

Final Evaluation Report

Your Details	
Full Name	Nguyen Huyen Thuong
Project Title	Taxonomy and distribution of Dixonius (Squamata: Gekkonidae) in Luang Prabang and Khammouane, Laos
Application ID	31189-1
Date of this Report	February 24, 2022

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 conduct fieldwork in karst formations and surrounding areas of Luang Prabang and Khammouane provinces, Laos, to clarify the evolutionary process, habitat and morphological characteristics of <i>Dixonius</i> species				<p>We investigated karst mountain areas in Luang Prabang and Khammouane provinces. However, at the surveyed sites, no species of the genus <i>Dixonius</i> were detected. Therefore, the team expanded the survey area to Vientiane province and Vientiane capital. In Muang Fuang district of Vientiane province, we have collected three samples with unidentified species belonging to the genus <i>Dixonius</i>. After analysing this sample, we identified it as a new and published species as <i>Dixonius muangfuangensis</i>.</p> <p>In the capital Vientiane, our team also collected a few undetermined samples. However, these samples are still being analysed and processed.</p>
To evaluate the conservation status of <i>Dixonius</i> species and threats to the biodiversity of the study sites				<p>The new species was discovered in the grounds of a temple. In addition to the construction of sacred works such as pagodas, this is also a place where people gather to travel, greatly affecting the habitat and living environment of creatures.</p>
To recommend for conservation management in the protected area and buffer zones will be proposed				<p>In discussions and workshops, we provided relevant information and discussed conservation issues and impacts on habitats and habitats of species of the genus <i>Dixonius</i> and animals in general. Especially the karst areas, which are currently considered ideal habitats for species of the genus <i>Dixonius</i>, need more attention. Because these areas are often affected by humans such as construction of temples, traffic works, or limestone mining.</p>

To raise awareness for conservation among local stakeholders				We used poster to raise awareness for conservation among local stakeholder in workshops and communication not only in Laos but also at seminars in Vietnam.
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2. Describe the three most important outcomes of your project.

a). During the survey, we have discovered and collected a few samples of *Dixonius* that have not been identified with specific species. These specimens are being morphological analysed and molecular analysed to identify species and species composition.

b). At least one article on *Dixonius* species will be published in the end of this year. This article is in the process of being written and completed. As soon as the article is published, I will send it to you.

c). A seminar to share the results of the project will be hold including Laos international students and students studying at Vietnam National University Forestry.

3. Explain any unforeseen difficulties that arose during the project and how these were tackled.

Because of the Covid pandemic, the travel time to carry out fieldwork for the whole investigation team was longer than expected. We had to comply with the laws of the quarantine authorities of the Lao and Vietnamese Governments. Moreover, it was also difficult for us to move from one area to another to expand the investigation route. Therefore, the scope of the survey area was only in a few locations in the provinces of Luang Prabang, Vientiane, and the capital Vientiane.

4. Describe the involvement of local communities and how they have benefitted from the project.

N/A

5. Are there any plans to continue this work?

Currently, I am continuing to survey and investigate species of 7 genera (*Cnemapis*, *Cyrtodactylus*, *Dixonius*, *Gehyra*, *Gekko*, *Hemidactylus*, *Hemiphyllodactylus*) in the Gekkonidae family in Vietnam for my PhD thesis.

The survey results in Vietnam will be compared with previous survey results in Laos and neighbouring countries of Vietnam. This comparison aims to evaluate evolution as well as to assess how similarities and differences in habitat affect morphological characteristics and genetic variation of species of the Gekkonidae family.

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

I was sharing these results in seminars and conferences at VNUF - where I am continuing to study for a doctoral degree and at conservation conferences in the country as well as in Laos.

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

Although studies on *Dixonius* in Laos are still ongoing and focused. However, at present, there is no systematic study of the genus *Dixonius* in Laos that just only scattered studies in mountainous areas, limestone caves (a feature of the habitat of the genus *Dixonius* synthesized from previous studies). The system of distribution, habitat, influences, and effects of the environment as well as geographical barriers on genetic variation of this genus. Therefore, a comprehensive study of the genus *Dixonius* in Laos is essential.

8. 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?

Funding from The Rufford Foundation is the main source of funding for the project, so we always refer to The Rufford Foundation with gratitude for this valuable help in all project presentations.

The Rufford Foundation logo will be used in reports for seminars and workshops on animal research in Laos and Vietnam. In addition, The Rufford Foundation will also be mentioned in the Acknowledgment of the reports or presentations to thank the organisation for helping us to complete this project.

9. Provide a full list of all the members of your team and their role in the project.

No.	Name of team member	Position	Survey areas
1	- Nguyen Huyen Thuong - Saly Sitthivong - Vilay - Sonephet - Anousit - Tuy	Team leader Team member Team member Supporter District officials Local people for guide	Luang Prabang
2	- Nguyen Huyen Thuong - Saly - Vilay - Khamphone - Bounchanh	Team leader Team member Team member District officials Local people for guide	Khammouane
3	- Nguyen Huyen Thuong - Saly - Vilay - Souliya	Team leader Team member Team member District officials	Vientiane province and capital.

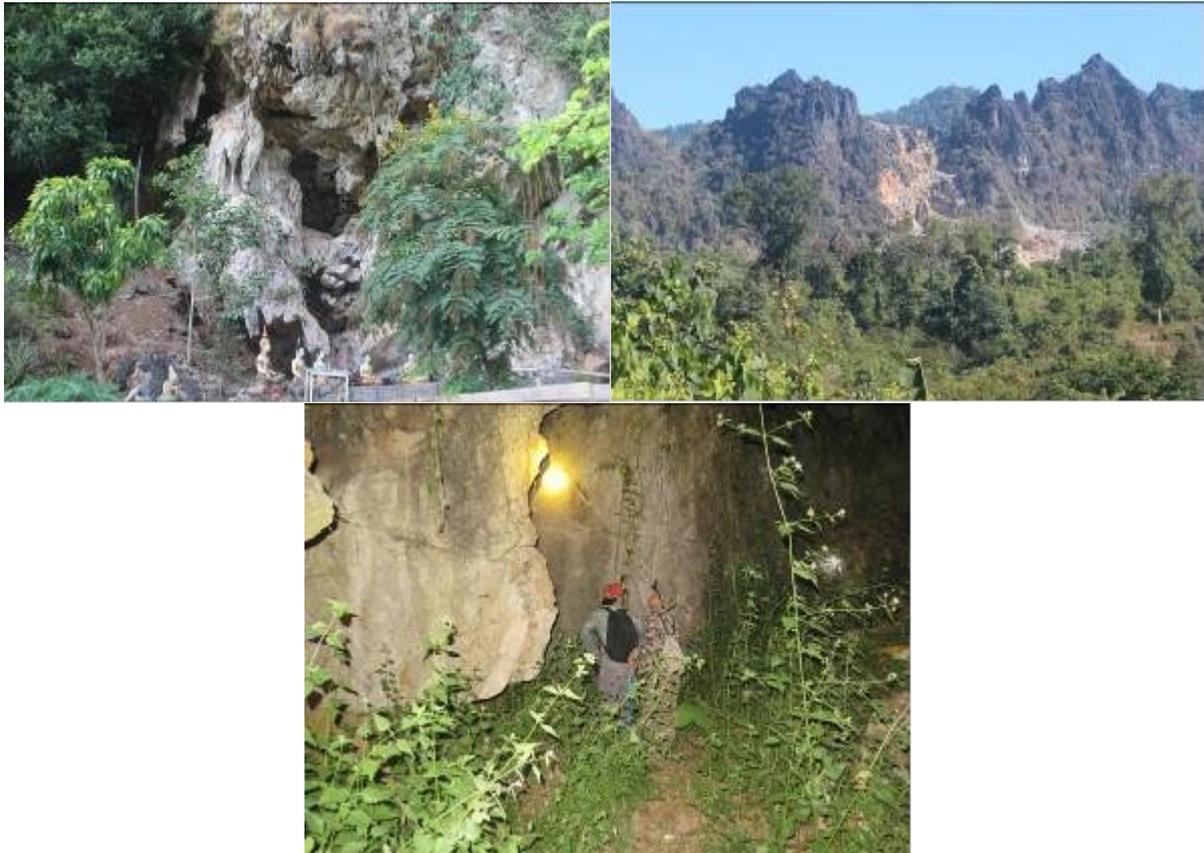
	- Khamla	Local people for guide	
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10. Any other comments?

I would like to share some photos of the project:

- Some images of *Dixonius* were collected by our team in Luang Prabang, Khammouane, Vientiane provinces, and Vientiane capital.





- Poster has showed at the National Scientific Conference on Herpetology in Vietnam and a workshop in reptile at Laos.





New discoveries of the Gekkonidae in karst formations from Laos (2019-2021)



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Subject and scope

- Research subject: Gekkonid species.
- Scope: Karst areas in some provinces of northern and central Laos.

Cooperating Partners

- National University of Laos (Lao PDR)
- Vietnam National University of Forestry (Vietnam)
- Cologne Zoo / University of Cologne (Germany)
- Institute of Ecology and Biological Resources, Hanoi (Vietnam)
- University of Science, Hanoi (Vietnam)

Achievements

- 28 gecko species recorded in the study areas
- 6 new species to science published in academic journals
- 2 new provincial records of geckos from Udonxay Province
- Reviews on morphological characteristics and genetic relationships of the 3 genera *Cyrtodactylus*, *Dixonius* and *Gekko* from Laos

Study Sites in Laos

- Vientiane
- Khammouane
- Xiangkhong
- Luangprabang
- Dudomxay
- Houaphane





**Six new species of the Gekkonidae
from Laos (2019-2021)**



Karst Habitat

WORKING TEAM

Saly Sithivong, Nicole Schneider, Thuong Huyen Nguyen, Vinh Quang Luu, Truong Quang Nguyen, Minh Duc Le, Hanh Thi Ngo, Ngoan Van Ha, Oanh Van Le, Tharanh Khotpathoom, Alexandre Teynié & Thomas Ziegler





