

Final Evaluation Report

Your Details	
Full Name	Ejigu Alemayehu Worku
Project Title	Land use and land cover change and ecosystem services of the southeastern Ethiopian Highlands
Application ID	37318-B
Date of this Report	September 2023

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
to quantify the land use land cover changes in land use types using the perceptions of local community members, GIS and remote sensing				A total of six land use land cover categories/classes were identified: <i>Erica</i> , montane forest, grassland, bushland, plantation, plantation and settlements.
to identify the major driving forces of land use land cover changes				We identified the direct and indirect driving factors responsible for land use land cover changes in the study area.
to quantify various ecosystem services (ESs) and examine the spatial-temporal variation of the typical ESs (including water retention, soil conversion, carbon storage etc.)				We used a global database to assess the ecosystem services gained and lost as a result of land cover changes at different spatial and temporal scales.

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

The most important outcomes of the project are:

- a) This study has analysed land use land cover (LULC) changes using field investigation, socioeconomic survey, GIS and remote sensing tools. The LULC dynamics were attributed to a combination of both proximate and underlying drivers. Our findings revealed that the study area experienced rapid forest conversion to human-dominated land use types. The results support biodiversity conservation, land use planning, and management.
- b) The study quantified the ecosystem services and our findings provided up-to-date database ecosystem service values in response to land use land cover dynamics for the studied landscape, which is a fast and effective way to assess the results of ecosystem service loss.
- c) The following manuscripts will be published in peer-reviewed journals based on the data collected in this study.
 - i. **Ejigu Alemayehu Worku et al.** (In prep). Land use land cover changes and driving forces in the Arsi Mountains and its surrounding areas, Ethiopia: Implications for wildlife conservation (aiming to **Land degradation and development**)

- II. **Ejigu Alemayehu Worku et al.** (In prep). Ecosystem service provision in response to land use land cover change in the southeast highlands of Ethiopia (aiming to **Ecosystem Services**)

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

The project was implemented as planned, and no significant difficulties were encountered during the implementation.

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

Local communities participated in a variety of capacities, including as local guides, field assistants, camp attendants, and hiring horses/donkeys for the research team. During the field investigation and socioeconomic survey, members of the local community were able to identify the drivers of land use land cover changes. This will help to develop a scientifically based wildlife conservation and management plan.

5. Are there any plans to continue this work?

The work is continuous, and I have already planned for further research projects. So far, the results are promising, leading to scientific questions that need further investigation and cross-disciplinary collaboration. Moreover, sustaining the project activities beyond the project duration is vital and can be achieved via the engagement and cooperation of local government groups and community leaders. This will help to integrate wildlife conservation and promote rural development in the region.

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

The summary of the project's results will be made available to local administrative bodies and the local community via local newspapers. In addition, the project findings will also be given to the Ethiopian Wildlife Conservation Authority and District Wildlife Conservation Offices, local conservation management groups, and other conservation organisations to incorporate into their conservation plans. Moreover, the research findings will be disseminated by formal publication in peer-reviewed international journals.

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

My next step is to publish the research findings and submit the final reports to the Ethiopian Wildlife Conservation Authority (EWCA). Furthermore, my second plan is to investigate how livestock grazing and other anthropogenic activities affect the distribution and survival of mammals in the protected areas of Ethiopia's southeast highlands. The effect of changes in land use and land cover on the effectiveness of protected areas in conserving large mammals and exploring the management options necessary to reverse the decline of mammals in the region are a research and conservation priority.

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?

We plan to share the results of the project through presentations in different workshops and seminars. I will use the Rufford Foundation logo during the Annual Centre for Ecological and Evolutionary Synthesis Student Conference from October 10–11, 2023. I will also acknowledge The Rufford Foundation in all publications resulting from this research and conservation effort.

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

Ejigu Alemayehu Worku (principal investigator), **Dr. Addisu Mekonnen Kassie** and **Professor Nils Chr. Stenseth** implemented the research project. All the project team members are involved in designing the methods and follow-up of the project implementation and will contribute to the publication of manuscripts.

10. Any other comments?

This project would not have been able to accomplish without the Rufford Foundation funding. I am grateful as always.



