

Rondo Dwarf Galago, Galagoides rondoensis



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1. STATUS REVIEW

1.1 Taxonomy:

Mammalia > Primates > Galagidae > *Galagoides* > *rondoensis* > Paul E. Honess and Simon Bearder.

English (Common name): Rondo dwarf galago

This species was first discovered in South Eastern Tanzania near Makonde plateau in 1953 and the Rondo plateau in 1955 *(Lumsden and Masters 2001)* where it was provisionally *identified by R.W. Hayman* as Demidoff's galago *"Galago demidovii"* from the Congo basin and then later the Mountain galago *"Galago demidovii orinus"* then known from the Uluguru mountains in Tanzania (Jenkins 1987, Honess 1996). It was later recognized as the Rondo galago in 1996 (Honess *et al*, 1996).

Galagoides rondoensis (Critically Endangered) is endemic to Tanzania with limited and fragmented range found in a number of remnant patches of Eastern African Coastal Dry Forest in Tanzania (Russell et al 2012). Its occurrence doesn't exceed a total of 101.6km2. The species occurs in two distinct areas, in southwest Tanzania near the coastal towns of Lindi and Mtwara and the other approximately 400 km further north, above the Rufiji River, in pockets of forest around Dar es Salaam (Paul et al, 2006,2008). Currently, this species is revealed to occur in 9 forest patches of Tanzania. However, this might be due to little or no survey to other forests. Galagoides rondoensis is sympatric with other two dwarf galago species, Galagoides zanzibaricus, in the northern parts of its range and Galagoides granti in the southern parts of its range. This species (i.e. Galagoides rondoensis) It is distinct from other dwarf galagos in its bottle-brush-shaped tail, its reproductive anatomy, and its distinctive "double unit rolling call" (Paul et al. 2006, 2008). Thus its identification needs highly skilled and experienced scientists to avoid confusion between these three dwarf galago species. Recent field work and other scientific references have revealed that the leading threats in Noto Forest and other forest sites where the Rondo Galago (RG) is found are habitat loss via logging, agricultural encroachments and fire.

1.2 Distribution and population status:

Country	Population estimate (plus references)	Distribution	Population trend (plus references)	Notes
Tanzania	Ünknown: <i>Estimate density to</i> <i>few sites: -</i> PandeGame Reserve(3–6/ha), Pugu Forest Reserve(8/ha) (Paul	Eastern African Coastal Dry forest of Tanzania: - Its range (location and area known to occur) includes; -Zaraninge forest (06°08'S,38°38'E),20 km ² -Pande GR (06°42'S,	Unknown	-There is a need to fill the knowledge gap on the population status of this spp in Tanzania -Only density

1.2.1 Global distribution:







et al, 2006,2008 & Russell et al, 2012) <i>Relative abundance</i> <i>from encounter rate</i> Pande Game Reserve and Pugu/ Kazimzumbwi Forest Reserves(3–10/hr) -Rondo Forest Reserve (3.94/hr) (Paul <i>et al</i> , 2006,2008).	39°05'E), 2.4 km ² -Rondo (10°08'S, 39°12'E),25km2 -Litipo(10°02'S, 39°29'E), 4 km ² -Pugu/Kazimzumbwi (06°54'S,39°05'E), 33.5 km ² . -Chitoa FR (09°57'S, 39°27'E), 5km ² -Ziwani FR (10°20'S, 40°18'E), 7.7 km ² -Ruawa FR (09°44'S, 39°33'E) -Noto VFR (unknown)	estimates and relative abundance from encounter rate to few forests have been obtained -Data from recent surveys in Noto Forest and Ruvu South FR and needs to be shared globally to increase knowledge of Rondo galago (such as its known
		(such as its known distribution)

1.2.2 Local distribution:

Country	Region / province	Site	Level of Protection	Population size	Reference(s)	Notes
Tanzania	Lindi	Ziwani FR	National forest reserve administere d by central government	Unknown	Paul <i>et al</i> , 2006,2008 & Russell <i>et al</i> , 2012	Agricultural encroachment, wild fire and logging are the leading factors towards rapid decrease in population status of RG
		Chitoa FR	National forest reserve administere d by central government	Unknown	Paul et al, 2006,2008 & Russell et al, 2012	
		Rondo FR	National forest reserve administere d by central government	Relative abundance from encounter rate: - (3.94/hr)	Paul et al, 2006,2008 & Russell et al, 2012	
		Noto VFR	Village forest reserve administere d by local government (i.e village gvt)	Unknown	Un published report/document s (Dr Andrew Perkin and Justine Gwegime)	This is a target galago research site for the EDGE fellowship project. It is our expectation to share both scientific and social research







					findings by the early 2017.
	Litipo FR	National forest reserve administere d by central government	Unknown	Paul et al, 2006,2008 & Russell et al, 2012	
	Ruawa FR	National forest reserve administere d by central government	Unknown	Paul et al, 2006,2008 & Russell et al, 2012	
Coastal region	Zaraninge FR	National forest reserve administere d by central government	Unknown	Paul et al, 2006,2008 & Russell et al, 2012	
	Ruvu South FR	National forest reserve administere d by central government	Unknown	Un published report/document s (Dr Andrew Perkin and Justine Gwegime)	Several surveys have been conducted in this forest. Rondo galago.
	Pande Game Reserve	None	Estimate Density=3- 6/ha Relative abundance from encounter rate=3-10/hr	Paul et al, 2006,2008 & Russell et al, 2012	
Coastal/D ar es Salaam	Pugu/Kazi mzumbwi FR	National forest reserve administere d by central government	Estimate Density (Pugu FR) = 8/ha Relative abundance from encounter (Pugu/Kazim zumbwi FR) = 3–10/hr	Paul et al, 2006,2008 & Russell et al, 2012	

1.3 Protection status:

Galagoides rondoensis is categorised as Critically Endangered on the IUCN red list. The international Strategic Plan for Biodiversity 2011-2020- Aichi Biodiversity Targets – Strategic Goal C – Target 12, stipulates that: 'By 2020 the extinction of







known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained'.

Within Tanzania, the majority of forest areas where this species occurs are under high conservation status such as National Forest Reserves (i.e. forest reserves described under section 22 of Tanzanian Forest Act of 2002). One of the overall objectives of this act is to ensure ecosystem stability through conservation of forest biodiversity, water catchments and soil fertility. Under the umbrella of Wildlife Act no.27 cap 283 of 2008, which is also national legislation in Tanzania, the species is protected from unlawful hunting, killing capturing or trapping and that serious offences will be taken toward anyone who violates the law.

1.4 Ecology, behaviour and habitat requirements:

Being one of the smallest galago weighing approximately 60g, Galagoides rondoensis is distinct from other dwarf galagos in its bottle-brush-shaped tail, its reproductive anatomy, and its distinctive "double unit rolling call" (Russell *et al*, 2012). The Rondo galago utilises a combination of hearing, sight and olfactory senses to locate prey, communicate with conspecifics, and maintain territories and to detect potential predators. There is also emerging evidence that the northern and southern populations may be phylogenetically distinct and potential therefore separate species. The Rondo Galagao is sympatric with a number of other galagos such as *Galagoides zanzibaricus* in the northern part of its range and *Galagoides granti* in the southern part of its range.

Galagoides rondoensis feeds on a mixed diet including insects and fruit close to the ground. However, sometimes they move vertically by jumping in the shrubby understory and usually build daytime sleeping nest. Thus, any proximate threats such as fire and logging which result in habitat loss will cause both decline in their diet and shelter hence population decline. However, they are also subjected to nocturnal predator such as Owls, genets and palm civets.

1.5 Threat analysis:

Galagoides rondoensis is categorized as **Critically Endangered** as per IUCN red list. This species is highly affected by one major proximate threat which include; habitat loss as a result of agricultural encroachment, logging and charcoal production. Most of the sites where this species is found are national or local authority forest reserves. However, due to poor low enforcement and monitoring they minimally protected. Majority of these sites area highly affected by the bordering village land. Thus, urgently conservation action is needed as well as more research to assess the rate of habitat loss and to survey new areas where this species. Please, find the summary of threat analysis in the table below.







S/N	THREAT	TYPE	INTENSITY	DESCRIPTION
1	Agricultural encroachment	Proximate	High	Increase in population size especially in western part of Noto has resulted into expansion of settlement as well as agricultural activities.
2	Logging	Proximate	Medium	There are little on-going logging activities in Noto FR but more prominent in other sites such as Pugu FR, Ruawa and Litipo
3	Charcoal production	Proximate	Low	Not prominent for Noto FR (target sites) but dominant in other areas such as Pugu and Kazimzumbwi etc

1.6 Stakeholder analysis:

Country	Stakeholder	Stakeholder's interest in the species' conservation	Current activities	Impact (positive, negative or both)	Intensity of impact (low, medium, high or critical)
Tanzania	Tanzania Wildlife Research Institute (TAWIRI)	Research and Conservation	Provision of research permit for wildlife and national body /general overseer for wildlife research	+	Critical
Tanzania	Tanzania National Parks Authorities (TANAPA)	Conservation and Tourism industry development	Supervision and administration of Tanzania's National parks	+	High
Tanzania	Tanzania Forest Service (TFS)	Conservation and revenue collection from well conserved national forest	General management of national forest reserve as well as	+/-	High







		reserves	revenue collection		
Tanzania	Village government (VC, VEO and VNRC) from villages bordering targets forest sites	Conservation	Supervision on development and enforcement of forest management bylaws as per plans	+	Critical
Tanzania	Tanzania Tourism Board (TTB)	Conservation and Commercial	Tourism promotion and management	+	High
International	Zoological Society of London	Conservation	Funders	+	High
Tanzania	National Forest Resource Monitoring and Assessment (NAFORMA)	Forest research and conservation	Monitoring and Assessing status of forest in Tanzania as well as provision Scientific backup on forest resources	+	High
Tanzania	Tanzania Forest Conservation Group (TFCG)	Conservation	Implementation of donor funded forest conservation projects activities from different part Tanzania. Lead partner and in country host for the EDGE fellowship project	+	Critical
Tanzania	Community Forest Conservation Network (MJUMITA)	Conservation	Implementation of donor funded forest conservation projects activities from	+	Critical







			different part Tanzania to ensure good governance in natural resource sector of Tanzania		
Tanzania	Loggers and Timber traders	Commercial	Poles and timber extraction, timber trade to nearby towns /cities	-	High
Tanzania	Farmers	Commercial and ensuring food security	Shifting cultivation leading into encroachment	-/+	Critical
Tanzania	Police force	Conservation and law enforcement	Eviction and prosecution of farmers encroached in the reserved forest areas And illegal loggers	+	High







1.7 Context and background information that will affect the success of any conservation action for this species:

	Description	Barriers to conservation	Opportunities for conservation
Socio-cultural effects and cultural attitudes	In few areas where this species is found such as in Lindi region, this species sometimes is confused with <i>Galagoides granti</i> . The <i>G.granti</i> and the larger species, the <i>O. garnettii</i> are sometimes consider as threats to economy of the local community as they sometimes drink coconut wine which is one of the sources of income to local community.	Coconut wine producers from local community (-ve perception towards the <i>G.rondoensis</i>).	Trained Village Natural Resources Committee and few local communities on how to identify <i>G. rondoensis</i> , its habitat requirement, threats and conservation approaches. The presence of active law enforcement unit in the village such as village game scouts, police stations and primary court
Economic implications	The species have a pronounced contribution to the government revenues /GDP via research, entrance and camping fees from different researchers and tourists.	There is some disputes on revenue sharing from the villages surrounding these forests (e.g in villages surrounding Noto forest. The existing political dynamics with personal interest on these forest resources.	Presence of both international and local researcher as and tourists. Strong and efficiency government system. Availability of effective law enforcer (e.g. Village Natural Resource Committee, MJUMITA network, TFCG)









Existing conservation measures	Conservation NGOs such as TFCG and MJUMITA are implementing various forest conservation projects in different parts of Tanzania including the <i>Galagoides rondoensis</i> range. The Ministry of Natural Resource and Tourism (MNRT) via Forest and Beekeeping Division and Tanzania Forest Research Institute have different partnership forest conservation and research projects in different forest reserves of Tanzania including the <i>Galagoides rondoensis</i> range.	Closure of several donor funded conservation projects. The existing political dynamics with personal interest on these forest resources.	Conservation NGOs (e.g. TFCG, MJUMITA, Mpingo Conservation, WWF). Presence of committed government body in conservation such as TAFORI, FBD, TFS. Conservation projects Financial assistance from different countries such as Fin land, European Union, Norway.
Administrative/political set-up	This species is found in Village Forest Reserves and National Forest Reserves administered by local government and central government respectively.	The presence of politicians with personal interest on forest resources. The 2016 special projects of schools' desks construction as announced by the president of Tanzania. Too few areas with minimal supervision the projects have led into increase on illegal logging.	Stable and committed government authorities in conservation. Good wildlife and forest policies, regulations and act. Supports from other large international conservation NGOs and Institutions/unions.
Local expertise and interest	The presence of trained and highly motivated and interested few community members, Village leaders from villages bordering <i>Galagoides</i> <i>rondoensis</i> range (e.g. in Noto forest) is the big asset for the combined effort to fight toward effective conservation species habitat.	Political affiliation on forest, (e.g. personal interest from different politicians on forest products). Illegal loggers.	Trained Village Natural Resources Committee, Village Game Scout, Tanzania Forest Service (TFS). Availability of clear and good Forest Management Plans and Bylaws from most of villages surrounding these <i>Galagoides</i> <i>rondoensis</i> range.









Appeal of species	<i>Galagoides rondoensis</i> is found only in Tanzania and it is now gaining unique recognition from local and international researcher and conservationists as well as politicians and other government officials. Over a decade, the Oxford Brookes University via Nocturnal Primates Research Group is highly committed to research the species in different parts of Tanzania. Different Funders such as ZSL is committed to provides financial assistance to explore more about this species.	Coconut wine producers from local community (-ve perception towards the <i>G.rondoensis</i>).	Powerful International and local bodies/institutions in research and conservation such as ZSL, Oxford Brookes University, Tanzania Wildlife Research Institute (TAWIRI), Tanzania Forest Services (TFS), Tanzania Forest Conservation Group (TFCG), MJUMITA Mpingo Conservation Institute (MCI) and WWF-Tanzania.
Resources	 The availability of Tanzania government officials (e.g. Regional and District Forest and Natural Resources Officers, District Game Officers e.t.c) with skills on forest and wildlife conservation is a great asset for sustainable conservation of this species. The presence of trained and highly motivated and interested few community members, Village leaders from villages bordering Galagoides rondoensis range (e.g. in Noto forest) is the big asset for the combined effort to fight toward effective conservation species habitat. There is financial assistance from Ministry of Natural Resource and Tourism via Tanzania Forest Fund. Interested powerfull conservation NGOs such as TFCG, WWF-Tanzania and MJUMITA with ability to secure funds for conservation. 	The existing political dynamics. Corruption. Practically, the Tanzania Forest Services (TFS) existing model of revenue collection from forest product might harmonize illegal activities in the forests.	Village Natural Resource Committee and Village Game Scout. Ministry of Natural Resource and Tourism via Tanzania Forest Fund, Tanzania Forest Services. Conservation NGOs such as WWF- Tanzania, TFCG and MJUMITA. Regional and District Forest and Game Officers.









2. ACTION PROGRAMME

Vision (30-50 years)	
Sustainable populations and distribution of Galagoides rondoensis across its natural occurring range in the South	ern Tanzania as
a results healthy and improved forest habitat leading into improved ecosystem services (i.e. improved water quality	ty and quantity,
conserved biodiversity and increased agricultural productivity) to the local communities surrounding these natura	Írange.
Goal(s) (5-10 years)	
Reduced drivers of deforestation and habitat degradation across Galagoides rondoensis range as a results of imp	proved forests
management.	
Objectives	Prioritisation
	(low, medium,
	high or critical)
Develop capacity to potential government officials on ecological need, threats, and conservation tracts for	High
Galagoides rondoensis	
Reduce land conflicts between forest management authorities and local communities bordering these forest	Critical
Improve and increase the implementation and enforcement of policies, regulations and law governing the managements of these forests.	Critical
Introduce and increase the knowledge on population status of Galagoides rondoensis across it naturally occurring range	High
Understand the presence, distribution and population status of Galagoides rondoensis unexplored forests of high conservation concern.	Critical
Strengthening teamwork and collaboration between local and international researchers /species specialist/expert from different organizations/ institutions or agencies.	Medium







Activities	Country / region	Priority (low, medium, high or critical)	Associated costs (GBP)	Time scale	Responsible stakeholders	Indicators	Risks	Activity type
Objective 1: Deve 1.1 Training the government officials in Lindi region on species ecological need, conservation techniques and threats facing <i>Galagoides</i> <i>rondoensis</i>	Iop capacity Tanzania	High	1500£	nt officials or 2018-2020	Government officials (Regional and District Forest and Game Officers and Tanzania Forest Services Officers	reats, and conservat At least ¾ of the participants trained and understand the training content and are willing to apply in conservation of this species	 ion tracts for Galagoides rondoe Opportunities: - Availability of trained and skilled EDGE fellow on Galagoides rondoensis Availability of knowledgeable VNRC from few villages bordering GR range Threats: - The existing political dynamics with personal interest on Forest Products 	Education and Awareness







Activitie	es e	Country / region	Priority (low, medium, high or critical)	Associated costs (GBP)	Time scale	Responsible stakeholders	Indicators	Risks	Activity type
planning several borderin Noto Fo Reserve	land use g to villages ig the rest	Tanzania	High	4000£	2018-2019	Village Natural Resource Committee, District Natural Resources Officers, TFCG and MJUMITA	well-planned land use and encroachment in the forest reduced to potential villages bordering The Noto Forest	 Opportunities: - Availability of bylaws and forest management plan and political support on the exercise Presence of conservation NGOs such as TFCG and MJUMITA Presence of rural and urban land planning from the districts and other NGOs Threats: - Presence of local community members with –ve attitude towards land use planning exercise Political instability Presence of large-scale farmers with persona interest on the land 	Livelihood, Economic & Other Incentives







Activities	Country / region	Priority (low, medium, high or critical)	Associated costs (GBP)	Time scale	Responsible stakeholders	Indicators	Risks	Activity type
Objective 3: Impro	ve and incr		mplementatio	n and enforc	ement of policies, re	gulations and law go	bverning the managements of the	ese forests.
3.1 Forest patrol by village game scout, VNRCs and Komba Club including prosecution and conviction of illegal loggers caught in the forests in accordance to village bylaws and national laws	Tanzania	Critical	19000£	2017-2027	VNRCs, Police officers Komba club and Village Game scouts	At least 4 patrol is conducted per week leading to reduced incidences of illegal activities in these forest over time as results of increased patrol including Prosecution and conviction of all illegal loggers and that all cases are resolved in accordance to the bylaws/ national laws in court.	 Opportunities: - The availability of trained VNRC, Village game scouts, supportive local government, MJUMITA network members, conservation NGOs such as TFCG and MJUMITA Availability of clear and well pronounced legal documents such as bylaws and Forest Management Plan (FMP) Threats: - Availability of corrupted VNRC, Village Game scouts and other government officials including the politicians and police officers with personal interest on the forest products resources 	Law & Policy







Activities	Country / region	Priority (low, medium, high or critical)	Associated costs (GBP)	Time scale	Responsible stakeholders	Indicators	Risks	Activity type			
Objective 4: Establish and intensify the knowledge on population status of <i>Galagoides rondoensis</i> across its known naturally occurring range with major focus in southern part of Tanzania (Noto forest and at least other 4 forests)											





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Survival Blueprint



Activities	Country / region	Priority (low, medium, high or critical)	Associated costs (GBP)	Time scale	Responsible stakeholders	Indicators	Risks	Activity type
4:1 Researching on population status of <i>Galagoides</i> <i>rondoensis</i> across its naturally occurring range (i.e. Noto forest and at least 4 additional sites in Southern part of Tanzania)	Tanzania	High	8000£	2017-2027	Tanzanian EDGE Fellows, Researchers from Nocturnal Primates Research Group (NPRG), Local and international conservation NGOs and agencies/institution/ collaborators (E.g TFCG, MJUMITA, TAWIRI, TAFOR, ZSL, Trained VNRC))	Population status of <i>Galagoides</i> <i>rondoensis</i> in at least 6 (including Noto forest) selected sites determined and shared publicly focusing on Tanzania's governmental conservation agencies (such as TAWIRI, COSTECH, TAFORI)	 Opportunities: Availability of well trained and experienced local and international primates' researchers and collaborators such as TAWIRI, NPRG, Local EDGE Fellows, Trained Village Natural Resources Committee (VNRC). Threats: The existing Bureaucracy from TAWIRI to issue research permit Presence of political affiliation with corruption on forest and wildlife related resource /products Weather dynamic might affect Galago research activities and schedule as well as capacity gap among researchers 	Improving Knowledge





Activities	Country / region	Priority (low, medium, high or critical)	costs	Time scale	Responsible stakeholders	Indicators	Risks	Activity type			
Objective 5: To establish and strengthen the knowledge of unknown Galagoides rondoensis naturally occurring range of southern Tanzania's forest											







Activities	Country / region	Priority (low, medium, high or critical)	Associated costs (GBP)	Time scale	Responsible stakeholders	Indicators	Risks	Activity type
5.1 Nocturnal primates survey to unknown forests from Southern Tanzania focusing on identifying the presence of <i>Galagoides</i> <i>rondoensis</i> as well as Developing standardized field techniques for survey and monitoring of <i>Galagoides</i> <i>rondoensis</i>	Tanzania	Critical	4000£	2017 -2022	Tanzanian EDGE Fellows, Researchers from Nocturnal Primates Research Group (NPRG), Local and international conservation NGOs and agencies/ institution/ collaborators (E.g TFCG, MJUMITA, TAWIRI,TAFOR, ZSL, Trained VNRC)	At least 4 previously unknown and unsurveyed forest discovered to be among the <i>Galagoides</i> <i>rondoensis</i> naturally occurring range and that they included in National Forest Conservation Plan	 Opportunities Local governmental and non-governmental conservation institution (e.g. TAWIRI, TANAPA, TFCG, MJUMITA, TAFORI, NAFORMA, FBD, TFS) Availability of interested international primates research institution such as ZSL, Nocturnal Primates Research Group (NPRG). Present of trained local government staffs on conservation and basic knowledge on Galagoides rondoensis research (such as VNRC, DNROs and DFOs) Threats: - Weather dynamic might affect Galago research activities and schedule as well as capacity gap among researchers Threat is the bits of four designment is the four of the bits of four designment is the four of the bits of four designment four designment for the bits of four designment designment four designment four	Improving Knowledge
ÌT R	5		ÌP ,	2			 Timely availability of fund to conduct researches Presence of political affiliation with corruption on forest and wildlife related resource /products. 	





Activities	Country /	Priority	Associated costs	Time scale	Responsible stakeholders	Indicators	Risks	Activity type
	region ngthening to	(low, medium, high or critical) eamwork	costs (GBP)		stakeholders		 Presence of powerful international conservation and research bodies (e.g. ZSL, Nocturnal Primates Research Group (NPRG) with pronounced interest on primates research and conservation Guaranteed support and commitment from Tanzanian government to collaborate on conservation of natural resources Threats: - Political dynamics among different local politicians 	type
							 Political affiliation with corruption on forest and wildlife related resource /products. The presence of bureaucracy among some government bodies. 	





3. LITERATURE CITED

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