

CEPF FINAL PROJECT COMPLETION REPORT

I. BASIC DATA

Organization Legal Name: G. John Measey

Project Title (as stated in the grant agreement): *Assessment of the Amphibian Species Diversity, Population Status and Trends within the Forest Fragments of the Taita Hills, Kenya*

Implementation Partners for this Project: National Museums of Kenya (NMK), Mainz University (Stefan Lötters).

Project Dates (as stated in the grant agreement): September 1, 2005 - December 31, 2008

Date of Report (month/year): March 2009

II. OPENING REMARKS

Provide any opening remarks that may assist in the review of this report.

The Taita amphibian project undertook to improve biological knowledge of the composition and distribution of amphibians in the Taita Hills component of the Eastern Arc Mountains. The Taita Hills have very little indigenous cloud forest remaining, and that which remains is under severe pressure from a locally expanding population. Remnant forests are difficult to access and most of the survey and monitoring work was achieved by a team of local field assistants.

The Taita Hills was found to have a surprisingly low level of amphibian biodiversity. Although comparatively rich in endemics, the complex shares very few amphibians with neighboring Eastern Arc Mountains. Our study concluded that the relatively poor amphibian fauna is not a result of anthropogenic influence, but what might be expected at the extreme of an archipelago of insel-bergs. The prime factor appears to be the (comparatively) low rainfall received by the Taita Hills compared with other amphibian rich Eastern Arc blocks.

Despite this, the project successfully documented the distribution, habitat preference and comparative density of all Taita Hills amphibians. In addition, a lot of data concerning the biology of key species was gathered. The biological knowledge of the amphibians of this hotspot is now far better than at the inception of this CEPF funded project.

III. ACHIEVEMENT OF PROJECT PURPOSE

Project Purpose: *To provide a precise knowledge of distribution, trends and threats to all amphibian populations in the Taita Hills together with a trained local team of workers capable of a long-term monitoring program.*

Planned vs. Actual Performance

Indicator	Actual at Completion
Purpose-level:	
1. <i>Distribution, habitat preference and comparative density (and hence conservation status) will be assessed for all Taita Hills amphibians within the first 3 years of the project.</i>	Distribution, habitat preference, comparative density and conservation status were assessed for all Taita Hills amphibians. Results of this work are already submitted for publication (Malonza et al. sub).
2. <i>Choice of threatened species for long-term monitoring and implementation and fine-tuning of monitoring will be in place by the end of this project (Year 4).</i>	Two species were chosen for long-term monitoring trends (Sagalla caecilian <i>Boulengerula neideni</i> and Taita warty frog, <i>Callulina dawidae</i>). Two very different methodologies were chosen for these species and monitoring was implemented before the end of the project. One monitoring program has been successful in attracting more funding (see below), while the other has not.

Describe the success of the project in terms of achieving its intended impact objective and performance indicators.

The project has been a wholehearted success with all objectives met and performance indicators completed or ongoing. Biological knowledge of amphibians in this hotspot has been greatly increased, and the results are being circulated to an international scientific audience, as well as local stakeholders and residents in the form of a local language book.

Were there any unexpected impacts (positive or negative)?

Positive impacts were mostly with respect to capacity building. One participant (NMK herpetologist P. K. Malonza) was enrolled on a PhD program (funded by KAAD) at Mainz University (Germany) and obtained his PhD prior to the end of the project in December 2008. Much of the scientific output (species lists, in depth biological studies and habitat and geographic analysis) formed chapters of his thesis and are in preparation as manuscripts for submission to international scientific journals. Some of the six assistants (all of whom were unemployed at the start of the project) have continued with conservation work, both voluntary and in employment with other scientific projects. Their enthusiasm has continued to impact positively on the understanding of this important hotspot within the local community.

IV. PROJECT OUTPUTS

Project Outputs:

Planned vs. Actual Performance

Indicator	Actual at Completion
Output 1: A comprehensive biodiversity inventory of Taita Hills amphibians, building on our knowledge of biodiversity in the region.	A comprehensive inventory has been compiled of the amphibian fauna of the Taita Hills complex (Dawida, Mbololo, Sagalla and Kasigau). This inventory includes both upland and lowland fauna and details some 26 species including diagnostic features, distributions, life history details and conservation re-assessments.
1.1. <i>A complete list of amphibian species in the Taita Hills complex by the end of year 3.</i>	An account of the above list has been produced as a manuscript and is currently with the Journal of East African Natural History.
Output 2: Taxonomic verification of Taita Hills	Previous accounts of the fauna of the Taita Hills

amphibians, especially with reference to potential cryptic species.	comprised some 10 species.
2.1. A morphological and molecular identification	Five species have been reassigned due to taxonomic work undertaken during this project using both morphology and molecular techniques. For example, <i>Arthroleptis adolfriederici</i> is in fact the widespread lowland species <i>A. xenodactyloides</i> . <i>Hyperolius glandicolor</i> is a part of the widespread <i>H. viridiflavus</i> complex. <i>Phrynobatrachus mababiensis</i> is the more restricted <i>P. scheffleri</i> .
Output 3: Determination of range and abundance within range of all amphibian species within all habitats (forest and agriculture) of the defined area - resulting in a GIS layer for each species onto an existing GIS model of the Taita Hills.	Geographical mapping can have an important component in conservation, especially when it places historical records in comparison with modern distributions. A lack of historical data in areas such as the Taita Hills means that base-line data is urgently needed
3.1. An amphibian layer for the existing GIS model of the Taita Hills complex by the end of year 3.	In this component we have incorporated more than 405 amphibian records from discreet geographic localities into separate GIS layers for each species.
Output 4: A local-language publication detailing for each species: identification guidelines and local knowledge of all Taita Hills amphibians.	It is hard to overemphasize the importance of establishing a local knowledge base for indigenous fauna and flora within biodiversity hotspots. The value assigned to an animal or plant can be directly proportional to the information in the popular culture. For example, even species which might be thought of as having negative values (e.g. venomous snakes), are valued more highly than a bunch of frogs with no common name, or “earthworms” which are actually endemic caecilian amphibians.
4.1. Local language publication written describing each species	The compilation of a local language publication has been completed and is currently with the publishers. This entailed inventing local names (for some species – which was more difficult than you might think) or (in another case) holding a school competition to choose a local name and at the same time raise awareness about the Critically Endangered species of caecilian amphibian. It also led to the discovery of some long forgotten local names which can be brought to light again, together with some detailed information about the natural history of frogs and caecilians in the Taita Hills, with a guide to their identification.
Output 5: Establishment of a long-term locally funded monitoring program of target species.	
5.1. Funding coming from local and international businesses.	The search for continued sponsorship coincided with a global economic slowdown, making businesses reluctant to commit any further funds to conservation work. However, together with the ZSL EDGE program, partial funding has been obtained from CI to provide a long-term change in the status of the Sagalla caecilian. This project is to convert a government Eucalyptus plantation on Sagalla into an indigenous forest which would provide long term sustainable habitat for this critically endangered species.
5.2. Local part-time workers from the Taita Hills are trained to monitor C and CE species	A full time worker from the Taita Hills (Dorine Ngeti) has been employed as a field project officer for the Sagalla caecilian project.

Describe the success of the project in terms of delivering the intended outputs.

The project has produced all major outputs anticipated. Printing of some products (scientific papers and the local language publication) have taken more time than anticipated (in review and translation) and are not available at the time of writing. However, all are submitted and/or in press.

Were any outputs unrealized? If so, how has this affected the overall impact of the project?

Experience working with caecilians (both *B. taitanus* and *B. neideni*) showed that monitoring in terms of visualizing individuals is not beneficial to populations and can have transitory negative influence on microhabitats. Hence, long-term monitoring schemes devised consist of detailing presence/absence throughout the range (already completed), and undertaking habitat transformation which will produce habitat beneficial to the caecilian. Repeated searching at known sites will be carried out at the time of habitat transformation (removal of eucalyptus trees) and after each phase of establishing indigenous forest. For more information on the EDGE project, visit http://www.edgeofexistence.org/conservation/sagalla_caecilian.php

Finance for the long-term monitoring of the critically endangered Taita Warty frog is unrealized at the end of this project. It is not sure when funding will be found to continue this work. In essence, the project managed nearly two years of base-line data collection and implanted tags into more than 100 individuals. The protocols and results to date will be written up for publication so that this work will not be lost. Results will include the presence/absence and (where applicable) estimated density of this species in each forest patch, as well as estimates from mark-recapture studies. In addition, we will continue to search for appropriate monitoring finance and partners.

V. SAFEGUARD POLICY ASSESSMENTS

Provide a summary of the implementation of any required action toward the environmental and social safeguard policies within the project.

VI. LESSONS LEARNED FROM THE PROJECT

Describe any lessons learned during the various phases of the project. Consider lessons both for future projects, as well as for CEPF's future performance.

World economic climate can have substantial effect on partner or follow-up funding. Exchange rates and inflation are wild cards in any project which can seriously impact on project viability. Kenya (as well as other regions of the world) experienced a sharp hike in food prices following soaring oil prices late in 2007. This impacted on local salary increases and thus overall budget allocation. CEPF has already built in some flexibility to budgeting, but this flexibility may have to be increased as world finances become less stable.

Successful project management requires personnel in the same locale as the project, not just the same country. Partners in a capital city find day-to-day running of a project just as difficult as partners in another country. Increased global communication capacity has meant that providing local workers with cell phones makes them contactable with similar ease/expense from virtually anywhere. However, day-to-day running requires being physically present at the site. Local workers with no management experience make poor substitutes and workers with experience are hard to find or too expensive to employ.

Project Design Process: (aspects of the project design that contributed to its success/failure)

Part of the success of this project was the inclusion of all habitat types in a robust sampling design. Concentrating simply on pristine/indigenous habitat would not have been able to highlight which amphibians are able to cope with anthropogenic change, and therefore which are most vulnerable. The inclusion of forest plantations means that future studies will be able to directly assess the impact on returning these alien plantations to indigenous forest; projects that are now underway, but not conceived at the outset of this project.

Capacity building has succeeded in bringing awareness of amphibians at the local level (through field assistants and their communities). This awareness should be emphasized and carried beyond the project by the publication and distribution of a local language amphibian book. In addition, and of possibly greater importance, was the capacity building at professional level, bringing another herpetologist from a hotspot country into the global scientific community. This should result in the conception and completion of future in country herpetological projects in Kenya's hotspots.

Project Execution: (aspects of the project execution that contributed to its success/failure)

Local people in local projects can make a huge difference to the perceptions of their community simply through their employment, highlighting a value of both habitat and species group. We chose local assistants whose homes were at the same indigenous forests that they studied, sometimes changing study localities to accommodate enthusiastic assistants. By facilitating assistant exchanges in the latter part of the project, we developed a broader understanding for those working on the project and a means for one-to-one direct knowledge transfer. Exchange of ideas between assistants provided feedback which increased the efficiency of the project.

VII. ADDITIONAL FUNDING

Provide details of any additional donors who supported this project and any funding secured for the project as a result of the CEPF grant or success of the project.

Donor	Type of Funding*	Amount	Date Received	Notes
Katholischer Akademischer Ausländer-Dienst (KAAD)	B	\$35 000	12/05	PhD Bursary for PK Malonza
NMK	B	\$5 000		Salary
SANBI	B	\$3 000		Salary
CI	C	\$10 000	12/08	Sagalla caecilian habitat restoration
Arizona State University	C	\$13 270	12/08	Sagalla caecilian habitat restoration
Total		\$66 270		

***Additional funding should be reported using the following categories:**

- A** Project co-financing (Other donors contribute to the direct costs of this CEPF project)

- B** *Complementary funding (Other donors contribute to partner organizations that are working on a project linked with this CEPF project)*
- C** *Grantee and Partner leveraging (Other donors contribute to your organization or a partner organization as a direct result of successes with this CEPF project.)*
- D** *Regional/Portfolio leveraging (Other donors make large investments in a region because of CEPF investment or successes related to this project.)*

Provide details of whether this project will continue in the future and if so, how any additional funding already secured or fundraising plans will help ensure its sustainability.

Aspects of this project will continue (see comments on Sagalla caecilian above), and funding will be sought to continue warty frog monitoring or make future comparative studies. Future collaborations between SANBI and NMK are expected to produce scientific output in the form of published articles in international journals. This partnership will also work on material gathered from other Kenyan hotpots.

VIII. ADDITIONAL COMMENTS AND RECOMMENDATIONS

The integration of a wide variety of CEPF funded projects into one area has been a fantastic experience both in terms of active conservation and research collaborations. CEPF should be applauded for their insight and approach: funding a broad array of conservation projects in biodiversity hotspots. Increasing value by local governmental commitments might produce sustainable solutions, stabilizing remaining habitat. The future of the hotspot and the habitat rests in the perception of its value by the next, much larger, generation of local people. Education then remains as the most important issue to be tackled by conservation workers in the majority of biodiversity hotspots.

VIII. INFORMATION SHARING

CEPF is committed to transparent operations and to helping civil society groups share experiences, lessons learned and results. One way we do this is by making programmatic project documents available on our Web site, www.cepf.net, and by marketing these in our newsletter and other communications.

These documents are accessed frequently by other CEPF grantees, potential partners, and the wider conservation community.

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