

## Final Evaluation Report

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Your Details	
<b>Full Name</b>	Loyapin Bondé
<b>Project Title</b>	Restoring population stands of <i>Pterocarpus erinaceus</i> an endangered species by improving its natural regeneration and planting in suitable habitats
<b>Application ID</b>	38436-2
<b>Date of this Report</b>	September 30, 2024

**1. 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
Assessing habitat suitability for Pterocarpus erinaceus growing			X	Up to 137 occurrence records of the species in the study area were extracted from existing databases and my project data to model the species distribution and generate suitable habitats map. This map was used as guide for data collection in the species suitable habitats.
Impact of threats on species population stands			X	<p>60 plots of 900 m<sup>2</sup> were installed in suitable habitats for Threats assessment. The main results indicated that:</p> <ul style="list-style-type: none"> <li>- 87% of Pterocarpus trees are pruned for forage harvesting with degree ranged from 50-75%;</li> <li>- 62% of Pterocarpus trees are debarked for medicinal purposes;</li> <li>- 36% of Pterocarpus trees are cut for multiple uses</li> <li>- 90% of the species habitats are under grazing pressure, limiting the species natural regeneration highlighted by the predominance of juvenile less than 25 cm height (75.51%).</li> <li>- at least 80% of natural habitats of the species are annually burnt with huge impact on juvenile survival.</li> </ul>
Assessing branch pruning on seed viability and seedling		X		650 seeds of Pterocarpus erinaceus were harvested in participatory approach with local

growth				<p>people. Results from nursery trials showed seed viability is mostly related to seed weight. Any germination was not found for seeds with weights under 0.020 g while those with upper weights recorded the highest germination rate. The overall germination rate was 38.14%. The effect of branch pruning on seed germination and growth was not really assessed because we did not find enough seeds for each of the four pruning degrees (0, 1-25, 25-50, &gt;50%). In fact, many trees did not bear fruits during data collection period, which is probably due to climate variability and human pressure of the species.</p>
<p>People awareness and enrichment of Pterocarpus erinaceus populations</p>			<p>X</p>	<p>300 seedling from nursery trials were planted in collaboration with local communities. 250 seedlings were planted in natural habitats and protected from livestock and fire using wire fences while 50 seedlings were planted in individual private lands. In addition, 70 juveniles observed on field during data collection were naturally assisted using wire fences for their protection. Workshop and radio transmission were organized for people awareness at large scale.</p>

**2. Describe the three most important outcomes of your project.**

**a).** Based on the results of the nursery trials, local communities are now convinced that it is possible to successfully grow and plant Pterocarpus erinaceus. Many of them were surprised to see that the individual seedlings of the species can reach up to 50 cm height in one year. People are confident and have willingness to grow the species in both their communal protected area and their own lands. Local volunteers involved in seedlings production including fruits harvesting and trials

implementation in nursery acquired strong practical knowledge and will be able to train other people in their communities.

**b).** The populations of *Pterocarpus erinaceus* were enriched in the study area with the planting of 300 seedlings (in natural habitats and private lands) and the assisted natural regeneration of 70 juveniles in suitable habitats. This will increase tree density of the species both in natural habitats and private lands, contributing to its long-term conservation. Planting in private lands was also found as long term sensitizing tool for local communities.

**c).** The implementation of the project greatly contributed to capacity building on the issue of the conservation of *Pterocarpus erinaceus*. A master student was involved in the project for data collection and analysis. He used the project data to prepare the final exam of the second semester of its master studies. Therefore, the project will contribute to professional career building to further develop research and projects in conservation scope of the species. The findings of the project have also strengthened the scientific knowledge of the project team and local people.

### **3. Explain any unforeseen difficulties that arose during the project and how these were tackled.**

Two major difficulties were met during the project implementation:

- Many trees of *Pterocarpus erinaceus* did not bear fruits during the project period, making difficult to assess the impact of branch pruning on seeds viability and growth. To cope with this issue, additional seeds were bought with National Seed Center to get enough seedlings for planting.
- Due the security reason in the study area, it is forbidden to involve many people for field work at the same time. So, it was not possible to implement the planting and naturally assisted regeneration with many people as planned in the project. We built small groups of six (06) people for these activities.

### **4. Describe the involvement of local communities and how they have benefitted from the project.**

Local communities actively participated in the implementation of the project activities (data collection, seedling production, workshop, planting and assisted natural regeneration). During data collection and seedling production, four (04) volunteers were recruited and benefitted subsistence allowance during the whole data collection and workshop activities. Their practical skills in seedling production were strengthen making them able to help their communities in *Pterocarpus* planting activities. 30 people divided in five (05) groups actively participated to the planting and assisted natural regeneration implementation on field. They also benefitted subsistence allowance from the project, which was a great relief for some households in food shortage.

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

Yes, we planned to continue this work by focusing on the following points:

- Regard to huge grazing pressure and bush fires to the species regeneration, an integral protection of the species habitats will be implemented over three (03) consecutive years to improve the species growth and its habitats

restoration. This will be done in participatory with local communities who will select at least three (2) sites of 30 000 m<sup>2</sup> for integral protection. Within the protected sites, planting and direct sowing will be implemented to increase the species density. By replicating this activity in different places, it will be possible to improve the species conservation status in the future.

- Pursue the assessment of the effects of human pressure (debarking, pruning) on seed productivity and viability to better design awareness message
- Promote the species planting in private forests, which appear as strategic alternative for biodiversity conservation. Due to rapid population growth resulted in huge demand for land, natural space are in decline.
- Create botanical garden for threatened species conservation including *Pterocarpus erinaceus*. This garden will serve as environmental education center for future generation.
- Advocate to decision-makers, especially the Ministry of the Environment, for the inclusion of *Pterocarpus erinaceus* in reforestation programs.

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

We planned to share our results using four communication means:

- Media: awareness messages based on fieldwork data and workshop results are being developed and will be shared to general public using a national online media called "Faso.net"
- Scientific journal publications: a paper is under preparation and will be soon submitted in peer review journal to raise our findings to scientific community.
- Posters and oral communications at scientific events: We already presented a poster at scientific workshops at Ouagadougou in 2023. We are still seeking possible scientific events to share our results.
- Teaching: Being a teacher-researcher at the University Joseph KI-ZERBO, we will use our results to support our teaching on biodiversity conservation (threats, alternation solution for biodiversity conservation).

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

For the next steps, it is important to:

- Improve conservation status of *Pterocarpus erinaceus* using integral protection approach;
- Promote the species planting in private forests and training local communities in the silviculture of these species;
- Pursue the assessment of the effects of human pressure (debarking, pruning) on seed productivity and viability to better design awareness message

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

Yes, the logo of The Rufford Foundation was used in poster presentation during "International symposium in honor to Prof. Dr. Guinko Sita" organised by the Laboratory of Plant Biology and Ecology/Université Joseph KI-ZERBO from 20 to 22 September 2023 where the foundation was publicly acknowledged as the funder of our project. In addition, during my teaching on biodiversity conservation, I used to raise information regarding the support of Rufford Foundation on biodiversity conservation in developing countries among students as well as professional

workers. Our scientific papers and the project supported by The Rufford Foundation are also presented in ResearchGate (<https://www.researchgate.net/profile/Loyapin-Bonde>) and ORCID ID (<https://orcid.org/0000-0002-9399-8644>) for publicity.

**9. Provide a full list of all the members of your team and their role in the project.**

**Dr. Loyapin Bondé**, Teacher-Researcher at Université Joseph KI-ZERBO/ Laboratory of Plant Biology and Ecology. Project grantee, I coordinated the project activities and contributed to fieldwork, workshop organization and preparation of scientific papers and final report of the project. Emails: [loyapinbonde@yahoo.bf](mailto:loyapinbonde@yahoo.bf) /[loyapin.bonde@ujkz.bf](mailto:loyapin.bonde@ujkz.bf)

**Dr. Kangbéni Dimobe**, Teacher-Reseracher at Université Daniel Ouézzin COULIBALY (former Université de Dédougou. He contributed to the species distribution modelling. Email : [kangbenidimobe@yahoo.fr](mailto:kangbenidimobe@yahoo.fr)

**Mr. Bossila Séraphin Hien**, PhD Student at Université Joseph KI-ZERBO in Plant Biology and Ecology. He contributed to fieldwork (data collection), planting and assisted natural regeneration implementation and workshop organization. Email: [bossila.hien@ujkz.bf](mailto:bossila.hien@ujkz.bf)

**Mr. Abdoul Faouzi 1er Jumeau Ouédraogo**, Master student in Seed Selection and Conservation at Université Joseph Ki-ZERBO. He contributed data collection, especially seeds harvesting and nursery trials implementation. Email: [ouedraogofaouzi8@gmail.com](mailto:ouedraogofaouzi8@gmail.com)

**Mr. Bakari Deme**, fieldwork assistant and contact person in the municipality of Douroula for local community organisation during the workshop

**10. Any other comments?**

We thank The Rufford Foundation for supporting this project which has significantly contributed to the development of my scientific career and training of new skills in plant and ecosystem conservation studies.