

The Rufford Foundation

Final Report

Congratulations on the completion of your project that was supported by The Rufford Foundation.

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. The Final Report must be sent in **word format** and not PDF format or any other format. We understand that projects often do not follow the predicted course but knowledge of your experiences is valuable to us and others who may be undertaking similar work. Please be as honest as you can in answering the questions – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Please complete the form in English and be as clear and concise as you can. Please note that the information may be edited for clarity. We will ask for further information if required. If you have any other materials produced by the project, particularly a few relevant photographs, please send these to us separately.

Please submit your final report to jane@rufford.org.

Thank you for your help.

Josh Cole, Grants Director

Grant Recipient Details

Your name	Kojo Kwakye Ofori-Amanfo
Project title	KNUST Wewe River Amphibian Project (K-WRAP)
RSG reference	21240_2
Reporting period	One-year
Amount of grant	£5000
Your email address	kojoofori17@yahoo.co.uk
Date of this report	10 ^h October 2018

1. Please 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
Amphibian Surveys and Monitoring				<p>We conducted an area-wide inventory and mapped all amphibian breeding sites within the Wewe catchment for long-term monitoring. We identified seven breeding ponds in the southern part of the KNUST river catchment. We recorded egg masses, advertisement calls, and the first-hand mating activity of white-lipped frog <i>Amnirana albolabris</i>. We took the geographic positions of all breeding ponds with a GPS receiver. Overall, we conducted a total of 20 surveys, covering KNUST campus Wewe River stretch, three of its tributaries and associated wetlands. We combined visual and acoustic sampling techniques. We recorded 20 amphibian species, of which eight were new to the site. These include Tokba river frog <i>Phrynobatrachus tokba</i>, snouted grassland frog <i>Ptychadena longirostris</i>, Mascarene grass frog <i>P. mascareniensis</i>, white-lipped frog <i>Amnirana albolabris</i>, western clawed frog <i>Xenopus tropicalis</i>, rusty forest treefrog <i>Leptopelis viridis</i>, lime reed frog <i>Hyperolius fusciventris</i> and flat-backed toad <i>Sclerophrys maculata</i> and <i>Ptychadena mascareniensis</i>. This opportunity was used to train 50 undergraduate members of SAVE THE FROGS! KNUST on how to monitor and identify amphibians and how to properly communicate findings using modern technology such as social media. This has enabled members to be effective in evaluating and reporting the impact of restoration activities on local amphibian populations.</p>
Establish Habitat Corridors				<p>Together with 50 chapter members, and community volunteers, we cleared degraded critical frog habitats of invasive</p>

				<p>weeds and planted a total of 1,200 seedlings of two carefully selected native tree species: the fungi and insect resistant kusia <i>Nauclea diderrichii</i> and militia <i>Millettia thonningii</i>, recorded for its soil conservation and erosion control properties. Trees were also planted in critical breeding sites along the Wewe River to connect these sites with upland habitat areas, which ultimately will promote natal and breeding dispersal of declining populations. We also used this exercise as an opportunity to train student members on best invasive weeds control and habitat restoration practices. This activity coincided with the 9th Annual Save The Frogs Day, the world's largest day for amphibian conservation events.</p>
Improve Waste Management Practices				<p>We conducted an emergency clean up exercise to remove all plastics, waste sachets and cans in the Wewe River catchment. Together with chapter members, we also organised massive campaigns with which we educated over 2000 students and local people in the four surrounding communities on the effects of water pollution particularly to aquatic organisms and how to manage waste.</p>
Increase community involvement and Environmental Awareness				<p>Approximately 100 members embarked on one-on-one interactions with students and local people in surrounding communities to educate them on the need to protect amphibians and their habitats. We also reached out to other global followers through blogs and articles posted on SAVE THE FROGS! webpages. All these efforts have helped us reach and educate at least 1 million people. Some of the articles were published as part of SAVE THE FROGS! Ghana's Ghana Online Amphibian Literacy (GOAL) Project. Please refer to the appendix section.</p>

2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).

We planned to use automated acoustic sampling techniques for surveys since traditional methods had failed in finding some of the known cryptic and endangered frogs. Unfortunately, we failed in getting the matching funds from Idea Wild (a donor foundation). However, we were lucky to have Dr Mark-Oliver Roedel (world's leading expert on West African amphibians, and West/Central African IUCN Chair of the Amphibian Specialist Group) who was in Ghana and visited our project site. He and SAVE THE FROGS! Ghana's Executive Director Gilbert Adum enhanced our capacity in the conventional acoustic and visual encounter surveys. This eventually led to the discovery of the eight new site records.

3. Briefly describe the three most important outcomes of your project.

Amphibian Surveys and Monitoring

Notwithstanding its reputation for having polluted, fragmented and degraded forests, we recorded 20 amphibian species within the KNUST campus stretch of the Wewe River. Impressively, eight of these species were new to the site. This is the first project to have recorded such a high number of new frogs of the site since 2011. We also discovered and mapped seven breeding ponds in the southern part of the KNUST Wewe River Catchment. We recorded egg masses, advertisement calls, and the first-hand mating activity of white-lipped frog *Amnirana albolabris*. This information now provides a baseline which can be used for further environmental health studies of the site. Breeding ponds and egg masses recorded provide the scientific basis to design suitable management schemes and monitoring protocols important for protecting Wewe River catchment and its biodiversity.

Establish Habitat Corridors

Altogether, on this project, we planted a total of 1,200 native trees in critical breeding sites along the Wewe River to connect these sites with upland habitat areas. This has increased species' habitat size and established vegetation corridors within their ranges. Eventually, this will promote natal and breeding dispersal of remnant populations. The tree planting exercise also has the potential of reducing the exposure of threatened amphibian species to the full effect of the regions waning climatic changes.

Increase community involvement and Environmental Awareness

K-WRAP is the first campus amphibian conservation project to have the largest community support for wetland conservation. Local community folks were involved at every stage of the project with over 2000 benefiting from our awareness campaigns and training. They were involved and were trained for nursery establishment and tree planting, and removing plastic waste which had choked and compromised the quality of the Wewe River. We also reached out to distant followers through blogs and articles posted as part of SAVE THE FROGS! Ghana's Ghana Online Amphibian Literacy (GOAL) Project. One popular article which was shared through this project was that on the night spirit frog (<https://www.savethefrogs.com/countries/ghana/amphibians-of-ghana/spirit-night->

frog). This article was presented by Elvis Antwi-Baffour (the chapter's publicity team leader) at the 17th African Amphibian Working Group (AAWG) meeting held in Ghana last year. All these efforts have helped us reach and educate at least 1 million people.

4. Briefly describe the involvement of local communities and how they have benefitted from the project (if relevant).

K-WRAP would not have been successful without the involvement of local people. About 200 Local people volunteered and were trained in nursery establishment and planting of native trees in critical breeding sites along the Wewe River. To sustain our past progress by conducting educational campaigns, four local schools (Ayigya, Ayeduase, Kotei and Weweso) received live presentations and children were engaged in essay/art competitions. Targeting specific audiences within the metropolis, we also organised five video shows, and five radio broadcasts. These and one-on-one interactions by 100 SAVE THE FROGS! KNUST Chapter members helped local community folks to gain understanding of the need to protect amphibians in their habitats. Through these campaigns they shared their knowledge on frogs with us.

5. Are there any plans to continue this work?

Yes. Out of the 20 species (including the eight new recorded), we could only write about two as part of our GOAL Project. We will continue to seek funds to engage university chapter members to help with publicity whiles helping with further surveys on the newly site recorded species. This is the first and important step to get necessary information to write (through our GOAL project) about other species recorded and the potential of the Wewe River catchment. Conducting further surveys will also provide the avenue to monitor amphibian population prior to recovery of degraded critical habitats.

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

We have already shared results with local stakeholders, our social media pages and at the SAVE THE FROGS! Ghana KNUST website, www.savethefrogs.com/countries/ghana/knust. Also, articles of this project were published as part of SAVE THE FROGS! Ghana's Ghana Online Amphibian Literacy (GOAL) Project to share our findings with near and distant audiences. We are putting together a detailed technical report which will be shared with the Ghana Wildlife Division and Amphibian Survival Alliance (the world's largest amphibian partnership). The project leader is also planning to attend and present the project findings at next year's Cambridge Students' Conference on Conservation Science (SCCS).

7. Timescale: Over what period was The Rufford Foundation grant used? How does this compare to the anticipated or actual length of the project?

Instead of the anticipated 12-month project timeline, we spent additional 6 months. The extension was to enable us to study more about the ecology and conservation needs of the new site records.

8. Budget: Please provide a breakdown of budgeted versus actual expenditure and the reasons for any differences. All figures should be in £ sterling, indicating the local exchange rate used.

Item	Budgeted Amount	Actual Amount	Difference	Comments
Project leader's allowance	600	800	-200	This was due to increase in project timeline and inflation.
Wildlife Acoustics Song Meter Recorders	2,040	0	2,040	We used conventional acoustic and visual acoustic methods to find the eight new site records at the beginning of the project. Therefore, we thought it wise sticking to those methods but extending the surveys to understand more about the species' ecology and conservation needs. Besides, we did not get the matching funds we sought from Idea Idea Wild.
Rubber boots for field surveys	140	160	-20	The slight increase was as a result of inflation.
Nursery equipment (Watering can, water tanks, hand trowel and wheelbarrows)	188	255	-67	There was a slight increase in the cost of these items as a result of inflation.
Nursery supplies (Used sachet bags and planting seeds)	407	407	0	There was no increase.
Food and water for volunteers	200	400	-200	This was due to increase in fuel prices and the depreciation of the local currency during the

				project timeline
Lunch and snacks at workshops	0	520	-520	This was not budgeted for but became necessary as we spent more time in workshops deliberating on issues.
Workshop (Venue, writing pads and pens)	190	225	-65	Increase in cost of venue by £3/workshop and in writing pads & pens by 0.2/set
Waste management	520	320	200	Waste bins were donated by student groups (SRC & RENARSA), however, we gave refreshments to students and other volunteers during clean-up exercises.
Outreaches (Video shows, Radio broadcasts,)	50	150	-100	Though we had a free projector and screen from SAVE THE FROGS! Ghana, we had to rent a generator and buy fuel for community video outreaches. Cost of radio broadcast increased by £3
Save The Frogs Day celebration (Banners, T-shirts, posters, banners, flyers)	1,075	1,300	-225	This was due to increase in inflation during the project timeline
Project map	100	113	-25	There was a slight increase in producing map
Reporting (Internet Access)	240	350	-110	There was increase in internet charges. We spent approximately £10 extra per month
TOTAL	5,750	4,982	768	

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

The species breeding habitats (ponds) are disconnected due to farming and dry season gardening in the area. Excessive agrochemicals and pesticides are also used, which can interfere with the breeding ecology of species. We recommend building the capacity of farmers in eco-agriculture practices while educating them to appreciate the ecological and economic importance of frogs in agri-environments.

10. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did The Rufford Foundation receive any publicity during the course of your work?

All project materials (banners, flyers, posters and t-Shirts) were customised with the Rufford Foundation Logo. We mentioned RF in all articles and project updates we shared on social media. During campaigns and project meetings we acknowledged RF. We will also acknowledge the Rufford Foundation support in our technical reports and future publications.

11. Please provide a full list of all the members of your team and briefly what was their role in the project.

Not answered

12. Any other comments?

Our sincere gratitude goes to RF for funding KNUST Wewe River Amphibian Project (K-WRAP) to promote amphibian conservation in Ghana. We also thank SAVE THE FROGS! Ghana, chapter members and SAVE THE FROGS! USA for supporting this project. We thank all community folks of Ayigya, Ayeduase, Kotei, Weweso as well as volunteers who assisted on K-WRAP. Finally, we thank our mentors Dr. Mark-Oliver Roedel and Gilbert Adum for the training and involvement on our project, which led to the discovery of the eight additional site records.

Appendices

Impact of the Ghana Online Amphibian Literacy (GOAL) Project

Elvis Antwi-Baffour, Kojo K. Ofori-Amanfo, Francis Asamoah Boafo, Sandra Owusu-Gymafi & Gilbert B. Adum

Presented at the 17th African Amphibian Working Group Meeting-Ghana, Forestry Research Institute of Ghana (FORIG), Fumesua-Kumasi, 26-27th July, 2017

One third of Ghana's amphibian species are threatened with extinction and more than half have declining populations. With SAVE THE FROGS! Ghana's mission to protect Ghana's amphibian population, the Ghana Online Amphibian Literacy (GOAL) project was launched to promote amphibian knowledge and to inspire interest in amphibian conservation amongst Ghanaians. Once a month, a spotlight is thrown on a selected frog's ecology, biology, threats and conservation needs. Links to these blogs are posted on SAVE THE FROGS! Ghana's various social media pages with an interactive interface where the public can participate in the project. The website views, coupled with the Facebook and Twitter analytics of the first to third species feature articles, of the GOAL project, ascertains that, more than seventy thousand (70, 000) people of different background and race, especially Ghanaians have been reached and impacted. Participants in the project were mostly tertiary students with few being workers. The first and second species feature articles had very few female participants, yet, a female emerged as the winner in the first species article. In addition, the third species feature article saw a huge rise in

the number of female participants. Also, with the simple questions attached to the species feature articles, participants performed well in ecology and least in conservation. Many more people can be reached and impacted if much effort is placed into the publicity of the project.

Online Articles on K-WRAP

Adu-Tutu P. (2017) Save The Frogs Day 2017 at KNUST in Kumasi, Ghana. Available at www.savethefrogs.com/countries/ghana/knust/save-the-frogs-day-2017-wewe-river-restoration/. Accessed on 15/08/2017.

Asamoah Bofo F. and Antwi-Baffour E. (2017) Meet Ghana's Beloved "Lady": The Night Spirit Frog. Available at www.savethefrogs.com/countries/ghana/amphibians-of-ghana/spirit-night-frog/. Accessed on 15/08/2017.

Owusu-Gyamfi S. (2017) Ghana KNUST Chapter Wins Grant to Monitor Endangered Frogs along the Wewe River. Available at www.savethefrogs.com/countries/ghana/knust-chapter-monitor-endangered-frogs-wewe-river/. Accessed on 04/08/2017.

Owusu-Gyamfi S. (2017) Amphibian Research Assistant Positions In Kumasi, Ghana. Available at www.savethefrogs.com/countries/ghana/research-position-kumasi/. Accessed on 04/08/2017.

SAVE THE FROGS! (2017) Pinterest. Available at it.pinterest.com/pin/175007135502289953/. Accessed on 15/08/2017.

KNUST Wewe River Amphibian Checklist

Species	Detection History	Mode of Detection
<i>Arthroleptis sp.</i>	Previously recorded	Visual & Acoustic
<i>Phrynobatrachus latifrons</i>	Previously recorded	Visual & Acoustic
<i>Phrynobatrachus alleni</i>	Previously recorded	Visual
<i>Phrynobatrachus calcaratus</i>	Previously recorded	Visual
<i>Phrynobatrachus gutturosus</i>	Previously recorded	Visual
<i>Phrynobatrachus plicatus</i>	Previously recorded	Visual & Acoustic
<i>Phrynobatrachus tokba</i>	Newly recorded	Acoustic
<i>Ptychadena bibroni</i>	Previously recorded	Visual
<i>Ptychadena longirostris</i>	Newly recorded	Visual
<i>Ptychadena mascareniensis</i>	Newly recorded	Visual
<i>Hoplobatrachus occipitalis</i>	Previously recorded	Visual & Acoustic
<i>Amnirana albolabris</i>	Newly recorded	Visual & Acoustic
<i>Silurana tropicalis</i>	Newly recorded	Visual
<i>Leptopelis spiritusnoctis</i>	Previously recorded	Visual & Acoustic
<i>Leptopelis viridis</i>	Newly recorded	Acoustic
<i>Hyperolius concolor</i>	Newly recorded	Visual & Acoustic
<i>Hyperolius fusciventris</i>	Newly recorded	Visual & Acoustic
<i>Afrixalus dorsalis</i>	Previously recorded	Visual & Acoustic
<i>Sclerophrys maculata</i>	Previously recorded	Visual and Acoustic
<i>Sclerophrys regularis</i>	Previously recorded	Visual and Acoustic

Amphibian checklist of species recorded at breeding sites in KNUST Wewe River Catchment

Scientific Name	Common Name
<i>Afrivalus dorsalis</i>	Brown Banana Frog
<i>Amnirana albolabris</i>	White-lipped Frog
<i>Arthroleptis sp.</i>	Squeakers
<i>Hoplobatrachus occipitalis</i>	African Crowned Bullfrog
<i>Hyperolius concolor</i>	Lime Reed Frog
<i>Leptopelis spiritusnoctis</i>	Night Spirit Frog
<i>Phrynobatrachus latifrons</i>	Accra Puddle Frog
<i>Ptychadena bibroni</i>	Broad-banded Grass Frog

Geographic coordinates of breeding ponds recorded in KNUST Wewe River Catchment

Pond	GPS coordinate
Pond 1	N 06°40.436' W001°34.617'
Pond 2	N 06°40.431' W001°34.616'
Pond 3	N 06°40.427' W001°34.614'
Pond 4	N 06°40.434' W001°34.609'
Pond 5	N 06°40.433' W001°34.604'
Pond 6	N 06°40.416' W001°34.617'
Pond 7	N 06°40.418' W001°34.620'

