CEPF SMALL GRANT FINAL PROJECT COMPLETION REPORT

Organization Legal Name:	University of Natural Resources and Applied Life Sciences, Vienna
Project Title:	Feeding and Breeding Ecology and the Conservation of the Vultures in Cambodia
Date of Report:	4.2.2011
Report Author and Contact Information	Dr. Sabine Marlene Hille Institute of Wildlife Biology and Game Management University of Natural Resources and Applied Life Sciences Gregor Mendel-Straße 33 1180 Vienna Austria Sabine.hille@boku.ac.at

CEPF Region: Indochina, Northern Cambodia

Strategic Direction: Safeguard priority globally threatened species in Indochina by mitigating major threats.

As a basis for long-term conservation action planning, start filling key information gaps in the feeding and breeding ecology, and the threats to, the three Critically Endangered vulture species of northern Cambodia, while building local capacity for research and monitoring.

Grant Amount: 19 990 US$

Project Dates: 12/2009-12/2010

Implementation Partners for this Project (please explain the level of involvement for each partner): Mr Bunnat Pech (WCS and CVCP Manager) introduced the field assistant Mr. Bleeker to important stakeholders and partners such as authorities, protected area managers, vulture rangers, locals, and others to enable him to visit the vulture restaurants.

Hugo Rainey and Than Setha (WCS) gave support in planning and achieving the goals of the project and the participation in fruitful discussions with Mr. Bleeker and linking the CEPF funded project “Food provision to Cambodia’s Vultures” with the project reported here.

B. Vorsak and Jonathan Eames (BirdLife) also helped in achieving the goals of the project and helped with practical advice and permits (FA)

Tom Gray (WWF) helped in general planning of the project.

Markus Handschuh (ACCB) advised Mr. Bleeker and was keeping track of his whereabouts, and provided free accommodation at ACCB in Siem Reap between fieldwork spells and when Mr Bleeker was not in Phnom Penh. ACCB also provided a motor bike for the fieldwork.

Mr. So Thanin (MoE), Mr. Net Norint (BirdLife) and MR. Sorphorn Poun helped with conducting questionnaires.

All rangers were providing support in basic logistics e.g. for regular vulture feeding and video controlled bird observations at the vulture restaurants

ZGAP with Roland Wirth was hosting and administrating the external funds that went into the Cambodia project as listed below.

Nigel Collar, Mike Mc Grady and myself were establishing a scientific advisory board within the project for preparing the field assistant Maarten Bleeker for his field work. We hosted a meeting at the University of Natural Resources and Applied Life Sciences in Vienna to discuss, create and teach him a feasible work schedule with appropriate methods. The board was consulting the field assistant during his work when needed.

Conservation Impacts

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

1. Safeguard priority globally threatened species in Indochina by mitigating major threats.

1.1 Identify and secure core populations of 67 globally threatened species from overexploitation and illegal trade.

The project improved and transferred knowledge of the feeding ecology of the three Critically Endangered vulture species in northern Cambodia, to take conservation action and to make recommendations for their conservation management, particularly focusing on the main factors knowledge about and influencing the species' mortality, distribution, and effectiveness of feeding stations. Data on the abundances, feeding behavior and dominance hierarchy of the vulture species will enlarge the knowledge on the competition among species and their vulnerability and can be used for further conservation measures and particular to improve the effectiveness of at the feeding stations

The project aimed further to build local capacity and to give information on the vulture species and their vulnerability and implement action for the conservation of all the three vulture species in Cambodia.

Results of the questionnaire could be used for specific conservation measures. These may be implemented in the areas tourism, agriculture and trade to achieve conservation of the biodiversity and of vultures in the countryside.

To summarize: This research contributed to the little knowledge we have on the feeding ecology and the threats and will take action on the conservation of the three vulture species in northern Cambodia.

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

- Questionnaires in communities across northern Cambodia give evidence that vultures decline but diclofenac and ketoprofen were recently not used by asked farmers. Surveys show that farmers have positive attitudes towards vultures, but some use of poison baits to eliminate carnivores;
- Questionnaires in communities across northern Cambodia investigated into the economic sustainability and social acceptability of vulture restaurants, and thus determine whether they could be increased in number as a social good both as a tourist attraction and as an environmental service;
- Questionnaires were used to involve and inform locals on vultures and their important role in the ecosystem, the economical benefit of restaurants for locals including all involvement (provision and transport of carcasses, rangers that guard, teach and build hides etc.)
- Behaviour studies of the three vulture species at the carcasses in 3 areas across the region, could be used to determine the hierarchy in which they take it, the age-classes of birds in the populations, and the proportionate numbers of species per carcass. Red-headed Vultures were least dominant and had little access to carcasses at restaurants because of competition with other species– leading to recommendations for maintaining future vulture restaurants;
- Local staff was trained to conduct monitoring and data collection with scientific methods including protocols of attendance at vulture restaurants and from nesting sites and to protect nests.
- The focus of this study was on all three critically endangered vulture species present in Cambodia, since they are all feeding on the existing vulture restaurants. So far least is known on the decline of the Red-headed vulture and any information gained on this species will have a great impact on its conservation.

- We analysed data of observations and of the survey and aim to publish main data if possible in one Journal with a focus on Conservation (BCI, ORYX or Cons Biol. etc.). Other publications will be reports and articles (e.g. for ZGAP, zoo Heidelberg and Berlin, university press of BOKU etc. and translated for the ministry and NGO's in Cambodia).

The questionnaire surveys were involving 734 locals from five provinces that still support vultures and they gained useful information on the vultures and the locals perception of the animals. A preliminary analysis of the data has been done and indicates that locals know vultures and they observe a vulture decline. Farmers do mainly use medicine for cattle for vaccination and supplementary vitamin provision. A specific survey among animal supplies shops and pharmacies on the use of diclofenac-like medicine and poison, such as cabofuran revealed a range of poisons being available for sale cheaply (a list will be included in the end of the report). In the questionnaire locals were informed about the biology of the main three vulture species. Based on the data collection at carcasses Mr. Bleeker proposes that food provision should be more regularly distributed within months. Around 25 hours of feeding behavior of the vulture species at three restaurant sites were recorded and include valuable data on the species frequency and behavior and important information to optimize feeding restaurants to support better the Red Headed Vulture.

In total all goals according to the survey with the questionnaire were achieved. Also the survey had been used to inform locals about vultures and their important role. Rangers had been trained on monitoring and were informed on the biology of vultures and the restaurant maintenance. All planned behavior observations (abundance, feeding activity and hierarchy) on carcasses were achieved including observations of a number of Red Headed vultures. Observations show that these vultures were least dominant and had therefore less feeding opportunities among other species. They better need to have not a single carcass but rather a carcass cut in two to three pieces that are some 10-30 meters apart to get a chance to get to the carcass among other vulture species. Nest observations are unfortunately less numerous. One nest of a Slender-billed Vulture was observed and the chick provisioning rate recorded over four days.

Please provide the following information where relevant:

Hectares Protected: Study area lies in Northeastern Cambodia (see map)
Species Conserved: Red-headed vultures *Sarcogyps calvus*, Oriental White-backed Vulture *Gyps bengalensis*, and Slender-billed Vulture *Gyps tenuirostris*
Corridors Created: see map

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

The data of the project will assist the measures in the 'Cambodia Vulture Conservation Project' and will advise to further action. The feeding stations (restaurants) established within the ongoing vulture project were used in this project to collect the crucial data on the biology including feeding behavior of the birds. Carcasses were provided and the interaction of locals with the restaurants was analyzed to achieve better acceptance and support. Recommendations on designing future vulture restaurants were made. The molecular genetic analyses of feather samples, supervised by Todd Katzner will be support by further feather collecting and their results on genotypes will be used to assess population sizes that will be compared with our field counts. Together with the questionnaires we tried to evaluate if, under which circumstances and where the medicine diclofenac and ketoprofen is in use, together with other poisons or other related treats the vultures are facing. This data will be essential for the implementations of the official banning of the drug, achieved in the 'Cambodia Vulture Conservation Project' in 2009.

The questionnaire data can be used as supportive evidence to promote the ban of poisons, reducing logging, poaching of vultures and for protection of nests. The dialogues along the questionnaire were aiming to build capacity in locals on vultures and their vulnerability.

Were there any unexpected impacts (positive or negative)?

For assessing breeding biology it is important to get the support of the locals that identify and find nests and report nest sites to the field assistant or organizations. A local Khmer would be necessary to help not just for translations, but also to increase understanding and trusting when advertising the nest counts and putting up a poster. To get nest search organized in 2010, a poster was designed to post in the villages to attract people finding nests of vultures. This poster was sent for final approval Hugo Rainey on the 28th of January 2010 but the field researcher did not get any feedback. Mr. Bleeker did not get the final approval for an edited poster to start the programme with. Therefore, the field assistant could not get help from locals and finding nests was respectively difficult. Therefore, we do not have the expected amount of occupied nests found in the areas studied. There are only two nests found with the observation of feeding rates of only a few days at each nest. Unfortunately we do not have a decent sample size or an overview about breeding populations of the three vulture species. So in the future a more efficient collaboration between NGO's and researchers would be desirable and the knowledge of the locals living near the vulture nests could be used more efficiently. Crucial information on reproductive success in the vulture species can then be gained by regular visits of the nests by rangers and nest observers by reporting feeding rate, chick survival and day of fledging.

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.

The data base on the vultures includes GPS locations of nests, vulture restaurants and bird sightings, but could be improved on the more crucial data on vultures. A map source file could be made to give a better overview and then may provide better knowledge on the distribution and biology of the vultures for all organizations involved in conservation of the species.

The future conservation work could be upgraded by a better training and equipment of the rangers on vultures. It enables them to act more independent and more flexible when the situation is needed (e.g. finding poisoned vultures). Furthermore, an action plan is needed when poisoned or dead vultures are found. In these cases there is a need for a collaborating network of specialists, rangers and helpers to firstly help the birds and secondly getting data from the individuals for further conservation measures. A workshop to enable communication and information flow between rangers, park directors, organizations and field assistants is necessary to enable successful data gathering and conservation measures in the different areas. Feeding restaurants might be made more effective for Red Headed vultures (see overall results).

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

The individual training of the field assistance by the advisory board before departure was important to get a prepared field worker on short hand. A well prepared outline for research and conservation measures and a methodology adjusted to the conditions in Cambodia were more than important for a structured feasible work schedule.

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

This project was carried out in close collaboration with ZGAP, WCS, ACCB, FA (Forestry department), MoE (Ministry of Environment), GDANCP (General Department of Administration for

Nature Conservation and Protection, WWF, BirdLife International and University of Pittsburgh, USA. All these organisations and institutions see the urgent needs to collect more scientific data to be able to undertake the optimal management strategy of the three species and their key habitats.

The project was synergistic and closely linked to the running project:
'Cambodia Vulture Conservation Project' 'Protect and monitor the largest Indochinese populations of three Critically Endangered vulture species in north and northeastern Cambodia by providing uncontaminated food, protecting nests and working to ban veterinary use of diclofenac (a drug toxic to vultures, which has caused enormous declines elsewhere in their range)'

Other lessons learned relevant to conservation community:

In this project we also wanted to increase the number of known nest sites in order to get the very crucial data on the breeding biology and breeding success of the species but also to get better protection by involving more locals in the nest site protection and data collection. But the field assistant was fully occupied with the surveys and the observation of vultures at feeding restaurants and could only find two nests. There is still a need to study reproductive output of the endangered vultures. Maintain vulture restaurants need to be continued they are very crucial for continuous food supply but carcasses need to be cut in 2-3 pieces and scattered in some distance(20m depending on habitat) to give the Red headed vultures a chance to get access to the food because of competition by more dominant white backed and slender billed vultures.

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
Zoological Society for Conservation of Species and Populations (ZGAP)	A	$ 2,700	Donation
Zoological Garden Berlin, Germany	A	$ 1,100	Donation
Zoological Garden Heidelberg, Germany	A	$ 666	Donation

Eva Mayr-Stihl Foundation, Germany	A	$ 6,600	Donation
Raimund Koza, Germany	A	$ 234	Donation

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.

All data will be published and accessible to people in management, conservation, research and administration. The data/articles will provide basic knowledge on the biology of the birds and will give recommendations on effectively improve the feeding restaurants for running and future conservation management of the vultures in Cambodia and in other places. Also data of the survey is very useful for projects that want to involve locals for conservation measures. Also the data of the survey give insight in the knowledge of the locals and the status of information in different areas. Data on use of medicine and poison can be used and implemented for conservation measures including banning of poisons (see tab.). Moreover the participation of all the interviewed locals in a broad area, including long discussions and informative meetings to both sides the interviewer and interviewee established knowledge transfer and awareness on both sides of the socioeconomic situation and of the integration of “wildlife and biodiversity” in the locals farmers. The training of the local rangers and interviewers may lead to further conservation awareness and activities.

Summarize any unplanned sustainability or replicability achieved.

Students at the Institute of Wildlife Biology and Game Management at the University of Natural Resources and Applied Life Sciences at the moment become very involved in the topic by analyzing the data and transfer awareness on the species conservation in Indochina within university by organizing several activities.

Safeguard Policy Assessment

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

All hired field assistants received food, accommodation, insurance and all material needed to lower the risk of and treat injuries and infections (e.g. mosquito nets). Mr. Bleeker also educated rangers and field assistants on how to reduce trash disposal while doing the questionnaire. When visiting villages and locals, a ranger or guide was accompanying Mr. Bleeker and the group was introduced to the village

chief in order to get permission and secure conditions for conducting the questionnaire surveys. During other fieldwork activities, such as nest observations, either vulture rangers or other locals joined Mr. Bleeker.

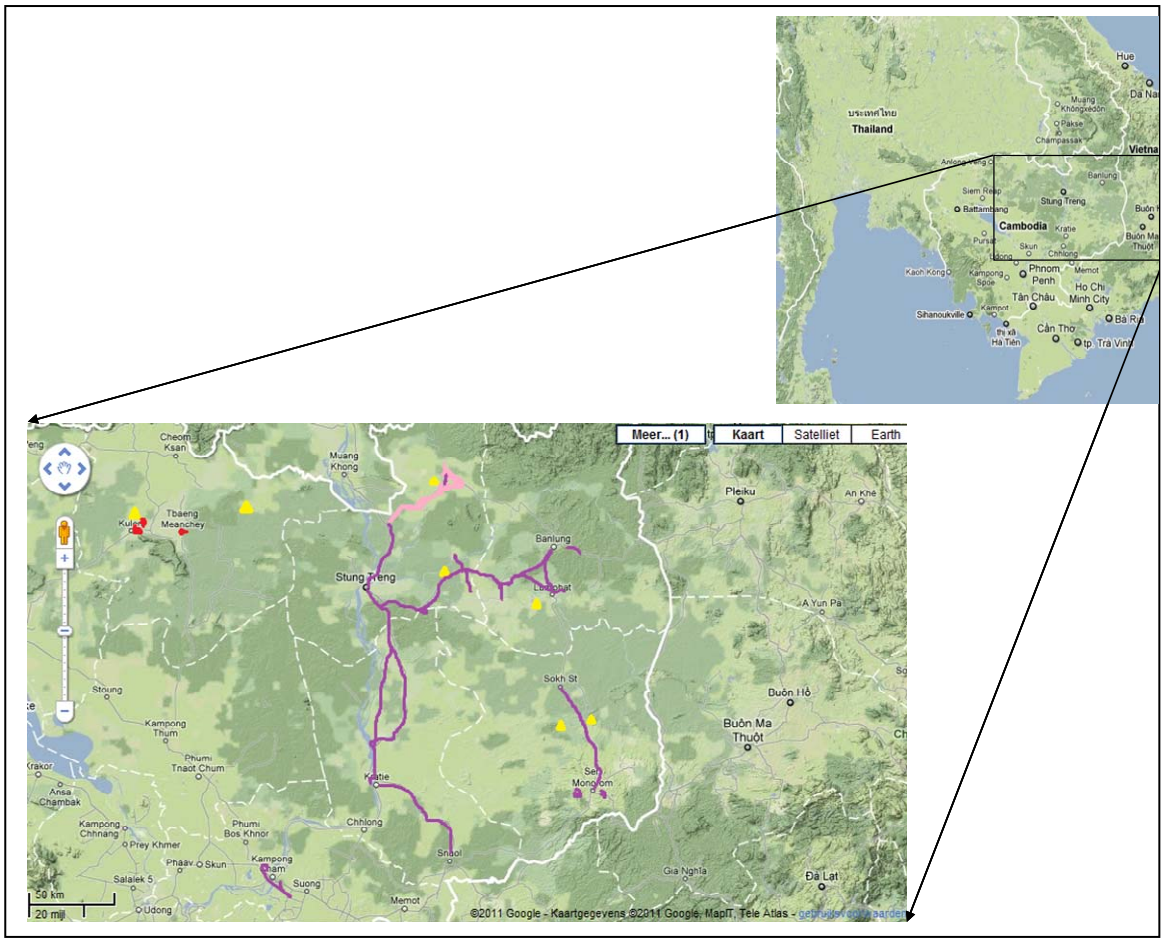
Performance Tracking Report Addendum

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, 2009 to June 30, 2010. (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.	yes	See map		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?				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.	yes	See map		
4. Did your project effectively introduce or strengthen biodiversity conservation in management practices outside protected areas? If so, please indicate how many hectares.	yes	See map		
5. If your project promotes the sustainable use of natural resources, how many local communities accrued tangible socioeconomic benefits? Please complete Table 1below.				



Map: Overview of the area where survey was carried out and vulture restaurants were maintained. Small picture on the right shows South East Asia with Cambodia in the centre. The lower left is an enlargement of the first and shows North Eastern Cambodia. Vulture restaurants are marked in yellow. Red spots are the areas where Mr Thanin conducted the questionnaire, pink areas were covered by Mr Norint and purple by Mr Sorphorn.

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

Table 1. Socioeconomic Benefits to Target Communities

Please complete this table if your project provided concrete socioeconomic benefits to local communities. List the name of each community in column one. In the subsequent columns under Community Characteristics and Nature of Socioeconomic Benefit, place an X in all relevant boxes. In the bottom row, provide the totals of the Xs for each column.

Name of Community	Community Characteristics								Nature of Socioeconomic Benefit													
									Increased Income due to:													
	Small landowners	Subsistence economy	Indigenous/ ethnic peoples	Pastoralists/nomadic peoples	Recent migrants	Urban communities	Communities falling below the poverty rate	Other	Adoption of sustainable natural resources management practices	Ecotourism revenues	Park management activities	Payment for environmental services	Increased food security due to the adoption of sustainable fishing, hunting, or agricultural practices	More secure access to water resources	Improved tenure in land or other natural resource due to titling, reduction of colonization, etc.	Reduced risk of natural disasters (fires, landslides, flooding, etc)	More secure sources of energy	Increased access to public services, such as education, health, or credit	Improved use of traditional knowledge for environmental management	More participatory decision-making due to strengthened civil society and governance.	Other
Total																						

If you marked "Other", please provide detail on the nature of the Community Characteristic and Socioeconomic Benefit:

Additional Comments/Recommendations

Improve feeding restaurants (feeding events might be distributed evenly and regularly over time and cattle carcasses should be cut in 2-3 pieces). Control of feeding.

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:
Dr. Sabine Marlene Hille

Organization name:
Institute of Wildlife Biology and Game Management
University of Natural Resources and Applied Life Sciences

Mailing address:
Gregor Mendel-Strasse 33
1180 Vienna
Austria

Tel: +43-1-47654-4450

Fax: +43-1-47654-4459

E-mail: Sabine.hille@boku.ac.at

Table. Poisons for sale in local shops during the field season 2010 in the area where surveys were carried out, data by Maarten Bleeker.

Poisons							
Name	**Price**	**Use**	**Origin**	**Shop**	**Observer**	**Source**	**Extra info**
Virufan	$2		Vietnam	Tbeng Maenchey	Thanin	Shop	Vipesco Iso 9000
tytco	$1,2		Thailand	Tbeng Maenchey	Thanin	Shop	Trizinic Diphosphide 80%, pack
QT-92	$5		Vietnam	Tbeng Maenchey	Thanin	Shop	18% Zince Phosphide, DOC CAO
Kemocraft	$6		Thailand	Tbeng Maenchey	Thanin	Shop	dissolve in water
Hopsan 75 ND	$6		Vietnam	Tbeng Maenchey	Thanin	Shop	480 ml
pyrethroid					Sorphorn	Questionnaire	
Angtrine	R20000	kill insects, protect vegetables	Thailand	ratanakiri	Sorphorn	Questionnaire	Marbolo, parathion methyl
chloriron		fish			Norint	Questionnaire	
bad stone, Tmos oi		kill tiger			Sorphorn	Questionnaire	to be eaten by tiger, and then stomach explodes after drinking water
DTE					Sorphorn	Questionnaire	
carbofuran, 1kg	R6000	kill all animals		Stung Treng	MB	Shop	
?		insectkiller		Stung Treng	MB	Shop	0,0 diethylO356 Tri-chloro2pyriodyl phosphorothiate
poldol	R9000	kill insects?		ratanakiri	Sorphorn	Shop	
tmam sat		kill birds				Questionnaire	Khmer name
tmam kdam		kill crab				Questionnaire	
tmam kondol		kill rat				Questionnaire	
tmam kondiel		?				Questionnaire	
made from tree		?				Questionnaire	
Medicines							
Diclofenac		only for human, painkiller		Stung Treng	MB	pharmacy	sodium, 2*5 *75mg/3ml, 100mg
sulfanide				Stung Treng	MB	pharmacy	
calcium				Stung Treng	MB	pharmacy	
oxycline D				Stung Treng	MB	pharmacy	
ciproflox				Stung Treng	MB	pharmacy	
dexaject				Stung Treng	MB	pharmacy	
ampicillin		for big stomach		Stung Treng	MB	pharmacy	
dexamethason		for cows		Stung Treng	MB	pharmacy	
oxytocine acetate		antibiotic for cows		Stung Treng	MB	pharmacy	