

## The Rufford Small Grants Foundation

### Final Report

Congratulations on the completion of your project that was supported by The Rufford Small Grants Foundation.

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. The Final Report must be sent in **word format** and not PDF format or any other format. We understand that projects often do not follow the predicted course but knowledge of your experiences is valuable to us and others who may be undertaking similar work. Please be as honest as you can in answering the questions – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Please complete the form in English and be as clear and concise as you can. Please note that the information may be edited for clarity. We will ask for further information if required. If you have any other materials produced by the project, particularly a few relevant photographs, please send these to us separately.

Please submit your final report to [jane@rufford.org](mailto:jane@rufford.org).

Thank you for your help.

**Josh Cole, Grants Director**

Grant Recipient Details	
<b>Your name</b>	Neang Thy
<b>Project title</b>	Reptile survey and capacity building to young Cambodian scientists and undergraduate students in the Phnom Samkos Wildlife Sanctuary, Cardamom Mountains, Cambodia.
<b>RSG reference</b>	08.01.10
<b>Reporting period</b>	July 2010- June 2011
<b>Amount of grant</b>	£5,107
<b>Your email address</b>	<a href="mailto:nthy@moeffi@gmail.com">nthy@moeffi@gmail.com</a>
<b>Date of this report</b>	10 August 2011

**1. Please indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.**

Objective	Fully achieved	Comments
To improve understanding of patterns of reptile diversity at Phnom Samkos Wildlife Sanctuary (PSWS)	Fully achieved	<p>In July and September 2010 and January and February 2011, comparative studies were undertaken at two sites in PSWS with assistance from six BSc and two MSc students from the Royal University of Phnom Penh (RUPP). Sampling methods included two 100 m lines of pitfall traps and two transects (10 x 300 m), one for daytime searches in forest and another for stream searches at night time. Opportunistic searches were also undertaken. Sampling methods and efforts were standardised to allow comparisons between the two sites. (Though the original plan was to study reptiles only, this was broadened to include amphibians).</p> <p>The field research revealed a total of 73 species including 42 reptile and 31 amphibian species. Of these, 11 species (nine reptiles and two amphibians) were recorded for the first time from Phnom Samkos. Seven species, including one amphibian (<i>Rhacophorus maximus</i>), five reptiles (<i>Oligodon</i> spp. x2, <i>Ovophis convictus</i>, <i>Dendrelaphis</i> sp. and <i>Ptychozoon</i> cf. <i>trinotaterra</i>) and one caecilian (<i>Ichthyophis</i> sp.) also represented new records for Cambodia. Three of these (the two <i>Oligodon</i> spp. and one <i>Ichthyophis</i> sp.) also represent species new to science and are now being described.</p>
To undertake an inventory study to improve understanding of reptile and amphibian diversity in an unexplored area of PSWS	Fully achieved	<p>In June 2011, an additional field study was undertaken by Neang Thy and two BSc students on Dalai Mountain of Phnom Samkos. Visual searches were employed. These revealed 25 species (10 amphibians and 15 reptiles), two of which were new country records for Cambodia. One of the latter species (<i>Oligodon</i> sp.) also represents a new species to science and is now being described.</p>
To prioritise areas in PSWS in terms of their value for reptile conservation	Fully achieved	<p>Taken together, a total of 83 species (47 reptiles and 36 amphibians) were recorded by the project at Phnom Samkos. Thirteen species (11 reptiles and two amphibians) represented first records for the site, nine new country records for Cambodia, and four species new to science. Preliminary analysis of field data suggests that reptile and amphibian species richness is higher in lowland areas compared to mid-elevation areas. The finding of three new species (two <i>Oligodon</i> spp. &amp; <i>Ichthyophis</i> sp.) in lowland areas also suggests that more species may occur there. Though more analysis is needed for confirmation, current results therefore suggest that lowland areas should be accorded higher priority for herpetological conservation at Phnom Samkos.</p>
To build the capacity of young Cambodian scientists and	Fully achieved	<p>Ten students from the RUPP including two MSc students (Chhin Sophea, Hun Seiha) and eight BSc students (Kung Putha, Kris Mean Rith, Sovan Chorvin, Meang Meourn, San</p>

graduate and undergraduate students in herpetological and conservation research	Rithy, Phon Morn, Chhit Soknea and Lout Saek) were trained during the project. Most of the students were enthusiastic about studying reptiles and amphibian species in their natural habitats. The projects approach of 'learning-by-doing' enabled the students to learn a lot more about reptile and amphibian species, their natural history and habitat preferences and as well as a variety of survey techniques. All students had heard about reptiles and amphibians in class but until the project had never met any. Most of the undergraduate students plan to become biology teachers and will therefore be well placed to pass on their new skills in herpetology, while the two MSc students are now employed by the Centre for Biodiversity Conservation at the RUPP.
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**2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).**

Although the project ran smoothly as a whole, the field work often posed challenges. Firstly, as most of the students were inexperienced, they sometimes felt uncomfortable in the dense forest due to the wet season and abundance of leeches. They were also sometimes scared by the idea of venomous creatures, tigers, bears and other animals being nearby. This may have affected the sampling because with a lot of time spent checking for leeches and dangerous animals at the start of each trip, some reptile and amphibian species may have been overlooked. The frequent heavy rain during the wet season often also posed difficulties. Another challenge was the presence of diseases. While the field team took great effort to avoid mosquito bites and maintain good food and water hygiene, one student caught dengue while another caught typhoid. Both students fully recovered after treatment in Phnom Penh.

**3. Briefly describe the three most important outcomes of your project.**

The three most important outcomes of the project were:

1. The 83 reptile and amphibian species recorded at the three locations studied in Phnom Samkos have greatly improved understanding of herpetological diversity and distributions at the wildlife sanctuary. These results, and the large number of new records and discovery of four species new to science in particular, have clearly demonstrated the international importance of the Phnom Samkos for biodiversity and highlight the need for continued efforts to improve understanding of its conservation status and management needs (see section 9).
2. As there is a great need to build conservation capacity in Cambodia, training of students through field work was central to the project approach. In this context, as the two MSc students involved in the project are now employed by the Centre for Biodiversity Conservation at the RUPP, and as many of the eight undergraduate students also involved intend to become biology teachers, all of young Cambodians trained by the project will be well placed to pass on their new knowledge and skills to benefit even more students in the future.
3. Data generated by the project is being analysed to confirm what areas at Phnom Samkos should be accorded priority for conservation. On completion, these results will be submitted for peer-review publication, as will all of the new country records and taxa new to science which are now being described in separate papers. These outputs will be provided to the Phnom Samkos management committee and Ministry of Environment for decision-making purposes and shared

with other stakeholders. The new information will also be used to assist the IUCN to assign correct categories of threat at a forthcoming international 'red list' workshop in China.

**4. Briefly describe the involvement of local communities and how they have benefitted from the project (if relevant).**

Over the course of the project, thirteen individuals from the Cheuteal Chrum and Tumpor villages of Phnom Samkos Wildlife Sanctuary were hired as field guides, porters and assistants. Aside from receiving field salaries, many of these gained a better understanding of reptiles and amphibians at the site. Before their involvement for instance, local people had never heard of a gliding gecko or seen a water skink, had thought caecilians were blind snakes and that tadpoles remained tadpoles and never became frogs. In addition, many were unaware of the Cambodian names for species they had seen before or how to recognise similar looking but different species. These misunderstandings gradually disappeared over the course of the field work and many camp discussions. As a result, the local people engaged by the project gained a better understanding of why reptiles and amphibian creatures are of conservation importance and deserve protection. I hope that they will share this understanding with their families, friends and neighbours to promote greater sympathy for nature conservation at Phnom Samkos.

**5. Are there any plans to continue this work?**

Yes - I plan to continue similar studies in other unexplored areas at Phnom Samkos and other biodiversity hotspots in Cambodia, though with some modifications to our sampling methodology. In a similar vein, I also want to continue building the capacity of young Cambodian students to develop their interest, knowledge and real expertise in the herpetological research and conservation.

**6. How do you plan to share the results of your work with others?**

On completion of each field trip, summary reports were delivered to the Phnom Samkos management committee and Phnom Penh Ministry of Environment. Alongside these reports, the projects results are now being written up as four manuscripts intended for peer-review publication with the following titles:

- 'A comparative herpetological study at Phnom Samkos Wildlife Sanctuary, Cardamom Mountains, Cambodia';
- 'First records of two reptile species (Gekkonidae: *Hemidactylus garnotii*, Viperidae: *Ovophis convictus*) from Cambodia';
- 'Three new species of Kukri snake *Oligodon* (Serpent: Colubridae: *Oligodon*) from Phnom Samkos Wildlife Sanctuary, Cardamom Mountains, Cambodia'; and,
- 'A new species of caecilian (Ichthyophidae: *Ichthyophis*) from Cambodia and Vietnam'.

Once completed, these papers will be shared with various departments in the Cambodian Ministry of Environment and Ministry of Agriculture, Forestry and Fisheries, and with conservation NGOs and any other interested parties. Press releases on the new species to science discovered by the project and highlighting Rufford Small Grant support will also be distributed to local newspapers and magazines upon publication of the species descriptions. In addition, field data generated by the project will be used in the near future to help the IUCN to assign correct categories of conservation threat to Southeast Asian snake species at an international 'red list' workshop in Beijing, China. Last but not least, the knowledge and materials developed by the project will be shared with students on

the MSc programme in Biodiversity Conservation at the Royal University of Phnom Penh where I teach a 2-week course in 'Ecological Survey Techniques' every year.

**7. Timescale: Over what period was the RSG used? How does this compare to the anticipated or actual length of the project?**

All of the activities originally planned were undertaken between July 2010 and February 2011, a period of seven months. However, as £730 still remained in the budget in February 2011, Ms. Jane Raymond very kindly allowed us to spend this on an additional field trip in late June 2011, so the project as a whole lasted 12 months.

**8. Budget: Please provide a breakdown of budgeted versus actual expenditure and the reasons for any differences. All figures should be in £ sterling, indicating the local exchange rate used.**

Items	Budgeted amount	Actual amount	Difference	Comments
Travel	960.00	938.04	-21.96	
Accommodation	360.00	350.26	-9.74	
Subsistence	2,132.00	2,163.80	+31.80	This small over spend was due to inflation and was balanced by other under spent items.
Consumables	407.00	436.47	+29.47	The small difference here was due to higher than anticipated costs for batteries and torches.
Equipment	780.00	770.92	-9.08	
Preserving materials	168.00	156.77	-11.23	
Communication	60.00	59.99	-0.01	
Medical insurance	240.00	230.74	-9.26	
<b>Total</b>	<b>5,107.00</b>	<b>5,107.00</b>	<b>0.00</b>	

**9. Looking ahead, what do you feel are the important next steps?**

Once we complete comparative analysis of the project data, I will select one of the confirmed higher priority sites at Phnom Samkos to undertake follow-on studies on the ecology and survivorship of rarely recorded and poorly understood reptile and amphibian species there. As we now have a good dataset to help us understand some basic patterns in reptile and amphibian occurrence at the Phnom Samkos, I feel this is the logical next step for our conservation-orientated research. As part of this, I will encourage postgraduate and undergraduate students to complete their dissertations and research projects through the field programme. In each case, the students will be helped to select target species, formulate appropriate research questions and methods and analyse results with supervision from myself and other experts. The students will also be taught how to identify species and helped to prepare their results as manuscripts for publication. As in the present project, the results of these studies will be freely shared with the Phnom Samkos management committee and all other interested parties in Cambodia and overseas.

**10. Did you use the RSGF logo in any materials produced in relation to this project? Did the RSGF receive any publicity during the course of your work?**

The RSGF logo was used in a presentation entitled 'Recent research initiatives: Results from herpetological studies in the Cardamom Mountains of southwest Cambodia' which was delivered at

the annual meeting of the Southeast Asian chapter of the Association for Tropical Biology and Conservation in Thailand in March 2011. As one of very few contributions from Cambodia at the conference, the presentation attracted a great deal of interest among participants. Over the course of the project, progress summaries and photographs were also sent to Ms. Jane Raymond for posting on the Rufford website. All of the project's collaborators, students and field assistants were informed about the RSGF, as were the Phnom Samkos management committee and Ministry of Environment. In addition, the RSGF's support will be highlighted in each of forthcoming peer-review papers now being prepared, as well as their associated press releases.

#### **11. Any other comments?**

First and foremost, I would like to thank the RSGF for supporting our project. This support resulted in significant new conservation values being discovered for Phnom Samkos Wildlife Sanctuary and gave many Cambodian students their first experience of field research. It also provided opportunities for many people to meet and collaborate for the first time through field work, project meetings, conferences, publications and email communication. Lastly, I would like to give my honest impression that the work of RSGF is very important as it provides opportunities to people worldwide to understand their biodiversity and combat its decline so we can share it with future generations.