

# Final Report to Whitley Awards Foundation

February 2007

## 1. Project title.

Radio telemetry study on the wild ecology and home range of the Keeled Box Turtle (*Cuora mouhotii* formerly *Pyxidea mouhotii*) at Cuc Phuong National Park, Vietnam.

## 2. Contact detail.

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## 3. Award granted.

13<sup>th</sup> August 2003

## 4. Grant type.

Rufford small grant.

## 5. Grant value.

£3,278

## 6. Executive summary.

The Keeled Box Turtle (*Cuora mouhotii* formerly *Pyxidea mouhotii*), a terrestrial Asian chelonian, is a little known species whose future is currently being threatened by destruction of its forest habitat, as well as widespread collection for the illegal wildlife trade. Indeed, the volume of trade of this species has resulted in its addition to Appendix II of CITES (2006), and its formal identification as “endangered” on the IUCN Red Listing (2006).

This project represented the first radio telemetry study of *Cuora mouhotii*, and enabled the research group to track both wild and released animals in Cuc Phuong National Park, Vietnam. The study had three primary objectives:

- To increase knowledge of the ecology and behaviour of *Cuora mouhotii*, while determining the survival rate of animals released from captivity. This was intended to inform recommendations regarding the placement of confiscated animals, as well as to enable better conservation management of the species throughout its range.
- To develop the capacity and expertise of the Vietnamese researchers involved in the study, enabling and encouraging young conservation biologists to continue working with Vietnam's chelonian fauna in the future.
- To increase awareness about the conservation requirements of Vietnam's turtles by promotion of the research project through national media and other means.

## 7. Project summary.

The outputs from this project have been many and diverse as a direct result of the Rufford funding. They are outlined below.

### **Increasing the knowledge of *Cuora mouhotii* through research:**

The research component of the Rufford grant involved fitting small groups of both wild and released *Cuora mouhotii* with radio transmitters as well as temperature logging devices. This allowed the turtles to be located each week, and for data on activity and behaviour to be collected. Information on environmental conditions such as temperature and rainfall was also collected.

The complete findings of this study, the first to examine this species in the wild, can be found in the thesis entitled 'Conservation of Vietnam's chelonians, the Keeled Box Tortoise (*Cuora mouhotii*)' by Timothy McCormack, submitted as part of a Masters Degree by Research to the University of East Anglia. A hard copy of the thesis has been sent to Rufford in England.

Some of the principle findings of this study include:

- The first calculations of the home range of wild *Cuora mouhotii*, which judging from initial data, appears to be relatively small (1.86ha ( $\pm$  0.96ha, n=3)). There was some evidence of site fidelity, with some turtles returning to use the same over-wintering locations, often in small rock crevices and caves.
- Seasonal activity of wild turtles was found to be greater during the warm wet season (corresponding with increased home range size), than during the cool dry season. *Cuora mouhotii* were observed remaining inactive, or moving very little for an average of 25.2 weeks ( $\pm$  6.3, n=3).
- A group of animals which had been confiscated from the illegal wildlife trade and maintained in captivity was released to assess the viability of release of *Cuora mouhotii* as a possible solution for confiscated animals. All three survived past their first year of release, a good indication of successful adaptation to their new environment. However

they did have much larger home ranges than the wild turtles (227.2% larger), and at only 18.7 weeks ( $\pm 2.9$ ,  $n=3$ ), significantly shorter over-wintering periods. This could be interpreted as indicative of some difficulty in adaptation.

- Local trade was also investigated in communities in the buffer zone surrounding Cuc Phuong National Park. Information was obtained on hunting techniques, peak seasons for hunting and trade, as well as prices obtained for turtles captured and sold illegally.
- The first annual data on temperature and rainfall were also collected for the national park.

A series of articles describing the findings from this research are will be submitted for publication in journals including Chelonian Conservation Biology. There is also the potential to expand on these findings as additional data become available

### **Capacity building and education:**

Development of telemetry team.

To enable the collection of radio telemetry data, it was first necessary to locate wild animals and to train a team of local staff in data collection techniques. Although this did result in some delays in initiating the project, two locals were successfully trained in the use of radio telemetry equipment, compasses and GPS technology, as well as in the completion of data collection forms.

Student training program.

A training course in Tortoise and Freshwater Turtle Field Skills was developed, and a total of 22 students from eight universities and forestry colleges from Vietnam and Cambodia have now completed the seven day program. The first training course was conducted in January 2005 for six students with joint funding from the Rufford small grant and the Wildlife Conservation Society (WCS). Based on the results and experience from this first training course, improvements were made and the course repeated in Vietnam for nine students in March 2006 and in Cambodia for seven students in November 2006. The course will be held again in Vietnam during the first quarter of 2007, and also for the first time in Myanmar, with hopes that it will run henceforth on an annual basis in each country.

The course combines lectures and taught instruction with hands-on, practical experience and field trips. The course covers eight training modules, including scientific research methodology and study design, turtle identification, measurement and mapping, use of radio telemetry, documentation of field records, nesting and reproduction, ecology, field survey techniques and interview-based survey methods.

One participant from the first training course, Mr Nguyen Xuan Thuan, is now employed as the field research officer for the Asian Turtle Program and is working on a series of species focused projects in north and central Vietnam. In addition he is now involved with the instruction of student and ranger training programs himself.

### **Awareness:**

Awareness amongst park staff.

National Park staff and Rangers now have an increased appreciation of the importance of *Cuora mouhotii* as a species. Since the study was carried out, both the Forest Protection Department (FPD) and park tourism staff have made a series of confiscations of the species from hunters and tourists alike, indicating a new level of commitment to conservation efforts.

Presidential visit.

Vietnamese President Tran Duc Luong made a visit to the Turtle Conservation Centre (TCC) at Cuc Phuong National Park on the 7<sup>th</sup> of March 2004 and was introduced to one of the *Cuora mouhotii* being held in captivity. He was provided with some basic information about the species and threats to its survival by Mr Bui Dang Phong, who manages the centre and who was closely involved in the telemetry study.

Poster.

With the help of funding from Rufford, a poster was designed illustrating all 23 species of tortoise and freshwater turtle found in Vietnam. This has since been distributed to Ranger Stations throughout the country to aid in the identification of turtle species observed in the wild or in the illegal wildlife trade.

Local communities more aware of turtle's importance.

A total of six *Cuora mouhotii* have been handed to the TCC by villagers living in Cuc Phuong National Park's buffer zone so that they may be released back into the park. Such behaviour may largely be attributed to meetings between locals and TCC staff, who have been able to explain the threats to these turtles and to explain how detrimental illegal collection is to the species.

#### **National awareness:**

A number of Vietnamese national newspapers covered the radio telemetry study and student training program. On two occasions, journalists joined the research team in the forest for a day of radio tracking, prior to writing articles on the program.

In March 2005 a presentation was made to a group of around a dozen media representatives on the Asian Turtle Crisis. The contribution of research projects like the *Cuora mouhotii* study to the conservation of Vietnam's turtle species was emphasised.

#### **International Awareness:**

Wildlife Conservation Magazine.

In April 2005 an article featuring the radio telemetry study on *Cuora mouhotii* was published in 'Wildlife Conservation' magazine, produced by the Wildlife Conservation Society (WCS).

'Airone' - French Magazine.

An article published in the French magazine 'Airone' in July 2005 covered the radio tracking of *Cuora mouhotii* in Cuc Phuong National Park and some of the work undertaken at the TCC.

BBC Really Wild Show.

In October 2004 Michaela Strachan and the BBC's 'Really Wild Show' came to Cuc Phuong National Park to film the *Cuora mouhotii* radio telemetry study and the work undertaken at the TCC. The program was aired on British national television during the summer of 2005.

#### **8. How did the grant help?**

The Rufford small grant was essentially the initiating grant which allowed the radio telemetry study on *Cuora mouhotii* to begin. This study saw the collection of the first wild data on this endangered species. Perhaps more importantly however, the extensive media coverage the study received has successfully raised public awareness about the need for turtle conservation in Vietnam and Asia. Furthermore, a student training course, which now involves university students from eight universities in two countries was developed. As a direct result of this training at least one student is employed full-time in turtle conservation in Vietnam, and additional students are receiving small grants for research projects of their own. This transfer of skills and experience in chelonian research and conservation to Asian nationals is by far the most significant benefit afforded by the Rufford small grant.

This grant also aided in the development of the Asian Turtle Program (ATP). The radio telemetry study was Timothy McCormack's (the ATP Field Research Team Leader) first turtle species focused research project. Moreover, Mr Nguyen Xuan Thuan, the ATP field research officer, was a student participant in the first student training course in 2005, since 2003 the work at Cuc Phuong National Park has expanded to a national level with the development of the ATP

#### **9. Additional ways in which Whitley could help.**

By providing additional support for the development of the student research program and research on wild *Cuora mouhotii*, The Whitley Award Foundation could assist in further expansion of species knowledge. Please see the attached document for details of future research and training objectives.

#### **10. Outstanding members of staff**

Two outstanding members of staff are:

Mr Bui Dang Phong, manager of the Turtle Conservation Centre (TCC) at Cuc Phuong National Park, who was closely involved with the radio telemetry study and the village interviews, and integral to research team staff management. He has progressed in recent years to become one of Asia's premier turtle experts, and has been heavily involved in training for both students and national forest protection rangers.

Mr Nguyen Xuan Thuan, a student participant in the first training course in 2005, is now employed full time as the Asian Turtle Programs (ATP) field research officer. He has been involved with the national ranger training activities as well as with four species focused projects currently being undertaken by the ATP.

## 11. Other local organisations that have contributed to our work

Education for Nature Vietnam (ENV) is a local NGO which has close ties with the ATP. ENV was heavily involved with the production of the turtle identification poster which was distributed nationally. ENV has also offered considerable technical support and advice to aid in the development of the student training program.

## 12. Worked with anyone who may be appropriate for a Whitley Award

## 13. Financial information

Please see separate excel spreadsheets.

As of the end of quarter one in 2006 only \$371.41 of the Rufford Budget remained, much of which has already been spent but for which data has not been added to the spreadsheets yet. Any remaining funds are being used for local counterpart salaries and transportation for the radio telemetry study while attempts are being made to secure additional funding to allow the continuation of the project. Work proposed during 2007 is given in an additional attachment.

## 14. Photographs of work

Table of photographs provided and descriptions.

Photo title	Description
BBC & Michaela	The BBC really wild show with Michaela Strachan came to film the radio telemetry study with <i>Cuora mouhotii</i> in October 2004.
Paul Calle	Dr Paul Calle a field vet from the Wildlife Conservation Society (WCS) visits <i>Cuora mouhotii</i> in the wild. Blood samples were taken to look at genetics of this population.
Cm fitted with transmitter and data logger	An example of a <i>Cuora mouhotii</i> tracked in this study.
Student interviews	During the student training course students put the skills they have been taught into practice, here a student is conducting an interview to investigate the turtle species that occur in Cuc Phuong National Park, Vietnam.
Local handing in Pm in CP village	A local man hands three <i>Cuora mouhotii</i> to the TCC's Mr Phong after talking to the research team and realising he should not be collecting and keeping the animals.
Measuring and Mapping, Cambodia	November 2006, a group of Cambodian students are instructed in the basic use of maps, compasses and GPS to allow them to

	work more safely in a forest environment.
Measuring turtles	Mr Thuan is measuring three critically endangered Indochinese Box Turtles ( <i>Cuora bourreti</i> ) while conducting interview and field surveys for this species in Central Vietnam. Mr Thuan was a participant in the first 2005 training course now employed full time as a researcher for the ATP.
Mr Quyet with Cm	Mr Quyet is the local counterpart employed to radio track the <i>Cuora mouhotii</i> three days a week. Here he is in the forest with one of the animals he is now very familiar with.
Phong with President Luong at the TCC	In March 2004 the President of Vietnam, Mr Tran Duc Luong visited the TCC and was introduced to a <i>Cuora mouhotii</i> turtle in captivity at the TCC by Mr Phong.
Student with telemetry gear.	During the student training course each participant is given the chance to use the radio telemetry equipment to locate wild <i>Cuora mouhotii</i> as well as play a game of hide and seek with a transmitter.
Turtle Poster	The Vietnamese turtle identification poster which was produced with support from Rufford. 