Project # 43132-2 Update – December 2024

by Vishal Kumar Prasad and Kumudani Bala Gautam

Climate Change — Resilient Conservation: Safeguarding Threatened Amphibians in Uttarakhand's Western Himalayas Through Participatory Research and Education

Project Update: April 2024 – December 2024

From April to December 2024, our team led by Vishal Kumar Prasad conducted extensive fieldwork and capacity-building training and documented threats to amphibians in line with the objectives outlined in our proposal. These activities were carried out in diverse locations across Uttarakhand, including Chakrata, Munsiyari, Uttarkashi, Chamoli, and Dehradun. This update summarizes the achievements and progress made during this period, highlighting significant findings, capacity-building efforts, and contributions to amphibian conservation in the Western Himalayas.

Figure 1: Our team creating awareness in among locals tribes and villagers in Chakrata towards saving amphibians of Uttarakhand Himalayas in June 2024. Photo: Davender Singh Rawat and Amit Badola.

Fieldwork **Activities**

Our fieldwork spanned various habitats across elevation gradients, with surveys conducted in high-altitude lakes, hill streams, temperate forests, and agricultural landscapes. Using techniques such as

Visual Encounter Surveys, Aural Surveys, acoustic monitoring, and ecological data collection, we recorded a wealth of amphibian data across the project sites. Key accomplishments include:

1. **New amphibian Records:**
    - Our surveys resulted in the discovery of multiple new records of amphibians, significantly contributing to the understanding of species distribution in the region. Notably, we documented previously unrecorded occurrences of species such as *Nanorana sp.*
    - DNA barcoding and bioacoustics analyses are underway to verify these records, which will be crucial for taxonomic clarification and conservation assessments.
2. **Threat Assessment:**
    - We documented various threats to amphibian habitats, including habitat degradation, agrochemical runoff, and invasive species. Field observations revealed a concerning trend of habitat fragmentation and water pollution in several areas, particularly in Chamoli and Uttarkashi.

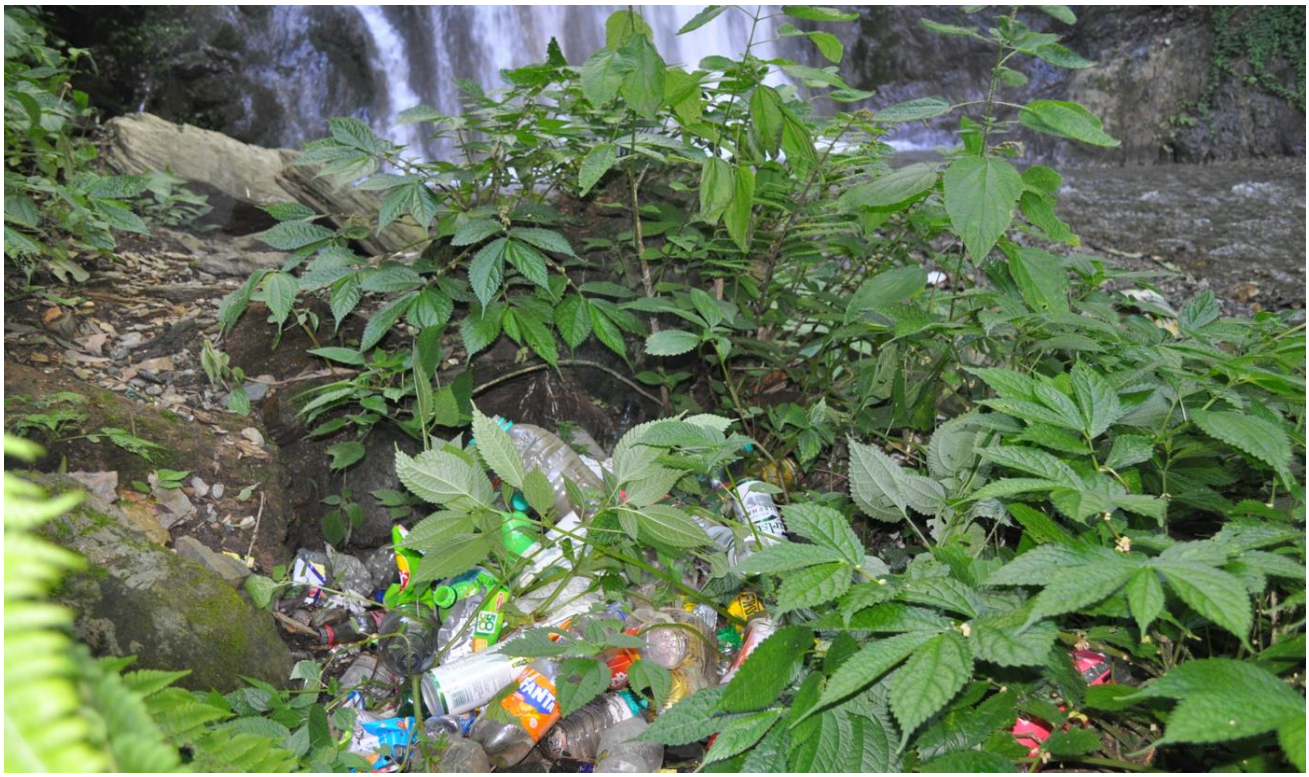

Figure 2: We surveyed type localities of amphibians and found that the streams once used to be pristine habitat for amphibians are not contaminated with solid waste mainly plastic waste in streams causing habitat loss and pollution

3. **Ecological and Morphometric Data:**
    - Detailed ecological data, including water temperature, pH levels, and dissolved oxygen, were recorded to understand habitat preferences. Morphometric data collection provided critical insights into body size variation and its correlation with elevation and habitat type.

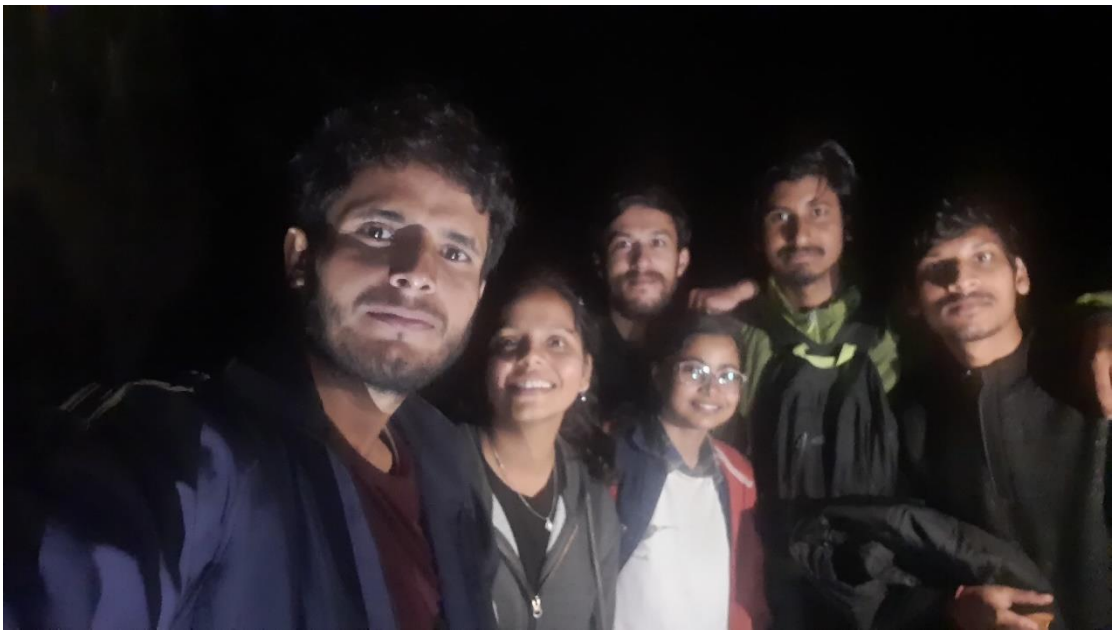

Figure 3: Our team members, Davender Singh Rawat and Amit Badola, providing hands-on training to volunteers from a local college, who have become enthusiastic frog conservationists after participating in our awareness program. This initiative is part of our ongoing efforts to build capacity among local stakeholders and promote amphibian conservation through the integration of indigenous knowledge from local tribes. These efforts are focused in regions such as Chakrata and Nainital in Uttarakhand. (photo: Amit Badola)

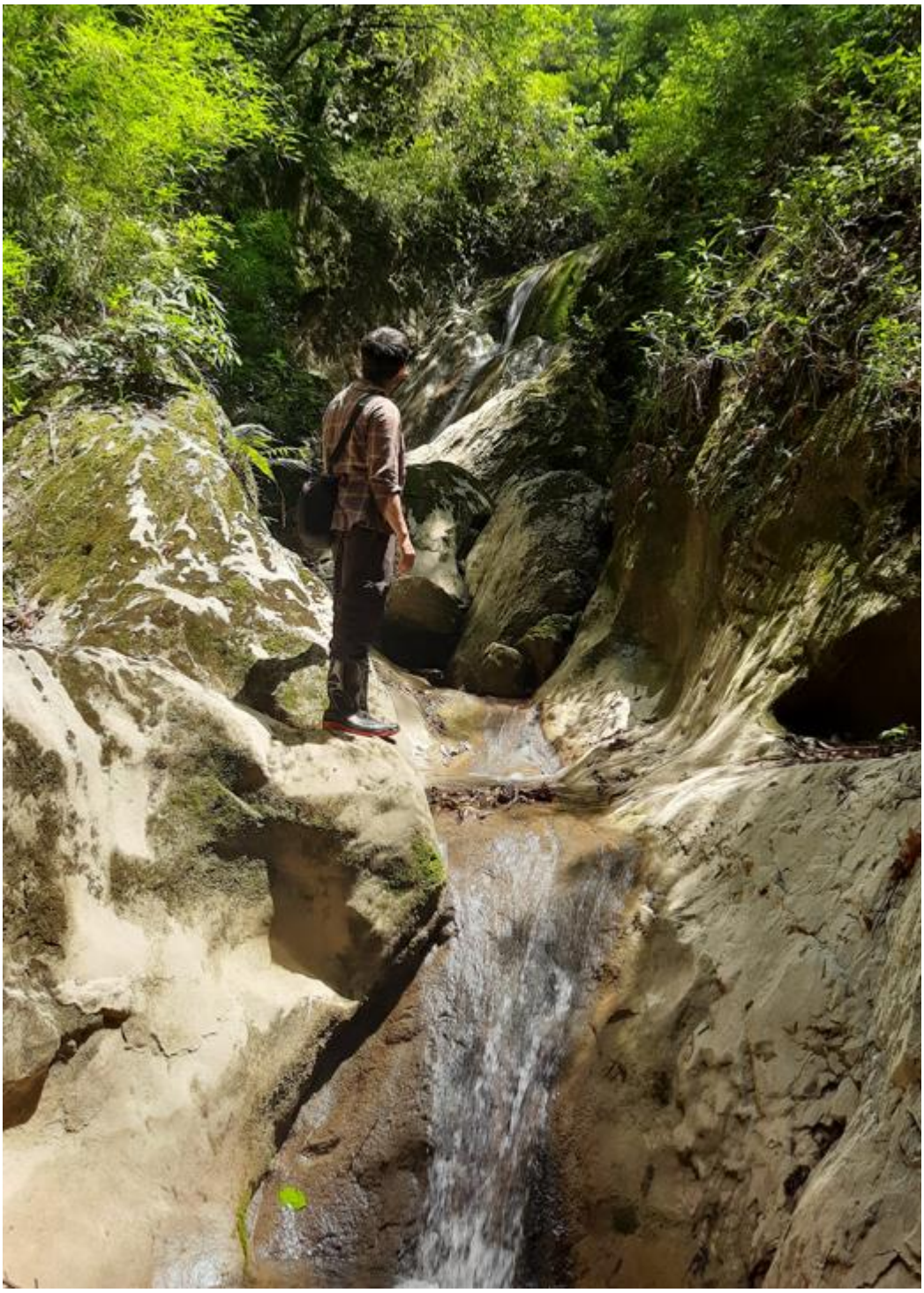

Figure 4: In the search of a rarest Critically Endangered frog Amolops chakrataensis trekking through rugged and difficult and slippery hilly and streamy terrain. In photo: Davender Singh Rawat. (photo: Kumudani Bala Gautam)

Capacity-Building and Training Efforts

A significant component of our project involved community engagement and capacity-building initiatives. These efforts aimed to foster local stewardship for amphibian conservation while equipping participants with practical skills for fieldwork and biodiversity monitoring.

1. **Training Programs:**
    - Hands-on training sessions were conducted in each project site, targeting local volunteers, forest department staff, schoolteachers, and nature guides. Participants were trained in amphibian identification, acoustic monitoring, and data recording techniques.
    - Over 60 individuals participated in these sessions, with many expressing keen interest in contributing to conservation efforts.
2. **Citizen Science Initiatives:**
    - 60 Participants were introduced to platforms like iNaturalist to document amphibian observations, creating a repository of citizen-contributed data. This initiative helped engage local communities and increase awareness of the region's amphibian diversity.
3. **Educational Outreach:**
    - Awareness programs were held in schools and community centers in Chakrata, Nainital and Chamoli. These sessions emphasized the importance of amphibians as ecological indicators and fostered a sense of responsibility toward their conservation.
    - Educational materials, including laminated guides and posters, were distributed to ensure lasting impact.

Next Steps

Moving forward, we will focus on the following activities to build on the progress made:

- Completing DNA barcoding and bioacoustics analyses for species verification.
- Expanding surveys to additional sites to refine distribution maps and assess habitat suitability using climatic modeling.
- Organizing stakeholder consultations and workshops to develop a comprehensive Conservation Action Plan (CAP).
- Preparing publications to disseminate findings through peer-reviewed journals and popular media platforms.