African Primates 8:63-66 (2013)

Brief Communication:

Sightings of Thick-tailed Greater Galago *Otolemur crassicaudatus monteiri* (Bartlett in Gray, 1863) Near Lake Mburo National Park, South Uganda

Magdalena S. Svensson and Elena Bersacola

Nocturnal Primate Research Group, Oxford Brookes University, UK

INTRODUCTION

Although East African primates are generally well-studied (e.g., Chapman *et al.* 2010; de Jong & Butynski 2011, 2012), the taxonomy of several taxa remains debated (Campbell *et al.* 2011; de Jong & Butynski 2012). This lack of clarity is particularly true for nocturnal primates, including populations that are threatened with extinction (Mittermeier *et al.* 2012; Nekaris & Nijman 2013). At several established field sites in East Africa, such as Bwindi Impenetrable National Park (Uganda) and Gombe National Park (Tanzania), with scientific research mainly focused on diurnal monkeys and apes, little is known of the resident nocturnal primate species (Nekaris & Nijman 2013). Populations of nocturnal primates are easily misidentified (e.g., Weisenseel *et al.* 1993; cf. Perkin 2003) and distribution patterns thereby rendered uncertain.

Twenty-three species of primates are known to be present in Uganda, excluding nocturnal species requiring further verification, such as the greater galagos (*Otolemur crassicaudatus*) (de Jong & Butynski 2012). The only recorded sighting of *O. crassicaudatus* in Uganda comes from Kingdon (1971), whose observation was made in the 1960s at Kigagati, on the Kagera River just near the Tanzanian border (Figure 1). Due to the lack of any further records, it seems likely that the majority of authors listing *Otolemur* sp. as present in Uganda refer to the sighting made by Kingdon (1971). de Jong & Butynski (2012) list *O. crassicaudatus* as likely present in Uganda but highlight the necessity of evidence such as specimens, photographs, or authoritative sightings. Here, we aim to provide a confirmation of the presence of *O. crassicaudatus* in southern Uganda. We describe and discuss our sightings of *O. crassicaudatus* in Uganda and highlight the importance of the Lake Mburo National Park (LMNP) area as a possible site for further studies on this species.

METHODS

Study species

Otolemur crassicaudatus is a large sized galago found in groups of up to six individuals (Doyle & Bearder 1977). *Otolemur c. monteiri* displays little sexual dimorphism: the average weight is 1220 g (940-1640 g) in adult males and 1130 g (990-1460 g) in adult females (Smithers & Wilson 1979). *Otolemur crassicaudatus* ranges from eastern South Africa northwards to Tanzania and southwestern Kenya, with a linear distance of over 3400 km (Bearder 2008, Figure 1). *Otolemur c. monteiri* extends from Angola in the west, through Zambia, Zimbabwe, Malawi, Tanzania, Rwanda, Burundi and the southern parts of Democratic Republic of Congo (DRC) (Bearder 2008). The northernmost part of its range extends into southwestern Kenya in the east, and towards the west the range reaches just above the southern Ugandan boarder before crossing into DRC (Bearder 2008). In the south, the subspecies' range extends as far as the northern parts of Mozambique, although these southerly limits are poorly documented (Olson 1979; Bearder & Svoboda 2013).

Much ambiguity surrounds the taxonomy of *Otolemur* spp. Prior to 1979, large galagos (>800 g) were normally classified as *Galago crassicaudatus* (Osman Hill 1953; Napier & Napier 1967; Groves 1974; Petter & Petter-Rousseaux 1979). Their taxonomy was then revised by Olson (1979), who recognised *Otolemur* as a genus distinct from *Galago*, comprising two species: *O. crassicaudatus* and *O. garnettii*. Olson (1979) placed *monteiri*, *crassicaudatus,* and *argentatus* as subspecies of *O. crassicaudatus*. In contrast, Groves (2001) recognised *O. monteiri* as a distinct species, and this classification was followed by Grubb *et al.* (2003), with the subspecies *O. m. monteiri* and *O. m. argentatus*.

Given the history of taxonomical uncertainty, it is not surprising that the species thought to occur in

Correspondence to: Magdalena Svensson, Nocturnal Primate Research Group, Oxford Brookes University, Faculty of Humanities and Social Sciences, Gipsy Lane, Oxford, OX3 0BP, UK. E-mail: svensson_magdalena@hotmail.com.

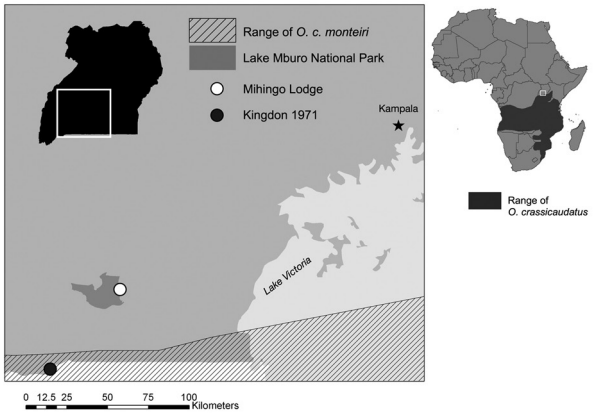

Figure 1. Map with location of Lake Mburo National Park and sightings of *Otolemur crassicaudatus monteiri.*

Uganda has been referred to by several scientific names (Table 1). We follow Olson (1979), hereafter referring to the Ugandan thick-tailed greater galago as *Otolemur crassicaudatus monteiri*.

Study site

Lake Mburo National Park (LMNP) is located in the Akagera Ecosystem (Van de Weghe 1990). The park and its surrounding areas are composed of a mosaic of habitats, mainly open and wooded *Acacia* savannah, but also swamps, lakes, bushy thickets, rocky outcrops, forests and dry hillsides (Snelson & Wilson 1994; Kigyagi 2002). The location of our sightings was Mihingo Lodge, which is situated adjacent to LMNP on the edge of the savannah (0°36'S, 31°02'E) (Figure 1). In 2008, staff at the lodge began to habituate a group of *O. c. monteiri* occurring in the nearby area. With the purpose of attracting the animals, small amounts of fruit were placed on a platform located near the guest area. This arrangement allowed guests to view the animals with the staff while informing them about the species' ecology, behaviour, and conservation needs.

RESULTS

Field observations

In April and September 2006 we conducted a study on nocturnal predators, spending 30 nights in the field. During a night survey in September, we came across a single individual of *O. c. monteiri* just outside the LMNP. We observed the animal clearly at a distance of 2 m for approximately three minutes. Morphology and locomotion were consistent with descriptions of *O. c. monteiri* (Nash *et al.* 1989; Nekaris & Bearder 2011; Bearder & Svoboda 2013).

On the 1st of July 2011 we returned to LMNP and Mihingo Lodge to obtain photographic evidence confirming the presence of *O. c. monteiri*. Our observation was made during a series of nocturnal surveys throughout southwestern Uganda (ten nights). We did not conduct further night walk surveys in and around LMNP due to the abundance of large predators and other potentially dangerous wildlife in the area. At Mihingo Lodge, we observed the animals by using Petzl Zoom headlights with red filters (Nekaris 2003) and acquired photographic evidence with a Nikon D90 camera (without flash to avoid disturbance). The night of the sighting was clear with a new moon.

At 18:59, two individual *O. c. monteiri* approached the feeding platform. Both individuals displayed silver pelage, relatively long and thick tails and a body-size comparable to that of a domestic cat. Based on body size, the first individual was identified as an adult (estimated body length 30-35 cm and about 70 cm including the tail), and the second individual as immature (estimated approximately three quarters the size of the adult). We observed them feeding and travelling between the platform and nearby trees at an animal-observer distance of 0.5 - 4 m, for approximately 15 min. Our photograph (Figure 2a) and that provided later by Mihingo Lodge (Figure 2b) confirmed the identity of the subspecies.

According to S. Mugisha (pers. comm.), the group that commonly visits the platform at Mihingo Lodge includes six individuals: two adults, one light grey and

Table 1. Literature records of greater galagos in Uganda.

Author	Species	Reported range
Vincent (1969)	*Galago crassicaudatus*	Throughout, except SW
Kingdon (1971)	*G. c. crassicaudatus*	S
Olsen (1979)	*Otolemur crassicaudatus monteiri*	SW
Petter & Petter-Rousseaux (1979)	*G. crassicaudatus*	E
Groves (2006)	*O. monteiri argentatus*	SW
de Jong & Butynski (2012)	*O. c. monteiri*	Range not reported
Osman Hill (1953)	N/A	Not reported as present
Jenkins (1987)	N/A	Not reported as present
Groves (2001)	N/A	Not reported as present
Bearder & Svoboda (2013)	N/A	Not reported as present

Figure 2. *Otolemur crassicaudatus monteiri* at the Mihingo Lodge. [a] Photograph by E. Bersacola (taken in 2011),[b] Photograph courtesy of Mihingo Lodge (taken in 2008) (http://www.mihingolodge.com/).

one black, and four immatures, two of which have silver pelage and two with melanistic appearance.

DISCUSSION

Otolemur c. monteiri is listed as Least Concern on the 2013 International Union for Conservation of Nature and Natural Resources (IUCN) Red List of Threatened Species, despite a number of populations being considered locally threatened due to deforestation (Bearder 2008). According to Bearder (2008), populations of *O. crassicaudatus* used to occur commonly all around Lake Victoria, but they have now nearly vanished from the area. Our sightings confirm the presence of a population of *O. c. monteiri* west of Lake Victoria that was previously unknown.

The distance between the sighting in 2006 and that of 2011 is approximately 5 km, indicating the presence of at least two distinct groups of *O. c. monteiri* in the area. The morphology of the individuals observed in 2006 and 2011 is consistent with data from the literature (Kingdon 1971, 1997; Nash *et al.* 1989; Bearder & Svoboda 2013). The grouping of the animals described by the staff conforms to that in Doyle & Bearder (1977).

The location of our sightings is some 70 km northeast of the sighting made by Kingdon (1971), and some 40 km north of the northernmost range of the species as mapped by Bearder (2008). Previous studies have highlighted the unexpected absence of *O. c. monteiri* in several suitable habitats in Uganda (Kingdon 1971; L Ambrose, pers. comm.). The prevalent habitats of LMNP are likely to be suitable for *O. c. monteiri* (Skinner & Chimimba 2005; Bearder 2008; Bearder & Svoboda 2013). As these habitats extend further north and towards the west (Snelson & Wilson 1994; Kigyagi 2002) we hypothesize that *O. c. monteiri* occurs in these parts of Uganda as well.

According to Bearder (2008), *O. crassicaudatus* is expanding its range in the southern parts of its geographical distribution. Whether this is also the case in Uganda remains unknown. With the species being cryptic and not homogeneously distributed across its habitat (Nekaris *et al.* 2008), it is also possible that *O. c. monteiri* might simply have been missed in previous field surveys.

We hope that our data contribute to baseline information on *O. c. monteiri* in Uganda. This nocturnal primate is well-known by the staff at Mihingo Lodge (S Mugisha, pers. comm.), making this site favorable for possible long-term studies. By conducting interviews with park staff and local people we may acquire valuable information about this primate inside LMNP. Further research, in addition to comparative studies of populations at different sites, could provide us with the required data to clarify the taxonomy and develop a more accurate conservation assessment of *O. crassicaudatus* across Africa.

ACKNOWLEDGMENTS

We thank Mihingo Lodge for facilitating our work, and especially Steven Mugisha for sharing his knowledge. We are also grateful to the LMNP staff Andrew Opeto, George Mwebaze and Moses Matsiko for their assistance and to Pascal Werner for his support. We thank Prof. Simon Bearder, Dr. Thomas Butynski and Dr. Yvonne de Jong for aiding in confirming the identity of the animals. We thank Prof. Anna Nekaris and the reviewers for their comments and suggestions that helped improve this manuscript.We would be grateful if further sightings of this and related species are reported to a geo-referencing website such as www.wildsolutions.nl.

LITERATURE CITED

Bearder, S.K. 2008. *Otolemur crassicaudatus*. In *IUCN 2011. IUCN Red List of Threatened Species*. Version 2011.2. <www.iucnredlist.org>. Downloaded 07 June 2012.

Bearder, S.K. & N. Svoboda. 2013. *Otolemur*

crassicaudatus. In *Mammals of Africa. Volume II: Primates*. T.M. Butynski & J. Kalina, eds. Bloomsbury Publishing, London. Pp. 409-413.

Campbell, C.J., A. Fuentes, K.C. MacKinnon, S.K. Bearder & R.M. Stumpf. 2011. *Primates in Perspective*. Oxford University Press, Oxford.

Chapman, C.A., T.T. Struhsaker, J.P. Skorupa, T.V. Snaith & J.M. Rothman. 2010. Understanding long-term primate community dynamics: implications of forest change. *Ecological Applications* 20 (1): 179-191.

de Jong, Y.A. & T.M. Butynski. 2011. Primate Survey on the North Coast of Kenya. Biogeography, Diversity and Conservation. Unpublished Report by the Eastern Africa Primate Diversity and Conservation Program, Nanyuki, Kenya.

de Jong, Y. & T.M. Butynski. 2012. The primates of East Africa: Country lists and conservation priorities. *African Primates* 7(2): 135-155.

Doyle, G.A. & S.K. Bearder. 1977. The galagines of South Africa. In *Primate Conservation*. Rainier III & G.H. Bourne, eds. Academic Press Inc. New York. Pp. 1-35.

Groves, C.P. 1974. Taxonomy and phylogeny of prosimians. In *Prosimian Biology*. R.D. Martin, G.A. Doyle & A.C. Walker, eds. Academic Press, London. Pp. 449-473.

Groves, C.P. 2001. *Primate Taxonomy.* Smithsonian Institution Press, Washington, D.C.

Groves, C.P. 2006. Taxonomy and biogeography of the primates of western Uganda. In *Primates of Western Uganda.* N.E. Newton-Fisher, H. Notman, J.D. Paterson & V. Reynolds, eds. Springer Science+Business Media, New York. Pp. 3-20.

Grubb, P., T.M. Butynski, J.F. Oates, S.K. Bearder, T.R. Disotell, C.P. Groves & T.T. Stuhsaker. 2003. Assessment of the diversity of African primates. *International Journal of Primatology* 24 (6): 1301-1357.

Jenkins, P.D. 1987. *Catalogue of Primates in the British Museum (Natural History) and Elsewhere in the British Isles. Part IV: Suborder Strepsirrhini, Including the Subfossil Madagascan Lemurs and Family Tarsiidae*. British Museum (Natural History), London.

Kingdon, J.S. 1971. *East African Mammals. An Atlas of Evolution in Africa, Vol. 1*. Academic Press, London.

Kingdon, J.S. 1997. T*he Kingdon Field Guide to African Mammals*. Princeton University Press, New Jersey.

Kigyagi, A.J. 2002. Some ecological aspects of warthogs (*Phacochoerus aethiopicus pallas*) in Lake Mburo National Park, South Western Uganda. MSc thesis, Mbarara University of Science and Technology.

Mittermeier, R.A., C. Schwitzer, A.B. Rylands, L.A. Taylor, F. Chiozza, E.A. Williamson & J. Wallis. 2012. *Primates in Peril: The World's 25 Most Endangered Primates 2012–2014*. IUCN/SSC Primate Specialist Group, International Primatological Society, and Conservation International, Arlington, VA.

Nash, L.T., S.K. Bearder & T. Olson. 1989. Synopsis of galago species characteristics. *International Journal of Primatology* 10: 57-80.

Napier, J.R. & P.H. Napier. 1967. *A Handbook of Living Primates.* Academic Press, London.

Nekaris, K.A.I. 2003. Spacing system of the Mysore slender loris (*Loris lydekkerianus lydekkerianus*). *American Journal of Physical Anthropology* 121: 86–96.

Nekaris, K.A.I. & S.K. Bearder. 2011. The lorisiform primates of Asia and Mainland Africa: Diversity shrouded in darkness. In *Primates in Perspective*. C.J. Campbell, A. Fuentes, K.C. MacKinnon, S.K. Bearder & R.M. Stumpf, eds. Oxford University Press, Oxford. Pp. 34-54.

Nekaris, K.A.I. & V. Nijman. 2013. The ethics of conducting field research: Do long-term great ape field studies help to conserve primates? In *Ethics in the Field*. J. MacClancy & A. Fuentes, eds. Berghahn Books, Oxford.

Nekaris, K.A.I., G.V. Blackham & V. Nijman. 2008. Conservation implications of low encounter rates of five nocturnal primate species (*Nycticebus* spp.) in Asia. *Biodiversity and Conservation* 17 (4): 733-747.

Olson, T. 1979. Studies on Aspects of the Morphology of the Genus Otolemur Coquerel, 1859. Ph.D. thesis, University of London.

Osman Hill, W.C. 1953. *Primates: Comparative Anatomy and Taxonomy. I. Strepsirhini*. Edinburgh University Press, Edinburgh.

Perkin, A.W. 2003. Galago and nocturnal mammal surveys within the Rufiji Environmental Management Project Area. In *Biodiverstity of Rufiji District – A Summary.* K. Doody & O. Hamerlynck, eds. Rufiji Environment Management Project, Dar es Salaam. Pp. 90-101.

Petter, J.J. & A. Petter-Rousseaux. 1979. Classification of the prosimians. In *The Study of Prosimian Behaviour.* G.A. Doyle & R.D. Martin, eds. Academic Press, New York. Pp. 1-44.

Skinner, J.D. & C.T. Chimimba. 2005. *The Mammals of Southern Africa Subregion*. Cambridge University Press, Cambridge.

Smithers, R.H.N. & V.J. Wilson. 1979. *Check List and Atlas of the Mammals of Zimbabwe Rhodesia*. Museum Memoir 9. Trustees of the National Museums and Monuments of Rhodesia, Salisbury. Pp. 193.

Snelson, D. & A. Wilson. 1994. *Lake Mburo National Park Guidebook*. African Wildlife Foundation, Uganda.

Van de Weghe, J.P. 1990. *Akagera, land of water, grass and fire*. WWF Publcations, Brussel.

Vincent, F. 1969. Contribution à l'étude des Prosimiens Africaines: le galago de Demidoff, Ph.D. thesis. Faculté des Sciences de Paris.

Weisenseel, K., C.A. Chapman & L.J. Chapman. 1993. Nocturnal primates of Kibale Forest: Effects of selective logging on prosimian densities. *Primates* 34: 445-450.

Received: 11 March 2013
Revised: 7 August 2013