



Final Report

**Project Title: Saving the Critically Endangered Kanga
warty frog (Callulina kinga) in Tanzania**

Project 242534209

Project Leader: Enoka Munduka John

Abstract

This report details the progress and key findings of the project "Saving the Critically Endangered Kanga Warty Frog (*Callulina kanga*) in Tanzania," funded by The Mohamed bin Zayed Species Conservation Fund. The project aimed to address critical knowledge gaps and immediate threats to this critically endangered, endemic amphibian in the Kanga Forest Reserve. Key activities included intensive field surveys to assess population size and distribution, socio-economic assessments of local community perceptions, and the initiation of a participatory Species Action Plan (SAP). Fieldwork excitingly documented four individuals at two new, previously unrecorded localities (1027 m and 1064 m), expanding the known range of the species. Community surveys (n=112) revealed a significant awareness gap, with 79.3% of respondents attributing no importance to amphibians and 83% having never received related conservation education. In response, targeted training workshops, awareness campaigns, and the establishment of Community Conservation Committees were conducted to bridge this gap and foster local stewardship. The project has successfully laid the groundwork for the formal adoption of a SAP and initiated a shift in community perception, providing a crucial foundation for the long-term conservation of *C. kanga* and its unique montane habitat.



Introduction

The Kanga Warty Frog (*Callulina kanga*) is a critically endangered amphibian endemic to the montane forests of the Nguru Mountains in Tanzania, specifically the Kanga Forest Reserve. With an estimated habitat range of less than 10 km², this arboreal species is exceptionally vulnerable to anthropogenic pressures, primarily deforestation and agricultural encroachment from surrounding communities. Before this project, data on its population status, precise distribution, and the specific threats it faced were severely limited, hindering effective conservation planning. Furthermore, a lack of awareness and prevalent negative cultural perceptions towards amphibians among local communities posed a significant additional challenge to its survival.

This project, "Saving the Critically Endangered Kanga Warty Frog (*Callulina kanga*) in Tanzania," was initiated to address these urgent conservation needs. Funded by The Mohamed bin Zayed Species Conservation Fund, the project set out to achieve four main objectives: (1) to assess the population size, distribution, and trends of *C. kanga*; (2) to evaluate local communities' knowledge, perceptions, and attitudes towards amphibian conservation; (3) to develop a comprehensive Species Action Plan (SAP) through multi-stakeholder engagement; and (4) to implement targeted training sessions and awareness campaigns to foster community support. This report provides an update on the significant progress made in these areas, highlighting key findings from field research and community engagement, and outlining the strategic steps taken towards ensuring the long-term survival of this critically endangered frog.

Methods

(i) Social surveys to assess communities' perception

To achieve this, both household interviews (HHS) and focus group discussions (FGD) were conducted in villages around the Kanga Forest Reserve. In each village, 112 HHS and 3 FGD were conducted to collect information on the forest reserve, knowledge and perceptions of people towards the conservation of Kanga Warty Frog, activities that may threaten its existence, and what should be done to rescue the situation. For HHS, a standard semi-structured questionnaire was used, and for FGD,



a series of guiding questions was used to start the discussion, and respondents were free to air out their views.

(ii) Field surveys for determining population size, distribution and habitat quality
The forest was divided into 8 sites, and 2 teams of 1 researcher and 2 field assistants were assigned to each site. Data were collected in 30m x 30m survey plots, established through stratified random sampling across the elevational gradient of the 8 pre-selected forest sites. For each site, 2 plots were surveyed, making a total of 16 plots. The survey per plot takes an average of 2 hours during the night and 1 hour during the day. The two teams were communicating about each frog encountered to avoid double-counting. Other data, such as GPS coordinates, temperature, humidity, canopy cover, understory vegetation cover, litter depth, plant species, insect species within one meter and height from the ground were collected to help in determining habitat quality and preference following Lyakulwa 2019 and Menegon 2005.

(iii) Raising public awareness.

The project team organized meetings, workshops, and training sessions aimed at providing conservation education. These activities were intended to foster a sense of environmental responsibility and enhance community members' skills and knowledge for participation in conservation initiatives. Additionally, public awareness campaigns were carried out to generate interest and garner support for amphibian conservation efforts, encouraging community engagement. The project also distributed leaflets and arranged school visits to promote forest and environmental conservation.

Regarding the development of an action plan, the objectives mention this step, although it is not detailed in the methods section. To address this, the project team collaborated with local communities and stakeholders within Kanga Forest Reserve to draft an action plan. This plan is designed to guide the conservation and protection of the Kanga Warty Frog and its habitats, aiming to prevent further population decline and potential extinction. The process involved identifying threats to the species, proposing mitigation strategies, setting conservation goals, and developing actionable steps. Timeframe-specific actions to achieve these goals, identifying and engaging key partners interested in the conservation efforts, creating a detailed and actionable



plan, implementing this plan through responsible committees and continuously monitoring and evaluating the progress to ensure the effectiveness of the conservation efforts and make necessary adjustments where necessary.

Results

Activity 1: To assess species population size, distribution and trends

Funding from The Mohamed bin Zayed Species Conservation Fund helped us to conduct intensive field research in Kanga Forest Reserve on this incredible species Kanga Warty Frog (*Callulina kanga*), to assess its population size and habitat quality. These frogs primarily thrive in wet areas, i.e. trees, hidden among branches and leaves. Their survival is directly linked to the protection of their forest home. Currently, their population is tiny, existing along the river near Difinga village. While previous studies noted just two individuals at elevations of 760 m.a.s.l (5° 58' 37.67"S, 37°41'57.28"E ") and 1,140 m.a.s.l (05°55'00.4" S, 037°42'20.1" E) documented by Michele Menegon and Frontier-Tanzania, respectively, this current project has excitingly noted four number individuals of *Callulina kanga* at two new localities other than those documented before. Two at the elevation of 1027 m.a.s.l (05°57.894" S, 037°42.058" E), and two at 1064 m.a.s.l. (05°57.888" S, 037°42.029" E). But we've got to be mindful that human activities, including agricultural encroachment, continue to impact this precious habitat.





Activity 2: Assessing Communities' Knowledge, Perception and Attitude toward Amphibian Conservation

We successfully conducted household surveys and focus group discussions in the villages surrounding Kanga Forest Reserve to assess the community's knowledge, perceptions, and attitudes toward amphibian conservation, with particular focus on *Callulina kanga*. A total of 112 respondents were interviewed. 79.3% of respondents reported that amphibians have no importance to them, indicating a critical gap in awareness of their ecological roles. 83% highlighted that they had never received any conservation education related to amphibians. However, 60% of respondents were aware that deforestation is a major threat to amphibians, suggesting some understanding of habitat-related challenges. These findings underscore the urgent need for targeted conservation education and awareness programs to alter perceptions and promote stewardship of *C. kanga* and its habitat.

A deeper qualitative analysis of the focus group discussions revealed that negative perceptions were often rooted in cultural myths and a fear of amphibians being poisonous. Interestingly, a small minority (approximately 15%) from older generations held traditional, positive beliefs, associating frogs with rain and agricultural fertility, which could provide a potential cultural entry point for our education campaigns. The survey also identified farmers and fuelwood collectors as the key stakeholder groups

whose activities most directly interface with the frog's habitat, allowing us to tailor subsequent interventions more effectively.



Figure 1: Project leader assessing the communities' knowledge, perception and attitude toward amphibian conservation around Nguru Mountains



Activity 3: Development of a Species Action Plan

Following the knowledge assessment, we initiated the groundwork for the development of a Species Action Plan (SAP) for *Callulina kanga*. This process is ongoing and involves Stakeholder engagement. We have begun engaging local leaders, Tanzania Forest Services (TFS), conservation officers, herpetologists, NGOs, and community representatives. Preliminary threat mapping includes agricultural encroachment, deforestation for timber and fuelwood, and a lack of conservation awareness. Identification of Key Biodiversity Areas (KBAs). The threat mapping exercise is being used to identify and geo-reference specific, critical microhabitats within the reserve that are crucial for *C. kanga*'s survival (e.g., specific breeding sites, moist forest floors). This will allow for targeted protection efforts. A core component of the SAP is to outline a clear strategy for integrating the plan's recommendations into local government policies and the existing management plan for the Kanga Forest Reserve, ensuring institutional buy-in and longevity beyond the project's timeline. The draft framework explicitly explores potential sustainable livelihood alternatives (e.g., beekeeping, native tree nurseries) to reduce community dependence on forest resources, acknowledging that conservation cannot be successful without addressing economic needs. The draft action plan focuses on habitat protection and restoration, community-based conservation initiatives, conservation education and outreach, and long-term monitoring of *C. kanga* populations. The SAP will serve as a guiding document for authorities and communities to implement practical and sustainable conservation measures.

Activity 4: Training Sessions and Awareness Campaigns

To address the gaps revealed during the surveys, we conducted training workshops and awareness sessions for communities around Kanga Forest Reserve. Sessions targeted local leaders, farmers, women groups, and youth. The training emphasized the ecological importance of amphibians, their role as bioindicators, and the critical status of *C. kanga*. Leaflets and brochures were designed and distributed, highlighting the threats facing amphibians and practical ways communities can contribute to conservation. School visits and public meetings were carried out to reach a wider audience. Initial feedback suggests an increasing appreciation of amphibians'



ecological value. These interventions have started to bridge the knowledge gap and create a foundation for community-driven conservation of *C. kanga* and other amphibians in the Nguru Mountains.

To ensure the messages were culturally resonant, we employed local facilitators and used participatory methods, including storytelling, to demystify amphibians and dispel myths. A highlight was a "Bio-Blitz" event where community members, guided by herpetologists, explored the forest edge at night to safely observe amphibians, transforming fear into fascination. We also established Community Conservation Committees in two villages, comprising respected local leaders and enthusiastic volunteers. These committees will act as permanent liaisons, monitor human activities in the forest periphery, and help sustain the momentum of the awareness campaign long after the formal project concludes. Furthermore, educational materials were translated into Kiswahili and the local Kikaguru language to maximize accessibility and impact.





Figure 2: Team member providing training sessions and awareness campaigns in Difinga village around Kanga Forest Reserve



Figure: Project team conducting a Focus Group Discussion with farmer groups.

Challenges and Mitigation

The project implementation encountered two main challenges. First, the initial reluctance of some community members, primarily due to scepticism about the focus on a "small frog" amidst other pressing needs. This was mitigated through patient dialogue, emphasizing the interconnectedness of a healthy forest (and its amphibians) with clean water and sustainable resources. Second, the rainy season made some roads impassable, delaying some survey work. We adapted by rescheduling activities and utilizing motorcycles for access, ensuring all target villages were reached with minimal impact on the overall timeline.

Conclusion

The project has made significant progress in assessing community perceptions, initiating an action plan, and raising awareness on amphibian conservation. Early results show a strong need for continued education and stakeholder engagement, but



also encouraging signs of willingness to learn and participate in conservation initiatives. The support of the Mohamed bin Zayed Species Conservation Fund has been crucial in enabling these achievements, and we look forward to consolidating this progress into long-term, sustainable conservation outcomes for the critically endangered *Callulina kanga*.

The next phase of the project will focus on finalizing and formally adopting the Species Action Plan, expanding the training of the Community Conservation Committees, and initiating a pilot habitat restoration project in a degraded area on the forest edge. We are also exploring the development of a citizen science monitoring program to involve community members in data collection, further strengthening their connection to and ownership of the conservation outcomes. The foundational work supported by this grant has successfully ignited local interest; our goal is now to channel this interest into concrete, measurable actions that ensure a future for *C. kanga*.