

## 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	
<b>Your name</b>	Charly Oumarou Ngoute
<b>Project title</b>	Role of Acridoidea Grasshoppers in the Evaluation of the Impact of Human Activities on Forests Ecosystems of Southern Cameroon: Implication for Conservation
<b>RSG reference</b>	19665-1
<b>Reporting period</b>	July 2016 – September 2017
<b>Amount of grant</b>	£4958
<b>Your email address</b>	coumaroungoute@yahoo.fr
<b>Date of this report</b>	01 September 2017

**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
Plant species inventory				<p>The floral inventory was conducted as planned in the proposed project. We obtained satisfactory results: 40 species in 16 families of plant were identified from the target localities (Bipindi, Ongot and Zamakoe). Those species were identified with the input of seasoned researchers from the Botanical Laboratory of the University of Yaounde I and the Cameroonian National Herbarium from Yaounde.</p> <p>Among the reported families, Apocynaceae was the most speciose group with 12 species. However, the floral diversity is really dependent on the level of forest degradation. For example, we found that the families of plant most represented at the forest of Bipindi (Bidjouka) are Apocynaceae, Euphorbiaceae, Rubiaceae, Annonaceae, and Commelinaceae. While at the forest of Zamakoe, Apocynaceae, Sterculiaceae, Leguminosae-Caesalpinioideae, Euphorbiaceae were reported. Interestingly at the forest of Ongot only the family of Apocynaceae was abundant. The reported threatened species of plant "Bilinga" (Rubiaceae: <i>Nauclea diderrichii</i> and <i>Nauclea glilletii</i>) and "Azobe" (Ochnaceae: <i>Lophira alata</i>) were found only where the forests are still in good health, i.e., less degraded. .</p>
Identify grasshoppers species able to help understanding the level of human disturbance of				<p>The collected specimens from the localities of Zamakoe, Ongot and Bipindi enable us to identify 45 species of grasshoppers. Among the reported species, 30 were found to occur from the fallows, while 14 were found to occur in the forests. The species occurring in the</p>

forests			<p>fallows were most common of the visited localities of Zamakoe, Ongot and Bipindi. This suggests the forests are under great pressure from human activities.</p> <p>Specimens of the most common and abundant species of <i>Mazea granulosa</i> decrease significantly with the intensive degradation and destruction of forest. This species is more abundant in the forest of Bipindi (44, 05%), followed by the forest of Zamakoe (30, 35%) and the forest of Ongot (25, 6%). These results revealed that the forest of Ongot is effectively well degraded after the forests of Zamakoe and Bipindi. The forest species <i>Parapetasia femorata</i> were found only in the less degraded forest of Bipindi.</p>
Sensitizations of local people against deforestation and about grasshoppers able to help understanding the level of forests degradation			<p>Sensitisation of the population against deforestation was a successful activity of this project. The people most educated were those encountered during field surveys. We realised that it was very important to educated different people who are riparian of the visited forests. The local authorities (chiefs of villages) were helped us to know the families of people around to forest where we were working. Furthermore, we usually made some meeting with the chiefs of villages before and after each field survey.</p>
Assess the damage caused by humans in these forests			<p>This activity was conducted over one year in each locality. The illegal logging activities were regularly encountered at the forests of Bipindi (which still contain more protected trees of the Rubiaceae and Ochnaceae). The amount of damage caused by human activities was assessed from the protected plant species, <i>Nauclea diderrichii</i>, <i>Nauclea glilletii</i> and <i>Lophira alata</i>. We uncovered that all those three species are endangered. But our effort of sensitisation would help those plant species to be saved from extinction in the target localities.</p>

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

The difficulty arose in trying to organise large meetings with the presence of all stakeholders (i.e. local authorities and all the people living at each village) in order to sensitise or educate them against deforestation. Alternatively, to make this activity more efficient, the targets of the educational messaging were the local people who are riparian, because their intensive agricultural practices are degrading and destroying the natural vegetation from Bipindi, Zamakoe and Ongot. We have done this activity in close collaboration with the different local authorities from each village where we have been working. Furthermore, we have rescheduled our programme because there was a need to sensitise local people during each field trip. We consider that an ongoing education component was very important. From this, we are convinced that local people (and local authorities) from our targets localities are aware of the benefits they will have by keeping their forest ecosystems healthy.

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

(1) Some grasshoppers species were shown to be good indicators of destruction and degradation of forest ecosystems by human activities. For example specimens of *Mazea granulosa* are less abundant from the localities greatly affected by destruction and degradation of forest ecosystems. Furthermore, species of *Parapetasia femorata* appear to be very important indicators of the areas where destruction and degradation of forests are minimised.

(2) Local people, especially the farmers and those who are owners or responsible to the areas dramatically affected by destruction and degradation of forest ecosystems, were regularly sensitised to slow down those pressures. In addition, local authorities and my field assistants have taken responsibility to help us monitor damage of forest ecosystems by human activities.

(3) This project was important for us to establish important links with local authorities from the target localities, as well as some local and international researchers working on behalf of nature conservation. For example during this project we had constructive advice from Dr M Lecoq (CIRAD Montpellier, France), Dr CHF Rowell (University of Basel, Switzerland); and other seasoned researchers from the University of Yaounde 1, and from the Cameroonian Ministry of Forestry and Wildlife.

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

The field assistants were the persons originated from the target localities of the project. They have been trained in the routine methodology to collect data for the purpose of conservation activities. Combined with action from local authorities, those persons can also help us to monitor the long-lasting impact of this project from these target localities. Furthermore, through our educational messages, we have

showed local farmers which trees they can cut down as well as the strategies to increase production from the farms without need to destroy their forest ecosystem.

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

The next plan will be to pursue our research on behalf of nature conservation using grasshopper species as indicators of degradation and destruction of forest ecosystems by human activities. During this project, we observed that localities adjacent to the targets ones of this project also face the same pressure of degradation and destruction of forest ecosystems. Consequently, the urgent next step will be to conduct the similar project to the adjacent localities. Such project from adjacent localities of Bipindi, Zamakoe and Ongot will help not just to conserve forest ecosystems as well as the fauna they depend on, but also to continue to monitor the activities currently achieved. In my visit to the forest of Bipindi, I have rediscovered two specimens definitively identified to a very rare grasshopper species (*Gemeneta opilionoides*) from Ngutadjap near Bipindi. The next step will also help to conserve this species. Before this rediscovery, this species was known only from two localities in the world: Makak (Cameroon) reported by Kevan (1956) and Biafra (Equatorial Guinea) reported by Bolivar (1902).

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

We have forwarded results from this work to database of the University of Yaounde 1 and the database of the Cameroonian Ministry of Forestry and Wildlife.

Results from this work enable us to write two important manuscripts: one is already submitted and accepted to the Journal of Orthoptera Research and another will be soon submitted to the same journal. In addition, I plan to attend at the upcoming international congress of Cameroon Bioscience at Buea by the end of this year and will share data from this project with others local and international researchers.

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

This project was established to be conducted over 14 months (from July 2016 to September 2017). However, we only rescheduled the educational activities, because, we considered that the ongoing education component was very important to definitively bring local people to keep their forest ecosystem healthy. The other activities, i.e. biodiversity inventory of grasshoppers and plant species, evaluation of human damages on the forests, were conducted as planned. Finally, we conducted this project over 13 months in order to cover all the activities as stated above, re-scheduled the educational activities.

**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
GPS (Global Position System)	£190	£190	£0	GPS was as initially budgeted
Video camera	£180	£180	£0	Video camera was as initially budgeted
Storage boxes for grasshoppers	£400	£438	£-38	One boxed to preserve the collected specimens was amount £3,75 Instead of £ 3.42 as foreseen in our budget
Bottles of entomological pins	£27	£27	£0	Bottles of entomological pins was as initially budgeted
Travel expenses	£1717	£1642	£+75	We used £ 117.29 rather than £ 107.31 as expected for the number of trips already made. The surplus £ 75 was used to spend more time in the field for educational component per each month. As mentioned above, we re-scheduled our activities for the ongoing educational activity.
Per diem for technicians	£1440	£1638	£-198	Per diem for one technician a day was amount £7 Instead of £ 5 as foreseen in our budget
Meals for staff members in the field	£768	£816	£+48	Meals for staff members in the field was as initially budgeted. The surplus amount of £75 was used for the ongoing educational activity.
Unforeseen expenses (for the variations of different cost during the year)	£236	£236	£0	Unforeseen expenses to complete the financial deficit necessary to sometimes pay supplies for some local farmers and other people in order to create the cordial environment with our interlocutors. This was quite important to be understood by those persons. The important results were that

				they slow down the degradation and destruction activities of forest ecosystems.
<b>Total</b>	£4958	£4958	£0	

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

As mentioned above, the next steps will be to conduct a project on behalf of forest conservation from the adjacent localities using grasshopper's species as indicators of forest degradation and destruction by human activities. This will also help to continue to monitor the work done during this project.

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

Yes, we stick the logo of Rufford Foundation on the camera and GPS paid during this project. The logo will be also used soon to publicise our results at the upcoming international congress of Cameroon Bioscience at Buea.

As publicity, we simply presented the logo of Rufford Foundation to the local authorities and explained that the project is support this organism.

**11. Any other comments?**

This project was very important because it contributed not just of the survival of the Cameroonian forest ecosystems and the fauna thereto from Bipindi, Zamakoe and Ongot, but also helped me to move ahead with my PhD researches. Since I have obtained important data for my Doctorate/PhD dissertation the University of Yaounde 1 in Cameroon. From these data, I'm currently completing my PhD research. The data obtained will also be available in the scientific papers where I'm also acknowledging the Rufford Foundation to have provided funding to produce these papers. Interestingly, this project enables me to establish important connections with local authorities, local and international researchers. This is very important for me to move ahead with researches on behalf of nature conservation.





*Dibastica elegans* I. Bolivar, 1911 from Zamakoe



*Digentia fasciata* Ramme, 1929 from Zamakoe