

## TERMS OF REFERENCE

### **One national consultant to develop a strategic plan to mitigate impacts from cardamom cultivation to the habitat of Tonkin snub-nosed monkeys in Quan Ba district, Ha Giang province**

## **I. BACKGROUND**

### **1. Fauna & Flora International (FFI) - Vietnam Primate Programme**

FFI's mission is to conserve threatened species and ecosystems worldwide, choosing solutions that are sustainable, based on sound science, and which take into account human needs. FFI's strategy to achieve this mission is to work with in-country organizations at all levels to support them in identifying and implementing country led sustainable solutions.

The strategic goal of the FFI Vietnam Primate Programme is to identify primate populations in most need of conservation interventions and provide strategic species-focused conservation in the field, based upon sound science and participation of local communities and other relevant stakeholders.

Currently, the programme has established long-term primate-focused conservation projects at seven locations in Vietnam that maintain important populations of Critically Endangered primates. These species include Cao Vit gibbon at Trung Khanh District in Cao Bang Province, Tonkin snub-nosed monkey in Ha Giang Province, Western black-crested gibbon in Mu Cang Chai District of Yen Bai Province and Muong La District of Son La Province, Delacour's Langur in Kim Bang District of Ha Nam province, Cat Ba langur in Hai Phong province, Grey shanked-douc langur in Kon Plong of Kon Tum province, and Northern white cheeked gibbon and Saola in Pu Mat National Park of Nghe An province.

### **2. Tonkin snub-nosed monkey conservation status**

The Tonkin snub-nosed monkey (*Rhinopithecus avunculus*) was first identified in 1912 and once occupied in forests across much of the north east of Vietnam. However, loss of much of its forest home and direct hunting for both local consumption and the trade in traditional medicines have resulted in a dramatic decline of the species, with only some small sub-populations now remaining and a global population of less than 200 individuals. Tonkin snub-nosed monkey (TSNM) is extremely rare and listed as Critically Endangered in the IUCN Red List of Threatened Species<sup>1</sup> and one of the world's 25 most endangered primates 2016 – 2018 (Schwitzer et al., 2016). In 2002, FFI identified and started protection of the largest known sub-population at Khau Ca Species and Habitat Conservation Area (SHCA) in Bac Me and Vi Xuyen districts, Ha Giang province. Since then the site has received formal legal protection, and our concerted protection efforts have enabled this population of Tonkin snub-nosed monkey to stabilize, and to start to increase from under 90 animals to over 130 animals.

In 2007, FFI's field survey confirmed the presence of TSNM in watershed protection forests of Tung Vai – Cao Ma Po – Ta Van communes (called Tung Vai forests in short) of Quan Ba district, Ha Giang province (Le Khac Quyet, 2007). So far, these forests become home of the second largest sub-population of Tonkin snub-nosed monkeys in Vietnam and in the world

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<sup>1</sup> The IUCN Red List of Threatened Species. Version 2017-3. <[www.iucnredlist.org](http://www.iucnredlist.org)>. Downloaded on 11 March 2018.

with 15-21 individuals (Nguyen Van Truong et al., 2016). The total area of this watershed protection forest is 10,211.8 ha but the forest area where TSNMs live is approximately 5,000ha. The habitat of TSNM sub-population consists of two main forest types, which are sub-tropical evergreen broadleaf forest and limestone evergreen forest located at elevations between 1,000 and 1,700 meters above sea level (Trinh, 2015; Nguyen, 2017). Recent study by Nguyen (2017) revealed that the majority of forests was degraded due to selective timber logging and clearance of forest for cardamom and *Lysimachia* cultivation. There are no rich intact forests left, only remaining medium forests degraded with three canopies, poor forest with canopy broken in large spaces, and regenerating forest.

The sub-population of TSNM in Tung Vai forests is under considerable threats of illegal logging and hunting, habitat loss, cardamom growth, NTFP collection, construction of Vietnam-China border patrolling road and bomb scanning/mine clearing in frontier area<sup>2</sup>. Due to small population size of TSNM, threats in Tung Vai forests are placing these TSNMs on the brink of extinction. Our challenge is now to replicate successful conservation approach in Khu Ca forests for Tung Vai forests in Quan Ba district, Ha Giang province.

### 3. Cardamom and Ling xiang cao cultivation and their impacts to forests

Tung Vai forests are categorized as protection forest not special-use forest and therefore it is outside of the protected area network. As said above, Tonkin snub-nosed monkeys are facing a number of terrible threats, and the most severity is the cultivation of **Cardamom** and **Ling xiang cao** under natural forest canopy.

**Cardamom (*Amomum tsaoko*)** is, an understory plant belonging to family Zingiberaceae, cultivated for its spicy seeds. According to Trinh (2015), Chinese traders introduced cardamom growth in Tung Vai – Cao Ma Po – Ta Van forests about 55 years ago. As far as of 1994, local authorities facilitated a program to plant this species to replace and stop opium cultivation. Cardamom is cultivated under forest canopy in moist valleys and slopes with fertile soil with a low proportion of rocks of Tung Vai – Cao Ma Po – Ta Van communes. Cardamom harvest starts after four years of plantation, occurs from July and September every year, and remains to 10<sup>th</sup> year. However, cardamom is vulnerable to natural disasters. Loss of natural forest cover due to logging and expansion of cardamom fields, making the forest canopy thin and could not help prevent natural disasters occurred. In 2016, hoar frost caused the death of cardamom trees in many places and ultimately, the cardamom yield dramatically reduced at that time (Nguyen Huu Dung, pers.com, 2018). Nguyen (2017) reported that cold weather occurred in this area in 2016 caused loss and damage of about 420 ha cultivation area and failure of Cardamom and *Lysimachia* crops.

**Ling xiang cao**<sup>3</sup>, also called as **Lysimachia** (*Lysimachia foenum-graecum*), (hereafter refer to as *Lysimachia*), is a scented perennial herb of the family Primulaceae, planted under forest canopy. Trinh (2015) said that *Lysimachia* could be grown on any type of soil and terrain, even on the steep limestone slopes. Once planted, the herb can be harvested after four to six months. Harvest frequency is from two to four times per year, depending upon habitat and economic need, and normally from March to April and from September to November. As the

<sup>2</sup> Nguyen Xuan Dang and Nguyen Xuan Nghia (2017). Identification of priority habitat for long-term conservation of remaining population of Tonkin snub-nosed monkeys (*Rhinopithecus avunculus*) in Quan Ba district, Ha Giang province, Vietnam

<sup>3</sup> <http://www.naturalmedicinalherbs.net/herbs/l/lysimachia-foenum-graecum=ling-xiang-cao.php>

same as cardamom, *Lysimachia* is vulnerable to natural disasters too. Snow in November and December 2013 and 2014 resulted massive death of *Lysimachia* (Trinh, 2015).

### **Impacts of cardamom and *Lysimachia***

The main impacts of cardamom and *Lysimachia* coming from cultivation and postharvest preservation. In order to cultivate cardamom and *Lysimachia*, local people have to cut tree selectively to reduce forest cover of the top layer to 40-60% (Trinh, 2015). As the result, forest gaps and discontinuous canopy are being created and challenge for the movement of arboreal animals like TSNM. Thinning forest and clearing understory vegetation to plant cardamom and *Lysimachia* will take away shelter and food sources of wild animals, eliminate seedling generation and degrade biodiversity (Nguyen, 2016). During the harvest time, local people use firewood cut and collected from the forests to dry their cardamom at the planting area. According to Le (2010) that to dry 100 kg of cardamom and *Lysimachia*, it consumed 0.6 and 0.3 cubic meter of fire wood respectively.

Trinh (2015) quoted the statistical data of Quan Ba Agriculture and Rural Development Division that total cardamom cultivation area of three communes of Tung Vai, Ta Van and Cao Ma Po was 1,257 ha, while *Lysimachia* cultivation area was 184.2 ha. Each hectare can give a yield of 1,200 kg of fresh cardamom, equivalent 120 kg of dry cardamom. Total yield of dry cardamom in these three communes is about 150 ton/year. The amount of firewood consumed to dry 150 ton of cardamom is approximately 905 m<sup>3</sup>.

### **4. The needs of developing a strategic action plan to reduce cardamom impacts**

All activities of thinning forest and clearing ground vegetation for cultivating cardamom, and cutting trees to meet the firewood demand to dry cardamom and *Lysimachia* causes forest degradation and reduced (or potentially no) natural regeneration, especially magnolia species. These impacts in turn all threaten the remnant TSNM population in Tung Vai (Dang et al., 2015). However, impact of *Lysimachia* cultivation to forest conservation and TSNM protection is not clear and less urgent as cardamom because the area of *Lysimachia* cultivation is much smaller and the expansion of *Lysimachia* cultivation is much more dependent on market drivers.

FFI is expecting to have a strategic action plan, built upon abundant data and information from its previous cardamom studies, on how to minimize negative impacts of cardamom cultivation to Tung Vai forests to protect some remaining TSNM and their habitat for long-term conservation results.

## **II. OBJECTIVE**

The overall project goal is to secure the second largest sub-population of the Critically Endangered Tonkin snub-nosed monkey for long-term conservation.

The objective of this assignment is to minimize immediate negative effects of Cardamom cultivation to the critical habitat of TSNM in Quan Ba district, Ha Giang province.

## **III. DELIVERABLES**

It is expected the consultant to deliver the following outputs:

- A clear and well-structured strategic plan to reduce negative impacts of Cardamom and *Lysimachia* cultivation to TSNM habitat in Tung Vai forests in English and

Vietnamese. The strategic plan will cover and address but not necessarily be limited to the followings:

- + Review of current status of cardamom cultivation in Cao Ma Po, Ta Van and Tung Vai forests (including number of households planting cardamom and *Lysimachia*, total area of cardamom, intended extension area of cardamom, forest types where cardamom cultivated, yield, value, drying methods, etc.);
- + Specific actions for immediate and long-term solutions to reduce impacts of cardamom to forests via changes to where and how the cardamom is grown, harvested and processed;
- + The above activity will include the design a pilot project, to be implemented by FFI immediately after this consultancy finishes, to bring about a measurable and replicable reduction in cardamom-driven habitat loss (e.g. through 'quick-win' changes in seed stock, planting/harvesting and/or drying of the cardamom);
- + Improvement of value chain of cardamom. This includes assessment of and proposal for enhancement of cardamom productivity (intensification) and cultivation methods, improvement of cardamom quality, development of sustainable markets, improved market access and adding value, and to include the potential / role of certification;
- + Analysis and recommendations of harvest tools/techniques, post-harvest drying and storage technologies (e.g. high efficiency or electric drying furnace), economic loading;
- + Measures of sustainable cardamom development (M&E and appropriate indicators);
- + Alternative cultivation options e.g. medicinal plants to improve livelihoods for local people and replace cardamom;
- + Suggested approach and content of awareness raising campaigns;
- + Opportunities and options to involvement of relevant stakeholders, including potential for developing sustainable cardamom collectives or cooperatives (i.e. as method of collective bargaining / price setting).
- Distribution maps of cardamom cultivation areas and intended areas for extension;
- A list of households, organizations or agencies cultivating, selling, trading and buying cardamom in Ha Giang and also key trade points, like urban centers;
- A short 8-10 page consultant report, in English and Vietnamese versions, describing / reviewing literature consulted, activities, outputs delivered, meetings organised, stakeholders consulted, and results achieved.

#### **IV. SCOPE OF WORK**

- The subject for study is under-canopy cardamom production in forest areas;
- The study area is located at three communes of Cao Ma Po, Ta Van and Tung Vai and their cardamom fields, Quan Ba district, Ha Giang province;
- Review previous studies on cardamom undertaken by FFI, SNV and other organisations and agencies (literature review);

- Undertake field visits to the sites to organise meetings, interview stakeholders and ground truthing of cardamom cultivation areas;
- Complete a strategic plan and final report to submit to FFI.

## V. METHODOLOGY

- Closely work with FFI technical staff to clearly understand the objective of the assignment and expected outputs at the beginning, and any steps during the contract period;
- Collect previous study reports, relevant Vietnamese and international journal papers, cardamom guides and manuals, review secondary data on cardamom, especially those in Quan Ba district, Ha Giang province, to complete a thorough literature review;
- Identify and make a list of stakeholders for consultation meetings;
- Identify strategic objectives and key results;
- Organise a series of consultation meetings with relevant stakeholders at village, commune and district levels to update current status of cardamom cultivation, identify challenges and needs;
- Conduct interview with relevant people in three communes of Cao Ma Po, Ta Van and Tung Vai and township of Quan Ba district, and field work to forests to support the identification of cardamom cultivation area, and analyse market chain of cardamom;
- Develop a strategy to eliminate negative effects of cardamom to TSNM habitat in Quan Ba based on results of meetings, interview, field visit and desk study;
- Develop distribution maps of cardamom cultivation areas.

## VI. IMPLEMENTATION PLAN

Task Assigned	Required Output	No. of working days: Consultant(s)
Develop a detail work plan, including methodology, field trip and time schedule for implementing this assignment.	A 3-5 page detailed work plan developed and submitted to FFI for discussion and approval.	01 day
Collect reports on cardamom studies to review secondary data; Identify and make a list of stakeholders for consultation meetings;	A draft strategic plan on mitigation of cardamom impacts to TSNM habitat, including a review and literature consulted	08 days

Identify strategic objectives and key results;  Prepare a draft strategic plan to mitigate impacts of cardamom based on abundance of existing data and information.		
Conduct interviews and organise consultation meetings with relevant stakeholders at village, commune and district levels to update status of cardamom cultivation, identify challenges and, analyse market chain, specify the needs.	Consultation meetings with relevant stakeholders at different levels delivered	06 days
Conduct a short field visit to Tung Vai forests, map and verify cardamom cultivation area based on existing data.	A short field visit conducted	14 days
Update the strategic plan after consultation meetings and field visit	A final draft strategic plan on mitigation of cardamom impacts to TSNM habitat updated and submitted to FFI for review	05 days
Finalise the strategic plan on mitigation of cardamom impacts to TSNM habitat based on FFI's comments	A final strategic plan on mitigation of cardamom impacts to TSNM habitat completed based on comments of FFI and submitted	04 days
Compile the consultancy report.	A consultancy report with maps submitted to FFI for approval.	04 days
<b>Total</b>		<b>42 days</b>

**Note:** All cost for field trips and consultation meeting will be covered by FFI. During the field trip, travel days are not included in remuneration.

## **VII. QUALIFICATIONS AND EXPERIENCE**

The consultant must have the following skills, qualifications and experience:

### **1. Agroforestry/cardamom expert**

The consultant is responsible for final products to submit to FFI for approval. He/she will act as focal point to communicate and work with FFI during the mission. He/she will coordinate his/her sub-ordinate to deliver specific tasks within this assignment.

- Advanced university degree (Masters or PhD) in one of the following fields: conservation biology, forest resources management, nature conservation, forestry or agriculture;
- At least 15 years of experience working on cardamom or similar crops, and related topics or projects;
- Knowledge of agricultural policy research and formulation;
- Good understanding of integrated development and conservation approaches;
- Very good understanding of non-timber forest products / shade grown crops, including and specially cardamom, including cultivation techniques, postharvest preservation, value chains and impacts to forest;
- Experience in natural resource management;
- Experience in the use of participatory tools such as PRA;
- Excellence in synthesis and analysis of a bundle of documents and data;
- Experience in market research, systems development, value chains and certification of agricultural / agro-forestry products;
- Basic skills and application of GIS and ground truthing;
- Fluent in spoken and written English;
- Strong ability in writing English technical report;
- Demonstrated experience in working with government partners and other stakeholders in the area of capacity development
- Experience in cardamom study in Quan Ba district is advantage.

## **VIII. ADMINISTRATIVE SUPPORT**

FFI will provide the consultant with the following support:

- An access to FFI's library to collect reports, papers and data of Tonkin sub-nosed monkey and cardamom studies;
- Administrative procedures to work in the field and FFI's local partners;
- All local cost for field trip following FFI's cost norms.



## IX. REMUNERATION CONDITIONS

- Remuneration will correspond with the qualifications and work experiences required for the post as referred to in Part VII of this TOR and FFI's cost norms.
- Payment of other related expenses including travel, field works and per diem of the consultant and local guide(s) accompanied will follow FFI's financial regulations and cost norms;
- Payment for the consultant will be discussed face to face before signing the contract.

## X. REFERENCE

Dang, T. L., Nguyen, H. D., Nguyen, D. T., & Nguyen, V. T. (2015). Results of community consultation and proposal of an intervention strategy for conservation of Tonkin snub-nosed monkeys and magnolia trees in Cao Ma Po, Ta Van and Tung Vai of Quan Ba district, Ha Giang province. FFI - Vietnam Programme, Ha Noi, Vietnam.

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Nguyen, V. T., Pham, C. L., & Le, T. D. (2016). Report of survey the population of Tonkin snub-nosed monkey at Tung Vai, Ta Van, and Cao Ma Po, Quan Ba district, Ha Giang province. FFI - Vietnam Programme, Ha Noi, Vietnam.

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Trinh, D. H., Nguyen, H. D., & Pham, C. L. (2015). Assessment of Cardamom and Lysimachia cultivation's impacts on conservation of the Tonkin Snub-nosed monkey and its habitats. FFI - Vietnam Programme, Ha Noi, Vietnam.