PROJECT TITLE

Urgent conservation surveys for the endangered Ashy red colobus monkey

(*Piliocolobus tephrosceles*) in unprotected areas of Tanzania

PROPOSAL PRESENTED TO

SNOWFLAKE GRANT FOR RESEARCH ON PRIMATES

2018

Introduction

Habitat loss, degradation and fragmentation along with overhunting, are among the major threats primate face worldwide. Habitat modification due to human activities has transformed unprotected primate natural habitats in different parts of the world, forcing primates to increasingly occupy human-altered landscapes (Chagas & Ferrari 2010 *Zoologia* 27:853-860). Ongoing human activities are currently regarded as drivers of imminent extinction crisis of primates around the world (Estrada et al. 2017 *Science Advances* 3:e1600946).

The Ashy monkey (*Piliocolobus tephrosceles*) is an endangered species that exists on the eastern border of the Rift Valley in western Uganda and western Tanzania. The main threats this primate species faces throughout its entire range are habitat degradation and hunting by humans and by chimpanzees (*Pan troglodytes*) (Watts & Mitani 2002 *Int J Primatol* 23:1-28).

Effective conservation of the endangered Ashy monkey depends on knowledge on its distribution, numbers and conservation threats. These data will provide a baseline to formulate conservation priorities and design management plans for the species. Specifically, identifying the types and sources of the conservation threats the species faces will allow to assess their impact on the species survival. In Tanzania, surveys on Ashy monkey distribution have been conducted in Gombe and Mahale National Parks (Nishida 1972 *Primates* 13:57-64) and on the Ufipa Plateau (Rogders 1981 *Primates* 22:33-45; Davenport et al. 2007 *Primate Conserv*. 22:97-105). A recent survey of Ashy monkeys carried out in the Ufipa Plateau revealed the extinction of two subpopulations and discovered a new subpopulation in the Mbuzi Forest (Davenport et al. 2007). Such survey led to conservation campaigns and actions in the Mbizi Forest Reserve but not in the Mbuzi Forest, which remains unprotected to the present. However, Davenport et al. (2007) survey targeted only forests, not the woodlands of the Mbuzi Forest, despite the fact that the species is also known to live in woodlands (Kano 1971 *Primates* 12:281-304). My reconnaissance surveys conducted in the Ufipa Plateau during the past two years discovered some groups of Ashy monkeys in sites where they had not previously been found. Despite of this positive news, the extinction of the two populations in the Ufipa Plateau mentioned above entails the urgency of surveying the Mbuzi forest area to avoid the extirpation of the monkeys due to the ongoing human activities. The presence of Ashy monkeys in sites not previously surveyed highlights the importance of comprehensively covering the entire Mbuzi Forest Area, especially targeting woodlands and small forest patches, which is what I propose to do.

The Ashy monkey was reported in biodiversity surveys in the Masito-Ugalla ecosystem (Ogawa et al. 2004 *Pan Afr News* 11:3-5; Moyer et al. 2006 IUC Gland 52p). However, besides mentioning its presence, this species has never been studied in the large Masito-Ugalla ecosystem ($>10,000km^2$). Human population is growing rapidly in this still relatively undisturbed ecosystem and thus it is crucial to determine the status of Ashy monkeys to start conservation interventions before it is too late.

Thus, I propose to: 1) carry out intensive surveys in Mbuzi Forest Area, covering all previously unsurveyed sites and 2) conduct the first every survey focusing on Ashy monkeys in the Masito-Ugalla ecosystem. The results of this project will be critical for the development of effective conservation strategies including community conservation actions targeting Ashy monkeys.

Specific objectives

The generally objective of this project is to assess the conservation status of endangered Ashy red colobus monkeys in areas of Tanzania that have no protection status: the Mbuzi Forest Area and in the Masito-Ugalla ecosystem.

Specific objectives are the following:

1) To determine the population size of Ashy monkeys in both areas.

The previous survey conducted on the Ufipa Plateau by Davenport et al. (2007) was not comprehensive. It targeted only forests but not woodlands or small gallery forests in the Mbuzi forest area. The proposed research will systematically cover all these unsurveyed areas in the Mbuzi Fores area. Ashy monkeys also live in the Masito-Ugalla ecosystem, which is predominantly composed of dry miombo woodlands. It is surprising that an arboreal primate, described as mainly folivorous, can exist in such open and dry miombo woodlands with so little evergreen vegetation (less than 5% of the habitat). But this species has never been studied in this ecosystem. The proposed research will be the first ever to study Ashy monkeys in the Masito-Ugalla ecosystem.

2) To determine and identify conservation threats in in both areas.

Up to now, there is no study that has comprehensively assessed threats faces by Ashy monkeys in the unprotected Mbuzi forest area and Masito-Ugalla ecosystem. The proposed research will be first to record, identify and map anthropogenic activities that threaten Ashy monkeys in unprotected areas in Tanzania. Data on the specific type of human threats that affects the species is essential to designing alternative economic activities for the specific human groups that undertake such threat activities.

3) To conduct community conservation awareness campaigns in both areas.

Previous surveys by Davenport et al. (2007) on Ashy monkeys in the Ufipa Plateau led to conservation campaigns and actions in some forest fragments (such as the Mbizi Forest Reserve). But the Mbuzi Forest area is still unprotected. In the Masito-Ugalla ecosystem there have been conservation awareness campaigns focused on chimpanzees, in villages along the lake shore of Lake Tanganyika. But but interior villages far off the shore are inadequately sensitized about conservation. Furthermore, there has never been a campaign targeting conservation of the endangered Ashy monkeys. The proposed project will be the first to conduct such campaigns. Awareness campaigns will help to make local people more willing to support conservation and accept community conservation programs in their village areas.

Methods

Study sites
The study area is comprised of the following study sites:
1) The Mbuzi Forest Area (>1062 km^2) is within the Ufipa Plateau and encompasses Mbuzi
Forest and neighbouring areas. Elevation ranges from 1990-2122 m above sea level.
Mammals in this site include red duiker, bush pig, blue monkey and leopard (Davenport et al.
2007).
2) The Masito-Ugalla ecosystem (5° 52'S, 30° 25'E, >10,000 km^2) is predominantly woodland
with about 5-10% of evergreen vegetation along watercourses and montane patches (Kano
1972 *Primates* 13:57-64). It possesses at least 50 mammal species including wild dogs,
elephants, lions, chimpanzees and other seven primate species (REFERENCE NEEDED).

Data Collection
Distribution and population size of Ashy monkeys. Transect surveys will be conducted by two
teams comprising 3 people each, along line transects (following methods in Peres 1999
Neotrop Primates 7, 11-16). I aim at covering a distance of 160 km in the Mbuzi Forest Area
and of 1120 km in the Masito-Ugalla ecosystem. When a group is encountered, the number of
individuals, sex and age composition, sighting distances to the first individual of the group
(measured with a range finder) and bearing from the observer to the group (using a compass)
will be recorded.
Human signs. During transect walks signs of human activities will be also recorded. The type
of each human sign encountered, its position and perpendicular distance to the transect line
(observer) will be recorded.
Awareness campaigns. These will involve talks (dialogue), lectures, poster displays and
excursions to the forest at 12 villages: six in the Mbuzi Forest Area and six in the Masito-
Ugalla ecosystem. In the Mbuzi Forest Area this project will work with the District Office by
raising conservation awareness for the impending participatory forest management of Mbuzi
Forest. In the Masito-Ugalla ecosystem, this project aims to conduct community conservation
sensitization activities in collaboration with the Jane Goodall Institute which have worked
long-term in the Masito-Ugalla ecosystem.

Data Analysis
Population density will be obtained by multiplying group density estimates and mean group
size. Population density will be used to extrapolate the total population size in different
vegetation types and then in the entire surveyed area. Encounter rates and density of human
signs in vegetation types will also be computed. Human signs data also produce conservation
threat distribution maps in the region. Closeness from transect points to human settlements
will be calculated using ArcGIS (visual cues) and GPS data from the field.

Ethical considerations
The proposed research complies with the American Society of Primatologists' Principles for
the Ethical Treatment of Primates, the Tanzania Commission for Science and Technology
(COSTECH) and the Tanzania Wildlife Research Institute (TAWIRI). I will not physically
handle the monkeys. I will not be in direct contact with the monkeys, as they are largely
unhabituated. However, in case we are sick we will not work in the field to avoid potential
sickness transmission to the monkeys.

Project Orientation, resources, provisional index and project agenda

The results of the proposed study will be: 1) to understand the current population status of the Ashy monkey and identify new priority areas for its conservation and restoration of its habitats in the Mbuzi forest area and the Masito-Ugalla ecosystem; 2) to understand the types, sources and impacts of conservation threats to guide conservation biologists in the University of Dar es Salaam, Tanzania, in designing alternative economical activities for the specific human groups that carry out the activities that threaten the species and its habitat. 3) to improve local people attitudes and perceptions towards conservation and make them willing to accept community conservation through education.

To carry out this project and reach its objectives, it is necessary to hire field guides, buy field equipment, implement conservation education and collaborate with other researchers and organizations. This project joins the efforts to conserve Tanzanian biodiversity. It directly conforms to the goals of IUCN (www.iucn.org). One of the IUCN goals is that no species goes extinct by 2020. This project has the potential to contribute to this end, by focusing efforts to protect the endangered Ashy monkey. Another goal of the IUCN by the same year is that 17% of the world's land is protected. This project will support this goal by providing useful information for upgrading the conservation status of the Mbuzi Forest Area and the Masito-Ugalla ecosystem. The later through collaborative efforts with researchers and institutions already working in this ecosystem.

The findings from the proposed research will be disseminated to decision makers such as government and non-government conservation agencies in Tanzania to support conservation intervention. Results of this study are expected to be published in in high-impact, peer-reviewed journals including *Conservation Biology* and *American Journal of Primatology*. The results will also be presented in the Biannual Tanzania Wildlife Research Institute (TAWIRI) conferences, which draw national and international researchers, conservationists and government wildlife managers, including the Tanzanian Wildlife Directors of protected areas. The findings will also be presented at the meetings of the International Primatological Society. The project will be disseminated to local communities through talks, lectures, poster displays and excursion trips involving students and villagers to the forest. Seeing a Tanzanian Principal Investigator working for conservation may serve as a role model for local students.

Time table	Activity
1st November 2018 - 30th May 2019 (Seven months)	Transect surveys will be conducted in the Masito- Ugalla Ecosystem
1st June - 30th June 2019 (One month)	Transect surveys will be conducted in the Mbuzi Forest Area
1st July 2019 - 31st August (two months)	Community conservation campaigns in both areas.
1st September - 30th October 2019 (two months)	Data analysis will be conducted and results will be written.
30th October 2019	Final report will be written and submitted to Fundacio Barcelona Zoo. Right after this period, findings will be presented to Tanzanian decision makers and publications will be prepared for submission to high-impact, peer-reviewed journals including *American Journal of Primatology* and *Conservation Biology*.

Budget

	Applied to Fundacio Barcelona Zoo (EURO)	Funded by IPS (EURO)	Total (EURO)
COMMUNITY CONSERVATION CAMPAIGNS			
Community sensitization (dialogue, excursions, poster display, video and leaflets to different target groups and formation of village environmental committees)	1500	500	2000
PERMITS	0	0	0
Government permits to conduct research within wildlife areas in Tanzania	83	0	83
TRANSPORTATION	0	0	0
National transport for the principal investigator and field assistants	500	0	500
DISTRIBUTION AND CENSUS WORK	0	0	0
2 teams of 3 field assistants for 7 months @ € 74 per month for distribution, census and threat assessment surveys in the Masito-Ugalla Ecosystem	3108	0	3108
2 teams of 3 field assistants for 1 month @ € 74 per month for distribution, census and threat assessment surveys in the Mbuzi Forest Area	444	0	444
Food costs for the Principal Investigator and assistants in the field	208	0	208
Salary for 1 campsite watchman and cook for 8 months € 74 per month	592	0	592
Estimated porters costs	200	0	200
2 Range finders (Bushnell Scout DX 1000 ARC 6 x 21mm Laser) @ € 145	145	0	145
1 Camera (Nikon 3D100 SLR Camera body and 18-55 mm VR lens)	223	0	223
4 GPS (Garmin map 62S X) @ € 292	1168	0	1168
2 Binoculars (Celestron 10 x 50) @ € 34	68	0	68
7- one man tents @ € 59	413	0	413
2 Compasses (Silva Starter HI-VIS) (@ € 11	22	0	22
4 Tarpaulins @ € 16	64	0	64
Rain coats for 6 field assistants @ € 23	138	0	138
Rain boots for 6 field assistants @ € 11	66	0	66
Stationary (binding, printing, photocopying, notebooks and pens)	48	0	48
TOTAL	**8990**	**500**	**9490**