

## The Rufford Foundation

### Final Report

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Congratulations on the completion of your project that was supported by The Rufford Foundation.

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. The Final Report must be sent in **word format** and not PDF format or any other format. We understand that projects often do not follow the predicted course but knowledge of your experiences is valuable to us and others who may be undertaking similar work. Please be as honest as you can in answering the questions – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Please complete the form in English and be as clear and concise as you can. Please note that the information may be edited for clarity. We will ask for further information if required. If you have any other materials produced by the project, particularly a few relevant photographs, please send these to us separately.

Please submit your final report to [jane@rufford.org](mailto:jane@rufford.org).

Thank you for your help.

**Josh Cole, Grants Director**

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| Grant Recipient Details |  |
|-------------------------|--|
| Your name               | Simula Peres Maijo   |
| Project title           | Will anthropogenic activities influence chimpanzee forage species and habitat selection? A case study in the Masito-Ugalla Ecosystem, Tanzania |
| RSG reference           | 27075-1  |
| Reporting period        | January 2019-January 2020  |
| Amount of grant         | £4700  |
| Your email address      | <a href="mailto:simula.maijo@tawiri.or.tz">simula.maijo@tawiri.or.tz</a> or <a href="mailto:majocmla@yahoo.com">majocmla@yahoo.com</a>         |
| Date of this report     | 24 <sup>th</sup> February 2020   |

1. Please indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

| Objective  | Not achieved | Partially achieved | Fully achieved | Comments  |
|--|--------------|--------------------|----------------|---|
| <p>a) To determine the availability of chimpanzee plant food species in the Masito-Ugalla Ecosystem (MUE)</p>  |              |                    |                | <p>We identified a total of 102 chimpanzee plant food species that occurred within the MUE. We identified chimpanzee plant food species based entirely on the already compiled diet lists from Issa Valley, Gombe and Mahale Mountains National Parks (Goodall, 1968; Nakamura et al., 2015; Nishida and Uehara, 1983; Piel et al., 2017; Wrangham 1975) as most of MUE chimpanzees with the exception of Issa chimpanzees, are not habituated to human presence.</p> <p>Our findings of chimpanzee plant food species in MUE may be incomplete because there might be additional plant species that have not been identified in literature but are food sources for MUE chimpanzees. Therefore, a long-term focal follow study with the habituated Issa chimpanzees is recommended to clearly understand the feeding ecology of MUE chimpanzees and the food items they eat.</p> |
| <p>b) To assess the relationship between the levels of anthropogenic disturbance and chimpanzee plant food species richness, diversity and abundance</p> |              |                    |                | <p>We found that chimpanzee plant food species richness and diversity increased with increasing human disturbance while abundance did not. However, both species richness and diversity declined at extreme level of human disturbance. These results suggest that severe anthropogenic disturbance in MUE accelerates the loss of chimpanzee plant food species and other plant species that are not chimpanzee plant food species.</p>  |

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|--|--|--|--|
| <p>c) To assess how anthropogenic disturbance influence chimpanzee abundance (nest counts), habitat selection and nest tree selection</p>              |  |  | <p>In total, we recorded 203 chimpanzee nests across the four survey sites within MUE. The least disturbed site had the highest encounter rate of chimpanzee nests (i.e., nests/km) and the encounter rates declined to the highly disturbed site. Our results suggest that, increased anthropogenic disturbance in MUE negatively influences chimpanzee habitat use, a relationship that does not bode well for future chimpanzee populations outside of national parks.</p> <p>We observed nests constructed on 17 different tree species and most of these nesting tree species were important food source for chimpanzees.</p> |
| <p>d) To conduct awareness raising and education campaigns to improve conservation of chimpanzee and their habitat across Masito-Ugalla Ecosystem.</p> |  |  | <p>We partially achieved this objective as we did not reach the local communities living in areas adjacent to MUE (i.e., Uvinza and Mishamo refugee settlement). We presented our results at seminars, scientific conferences and conducted a 1-hour radio talk show for results dissemination and awareness raising.</p> <p>Outreach programmes and education campaigns were not conducted in the local communities due to budget limitations.</p>  |

**2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).**

Poor road network in MUE: We carried out fieldwork during the wet season. Due to the remoteness of the survey sites, the nature of the terrain, drainage patterns, and the roads in MUE, movement from one survey site to another was with difficulties because sometimes our vehicle get stuck in mud for hours/days.

Security of the field team: Masito-Ugalla ecosystem, being an area where various illegal human activities are occurring, in the course of our fieldwork we came across different people involved in illegal activities in the area. Some of the people we met were armed (some with guns and some with traditional weapons). This posed fear among the field team members and thus a safety challenge for the team.

Presence of dangerous animals: Masito-Ugalla ecosystem is inhabited with wildlife, of which some is dangerous to humans. In some of the survey sites, there was a high

danger of being attacked by dangerous animals such as lions, buffaloes and snakes.

**3. Briefly describe the three most important outcomes of your project.**

The results of our study have provided baseline information that will help in the conservation of chimpanzees and their habitat in western Tanzania considering the species current conservation status. Our project has alerted the wildlife conservation authorities in the country on the threats facing chimpanzee conservation outside national parks in Tanzania. Low protection status of MUE, increasing local population, low awareness on the importance of chimpanzees for tourism and ecosystem services among the surrounding communities are other factors.

In August 2019, the Government of Tanzania designated Tongwe West Forest Reserve as a protected area to discourage people from encroaching the habitat and for the purpose of accelerating the recovery of this important chimpanzee habitat following extensive disturbance from human activities.

Our field observations have been of help to the Mpanda district council which has a mandate to oversee and patrol the entire MUE. Information on the patterns of different illegal human activities that are occurring in MUE was well explained and all the GPS locations of where we observed these activities were given to Mpanda district council for follow ups and increasing patrols in areas prone to human encroachments. This has helped in reducing habitat vulnerability to fragmentation, disruption and increasing utilisation by local people.

**4. Briefly describe the involvement of local communities and how they have benefitted from the project (if relevant).**

The achievement of this project was made possible by the help from the people living in communities surrounding MUE. The project recruited and involved field assistants and field guides from the communities surrounding MUE. Two field assistants (Shabani Kabangula and Mwami Rashidi) and six field guides who worked on rotational basis (i.e., Arcado Hassan, Patrick Hassan, Mariana Marco, Judie Phaustas, Jonas Bukende and Shadrack Lucas) involved in all of project activities during field surveys and participated directly in data collection.

Through involving people from the surrounding communities, we managed to collect information about the proposed project while imparting knowledge to the field assistants and field guides. Besides, the field assistants and field guides benefited from this project as they got subsistence allowance in additional to the field experience/skills gained. Thus, in one way or another, this project contributed to the livelihoods and career development of the participated field assistants and field guides.

## **5. Are there any plans to continue this work?**

Yes, there are plans to continue this work. The current study has listed the potential chimpanzee plant food species and nesting plant species that are available within MUE. The study also has provided evidence that illegal human activities carried out in MUE, negatively affect chimpanzee habitat use, their critical resources and their general habitat. The observed threats from human activities include agriculture, illegal logging, livestock grazing, bush fires, illegal beekeeping and poaching. People cut down trees to establish farms, debark certain tree species to make local beehives that eventually kill the trees. The debarked trees are important food sources for chimpanzees in the area. These results are important because they highlight the conservation need of chimpanzees living outside national parks following the threats they are facing.

Based on the findings from the current study, the project leader and the project team have plans to continue this project. It is certainly that, the future of wildlife are in hands of the local communities living adjacent to protected areas and that to appropriately conserve wildlife it's high time to deal with the people by improving their knowledge or understandings about wildlife, changing their behaviour, attitudes and perceptions towards wildlife. Therefore, to make long lasting impacts, we are thinking of starting a long-term education campaigns and awareness raising programme to aid sustainable conservation of chimpanzees and other natural resources in the region.

During the implementation of our project, we found various illegal human activities that threaten chimpanzees and their habitat. It's quite difficult to tell people to stop engaging themselves in certain economic activities from which their livelihoods depend on without providing them with alternatives. From all the observed human activities in MUE, we are thinking of capitalizing on beekeeping (legal beekeeping) and tree planting activities for carbon market as the alternative income generating activities to the local communities. Education through outreach activities will be conducted to facilitate this. All these two activities are environmentally friendly and complement well with conservation of nature and biodiversity. In the near future, upon fund availability, the project team hope to reach the local communities for conservation interventions which include education, awareness raising, and letting local communities engage themselves in alternative income generating activities that are environmentally friendly.

## **6. How do you plan to share the results of your work with others?**

One of the primary outputs of this project was to provide a detailed report of the findings and disseminate the project results to both local and international communities. So far, we have communicated our results through presenting at scientific conferences, graduate seminars, radio talk show, and in form of posters. We have also submitted a manuscript of this study in an open access peer-reviewed journal to inform the scientific community. As the MUE is one of the areas in East Africa within which chimpanzees still occur, awareness by the community is of high importance. With additional financial support we plan to share the results of our work

with the communities surrounding MUE (i.e., Uvinza and Mishamo refugee settlement), at the same time conducting education campaigns and awareness raising. This will be achieved through conducting regular school presentations to both primary and secondary schools, as well as village meetings. Education on chimpanzees, their habitat and the emerging threats to their long-term survival will be provided, and the best ways to safeguard this endangered great ape species will be suggested. Equally, the need for conserving chimpanzee and other biodiversity for ecotourism, ecosystem services etc., will be explained. This is anticipated to improve local people's understanding, evoke awareness and contribute to a more sustainable utilization of natural resources.

**7. Timescale: Over what period was The Rufford Foundation grant used? How does this compare to the anticipated or actual length of the project?**

The Rufford Foundation grant was used in all the project activities over the study period as predicted. The anticipated project length reflected the actual length of the project.

**8. Budget: Please provide a breakdown of budgeted versus actual expenditure and the reasons for any differences. All figures should be in £ sterling, indicating the local exchange rate used.**

| Item   | Budgeted Amount | Actual Amount | Difference | Comments  |
|--|-----------------|---------------|------------|---|
| 1 Digital camera (Cannon)  | 165             | 285           | +120       | The budgeted amount was less than the actual amount                         |
| 1 GPS (Garmin Map s64)   | 265             | 201           | -64        | We spent less than budgeted amount because the price for this item was less |
| 4 GPS rechargeable batteries (AA battery)  | 16              | 16            |            |   |
| 1 GPS battery charger  | 31              | 31            |            |   |
| 2 Tape measure UK (100 m)  | 40              | 40            |            |   |
| 8 Nylon strips/ropes (20 m)  | 7               | 7             |            |   |
| 800 liters of Diesel. Facilitate movement from Kigoma to study sites and intra sites movements | 664             | 415           | -249       | Only 500 liters of Diesel were bought and used over the project period      |
| 24 liters of oil for vehicle   | 48              | 48            |            |   |
| Bus travel cost from Arusha to Kigoma (PI)   | 50              | 50            |            |   |

|   |              |              |             |   |
|---|--------------|--------------|-------------|---|
| Normal vehicle service over a study period  | 350          | 425          | +75         | Vehicle maintenance required more £75 to the budgeted amount  |
| Various stationaries (printing data sheets, pencils, notebooks etc.)  | 50           | 50           |             |   |
| 2 Camping tents   | 358          | 603          | +245        | Depending on the number of people in the field team, we had to buy four tents instead of two tents indicated in the budget. |
| Subsistence allowance for 2 field assistants and 1 driver (food and some upkeep allowance for 4 months)           | 1985         | 2058         | +73         | There was an addition of £73 to the budgeted amount   |
| Publication cost to peer reviewed journal   | 197          | 197          |             |   |
| Dissemination of the results through presenting at scientific conferences, local meetings, seminars and workshops | 474          | 474          |             | We just used the budgeted amount however was not sufficient   |
| <b>Totals</b>   | <b>£4700</b> | <b>£4900</b> | <b>£200</b> | We added extra £200 for smooth completion of the project. GMERC was happy to cover the extra budget.                        |
| Exchange rate used: (1 Pound sterling was equals to 3,012.01 Tanzanian Shillings)                                 |              |              |             |   |

## 9. Looking ahead, what do you feel are the important next steps?

From our project, we have explored different economic activities that are carried out by the local communities surrounding MUE and revealed that almost all of these activities are incompatible with nature conservation.

On the next step, we plan on suggesting and promoting alternative income generating activities that are environmentally friendly (i.e., supports nature conservation). Based on the observed economic activities we are thinking of promoting chimpanzee habitat conservation through beekeeping and tree planting. We anticipate that modern beekeeping will create employment and income for local families, while helping to conserve chimpanzee habitat and the wildlife inhabiting in such habitat. Beekeeping and tree planting are ideal activities in any nature conservation programme as it gives local people and the government economic incentive for the retention of natural habitats.

Further, as pointed out earlier our findings of chimpanzee plant food species in MUE may be incomplete because there might be additional plant species that have not been identified in literature but are food sources for MUE chimpanzees. Therefore, a

long-term focal follow study with the habituated Issa chimpanzees will be undertaken to clearly understand the feeding ecology of MUE chimpanzees and the food items that are actually eaten by chimpanzees in MUE. Based on this, a research on the amount of chimpanzee food resources on daily and annual basis in terms of nutrient and energy values will be done. This is a very basic research in terms of devising conservation strategies of wild chimpanzees, one of the endangered and flagship species in Tanzania. By accumulating information of chimpanzee's nutrient requirements and energetic values of plant food species in a well-habituated chimpanzee at Issa Valley, we will be able to estimate how much vegetation is needed to sustain a chimpanzee population in the environment with a similar vegetation type. We will identify all food items consumed by the Issa chimpanzees and estimate the amount of each item they eat daily in different seasons in a year. We will also estimate nutrient and energetic values of plant foods consumed by chimpanzees and estimate the amount of daily and annual chimpanzee food resources.

The other plan is to launch education campaigns and awareness raising programme that will focus to sensitise on biodiversity conservation through community-based conservation. To facilitate conservation by involving the local communities, conservation education will be provided to raise the local communities' wildlife knowledge and conservation awareness. Community-based conservation is known to promote wildlife conservation and produce robust and effective conservation actions and outcomes. With community-based conservation, the local communities are directly involved in the conservation activities and some aspects of their livelihoods are incorporated in conservation activities either through getting incentives or have alternatives income generating activities that are eco-friendly. Community-based conservation holds that long-term conservation success requires engaging with and providing benefits for local communities and empower local people in the management process.

**10. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did The Rufford Foundation receive any publicity during the course of your work?**

We used The Rufford Foundation logo in all materials produced in relation to this project. We used the logo in seminar and conference presentations, posters and on report produced and shared with other stakeholders. We also acknowledged the Foundation for funding our project in all academic documents (i.e., dissertation and publications) produced.

During our project, The Rufford Foundation received more publicity. For example, during the 12<sup>th</sup> Tanzania Wildlife Research Institute (TAWIRI) scientific conference, we presented our findings in the audience of over 300 participants from more than 16 countries. This was also done during the 5<sup>th</sup> National Environment Management Council (NEMC) scientific conference. Further, all national authorities responsible to grant research permits had to know the sponsor of the project. Thus, both TAWIRI and The Tanzania Commission for Science and Technology (COSTECH) was made aware that our project was funded by The Rufford Foundation.



**11. Please provide a full list of all the members of your team and briefly what was their role in the project.**

**Simula Peres Maijo:** The project leader

**Prof. Anna Treydte:** The main project supervisor

**Dr. Alex Piel:** The co-supervisor of the project

**Shabani Kabangula:** As a long term research assistant working under the Mahale Mountains Chimpanzees Research Project (MMCRP) and with good knowledge of the feeding ecology of Mahale chimpanzees, Shabani was instrumental at identifying different food resources of chimpanzees especially plants and thus he played a role of a field assistant and a local botanist.

**Mwami Rashid:** Mwami as an experienced field research assistant was helpful in assisting the PI with various fieldworks including cooking and camping.

**Yahya Said:** Yahya was supportive in plant taxonomy (i.e., naming the plant species that were identified as plant food species for chimpanzee). Yahya is a professional botanist.

**Juma Musa:** Juma was our driver over the study period

In addition to the main team members, GMERC assisted the team with field guides who were familiar with the Masito-Ugalla Ecosystem. The guides worked on rotational basis and included Arcado Hassan, Patrick Hassan, Mariana Marco, Judie Phaustas, Jonas Bukende and Shadrack Lucas who assisted us with fieldwork.

**12. Any other comments?**

On behalf of the project team, I would like to thank The Rufford Foundation for funding our project. The grant by Rufford Foundation has been very useful in accomplishing our project and it has demonstrated that a lot can be achieved even with a relatively small budget if there is a will.

Again, I would like to express my whole-hearted gratitude to The Rufford Foundation for its readiness to support and assisting young researchers to develop their conservation career though enabling them to conduct nature-based researches.

