

CEPF SMALL GRANT FINAL PROJECT COMPLETION REPORT

Organization Legal Name:	
Project Title:	An investigation into the taxonomy of the Malabar Civet (<i>Viverra civettina</i>)
Date of Report:	
Report Author and Contact Information	R.Nandini

CEPF Region: Western Ghats (Mysore-Nilgiri Corridor)

Strategic Direction:

CEPF Strategic Direction 2 - Improve the conservation of globally threatened species through systematic conservation planning and action.

Grant Amount: \$ 12,123.00

Project Dates: February 2010 to July 2011

Implementation Partners for this Project (please explain the level of involvement for each partner):

Uma Ramakrishnan, National Centre for Biological Sciences: All the lab work in India was conducted in Uma Ramakrishnan's lab including primer design, extraction of samples, PCR and sequencing. While this was being done, I was based out of Uma's lab, and spent time interacting with students to learn more about the techniques.

Divya Mudappa, Nature Conservation Foundation: Divya is involved in discussions and data gathering regarding with respect to historical knowledge of the species and morphometrics. She was a co-author on review initial paper describing the state of knowledge of the species.

Zoological Survey of India: The Zoological Survey of India has provided samples of the Malabar Civet and is a partner to this project. They have provided access to specimens both in Kozhikode and Kolkatta.

Carlos Fernandes, Universidade de Lisboa, Portugal: Carlos Fernandes helped with troubleshooting the genetic analysis, and came to India to develop primers and teach me techniques of extraction as the methods I was previously employing were not yielding results. He helped to develop new primers and recommended different methods.

Sushma Reddy, Loyola University and Field Museum of Natural History, Chicago, USA: Civet samples obtained from museums in the USA were extracted in Sushma Reddy's lab at Loyola University, who helped with the design of new primers and more effective techniques of extraction. All sequencing was done in the lab of the Field Museum of Natural History.

Conservation Impacts

Please explain/describe how your project has contributed to the implementation of the CEPF ecosystem profile.

The Malabar Civet (*Viverra zibetha*) is listed as Critically Endangered by the IUCN, and this research project has added to current knowledge of the species. The first part of the research compiled all existing knowledge of the species into a review paper. Following this, we now have partial genetic information for the species, from skins in India. In addition, we have data on morphometrics, which together will lead to a more comprehensive understanding of the species. We have also collected historical information on the species, compiling records in literature regarding use of parts, occurrence, value and trade.

Please summarize the overall results/impact of your project against the expected results detailed in the approved proposal.

Expected result 1 and 2: It was expected that the study would establish the taxonomic identity of the Malabar Civet, and shed light on its evolution. The study compiled genetic information on the species, but the data obtained so far is insufficient to answer the question. The sequences obtained do not all align with the same species, thereby not providing a clear picture of the identity of the species. Far more work is needed before this can be answered. More genes need to be sequenced, and given the quality of the Malabar Civet skins, more sensitive methods need to be obtained. Also, more outgroup samples are required for the tree to be robust. While we were able to add a significant number of sample to the study (almost four times what was originally proposed), we were unable to include samples of the Large Spotted Civet. To obtain these samples, we need to travel to UK, Singapore or USA. Given the fact that samples cannot be brought into India, we require to find labs abroad to conduct the analyses.

Expected result 3: It was expected that the study would characterize the extent of individual variation within sister species with respect to pelage and skull morphology. The study came up with new techniques to analyse pelage and skull variation. However, more visits to museums need to be made to add samples to provide robust results.

Expected result 4: Markers for field studies. This work is partially complete. Once the work with additional genes is completed, this will be ready for use in the field.

Expected result 5: Directions for future work and inputs to further field studies and conservation plans. Once the identity of the species is established, we will be able to release recommendations.

Please provide the following information where relevant:

Type here

Hectares Protected:

Species Conserved:

Corridors Created:

Describe the success or challenges of the project toward achieving its short-term and long-term impact objectives.

Type here

Were there any unexpected impacts (positive or negative)?

Type here

Lessons Learned

Describe any lessons learned during the design and implementation of the project, as well as any related to organizational development and capacity building. Consider lessons that would inform projects designed or implemented by your organization or others, as well as lessons that might be considered by the global conservation community.

Type here

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

The project did not take into account the difficulties in obtaining genetic material from skins collected over a hundred years ago. Additionally, the skins were preserved in very poor conditions, causing further degradation of residual genetic information due to chemicals and preservatives. This made the analysis much more difficult; however, this was something that could not have been anticipated prior to examination and analysis of the specimens. The initial proposal also did not take into account the time it would take to troubleshoot such issues, and the amount of travel and collaboration that would be required.

Overall shortcoming: While the work proposed is certainly doable, two major shortcomings of the project proposal were the amount of money requested and the timeframe for the vast nature of the work proposed.

Specific shortcoming: The genetic sequences obtained from the Malabar Civet skins so far do not show any significant patterns, and the study requires more genes to be examined, as well as many more samples of civets from outgroup species. The same is true for analysis of morphometric patterns. Both of these require more collaborative work, money and time.

Project Implementation: (aspects of the project execution that contributed to its success/shortcomings)

If the initial part of the work had been conducted in an environment with more experience with working with similar samples, several steps and mistakes in the entire process could have been avoided. Unfortunately, this was not done, and both time and money were drained from the project. While the collaborators were extremely generous in their support of the project, more resources are required to complete the work.

Other lessons learned relevant to conservation community:

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
Uma Ramakrishnan	A	Rs. 1,40,000/-	Money paid for sequencing of samples in NCBS
Sushma Reddy	A	Rs. 2,00,000/-	Money for developing primers, extraction and sequencing of 36 samples in Chicago at Loyola University and Field Museum of Natural History.
Carlos Fernandes	A	Rs. 40,000/-	Partially funded his trip to India to develop primers for genetic analysis of skins
R. Nandini (self)	A	Rs. 2,00,000/-	Paid from salary earned from CEPF project and at

			<p>Auburn University, USA, in 2011 to:</p> <ul style="list-style-type: none"> - attend course at UC Davis to learn needed phylogenetic methods - travel within US to Chicago, travel and living costs in Chicago to visit Field Museum and Loyola University on a daily basis for 2 months to conduct genetic analysis.
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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** Grantee and Partner leveraging (Other donors contribute to your organization or a partner organization as a direct result of successes with this CEPF project.)
- C** Regional/Portfolio leveraging (Other donors make large investments in a region because of CEPF investment or successes related to this project.)

Sustainability/ Replicability

Summarize the success or challenge in achieving planned sustainability or replicability of project components or results.

Type here

Summarize any unplanned sustainability or replicability achieved.

Type here

Safeguard Policy Assessment

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

Type here

Performance Tracking Report Addendum

CEPF Global Targets

(Enter Grant Term)

Provide a numerical amount and brief description of the results achieved by your grant.
Please respond to only those questions that are relevant to your project.

Project Results	Is this question relevant?	If yes, provide your numerical response for results achieved during the annual period.	Provide your numerical response for project from inception of CEPF support to	Describe the principal results achieved from July 1, 2007 to June 30, 2008. (Attach annexes if necessary)

			date.	
1. Did your project strengthen management of a protected area guided by a sustainable management plan? Please indicate number of hectares improved.	No			Please also include name of the protected area(s). If more than one, please include the number of hectares strengthened for each one.
2. How many hectares of new and/or expanded protected areas did your project help establish through a legal declaration or community agreement?	No			Please also include name of the protected area. If more than one, please include the number of hectares strengthened for each one.
3. Did your project strengthen biodiversity conservation and/or natural resources management inside a key biodiversity area identified in the CEPF ecosystem profile? If so, please indicate how many hectares.	No			
4. Did your project effectively introduce or strengthen biodiversity conservation in management practices outside protected areas? If so, please indicate how many hectares.	No			
5. If your project promotes the sustainable use of natural resources, how many local communities accrued tangible socioeconomic benefits? Please complete Table 1 below.	No			

If you answered yes to question 5, please complete the following table.

Additional Comments/Recommendations

Information Sharing and CEPF Policy

CEPF is committed to transparent operations and to helping civil society groups share experiences, lessons learned, and results. Final project completion reports are made available on our Web site, www.cepf.net, and publicized in our newsletter and other communications.

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