CEPF SMALL GRANT FINAL PROJECT COMPLETION REPORT

Organization Legal Name:	University of East Anglia (UEA)
Project Title:	Identifying wet season sites and non-breeding habitats used by the critically endangered Bengal Florican in Cambodia
Date of Report:	31.01.13 (original), revised 14/06/13
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CEPF Region: Indo-Burma

Strategic Direction: **1.** *'Safeguard priority globally threatened species in Indochina by mitigating major threats'* (especially **1.1** *'Identify and secure core populations of 67 globally threatened species from overexploitation and illegal trade')*.

Grant Amount: $17,814

Project Dates: December 2009 – December 2012

Implementation Partners for this Project (please explain the level of involvement for each partner):
Wildlife Conservation Society Cambodia Program (WCS): Logistical support, office facilities
BirdLife International Cambodia Programme: Organisation and hosting of workshop

Conservation Impacts

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

This project aimed to address the following strategic direction from the CEPF ecosystem profile: **1.** *'Safeguard priority globally threatened species in Indochina by mitigating major threats'*. Specifically: **1.1** *'Identify and secure core populations of 67 globally threatened species from overexploitation and illegal trade'*.

Prior to this project, little was known of the distribution of Bengal Floricans during the wet season. With insufficient knowledge of the whereabouts of Floricans for this half of the year, any threats they may have been facing in these areas could not be identified or mitigated and no protection could be given to core wet season populations. This was a major limitation to the conservation of this critically endangered species, of which two thirds of the global population are found in Cambodia.

By satellite-tagging Floricans at known dry season sites we were able, for the first time, to track Floricans over multiple years to areas occupied each wet season. This revealed the location of core wet season populations, habitats used, and that many Florican areas were under serious threat of conversion to plantation. This key information has enabled core wet season sites to be taken into consideration in future conservation plans for the species.

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

Aim 1: Determine the location of non-breeding areas

By satellite-tagging Floricans from five key dry season (breeding) sites in the grasslands of the Tonle Sap floodplain (in Siem Reap and Kompong Thom provinces), we were able to successfully track their movements to areas used during the wet (non-breeding) season. A total of 19 Floricans were satellite tracked over three years (2008-2011), providing a wealth of previously unknown non-breeding locations. The Floricans migrated out from the floodplain to more upland areas during the wet season, travelling distances of up to 60km from their breeding grounds. The satellite tracking data has greatly improved understanding of the non-breeding distribution of Floricans and is essential information for the conservation of this species, enabling protection of Florican sites year-round.

Aim 2: Establish whether non-breeding areas used by birds from different key breeding sites overlap, or are distinct

The tracking data revealed that Floricans from the three most northerly breeding sites where tags were deployed (Stoung-Chikreng BFCA, San Kor and Krous Kraom) utilised the same broad non-breeding areas. Wet season areas were shared by Floricans tagged at the two most southerly sites (Baray BFCA and Chong Dong BFCA) and were completely separate to those used by birds from the breeding sites to the north. This means that non-breeding conservation measures must be sure to address the needs of both the northern and southern populations as they do not overlap.

Aim 3: Improve understanding of whether birds concentrate in discrete non-breeding sites, or whether they are widely scattered through the landscape

Floricans were found to spread rather widely across the landscape during the wet season, in comparison to their more concentrated distribution at breeding sites in the dry season. Clearly this makes protection of non-breeding sites more challenging and requires conservation measures to tackle extensive areas of land.

Aim 4: Assess movements of Floricans between breeding and non-breeding sites in terms of timing, patterns of movements and use of staging areas and sites across the floodplain boundary

Timing of wet season migration varied from year to year and was closely associated with flood levels of the Tonle Sap and rainfall. Mean annual departure dates (from the breeding grasslands) varied from 20th August (in 2009) to 16th September (in 2010). Mean return dates (arrival back at breeding sites from non-breeding areas) were between 2nd December (in 2008) and 20th December (in 2010). All Floricans migrated every year, with the exception of 2010, when nine of the fifteen birds with active tags remained resident in the breeding grasslands throughout the wet season. This coincided with an unusually dry wet season, with lower rainfall and flood levels compared to the other years in which the Floricans were tracked (2008, 2009 and 2011), presumably meaning that sufficient areas of the breeding grassland remained un-flooded for some Floricans to remain. Floricans tracked over multiple years were found to be highly faithful to their non-breeding sites (with the exception of sub-adults, which dispersed widely in their first year tracked, then settled into a pattern in subsequent years).

Aim 5: Determine non-breeding habitat selection for a much larger sample of birds and fixes, in terms of fine scale habitat structure

All wet season location fixes obtained in 2008 and 2009 (97 locations from six individuals) were visited at the end of the 2009 wet season (in January 2010) and vegetation cover within 100m radius was recorded. Analysis of used locations in relation to random plots (assessed by

recording vegetation cover data as for used locations, at a sample of 287 random plots within the landscape), revealed grassland cover was significantly greater in used than in random plots, whilst cover of fallow, crop and plantation was significantly less.

Aim 6: Determine non-breeding habitat selection of this larger sample of telemetry locations in terms of broad habitat classes

Florican wet-season location fixes and home ranges (for eight individuals with >24 fixes in a season, excluding non-migratory individuals) for the 2008–2010 wet seasons were overlain on a habitat map. The habitat map was created using 1,119 ground truth points (where we recorded habitat in the field) to train a supervised classification of a satellite image from February 2009. At the scale of 95% kernel home ranges, in relation to the study landscape, Bengal Floricans used open savanna and medium forest cover more than expected based on available extent, whilst closed forest and agriculture were used significantly less. For 50% core areas, only open savanna habitat was selected.

At the scale of individual telemetry fixes (648 locations from 14 individuals), it was possible to conduct analyses separately for northern (n=8) and southern (n=6) birds, revealing differentiation in habitat use between these regions. In the north, open savanna and medium forest were selected and used significantly more than either closed forest or agriculture, whilst agriculture was also used significantly less than closed forest. In the south, none were used significantly differently from each other and variance was high. This probably reflected the greater extent of the less preferred agricultural landclass and limited availability of other cover types.

Overlaying the satellite locations on the habitat map revealed that the disjunct northern and southern populations have very different habitats available to them. In the north, the preferred wet season habitats of open savanna and medium forest covers are available, however in the south the landscape is dominated by agriculture and closed forest covers, neither of which are suitable for Floricans.

Aim 7: Assess threats to non-breeding sites and advise on expansion of the BFCA network to protect these areas and on appropriate habitat management

Only a small area of Trea Sameakki BFCA was used by tagged birds, with no locations occurring in Tuol Kruel Phan Nheum BFCA. Two-thirds of Trea Sameakki is medium forest, whilst over a third of Tuol Kruel Phan Nheum is closed forest, with only 6% open savanna. Four of the eight northern birds used the active land concession being developed for plantation, and three of those four, along with one additional bird, used the planned land concession areas (due to be converted to plantation).

Currently the wet season BFCAs (in the north) do not adequately encompass Florican locations and contain too much closed forest cover and insufficient open savanna habitat. Floricans are using areas planned for conversion to plantation which poses a very serious threat, as they were found to strongly avoid plantation habitat. For the southern population, there is no BFCA provision and very little suitable habitat (almost entirely consisting of agriculture and closed forest – both avoided by Floricans).

Aim 8: Provide feedback on findings and recommendations of both CEPF projects to conservation and governmental stakeholders discuss project sustainability and next series of actions, at a workshop in Cambodia in November 2012.

In November 2012 we held a productive Bengal Florican Conservation Workshop in Phnom Penh. Attendees from the following organisations were present: Forestry Administration, Stoung-Chikreng BFCA Community Management Committee, Wildlife Conservation Society, BirdLife International in Indochina, Sam Veasna Centre, Wildfowl and Wetlands Trust, Angkor Centre for Conservation of Biodiversity, Action for Development and Buddhism for Development Kompong

Thom. Results from three CEPF-funded projects were presented: *Conservation ecology of Bengal Florican in Cambodia* (UEA), *Identifying wet season sites and non-breeding habitats used by the critically endangered Bengal Florican in Cambodia* (UEA, this project) and *Distribution, population and habitat extent of Bengal Florican in Cambodia: A re-assessment after 7 years* (Angkor Centre for Conservation of Biodiversity). Discussion sessions were held on: next steps for Florican conservation in the Tonle Sap grasslands, conservation measures required for Floricans in wet season areas and brainstorming for a Bengal Florican Species Action Plan (now being written up in full with results and recommendations from this project incorporated).

Please provide the following information where relevant:

Hectares Protected: n/a
Species Conserved: Bengal Florican
Corridors Created: n/a

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

Short-term impact objectives have been achieved: we have successfully satellite-tracked Bengal Floricans during the wet season, revealing migration movements from breeding to non-breeding areas and shedding light on the wet season distribution, habitat use and threats faced by Floricans in these areas. Results and recommendations have been disseminated to stakeholders via a workshop and long-term impact objectives are being incorporated into a Bengal Florican Species Action Plan.

Were there any unexpected impacts (positive or negative)?

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)

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

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
Mohamed bin Zayed Species Conservation Fund	A	$20,000	For 8 satellite transmitters
Chester Zoo / NEZS	A	$5,888	For 2 satellite transmitters and refurbishment of 1 used satellite transmitter
Natural Environment Research Council (NERC), UK	A	$1,205	1 return flight UK-Cambodia

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.

Satellite transmitters deployed on Bengal Floricans have successfully revealed previously little known wet season areas. This data has subsequently been used to guide ongoing ground surveys conducted by WCS, and has enabled habitat, threats and opportunities for management and protection to continue to be investigated.

Summarize any unplanned sustainability or replicability achieved.

Due to the longevity of the solar satellite transmitters and very high survival rates of the Floricans fitted with transmitters, we have accumulated location data over 4+ years. Since the completion of this project's fieldwork, a UEA Masters student has subsequently visited the more recently accumulated satellite locations, collecting additional data and strengthening our understanding of Florican habitat requirements.

Safeguard Policy Assessment

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

n/a

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 December 2009 to December 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.				Long-term aim: project results will facilitate this
2. How many hectares of new and/or expanded protected areas did your project help establish through a legal declaration or community agreement?				Long-term aim: project results will facilitate this
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.	n/a			
4. Did your project effectively introduce or strengthen biodiversity conservation in management practices outside protected areas? If so, please indicate how many hectares.		Yes (area to be determined)		To be implemented through Species Action Plan
5. If your project promotes the sustainable use of natural resources, how many local communities accrued tangible socioeconomic benefits? Please complete Table 1below.	n/a			

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

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:

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