

## A survey of nocturnal primates in Malawi – August 2009

Professor Simon K. Bearder  
Nocturnal Primate Research Group (NPRG)  
School of Social Sciences and Law  
Oxford Brookes University  
Oxford OX3 0BP  
United Kingdom  
Telephone: + 44 (0) 7717 810688  
Fax: +44 (0) 1865 483950  
Email: [skbearder@brookes.ac.uk](mailto:skbearder@brookes.ac.uk)

Mr. Johan Karlsson  
Nocturnal Primate Research Group  
c/o Edwards, Sjövägen 2  
169 55 Solna  
Sweden  
Telephone: +46 (0) 675 4923  
Email: [johan.karlsson@minmail.net](mailto:johan.karlsson@minmail.net)

### Abstract

We conducted 75 hours of nocturnal surveys in the rainforests of Malawi from 30 July to 23 August 2009 in three regions: Mount Mulanje, in the south; Nkhata Bay, on the lake-shore; and in the Misuku Hills, in the far north. We identified four different kinds of bushbaby (galagos) on the basis of their different calls and pelage colouration: *Otolemur crassicaudatus* (in all areas); *Galagoides granti* (Southern Malawi); *Galagoides* sp. nov. 1 (near Nkhata Bay); and *Galagoides orinus*/*Galagoides* sp. nov. 3 (Mughese Forest, Misuku). We noted the position, height and behaviour of each animal seen during night surveys using torch light and a handheld GPS-unit. We collected over 10 hours of tape recordings of galago calls, 4 hours of video recordings and many photographs of the animals and their habitats to aid a more detailed analysis and assessment of conservation priorities for the severely threatened, yet unique forest areas that remain in Malawi. The complete destruction of the Kalwe Forest Reserve, the last remaining easily accessible forest of its kind in Malawi and a national treasure, is particularly alarming.



Map showing area covered by the Forest Reserve before its destruction.

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by

Simon K. Bearder and Johan Karlsson

## Introduction

Our survey is a follow-up to a previous study in 1985 (Courtenay & Bearder 1989) where we identified a species of bushbaby (*Galagoides* sp. nov. 1, Grubb et al 2003) in the Kalwe Forest Reserve near Nkhata Bay, with calls that differed from those recorded elsewhere in Africa. At that time we also discovered a new call type in the Misuku Hills, near Mughese, that indicated a second, as yet unknown, species living in the montane rainforests in the extreme north of Malawi. Further poorly known species have been provisionally identified in southern Malawi – in the region of Mount Mulanje and Thyolo Mountains (*Galagoides nyasae* and *Galagoides* sp. nov. 2). A detailed study by Wallace (2005) provided strong evidence that the small galagos in this area were *Galagoides granti*, as found in neighbouring Mozambique and extending north into coastal Tanzania.

The present study has three main aims: 1) to confirm the identity of the Mount Mulanje galago by collecting further tape recordings and photographs; 2) to gather further data on the distinct characteristics of the Kalwe galago (calls and photographs showing facial markings); and 3) to establish which species exists in the Misuku Hills in the north.

The importance of studying the calls and face markings of nocturnal primates stems from the fact that they recognise members of their own species partly on the basis of these characteristics. Therefore, each species has a distinctive set of calls and a different pattern of black and white markings on the face. In addition to the small galagos that were the object of this study, we also noted the presence of the large bushbaby (*Otolemur crassicaudatus*) known locally as changa, and other nocturnal species that were seen or heard during night surveys. We also noted the conservation status of various forest habitats.

## Methods

Night surveys were made after dark and before dawn by walking slowly along established forest paths (0.1 km /hour) and stopping at regular intervals to scan the vegetation with a 4.5 volt halogen head torch and listening for calls. Swarovsky 8x30 binoculars were used for close-up views. A hand-held Maglite flashlight was used to provide extra light for photography or filming. Good quality flash photographs were obtained using a Canon EOS Rebel XSi with a 70-300 mm telephoto lens and video footage was recorded using a Canon MD160 E digital camcorder. All calls were recorded onto a Marantz PMD 660 Solid State recorder using an Audio Technica condenser microphone (AT 897), or using a Marantz PMD 222 cassette recorder with a Sennheiser ME67 long gun microphone. We marked waypoints and the location of each bushbaby seen using a Garmin GPS Map (60CSx); its height above ground level was noted and the time of sighting. All calls heard were noted by time heard and name of call. These data were collected for all larger nocturnal species encountered – although in practice it was rare to see or hear anything apart from bushbabies.

## Results

We conducted a total of 75 hours of nocturnal surveys – 26 hours 20 minutes at Mount Mulanje; 28 hours 20 minutes at Mughese Forest in the Misuku Hills; 20 hours 20 minutes in the Mkwazi Forest Reserve near Nkhata Bay on the shores of Lake Malawi. This included 10 hours of tape recordings, 4 hours of video recordings and over 150 photographs of the animals and their habitats. Here we give a brief summary of the main findings, pending detailed analyses at a later date. The study sites are listed by date of survey.

- 1) Mount Mulanje (foothills and Tea Research Foundation Forest - TRF)  
30 July – 6 August 2009

Evergreen forest in this region has been categorised as lowland rainforest and transition woodland (Dowsett-Lemaire & Dowsett 2006). We surveyed 3 forest patches: Likhubula House, Chitakali Tea Estate and the Tea Research Foundation Forest. On Mount Mulanje above Likhubula we saw and heard one small species of bushbaby (taxonomic status unclear) and several *Otolemur crassicaudatus* – the large bushbaby. Nothing was seen or heard in the degraded forest behind the Chitakali Tea Estate. The Tea Research Foundation Forest was an excellent site (1 km<sup>2</sup>) for the small species of bushbaby. Our photographs and sound recordings show that this species is indeed the same as *Galagoides granti* in Tanzania, as suggested by Wallace (2005) and studied by Perkin, Bearder & Karlsson (in prep.). This species used all heights within the forest and all sizes of supports, but an analysis of first sightings (N = 92) shows that it was seen on 63% of occasions below 3 meters; 30% between 3-15 meters; and 7% above 15 meters (canopy <30 meters). The advertising call of this species (used to attract the opposite sex) was an 'incremental call' indistinguishable from that of *Galagoides granti*, and the pelage colours and facial markings were also characteristic of this species. We were fortunate to be able to examine an adult male and female of this species that had been reared from birth by Mr. Ken Rice, Financial Director of Eastern Produce Tea Estates, again confirming that this species was *Galagoides granti*. *Otolemur crassicaudatus* was heard in farmland surrounding the TRF forest.

- 2) Mughese Forest, Misuku Hills Forest Reserve  
9 – 13 August 2009

Dowsett-Lemaire & Dowsett (2006) note that this montane rainforest is floristically the most diverse in the country. Mughese Forest is particularly luxuriant and has a striking abundance of strangling figs and epiphytes covering an area of 7.2 km<sup>2</sup> along the mountain peaks and surrounded by extensive subsistence agriculture and terracing, even on the steepest slopes. We surveyed repeatedly along a 1 km long path above the village of Mughese. Photographs and tape recordings enabled us to confirm that the very small bushbaby common in this forest was a montane galago not previously recorded for Malawi, but studied by Perkin & Bearder in the nearby Mount Rungwe, Tanzania, in 2005. Montane bushbabies are found only on peaks of mountains of the Eastern Arc and Livingstone mountain chain and are currently classified as *Galagoides orinus*, although some local variation is evident in the Taita Hills (Kenya – Perkin et al 2005) and Mount Rungwe (*Galagoides* sp. Nov. 3). Again, these

galagos used all heights within the forest and all diameters of support, but they were most commonly seen above 15 meters (60%); 3-15 meters (28%); and below 3 meters (12%) (N = 113). The advertising call of this species is a 'scaling call' – a series of 2 or 3 notes repeated several times which get louder and then softer. The full repertoire of different calls appeared to be the same as recorded on Mount Rungwe (Tanzania). Body colouring and facial markings were also the same. *Otolemur crassicaudatus* calls were familiar to local people who reported that this species occurs around the villages but not in the forest.

3) Kalwe and Mkwazi Forest Reserves near Nkhata Bay  
15 – 18 August 2009

The lowland rainforest in this area is the remnant of forests that once were widespread in the north of the country but are now confined to the Nkhata Bay lake-shore, where forest patches inter-grade with transition woodland (Dowsett-Lemaire & Dowsett 2006). In the 1980's the total area of this type of forest was just under 30 km<sup>2</sup> and decreasing. A major recent loss of this habitat is the almost total destruction of the Kalwe Forest Reserve – to provide a site for a proposed new hospital. This forest of just under 1 km<sup>2</sup> was a rich habitat for rare endemic species such as birds – *Sheppardia gunnungi bensoni* and the distinctive bushbaby *Galagoides* sp. nov. 1 identified by Courtenay & Bearder (1989). At the time of our present study, only bare soil remained with a few burning stumps and remnants from the timber that had been removed for sale over the last few months (January-July 2009). Extensive video and photographic evidence of the destruction of this national treasure was collected and we made a short documentary film to illustrate the serious long-term consequences of the seemingly unstoppable destruction of such rich and complex habitats. Given the loss of Kalwe Forest Reserve we shifted our focus to the less accessible Mkwazi Forest Reserve nearby and concentrated our efforts on obtaining good quality photographs and recordings to supplement data collected in 1985 (Courtenay & Bearder 1989). These confirmed that the populations of galagos surviving in this area are indeed distinctive. They most resemble *Galagoides granti* in calling patterns and behaviour, but have a different kind of 'incremental call' call and facial markings – suggesting that they are a separate species found only in Malawi (*Galagoides* sp. nov. 1). *Otolemur crassicaudatus* did not occur in the lowland rainforest but was heard from more open vegetation all around and is common along the lake-shore.

## Conclusions

Our three week survey of nocturnal primates in Malawi revealed four species of bushbaby or galago (one of which remains to be confirmed). The seemingly relentless destruction of their habitats creates great pressures on their survival, despite the fact that they were the most numerous mammals seen. Only remnant patches of natural vegetation remain following its almost complete replacement by monocultures of cash crops such as tobacco, tea, rubber and exotic timber, as well as by subsistence farming. The extent of these developments undermines the ecological complexity, built up over many thousands of years, that would otherwise provide sustainable ecological services for future generations. These include increased rainfall, clean water, soil protection on steep mountain slopes, a continuous supply of firewood, timber and traditional medicines and the considerable benefits of carbon capture. The last remaining Forest Reserves are now subject to new pressures as their rarity increases the value of the hardwood they contain. The destruction of Kalwe forest follows on the heels of the removal of other important Forest Reserves administered by the Forestry Department in Malawi, for example, Thyolo Mt, the Malawi Hills, Malosa Mt and elsewhere. Urgent action is required if this trend is to be averted for the few forest patches that still remain.

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