

Final Evaluation Report

We ask all grant recipients to complete a project evaluation that helps us to gauge the success of your project. This must be sent in **MS Word and not PDF 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 – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Please DO NOT fill in and submit this form until the project has been completed.

Complete the form in English. Note that the information may be edited before posting on our website.

Please email this report to jane@rufford.org.

Your Details	
Full Name	Tran Van Dung
Project Title	Assessing Home Range, Microhabitat Selection, and Raising Community Awareness for Conservation of the Threatened Guangxi Warty Newt in Northern Vietnam
Application ID	44846-D
Date of this Report	10/12/2025

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 estimate home range and movements of the GWN in Phia Oac – Phia Den (POPD) NP by using modern transmitters.				The objective was successfully achieved using modern radio-telemetry. We deployed 10 Holohil BD-2 transmitters and tracked 50 GWN (45 retained for analysis) across two sites from December 2024 to March 2025. Home range and movement differed markedly between Quang Thuong and Hoai Khao, likely reflecting habitat variation, with males and females showing broadly similar movement scales.
to assess microhabitat selection of the GWN in Phia Oac – Phia Den NP.				We tracked 10 warty newt individuals for five continuous days at two sites—Quang Thuong and Hoai Khao—within POPD NP between December 2024 and March 2025. For every observation, we documented the microhabitat features where each newt was found. Altogether, microhabitat conditions were examined at 200 distinct locations for GWN.
to enhance capacity in warty newt conservation among the staff of Phia Oac – Phia Den NP.				We conducted a training session for seven staff members from the Department of Science of POPD NP on 3 days, from 13 to 15 May 2025. The training focused on using radio-tracking techniques to monitor the warty newt. In particular, four park staff took part in 25 field survey days to practice operating the radio-tracking equipment, with five survey

			days each month from December 2023 to March 2024. All participants successfully passed the post-training assessment.
to raise awareness on newt conservation for local communities, including students in primary schools.			We held 10 conservation meetings in the villages of Thanh Cong, Na Puc, and Ban Sang (Thanh Cong Commune); Ban Hoc and Ban Xa (Phan Thanh Commune); as well as Coc Bo, Lung Muoi, Pac Thay, Na Lung, and Na Lua (Quang Thanh Commune), engaging more than 300 community members. In addition, we delivered an outreach program for nearly 150 students at Thanh Cong Primary School. We distributed 10 posters and 150 t-shirts to the staffs of NP and villagers.

2. Describe the three most important outcomes of your project.

a) Home range and movements of the GWN in POPD NP

To assess the home range and movement of the GWN, we deployed ten Holohil BD-2 radio transmitters (1.4 g) and used an IC-R10 receiver with four-element fixed Yagi antennas. We tracked five individuals in Quang Thuong and five individuals in Hoai Khao during each monitoring session, following individuals continuously for five consecutive days. Monitoring was conducted between December 2024 and March 2025. In total, 50 individuals were monitored (19 females and 31 males). However, five individuals were lost during tracking, so home-range and movement analyses were based on 45 individuals.



Figure 1. Principal investigator monitored warty newts using radio tracking in POPD NP.



Figure 2. A warty newt was attached a transmitter.

In Quang Thuong, estimated home range sizes ranged from 0.10 to 20.77 m² (mean = 1.39 m²). Daily movements ranged from 0 to 9 m, and total movement over five consecutive days ranged from 0 to 13.45 m (mean ≈ 3.2 m).

In Hoai Khao, estimated home range sizes ranged from 0.09 to 68.79 m² (mean ≈ 13.12 m²). Daily movements ranged from 0 to 12 m, and total movement over five consecutive days ranged from 3.58 to 97.76 m (mean = 28.47 m). The observed differences in home range and movement between sites are likely associated with habitat differences between Quang Thuong and Hoai Khao.

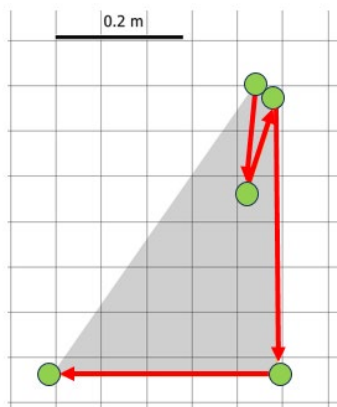


Figure 3. Home range (grey shaded area) and movement paths (red arrows) of a newt in Quang Thuong, January 2025.

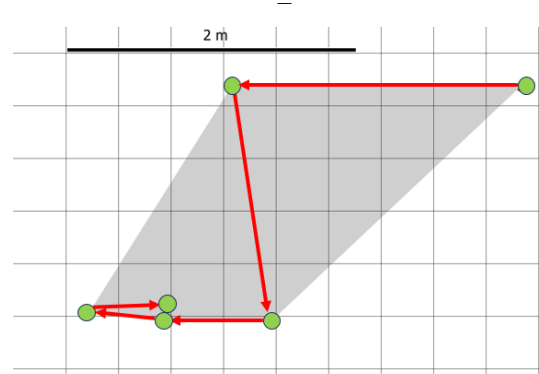


Figure 4. Home range (grey shaded area) and movement paths (red arrows) of a newt in Hoai Khao, January 2025.

Male warty newts had estimated home ranges of 0.10–37.78 m² (mean = 6.17 m²). Their daily movements ranged from 0 to 10 m, and total movement over five consecutive days ranged from 0.42 to 33.50 m (mean = 8.58 m).

Female warty newts had estimated home ranges of 0.02–68.76 m² (mean = 8.75 m²). Their daily movements ranged from 0 to 12 m, and total movement over five consecutive days ranged from 0.40 to 30.00 m (mean = 9.56 m).

b) Microhabitat selection of the GWN in POPD NP

Each month, we monitored 10 GWN individuals for five consecutive days at two sites in POPD NP—Quang Thuong (22.620865, 105.876398) and Hoai Khao (22.578167, 105.923722). Whenever a newt was detected, we recorded its microhabitat characteristics.

Table 1. Microhabitat conditions of warty newt streams: Quang Thuong vs. Hoai Khao (from Dec/2024 to Mar/2025)

Location	Elevation	Month	Stream Width (m)	Depth (m)	Canopy cover (%)	Water temp (°C)	pH	TDS (ppm)	EC (µS/cm)
Quang Thuong	1024	Dec	1-1.4	0.15-0.80	70-80	10.3-14.5	7.0-9.1	16-21	21-47
		Jan	1.3-1.6	0.10-0.50	60-75	10.0-13.1	7.0-9.8	10-19	16-29
		Feb	1.5-2.0	0.10-0.50	60-65	8.0-14.6	9.1-10.8	9-27	14-37
		Mar	1.5-1.8	0.03-0.35	60-65	12.5-16.7	8.6-9.9	11-27	27-37
Hoai Khao	749	Dec	3.8-5.0	0.22-0.90	0	13-15.5	8.2-9.5	61-68	37-127
		Jan	3.0-5.5	0.14-0.40	0	10.0-14.1	8.9-9.7	7-62	20-137
		Feb	3.0-4.0	0.23-0.30	0	9.0-15.9	8.7-9.8	10-87	10-127
		Mar	4.5-5.0	0.03-0.35	0	12.7-17.6	8.8-9.6	27-77	27-147

Notes: EC = electrical conductivity; TDS = total dissolved solids.

Warty newts were recorded in two very different stream microhabitats. At Quang Thuong (1,024 m elevation), newts were found in small, shallow forest streams that were only about 1.0–2.0 m wide and generally less than 0.8 m deep, with high canopy cover (60–80%), indicating shaded, closed-canopy conditions. The water in these sites was cool (approximately 8.0–16.7°C), with neutral to slightly basic pH (about 7.0–9.9), and had very low mineral content, shown by low total dissolved solids (around 9–27 ppm) and low conductivity (about 14–37 µS/cm). By contrast, at Hoai Khao (749 m elevation), newts were recorded in wider streams (about 3.0–5.5 m across, up to ~0.9 m deep) that were completely unshaded (0% canopy cover). Water there was slightly warmer overall (around 9.0–17.6°C), still basic (pH ~8.2–9.7), but with much higher dissolved solids (up to 87 ppm) and higher conductivity (up to 147 µS/cm), indicating more mineral-rich water. These observations show that warty newts can occupy both cool, shaded, low-conductivity headwater-type streams and more open, wider, mineral-rich streams with no canopy cover.



Figure 5. The habitat of GWN in Quang Thuong



Figure 6. The habitat of GWN in Hoai Khao

We also classified the substrate at each site where newts were recorded as: bedrock/rock (>256 mm), coarse gravel (≈16–256 mm), fine gravel (2–16 mm), organic matter (leaves/wood charcoal), sand (<2 mm), and soil (Moseley, 2008; Garey, 2024).

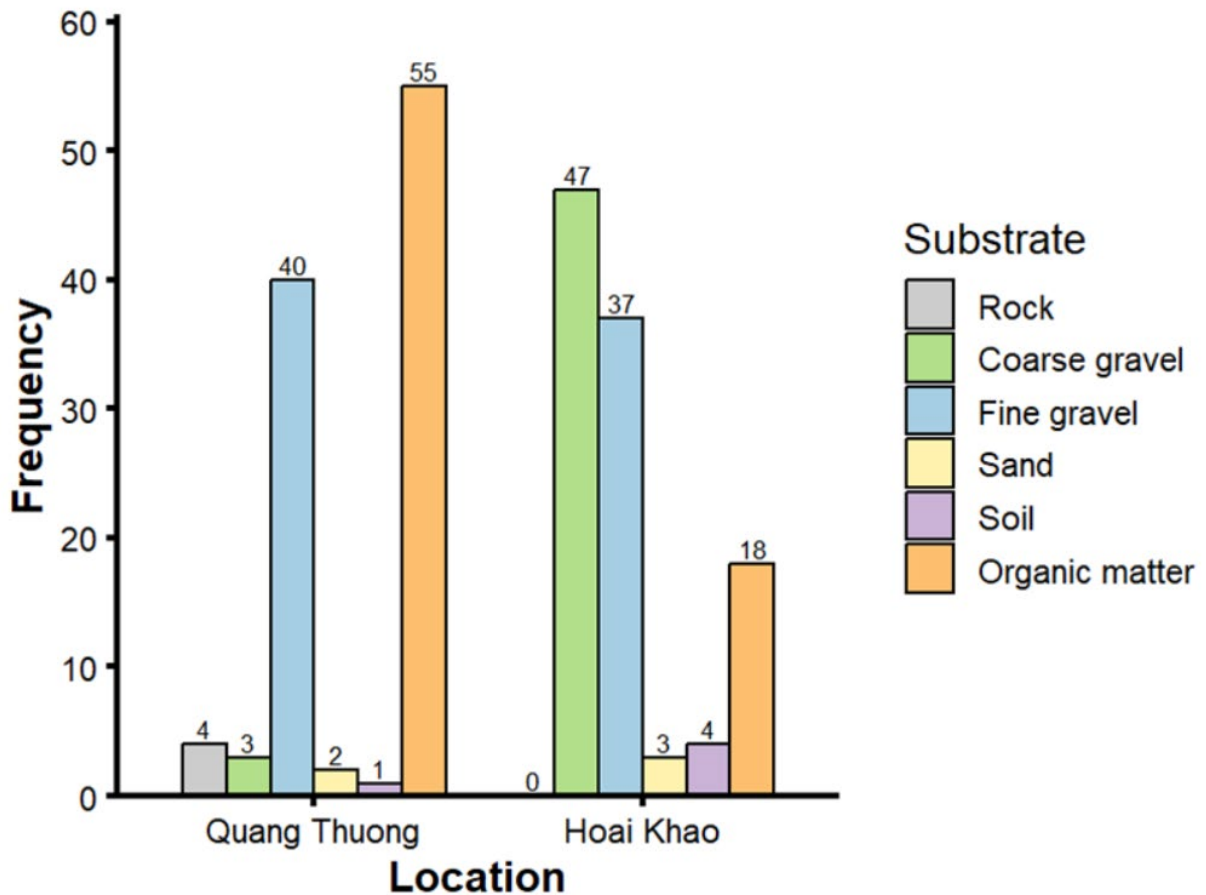


Figure 7. Frequency of Substrate Types Used by Warty Newts at Quang Thuong and Hoai Khao

At Quang Thuong, most newt observations were on organic matter (55 records) and fine gravel (40 records). Other substrates were used only rarely: rock (4 records), coarse gravel (3 records), sand (2 records), and soil (1 record). This pattern suggests that newts at Quang Thuong tend to select softer, covered, and moisture-retaining substrates such as leaf litter and fine gravel.

At Hoai Khao, most observations were on coarse gravel (47 records) and fine gravel (37 records), with fewer records on organic matter (18 records), soil (4 records), and sand (3 records). No individuals were recorded on rock at this site (0 records). This indicates that newts at Hoai Khao are more often associated with gravel-based substrates, including coarse gravel.

Overall, these data suggest that newts are using different dominant substrates at each site: mainly organic matter and fine gravel in Quang Thuong, versus mainly coarse and fine gravel in Hoai Khao. This implies microhabitat selection is site-specific.

c) Raising capacity in warty newt conservation for staff of POPD NP and awareness of local communities.

To enhance capacity in researching for staff of POPD NP, we organized a training for seven staff in the Department of Science, Phia Oac – Phia Den NP. In the training, we trained for the using radio tracking to monitor the warty newt. Especially, four staff of the NP participated in 25 surveyed days to practice using radio tracking equipment for monitoring, including Mrs. Hoang Thi Nha, Mrs. Hoang Le Mien, Mrs. Duong Thi Thieu and Mr. Nong Minh Hoan. Additionally, with the request from the NP, we also help trained using camera traps for monitoring wildlife animals in the the NP. After the training, all the staff passed the post-training test.



Figure 8. The training course for using radio tracking to monitor warty newt



Figure 9. A participant of the training course practiced in the field

To raise awareness among local communities, we conducted conservation meetings in the villages of Thanh Cong, Na Puc, and Ban Sang (Thanh Cong

Commune); Ban Hoc and Ban Xa (Phan Thanh Commune); and Coc Bo, Lung Muoi, Pac Thay, Na Lung, and Na Lua (Quang Thanh Commune), with the participation of more than 300 local residents. We also organized an outreach session for nearly 150 students at Thanh Cong Primary School. Following these activities, all participating community members and students expressed their commitment to protecting the warty newt and other wildlife species in POPD National Park.



Figure 10. A conservation meeting organized in Coc Bo village of buffer zone of POPD NP

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

The project was implemented following proposed planed.

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

Local communities were central to the project and gained skills and knowledge. Four local guides—Mr. Duong Van Hau, Mr. Duong Van Ly, Mr. Hoang Van Huan, and Mr. Ban Tuan Truong—supported about 50 survey days, improving their field experience. Staff from Phia Oac–Phia Den National Park (POPD NP) joined training on radio-tracking and practiced the method during field surveys, building their research capacity. About 300 community members attended awareness meetings on newt conservation, and over 150 primary school students took part in a conservation event. These activities increased local understanding of the species and encouraged community support for protecting wildlife in POPD NP.

5. Are there any plans to continue this work?

Protecting the GWN's habitat is the top priority. An urgent conservation plan is also needed for the warty newt, not only in POPD National Park but across northern Vietnam.

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

The results of the project have been shared with POPD National Park, as well as with students at the Vietnam National University of Forestry. We are also preparing a manuscript for submission to a scientific journal.

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

Key next steps are to (1) extend telemetry across additional seasons (especially breeding vs. non-breeding) to capture full annual space use; (2) strengthen anti-poaching patrols around the protected area; and (3) use the results to develop site-specific management guidelines and long-term monitoring protocols for PO-PD NP.

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?

We displayed the Rufford Foundation logo on all project materials used in surveys, community meetings, and lectures at the Vietnam National University of Forestry (VNUF). Several VNUF students and POPD NP staff asked how to apply for the grant, and we were happy to share the application information.

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

- Dr. Tran Van Dung (Principal Investigator): Led all phases of the project—liaising with local authorities, conducting field surveys, running awareness activities, analyzing data, and writing the report.
- Mr. Giang Trong Toan (Member): Supported the field surveys.
- Ms. Nguyen Thi Hoa (Member): Took part in field surveys and helped run meetings with local communities and students.
- Mr. Trieu Van Duong (Member; POPD NP staff): Participated in field surveys and community meetings.
- Ms. Hoang Thi Du (Additional member; VNUF): Assisted with community meetings.

10. Any other comments?

We thank the Rufford Foundation for funding this project. We are also grateful to Phia Oac–Phia Den National Park and the local communities of Cao Bang Province for granting permission and supporting implementation. Below are some photos from the project.





ANNEX – Financial Report
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