

CONSERVATION LEADERSHIP PROGRAMME: FINAL REPORT

Saving the critically endangered Intermediate puddle frog
(*Phrynobatrachus intermedius*) in Ghana.



CLP Project ID: 13505

Host country and site location: Ghana & Ankasa Conservation Area,
Southwest Ghana.

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Project Partners & Collaborators

Herp Conservation Ghana (Herp-Ghana)	Herp-Ghana is Ghana's first amphibian and reptile conservation society and served as the project's primary implementing partner. The organization worked with key collaborators at the study site, whose support facilitated the successful implementation of project activities.
Conservation Leadership Programme	Provided funding, training, and mentoring that enabled the project team to successfully implement project activities.
Caleb Ofori-Boateng	Provided expert advice and guidance to the project team throughout the implementation of the project.
Ghana Wildlife Division	Provided the necessary permits, enabling the project team to conduct research at the study site.
Community Members	Promoted conservation education initiatives within their respective communities.
Kwame Nkrumah University of Science and Technology	Students from the Faculty of Renewable Natural Resources participated in monitoring the project's outcomes.

Section 1

Summary

The intermediate puddle frog, a critically endangered species is known from a single locality, the Ankasa Conservation Area in southwestern Ghana. In our previous conservation campaigns, we focused on understanding the distribution and habitat preferences of the species. Despite these efforts, the species still faces a high extinction risk. This project focused on protecting the frog population through research, conservation planning, capacity building, behaviour change campaigns, and habitat restoration. Key activities included field surveys and non-invasive estimation of global population size using N-mixture modeling, stakeholder engagement and awareness campaigns, conservation planning workshops, training of local conservation personnel, and tree planting to restore degraded habitats. Key achievements include the first global population assessment of the intermediate puddle frog, the development of the first conservation needs assessment and a draft conservation action plan, enhanced in-country conservation personnel capacity for the species and the restoration of 20 acres of priority frog habitat.

Introduction

The intermediate puddle frog is a high priority Evolutionary Distinct and Globally Endangered amphibian endemic to a single locality, the Ankasa Conservation Area (ACA)- a key biodiversity site, in Ghana. Due to the paucity of data on the species, our previous project focused on understanding the distribution and habitat preferences of the species. We worked with communities to increase awareness and built support for the species. However, the species still faces important threats due to decline in the quality of its riparian habitat. Our previous project was hugely successful. We rediscovered the species after 12-years, discovered new populations and for the first time discovered a male intermedius. Unfortunately, we also observed increased destruction of the species habitat by both encroaching cocoa farmers and raffia palm collectors. This project aimed to achieve the following objectives 1) Determine the population size of the intermediate puddle frog in Ghana. 2) Develop a conservation needs assessment for the species. 3) Enhance the capacity of at least 10 in-country conservation personnel including park guards to implement conservation action plan. 4) Restore at least 20 acres of previously degraded habitats of the intermediate puddle frog. The project was implemented in the Ankasa Conservation Area. Geographically, the site falls along southwestern Ghana on the border with the Ivory Coast. The habitat consists of a typical tropical lowland forest cover, covering 509km² and the site is part of Alliance for Zero Extinction sites and falls under category II of IUCN classification.

Herp-Ghana, a non-profit organization focused on amphibian and reptile conservation, was a key project partner. The organization facilitated community entry and provided student volunteers who actively supported project activities. In addition, several local stakeholders including community leaders Mr. Vincent Addo, Mr. Paul Mensah, Mr. Acquah Manu, and Mrs. Felicia Antwi Kusi contributed to the project in various capacities.

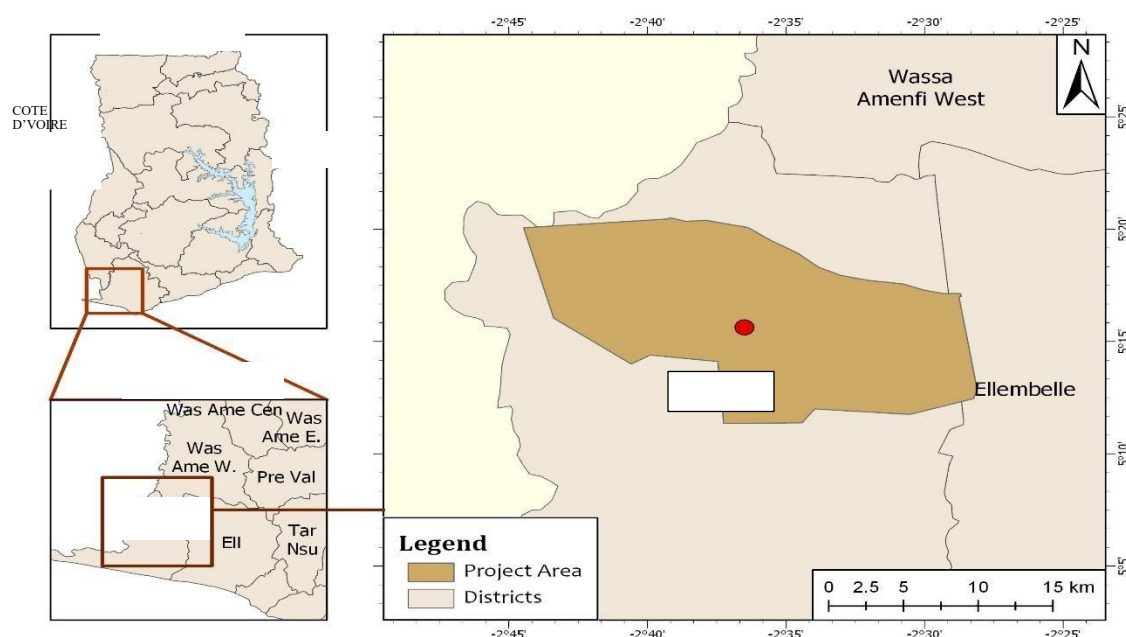


Fig. 1: Map of the project site (Ankasa).

Project Members

Francis Osei-Gyan (Team Leader) – Holds an MSc in Development Policy and Planning and serves as Chief Operating Officer at Herp Conservation Ghana.

Godbless Anthony Churcher (Species Survey Leader) – Holds a BSc in Natural Resource Management and works as a Species Protection Officer at Herp Conservation Ghana.

Susana Akwele Aryeetey (Capacity building leader) – Holds a BSc in Sociology and Social Work and currently serves as Human Resource Manager at an educational institution.

Angelina Osei Asor (Habitat Restoration Leader) – Holds an MA in Environmental Management and Policy and is a full-time lecturer at the Atebubu College of Education.

Section 2

Aim and objectives

The project aimed to safeguard a thriving global population of the critically endangered intermediate puddle frog through science-based conservation actions in Ghana. In order to achieve the project aim, four specific objectives were undertaken:

- 1) Determine the population size of the intermediate puddle frog in Ghana.
- 2) Develop a conservation needs assessment for the species.
- 3) Enhance the capacity of at least 10 in-country conservation personnel including park guards to implement conservation action plan.
- 4) Restore at least 20 acres of previously degraded habitats of the intermediate puddle frog.

Methodology

Objective 1: Determine the population size of the intermediate puddle frog in Ghana.

Activities Conducted

Activity 1.1. Conduct ground truthing to confirm the presence of the target species.

Ground-truthing surveys were conducted at five occurrence sites of the frog. Surveys were conducted using acoustic and visual encounter techniques to search for the frogs. We confirmed populations in four of the five sites.

Activity 1.2. Estimate population size of the target species at all of its confirmed occurrence sites.

The population size of all known intermediate puddle frog populations in Ghana was assessed using N-mixture modeling techniques. Surveys were conducted at 11 stream sites with confirmed frog presence, with each stream section serving as a transect of variable length depending on the extent of frog occurrence. Each transect was surveyed seven times by three observers, who walked from downstream to upstream, counting all mature individuals. In addition to the count data, habitat and site covariate data including elevation, canopy cover, stream flow, width, depth, turbidity, pH, stream and air temperature, and weather conditions were recorded. The repeated counts in a given site was then used to estimate detection probability and ultimately population size.

Objective 2: Develop a conservation needs assessment for the species.

Activities Conducted

Activity 2.1 Stakeholder Workshops

We organized and facilitated a series of stakeholder workshops to present the results of our field assessments and discuss priority conservation actions. Key participants included the Ghana Wildlife Division, municipal government representatives, community leaders and raffia palm harvesters. A feedback session was conducted to gather stakeholder perspectives on proposed conservation measures and actions.

Activity 2.2: Conservation needs assessment for the species.

Expert workshops were organized to identify and assess threats to the species. The workshop enabled us to identify priority conservation needs of the species and recommended conservation strategies for the intermediate puddle frog.

Objective 3: Enhance the capacity of at least 10 in-country conservation personnel

Activities Conducted

Activity 3.1: Conduct hands on conservation training for young in-country conservation personnel

Hands-on conservation training was provided to over 10 local community volunteers, including park guards, at the Ankasa Conservation Area during the project period. The training focused on how to effectively identify the species and collect monitoring data.

Activity 3.2: Train in-country personnel from Ghana to implement and expand ongoing conservation outreaches/awareness program

Over 25 local volunteers were trained and recruited into a behaviour change program aimed at raising conservation awareness in five communities through peer education. The program equipped volunteers with the knowledge and skills needed to promote positive conservation behaviours within their communities.

Objective 4. Restore at least 20 acres of previously degraded habitats of the intermediate puddle frog.

Activities Conducted

Activity 4.1 Acquire and plant indigenous tree seedlings

Tree seedlings were acquired and planted in collaboration with community members and volunteers to restore degraded habitats of the target frog species. Three indigenous tree species, were planted with the aim of improving habitat conditions for the intermediate puddle frog.

Activity 4.2 Conduct tree maintenance activities with project volunteers over an 18-month period

Tree aftercare activities, including mulching, watering, and weed control, have commenced for the planted seedlings with the support of trained local community volunteers. The volunteers received hands-on training in vegetative reproduction and tree aftercare techniques, delivered by a restoration scientist from the Forestry Research Institute, to support routine maintenance and monitoring.

Activity 4.3 Conduct quarterly assessment to assess seedling survival rate and when needed conduct beating up exercises

Local volunteers conduct quarterly monitoring of planted trees to assess survival and overall health. During each monitoring exercise, a simple health scoring system is applied to each tree, using a scale of 0–3, where 0 indicates a dead tree and 3 indicates a healthy tree in optimal condition. Descriptive notes are also recorded to document any observed health issues. So far, approximately 90% of the planted trees have survived.

Outputs and Results

Outputs from Objective 1

First-Ever Global Population Census Completed: The first global population census of the intermediate puddle frog was successfully conducted using N-mixture models. Sadly the analysis predicts only an estimated population of 82 mature individuals in the wild.

Fig. 1 Field Work Pictures



Team members conducting field surveys



Team leader during frog surveys

Outputs from Objective 2

First Conservation Needs Assessment completed: This project completed the first conservation needs assessment for the intermediate puddle frog. The assessment evaluated the species' population status, key threats, and ecological requirements, providing a strategic framework to guide future conservation intervention and management actions.

Fig. 2. Field Work Pictures



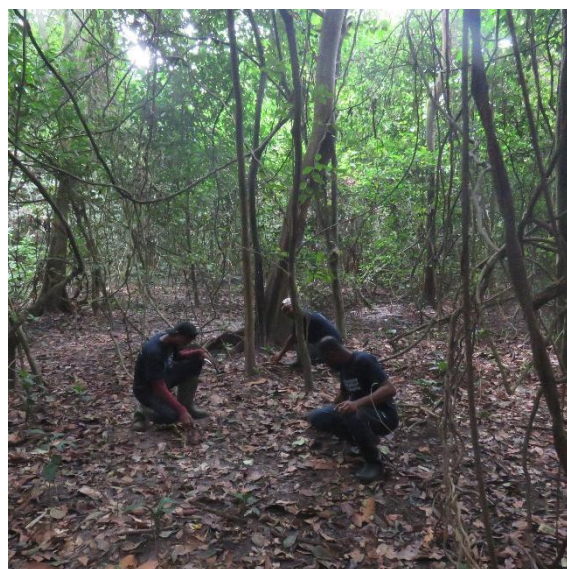
Habitat of the Intermediate Puddle Frog in the Ankasa National Park



Team leader assessing threats



Community input on species being recorded



Project team conducting field data collection

Outputs from Objective 3

The project significantly enhanced the capacity of over 10 young conservationists and local volunteers, who now actively support ongoing conservation awareness campaigns for the intermediate puddle frog.

Fig. 3. Field Work Pictures



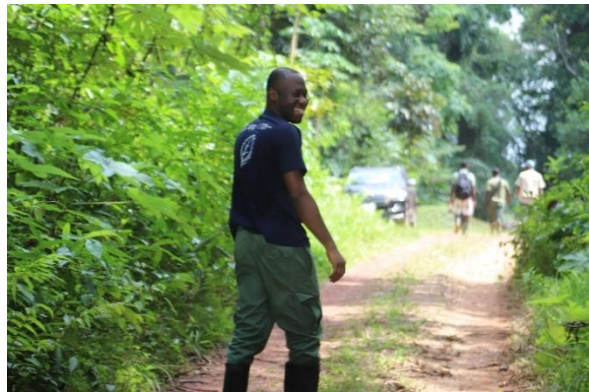
Hands-on conservation training for park guards



Trained Park guards identifying target species



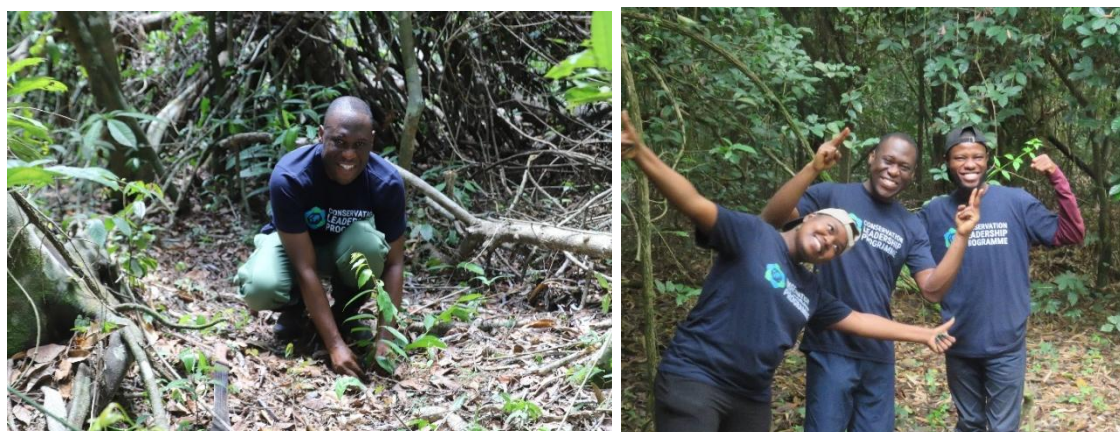
Team Leader (3rd from left) with some of the trained local volunteers and proud of the volunteers' learning



Outputs from Objective 4

The project successfully restored several acres of priority frog habitats. The planted trees are thriving, achieving a survival rate of 90%.

Fig. 4. Field Work Pictures



Tree planting in action

Teamwork and smiles

Communication & Application of Results

A scientific manuscript will be prepared and submitted for publication, presenting the findings from this project. The paper will detail the first global assessment of the intermediate puddle frog.

Results of the project have also been shared with the local communities, the Ghana ministries of Science, Environment, Lands and Forestry, the Forestry Commission of Ghana, the Ghana Wildlife Division, the Forestry Research Institute of Ghana and the Department of Wildlife and Range land Management of the Kwame Nkrumah University of Science and Technology, Kumasi, Ghana and this is already influencing conservation action on-the-ground.

Monitoring and Evaluation

The project employed quantitative measures to assess the impact of community awareness activities, including recording the number of participants in the campaign. Additionally, pre- and post-tests were conducted to evaluate the effectiveness of the awareness-raising efforts.

Achievements and Impacts

Addressed key knowledge gaps: Over several months, extensive fieldwork and data analysis were conducted to assess the population size of the intermediate puddle frog. This project produced the first global population estimate for the species, indicating an estimated total of approximately 82 individuals worldwide. Unfortunately, this means that the species is far more threatened than we even assumed at the beginning of the project.

Completed the first Conservation Needs Assessment: Through this project, the first conservation needs assessment for the intermediate puddle frog was completed, providing a structured foundation to guide actions aimed at securing the species' long-term survival.

Enhanced conservation capacity: The project strengthened the skills and expertise of more than 10 local individuals. These individuals primarily young volunteers, including park guards from communities within the frog's range, received targeted training to support and guide future conservation planning and species management efforts. Capacity building and local conservation actors is paramount to the long term success of conservation programs.

Restored critical habitats: The project planted and maintained several indigenous tree species in priority habitats for the intermediate puddle frog. These restoration efforts are expected to improve habitat quality, enhanced reproductive success and increase population of the species.

Capacity Development and Leadership Capabilities

The CLP project training attended by Godbless Anthony Churcher significantly strengthened the team's capacity. It enabled the adaptation of training materials to the team's context, improved individual skills, and promoted effective collaboration by encouraging consideration of diverse perspectives.

As a result, the team applied these skills to engage stakeholders more effectively, develop innovative communication materials, and implement a novel behavior change program used in awareness campaigns throughout the project. These outcomes enhanced the project's overall impact and reach in the target communities.

Section 3

Conclusion

This project has made critical contributions to the conservation of the critically endangered intermediate puddle frog. For the first time, a global population assessment was completed, revealing the species' highly threatened status. The project also developed the first conservation needs assessment and trained over 10 local conservation personnel, strengthening in-country capacity for ongoing protection efforts. In addition, several acres of priority frog habitats were restored, with a 90% survival rate of planted trees, directly supporting the species' long-term survival. Together, these achievements provide a strong foundation for continued conservation action and community engagement.

Problems Encountered and Lessons Learnt

Community engagement was highly successful. Through collaborative field activities that involved local support and participation, our team not only strengthened understanding of the project's conservation goals but also inspired genuine interest and ownership of the frog conservation efforts within the community.

A key lesson learned is that teamwork and regular discussions kept the team informed, motivated, and were critical to the success of the project. We also found that involving local people and stakeholders—giving them meaningful roles and responsibilities yields collective, lasting results that foster pride and ownership in conservation efforts.

In the Future

Restoring degraded habitats: Continued restoration efforts will focus on rehabilitating degraded habitats.

Project monitoring and evaluation: Ongoing monitoring and evaluation of project activities will be conducted to assess their impact on target species, and habitats. These assessments will be conducted annually to inform future interventions and support continuous improvement.

Financial Report

Itemized expenses	Total CLP Requested (USD)*	Total CLP Spent (USD)	% Difference
PHASE I - PROJECT PREPARATION			
Communications (telephone/internet/postage)	300.00	273.00	-9%
Field guide books, maps, journal articles and other printed materials	104.00	104.00	0%
Insurance			
Visas and permits	250.00	250.00	0%
Team training	850.00	850.00	0%
Reconnaissance	1,540.00	1540.00	0%
Other (Phase 1)			
EQUIPMENT			
Scientific/field equipment and supplies	2,166.00	2166.00	0%
Photographic equipment	450.00	450.00	0%
Camping equipment	790.00	790.00	0%
Boat/engine/truck (including car hire)			
Other (Equipment)	400.00	400.00	0%
PHASE II - IMPLEMENTATION			
Accommodation for team members and local guides	2,100.00	2100.00	0%
Food for team members and local guides	1,800.00	1800.00	0%
Travel and local transportation (including fuel)	4,700.00	4700.00	0%
Customs and/or port duties			
Workshops	5390	5390.00	0%
Outreach/Education activities and materials (brochures, posters, video, t-shirts, etc.)	2,200.00	2211.85	1%
Other (Phase 2)	1,600.00	1600.00	0%
PHASE III - POST-PROJECT EXPENSES			
Administration	160.00	150.00	-6%
Report production and results dissemination	200.00	225.00	13%
Other (Phase 3)			
Total	25,000.00	24,999.85	

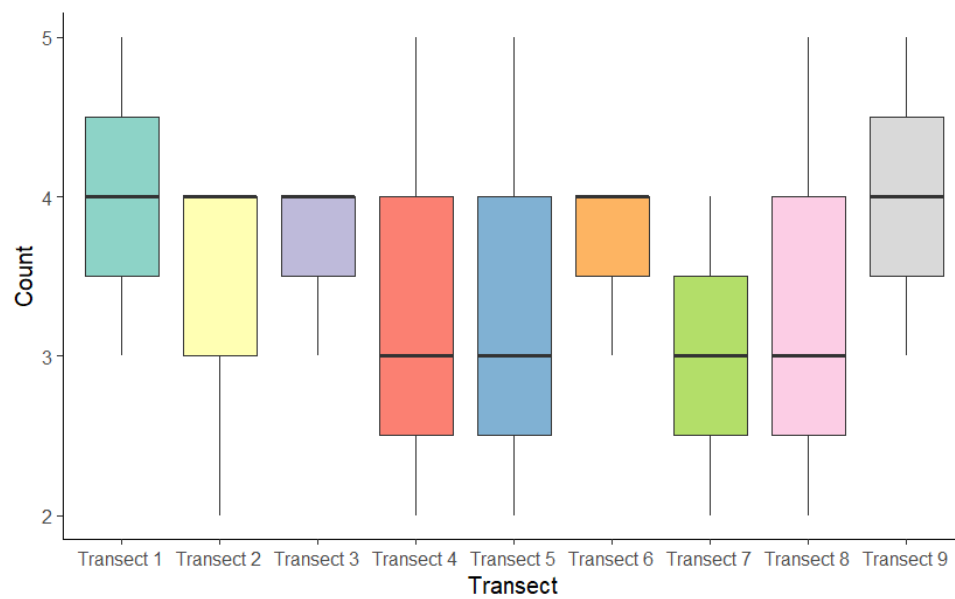
Section 4

Appendices

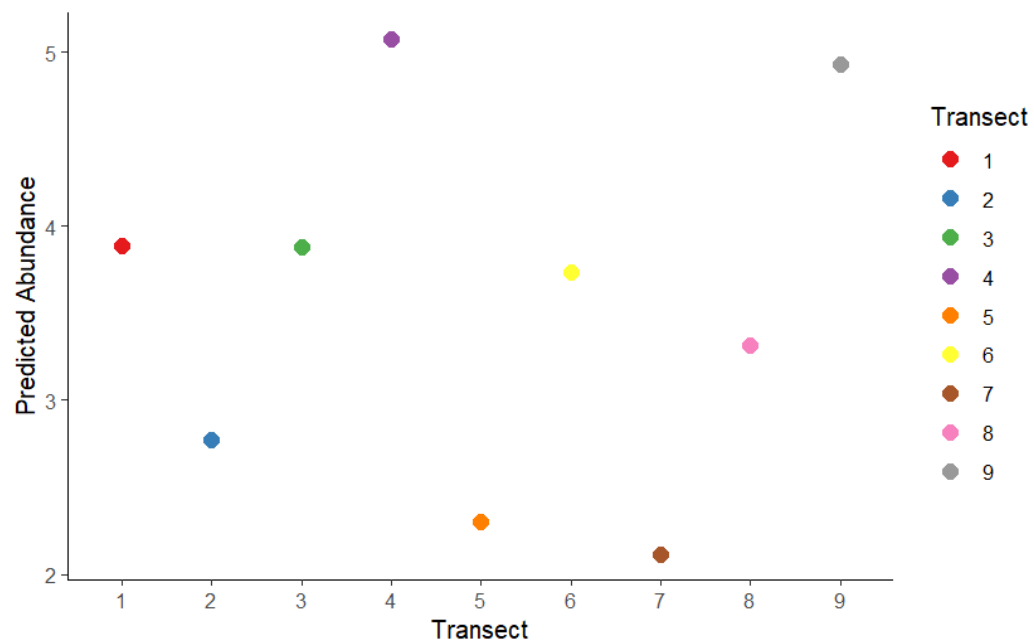
Appendix 4.1 CLP M&E measures

Output	Number	Additional Information
Number of CLP Partner Staff involved in mentoring the Project	1	
Number of species assessments contributed to (E.g., IUCN assessments)		
Number of site assessments contributed to (E.g., IBA assessments)		
Number of NGOs established		
Amount of extra funding leveraged (\$)		
Number of species discovered/rediscovered	1	Rediscovered the intermediate puddle frog after 12 years
Number of sites designated as important for biodiversity (e.g. IBA/Ramsar designation)		
Number of species/sites legally protected for biodiversity	1	Ankasa Conservation Area
Number of stakeholders actively engaged in species/site conservation management	5	
Number of species/site management plans/strategies developed		
Number of stakeholders reached	8	
Examples of stakeholder behaviour change brought about by the project.		
Examples of policy change brought about by the project		
Number of jobs created		
Number of academic papers published	1	Manuscript in preparation
Number of conferences where project results have been presented	1	32nd International Congress for Conservation Biology (ICCB 2025) in Brisbane, Australia.

Appendix 4.2 Boxplot showing species observed per transect



Appendix 4.3 N-mixture results showing predicted abundance of species



Address List and Web Links

Herp Conservation Ghana: www.herpconservationghana.org

Distribution List

1. Conservation Leadership Program
2. Forestry Research Institute of Ghana (FORIG)
3. Ghana Wildlife Division (GWD)
4. Ghana ministries of Science, Environment, Lands and Forestry
5. Herp Conservation Ghana (Herp-Ghana)
6. Faculty of Renewable Natural Resources
7. Ankasa Traditional Council