

**Natural conservation and sustainable management of natural resources in
Phong Nha ke Bang National Park Region Project, Vietnam**

**TECHNICAL AND FINANCIAL PROPOSAL TO CARRY OUT THE
FISH FAUNA SURVEY OF THE PHONG NHA – KE BANG NATIONAL
PARK**

The agency responsible for the fish fauna survey is Bac Truong Son Biodiversity Center with the participating researchers as follows:

No.	Full name	Specialty	Position
1	PhD. Nguyen Thai Tu	Ichthyologist	Team Leader
2	MSc. Ho Anh Tuan	Ichthyologist	Member
3	MSc. Mai Thi Thanh Phuong	Ichthyologist	Member
4	PhD. Hoang Ngoc Thao	Zoologist	Member
5	PhD. Tran Dinh Quang	Physiological zoologist	Member

1. INTRODUCTION

Phong Nha Ke Bang is from 17° 21' to 17° 37' North latitude and from 105° 57' to 106° 37' East longitude and covers an area of some communes as Tan Trach, Thuong Trach, Phuc Trach, Xuan Trach and Son Trach in Bo Trach District, Quang Binh Province. The National Park has a total area of 85,754 hectares including a strictly protected zone of 64,894 hectares, an ecological rehabilitation zone of 17,449 hectares and an administration and service zone of 3,411 hectares. The bufferzone of Phong Nha Ke Bang National Park has an area of 1749.45 km² covering 12 communes including Dan Hoa, Hoa Son, Trung Hoa and Thuong Hoa in Minh Hoa District; Tan Trach, Thuong Trach, Xuan Trach, Phuc Trach, Son Trach, Phu Dinh and Hung Trach in Bo Trach District and Truong Son in Quang Ninh District. The residential areas normally locate along large rivers as Chay River, Son Rivers and valleys where the streams run through to the east and the northeast to this National Park. These areas are among remote and mountainous areas in Quang Binh where the infrastructures, roads and health, education and electricity conditions are underdeveloped. Local residents mainly live on farming and forest product harvesting.

Over the years, Dr. Nguyen Thai Tu has conducted a very thorough research on fish species components at the basins, resulting in a plenty of valuable materials on species components and conservation methods for intact ecology and on proper conservation and exploit of fish resources in Phong Nha Ke Bang. Up to now, there are hardly any fish surveys at the caves and the remote areas within this national park. In order to conserve and use effectively the fish source here, it should take notice to the socio-economic characteristics of the native ethnical minorities and should pay attention to conservation of the untouched special ecosystems. Therefore, we develop a more overall and consistent fish study proposal here.

2. SURVEY AREAS, TIMETABLE & METHODOLOGIES

2.1 Survey points

The surveyors mainly conduct their surveys in Hoa Son, Thuong Hoa Communes (Minh Hoa District); Thuong Trach Commune (Bo Trach District) and Truong Son (Quang Ninh District).

2.2 Survey schedule

a. Field survey

The field surveys will expectedly take place about 20 days from July to August 2011.

b. Laboratorial study

Identification of scientific names, analysis of morphological taxonomy and report writing are carried out from September to December 2011

2.3 Survey methodologies

2.3.1 Sample collection

Samples will be collected throughout the field surveys to be conducted in compliance with the standard operation procedures. At the sample collection points, the surveyors will collect the samples together with local fishermen; take the photographs for fish species and habitats and interview the fishermen. The sample collection points will be determined the coordinates via GPS handheld devices. We also give tools and chemicals to ask them to collect the samples at several survey points.

2.3.2 Sample analysis at the laboratory

a. Research method of morphological taxonomy

We study the forms of all fish groups based on the widely used international documents of Rainboth W. J. (1996), Kottelat M. (1990, 1998, 2001), Chu Xinluo et al (1989), Chen Yiyu et all (1998), Yue Peiqi et al (2000), Jorg Frayhof (2001 to now).

b. Morphological assortment by manuals.

Types of fish are identified by the surveyors in use of books such as Mai Dinh Yen (1978), Rainboth W.J (1996), Kottelat M. (1990, 1998, 2001), Chu Xinluo et al (1989), Chen Yiyu et all (1998), Yue Peiqi et al (2000), Jorg Frayhof (2001 to now). Classification will be subsequently made according to the international fish classification system by Eschmeyer W.N (1998), Chinese freshwater fish fauna and other commonly used documents.

2.3.3 Survey equipment and tools

- Film camera
- Camera
- GPS Handheld units
- Dynamic magnifier

Others (rubber canoes, life-jackets, camp, boats, fishing equipment, buckets, bottles, Medicine and other medical equipment, clothes, shoes, socks, rain-coat, wax paper etc)

3 SURVEY CONTENT

a. Identification of biodiversity in the fish components at the survey areas based on:

- Basin systems
- Cave systems
- Administration units

b. Species distribution maps

- Species of high economic values

- Species of conservation values
- Species distributing in the caves
- Endemic species

c. Identification of existing threats to the fish resources

d. Suggestions of appropriate fish resource using and exploiting methods

4 EXPECTED RESULTS

a. Fish components at Phong Nha Ke Bang National Park for

- Basin systems
- Cave systems
- Administration units
- Species of economic values
- Species of conservation values
- Endemic species

b. Fish distribution maps

- Fish distribution in the caves
- Fish distributions for each area
- Fish distribution according to the administration units
- Distribution of conservation species
- Distribution of economic values

c. Threats to the fish diversity at the survey areas

d. Recommendations to protect and conserve the fish diversity at the survey areas

e. Sample collections obtained during the survey

f. Photograph collections for the fish species distributed in the survey areas

5 IMPLEMENTATION SCHEDULE: From July 2011 to December 2011

6 BUDGET: 16940 EUR (including 10 % VAT)

COST ESTIMATES FOR FISH SURVEY

No.	Description	Unit	Quantity	Price unit	Amount	Sub-total
1	Personnel costs					12,910
1.1	Team leader (20 field days + 30 laboratorial days for sample analysis)	Day	50	80	4,000	
1.2	2 Experts x 20 field days	Day	40	50	2,000	
1.3	4 Sample analyzers x 30 laboratorial days	Day	120	50	6,000	
1.4	PNKB NP Staff (incl. 1/2 day training)	Day	20	17.5	350	
1.5	Sample collection supporters	Day	20	14	280	
1.6	Local guides	Day	20	14	280	
2	Per diem for 2 peoples in two journeys for contracting and reporting	Day	4	60	240	240
3	Travel costs					500
3.1	Vinh - Dong Hoi round trips	Lump-sum			100	
3.2	Travel costs to sampling locations for 3 experts and 1 PNKB NP Staff	Lump-sum			400	
4	Field accommodation costs (20 days x 3 pax)	Day/pax	60	10	600	600
5	Operational					1,150
5.1	10 litter of formaline and 10 liters of absolute alcohol for sample preservation	Liter	20	3	60	
5.2	50 sample containers of different sizes	Lump-sum			120	
5.3	Research tools such as cameras, maps, GPS devices, calipers and stationary (1/2 day training for NP staff)	Lump-sum			350	
5.4	Report writing and printing	Lump-sum			620	
	Total before tax				15,400	15,400
	Tax				1,540	
	Total after tax				16,940	