Galagoides rondoensis Conservation in Saadani National Park, Tanzania

By

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Introduction

Galagoides rondoensis weighs approximately 60g, is the smallest of all galago species (Honess 1996). It is unique from other dwarf galagos because of its diminutive size, a bottle-brush-shaped tail, reproductive anatomy, and its distinctive double unit rolling call (Bearder et al. 1995; Honess 1996). The species was formerly described as Galagoides demidovii phasma after the collection of specimens from Rondo Plateau in 1955, and Nambunga on Makonde Plateau in Newala District in 1953. The IUCN classifies Rondo dwarf galago (Galagoides rondoensis) as endangered. Also the species is among the top 25 most endangered primates. Reasons for this classification are that it has an extremely limited and fragmented range. Its entire forests habitat except in Saadani national parks are subjected to agriculture and charcoal burning.

In all its known range, G. rondoensis is found with a number of other galagos, such as Garnett’s galago (O. garnettii), and the thick-tailed galago (O. crassicaudatus). The Rondo galago is sympatric with the Zanzibar galago (Galagoides zanzibaricus) in the northern parts of its range, for example, in Zaraninge forest, Pugu-Kazimzumbwi Forest Reserve and Pande Game Reserve. G. zanzibaricus is classified as Lower Risk (Near Threatened) in the 2006 IUCN Red List (IUCN 2006) due to threats to its habitat.
In the southern parts of its range for instance, at Rondo, Litipo and Ziwani Forest Reserves, the Rondo galago is sympatric with Grant’s galago (*Galagoides granti*) which is listed as Data Deficient (IUCN 2006). The Mountain dwarf galago (*Galagoides orinus*) ranked as Data Deficient (IUCN 2006), is restricted to areas of sub-montane and montane forest in the Eastern Arc Mountains further inland in Tanzania.

There is no detailed study carried out and specific targeting G. rondoensis, however, some biodiversity surveys provides relevant in information on this species (Honess 1996, Honess and Bearder 1996; Perkin, 2000, 2003, 2004). The report of Honess, *et al.* (2007) provides general review of this species and point out the need of specific study on the species. Because of limited study and information deficit on G. rondoensis no special attention has been conferred to this species. It is difficult for conservation organization to develop feasible conservation actions like protecting the remaining habitats. Therefore, G. rondoensis populations which are luck to be in strictly protected areas are the ones protected.

This study was developed in the knowledge that any research findings which can influence the conservation actions targeting G. rondoensis will automatically benefit other primate species. Hence achieve their conservation.

**Project Objectives**

This project goal is to conserve *G. rondoensis*, which is endemic to Tanzania.

The specific project objectives are:

i. To map the presence or absence of *Galagoides rondoensis* in Park,

ii. To increase our understanding on distribution of *Galagoides rondoensis* in park,

iii. To provide information of *Galagoides rondoensis* to conservation actors,

iv. To increase awareness on conservation need of *Galagoides rondoensis*
Project Area
The Saadani National Park ecosystem is an old one (Hawthorne 1993; Clarke and Karoma 2000) having a rich vegetation mosaic composed of various terrestrial and aquatic ecosystems (Bloesch and Klötzli 2002) found along the Indian Ocean dominated with coastal forests. The coastal forests have a characteristic feature of savanna landscape consisting of highly heterogeneous and diverse assemblages of forest types (Clarke and Robertson 2000; Clarke et al. 2000). Hawthorne (1993) distinguished between moist and dry coastal forests and further used for a finer classification the eco-geographical and chorological elements. According to the topographical position Saadani has 6 types of coastal forests along a typical catena, from hilltop to valley floor. These are: Small hilltop forests on hillocks (relevés N° 2, 5, 7, 10, 18, 22); Gully forests on variable topographical position (relevés N° 12, 19); Forest patches/Thicket clumps on variable slope (relevés N° 3, 4, 11, 15, 17); Gallery forests (8, 16, 21); Groundwater forests (relevés N° 9, 13, 20, 23); Large hilltop forests occurring on higher elevation at Zaraninge and Kwamsisi (relevé N°24); In valley bottoms (relevés N° 6); Pteleopsis myrtifolia on moderate slope (relevés N° 1).

Study Methods
The galagos surveys used vegetation types and nature of terrain in setting study sites. *Galagogoides rondoensis* is nocturnal so survey will be conducted at night between 18.30 and 23.00 hours and early morning 3.30 to 6.00 hours. Materials used in include torches, binoculars and tape recorders, and tapes. A number of methods for data collection were employed. Researchers’ walked along existing paths to record galagos and other animals heard or seen. These methods have been established as a reliable means of recognizing cryptic species (Bearder et al., 1995; Perkin 2000). The vocalisation data was analysed by computer using a digital sound analyser programme. Ecological data was use to map the distribution of G. rondonsies in the park and correlate them with habitat types.

Results Highlights

Galagos
Four galagos species were recorded in Saadani National Park. These are: - Large Eared Greater galago, Matundu galago, Garnett's Galago and Rondo Galago.
1. **The Large Eared Greater galago**
The species unique advertising calls of “baby cry” were recorded wooded grassland area, in the central part of the park.

2. **Matundu galago**
This species was identified by their distinctive advertisement call called the ‘single unit rolling call’. The calls were recorded in Zaraninge forests and in thicket along the coast.

3. **Garnett's Galago**
The Garnett's Galago is the most common species in Zaraninge Forests and other parts of the park. Its ‘trailing calls’ and ‘cackle calls’ were heard every part of Zaraninge and some parts of Askari forests.

4. **Rondo Galago**
*Galagoides rondoensis* advertising call called the ‘the double unit rolling call’, an alarm call called ‘buzz and shivering twitters’ and another called ‘buzz and rapid chatter’, were heard and tape recorded only in Zaraninge forest. The calls were heard at Kiono hill. Although interactive interview with communities reported to have rarely seen *G. rondoensis* in thicket out the park, no call was recorded in the mentioned locality. Probably the species was confused with Matundu galago (*Galagoides zanzibaricus*).

This study proves that Saadani National Park is very critical habitat of galagos, with four species confirmed to be present in the area. More important the presence of *G. rondoensis* in Zaraninge forest makes the park unique. According to Perkin (2000) it makes the park one of diverse and rich habitat, in the coastal forests of eastern and southern Africa with three galago species occurring sympatrically in Zaraninge locality, while one more occurring outside closed canopy forest.

**Other primates recorded and observed in the park are:**
- Black and White Colobus *Colobus angolensis*,
- Blue Monkey *Cercopithecus mitis*
- Yellow baboon *Papio cynocephalus*
**Conservation issues**

Zaraninge forest is part of Saadani National Park, where consumptive utilization is total prohibited. Non consumptive utilization ensures the promising future of *G. rondoensis* in the park. However, the park management develops tourism facilities like trail, campsites and hotels. Presently, we know and agree with Perkin (2000) that “*G. rondoensis is more insectivorous than frugivorous and hunts its prey in the leaf litter.... These specific factors require ecologically stable closed canopy habitat that maintain a deep leaf litter layer to provide the necessary amounts of insects and reptiles. The disturbance of forests by either fire or logging will allow too much light and heat in and reduce the leaf litter cover that this species require. *G. rondoensis is therefore a conservative species with the specific habitat requirements*”. Thinking in this line any park development in the closed canopy of Kiono Hill (Zaraninge) forests may interfere or destroy the only available habitat of the species in the park.

The conservation move should be to sensitize park authority to design the current sites where the *G. rondoensis* has been sited as no use zone, until population size, status and viability has been established. This may requires more scientific evidence to justify the site as no use zone for specified time.

The main conservation issues that threat *G. rondoensis* habitats are:

i. Increasing human population this claims for more fertile land for agricultural. In fact agricultural clearance on the park border is evident. The park staff reported that the park is experiencing pressure from politicians, who want to win popular support from local communities pressuring the government to give them piece land from the park.

ii. The possibility of wildfire that may come from agricultural field or intentional, may indeed damage large part of the parks, Zaraninge forests and Kwamsisi forests in particular. Currently, the effect of fire to *G. rondoensis* is unknown, but from ecological view the burn of nests and food sources may negatively affect the species.
Recommendation

This study has confirmed that *G. rondoensis* is occurring in a small area of Zaraninge forest in Saadani National Park. Furthermore a total of seven (7) species were observed and/or recorded in the park. This understanding disapproves assumption that the *G. rondoensis* may be distributed whole over the park. I recommend monitoring of this species in the occurring site. However, some questions remain unanswered so as to have sufficed information to design longer lasting conservation actions. These questions include:

i. What is the population size and viability?
   The next study should establish population sizes of *G. rondoensis* and other galagos to ascertained the viability and reproduction capacity. What are possible ecological and non-ecological factors (e.g. predation, diseases, and habitat) limiting *G.rondoensies* population? It is also important to study effect of longtime isolation of *G. rondoensis* in the area, and attempt to establish answers on issues of genetic drift and loss of genetic variability.

ii. What is the resilience of *G. rondoensis* on wildfire?

iii. What is alternative habitat of *G. rondoensis*?
   We need to know if *G. rondoensis* can adapt and survive in other forests found in Saadani National Park like Kwamsisi and Askari forests, or any other moist coastal forest along Tanzania coast.

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Suggested further reading


