Final Evaluation Report

Your Details	
Full Name	Pham Van Anh
Project Title	The diversity of the herpetofauna in Xuan Nha Nature Reserve, Son La Province, Vietnam
Application ID	31606-1
Grant Amount	£6000
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1. Indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

Objective	Not achieved	Partially achieved	Fully achieved	Comments
To provide an updated checklist of reptiles and amphibians in Xuan Nha Nature Reserve			■	41 species of amphibians and 66 species of reptiles were recorded for Xuan Nha Nature Reserve in this project. The herpetofauna of Xuan Nha Nature Reserve contains a high number of conservation concern species, including 12 listed in the Governmental Decree No. 06/2019/ND-CP, 19 listed in the Vietnam Red Data Book, 16 listed in the IUCN Red List, and 12 listed in CITES Appendices.
Discovery of new species or new distribution records of reptiles and amphibians for Vietnam and studied sites			■	One species, *Hemiphyllodactylus bonkowskii* represents a new record for Son La Province and 20 species of amphibians and reptiles are new records for the Xuan Nha Nature Reserve. Remarkably, *Monosomy coeruleum*, a recently described species from southern China, is recorded for the first time from Vietnam based on a single specimen from Son La Province.
To gather information about the ecology			■	Ecological notes for each species, in which determine the diet ecology of one species (*Polypedates megacephalus*).
Identification of important sites for conservation			■	Evergreen forests near Kho Hong Village, Chieng Xuan Commune; near Lay Village, Tan Xuan Comune; and Hin Pen Village, Chieng Son Comune.
Evaluation of major threats to the herpetofauna			■	Major threats to the habitat and populations of amphibians and reptiles in the Xuan Nha NR are deforestation resulting from agricultural activities, illegal timber logging, free grazing of cattle in the forest, road construction, and wildlife poaching for food and trade.
Providing			■	The directorates of Xuan Nha Nature

recommendations for conservation measures				Reserve referred to our research results for developing operation plans and fundraising for their nature reserve.

2. Please explain any unforeseen difficulties that arose during the project and how these were tackled.

The topography of Xuan Nha Natura Reserve is steep and mountainous, and elevations range from ca. 400 to 1,800 m, therefore, it was very difficult for moving and camping in the forest.

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

I. Our new findings bring the number of amphibian and reptile species in Xuan Nha NR to 107 belonging to 75 genera and 26 families, comprising 41 species of amphibians (24 genera, seven families) and 66 species of reptiles (51 genera, 19 families), with ecological notes for each species. Concerning its herpetofauna conservation status, Xuan Nha NR harbours a high number of threatened species: 19 species listed in the Red Data Book of Vietnam, with three species categorized as CR, 10 as EN, and six as VU; 16 species are listed in the IUCN Red List (IUCN 2021), with one species categorised as CR, seven as EN, seven as VU, and one as NT; 14 species listed in the Vietnam Governmental Decree No. 06/2019/ND-CP (2019), with two species included in Group IB and 12 in Group IIB; and 14 species listed in CITES appendices, with two species included in Appendix I and 12 in Appendix II.

II. 21 species are new records for Xuan Nha NR, one species revealed to be a new record for Son La Province, and one is recorded for the first time from Vietnam. *Gonyosoma coeruleum* was recorded for the first time from outside of China based on a single specimen collected from Xuan Nha Natura Reserve, Son La Province, Vietnam.

III. We discussed with directorates of Xuan Nha Nature Reserve about current threats to the biodiversity. We reported to the authority about relevant matters of forest protection and wildlife conservation that need to be improved in future.

4. What do you consider to be the most significant achievement of this work?

5. Briefly describe the involvement of local communities and how they have benefitted from the project.

- Before doing the field excursion, the head of the village and local guides were informed about the purposes of our work in the area. Three local guides joined in our night excursion. They help us to identify the survey sites, distribution location of reptile and amphibian species within protected areas. In addition, interviews were also made with local guides about their experience of wildlife use, their opinions about causes of the rarity or

disappearance of wildlife species, and how to protect them in the nature reserves.

- We also explained the importance of biodiversity and nature conservation during the interviews and field surveys.

6. Are there any plans to continue this work?

- I would like to conduct further field surveys on the population status, ecological, and threat assessment of threatened species reptiles and amphibians in Xuan Nha Nature Reserve. Application for 2nd RSG will be submitted to investigate the population status, ecological, and threat assessment of Ota's bent-toed gecko (*Cyrtodactylus otai*), an endemic species in north-western Vietnam of Xuan Nha Nature Reserve.

- We also are doing molecular analyses and diet ecology of some groups (e.g., frogs, geckos). Molecular data and diet ecology will be used for describing new species and understanding the ecology of reptiles and amphibians in Xuan Nha Nature Reserve.

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

- The report was submitted to the management boards of Xuan Nha Nature Reserve. Responses from management boards indicated that our report is an essential reference for preparing operation plans for this protected area in the future. We are willing to provide further technical support for biodiversity research and conservation in Xuan Nha Nature Reserve.

- Three manuscripts were submitted to peer-reviewed journals:
    - New records of amphibians from Son La Province, Vietnam submitted to Herpetology Notes.
    - Feeding ecology of the Big-Headed Treefrog, *Polypedates megacephalus* (Amphibia: Anura: Rhacophoridae), from north-western Vietnam submitted to Russian Journal of Herpetology.
    - The herpetofauna of Xuan Nha Nature Reserve, Vietnam was submitted to Amphibian & Reptile Conservation.

- Academic publications and press releases after that will attract the attention/investment of governmental agencies and non-governmental organisations about the conservation values of forests in Xuan Nha Nature Reserve.

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

The actual duration of the field work is 40 days with four field surveys were carried out in Xuan Nha Nature Reserve. Time schedule was fit with our proposed plan. In addition, we also concentrated full time on data analyses and writing manuscripts from May to November 2021. Therefore, the project was completed accordingly.

9. Budget: 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. It is important that you retain the management accounts and all paid invoices relating to the project for at least 2 years as these may be required for inspection at our discretion.

Item	Budgeted Amount	Actual Amount	Difference	Comments
Field supplies (batteries, plastic bag, camping supplies, chemical)	£896	£896		
Food	£1200	£1360	+£160	For an additional staff of the nature reserve who accompanied us on the field trips
Guesthouse	£720	£720		
Per diem (for local guides and porters)	£864	£1000	+£136	An extra payment for an additional staff of the nature reserve who accompanied us in the field trips
Motorbike hire for local travel	£720	£720		
Car rental	£1600	£1600		
TOTAL	**£6000**	**£6296**	**+£296**	

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

Investigation of the population status, ecological, and threat assessment of threatened species reptiles and amphibians is urgently needed to be conducted in Xuan Nha Nature Reserve. Management boards of this nature reserve encouraged us to do further field surveys, and more important to publish our research results to attract the attention of international and national agencies, in particular the provincial government.

11. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did the Foundation receive any publicity during the course of your work?

I used the RF logo for my presentations at the Tay Bac University and the University of Science, Vietnam National University, Hanoi. In addition, staff and local people in Xuan Nha Nature Reserve were also informed about the support of RF for biodiversity research and conservation through this project.

12. Please provide a full list of all the members of your team and briefly what was their role in the project.

Dr. Pham Van Anh. I worked as the leader taxonomist of the team, I participated in the field work design and in the accurate species identification both during the field work and from pictures collected by the monitoring teams. I worked as the leader in the implementation of citizen science activities.

Dr. Pham The Cuong from the Institute of Ecology and Biological Resources - Vietnam Academy of Science, a co-investigator of this project is an expert on phylogeny, biogeography, and conservation of reptiles and amphibians.

One young scientist from the Tay Bac University (**Mr. Sung Ba Nenh**) also participates in the field work, data analysis, and writing activities.

Mr. Toulor Vaxong participated in this research to collect the data for his's master theses. In addition, staff of two nature reserves will be trained in the following skills: 1) developing a survey plan, 2) selecting survey sites, 3) setting up survey transects in the forest, 4) data collecting in the field, and 5) species identification.

13. Any other comments?

- Specimen examination usually takes more time than previously assumed. Therefore, publications resulting from the project will be sent to RF in the future.

- We thank the Rufford Foundation for support of our biodiversity research and conservation in north-western Vietnam.