

Biogeography, Taxonomy, Abundance, and Conservation Status of the Primates of North-eastern Uganda

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During 15-31 October 2014, we undertook the first of two field surveys supported by NGS grant number 9409-L3. The survey took place in north-eastern Uganda (N3.93531 - N0.66742, E32.82977 – E34.75296 in Uganda, Figure 1). A total of 2,590 km were driven during 17 field days.



Fig. 1. Survey transect through western Kenya and north-eastern Uganda (October 2014). GR = Game Reserve; FR = Forest Reserve; NP = National Park).

Preliminary results

1. Guereza Monkey *Colobus guereza*

One of our research questions during this project is whether guereza colobus (also known as 'black-and-white colobus') *Colobus guereza* occur in NE Uganda. In particular, might *C. g. dodingae* reach Uganda in the southern part of the Imatong Mountains or on Mount Zulia? During our 4 day survey (by foot and by car) in and near the Agoro-Agu FR, on the Uganda part of the Imatong Mountains, at least three groups of *C. guereza* were heard (N 03.77886; E 32.95837, 1735 m asl), *ca.* 7 km from the South Sudan border. Two guereza skins were shown to us by the people of Lomwaka Village, which is on the edge of the FR. Both skins were photographed and measured (Figures 2 & 3). No live individuals were seen.

To the best of our knowledge, there are no records of *C. guereza* from northern Uganda. The nearest *C. guereza* records are from sites in the Imatong Mountains of South Sudan, where the Dodinga Hills guereza *C. g. dodingae* is (or was?) widespread.

In the field, the subspecies of *C. guereza* are most easily identified by (1) the percentage of the tail that is comprised of the white tail tuft, (2) the length of the off-white to pure white mantle hair relative to the base of the tail, and (3) the intensity of the white on tail tuft and mantle (i.e., is it pale cream or pure white).

Colobus guereza dodingae is described as "Hair of mantle slightly creamy. Similar in pelage and craniometrics to *C. g. occidentalis*, with which it was grouped by Dandelot (1974). Tail about same length as HB: distal *ca.* 46% creamy-white and not very bushy (S.D=4.5, range 40-55, n=10)." (Fashing & Oates 2013). The type specimen of *Colobus guereza dodingae* was collected in the Dodinga Hills, South Sudan, *ca.* 90 km north-east of Agoro-Agu FR.

The off-white tail tuft of the adult male skin that we observed covered *ca.* 47% of the tail, and that of the juvenile, *ca.* 39%. The adult male had a head-body length of 645 mm and a tail length of 830 mm. Based on locality and relative length of the off-white tail tuft, the *C. guereza* population of Agoro-Agu FR belongs to *C. g. dodingae*.

Evidence of *C. guereza* was also obtained from long-time employees of Kidepo Valley National Park, extreme north-east Uganda. One park ranger/tourist guide and one park research technician, both life-long residents of the mountains just off the western boundary of Kidepo Valley NP, stated that *C. guereza* are present in the Park's Lonyili Hills, and outside, but near, the Park in the Keler area of the Nyangea-Napore Range FR, the Zulia Mountains, and the Morungole Mountains. They suspected that the population in the Morungole Mountains was extirpated as a result of unsustainable hunting and loss of habitat. Due to hunting (for bushmeat and ornamental purposes), deforestation, and insecurity, any remaining populations of *C. guereza* in north-eastern Uganda are expected to be small. Based on the location of KVNP (Dodinga Hills are *ca.* 40 km to the north; Agoro-Agu FR is *ca.* 60 km), and the descriptions obtained, it is highly likely that the subspecies in Kidepo Valley NP is *C. g. dodingae*.



Fig. 2. The two guereza *Colobus guereza* skins (adult male and juvenile) shown to us at Lomwaka Village near Agoro-Agu Forest Reserve, central north Uganda.



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Fig. 3. Measuring two guereza *Colobus guereza* skins (adult male and juvenile) at Lomwaka Village near Agoro-Agu Forest.

With the finding of *C. guereza dodingae* in northern Uganda, a new subspecies of primate can be added to Uganda's mammal list. Indeed, this is a new subspecies for East Africa. In addition, *C. g. dodingae* is no longer a subspecies endemic to South Sudan. Although additional surveys are needed to determine the range and abundance of *C. g. dodingae* in Uganda, there can be no doubt that this is one of Uganda's most threatened primate subspecies.

Officials at the Suam border post east of Mount Elgon (N 01.21641; E 34.73263, 2070 m asl) and Mount Elgon National Park rangers at Kapkwata, north-east of Mount Elgon (N

01.35486; E 34.63794, 2200 m asl), stated that the Mau Forest guereza *Colobus guereza matschiei* occurred in the vicinity.

Four groups of Mount Kenya guereza *Colobus guereza kikuyuensis* were encountered in Subukia, central Kenya (Figure 4). *Colobus guereza kikuyuensis* is well known to occur in this part of Kenya.



Fig. 4. Adult male Mount Kenya guereza *Colobus guereza kikuyuensis* at Subukia, central Kenya.

2. Olive Baboon *Papio anubis*

Olive baboon *Papio anubis* groups were seen or heard 16 times during this survey (Pian Upe Game Reserve, Kidepo Valley National Park, and southern Imatong Mountains, including Agoro-Agu Forest Reserve).



Fig. 5. Group of olive baboons *Papio anubis* climbing down from their sleeping cliff early morning west of Pian Upe Game Reserve, central east Uganda.



Fig. 6. Adult male olive baboon *Papio anubis* in Kidepo Valley National Park, north-east Uganda.

Fig. 7. Series of photographs of a group of olive baboons *Papio anubis* crossing the Kidepo River near the South Sudan - Uganda border in Kidepo Valley National Park.







Fig. 8. Adult male olive baboon *Papio anubis* near Agoro-Agu Forest Reserve, southern Imatong Mountains, central north Uganda.

3. Patas Monkey *Erythrocebus patas*

Patas monkeys *Erythrocebus patas* were encountered six times during the survey. All groups were in Kidepo Valley NP (Figure 9). It is likely that one group of *ca.* 20 individuals at Apoke (N 03.73484; E 33.72734; 1186 m asl), in the south part of the Park, was encountered four times. One group of *E. patas* was encountered in Narus Valley, in the central south part of the Park (N 03.79358; E 33.70922, 1153 m asl) near the 'Boma' (fenced area where mammal reintroductions occur). A third group was observed south of the Kidepo River *ca.* 1.5 km from the South Sudan border (N 03.90728; E 33.69665, 1040 m asl).

According to Park staff, one group of *E. patas* visits the Information Centre/Bandas at Apoko on a near-daily basis. The garbage bins at Apoko are not protected. We observed this group feeding on garbage.

Two of our research questions for this Project are, "Is there a phenotypic cline for *Erythrocebus patas* through Uganda? Is *E. p. formosus* a valid subspecies?"

We will now undertake a phenotypic analysis of our many photographs of patas to determine whether the subspecies in the Kidepo Valley NP is *E. p. pyrrhonotus*, *E. p. formosus*, or *E. p. whitei*.

Many people indicated that *E. patas* is present in Pian Upe GR and the extensive plains south of the Imatong Mountains. Based on information received from residents, *E. patas* is fairly common in central and north-eastern Uganda. This is in contrast to the situation in Kenya, where *E. patas* is one of the most threatened primates. See De Jong & Butynski (2014) and: <http://voices.nationalgeographic.com/2013/06/07/kenyas-elusive-patas-monkeys/>; <http://voices.nationalgeographic.com/2013/07/22/the-creatures-of-kenyas-forgotten-loima-hills/>

Fig. 9. Series of photographs of patas monkeys *Erythrocebus patas*, Kidepo Valley National Park, north-eastern Uganda.











4. Savanna Monkeys *Chlorocebus* spp.

Savanna monkeys *Chlorocebus* were encountered five times during this survey; one group in riverine woodland east of Pian Upe GR (N 01.84417; E 34.67912, 1238 m asl, Figure 10 & 11); two probable solitary individuals in riverine woodland along the Narus River in Kidepo Valley NP (N 03.85131; E 33.67232, 1025 m asl); one group near Agoro-Agu FR (Imatong Mountains, N 03.75445; E 32.91507, 1602 m asl); and one group on Solio Ranch, central Kenya (S 00.25578; E 36.90353, 1938 m asl).

Two species of savanna monkeys are known for Uganda; tanzania monkey *Chlorocebus tantalus* and vervet monkey *Chlorocebus pygerythrus* (De Jong & Butynski 2012). A third species, grivet monkey *Chlorocebus aethiops*, occurs to the north in South Sudan. The geographical limits of all three species, and their subspecies, are not well understood and require additional research. Furthermore, our primate survey in Kenya and Tanzania reveal that most primate species, including *Chlorocebus*, occur in phenotypic clines (Butynski & De Jong 2012; De Jong & Butynski 2011, 2014).

Chlorocebus are uncommon and shy throughout the area that we surveyed in north-eastern Uganda. The savanna monkey east of Pian Upe GR is *C. pygerythrus* (Figures 10 & 11). The only individual observed, however, showed a small white tuft at the base of the tail, a trait of *C. aethiops* (Butynski & Kingdon 2013). Future encounters with individuals in this part of Uganda should reveal if *Chlorocebus* through this area occur in a cline.



Fig. 10. Vervet monkey *Chlorocebus pygerythrus* east of Pian Upe Game Reserve, central east Uganda.



Fig. 11. Vervet monkey *Chlorocebus pygerythrus* east of Pian Upe Game Reserve, central east Uganda. Note the white tuft of hair at the base of the tail. This is a trait for grivet monkey *Chlorocebus aethiops*.

The two probably solitary savanna monkeys observed in Kidepo Valley NP were *C. pygerythrus*. The few savanna monkeys observed near Agoro-Agu FR were *C. tantalus* (Figure 12). The savanna monkey at Solio Ranch is Hilgert's vervet *C. p. hilgerti*.



Fig. 12. Tantalus monkey *Chlorocebus tantalus* near Agoro-Agu Forest Reserve, southern Imatong Mountains, central north Uganda. Note the whitish tail tip and greyish hands and feet.

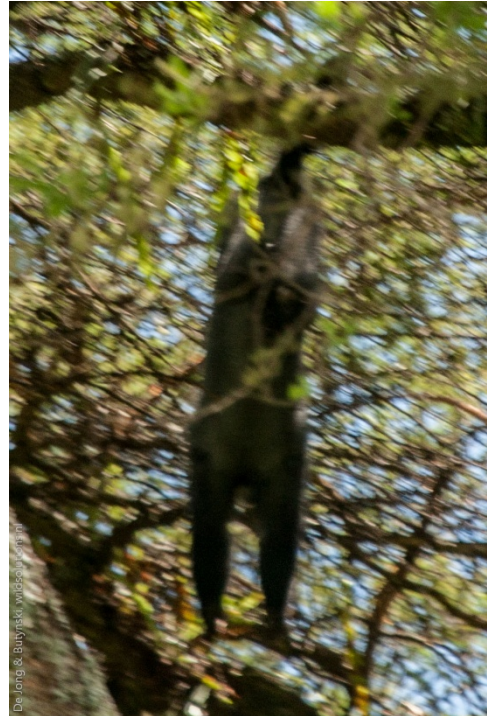
5. Gentle Monkey *Cercopithecus mitis*

One group of at least two gentle monkeys *Cercopithecus mitis* was encountered during this survey. The group was in Agoro-Agu FR, southern Imatong Mountains (N 3.77862; E 32.92415, 1750 m asl) in degraded riverine forest on the edge of cropland. These were Stuhlmann's blue monkeys *C. m. stuhlmanni*. Both individuals were shy.

Staff at Kidepo Valley NP said that *C. mitis* occurs in the Park and its vicinity...in the same localities as *C. guereza* (see above). Further surveys are required to determine the distribution and status of *C. mitis* in NE Uganda.

Officials at the Suam border post east of Mount Elgon (N 01.21641; E 34.73263, 2070 m asl) and Mount Elgon National Park rangers at Kapkwata, north-east of Mount Elgon (N 01.35486; E 34.63794, 2200 m asl), stated that *C. mitis* occurs in the vicinity. It is well-known that the subspecies of *C. mitis* on Mount Elgon is *C. m. stuhlmanni* (Lawes *et al.* 2013).

Fig. 13 Stuhlmann's blue monkey *Cercopithecus mitis stuhlmanni* in Agoro-Agu Forest Reserve, southern Imatong Mountains, central north Uganda.



5. Senegal Galago *Galago senegalensis*

No fewer than 19 Senegal galagos *Galago senegalensis* were observed or heard during this survey (some were probably observed twice). In Kidepo Valley NP, this galago was found along a road in moist woodland on a granitic hill (N 03.66441; E 33.71979, 1293 m asl) and in *Acacia tortilis* woodland along the Narus River (N 03.81470; E 33.70152, 1093 m asl) (Figure 14). In the southern Imatongs, *G. senegalensis* was encountered in *Albizia-Terminalia* woodland near Agoro-Agu FR (N03.74144; E32.93234, 1413 m asl) and in *Combretum-Entada* wooded grassland within Agoro-Agu FR (N 03.77886; E32.95837, 1735 m asl; Figure 15). At each encounter, when possible, the galago was photographed and its species-specific loud call recorded.

Two of the research questions of this Project are, "What does *Galago senegalensis* look like and what is its loud call like through Uganda, particularly at the highest sites? Is there a phenotypic cline through Uganda and does its loud call vary through Uganda?" Preliminary analysis show that the subspecies of galago in northern Uganda is the Senegal lesser galago *G. s. senegalensis*. The photographs and recordings obtained are now deposited at the Nocturnal Primate Research Group at Oxford Brookes University, UK, for further, joint, analysis.

Fig. 14. The below three photographs are of Senegal lesser galago *Galago senegalensis senegalensis* at Kidepo Valley National Park, north-east, Uganda



Fig. 15. The below two photographs are of Senegal lesser galago *Galago senegalensis senegalensis* near Agoro-Agu Forest Reserve, southern Imatong Mountains, central northern Uganda



6. Other Taxa

Although the focus of this research project is on the primates, considerable data were obtained for other species, particularly the larger mammals. A large series of photographs and audio recordings was taken during this survey. Below is a selection of photographs of wildlife (other than primates), vegetation and scenery.



Fig. 16. Skull of an adult common warthog *Phacochoerus africanus* at Pian Upe Game Reserve, central east Uganda with Mount Kadam in the background. No evidence was found during this survey for desert warthog in Uganda *Phacochoerus aethiopicus*.



Fig. 17 First sunlight over Kidepo Valley National Park, north-eastern Uganda.



Fig. 18. Adult Clapperton's francolin *Francolinus clappertoni* in Kidepo Valley National Park. In East Africa, this species is only found in north-eastern Uganda.

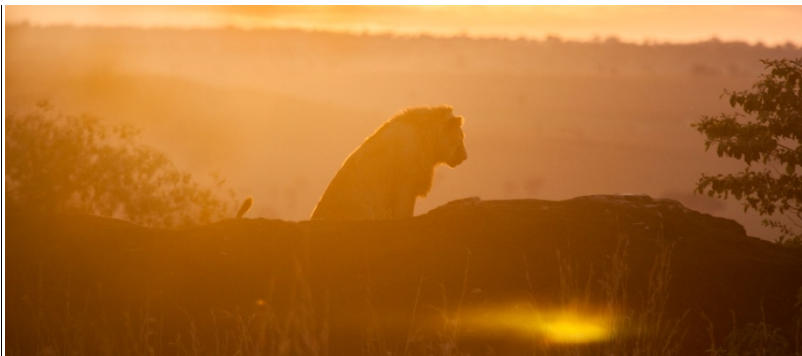


Fig. 19. 'Lion in the morning sun' in Kidepo Valley National Park, north-eastern Uganda.



Fig. 20. Adult male (with horns) and adult female oribi *Ourebia ourebi aequatoria* in Kidepo Valley National Park, north-eastern Uganda.



Fig. 21. Adult black-headed gonolek *Laniarius erythrogaster* in Kidepo Valley National Park, north-eastern Uganda.



Fig. 22. Samuel Loware (left) and Tom Butynski t the Kidepo River, Kidepo Valley National Park near South Sudan border. This major causeway has been damaged by flooding..



Fig. 23. Common warthogs *Phacochoerus africanus* in Kidepo Valley National Park, north-eastern Uganda..



Fig. 24 Abyssinian ground-hornbills *Bucorvus abyssinicus* in Kidepo Valley National Park, north-eastern Uganda.



Fig. 25. Dry sand river in Kidepo Valley National Park receiving its first water..



Fig. 26. Kids at Lotuturu, southern foothills of the Imatong Mountains, central north Uganda.



Fig. 27. Senegal coucal *Centropus senegalensis* near Agoro-Agu Forest Reserve, Imatong Mountains, central north Uganda.



Fig. 28. Southern foothills of the Imatong Mountains, central north Uganda.



Fig. 29. Road leading to Agoro-Agu Forest Reserve, southern Imatong Mountains, central north Uganda.



Fig. 30. Yvonne de Jong near Agoro-Agu Forest Reserve, southern Imatong Mountains, central north Uganda.



Fig. 31. School at Lomwaka Village, near Agoro-Agu Forest Reserve, southern Imatong Mountains, central north Uganda.



Fig. 32. Gambian sun squirrel *Heliosciurus gambianus* in Agoro-Agu Forest Reserve, southern Imatong Mountains, central north Uganda.



Fig. 33. Joseph Owaley (center) and Tom Butynski (right) in Agoro-Agu Forest Reserve, southern Imatong Mountains, central north Uganda.



Fig. 34. Red tip butterfly *Colotis antevippe* near Agoro-Agu Forest Reserve, southern Imatong Mountains, central north Uganda.



Fig. 35. Daybreak at Agoro-Agu Forest Reserve, southern Imatong Mountains, central north Uganda.

Literature

- Butynski, T.M. & De Jong, Y.A. 2012. Survey of the Primates of the Loita Hills, Kenya. Unpublished report to Primate Conservation Inc., Charlestown, Rhode Island. 39 pp.
- Butynski, T.M. & Kingdon, J. 2013. *Chlorocebus aethiops* Grivet Monkey. In: *Mammals of Africa*. Volume 2 *Primates* (eds. Butynski, T.M., Kingdon, J. & Kalina, J.). Bloomsbury, London. Pp. 267-271.
- De Jong, Y.A., Butynski, T.M. 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.A. & Butynski, T.M. 2012. The primates of East Africa: country lists and conservation priorities. *African Primates* 7: 135-155.
- De Jong, Y.A. & Butynski, T.M. 2014. Distribution, Abundance, Ecology, and Conservation Status of the Desert Warthog (*Phacochoerus aethiopicus*) in Northern Kenya. Unpublished Report to the National Geographic Society. Washington D.C.
- Fashing, P.J. & Oates, J.F. 2013. *Colobus guereza* Guereza Colobus. In: *Mammals of Africa*. Volume 2 *Primates* (eds. Butynski, T.M., Kingdon, J. & Kalina, J.). Bloomsbury, London. Pp. 111-119.
- Lawes, M.J., Cords, M. & Lehn, C. 2013. *Cercopithecus mitis* Gentle Monkey. In: *Mammals of Africa*. Volume 2 *Primates* (eds. Butynski, T.M., Kingdon, J. & Kalina, J.). Bloomsbury, London. Pp. 354-362.
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All photographs in this report were taken by Yvonne de Jong and Tom Butynski.