



UNIVERSITY OF SCIENCE  
HO CHI MINH CITY



## **Rufford Small Grants Conference Report**

(Vietnam January 30 – February 1, 2015)

Reported by Nguyen Hoai Bao & Tran Thi Anh Dao

### **1. Objectives of the RSG Conference**

The Rufford Small Grant Recipients Conference has been held during 31<sup>st</sup> January & 1<sup>st</sup> February 2015, at the University of Science, Vietnam National University - Ho Chi Minh City. It was organized by the Rufford Foundation, the University of Science in collaboration with Vietnam Wildlife Tours & Research.

The Rufford Small Grant Conference aimed:

- (1) Exchange knowledge, ideas, and experience in doing research;
- (2) Discuss about current research issues/challenges;
- (3) Create invaluable networking opportunities; and
- (4) Increase communication and information between Rufford Foundation and its grant recipients.

### **2. Conference proceedings**

Preparation for the Rufford Small Grant Conference carried out since October 2014. The online announcement of the Conference was delivered via emails of the Rufford Small Grant recipients and via the website: <http://rufford.vietnamwildtour.com/>. All information of the Conference, including background, agenda, guidelines, key contacts, logistics, registrations, and abstracts were updated online.

In total, 42 online applications with 23 topics and abstracts were submitted and 17 grant recipients participated and gave their presentations for the Conference. The presentation abstracts and schedule of the speakers during the Conference are presented (Appendix 2 & 3).

The Conference brought together around 40 participants from 4 universities, 3 research institutes, 6 organizations, and 3 countries (Nepal, Thailand, and Vietnam), including young researchers, lecturers, and undergraduate students (see Appendix 1 for list of participants). The conference has raised opportunity to provide a forum for many grant recipients and young researchers from different organizations, institutes. They met together, shared their success stories of the small grants and learn how to enhance their performance in doing researches and exploring the research results.

### **3. Some key impacts of Rufford Small Grants**

Most of the researches who received the Rufford grants were young and at the beginning of career period. Said by Luu Hong Truong, the Rufford small grants were seeds for growing up researchers. Among of 17 presentations discussed in the Conference, 10 topics were related to plants and wildlife conservation, 7 topics were related to ecosystem conservation and conservation education. These kinds of work were often difficult to fundraise for doing research.

Almost the topics shown the lack of biodiversity, distribution, and ecological information and incompetent staffs in Vietnamese protected areas. With supports from Rufford foundation, the status was improved. The data gaps were filled. Knowledge about biodiversity and ecological of the rangers and conservation staffs, and local people were enriched through the trainings.

The research on biodiversity in Takou Nature Reserve conducted by Luu Hong Truong was a good example for developing replicable models afterward. He could raise fund for 3 other projects for doing follow-up researches in Takou area.

The environmental education activities in northern Vietnam conducted by To Kim Lien and the using communication tools for bats conservation performed by Ly Quoc Dang were obviously gave foundation background about conservation for children, the next generation of conservationists. One undergraduate student were trained through research on flying foxes conducted by Vu Dinh Thong.

In total, there were at least 25 papers, 3 books, and a series of 7 volumes related to biodiversity conservation were published or being in progress for relevant journals as results of the discussed researches.

#### **1. Summary of Presentations**

The opening of the Conference was happened with welcome speeches of Prof. Dr. Nguyen Du Sanh, Dean of Biology Faculty and then Mr. Nguyen Hoai Bao, conference given an opening remark



Figure 1. Welcome speech by Dr. Nguyen Du Sanh



Figure 2. Opening by Nguyen Hoai Bao



Figure 3. Group picture

The first speaker, **Luu Hong Truong**, from Southern Institute of Ecology, presented about his study which supported by the Rufford Small Grant, in Takou Nature Reserve. He emphasized the data deficient status versus threats to biodiversity and medicinal plants and incompetent staffs in Takou Nature Reserve. He also mentioned about the 3 projects afterwards which helped him obtain great achievements in training the staffs and local people, providing a foundation data of biodiversity in Takou and publishing at least 10 papers, 2 books, and a series of 7 volumes will be published. He also emphasized roles of the Rufford Small Grant for the young scientists at the early career period as seeds of plants.

The second speaker, **JirapornTeampanpong** provided information about habitat use and behaviour of Oriental-pied Hornbill in the Tenasserim Western Forest, Complex Corridor, Thailand. After introduced Hornbills in Thailand, she talked about trees and fruits which the hornbills use as potential dwellings and foods. She also figured out the habitat use trends of the hornbills related to attitude, slope, distance from evergreen forest and from human disturbances, presence/absence of fruit trees and nest trees, crown cover and threats due to human.

One participant considered about toxin in one of the nest trees that showed in the presentation but the author were not sure about this issue. Answering questions mentioned about species richness and immigration of the Hornbills, **JirapornTeampanpong** said there were 13 species of Hornbill recorded in Thailand. These birds were associated with big trees and they moved between Thailand and Malaysia for food.

Another young ornithologist **Nguyen Hao Quang** concerned about genetic diversity in Red Jungle fowl in Vietnam. With many interesting sampling and data analysing methods, his results showed a status of metapopulation in Red jungle fowl in Vietnam. This chicken has a

small area of home range (less than 5 km). The results suggested a warning of threats of gene loss in other rare pheasants.

Nguyen Hao Quang gave more evidence for responding to a concern about hybrid species in Red Jungle fowl in the study area.

Moving to another group of flying animals, **Vuong Tan Tu** discussed on comparative phylogeography of bats in Southeast Asia. Information about species richness, endemic species, ecological roles, and threats of bats in the area were introduced. Causes of bat diversity and population declines were mentioned as well. Preliminary results from the phylogeography works reveals potential cryptic species complexes and new species. At least 3 papers about this data will be published.

**Vu Dinh Thong** discussed on another field of bat study. He talked about conservation of flying foxes in Vietnam. He emphasized the impressively increased in number of new species or new records in Vietnam during the last 2 decades. Lack of ecological information and bat conservation status, major threats, study approach, and problems in improper taxonomy of bats were mentioned. As results of these works, 3 manuscripts are preparing for national and international journals and 1 undergraduate student will finished by 10/2015.

**Hoang Mai Thach** spoke on the Tonkin Snub-nosed Monkey conservation activities in Na Hang Nature Reserve, Tuyen Quang Province, Vietnam. He gave information about habitats used by the monkeys and their highly threatened population status, and training program for rangers and CPG members in Na Hang. He also pointed out current threats to the monkey populations and weakness in conservation activities of Na Hang Nature Reserve's managers in the past decade.

On behalf of biologists who study on marine mammals, **Vu Long** represented his research on Cetaceans in Kien Giang Biosphere Reserve, Vietnam. He discussed on distribution, population, behaviour of whales and dolphins in Kien Giang, and knowledge of the local people about these marine mammals. The presentation was ended with expected to do more research on acoustic and genetic on dolphins and establish a network for collaboration.

**Nguyen Quang Truong** began his talk about herpetological exploration in northern Vietnam by two opposite outlooks, many new species of amphibians and reptiles have been discovered recently versus a number of species of these animals fall into threatened status. Causes of amphibian and reptile declines were figured out. Achievement that he obtained from his surveys was great with at least 5 new discoveries and 6 new records for Vietnam. These were or being in progress published on relevant journals.

**Nguyen Thi Thanh Thuy** discussed on solutions for sustainable management of mangrove and sea grass beds at Thuy Trieu Lagoon, Khanh Hoa Province, Vietnam. The serious destruction status of mangrove and seagrass beds in the area and their causes were recognized. The suggested solutions were co-management mechanism in which both the local people and the managers could get the best benefit through sustainable aquaculture and fishing activities; establishing a local volunteer guard team who take responsibility for

biodiversity conservation in exploiting the resources; and sustainable management zones within the study area.

**Le Mai Son** introduced remote sensing and GIS technology for monitoring mangrove forest rehabilitation in Can Gio. Changes of the mangrove forest and land use in the study area, over the time were recorded by satellite data such as dense forest areas expanding, agriculture land area converting into forest. This series of data could explain the human impacts on the forest and useful for management actions. In recommendation part, he suggested developing oriented tourism and concerning on economic and ecological aspects of the tourism model. After the presentation, he continue to make clear how to choose locations for data collection that based on map and observation in the field.

**Nguyen Duc To Luu** brought to the Conference his achievements in conifer trees conservation in Hoa Binh – Son La limestone corridor. He talked about diversity of conifers and highlight main threat to conifers in the study area, how he conducted the work in both in-situ and ex-situ approaches. Conifer club, one guidebook for conifer species and online data from the website: *thiennhien.net* are his successful.

After the talk, Nguyen Duc To Luu continue explained more details about activities of the conifer club. One idea of comparing how different in conifers in Xuan Nha, northern Vietnam and in Da Lat, a similar region in the south of Vietnam was suggested.

**Nguyen Van Toai** provided a case study of developing ecotourism in the Bu Gia Map National Park. He talked about diversity of landscapes, animals, and plants, harmony of local people living with the nature within the park, their customs and indigenous knowledge. He expected that both the local people and the national park manager could get benefits in cooperating in doing ecotourism in the park.

In discussion part, an idea about develop introducing plants which have special function for disease treatment for the program was suggested but Nguyen Van Toai said that idea was not applied in his project. Another concern about problems from announcement about any special function of a plant.

**Prabin Busal** introduced a case study of Agroforestry system in Nepal. He explained the agroforestry concept, why and how this system was set up in Nepal. The system could help to link the local farmers with the forest and agriculture officers. The officers could get technical and logistic supports and the local people could enrich their knowledge through activities of this system as well.

**Luong Quang Hung** discussed on how to enhance capacity of the provincial government and partners to promote conservation through education in Quang Nam Province, Vietnam. The results highlighted new concepts of collaboration of many departments, partners in assisting conservation activities in Vietnam and benefits in making decisions on natural resource conservation that the managers could get.

**To Kim Lien** introduced activities related to environmental education in northern Vietnam. She conducted workshops, programs, and trainings which help high school teachers and staff involved enhance their performance in teaching. She showed positive responding of teachers and student to her works as well. She ending her talk with challenges in expanding the program to many kinds of activities and in many places.

Responding to question concerned about experience and how to develop the activities in the future, To Kim Lien shared her wondering about disadvantages in curriculum developing, teachers and staffs training without supported funds. She also suggested should choose locations where have the same characters such as near to national park or protected area or buffer zones from her case for practice.

**Ly Quoc Dang** gave a case study for using communication tool in conservation education. He used bats conservation as objective of the education program. He explained what is conservation education, communication, and tools for communication before introduced the implementation strategies and shown the activities which attracted the local people and tourists' concern on the bat conservation.

In discussion part, Vu Dinh Thong gave more information about status and threats to populations of bats after a fire accident at the Bat pagoda where Ly Quoc Dang applied his research.

**Bernard Kervyn** talked about waste management issue in Vietnam. He point out problems of waste processing centers, transport and recycling waste cost and challenges in finding a good solution because there were lack of policy related to waste that could help reduce the use of plastic bags, waste dumping sites in rural areas, and encourage waste recycling.

Follow up the discussion, Bernad Kervyn and his colleagues discussed with Luong Quang Hung about details of the cost of recycling activities. Vuong Tan Tu considered about the following impacts on the environment after the recycling activities.



Figure 4. Presentation



Figure 5. Discussion



Figure 6. Field trip to Can Gio Biosphere Reserve

## Appendix 1. List of participants

| No. | Name                  | Nationality | Organization  |
|-----|-----------------------|-------------|---|
| 1   | Vu Thi Anh            |             | Thien Chi Centre for community support & development (Mekong Plus' partner) |
| 2   | Ly Quoc Dang          | Vietnam     | Mekong delta development research institute, Can Tho university             |
| 3   | Luong Quang Hung      | Vietnam     | RECOFTC - The Center for People and Forests                                 |
| 4   | Bernard Kervyn        | Germany     | Mekong Plus, HCMC   |
| 5   | Vu Long               | Vietnam     | Vietnam Marine Mammal Network   |
| 6   | Nguyen Duc To Luu     | Vietnam     | PanNature   |
| 7   | Nguyen Huu Nghia      | Vietnam     | Thien Chi Centre for community support & development (Mekong Plus' partner) |
| 8   | Bhusal Prabin         | Nepal       | ForestAction Nepal  |
| 9   | Nguyen Hao Quang      |             |   |
| 10  | Le Mai Son            | Vietnam     | Space Technology Institute (STI), Vietnam Academy of Science and Technology |
| 11  | JirapornTeampanpong   | Thailand    | Institute for Innovative Learning, Mahidol University                       |
| 12  | Hoang Mai Thach       | Vietnam     | Hanoi Social Sciences and Humanities, Vietnam National University           |
| 13  | Vu Dinh Thong         | Vietnam     | Hanoi   |
| 14  | Nguyen Thi Thanh Thuy | Vietnam     | Institute of Oceanography, NhaTrang   |
| 15  | Nguyen Van Toai       | Vietnam     | Bu Gia Map National Park  |
| 16  | Nguyen Quang Truong   | Vietnam     | Institute of Ecology and Biological Resources                               |
| 17  | Luu Hong Truong       | Vietnam     | Southern Institute of Ecology   |
| 18  | Vuong Tan Tu          | Vietnam     | Institute of Ecology and Biological Resources                               |
| 19  | Phạm Ngọc Dương       | Vietnam     | University of Science (Lecturer)  |
| 20  | Vu Thuy Duong         | Vietnam     | University of Science (graduated student)                                   |
| 21  | Phan Phu Hai          | Vietnam     | University of Science (graduated student)                                   |
| 22  | Huynh Kha Thao Dien   | Vietnam     | University of Science (graduated student)                                   |
| 23  | Nguyen Thi Mai Huong  | Vietnam     | University of Science (graduated student)                                   |
| 24  | Dinh Doan Hong Ngoc   | Vietnam     | University of Science (graduated student)                                   |
| 25  | Luong Thi My Ngoc     | Vietnam     | University of Science (graduated student)                                   |

|    |                     |         |  |
|----|---------------------|---------|--|
| 26 | Nguyen Bao Ngoc     | Vietnam | University of Science (graduated student)  |
| 27 | Ho Thi Tuyen Nhung  | Vietnam | University of Science (graduated student)  |
| 28 | Tran Thi Kieu Van   | Vietnam | University of Science (graduated student)  |
| 29 | Truong Thi Hong Yen | Vietnam | University of Science (student)            |
| 30 | Ha Nguyen Y Nhi     | Vietnam | University of Science (graduated students) |
| 31 | Nguyen Thi Lan Thi  | Vietnam | University of Science (Lecturer)           |
| 32 | Luu Thi Thanh Nhan  | Vietnam | University of Science (Lecturer)           |
| 33 | Le Cong Kiet        | Vietnam | University of Science (Lecturer)           |
| 34 | Nguyen Du Sanh      | Vietnam | University of Science (Lecturer)           |
| 35 | Nguyen Tri Nhan     | Vietnam | University of Science (Lecturer)           |
| 36 | Le Bui Trung Trinh  | Vietnam | University of Science (Lecturer)           |
| 37 | Nguyen Anh Minh     | Vietnam | University of Science (graduated students) |
| 38 | Pham Manh Hung      | Vietnam | University of Science (graduated students) |
| 39 | Tran Trong Ngan     | Vietnam | University of Science (graduated students) |
| 40 | Tran Thi Anh Dao    | Vietnam | University of Science (Lecturer)           |

## **Appendix 2. Presentation abstracts**

### **1. The Rufford Small Grants project 107.01.05 and follow-up activities at Takou Nature Reserve**

**Luu Hong Truong - Southern Institute of Ecology, Vietnam**

This paper presents achievements resulted from the project 107.01.05, which was carried out in between 2005 and 2006, and follow-up projects to build up capacity and empower the conservation of biodiversity at Takou Nature Reserve until 2013. Further needs for conservation activities are also discussed.

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### **2. Hornbill research in the southern Tenasserim in Thailand**

**Jiraporn Teampanpong - Institute for Innovative Learning, Mahidol University, Thailand**

To address the consequences of biodiversity loss due to development in the Southern Tenasserim landscape in Thailand, understanding the ecology of hornbills as key seed dispersers and their ability to maintain and restore forest, is required.

We found that the quality of forest inside a large protected area in the region is comparable to other high quality habitat for hornbills in Thailand with respect to providing food and breeding sites. However, its quality was significantly different from the forest outside protected area. We also found the smaller-sized hornbills at this site selected nests closer to streams, at lower altitudes, in less steep areas, and in smaller sized trees than the bigger hornbills. Hornbills were also able to use forest outside the protected area, but only as temporary feeding sites, because of the low density of potential fruit trees.

In addition, we found the disproportionately use of dry evergreen forest to other forest types by immature Oriental-pied Hornbill (OPH). Moreover, it tends to select areas near the edges of evergreen forest.

The findings from the occupancy models reveal the negative response to human disturbance by the four sympatric hornbills but positive to the availability of fruit trees, the availability of potential nest trees, and the abundance of ripe fig fruits.

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### **3. Literacy for Environmental Justice in Vietnam**

**To Kim Lien - Centre for Education and Development, Vietnam**

The Project aims:

- Develop outdoor environmental justice literacy curriculum for urban primary and secondary school students that addresses pressing issues and is linked to the content of the national curriculum.

- Provide hands-on environmental justice literacy programs to students from primary and secondary schools in Hanoi.

A description of the project:

- To support environmental protection and sustainable development, in the last decade Vietnam has promoted public environmental awareness campaigns for the entire population, focusing especially on young people. At the moment, however, education about environmental awareness and conservation has still not been paid much attention in the schools. Most educational levels do not consider environmental conservation a subject, with the exception of some universities and colleges which have specialized courses in the environment.
- Raising awareness and knowledge about environmental justice, and overcoming existing weaknesses, will require a long and continuous commitment across multiple generations and a dedicated investment of enthusiasm, effort and money.
- Our ultimate goal will be to build and implement pilot programs and plan to coordinate and integrate education and environmental protection practices in schools to enhance the direct impact on students' attitudes and behaviour toward the environment. Through these efforts, we will gain practical experience in the integration of environmental justice with the official school curriculum.
- To address the ecological and health concerns of Hanoi and the surrounding communities of Ba Vi and Tam Dao National parks, CED trains school children and youth from Hanoi environmental conservation, restoration, and horticulture through introducing concept of environmental justice and field-based programs. Our programs combine education sessions with hands-on and independent-exploration activities, drawing concrete linkages between human health, the environment, and urban quality of life. In one year, we plan to host about 500 school-kids at Ba Vi and Tam Dao national parks for free site-based education programs that link science curricula to real-life environmental health and justice issues.

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#### **4. Suggested solutions for sustainable management of mangroves and seagrass beds at Thuy Trieu lagoon**

**Nguyen Thi Thanh Thuy, Vo Si Tuan, Nguyen Xuan Hoa  
Institute of Oceanography – VAST, Nha Trang, Vietnam**

Based on the relevant studies and successful results obtained from two mangrove restoration models at aquaculture area and intertidal zone of the lagoon, solutions for sustainable management of mangroves and seagrass beds of the lagoon have been suggested including (1) Heightening community awareness of mangrove – seagrass ecosystems; (2) Setting up a volunteer guard team; (3) Priority zoning remarkably in term of function including: (a) Zone for mangrove restoration and seagrass bed management at the top of the lagoon (b) Cam Hai Dong remarkable biodiversity conservation zone (c) Mangrove restoration zone at Cam Thanh Bac tidal zone. Each remarkable functional zone is engaged the aim and community based management, in which the duties, responsibilities of the relevant members are attached with their benefits from sustainable management of mangroves and seagrass bed at Thuy Trieu lagoon.

## **5. Monitoring mangrove forest rehabilitate using remote sensing and GIS technology. A case study in Can Gio Biosphere Reserve, Ho Chi Minh city, Viet Nam**

**Nguyen Viet Luong<sup>1</sup>, Sarnam Singh<sup>2</sup>, Truong Thi Hoa Binh<sup>1</sup>, and Le Mai Son<sup>1</sup>**

**<sup>1</sup>: Space Technology Institute (STI) Vietnam Academy of Science and Technology (VAST), Ha Noi, Vietnam**

**<sup>2</sup>: Indian Institute of Remote Sensing (ISRO), Dehradun, 248 001, India**

Can Gio mangrove forest today, is the result of more than 30 years of recovery and development with the enormous efforts of the government and people of Ho Chi Minh City. On January 21<sup>st</sup> 2000, the MAB/UNESCO Committee recognized the Can Gio mangrove as International Biosphere Reserve - the first Biosphere Reserve in Vietnam. At present, it is being protected and developed with a combination of traditional and remote sensing data. Therefore, this study was taken up to know the impact of reclamation/restoration efforts and for better planning of management, conservation, rehabilitation, development and sustainable use of the natural resources. We have studied the vegetation cover and land use dynamics in last one decade. For monitoring the changes the three dates SPOT HRV satellite data (1999, 2004 and 2009) were used. All the data were pre-processed for radiometric and geometric distortions. Post classification comparison approach has been followed. The classification scheme was uniform and the mapping accuracy was over 82.78 to 87.78% for 1999, 2004 and 2009. The total area considered in this study was 74,048.75 ha. During 1999 to 2009, the dense mangrove forest increased by 10,456.13 ha from 1999 to 2004 and 4,150.56 ha from 2004 to 2009. During 1999 to 2004, the area of open mangrove forest reduced by 6,912.57 ha because much of the open mangrove forest got converted to dense forest. However, from 2004 to 2009 the open mangrove forest increased by 1,755.64 ha. From 1999 to 2004 and 2004 to 2009 most of young forest/shrub area were reduced by 6,921.57 ha and 2,620.45 ha, respectively due to protection and reclamation. Over the years, from 1999 to 2009, most of the agricultural land area decreased, and decreased was maximum in the period from 2004 to 2009. The water body of area changed very little because the shrimp ponds area did not expanded. From 1999 to 2004, the barren land area of little changed, however, from 2004 to 2009, but the barren land has greatly decreased 1,076.16 ha. The study indicates that monitoring of the mangrove forests resources using satellite data is significant to understand the impact of anthropogenic pressures as well as management action.

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## **6. Conservation of conifer tree species in Hoa Binh - Son La limestone corridor**

**Nguyen Duc To Luu, Phan Van Thang, and Dang Xuan Truong**

**Pan Nature, Vietnam**

The limestone area between Hoa Binh and Son La provinces is a unique site including Hang Kia – Pa Co and Xuan Nha Nature Reserves. The area is very rich in number of conifer species, up to 13 conifer species were recorded and assessed in the area. In this number a new fiveneedle pine *Pinus* aff. *armandii* has been discovered and described for Vietnam. Other important conifers such as *Cunninghamia konishii*, *Amentotaxus yunnanensis* and *Calocedrus rupestris* are also found in the nature reserves.

A series of conservation actions were taken in the place, combining both in-situ and ex-situ measures. Propagation by cuttings and seeds were successfully tested even for “difficult” conifer species, such as *Pinus kwangtungensis*. An illustrated guidebook for conifer species and its conservation methods was produced that helps to deliver research results to relevant stakeholders. A Conifer Club of community people was established and operated in Xuan Nha Nature Reserve which promotes local people engagement in conservation and collaboration of Management Board of Nature Reserve with local stakeholders. Information on local conservation activities were broadcasted in national, provincial TV and through the environment website [thiennhien.net](http://thiennhien.net).

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## **7. Community-based ecotourism activities and biodiversity conservation of Vietnam's Bu Gia Map National Park**

**Nguyen Van Toai**

*Bu Gia Map National Park, Vietnam*

With this project, I have been conducting activities related to ecotourism programs in Vietnam's Bu Gia Map National Park. First, I have been interviewing local people to explore natural and cultural landscapes. This activity will help me integrate cultural and natural characteristics into a community - based ecotourism program in the park.

Based on the interviews, I have been identifying people who are able to run ecotourism programs to train them in ecotourism. In addition, I have been conducting field trips to identify and map campsites and sightseeing tours within the park.

Based on the information gained from the interviews, I will train several local people in conducting ecotourism activities in the park.

Finally, I will develop a community - based ecotourism program in the park. This program will generate additional incomes for local people, reducing their high dependency on natural forests within the park.

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## **8. Using communication equipment in educating conservation: A case study of bat species in Bat Pagoda, Soc Trang Province, The Mekong Delta, Vietnam**

**Dang Ly Quoc**

**Mekong Delta Development Research Institute, Can Tho University, Vietnam**

The project “Enhancement awareness of local people to protect bats and Khmer culture in the Mekong Delta of Vietnam” was funded by Rufford Small Grant Foundation (RSGF), the project implemented in Bat Pagoda community of Soc Trang City from February 2013 until December 2013, this project aims at enhancing students, local community, local government officers, monks and tourists in order to protect number of bats in Bat Pagoda.

The Large Flying Fox, *Pteropus vampyrus* (Linnaeus, 1758) and Lylei Flying Fox, *Pteropus lylei* (Anderson, 1908) are determined as residential in Bat Pagoda and their numerous are

decreased very fast. The three groups of local people include Khmer (95%), Kinh (4%), and Chinese live in around Bat Pagoda community, their livelihoods mainly are agriculture, small business, handmade local traditional crafts and labor hired.

There are five activities implementing in the project field including (1) to improve sanitation issue in Bat Pagoda, which dis with youth from high school, military and local; (2) to run environmental education program to primary students; (3) to organize painting competition for primary students “Action to Save the Bats Together”; (4) to evaluate and monitor the project by doing research in order to understand eco-social and environmental issues and efficiency of the project to stakeholders during running the project; and (5) to make short film in order to show and make more efficiency to stakeholders about the bats and the project objective.

The project attracted 70 primary students, 100 youth, 10 local government officers, 5 monks, 10 volunteers from Can Tho University participating the project. There are two researchers from Mekong Delta Development Research Institute (MDI), Can Tho University (CTU). The project was influenced local people and tourists in order to improve knowledge about bats as they understand some points that the bats are very important in the environment and their lives. By this benefit, the students and youth from project activities transfer to them.

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## **9. “Raising The Standard” Strengthening conservation education capacities in Quang Nam Province**

**Luong Quang Hung**

**RECOFTC - The Center for People and Forests**

“Raising the Standard” - Strengthening Conservation Education Capacities in Quang Nam Province, Viet Nam was a project funded by Rufford Small Grant in 2003. A project goal was to ensure that identified target groups in Quang Nam are aware of the importance of natural resources and conservation, have a clear conservation consciousness, and the skills to act accordingly. Its objective was to strengthen the capacity of the Quang Nam provincial government and partners to promote conservation through education, both formal and informal, to a range of identified target groups.

Conservation education was new concept with all the provincial departments. Due to this project, it is now a commonly discussed and popular concept with all relevant provincial departments. Simultaneously, their awareness on conservation has noticeably increased.

The Conservation Education Working Group (CEWG) is the first provincial-level working group in Viet Nam with inter-departmental cooperation and mobilisation being achieved. It is also the first time so many departments have been motivated to assist in conservation education.

Each department has realised that conservation education is one of the responsibilities of their department.

The CEWG and relevant stakeholders have increased their capacity through a series of training courses. CEWG members are now ready to act as trainers for their department and local collaborators networks in districts and communes.

This is the first time in Viet Nam that a sustained and continuous conservation education programme has been developed and commissioned through a provincial action plan. The Quang Nam conservation education action plan was developed by the CEWG and highlights the initial success of the project. It will focus on priority conservation education needs, target groups, and partners. The action plan will guide activities across Quang Nam, for a range of agents, to meet identified needs. The action will feed directly into the Provincial Biodiversity and Natural Resource Conservation Strategy.

Two members of the CEWG have approached WWF/FPD to incorporate CE components within their provincial level training courses: (1) The 135 programme (a government rural development project) operates in 67 mountainous communes across the province. The Department of Ethnic People and Mountainous Areas requested a half day training course for all commune chairmen from these communes; the most important communes for conservation in Quang Nam. (2) The Farmers Union requested training for all their representatives; that is one person from every single commune in the province. Both training courses were conducted by the WWF and FPD CE officers. With this kind of delivery, conservation and environmental messages can be spread directly to influential parties throughout the province.

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## **10. Waste recycling in rural Vietnam**

**Bernard Kervyn**

**Mekong Plus, HCMC, Vietnam**

Vietnam is a quickly modernizing economy, generating much solid waste. Yet the vast majority of Vietnam's population lives in sparse rural areas, with low incomes. Waste management has become a major issue, but is still ignored by most local authorities. Waste is mostly dumped on illegal locations, where it is burned at low and thus dangerous temperatures. Dioxin is one of the gas emitted.

In urban areas there are a few waste processing centres, capital intensive and definitely unaffordable for rural areas. On the other hand transport costs are equally very expensive, therefore the challenge is to find a low cost solution for villages within a radius of a few dozen kilometres only. Just dumping waste is not an elegant and sustainable solution in the long run. On the other hand organic waste in the rural areas is much less than in urban centres, for the good reasons it is used as feed for animals on the farm, or to make little compost for the vegetable gardens. In rural areas it has been measured less than 45% waste is organic, compared to over 75% in Phan Thiet, a small provincial town.

In larger centers like Ho Chi Minh City it will be even higher. Therefore turning waste into useful compost is more expensive where it is the most needed. The market value of compost in rural areas is also less than in urban or semi urban centers, where it can be used for gardens and home decoration, while farmers must look for cheap organic or chemical fertilizers for their gardens, paddy fields or tree plantations, namely rubber trees which are abundant in the project region (Tanh Linh, Binh Thuan).

There is no sustainable solution yet as government policies have not yet touched several issues related to waste. Indeed very few rural districts are ready to allocate a piece of land for waste processing, not to speak about the investment needed. There is not even a policy to restrict the use of plastic bags. Nor to tax the import of the chemical components to fabricate them. A significant tax would ultimately reduce the use of plastic bags, encourage plastic bag recycling and therefore make waste recycling more attractive. In urban areas like in rural areas waste dumping sites have caused public resentment, going up to road blocking to prevent the garbage trucks to pass.

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## **11. Herpetological exploration in northwestern Vietnam**

**Nguyen Quang Truong - Institute of Ecology and Biological Resources, Vietnam**

Vietnam is recognized as one of the most well-known countries in the world in terms of herpetofaunal diversity. The species diversity of the Vietnamese herpetofauna has remarkably increased from 340 in 1996 to 566 in 2010 and more than 150 new species have been described from the country since 2000. However, reptiles and amphibians are threatened by extinction, and major threats to their populations are habitat loss and overharvesting for human consumption.

Being predators at the upper end of trophic pyramids and due to their territoriality, and limited locomotion, reptiles and amphibians cannot evade disturbances, and active recolonization after local extinction is very slow. In addition, we lack basic data (e.g., community composition, distribution) to inform conservation efforts. In Vietnam, taxonomic, geographic and ecological knowledge of reptiles and amphibians in many areas is still limited, particularly fossorial taxa or forest canopy specialists. Our research focuses on the diversity of the herpetofauna of unexplored limestone forests in north-western Vietnam. Combining morphological and molecular data with spatial information of species assembly, we intend to evaluate the species richness, genetic diversity and the functional composition of herpetological communities across a biogeographic gradient in north-western Vietnam. Specimens of several new country records and even new species were found during our field surveys in Hoa Binh and Son La provinces. It is expected that the results of our expeditions will provide critical data for decision makers and conservation specialists in biodiversity conservation planning in north-western Vietnam.

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## **12. Comparative phylogeography of bats (Mammalia, Chiroptera) in Southeast Asia**

**Vuong Tan Tu<sup>1,2</sup> & Alexandre Hassanin<sup>2</sup>**

**<sup>1</sup>: Institute of Ecology and Biological Resources, Vietnam**

**<sup>2</sup>: Muséum national d'Histoire naturelle, Département Systématique et Evolution  
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51- 55, rue Buffon - 5005 Paris - France**

With over 330 species, Southeast Asian bats account for 30% of mammal diversity in this region, which is one of the most important biodiversity hotspot of the World. Yet, little is known about the impact of current and past environmental changes on the geographical structure of bat assemblages within Southeast Asia.

In order to better understand the phylogeny, taxonomy and phylogeography of most bat genera currently distributed in Southeast Asia, we analysed ten molecular markers, including two mitochondrial genes (cytochrome b and cytochrome c oxidase subunit 1) and eight independent nuclear genes.

Our results indicate that many species, which were previously recognized as widespread taxa in Southeast Asia, are in fact cryptic species complexes. Our results also support that several centres of endemism, in particular in the Annamite Range and Sundaland, have served as Pleistocene forest refugia, facilitating survival of many taxa during glacial periods, and sometimes resulting in allopatric speciation events. On the basis of these results, we therefore recommend that these refuges should be considered as high priority areas for bat conservation.

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### **13. Genetic endangerment of a widespread and common species - should we care?**

**Nguyen Phuc Bao Hoa<sup>1</sup> & Nguyen Hao Quang<sup>2</sup>**

**<sup>1</sup>:University of Wisconsin-Madison, Vietnam** **<sup>2</sup>:**

**<sup>2</sup>: Southern Institute of Ecology, Vietnam**

Human activities have caused significant evolutionary pressures on species of agricultural importance since the course of artificial selection and domestications. Threats to wild ancestor species of farm animals can range from global eradication of species existence, reduction of genetic diversity, or genetic contamination from domesticated stocks. Large-scale evaluations of genetic diversity in the wild ancestor species in their natural ranges are of central role to the conservation of genetic resource and agriculture science. We perform the first such study by analysing amplified fragment length polymorphism (AFLP) in red jungle fowl live-captured from geographically diverse tropical habitats in South Central Vietnam. In contrast to the birds' widespread distribution and their ubiquitous relationship with domestic chickens, our Bayesian clustering and spatial models show a metapopulation pattern consisting distinct population clusters of jungle fowl. The high degree of interspecific genetic differentiations revealed by AFLP markers is presumingly due to geographic distances and the birds' demography. Our results suggest the predominant role of geographic isolation in driving genetic differentiation in which small isolated populations and outbreeding introgression from domestic chickens are a concern in red jungle fowl in their core distribution ranges.

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### **14. Conservation of Flying Foxes (Mammalia: Chiroptera) in Vietnam**

**Vu Dinh Thong**

**Institute of Ecology and Biological Resources**

**Vietnam Academy of Science and Technology**

## **18 Hoang Quoc Viet road, Cau Giay district, Hanoi, Vietnam**

To date, three flying fox species are known to occur in Vietnam (*Pteropus* cf. *condorensis/hypomelanus condorensis*, *P. lylei*, and *P. vampyrus*). Prior to 2004, these species were widespread and common within the central and southern regions of the country. However, over the past ten years, their range has reduced significantly so that they are now known only from small sites in five provinces (Ba Ria-Vung Tau, Ca Mau, Ho Chi Minh city, Kien Giang and Soc Trang) within the Mekong Delta region of Vietnam. Of which, there are two permanent roosting sites: one in Can Gio district, Ho Chi Minh City and the remaining one in Soc Trang City, Soc Trang Province. With support from the Rufford Foundation and other funders, a series of field surveys was conducted throughout the five provinces for proper assessments of the current status and distributional range of each living flying foxes in the country. Academic research and urgent conservation actions were also implemented at the two permanent roosting sites. This presentation provides an overview of both academic research and conservation efforts of these fascinating mammals in Vietnam with recommendations for further action programmes.

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### **15. Conservation status of cetaceans in Kien Giang Biosphere Reserve, Kien Giang Province, Vietnam**

**Long Vu<sup>1</sup>, Anh Tho Truong<sup>1</sup>, and Duy Le<sup>2</sup>**

**<sup>1</sup>: Viet Nam Marine Mammal Network**

**<sup>2</sup>: Southern Institute of Ecology**

Our project is the first systematic cetacean survey which was conducted in Kien Giang Biosphere Reserve (BR); an UNESCO designated protected areas which currently affected by rapid growth of commercial fishing and coastal development. Information on conservation status, especially on species diversity; distribution and abundance of cetacean in this area is very limited. To understand the conservation status of these cetaceans, we have conducted boat-based surveys with 22 transects which cover 1800 km<sup>2</sup> sea area of Kien Giang BR. There were 06 direct sightings of the Irrawaddy dolphin (*Orcaella bevirstris*) and one direct sighting of finless porpoise (*Neophocaena phocaenoides*). We also examined cetacean remains in 07 whale temples and interviewed 36 fishermen in this area to collect additional data and raise awareness toward cetacean conservation. Current results are a total of 06 cetacean species was recorded in Kien Giang Biosphere reserve, including Irrawaddy dolphin (*Orcaella bevirstris*); finless porpoise (*Neophocaena phocaenoides*); Indo-Pacific bottlenose dolphin (*Tursiops aduncus*), pygmy sperm whale (*Kogia breviceps*), sperm whale (*Physeter macrocephalus*) and unidentified baleen whales (*Balaenoptera* sp1.). Although the low encountered rate (07 direct sightings in total) does not allow accurate abundance estimation at this time, data from interview and whale temples strongly suggest Irrawaddy dolphin is the most abundance species in Kien Giang BR. Interview data also show low awareness for cetacean conservation of locals and address by-catching as a major threat for cetacean in Kien Giang BR.

## **16. Population status and conservation of the Tonkin snub-nosed monkey in Na Hang Nature Reserve, Tuyen Quang Province, Vietnam**

**Thach Mai Hoang<sup>1,2</sup>, Nguyen Manh Ha<sup>2</sup>, and Dong Thanh Hai<sup>3</sup>**

**<sup>1</sup>: Department of Anthropology, Hanoi Social Sciences and Humanities, Vietnam National University, 336 Nguyen Trai Street, Thanh Xuan District, Hanoi, Hanoi 10000, Vietnam**

**<sup>2</sup>: Center for Natural Resources and Environmental Studies, Vietnam National University, Hanoi**

**<sup>3</sup>: Vietnam Forestry University**

The Tonkin snub-nosed monkey (*Rhinopithecus avunculus*) was rediscovered in the 1990s in Na Hang Nature Reserve, Tuyen Quang Province. However, the size of this population had decreased from an estimated 150 in 2002 (Nadler et al., 2004) to only 24 in 2005 (Dong Thanh Hai, 2005). Our field surveys in 2010 have detected a current population of approximately 14 to 26 individuals, living in two separated sectors of this nature reserve (one group of 5-10 individuals in Tat Ke Sector and three groups of 9-16 individuals in Ban Bung Sector). Weak conservation competencies of forest rangers and interrupted reserve management in Na Hang may result in continued population decline due to ongoing hunting pressure. Despite annual confiscation of rifles, hunting shots were heard and hunting seats were sighted during every field survey since 2009. A Management Board for the reserve has never been established since the nature reserve was established in 1998. In addition, the director position of Na Hang Nature Reserve has been vacant since December 2012. Patrols to protect this species from hunting have been interrupted from 2004 up to the present. We have undertaken efforts to renew patrols by resurrecting a community patrol group to enforce conservation law against hunting. Since 2012, four former patrol stations have been rebuilt.

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## **17. Agroforestry promotion for livelihood enhancement and biodiversity conservation (Pilot project in the Panchase protected forest area in Kaski District)**

**Prabin Bhusal**

**Forest Action Nepal, Nepal**

Agro-forestry combines trees, crops, fodder, fruits and livestock within the farming system to enhance long-term yields and sustainable farming practices. The mountain ecosystem of Nepal, in particular Panchase, the major watershed of the Phewa Lake in the mid-hills “island-like ecosystem, is ideally suited to an implementation of such practices. This project aimed to promote awareness of agro-forestry practices in farm, degraded and unused land for livelihood improvement and biodiversity conservation. It also stressed the positive effect that agro-forestry can bring to farmers through better land management in western Nepal. 15 small farmers groups from three village development committee were the main targets of the project. The project used educational and field-based activities, involving farmer’s groups, and local youths, students and teachers, which were monitored and evaluated by a locally

formed program management committee. The activities included establishment of demonstration agro-forestry plots, conservation coaching, observation visit, conservation rally and dissemination of community's conservation efforts. The pilot project contributed in the promotion of multiple farming systems as an initiation for better land management for the enhancement of socioeconomic status of farmers. At the early phase of the project completion 60% of farmers from the SFGs initiated the agroforestry system in their farm and degraded land. Three higher secondary schools included agroforestry education as a part of teaching. Demonstration plots were establishing as an ongoing learning tool after completion of project. The project has helped to connect the local farmers groups with the District forest and District agriculture office and helped them in technical and logistic support after completion of project. Thus the project was successful in making local farmers and community aware of the importance of agro-forestry as a replacement for current farming practices. Thus, I suggest, small initiation is effective in promoting of agroforestry system.

### Appendix 3. Conference schedule

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| <b>Friday, January 30, 15</b>  |  |
| Arrival and check in to designated hotel Victory<br><i>Welcome dinner at 18:00 (buffet at hotel lobby)</i> |  |
| <b>Saturday, January 31, 15</b>  |  |
| 06:00 – 07:30  | Breakfast at the hotel   |
| 08:00  | Transfer to meeting venue at University of Science, Downtown campus, 227-Nguyen Van Cu street, District 5, HCMC  |
| 08:15 – 08:40  | Registration   |
| 08:40 – 09:10  | Welcome speech by University of Science & Opening remark by conference chair   |
| 09:10 – 09:30  | The Rufford Small Grants project 107.01.05 and follow-up activities at Takou Nature Reserve<br><br><i>Luu Hong Truong</i><br><i>Southern Institute of Ecology, Vietnam</i>   |
| 09:30 – 09:50  | Hornbill research in the southern Tenasserim in Thailand<br><br><i>Jiraporn Teampanpong</i><br><i>Institute for Innovative Learning, Mahidol University, Thailand</i>  |
| 9:50 – 10:10   | Literacy for environmental justice in Vietnam<br><br><i>To Kim Lien</i><br><i>Centre for Education and Development, Vietnam</i>  |
| 10:10 – 10:30  | Coffee break and Group photo   |
| 10:30 – 10:50  | Suggested solutions for sustainable management of mangroves and seagrass bet at Thuy Trieu lagoon<br><br><i>Nguyen Thi Thanh Thuy</i><br><i>Institute of Oceanography, Nha Trang, Vietnam</i>  |
| 10:50 – 11:10  | Monitoring mangrove forest rehabilitate using remote sensing and GIS technology. A case study in Can Gio Biosphere Reserve, Ho Chi Minh city, Viet Nam<br><br><i>Le Mai Son</i><br><i>Space Technology Institute (STI) - Vietnam Academy of Science and Technology</i> |
| 11:10 – 11:30  | Conservation of conifer tree species in Hoa Binh – Son La limestone corridor<br><br><i>Nguyen Duc To Luu</i><br><i>People and Nature Reconciliation (PANNATURE), Vietnam</i>   |
| 11:30 – 13:00  | Lunch break  |

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|---------------|---|
| 13:00 – 13:20 | Community-based ecotourism activities and biodiversity conservation of Vietnam's Bu Gia Map National Park<br><br><i>Nguyen Van Toai</i><br><i>Bu Gia Map National Park, Vietnam</i>   |
| 13:20 – 13:40 | Using communication equipment in educating conservation: A case study of bat species in Bat Pagoda, Soc Trang Province, The Mekong Delta, Vietnam<br><br><i>Dang Ly Quoc</i><br><i>Mekong Delta Development Research Institute, Can Tho University, Vietnam</i> |
| 13:40 – 14:00 | “Raising the Standard” - Strengthening Conservation Education Capacities in Quang Nam Province, Viet Nam<br><br><i>Luong Quang Hung</i><br><i>RECOFTC - The Center for People and Forests</i>   |
| 14:00 – 14:20 | Waste recycling in rural Vietnam<br><br><i>Bernard Kervyn</i><br><i>Mekong Plus, HCMC, Vietnam</i>  |
| 14:20 – 14:50 | Coffee break  |
| 14:50 – 15:10 | Herpetological exploration in north-western Vietnam<br><br><i>Nguyen Quang Truong</i><br><i>Institute of Ecology and Biological Resources, Vietnam</i>  |
| 15:10 – 15:30 | Comparative phylogeography of bats (Mammalia, Chiroptera) in Southeast Asia<br><br><i>Vuong Tan Tu</i><br><i>Institute of Ecology and Biological Resources, Vietnam</i>   |
| 15:30 – 15:50 | Genetic endangerment of a widespread and common species - should we care?<br><br><i>Nguyen Hao Quang</i><br><i>Southern Institute of Ecology, Vietnam</i>   |
| 15:50 – 16:10 | Conservation of Flying Foxes (Mammalia: Chiroptera) in Vietnam<br><br><i>Vu Dinh Thong</i><br><i>Institute of Ecology and Biological Resources - Vietnam Academy of Science and Technology</i>  |
| 16:10 – 16:30 | Coffee break  |
| 16:30 – 16:50 | Conservation status of cetaceans in Kien Giang Biosphere Reserve, Kien Giang Province, Vietnam<br><br><i>Vu Long</i><br><i>Vietnam Marine Mammal Network, Vietnam</i>   |
| 16:50 – 17:10 | Population status and conservation of the Tonkin snub-nosed monkey in Na Hang Nature Reserve, Tuyen Quang Province, Vietnam<br><br><i>Hoang Mai Thach</i>   |

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|---|--|
|   | <i>Hanoi Social Sciences and Humanities, Vietnam National University</i>   |
| 17:10 – 17:30   | Agroforestry Promotion for Livelihood Enhancement and Biodiversity Conservation<br><i>Busal Prabin</i><br><i>Forest Action Nepal</i> |
| <b>Dinner at Indochina Chunk restaurant (floating boat),<br/>5 Nguyen Tat Thanh, Ben Nha Rong port, boarding at 18:30</b> |  |
| <b><i>Sunday, February 01, 15</i></b>   |  |
| 06:00 – 07:00   | Breakfast at the hotel   |
| 07:30 – 17:00   | Field trip in Can Gio Biosphere reserve (mangrove forest), HCMC  |