

Final Evaluation Report

Your Details	
Full Name	Barsha Adhikari
Project Title	Improving Habitats for <i>Myotis csorbai</i> , An Endemic Bat of Nepal
Application ID	41915-1
Date of this Report	May, 2025

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

Objective	Not achieve	Partially achieve	Fully achieve	Comments
Enhance community awareness and engagement in bat conservation			✓	Six school and public conservation camps were successfully completed. Community members actively participated in the discussion and activities, leading to increased awareness.
Improving foraging habitat for <i>Myotis csorbai</i>			✓	Bat gardens were successfully established with 1000 flowering plants. Bat manual were distributed to the locals. Bat count before the flower plantation and after the bat garden establishment were done in all three caves.
Reduce pesticide use by promoting organic fertilizer		✓		Two organic training session including people from all three cave site was conducted. Altogether 48 participants were trained. Fertilizer making bin were distributed to all participants.

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

a). Increased awareness and community engagement in bat conservation.

Three conservation camps were conducted engaging 130 students from three schools of Syangja, Nepal. These camps aimed to raise awareness about the ecological importance of bats, particularly their role in pest control, pollination, and maintaining ecological balance. Interactive activities such as presentations, discussions, and poster demonstrations made the sessions informative and engaging.

In addition, three public conservation camps were organized involving 60 local community members. These sessions emphasized crucial role of bats in controlling insect populations, pollinations, and seed dispersal, while also introducing practical conservation strategies such as bat friendly habitat, reducing pesticide use, and minimizing disturbance around roosting

sites. The participation and curiosity by locals indicate a lasting impact on bat conservation activities. Awareness materials, including posters and Bat were distributed to further spread conservation messages beyond the immediate participants. The camps also facilitated open discussions, allowing attendees to share their thoughts and experiences with bats. By the end of the sessions, many participants developed a greater appreciation for bats and showed enthusiasm for supporting conservation initiatives.

b). Establishment of a bat garden and improved foraging habitat

Three bat gardens were successfully established in Syangja, with 1000 flowering plants planted in public spaces and around community properties, to create a natural foraging environment for insect eating bats. Each garden was designed with insect-attracting flowering plants such as Marigold, Chrsanthemum (Godawari), Hibiscus, and night-flowering jasmine (Parijat), which help sustain bat populations by increasing prey availability. These gardens were developed and maintained with active participation from the local community, fostering a sense of ownership and long-term commitment to bat conservation. Flower plantation manual were distributed among the local to help assist plantation of flower that attract bats.

To assess the impact of habitat enhancement, bat count surveys were conducted before and after the gardens were created. While the initial expectation was increase of the bat presence, the follow up survey showed decline in bat numbers across all three caves and gardens. This unexpected result is likely due to the onset of the cold weather, leading to bat hibernation or seasonal migration to other locations. Despite this, the project successfully raised awareness among the local people, who were trained in bat counting methods and actively participated monitoring efforts. Local People actively participated in the process, even building protective fences using local materials. This involvement ensures that long term observation and conservation efforts will continue beyond the project duration. Though the project activities has been completed, the garden remains as a long-term habitat improvement.

c). Successful promotion of Organic Fertilizer and Reduction of Pesticide use

The organic fertilizer training was highly successful, as many local farmers recognized its importance for sustainable farming. Two organic fertilizer and pesticide production training sessions were successfully conducted, engaging 47 participants from three areas near the project study caves. The training focused on utilizing locally available materials, such as agricultural residues and animal manures, to create eco-friendly fertilizers and pesticides. Participants were guided through a step-by-step process, including material collection, composting, and nutrient enrichment techniques, ensuring a practical, hands-on learning experience. To further support their implementation, fertilizer-making bins were distributed to all participants, allowing them to apply their acquired skills at home.

The training were facilitated by experts from Agricultural Department of Putalibazar Municipality, Syangja and aimed to reduce dependency on chemical fertilizer which degrade soil health and diminish insect's population, a crucial food source of bats. One of the key strengths of this initiative is that the material required for the organic fertilizer production were easily available locally, making it an accessible and sustainable practice that can be continued in the long run.

By adopting organic farming method participants can contribute to sustainable agriculture, improve biodiversity and lower farming costs, ultimately benefiting both bat conservation and local livelihoods. The enthusiasm and commitment shown by community members who actively collected locally available materials for fertilizer production, indicate a strong potential for the long term adoption of organic practices. This initiate not only enhances bat prey availability but also strengthens environmentally responsible farming in the area.

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

Several unexpected challenges arose during the project, requiring adaptive solutions. First difficulty was the low survival rate of some planted flowers. While efforts were made to establish bat gardens, some seedlings dried out and did not survive. This highlighted the need for better improved soil preparation, and regular watering to enhance survival rates in future plantation efforts.

Another challenge was the difficult terrain surrounding the caves, which made bat counting difficult. Some cave were in remote and hard to access, locations requiring additional time and effort to conduct survey. However we consulted and hire local people who were well known to the cave and locations for the assistance during the survey.

Additionally, with the onset of cold weather, bats began hibernating, making it crucial to complete the bat count quickly before they became inactive. To speed up the process, local people were hired to assist in conducting bat counts at all three locations, leading to an unforeseen financial burden on the project.

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

Local communities were highly involved in all aspects of the project. They participated in conservation awareness programs, engaged in discussions about bat ecology, and took part in organic fertilizer training. During the bat garden establishment, community members not only helped plant flowers but also voluntarily built protective fences using local materials. The

organic fertilizer training was particularly beneficial for farmers, who gained knowledge on pesticide-free farming, which can improve soil health and crop yield while also benefiting bat foraging habitats.

Local communities were actively engaged in the project through public conservation camps, where 60 participants learned about the ecological significance of bats and practical conservation measures. These sessions helped correct misconceptions and encouraged local stewardship of bat habitats.

Community members also played a key role in establishing three bat gardens, planting 1,000 insect-attracting flowers and building protective fences using locally sourced materials. Additionally, 47 local farmers benefited from organic fertilizer training, gaining skills to produce eco-friendly fertilizers and pesticides using accessible local materials. This initiative helped reduce dependency on chemical fertilizers, improving soil quality, lowering costs and increasing insect populations, indirectly supporting bat foraging habitats. To encourage practical application, each participant received a fertilizer bin, allowing them to continue organic fertilizer production at home, further reinforcing sustainable agricultural practices. The strong interest from farmers suggests these sustainable practices will continue beyond the project. Moreover, local residents were trained in bat counting techniques and participated in population surveys before and after garden establishment.

Overall, the project empowered local communities with practical skills and knowledge, promoting bat conservation, sustainable farming and environmental protection for the future.

5. Are there any plans to continue this work?

Yes, there are plans to continue and expand this work to ensure long-term conservation of bats and their habitats. One key focus will be seasonal monitoring of bat populations to understand their migration patterns, hibernation behaviour, and habitat use throughout different times of the year. This will help assess the effectiveness of conservation efforts and guide future habitat management strategies.

Additionally, we plan to enhance bat foraging habitats by planting annual flowering plants that bloom during the bat breeding season. This will ensure a consistent food source during critical reproductive periods, supporting bat population growth. Moving forward, we plan to incorporate bioacoustics monitoring to study bat ecology, habitat use and their interaction with bat gardens. This advanced method will help us better understand species presence, behaviour and foraging activity, providing more precise data to guide conservation efforts.

The organic farming training will also be scaled up to include more farmers, as bat's foraging range extends beyond the initial project sites. To further assess the impact of our organic fertilizer training, we will evaluate its effectiveness through a post-questionnaire survey. Additionally, we will select interested farmers and provide them with advanced training to

ensure large-scale improvements in soil health and bat friendly farming practices. This will create a sustainable agricultural system that benefits both farmers and bat populations.

We also aim to enhance ecotourism by producing informative videos on endemic bats and their surrounding habitat, showcasing the region's rich biodiversity. Given that the area is home to three endemic species, Spiny babblers, and endemic frog and an endemic bat. Our goal will be to promote landscape level conservation. Furthermore, we plan to encourage responsible tourism, especially during the annual mela (Festival), which attracts large numbers of visitors and puts pressure on local habitats. By integrating sustainable tourism practices, we aim to minimize ecological disturbance while promoting conservation awareness among tourists.

Through these continued efforts, we aim to strengthen community-led conservation, improve bat habitats, and ensure the long-term sustainability of conservation initiatives in the region.

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

Regular updates are being posted on the official Facebook page of Friends of Nature (FON) and are also being shared with the wildlife trainees of FON, ensuring that young conservationists and researchers stay informed about the project progress and key learnings.

The results of this project will be shared through article publication in online media and through social media platforms i.e. Official Facebook page of Friends of Nature (FON) and Voice of Nature. Findings will be shared within conservation networks. Additionally, awareness materials will be disseminated within local communities, and discussions with conservation organizations will help integrate lessons learned into future projects.

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

The next crucial step is would be

Long-term monitoring of endemic bat: Since *Myotis csorbai* is an endemic bat species recorded only from two locations there is limited scientific knowledge about its population status and habitat requirements. Therefore, long-term population monitoring and seasonal monitoring of bat populations to better understand their migration patterns, hibernation behaviour, and habitat use throughout the years. This will provide valuable insights into how bats respond to habitat restoration efforts and helps refine conservation strategies.

Strengthening the bat garden initiative: To further enhance bat foraging habitats, a key focus will be on planting annual flowering and the plants that bloom during the bat breeding season. Ensuring a consistent food supply during this critical period can support bat

reproduction and population stability. Additionally, incorporating woody plants that attract moths will further improve prey availability for insect-eating bats.

Scaling up organic fertilizer training: The organic farming training need to be expanded to reach more farmers and reduce pesticide use on a broader scale. This initiative will help reduce pesticide use on a broader scale, improve insect populations, and promote sustainable farming practices that benefit both bats and local livelihoods.

Local capacity building: Engaging local communities through a citizen science program will be another crucial step. Training and involving local volunteer in bat monitoring and conservation activities will help build local capacity and ensure sustained conservation efforts. By fostering a network of citizen scientist, we can generate valuable data while encouraging local stewardship of bat habitats.

Ecotourism promotion: The region is home to several endemic species. This makes it an ideal location for ecotourism promotion. Activities such as bat watching and guided wildlife tours should be introduced, linking conservation efforts with sustainable tourism. Responsible ecotourism can provide economic incentives for local communities while ensuring the protection of critical habitats.

By integrating scientific research, community engagement, habitat restoration, and ecotourism promotion, future efforts will contribute to the long-term conservation of endemic bats and biodiversity in the region.

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 used in conservation awareness materials, banners, posters, manual and presentations. The foundation was acknowledged during training sessions and awareness programs. The project was also shared on social media and conservation networks, further highlighting The Rufford Foundation's support.

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

- **Barsha Adhikari** - Project Leader, responsible for overall project planning, conservation material design and preparation, implementation of project, and reporting.
- **Suman Sapkota** - Program Coordinator, facilitated organic fertilizer training and community engagement.
- **Sofiya KC** - Field Assistant, assisted in conducting conservation awareness camps and data collection.

- **Raju Acharya** - Conservation Advisor, provided guidance on conservation strategy and awareness programs.
- **Binaya Ghimire** – Assisted in field research, bat count survey and data collection.
- **Sangam Poudel** - Supported in the flowering plant selection and helped during bat garden establishment, assisted in conducting conservation awareness camps.
- **Bal Kumar Gurung**- Assisted throughout the project, help coordinate with local people, assisted in the bat count survey, helped during the organic fertilizer training and helped in the material gathering and collecting for the organic fertilizer training.

10. Any other comments?

This project has been a valuable learning experience, both in terms of community engagement and bat conservation efforts. While some outcomes differed from expectations, they have provided critical insights into bat ecology, seasonal behavior, and community driven conservation approaches. The enthusiastic participation of local people suggests a strong foundation for future conservation initiatives, and we are optimistic about the long-term impact of this work.

Radio program Link: <https://fb.watch/zyH2KpIM0C/>



a. Bat garden creation (plantation of flowers and bamboo fencing)



b. Plantation of flowers for creation of bat garden



c. Bat garden monitoring by team leader after blooming of flowers



d. Participants attending school conservation camp



e. Distributing poster by team leader to local community member



f. Organic fertilizer and pesticide making training for participants of Rangbhang Khangrang, Syangja



g. Material Preparation for Organic Fertilizer



h. Community conservation camp participants with project banner



h. Bat count and monitoring by team leader