Final Evaluation Report

Your Details	
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Project Title	Conservation of rangelands in Sudano-Guinean agroecological zone of Cameroon and its macrofungi diversity
Application ID	43633-1
Date of this Report	23/07/2025

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
Inventory of plant and fungi diversity			Fully achieved	The inventory of plant and fungal diversity has enabled us to gain a better understanding of the biological wealth of the region. This work has contributed to the creation of a valuable database for research and conservation. It has also helped to highlight the floral and fungal biodiversity of the local population. The rigorous methodology put in place (field surveys, identification, consultation with the local population) guaranteed the reliability of the results obtained. The precise identification of certain species, particularly fungal species, proved complex due to the lack of specialised basic flora and pioneer data or seasonal morphological variability. Logistical constraints (weather conditions, access to certain habitats, availability of equipment) also slowed the progress of the inventory. Finally, the time required to analyse the samples was sometimes longer than expected. **a) Mycological data** We collected and preserved 312 samples of macrofungi divided into 67 species, 37 genera, 17 families and 6 orders **Floristic data**

				In the Adamawa region, there are several ecosystems, namely: meadows, shrub and tree savannahs and forest gallery. The meadows are dominated by herbaceous species such as: *Sporobolus pyramidalis*, *Setaria geniculata*, *Celtis asiatica*, *Borreria laevis*, *Sida rhombifolia* and *Mimosa pudica*. In the shrub and tree savannahs, we have recorded 56 species divided into 41 genera and 25 family. The herbaceous stratum is dominated by *Bracaria* sp, *cromoleina odorata*, *sida* sp, *Asparagus* sp, *Mimisa pudica, Cissus pulmea*, *Euphorbia hirta* and *Centella asiatica*The gallery forest is dominated by *Afzelia africana*, *Daniellia oliveri*, *Iménocardia acida*, *Isoberina doka*, *Isoberlina tomentosa*, *Khaya grandifolia*, *Lophira lanceolata*, *Mytragina ciliata*, *Phoenix reclinata*, *Syzygium guineense*, *Terminalia spp*, *Uapaca togolense*, *Vitex doniama* and *Xanthoxylum giletii.* We did not record any threatened or invasive species, because rangelands of Adamaoua region of Cameroon are under heavy human pressure (deforestation, degradation and bush fires)
ethnobotanical and ethnomycological surveys			Fully achieved	This objective was successfully achieved and led to a better understanding of local knowledge related to the use of plant and fungal resources in the grazing areas of the Adamaoua region. In the Adamawa region, 500 men and women were

				interviewed and The most represented tribes were: Gbaya, Peul, Mbororo, Mboum, Dii, Toupouri and Moundang. In the vina division, 250 men and women were interviewed using survey sheets designed beforehand in order to know the use of plant and fungal species in pasture areas and to know local strategies for the conservation and management of these pasture areas. These surveys took place in the localities of Ngoundaba (50 respondents), Baledjam (50 respondents), Tournigal (50 respondents), Gounjel (50 respondents) and Idool (50 respondents). The populations of the village of Idool were surveyed because of its position in relation to the villages of Tournigal and Gounjel. It is the crossroads between these two villages. In the Mbéré division, 250 men and women were interviewed. These surveys took place in the localities of Meiganga (50 respondents), Ngaoui (83 respondents), Dir (70 respondents), Djohong (47 respondents). Also, we are organised 10 focus groups discussion with 9 participants per group. The surveys revealed a strong traditional knowledge of fodder, medicinal and edible plant species, as well as mushrooms used in food or veterinary medicine. The results show a close relationship between pastoral practices and the sustainable management of local natural resources.

				We had: -Strong participation from pastoral communities, particularly herders and elders, who shared their knowledge in an open and collaborative way. -Identification of numerous plant and fungal species used in the pastoral context, including species with little scientific documentation. -Significant contribution to the development of endogenous knowledge for integrated management strategies for grazing ecosystems. Difficulties encountered: -Difficult access to certain remote grazing areas, requiring appropriate logistics. -Local language and terminology can be complex, requiring the use of interpreters and cultural mediators. -Initial mistrust of interviewers by some members of the community, requiring time to establish trust. -Difficulties in accurately identifying certain mushrooms, due to a lack of specific mycological documentation. Despite these constraints, the objective was fully achieved. The data collected provides a solid basis for future conservation initiatives, the enhancement of traditional knowledge and improved

				management of grazing lands in a context of environmental change.
Raising public awareness of the importance of conserving rangelands.			Fully achieved	This objective was successfully achieved, raising awareness among local people, particularly livestock breeders, farmers, young people and traditional authorities, of the issues surrounding the degradation of grazing land and the need to preserve it. Awareness-raising campaigns, educational talks and sound caravans were used to reach a wide audience (the sound caravan was a form of awareness-raising that we used to mobilise a large number of villagers. We used a vehicle containing a microphone connected to a loudspeaker to convey the message in the local language). We organised workshops/talks in all the study areas, such as vina and Mbere divisions and all study locality. The number of participants varied from one locality to another, and on average we counted 20 participants per session organised <u>Positive points:</u> Strong community participation and clear interest in conservation issues. Improved public knowledge of good grazing management practices (rotation, bushfire control, natural regeneration). Increased involvement of young people and livestock groups in

				local monitoring and awareness-raising activities. <u>Difficulties encountered:</u> Initial resistance from some people, particularly when faced with changes in traditional practices. Limited access to certain isolated areas, reducing the geographical coverage of awareness-raising campaigns. Despite these challenges, the objective was achieved overall. Raising awareness has laid the foundations for greater local ownership of the issues involved in conserving grazing land, with encouraging prospects for more sustainable management in the long term.

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

a). Improving local knowledge of plant and macrofungi species associated with rangelands.

Through ethnobotanical and ethnomycological surveys, the project has identified and documented a large number of fodder plant species and fungi (macrofungi) found in the rangelands of the Sudano-Guinean zone. This knowledge has been shared with local communities and has served to enhance traditional knowledge linked to the use and sustainable management of these resources.

b). Implementation of pilot actions for the restoration and sustainable management of rangelands

Practical activities have been carried out to improve the conservation of rangelands, including raising awareness among livestock farmers about natural regeneration, the introduction of sustainable pastoral practices (rotational grazing, combating bush fires) and participatory management of certain degraded areas. These actions will help to reduce the pressure on natural resources.

c). Raising awareness and involving local communities in the conservation of pastoral ecosystems.

The project has succeeded in mobilising local communities around the conservation of rangelands and fungal biodiversity. Awareness-raising campaigns and

collaboration with traditional authorities have strengthened local ownership of environmental issues. This dynamic has encouraged the emergence of relay groups committed to monitoring and protecting the rangelands.

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

- **Unforeseen difficulty: Initial reluctance of communities to collaborate in surveys and conservation activities.**

At the start of the project, an unforeseen difficulty was encountered: some local communities, in particular herders and traditional chiefs, showed a degree of mistrust towards the project. This reluctance mainly concerned the fear of external control over their pastoral practices, or of possible restrictions on access to grazing land. As a result, participation in the ethnobotanical surveys and awareness-raising activities was limited in some localities.

- **Solution implemented: Strengthening of community mediation and participatory approach**

To overcome this difficulty, we strengthened the involvement of local stakeholders from the outset. Dialogue meetings were organised with community leaders, traditional authorities and livestock breeders' associations to clarify the project's objectives, reassure them that it was non-binding and highlight the expected benefits for the local population.

In addition, local mediators (resource persons from the villages concerned; translator guides) were identified and trained to facilitate communication between the project team and the communities. This participatory approach gradually restored trust and led to improved collaboration**.**

In the end, and thanks to these efforts, we have seen an improvement in community support. Community participation has clearly improved over the course of the project. Residents were more open to surveys, awareness-raising activities and even voluntary conservation initiatives. This initial difficulty was eventually transformed into an opportunity to strengthen the local roots of the project.

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

Involvement of local communities

Local communities have been at the heart of the project. They were involved at several levels:

-Active participation in the ethnobotanical and ethnomycological surveys: herders, farmers, traditional healers and elders shared their knowledge of the plant and fungal species present in the rangelands, as well as traditional pastoral management practices.

-Collaboration in identifying priority grazing areas for conservation or restoration.

-Involvement in awareness-raising activities: Community members have been trained as community relays to disseminate messages on the conservation of rangelands and macrofungi.

-Co-organisation of local workshops with traditional chiefs and herders' associations, encouraging collective decision-making and empowerment of local players.

Benefits for local communities
Implementation of the project has brought a number of tangible benefits to communities:

-**Enhancement of traditional knowledge**: The project has recognised and highlighted local knowledge of flora and mushrooms, thereby strengthening the cultural pride and identity of the local people.

-Improved pasture productivity: The conservation practices introduced (e.g. pastoral rotation, bushfire control) have helped to restore certain degraded areas, to the direct benefit of livestock farmers.

-Creation of sustainable community dynamics: The project has encouraged the setting up of village environmental watch committees, which are continuing efforts to raise awareness and manage natural resources.

-Financial prospects: The recognition of certain mushroom species as resources with commercial potential opens up prospects for the development of communities, while respecting sustainable practices.

5. Are there any plans to continue this work?

Yes, further work is envisaged at several levels.
On the strength of the project's success and positive impact on local communities, a number of possible extensions have been identified:

a. Monitoring and strengthening community actions
Village committees set up during the project have expressed a desire to continue conservation activities. Technical and organisational support is envisaged to strengthen their autonomy in the sustainable management of grazing land and the monitoring of fungal resources.

b. Geographical extension
It is planned to extend the activities to other localities in the Sudano-Guinean agro-ecological zone that share the same issues, but which have not yet been covered by the initial project.

c. Further research into macrofungi

The macrofungal diversity identified is of great scientific and economic interest. Further work is planned to further characterise the species identified, study their medicinal or food potential, and explore the possibilities for domestication or local use.

d. Strengthening partnerships
The project has paved the way for collaboration with research institutions, environmental NGOs and decentralised technical services. Steps are currently being taken to mobilise additional resources and integrate these actions into broader rural development programmes.

This work is being pursued with a view to ensuring its long-term viability, broadening its impact and making the most of the results obtained, always in close collaboration with local communities.

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

Disseminating the results is an essential step in maximising the impact of the project. Several channels and formats have been considered in order to reach a variety of audiences, at local, national and scientific level:

a. Community sharing (local level)
village feedback was provided during the awareness-raising period: Organisation of community meetings in the localities concerned to present the results in an accessible form (presentations, visual aids, participatory exchanges).

b. Institutional and technical sharing
of the technical reports were shared with the deconcentrated environment, agriculture and livestock departments.

Feedback workshops were held with the administrative authorities, technical partners and NGOs to encourage networking and the integration of results into local natural resource management policies.

c. Scientific dissemination
A series of scientific articles on macrofungal diversity and local ethnobotanical knowledge is currently being written and will be published in an internationally renowned journal. In addition, we have presented our results at national and international symposia and conferences (Humboldt kolleg; JRS conference on biodiversity, etc....).

7. Looking ahead, what do you feel are the important next steps?
Important next steps for sustaining and expanding the project's results:

a. Setting up a community-based rangeland monitoring system
It is essential to set up a local mechanism for participatory monitoring of rangelands and macrofungi, involving village committees. This will make it possible to measure

changes in biodiversity, identify signs of degradation and adapt management practices.

b. Local capacity-building

Additional training is planned to provide livestock farmers, young people, women and community leaders with additional tools on:

Sustainable pasture management; Harvesting and using edible or medicinal mushrooms; Ecological restoration techniques.

c. Development of sustainable income-generating activities

The development of certain macrofungal species (particularly edible or medicinal) could be the subject of pilot processing or marketing projects, with technical support to ensure sustainability and economic benefits for the communities.

d. Integration of results into local and regional policies

The results of the project should be shared with local decision-makers and integrated into local development plans or agro-environmental programmes to ensure that they are taken into account in the long term.

e. In-depth scientific research

It remains important to continue studies on the macrofungal diversity and ecological functions of the species identified, in collaboration with research institutions, in order to provide scientific support for conservation.

f. Seeking funding for an expansion phase

Finally, a phase 2 project is envisaged to extend the intervention to other areas of the Sudano-Guinean region, capitalise on good practice and reinforce the impact on a larger scale.

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 Rufford Foundation logo was systematically used on all materials produced as part of the project, including:

-Posters, data sheets and leaflets distributed during awareness-raising activities in the communities;

-Visual presentations at awareness-raising workshops, feedback sessions and conferences;
-Technical reports and communication documents for local partners and institutions;

Digital media, including publications shared on social networks and electronic communications related to the project. The visibility of the Rufford Foundation was ensured proactively:

-At every public activity (community meetings, workshops, awareness-raising), the Foundation's support was clearly mentioned.
-Project partners and beneficiaries were informed that the actions undertaken were made possible thanks to funding from the Rufford Foundation.

-In discussions with local authorities and technical partners, the Foundation's role was highlighted as a key support for the conservation of local resources.

In this way, the Rufford Foundation was given appropriate and respectful visibility for its contributions, while at the same time being positively associated with a concrete project that was well received by the communities.

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

The fieldwork involved a multidisciplinary team of researchers, students, technicians and local stakeholders. Each member played an essential role in data collection, ecological observations and interaction with the communities.

Mr Zouberou Mouanfon Njiaghait - Team leader, PhD student, UFD-SB / University of Ngaoundéré
He coordinated all field activities, organized the missions, acted as a link between the different teams, supervised the data collection methodology (botanical, fungal, socio-anthropological), and ensured the scientific quality of the work carried out.
Mr Binwé Jean Baptiste - Botanist, PhD student, University of Ngaoundéré
He helped to identify the plant species present on the rangelands, to characterize the plant formations and to collect samples for the herbarium.
M. Apana - Botanist, doctoral student, University of Ngaoundéré
He took part in the floristic reconnaissance of grazed areas, the description of habitats, and the collection of data on fodder and medicinal plants used locally.
M. Abassi - Veterinary surgeon, Ngaoundéré
He shed light on the interaction between animal health and natural resources. He also helped to evaluate the traditional veterinary use of certain plants and mushrooms.
Mr Dagote Gaston - Biologist, Masters student, University of Ngaoundéré
He helped collect ecological data, prepare field samples and take notes on interactions between species in the rangelands.
M. Tchakbara - Master's student, INSAI - University of Ngaoundéré
He took part in soil analysis and the observation of physical and environmental conditions influencing the distribution of macrofungi.
Mr Madi - PhD student, University of Ngaoundéré
He made an active contribution to the collection and preliminary identification of fungal species, as well as to the analysis of macrofungal diversity in relation to pastoral practices.
Mr Aladji Mahamat - Guide and translator
His role was central in facilitating access to the sites, establishing contact with the local communities, providing translation during interviews and guiding the teams through the grazing areas.

Mr Wanbitching Godwe Dieudonné - Biologist, Master's student, University of Ngaoundéré
He supported the floristic survey work, took part in observations on the distribution of species, and helped with the logistics and preliminary analysis of the data.
Mr Ndewdeme Jules - Biologist, Masters student, University of Ngaoundéré
He was actively involved in collecting biological samples (plants and fungi), recording data in the field and managing scientific equipment.

Role of team members in awareness-raising activities Raising public awareness of rangeland conservation and macrofungal diversity was carried out by a multidisciplinary team with complementary skills. Each member played a key role according to his or her area of expertise:

Mr Zouberou Mouanfon Njiaghait - Team leader, PhD student at UFD-SB / University of Ngaoundéré
He coordinated all awareness-raising activities. He was responsible for the planning, technical supervision and running of the training sessions. He also presented the project's scientific foundations and conservation issues.
Mrs Mapiefeu Mélissa Léonie - Regional Social Worker, Adamawa Delegation
She facilitated exchanges with communities, particularly women and young people, by adapting awareness-raising messages to social realities. Her role was decisive in establishing a climate of trust and encouraging the active participation of local people.
Mr Apana - Botanist, doctoral student at the University of Ngaoundéré
He helped to identify the plant species present in the rangelands and led educational sessions on the ecological importance of fodder plants. He has also helped to disseminate botanical knowledge to livestock farmers.
Mr Aladji Mahamat - Guide and translator
Thanks to his mastery of local languages and his knowledge of the field, he played a crucial role in translating the technical and scientific messages into accessible language. He also facilitated interaction between the team and the pastoral communities.
Mrs Suzane Mengue - Regional worker from the Ministries of Livestock and Fisheries, Adamawa region

She raised awareness among communities of good sustainable livestock farming practices and the protection of natural resources used for animal feed. It also strengthened the link between the project's actions and national policies in the livestock sector.

Mr Ousmane Bello - Representative of the Ministries of the Environment and Nature Protection, Adamawa region

He provided institutional support for the project's activities and ensured that conservation messages were integrated into national environmental guidelines. It also helped to disseminate the results at administrative level.

10. Any other comments?

The project has not only achieved its scientific and community objectives, but has also generated genuine local interest in the conservation of natural resources. A number of observations and prospects are worth highlighting:

- The importance of endogenous knowledge: Discussions with herders, traditional practitioners and elders revealed an impressive wealth of traditional knowledge about plants and mushrooms, which is often little exploited. It is essential to continue documenting and preserving this knowledge, which complements modern scientific approaches.
- Young people's interest in the natural sciences: The involvement of master's and doctoral students has helped to strengthen their practical skills in botany, ecology and the ethnosciences. This is an important investment for the next generation of local scientists.
- Need for a policy framework for sustainable rangeland management: The project has highlighted the absence or weakness of regulatory frameworks adapted to rangeland management and macrofungi conservation. Increased collaboration with local decision-makers and sectoral authorities could strengthen the long-term impact.
- Community motivation to continue actions: Several communities have expressed their desire to continue the sustainable management practices initiated during the project. This paves the way for the establishment of self-supporting community projects or local environmental management committees.

In conclusion, this project has laid the foundations for long-term work combining science, tradition, local development and conservation. It deserves to be supported, consolidated and expanded in the future.

ANNEX – Financial Report

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