CEPF SMALL GRANT FINAL PROJECT COMPLETION REPORT

Organization Legal Name:	Westfälischer Zoologischer Garten Münster GmbH
Project Title:	Ecology and conservation of Green Peafowl *Pavo muticus* in Cambodia
Date of Report:	April 19, 2012
Report Author and Contact Information	Markus Handschuh Email: markus.handschuh@gmx.de

CEPF Region: Indo-Burma biodiversity hotspot

Strategic Direction: **1** – *'Safeguard priority globally threatened species in Indochina by mitigating major threats'*

Grant Amount: **$19,991.00 ($9,789.01 used)**

Project Dates: **2011/3/23–2012/3/23**

Implementation Partners for this Project (please explain the level of involvement for each partner):
The project was to be carried out as a five year part-time PhD project (2011-2015) at the Department of Wildlife Ecology and Management of the Albert-Ludwigs University Freiburg (Germany), co-supervised by Prof. Dr. Ilse Storch (A.-L. University Freiburg) and Dr. Peter Garson (Newcastle University) who are also co-chairs of the IUCN-WPA Galliform Specialist Group.
Dr. Philip McGowan (World Pheasant Association) and Dr. Nigel Collar (BirdLife International) were scientific and strategic advisors to the project.
The Wildlife Conservation Society (WCS) Cambodia Program provided general logistical support and facilitated the necessary permits.
The Forestry Administration (FA) of the Cambodian Ministry of Agriculture, Forestry and Fisheries (MAFF) provided respective permits.

Conservation Impacts

Please explain/describe how your project has contributed to the implementation of the CEPF ecosystem profile.
The strategic direction that was attempted to be addressed through the project is **1** – *'Safeguard priority globally threatened species in Indochina by mitigating major threats'*. Due to massive constraints, it was only possible to develop a safe method to capture Green Peafowl and thus lay the basis for future studies to provide baseline data for the long-term conservation of this species whose largest populations now survive in the Indo-Burma biodiversity hotspot.

Please summarize the overall results/impact of your project against the expected results detailed in the approved proposal.
The following aspects of Green Peafowl ecology and conservation were to be investigated:
1. Habitat selection and abundance in different habitats
2. Calling behaviour, ranging behaviour, social structure, and mating system
3. Role of hunting pressure, local attitudes, and livelihoods in peafowl conservation
It was only possible to develop a safe method to capture Green Peafowl for radio tracking that will allow future in-depth investigations into aspects 1. and 2. Regarding 2., during the field work all peafowl calls were noted and unsystematic observations made on the birds' ranging and mating

behavior. It might be possible to produce one or two short publications from this data. Due to a lack of time, it was not possible to work on aspect 3.

Please provide the following information where relevant:

Hectares Protected:
Species Conserved:
Corridors Created:

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

The start of the project was delayed due to a motorbike accident of the principal researcher at the end of 2010, and throughout the year field work was hampered by the ongoing recovery process and late effects of the accident.

The target was to capture and fit with Biotrack necklace radio transmitters 10 adult male and 10 adult female Green Peafowl.

Field work was centered on an old quarry site at km 158 of the provincial road in the Seima Protection Forest, Mondulkiri Province, eastern Cambodia. Because of its known high peafowl density in an 'island' of less suitable forest, and easy access, this site provided ideal conditions to start the study.

Five male peafowl territories (initially six territories, but one male disappeared around the middle of 2011) were located around the quarry site and adjacent areas of open forest, and at least as many females used the area.

Initially, walk-in nets that are set low above the ground were considered suitable and the best option to capture Green Peafowl. Such walk-in nets have been used successfully on grouse and bustards. Four 50m x 2.5m (10cm mesh size - the maximum mesh size the company could provide) Polish mist net type, single-shelved (bottom shelf string removed) walk-in nets were purchased. As 3m high nets had been ordered, the company provided two more 50m x 3m nets for free. However, there were concerns about the mesh size potentially being too small and the thread too weak to capture and hold peafowl. Therefore, as supplementation, two 20m x 3m Italian nets with 15cm mesh size and stronger thread were purchased.

During the 1st (20/04/2011-27/04/2011) and 2nd (06/05-10/05) capture trips, both net types were set on their own and in combination in dense and open vegetation, with and without unpeeled rice as bait, in locations frequented by peafowl. The nets were set along the middle of 50cm-1m wide, 50m-200m long, thoroughly cleared net rides, with the top net string c. 1.3m above the ground and the rest of the netting lying loosely on the ground, or with middle sections of netting ('bags') attached to the top string with paper clips or sticky tape, so that they would fall onto birds that tried to cross the net line.

Over the course of the two capture sessions, the nets were set in a total of 12 locations where they usually stayed in place for several days and nights. To set up and remove the nets every day would have been too time consuming and would have caused too much disturbance. The nets were checked every 1-2 hours, depending on the weather conditions and ambient temperature. Some nets were set in locations that allowed constant monitoring from a distance. The first and last check was done well before dawn and after dusk.

Peafowl foot prints around the nets as well as direct observations proved that the birds used the very vicinity of the nets and walked along them, but avoided walking onto or trying to get through

the nets, even in denser vegetation and when numerous corners and even mazes were created. No non-target animal was captured in the nets.

The walk-in nets were not considered suitable any more to capture Green Peafowl and thus these attempts were abandoned.

During the 3rd capture session (02/06-09/06), snare lines and single snares with different types of fishing line were used in different locations, again with and without bait and also with and without scrub fences as obstacles to guide the birds. Snares were set only in locations that could be monitored from a distance and were removed after dusk and re-set before dawn. The birds, especially the target ad. male, avoided the snares, often under great efforts, e.g. by hopping over rocks in a pond to approach from behind a food patch set up near the water's edge, by cautiously stepping over the snares, or by climbing over or creeping through the scrub fence rather than walking through gaps with single or multiple snares. Finally, on the 07/06, the ad. male was caught when pushed over a snare line, but after getting stuck the bird almost immediately ripped the 71kg breakage line and ran off with the snare attached to its leg. A few hours later the bird was re-sighted at the same food patch without the snare attached to its leg, so it must have pulled it off.

Subsequently, trials on captive semi-wild chickens were carried out with different types of spring snares and modifications of these. During the trials it became apparent that there might be safety issues when capturing peafowl, so such traps were not used.

Research was done into other potentially suitable capture methods and more specialists were consulted, and it was decided that a whoosh net would be the next best step. A 6.5m x 4.5m whoosh net with 5cm x 5cm mesh size was purchased from the U.S., but the delivery took almost a month. Such whoosh nets had been used successfully to capture a large range of birds, including large birds such as wild turkeys and even cranes.

For the whoosh netting, various temporary food patches were set up in suitable capture locations in four male territories. Once peafowl started using a food patch, dummy nets, launching ropes and launching poles were introduced. Later on, the dummy set up was directly introduced when a food patch was established. Capture attempts were made when at least one bird used a food patch regularly over several days. The whoosh net was triggered from a bird hide set up nearby.

During the 4th capture session (10/08-22/08), on the 18/08, 7-8 peafowl (2-3 ad. females with half grown chicks) were captured, but the ad. birds escaped from under the net while 5 chicks were caught. All of them were released because only ad. birds were targeted. However, although extraction only took around seven minutes and all of the birds survived (regular re-sightings later on), the birds were highly stressed and a couple of them already 'wobbly' on their feet upon release, so it was decided not to capture families any more.

The 5th session (19/09-22/09) was cancelled after three days because almost constant heavy rain made capture impossible.

During the 6th session (06/11-15/11), two ad. females were caught on the 13/11, but both escaped from under the net. Junglefowl were safely captured as by-catch.

Due to the escapes the whoosh net set up was refined.

During the 7th session (02/12-09/12), on the 06/12 an ad. male and an ad. female were captured together, but again both birds escaped. Further adjustments were made to the whoosh net set up and it was decided to only target singles of these extremely fast and powerful birds. On the 07/12, another ad. female was captured, but again it escaped immediately.

A new, larger (5m x 6m – the length was limited by the available launching bungees) whoosh net with a double layer of large-meshed netting on the thrown end was built.

During the 8th capture trip (16/12-20/12), on the 18/12, an ad. male (the same bird as on the 06/12) was caught. Again it escaped, but this time because the net got slightly tangled and did not fire perfectly well, so that there was no proper bag at the thrown end which the birds run towards when captured. Finally, on the 19/12 an ad. female was captured and fitted with a necklace radio transmitter. Immediately after capture, while still in the net, the bird was hooded with a long washing cloth (or it would have been covered with a large cloth if excessive tangling had prevented immediate hooding). Handling time was less than 5 minutes and upon release the bird fled normally on foot and then in flight. It was located a few hours later on the same day and on the next day and moved and behaved normally.

During the night from the 24th to 25th of December the principal researcher's wife died suddenly and unexpectedly. Due to this event he is not able to continue working in Cambodia any more and the project had to be cancelled.

On the 19/02/2012, during a short stay in Cambodia, the bird was tracked again and moved and behaved normally.

Overall, neither short-term nor long-term conservation impacts could be achieved because all of the time available had to be spent on developing a safe and effective method to capture Green Peafowl which was the basis for the entire study. However, the capture method developed can be used for future studies. Observations were? made on the birds' calling, ranging and mating behavior which provided good initial insights and might be publishable.

Were there any unexpected impacts (positive or negative)?
Because Green Peafowl are extremely difficult to catch, more so than was anticipated when planning the study, the development of a safe capture method has become more important for future studies on Green Peafowl.

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.

Project Design Process: (aspects of the project design that contributed to its success/shortcomings)
The study was largely based on radio tracking Green Peafowl for which the birds had to be captured safely. However, these long-lived birds that have probably been hunted for centuries are extremely clever and had never before been captured for scientific study, and it took almost an entire year, working part-time, to develop a capture method.

Project Implementation: (aspects of the project execution that contributed to its success/shortcomings)
The fact that the study was carried out part-time may have contributed to the shortcomings because during each capture trip the birds had to be baited again, rather than having permanent bait stations. On the other hand, setting up bait stations for each trip gave us more flexibility with regards to the birds' respective locations at the time. Also, often we observed that after a few days of baiting and single captures the birds became shyer and more wary, so permanent bait stations might not be more effective. Furthermore, permanent feeding stations might significantly

influence the birds' natural behavior and / or the hunting or predation risk might be increased at such stations.

Other lessons learned relevant to conservation community:
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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
Gesellschaft fuer Tropenornithologie (GTO)	A	$1,347.07	
Zoologische Gesellschaft fuer Arten- und Populationsschutz (ZGAP)	A	$965.50	
Allwetterzoo Muenster	B	$12,000	Salary for Principal Researcher for 50% work time at the Angkor Centre for Conservation of Biodiversity

***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.

It was planned to actively publicise, disseminate and discuss the results of the study with the relevant stakeholders, in order to ensure that the results will be usefully applied to Green Peafowl conservation. It was planned to:

- Publish important results in the form of 4-6 scientific papers.
- Make available research findings to appropriate conservation NGOs and government agencies to inform and shape future conservation initiatives for Green Peafowl and its habitat.
- Carry out local publicity and awareness raising campaigns to promote goodwill towards Green Peafowl and its habitat (at the end of the several year part-time PhD study).

Due to the constraints mentioned and the cancellation of the project, now only one or two publications might be possible: One on how to capture a Green Peafowl and possibly another one on the birds' calling (and perhaps ranging and mating) behavior.

Summarize any unplanned sustainability or replicability achieved.

Considering that Green Peafowl are extremely difficult to catch safely, the capture method developed has become more important and can be replicated in future studies on Green Peafowl.

Safeguard Policy Assessment

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

Utmost care was taken at all times regarding the safety of the birds.

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 date.	Describe the principal results achieved from July 1, 2011 to June 30, 2012. (Attach annexes if necessary)
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 1below.	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.

Please include your full contact details below:

Name: Markus Handschuh
Organization name: Westfälischer Zoologischer Garten Münster GmbH
Mailing address: Allwetterzoo Münster, Sentruper Str. 315, 48161 Münster, Germany
Tel: ++49-(0)251-89 04 220
Fax: ++49-(0)251-89 04 950
E-mail: Markus.Handschuh@gmx.de