Progress Report

Conservation of Cave Fauna in the Ba Be / Na Hang Karst Complex, Vietnam

(Rufford Grant Reference 13.02.06)









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September, 2007

PRCF Việt Nam

The Rufford Small Grants for Nature Conservation
www.rufford.org/rsg

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All photographs by Neil M. Furey.

Introduction and Overview

This report details activities undertaken between July 2006 and July 2007 by the project entitled '*Conservation of cave fauna in the Ba Be / Na Hang Karst Complex*' (Rufford Grant Reference 13.02.06) in northern Vietnam. As such, it is intended as an interim progress report. A formal final report will be submitted to the Rufford Foundation at a later date, along with a complete set of awareness materials developed by the project (bearing the Rufford logo). During the above period, the project made excellent progress towards achieving its objectives, which are formulated as:

- **Research:** To conduct surveys to identify a representative network of key sites for cave fauna and develop management plans for their conservation
- **Capacity-building:** To establish capacity for cave conservation and community education among local protected area staff
- **Awareness-raising:** To implement an awareness campaign to generate community understanding and support for conservation of local caves and their bat populations
- **Publications:** To develop guidelines for sustainable cave management and disseminate these nationally

Due to military interests, difficulties were encountered in securing permissions to work at Na Hang. As these threatened the projects ability to achieve its objectives, it proved necessary to substitute Na Hang with the nearby Kim Hy Nature Reserve. Subsequent findings wholly justified this choice (below).

The projects **research programme** has proved exceptionally productive at both sites. Results to date include the discovery of three new bat species to science and unprecedented levels of species diversity (the highest ever recorded for a single site in Vietnam) including numerous very rarely-recorded and poorly known species. As project research has evolved to address key questions for conservation management, a great deal of important ecological data has also been gathered. The current research phase will finish in late 2007, at which time detailed management planning processes will begin.

The projects **capacity-building programme** is also well on track. Formal training events were undertaken at Kim Hy Nature Reserve and Ba Be National Park in late 2006 and early 2007. Each event aimed to equip participants with an understanding of the values and vulnerabilities of limestone karst ecosystems and requirements for their conservation. The project has also provided intensive training for a large number of protected area staff and three Vietnamese students (Two MSc and one BSc student) through its field research programme, with additional support kindly provided by other donors.

Project **awareness-raising** works have focussed upon producing attractive educational media for use in awareness campaigns undertaken by local authorities. Several high-quality and cost effective materials were completed, including posters, brochures and T-shirts (see photo gallery), and several more are under development. Evaluations are planned for early 2008. Additional activities to improve national awareness were also undertaken, including conference presentations and dialogue with Vietnamese TV to produce a documentary film on the projects activities at Ba Be National Park.

Publications: Detailed processes to management plans have yet to begin as these await completion of the field research at both sites. Notwithstanding this, participatory exercises to elucidate conservation threats and identify management responses were undertaken and have provided valuable guidance. Development of '*national guidelines for cave conservation*' is well underway.

As several activities await completion of the research programme in late 2007, it is respectfully requested that the project be granted a **six-month extension (until March 2008),** to allow it time to conclude current activities. It is envisaged that a formal final report would be submitted at this time.

Project Activities: Research

Ba Be National Park

Project activities have been underway at Ba Be National Park since mid 2006. The first action undertaken was a review to determine current knowledge concerning bat populations and determine priority sites and habitats for further research. Since many scientists had previously visited the national park, historical data was available. Unfortunately however, project reviews indicated that related species lists were confused and unreliable. Subsequent dialogue with local authorities subsequently decided that the greatest return from the projects limited resources could be obtained by:

- ***Resolving existing uncertainties***:- To this end, an intensive review of previous specimen collections was initiated, entailing correspondence with overseas museums (British, Canadian & Hungarian) and contact with Vietnamese scientists to examine all material in Vietnam. This has been supplemented by ongoing opportunistic surveys in previously un-surveyed areas of the park.

- ***Intensive research of a major cave colony at the national park***:- Rather than repeat previous cave surveys, it was felt that targeted research to explore the seasonal ecology of a selected cave colony would provide more important guidance for local conservation efforts. To this end, a monitoring programme was initiated at a key cave colony, the first year of which will end in November 2007.

While still ongoing, initial results from the research have been extremely positive. These include the discovery of one new bat species to science (subsequently named *Kerivoula titania*[1]) and several new species records, including some rare bat species. Preparation of a publication which presents the new information and resolves previous confusion is underway. Results from the seasonal research await completion of its first year and will assist development of forthcoming management plans for the park.

Kim Hy Nature Reserve

Project field research at Kim Hy Nature Reserve has been in operation since mid-2006 and has proved immensely productive. As little or no data existed regarding the biodiversity of Kim Hy, initial emphasis was laid upon locating priority sites and habitats for bat conservation with the aid of local protected area staff and resident communities. Field research thereafter evolved towards addressing key questions for bat conservation at the site. Several of these relate to seasonal variation in bat populations in different habitats and cave-dwelling assemblages. Preliminary results may be summarised as follows:

- At least forty bat species are now confirmed to occur at Kim Hy, which according to literature review, is the highest bat species diversity ever recorded for a single site in Vietnam. These include an exceptional number of very rarely-recorded and poorly known bat species.

- Two new bat species to science were discovered. A description of the first new species, named *Murina tiensa*, has been published in a peer-reviewed journal[2], while description of the second is in progress. Both species are rare forest dwellers and presently known only from two sites in the world.

- A major cave complex was discovered deep within the reserves interior which possesses outstanding conservation importance. The complex is surrounded by primary forest and supports ca. 35,000 bats of at least 19 species, one of the highest species totals ever recorded for a SE-Asian cave.

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[1] Bates et al. manuscript accepted. A new species of *Kerivoula* (Chiroptera: Vespertilionidae) from Southeast Asia.
[2] Csorba, G. et al. 2007. Description of a new species of Murina from Vietnam (Chiroptera: Vespertilionidae: Murininae). Available from: http://www.nsrl.ttu.edu/publications/opapers/ops/OP268.pdf

- ❖ Cave-dwelling bats are highly vulnerable to disturbance, particularly during winter for those species which enter torpor and hibernation, as this has high potential to prove fatal. Cave-dwelling fruit bat populations are most vulnerable during the breeding season, as local colonies appear relatively larger during these periods. Defining these periods represents one of research teams objectives.

While important, it should be emphasized that these represent summary findings only. Intensive data analysis will shortly be undertaken to inform forthcoming management planning processes.

Project Activities: Capacity-building

Protected Area Management

Four-day training events were undertaken at Kim Hy Nature Reserve and Ba Be National Park in December 2006 and February 2007 respectively. Each event was designed to equip participants with an understanding of the values and vulnerabilities of limestone karst ecosystems and requirements for their conservation. The original curriculum also included training on 'effective communication skills', but following discussions with local authorities, was later replaced by participatory conservation appraisals. Trainees were provided with a full set of course materials in Vietnamese, which included the following:

Day 1: Values & vulnerabilities of karst ecosystems in a regional and national context

Day 2: Biodiversity importance and economic and ecological significance of bats (Chiroptera) as a group, and the importance of karst areas for their conservation

Day 3: Principles and approaches for karst conservation and management, and their application to Ba Be National Park and Kim Hy Nature Reserve

Day 4: Conservation needs assessment and operational management planning exercises

In course evaluations, participants stated their belief that the course had significantly improved their understanding of issues relating to karst management and bat conservation. Moreover, the enthusiasm of the trainees also ensured that participatory exercises (on Day 4) generated valuable information, which will provide important guidance for future conservation projects at either site.

Scientific Research

Since its inception, protected area staff from Ba Be and Kim Hy have formed the backbone of the projects field research team. As participation has been on a rotational basis, a greater number of individuals have benefited from the projects capacity-building works than originally envisaged. Training activities have encompassed a variety of material assistance, literature and practical instruction and mentoring in the following subject areas:

- ► Karst ecology and Conservation
- ► Biodiversity survey methods
- ► Population monitoring methods
- ► Species identification

Particular emphasis has been placed upon providing protected area staff with the skills to continue biodiversity monitoring efforts following project completion. It is envisaged that future targets and methods for biodiversity monitoring will be specified in detail in forthcoming management plans.

With co-funding provided by the Harrison Institute (UK), the project has also provided intensive training for two Master students and one Bachelor degree student, all of whom are Vietnamese and have formed a continual and crucial element of the project team. The project is delighted to report that one MSc student (Mr. Dao Nhan Loi) achieved the highest score for his dissertation of his year. As Mr. Loi is a new teacher at a prominent forestry university in northern Vietnam and has begun to encourage his students to undertake their dissertations on various aspects of bat biology, the projects training activities will also reach a significantly broader constituency.

With co-funding provided by BP, the project's other MSc student (Mr. Vuong Tan Tu) attended the 1st SE-Asian Bat Conference in Thailand in May 2007, at which he defended a poster presentation. With the projects assistance, Tu is currently working on a research paper which he intends to submit to a leading Vietnamese-language scientific journal in 2007. Tu also plans to present his research at a student public-speaking competition in late 2007.

Project Activities: Awareness Raising

Local Awareness

Plans to undertake awareness campaigns to generate community support for conservation of local caves and bat populations have proceeded smoothly, although with some delays. With the assistance of a British artist (Ricardo Insua Cao), participatory processes were undertaken with protected area authorities to develop a range of high-quality and cost-effective awareness media. At the time of writing, the following materials are either completed or under development:

Site	**Media**/ Description	Qty	Distribution
Kim Hy	**Calendar** (full colour, A1): '*Bats of Kim Hy Nature Reserve*'. Aimed at local communities, schools and authorities.	1000	February, 2007
	Contract (A4): '*Conservation Agreement*'. Aimed at improving awareness and compliance with local conservation law, including caves.	6000	March, 2007
	Brochure (full colour, A5, 6 pages): '*Bats at Kim Hy Nature Reserve: An introduction*'. Aimed at local communities, schools and authorities.	5000	July, 2007
	T-shirt: '*Lets keep our bats safe!*' Aimed at local community leaders and authorities.	160	July, 2007
Ba Be	**Brochure** (full colour, A5, 6 pages): '*The Caves and Bats of Ba Be National Park*'. Aimed at local communities, schools and authorities.	5000	September, 2007
	Brochure (full colour, A4, 2 sides): '*Hua Ma Cave, a key site for conservation at Ba Be National Park*'. Visitors guide.	2000	October, 2007
	Poster (full colour, A1): '*An photographic guide to the caves and bats of Ba Be National Park*'. For local communities, schools and authorities.	1000	November, 2007

While initial responses to the projects awareness materials have been positive, it remains too early to gauge their real impact upon levels of conservation awareness and motivation among local communities and authorities. The project therefore plans to evaluate this with local partners in early 2008.

National and International Awareness

Project plans to extend its influence to a national level are well underway. Activities to raise wider awareness so far include podium presentations made at two international gatherings, namely the 1st International SE-Asian Bat Conference (in Thailand, May 2007) and the annual conference of the SE-Asian Regional Network for Indigenous Peoples (in Vietnam, August 2007), while a presentation is planned for the forthcoming annual meeting of the Vietnam Ecological Society (in November, 2007).

A collaboration has also been agreed with the Vietnamese Institute for Geology and Mineral Resources (VIGMR) to publish guidelines for '*Cave conservation and Management in Vietnam*' in leading Vietnamese journals in early 2008.

Given the projects dramatic discovery of three new bat species to science, its greatest opportunity to raise public awareness may well lie in its plans to distribute an international press release in late 2007. Most recently however, it appears that project plans could also benefit substantially as a result of dialogue with a film maker employed by VTV2 (Vietnamese national television) who wishes to make a documentary on its activities at Ba Be National Park. Filming will begin in late 2007 and the documentary will be broadcast nationally in Spring 2008.

Project Activities: Documentation

Management plans

Since the projects plans to develop management strategies for bat conservation necessarily await completion of the field research in late 2007, detailed planning processes have yet to be undertaken. Notwithstanding this, participatory exercises to elucidate conservation threats and identify appropriate management responses were undertaken during training events and have provided valuable guidance. It should be added that both the project team leader and local partners view the time spent in site familiarisation and targeted research as essential for forthcoming planning processes, which will begin in October 2007.

Other Reports & Publications

In addition to management plans for bat conservation at Ba Be National Park and Kim Hy Nature Reserve (above) and a final report to the Rufford Foundation, the project plans to produce the following publications:

Local and National

- An identification guide for '*The Bat Species of Kim Hy Nature Reserve*'
  - Finances to print and distribute this are presently unsecured

- *'Guidelines for Cave Conservation & Management in Vietnam'*
  - Planned for submission to the Vietnamese *Protected Areas* Magazine or *Journal of Biology*

- '*The Bat fauna of Ba Be National Park – A review, with important new records*'
  - Planned for presentation at the forthcoming annual meeting of the Vietnam Ecological Society

- '*Vietnamese Bat Echolocation: A tool for conservation research and management*' (working title)
  - Planned for submission to the Vietnamese *Journal of Biology*

International

- A press release will be distributed among international news networks in late 2007

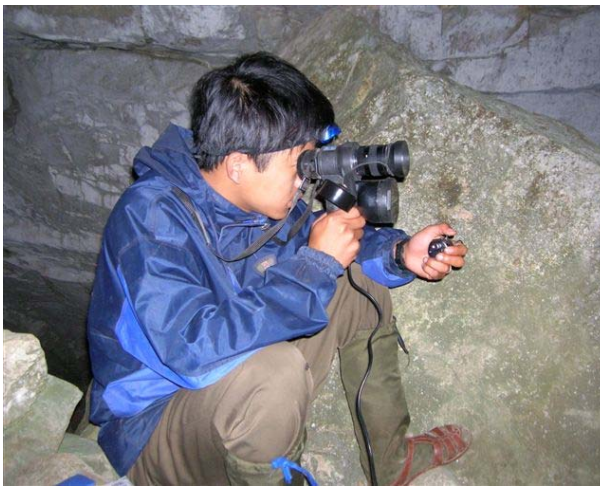
- A series of research papers will be published in English language and peer-reviewed journals following intensive data analysis in 2008, including a formal description of the third new bat species discovered by the project

Photo Gallery

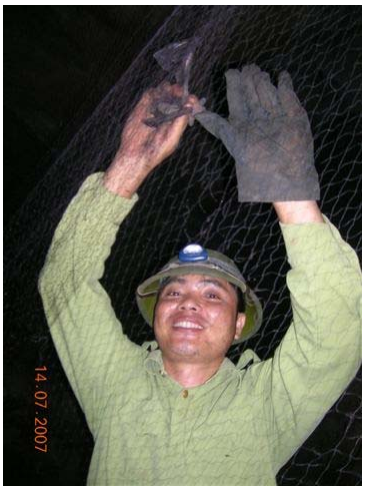
Kerivoula *titania*: A new bat species to science discovered by the project at Ba Be

Murina tiensa: A new bat species to science discovered by the project at Kim Hy

Live-trapping at Kim Hy



Cave bat population census at Kim Hy



Live-trapping at Ba Be

Mr. Nguyen Xuan Hung (Project BSc student) undertaking desk review

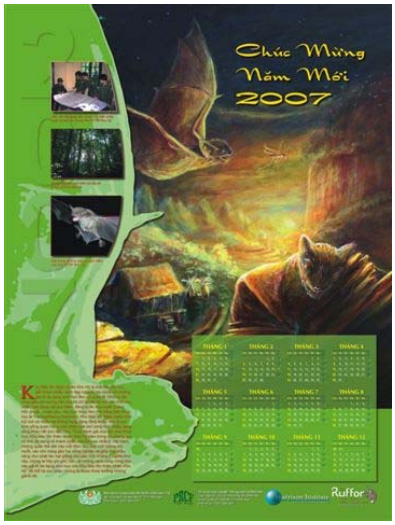
Project field research team together with local community members and Prof. Paul Racey (co-chair of the IUCN Bat Specialist Group)

Mr. Dao Nhan Loi (Project MSc student) undertaking lab analysis

Photo Gallery (cont'd)

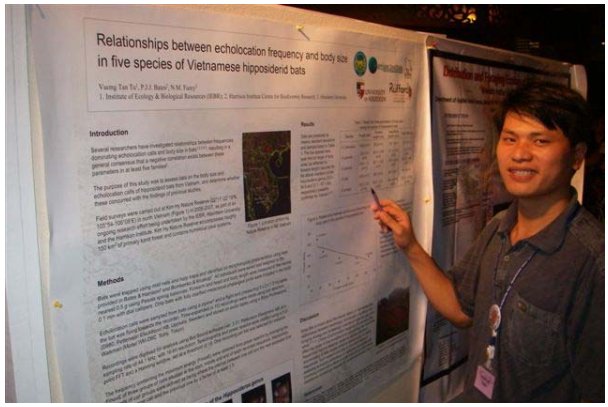
Karst Conservation Training Event at Ba Be

Karst Conservation Training Event at Kim Hy



Project awareness materials: Kim Hy Calendar (left) and brochure (centre); Ba Be brochure (right)

Mr. Neil Furey (Project Leader) presenting a paper on '*Bat communities in Vietnamese Karst*' at the 1st International SE-Asian Bat (SEABAT) Conference in Thailand in 2007



Mr. Vuong Tan Tu (Project MSc student) defending his poster on '*Vietnamese Bat Echolocation*' at the1st International SE-Asian Bat (SEABAT) Conference in Thailand in 2007