

CEPF FINAL PROJECT COMPLETION REPORT

I. BASIC DATA

Organization Legal Name: AfriBugs CC

Project Title (as stated in the grant agreement): *Biodiversity Assessment and Monitoring of the Insect Fauna in the Eastern Arc Mountains and Coastal Forests Using Ground-Dwelling Ants and Beetles as Indicator Groups*

Implementation Partners for this Project:

Birdlife Africa, Nairobi, Kenya

International Centre of Insect Physiology and Ecology, Nairobi, Kenya

Iziko South African Museum, Cape Town, South Africa

National Collection of Insects, Pretoria, South Africa.

National Museums of Kenya, Nairobi, Kenya.

Transvaal Museum, Pretoria, South Africa.

UNDP/GEF Eastern Arc Mountain Forests Conservation and Management Project

University of Dar es Salaam, Dar es Salaam, Tanzania.

Wildlife Conservation Society of Tanzania, Dar es Salaam, Tanzania

Project Dates (as stated in the grant agreement): March 1, 2005 - Dec 31, 2009

Date of Report (month/year): March 2010

II. OPENING REMARKS

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

While significant goals remain that have not been achieved during the official lifespan of this project, we remain committed to fulfilling these goals and thus making a substantial contribution to the understanding of invertebrate diversity and providing a strong foundation for future evaluation and monitoring work in the Eastern Arc region.

III. ACHIEVEMENT OF PROJECT PURPOSE

Project Purpose: *Baseline information from the project on patterns of ant and carabid biodiversity and community structure in the hotspot enhances the capacity of conservation initiatives to incorporate these important and neglected ecosystem components into conservation planning and ecological monitoring programmes, and provides data to aid red list assessments of invertebrates. All data, including GPS locations for each site and each sample collected, will be provided to relevant organisations such as WCST, TFCG, UDSM, FBD, Birdlife Africa, ICIPE and NatureKenya to allow its use in monitoring programmes and Red List assessments. Input will be provided to Birdlife Africa and WCST on development of a hotspot-wide monitoring programme.*

2. Capacity building: at least 6 East African students trained in the field techniques employed in this project are enabled to become involved in future evaluation and monitoring programmes.

Planned vs. Actual Performance

Indicator	Actual at Completion
Purpose-level:	
1. <i>Invertebrates incorporated into biodiversity and ecological monitoring in the Eastern Arc and Coastal Forests hotspot.</i>	Databases and analyses of the results are not yet available to stakeholders in the Eastern Arc Mountains and Coastal Forests hotspot and there is therefore at this stage no additional incorporation of invertebrates in conservation-oriented initiatives in the region as a result of this project. It is to be expected that incorporation of invertebrates will be a long-term process that will gradually gain momentum after the final results become available.
2. <i>The 6 students trained take part in monitoring and assessment initiatives in the region, including those forming part of the CEPF programme.</i>	Six students from the University of Dar es Salaam were trained in field techniques for monitoring and assessment of invertebrate communities and all played major roles in the surveys constituting the field component of this project.

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

The project has not yet succeeded in achieving the aim of incorporating invertebrates into biodiversity and ecological monitoring in the Eastern Arc region, but has been very successful in training students in appropriate field techniques to be used in such monitoring.

The project represents a major contribution to the knowledge of ant diversity in Tanzania, with over 400 species in 55 genera having been recorded; ten of the genera had not previously been confirmed from Tanzania and seven of these are currently not even listed as likely to occur in this country on the “Ant Genera of the World” website (www.antmacroecology.org). Many confirmed (48) and potentially (67) undescribed ant species were represented in the samples collected.

Were there any unexpected impacts (positive or negative)?

An unexpectedly high proportion of undescribed ant species was found, even in relatively well-known and recently revised genera. While this impacted negatively on the project by increasing the amount of time required for identifications, it also means that a greater than expected contribution to ant taxonomy will result from the project, and is an indication of the high diversity and conservation significance of the Eastern Arc Mountains and Coastal Forests. Collaborations that were initiated during the course of the project with AntWeb and the Consortium for the Barcode of Life (CBOL) will substantially enhance both the availability and the value of the data obtained on ant diversity.

IV. PROJECT OUTPUTS

Project Outputs:

Planned vs. Actual Performance

Indicator	Actual at Completion
Output 1: Sample collection and training: Planning and execution of the field sampling programme and collection of at least 1350 samples, training of at least 6 students and presentation of a workshop.	The field sampling programme was executed largely according to plan, and 15 forest sites were successfully surveyed. Workshop presentation could not be carried out as

	planned in conjunction with the field sampling programme due to timing issues.
<i>1.1. At least 1350 samples collected.</i>	1590 samples were collected during standard sampling of the 15 sites; an additional 313 <i>ad hoc</i> samples were also collected during the course of the project.
<i>1.2. 6 students trained in field techniques.</i>	Six students were trained and each participated in sampling of 4-6 sites during one of the three one-month field trips.
Output 2: Reference collections: Sorting and processing of the 1350+ samples, curation and identification of specimens, establishment of reference collections in Tanzania, Kenya and South Africa.	Sorting and processing of samples has been completed and curation and identification of specimens is nearing completion. However, to date only the initial reference collection in Pretoria, South Africa, has been established.
<i>2.1. 1350+ samples processed and sorted.</i>	All 1590 standard samples have been sorted and processed; a limited number of the 313 additional samples have also been processed.
<i>2.2. Specimens curated and representatives identified.</i>	Specimens have been mounted and curated; representatives of all 414 ant morphospecies have been identified as far as possible within project limitations. Identification of the approximately 185 beetle morphospecies is not yet complete.
<i>2.3. Reference collections established in Nairobi, Dar es Salaam, Cape Town and Pretoria.</i>	A reference collection has been established in Pretoria, but collections have not yet been set up in Nairobi, Dar es Salaam and Cape Town.
<i>2.4. Workshop presented to students at UDSM.</i>	The workshop has not yet been presented as this is to be carried out in conjunction with establishment of reference collections in Dar es Salaam and Nairobi.
Output 3: Database management and analysis: databases of ant and beetle species collected per site, with information on relative abundance. This information could be housed on an appropriate web site. Site species lists of ants and data for ant samples collected by the ALL protocol will be submitted to the Social Insects Website (http://research.amnh.org/entomology/social_insects). Analysis of ant and beetle community structure within sites, comparisons between sites including assessment of conservation value and geographic trends, and assessment of sampling methodology for long-term monitoring.	Databases are still being updated with final identification information. Arrangements have been made to upload images of all ant species identified to a "Tanzania" page on the AntWeb site (www.antweb.org); images of representatives of all species in five genera have been prepared to date. Ant site species lists and ALL protocol datasets and species lists are still to be uploaded to the Social Insects Website (now Antbase, www.antbase.org).
<i>3.1. Establishment of databases of ant and beetle species per site.</i>	Spreadsheets containing presence data of morphospecies for each sample and collecting method per site have been compiled. Updating of these spreadsheets with final identifications is still in progress.
<i>3.2. Analysis of data</i>	Final analysis of the data has not yet been carried out, as this is contingent on updating the databases with final identifications and consolidating spreadsheet lines containing data on single species.
Output 4: Reports and publications: submission of biannual progress reports for the duration of the project and a final report at the end of the project. In addition, several scientific papers will be prepared and submitted for publication in peer reviewed journals; we anticipate a minimum of 4 full-length articles covering (1) & (2) comparisons of	The main publication outputs of the project have not yet been compiled as these require the databases to first be updated with final identifications.

<p>communities of ants and beetles at different sites, (3) evaluation of sampling methods and suggested monitoring strategy and (4) site prioritisation and conservation strategies for invertebrates in the hotspot based on ant and beetle data. The number of short notes published will be dependant on what discoveries are made during the course of the study.</p>	
<p><i>4.1. Reports and publications: 9 progress reports, 1 final report and 4 full-length publications.</i></p>	<p>Ten progress reports have been submitted during the course of the project.</p> <p>The first of a series of publications describing new ant species has been prepared and submitted to Zootaxa for publication.</p> <p>Preparation of further manuscripts is in progress.</p>

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

The project has been highly successful in obtaining data on diversity of selected invertebrate indicator groups in the Eastern Arc region, and also in training local students from the University of Dar es Salaam in appropriate field techniques for biodiversity assessment of these groups. Due to delays in obtaining export and research permits and slower than anticipated progress in processing and identifying the collected material, the project has been less successful in achieving the goal of making reference material, databases and analyses of invertebrate communities and site conservation values available to relevant stakeholders.

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

Several outputs have not yet been realized (final identification of beetle specimens, establishment of some reference collections, completion of databases and final analysis of data) and until this has been remedied there will be a significant effect on the overall impact of the project, as the databases, identification aids and analyses will not be available to conservation-oriented stakeholders in the Eastern Arc region.

V. SAFEGUARD POLICY ASSESSMENTS

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

No action required.

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.

The major obstacle to project implementation encountered was the extreme delay in obtaining export permits for the samples collected; although these permits were applied for in good time and followed the correct procedures, it took in one case 18 months and another 7 months before the permit was issued. It is unclear what could have been done to avoid these delays, but it is

recommended that where export of samples is likely to be required for implementation of projects, CEPF should consider negotiating with local authorities to clarify procedures and set up an expedited process for all projects at an early stage in the funding cycle; this could greatly assist in meeting project deadlines.

The identification process has been more involved and taken longer than allowed for by the budget allocations agreed on during the project development phase, and this has resulted in significant delays in addition to those already resulting from permitting issues. Keeping to the original estimates of the time required to perform identifications (which might have required a reduction in number of sites surveyed) would have largely avoided the necessity for AfriBugs to effectively co-fund the project to a significant degree, which resulted in difficulties with balancing time budgets between this and other projects to maintain a flow of funding.

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

The project design did not allow sufficient leeway to accommodate delays resulting from difficulties in obtaining research clearance and export permits, and successful completion within the planned time-frame was too dependent on the absence of such obstacles. Thus, while the field sampling component ran very efficiently, a less ambitious target in terms of number of sites or level of specimen identification might have been more appropriate. The latter option would however have resulted in a significantly lower output value in terms of taxonomic and biogeographic knowledge.

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

Attempts to fast-track sample sorting after a delayed start, by employing additional recently-qualified entomology students, were not as successful as had been hoped and both the speed and accuracy of processing did not meet expectations. This resulted in additional time input to rectify mistakes and thus reduced the benefit of the extra assistance. Although they would have been more difficult to find, employing assistants with more experience would probably have been a better choice.

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	Notes
AfriBugs CC	Project co-financing	\$31 009.70	AfriBugs funding was used to cover over-budget salary and indirect costs associated mainly with specimen processing and identification; this amount is still set to increase as work toward completing outstanding targets is carried out.
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		\$	
		\$	
		\$	

		\$	
		\$	

***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.

The project will continue without external funding in order to meet all outstanding targets, which include final identification of beetle specimens, completion of databases, analysis of data and making both the data and analyses accessible to stakeholders, the broader scientific community and the general public.

In addition we will continue to prepare images of the ant species collected for uploading to AntWeb, and will submit material of as many species as possible to CBOL for DNA barcoding to assist with identification of material collected by this and future projects.

Publication of new species descriptions will continue, initially largely without additional funding (although we have already found funding to cover journal page charges), but potential sources of financing for the large number of publications (potentially including substantial genus revisions), that will eventually be required will need to be investigated.

Ant taxonomy, while more advanced than that of most insect groups, remains in a state of confusion for many genera. In order to contribute as much as possible to progress in description of ant species while avoiding adding to the confusion, the following approach will be taken:

- 1) New species in small genera will be described and where appropriate revised keys presented,
- 2) New species in larger genera that have recently been comprehensively revised will be described and the published identification keys modified to incorporate the new species or additional key couplets provided to accommodate the new species without the need for republishing the entire key,
- 3) New species in larger genera which have not been recently revised and which are in a state of taxonomic confusion will not be described (unless funding is found to allow a full revision to be undertaken), but the taxonomic community will be alerted to the availability of material representing new species to ensure that this is included when revisions are undertaken.

VIII. ADDITIONAL COMMENTS AND RECOMMENDATIONS
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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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