example, Elliot 1912). Schwarz (1927, 1929) refers to these two forms as *C. polykomos polykomos* from the western forests ("from French Guinea through Sierra Leone and Liberia to the western part of Ivory Coast", i.e., to the west of the Sassandra-Nzo rivers) and *C. polykomos vellerosus* from the eastern forests ("the Gold Coast and Togoland", i.e., to the east of the Bandama River).

Lowe (1932) described travelling by train to Bouaké from Abidjan, then going cross-country to Beoumi (shown in Fig. 1). From Beoumi he went a short distance due west to the Bandama. Today, Beoumi is on the shore of a lake created by a hydroelectric dam constructed downstream at Kossou in 1973, so Lowe's collecting locality is almost certainly now under water. We know of five other specimens in the London museum, collected in 1953–1954 by Angus Booth from between 25 and 40 km west of Daloa (6°53'N, 6°27'W), and one specimen in the Tervuren museum, also from west of Daloa.

One of us (JFO) has examined the specimens attributed to *dollmani* and found them to be somewhat variable in their pattern. The color pattern on the skin of the male type specimen (ZD.1923.2.3.4) is intermediate between *polykomos* and *vellerosus*. The ruff of hair around the face is slightly more silvery and wispy than the pure white and denser ruff of *vellerosus*, there are a few scattered white hairs on the shoulders (compared to abundant silvery shoulder hairs in *polykomos*), and the thighs are black — lacking the silvery-white patch of hair that is typical of *vellerosus*. The other specimens vary in the number of white hairs on the shoulders, but all lack a white thigh patch. Typical examples of *C. polykomos* and *C. vellerosus* are shown in Figure 2.

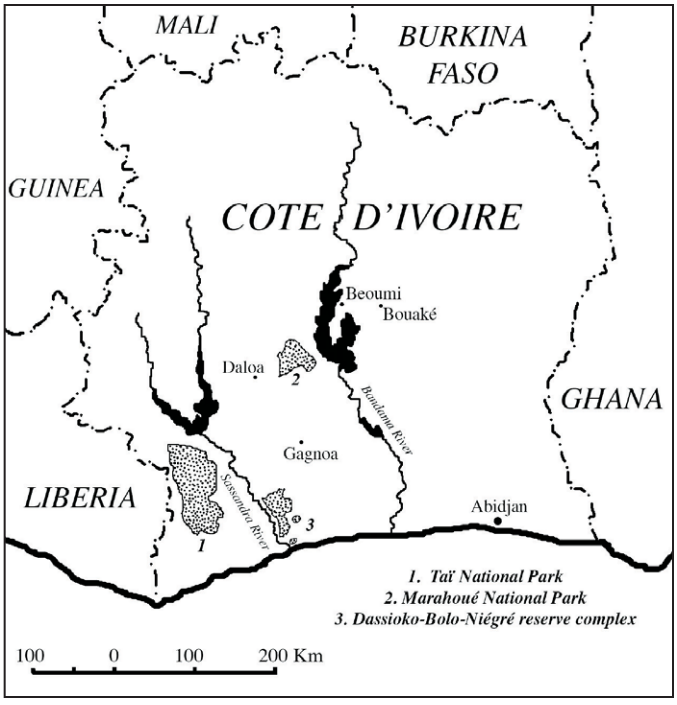


Figure 1. Map of Côte d'Ivoire showing localities mentioned in text. Drawn by Stephen D. Nash.

During his collecting trips in the early 1950s, Angus Booth observed what he referred to as *C. p. dollmani* on the western edge of the Bouaflé Forest Reserve, near Daloa (Booth 1954). Part of the Bouaflé reserve was later incorporated into the Marahoué National Park, created in 1968 (I. Herbinger pers. comm.). In this area, Booth reported collecting one specimen of *C. p. vellerosus* and one of *C. p. dollmani*. Booth noted that the "dollmani" specimen had a faint white thigh stripe (in that respect resembling *vellerosus*), and that the "vellerosus" specimen had a white patch on either knee. He commented: "Both these specimens are indicative of genetic instability which can with certainty be ascribed to hybridisation" (Booth 1954). These two specimens (ZD.1956.347 and ZD.1956.356) are also in the Natural History Museum, London, and are listed in the *Catalogue of Primates in the British Museum (Natural History)* as "*Colobus polykomos vellerosus*?" with a note that one (ZD.1956.347) is a hybrid between *vellerosus* and *dollmani* (Napier 1985). Groves *et al*. (1993) suggested that, in the absence of a skull, ZD.1956.347 might be a juvenile that has not yet developed a full thigh stripe. We have examined this specimen and are convinced that it is a small adult female; Booth's own collecting label identifies it as an adult and its recorded weight of 6.2 kg is within the range of adult female body weights for West African black-and-white colobus (Delson *et al.* 2000).

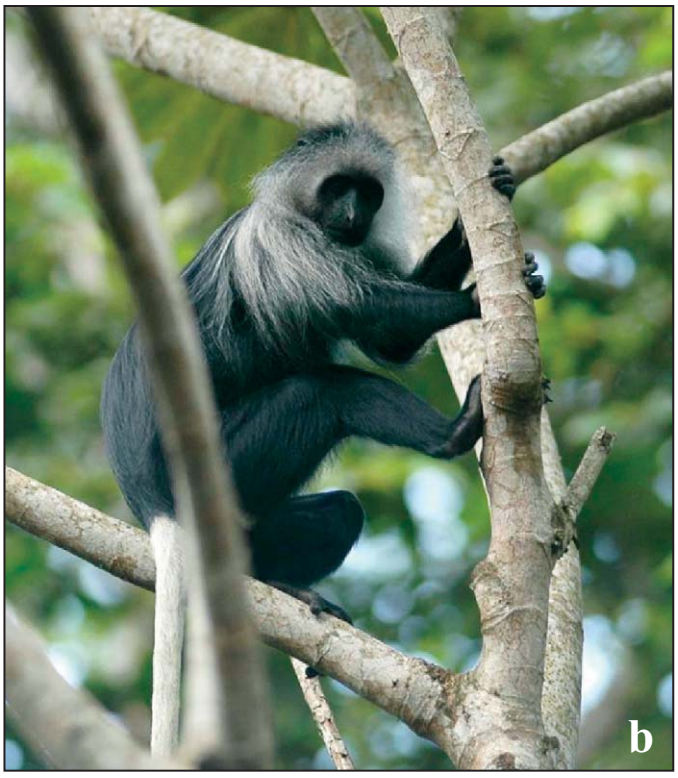
In his later, classic paper on the zoogeography of West African primates, Booth (1958) argued that *dollmani* is closer to *polykomos* than to *vellerosus* in appearance and that it may be "either a semi-stabilised hybrid swarm, or, in view of the great ecological plasticity of the group, be descended from populations which evolved independently in a relic patch of Woodland or Riparian Forest during the postulated dry period" (Booth 1958). Booth is here referring to the last dry climatic phase of the Pleistocene.

Based on a study of male loud calls, combined with other information, Oates and Trocco (1983) elevated *polykomos* and *vellerosus* to the status of separate species. Given the variability in coat pattern in the museum specimens attributed to *dollmani* and the relatively small area over which the specimens had originated, Oates and Trocco treated these specimens as representing a hybrid zone between *Colobus polykomos* and *C. vellerosus*, rather than as a distinct taxon. Subsequently, Groves *et al.* (1993) carried out a very careful analysis of pelage and cranial features of the specimens catalogued as *dollmani* in the Natural History Museum, London, comparing them to specimens of *polykomos* and *vellerosus* in that museum and to two additional skulls of *polykomos* in Karlsruhe. They concluded that the hypothesis that the population known as *Colobus polykomos dollmani* "are hybrids and not a true subspecies, is strongly supported" and they provided an evolutionary model for how the hybridization could have

occurred. They recommended "further surveys of this genetically and evolutionarily significant area, followed by a strenuous conservation program for any populations that remain."

The survey reported by Sery *et al*. (2006) is a good follow-up to the recommendations of Groves *et al.* (1993), but it leaves unresolved the status of the "dollmani" population (whose possible hybrid nature is acknowledged by Sery *et al.*). Between the Sassandra and Bandama rivers, Sery *et al.* were only able to get evidence of the continued survival of black-and-white colobus monkeys in the Bolo-Dassiéko-Niégré forest complex, quite close to the coast, and about 120 km south of Daloa and Marahoué (the region where the specimens attributed to *dollmani* originated). Booth (1954) has a map showing symbols for the presence of *vellerosus* to the west of the lower Bandama River, including one in the approximate vicinity of Gagnoa (6°08'N, 5°57'W). Gagnoa is about 80 km from the northern (5°26'N) and the eastern (5°47'W) limits of the Bolo-Dassiéko-Niégré forest complex (see Fig. 1). Based on Booth's map, it might be expected that the form of black-and-white colobus monkey inhabiting this forest complex is *Colobus vellerosus* rather than *dollmani*. Apart from obtaining local reports of their presence, Sery *et al.* (2006) only observed black-and-white colobus monkeys in the western block of the Bolo Forest Reserve; these monkeys are said to have had white bands on their thighs (G. B. Sery in correspondence with D. Zinner pers. comm.), which is a key feature of *vellerosus* (Fig. 2c) consistently lacking in *dollmani*.

In the absence of other conclusive evidence we are not convinced that colobus monkeys with affinities to *dollmani* occur in the Bolo-Dassiéko-Niégré forest complex south of their previously known range. Sery *et al.* (2006) paint a very bleak picture of the state of Marahoué National Park in terms of habitat destruction and hunting; it may well be that no black-and-white colobus still survive there, in the heart of the past known range of *dollmani*. It appears that further surveys are urgently needed, both to ascertain if any black-and-white colobus monkeys occur anywhere within the previously known range of *dollmani* (i.e., in or to the immediate west of the Marahoué National Park) and to clarify the affinities of any other black-and-white colobus surviving between the Sassandra and Bandama rivers, including the Bolo-Dassiéko-Niégré forest complex. If further studies can locate a population whose pelage suggests close affinity with *dollmani*, we agree with Groves *et al.* (1993) and with Sery *et al*. (2006) that strenuous efforts should be made to protect this population because of its evolutionary significance. However, if further surveys should show that the remaining black-and-white colobus monkey population in the Bolo-Dassiéko-Niégré complex are members of *Colobus vellerosus*, and no colobus can be located in or around Marahoué, then the population that has been called *dollmani* may now unfortunately be already extinct.



Figures 2a and 2b. *Colobus polykomos* from the Taï Forest, Côte d'Ivoire. Photographs by W. Scott McGraw.

Figure 2c. *Colobus vellerosus* from the Boabeng-Fiema Monkey Sanctuary, Ghana. Photograph by Julie Teichroeb.

Acknowledgments

Many thanks to Dietmar Zinner, Ernest Gonedelé bi Sery and a referee for several helpful comments on this manuscript, to Stephen Nash who prepared the map, and to Julie Teichroeb who took the photograph of *Colobus vellerosus*.

Literature Cited

Booth, A. H. 1954. A note on the colobus monkeys of the Gold and Ivory Coasts. *Ann. Mag. Nat. Hist.*, 12th series. 7: 857–860.

Booth, A. H. 1958. The zoogeography of West African primates: a review. *Bull. Inst. Fr. Afr. Noire* (A) 20: 587–622.

Delson, E., C. Y. Terranova, W. J. Jungers, E. J. Sargis, N. G. Jablonski and P. C. Dechow. 2000. Body mass in Cercopithecidae (Primates, Mammalia): estimation and scaling in extinct and extant taxa. *Am. Mus. Nat. Hist., Anthropological Papers* (83): 1–159.

Elliot, D. G. 1912. *A Review of the Primates.* Vol. III. American Museum of Natural History, New York.

Groves, C. P., R. Angst and C. R. Westwood. 1993. The status of *Colobus polykomos dollmani* Schwarz. *Int. J. Primatol.*14: 573–586.

Lowe, W. P. 1932. *The Trail That Is Always New*. Gurney & Jackson, London.

Napier, P. H. 1981. *Catalogue of Primates in the British Museum (Natural History) and Elsewhere in the British Isles; Part II: Family Cercopithecidae, Subfamily Cercopithecinae*. British Museum (Natural History), London.

Oates, J. F. and T. F. Trocco. 1983. Taxonomy and phylogeny of black-and-white colobus monkeys: inferences from an analysis of loud call variation. *Folia Primatol.* 40: 83–113.

Schwarz, E. 1927. A new black-and-white guereza from the Ivory Coast. *Ann. Mag. Nat. Hist.* 9th series. 19: 155.

Schwarz, E. 1929. On the local races and distribution of the black-and-white colobus monkeys. *Proc. Zool. Soc. Lond.* (1929): 585–598.

Sery, B. G., D. Zinner, I. Koné, Z. Goné Bi, B. K. Akpatou, J. C. K. Bené, A. Sangaré and C. Boesch. 2006. A West African black-and-white colobus monkey, *Colobus polykomos dollmani* Schwarz, 1927, facing extinction. *Primate Conserv.* (21): 55–61.

Sery, B.G., I. Koné, J.-C. K. Bené, A. E. Bitty, B. K. Akpatou, Z. Goné Bi, K. Ouattara and D. A. Koffi. 2008. Tanoé forest, south-eastern Côte d'Ivoire identified as a high priority site for the conservation of critically endangered primates in West Africa. *Trop. Conserv. Sci.* 1: 265–278.

Authors' addresses

John F. Oates, Department of Anthropology, Hunter College CUNY, 695 Park Avenue, New York, NY 10065, USA, and Department of Anthropology and Geography, Oxford Brookes University, Oxford OX3 0BP, UK. *Address for correspondence:* 12 Freshfield Drive, London N14 4QW, UK. E-mail: <Johnoates1@aol.com>.

W. Scott McGraw, Department of Anthropology, The Ohio State University, 4064 Smith Laboratory, 174 West 18th Avenue, Columbus, OH 43210-1106, USA. E-mail: <Mcgraw.43@osu.edu>.

Received for publication: 12 January 2009
Revised: 14 April 2009