

NGHIÊN CỨU VỀ THỰC TẾ SĂN BẮN VÀ HÁI LượM Ở KHU VỰC TRUNG TRƯỜNG SƠN

Hunting and Collecting Practices in the Central Truong Son Landscape



HUNTING AND COLLECTING PRACTICES IN THE CENTRAL TRUONG SON LANDSCAPE

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BACKGROUND TO THE CENTRAL TRUONG SON LANDSCAPE

In response to concerns about the increasing pace of biodiversity loss and the need to increase the scale and integration of global conservation efforts - WWF together with its conservation partners have developed a new approach to conservation - ecoregion conservation. Scientists have undertaken a major analysis of the world's biodiversity and identified more than 800 ecoregions that reclassify the way we view the natural world. From this global inventory, 238 ecoregions have been identified that comprise the most valuable and representative global biodiversity. These priority ecoregions have been labeled as the Global 200.

In 1998, the Forests of the Lower Mekong Ecoregion Complex (FLMEC) was selected as one of the first locations to initiate an ecoregion based conservation programme. With initial support from WWF-US and USAID, the programme has now been established as one world's first fully functioning Ecoregion Action Programme (EAP).

In March 2000, over eighty scientists from Cambodia, Lao P.D.R., Vietnam, and many other countries participated in an ambitious and groundbreaking assessment of biological conservation priorities within the FLMEC. The results of this biological assessment have since been published in the report entitled "Towards a vision for Biodiversity Conservation in the Forests of the Lower Mekong Ecoregion Complex".

After the biological assessment and a "situation analysis" to examine the threats and opportunities, WWF decided to focus on two of the Global 200 ecoregions falling within the FLMEC - the Greater Annamites and the Central Indochina Dry Forests.

The Greater Annamites comprises the most unique and diverse biodiversity within the FLMEC. The discovery of the saola (*Pseudoryx nghetinhensis*) by WWF and Vietnamese scientists in 1992 in Vu Quang Nature Reserve drew the world's attention to the biodiversity associated with this mountain chain. Since that first remarkable discovery, many other new species have been found, including a number of large mammals such as the large-antlered (giant) muntjac (*Muntiacus vuquangensis*) and the Annamite striped rabbit (*Nesolagus timminsi*). These discoveries highlight the Greater Annamites as one of the world's most remarkable and unique ecoregions. In addition to these species totally reliant on successful conservation in the ecoregion, a number of wider-ranging, highly threatened species such as the Asian elephant (*Elephas maximus*), tiger (*Panthera tigris*) and the world's most endangered large mammal, the lesser one-horned (Javan) rhinoceros (*Rhinoceros sondaicus*) are found in ecoregion.

The Central Truong Son Initiative * is a pilot initiative being developed by WWF's Greater Truong Son EAP, with a view towards establishing the process of working at three scales - ecoregional/national policy, landscape and site. The aim of this fledgling initiative is to create a partnership of a broad range of stakeholders - from local communities to international organisations - working together to secure biodiversity conservation and sustainable development in the Central Truong Son Landscape (CTSL).

Following the methodology of the ecoregional approach, the Central Truong Son Initiative is based on coordinated conservation action, designed under a large-scale framework and guided by a long-term vision of success. The approach is based on the recognition that uncoordinated actions at individual sites are neither efficient nor effective at conserving functioning ecological systems or the halting the loss of natural resources. In order to be more effective, a more ambitious coordinated effort is required that is developed and designed under an overarching strategy. The need for such coordinated effort result in the establishment of an advisory group comprising 16 government institutions. This unprecedented collaboration will work as a vital support body to the Central Truong Son Initiative in its planning process towards a conservation strategy for the CTSL.

In order to develop such a comprehensive, overarching strategy, there is a great deal of information that need to be assimilated. Through a process lengthy and detailed consultation, the necessary information has been identified and collected. This series of reports presents that information in a format that is sustainable for informing those involved with the strategy development process, and conducive to those merely interested in the status and issues of the CTSL.

* Truong Son is also known as "Sai phou louang" in Lao P.D.R., and as the "Annamites" internationally. The Central Truong Son is one landscape in three ecoregion

ACKNOWLEDGEMENTS

The Central Truong Son Initiative's acknowledgement

The successful completion of the Central Truong Son Initiative's initial stage is thank to the help, support and advice of a vast number of people and organizations. It is impossible to thank every single one of these contributors within this page, but an attempt has been made to thank as many people as possible and hopefully all organizations involved.

The programme and the entire process behind it recognizes the invaluable support of His Excellency, Vice Minister Nguyen Van Dang, Ministry of Agriculture and Rural Development whose level of involvement and commitment have been integral to the development of the Central Truong Son Initiative. The initiative must pay a particular debt of thank to Dr. Nguyen Ba Thu, Director of the Forest Protection Department of MARD, for the constant support and enthusiasm he has provided during the development process.

The six member core consultative group was a driving force behind the shaping of this programme. Therefore, special acknowledgement for the key role in the process undertaken by the core advisory group is due to Mr Tran Quoc Bao, Prof. Le Quy, Mr. Tran Lien Phong, Mr. Nguyen Lam Thanh, Prof. Dr. Pham Nhat.

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This report

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ABBREVIATIONS AND ACRONYMS

FPD	Forest Protection Department
IUCN	The World Conservation Union
NTFP	Non-Timber Forest Product
PRA	Participatory Rural Appraisal
USAID	United States Agency for International Development
VND	Vietnamese Dong (national currency)
WWF	World Wide Fund for Nature
WWF-US	World Wide Fund for Nature United States

Exchange Rate

December 2001 US\$1 = 15,000 VND

PART I: BACKGROUND

This report examines the use of non-timber forest products (NTFPs) and wildlife by local communities in an area of high biodiversity significance. The western portion of Thua Thien Hue province in central Vietnam is home to a number of globally important species including tiger (*Panthera tigris*), saola (*Pseudoryx nghetinhensis*), Edward's pheasant (*Lophura edwardsi*), douc langur (*Pygathrix nemaeus*), Annamite striped rabbit (*Nesolagus timminsi*), gibbons (*Nomascus sp.*), Annamite muntjac (*Muntiacus truongsoneensis*), and large-antlered muntjac (*Muntiacus vuquangensis*) - all of which are listed in the IUCN Red List 2000 as globally threatened or data deficient (because little is known about the species).

During the feasibility study for a new nature reserve in the area, hunting was found to be the largest single threat to the globally significant wildlife of the area.

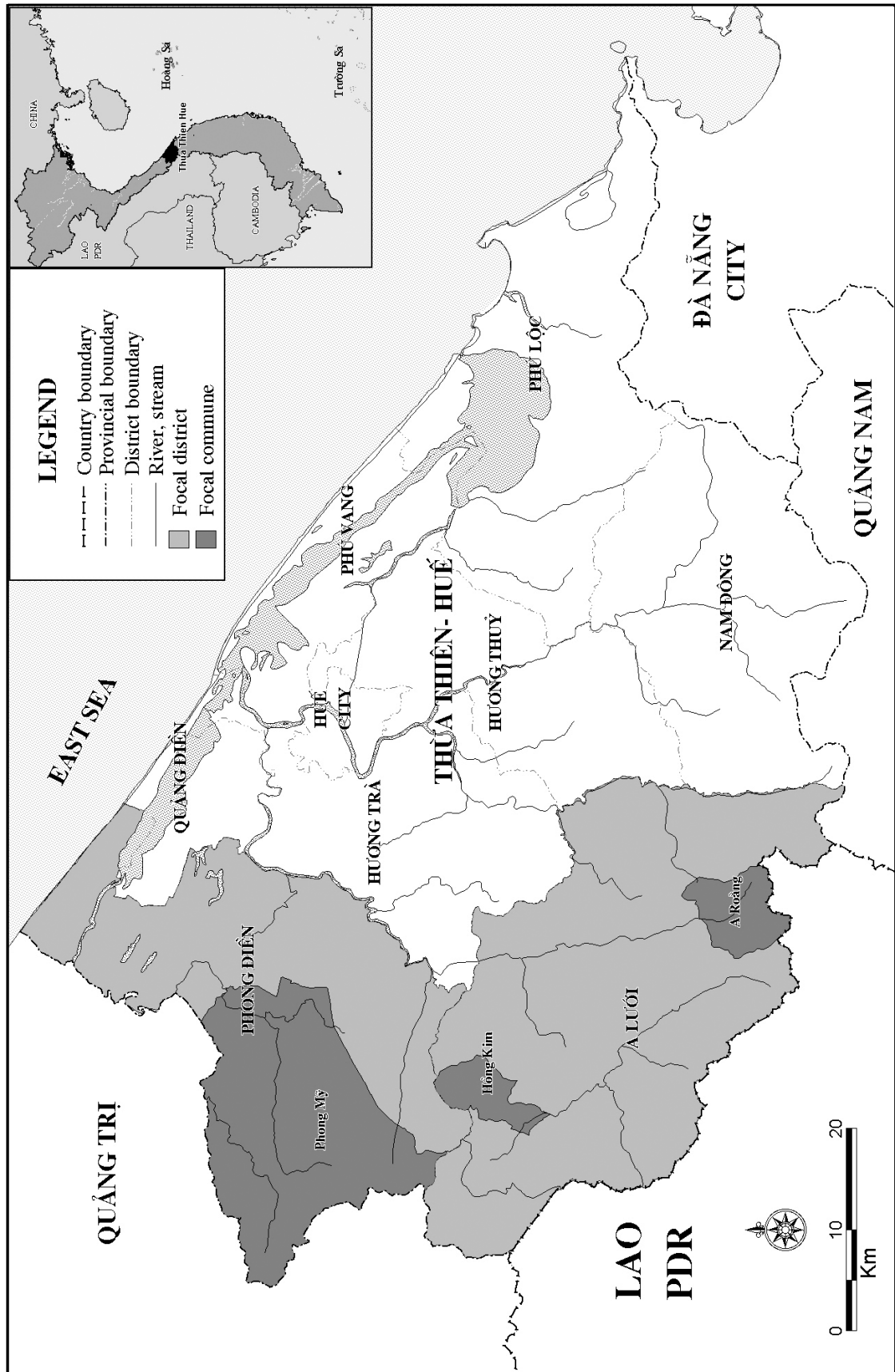
The objectives of this study were to:

- Collect information to help develop management strategies for hunting, the wildlife trade, and NTFPs in the Central Annamites
- Provide quantitative data on the economic contribution of hunting and NTFPs from a protected area.

Population density in the west of Thua Thien Hue province is among the lowest in Vietnam with an average of 19 people per km² (the average for Vietnam is 235 people per km²). The inhabitants are predominantly ethnic minorities belonging to the Ta Oi and Ca Tu groups. The two groups share linguistic and cultural roots and have traditionally been active hunters and gatherers of forest products. The Vietnamese language is quite widely understood among the ethnic minorities in the area.

The terrain in the study area is characterised by small but steep mountains that form the headwaters of several rivers. Rainfall is high and concentrated in the rainy season (from October to January), averaging around 3,000 mm/per annum. Arable land is limited and found largely along river valleys. Apart from communities living near the two major roads in the area (highway 49 running east-west and the Ho Chi Minh Highway running north-south), access to markets is limited. The primary means of transport is on foot or along rivers.

Map 1: Thua Thien Hue Province, showing focal districts (A Luoi and Phong Dien) and focal communes (A Roang, Hong Kim and Phong My), plus major highways.



PART II: METHODOLOGIES

2.1 Sampling

The study area comprised seven villages spread over three communes in two districts of the province (see figure 1). The villages were selected because are in the buffer zone of the relatively new Phong Dien Nature Reserve (four villages) or are in an area critical for biodiversity conservation under the proposed WWF Green Corridor project (three villages).

Table 1: Study Sites

	Location	Predominant Ethnicity
1	Ka Ron village, A Roang commune, A Luoi district	Ta Oi
2	A Min village, A Roang commune, A Luoi district	Ta Oi
3	A Roang 1 village, A Roang commune, A Luoi district	Ta Oi
4	Dut 5 village, Hong Kim commune, A Luoi district	Pa-Ko (branch of the Ta Oi)
5	Dut 6 village, Hong Kim commune, A Luoi district	Pa-Ko (branch of the Ta Oi)
6	Ha Long village, Phong My commune, Phong Dien district	Ba-Hi (branch of the Ta Oi)
7	Khe Tran village, Phong My commune, Phong Dien district	Ba-Hi (branch of the Ta Oi)

The field work was conducted from 27 November to 18 December 2001 (22 days) at the end of the wet-rice harvesting time and during the rainy season.

2.2 Study Team

The team comprised Mr Le Trong Trai (the team leader) and Mr Dang Thang Long both from the national Forest Inventory and Planning Institute. Mr Phan Thanh Ha from the A Luoi district Forest Protection Department (for the villages in A Luoi) and Mr Le Ngoc Tuan from the Phong Dien district Forest Protection Department (for the villages in Phong Dien) joined the team in the field. The team leader has 20 years experience working with protected areas in Vietnam and co-authored the feasibility study for establishing Phong Dien Nature Reserve (subsequently approved). The team leader conducted a similar study of hunting in Dut 5 and Dut 6 villages during 2000.

2.3 Tools

Group Interviews: Group interviews were held in each village. The meetings were open to all villagers. After introducing the study team and the objectives of the study, the villagers completed maps showing the location of the village and nearby hunting and collecting locations. In addition, the villagers ranked the current and past (ten years ago) abundance of various forest resources in their area.

A seasonal calendar was compiled during a group meeting in the first village of A Roang commune and crosschecked during meetings in the other two commune villages.

Semi-Structured Interviews: Interviews were held with village and commune leaders following a standard interview format. One village in each commune was selected for in-depth collection of hunting data. Hunters in these villages were interviewed to get detailed information about prices and volumes of wildlife.

Household Questionnaires: Twenty-eight people completed questionnaires about hunting in Phong My commune (these people live on the border of Phong Dien Nature reserve).

Key Informant Interviews: A series of interviews guided by a questionnaire were held with two professional wildlife traders, who were introduced to the team by villagers and hunters. The interviews with traders were conducted as informally as possible to put the traders at ease. Traders were visited several times to pursue more detailed answers regarding the trade, and if possible, to provide opportunities to observe any animals that the traders may have had in their possession.

District Data: District Forest Protection Department officials provided time-series data on rattan collection levels by commune.

2.4 Limitations

It was not possible to collect standardized data in all seven villages. Thus, the amount of information varies by commune and village.

Hunting amounts and prices may not be accurate. Firstly, villagers know that it is illegal to hunt wildlife in protected areas such as Phong Dien Nature Reserve and may have given inaccurate information in the four villages within the buffer zone of the nature reserve. Secondly, hunting amounts and prices were based on the recollections of villagers, and there was some disagreement on prices in particular.

PART III: RESULTS

3.1 Three Villages in A Roang Commune

Table 2: Seasonal Calendar ¹ of Key Livelihood Activities in A Roang Commune

Activities /months	1	2	3	4	5	6	7	8	9	10	11	12
Wet-rice (two crops)	tend ***	tend ***	tend **	tend *	harvest	harvest, plant	tend ***	tend ***	tend **	harvest	harvest	plant
Hill rice/cassava	harvest	plant	plant									harvest
Rattan					***	***	***	***				
Palm leaves				***	***	***	***	***				
Uoi ²						**	***	***				
Honey					**	***	***					
Hunting activity	***	***								***	***	***

*** spend a lot of time on activity; ** spend moderate time; and * spend only a small amount of time

Table 3: NTFPs Collected in A Roang Commune

NTFP	Where Collected	Month	Collector	Use	Sell	Price (VND)/Unit	Status	
							Ten years ago	Now
Rattan >2cm ³	Good forest	5-8	Men		a	1,500-2,000/ stem	+++	++
Rattan	Good forest	5-8	Men/woman		a	300-400/stem	+++	++
Palm leaves	Good forest	5-8	Men	a	a	3,000/100 stems	++++	+++
Litsea bark (Lauraceae)	Good forest	5-8	Men/woman		a	500-1,200/kg		
Firewood	Regenerating forest	All year	Men/woman	a		—	++++	+++
Bananas	Bare land	All year	Men/woman	a		—	+++	+++
Honey	Good forest	5-7	Men	a	a	50,000-100,000/litre	+++	++
Bamboo shoots	Bamboo forest	8-9	Men/women	a	a	5,000/kg	++++	+++
Bamboo	Bamboo forest	All year	Men/women	a		—	+++	++
Uoi (fruit)	Good and Regenerating forest	7-8	Men/women		a	50,000-60,000/kg	+++	+

++++ very abundant; +++ abundant; ++ common; + rare

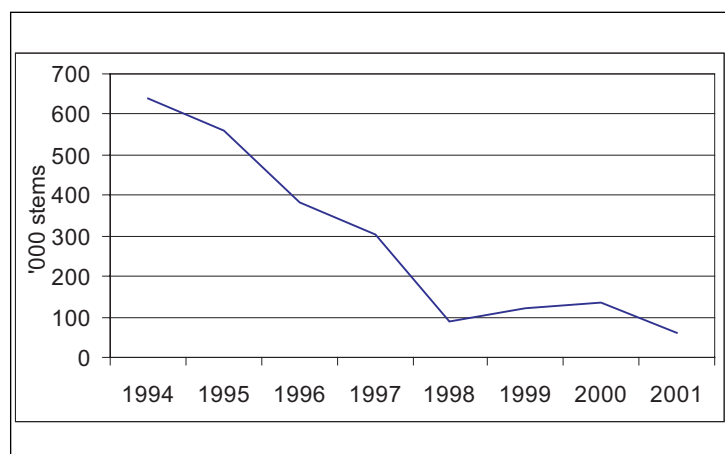
Rattan and Palm Leaves. These are two key NTFPs for the villages in A Roang commune. The rattan is used for making furniture and baskets, and the palm leaves are used for making the Vietnamese conical hats. Formal markets exist for both products with established traders and buyers. These two products have historically been important for villagers as a source of income.

¹ All month in this study are based on the western rather than the lunar calendar (i.e., January = month 1)

² Uoi (*Scaphium lynchophorum*) belongs to the Steruliaceae family. The fruit of this tree is used to make a drink.

³ Rattan stems with adiameter greater than 2cm and a length of more than 4m command the highest prices.

Figure 1: A Roang Commune Rattan Sales



Source: A Luoi district FPD

Table 4: Palm Leaf Collection in Ka Ron Village of A Roang Commune, 2001

Household	Income in 2001 (VND)
1	1,200,000
2	860,000
3	780,000
4	720,000
5	680,000
6	600,000
7	560,000
8	480,000
9	320,000
10	240,000
Average	644,000

Table 5: Hunting in Three Villages of A Roang Commune (aggregate data)

Animal	Where Hunted	Month	Method	Purpose		Status	
				Use	Sell Years Ago	Ten	Now
Wild pig	Forest, fields	10-2	Trap/shoot	a	a	++++	+++
Large-antlered muntjac	Good forest	10-2	Trap	a	a	++	++
Common muntjac	Forest, fields	9-2	Trap/shoot	a	a	+++	++
Annamite muntjac	Good forest	10-2	Trap/shoot	a	a	++++	++
Sambar deer	Good forest	10-2	Trap/shoot	a	a	++++	++
Antlers of sambar deer	Good forest	All year	Collect by hand	—	a	+++	++
Macaques	Forest, stream	10-2	Trap	a	a	++++	+++
Douc langur	Good forest	5-8	Shoot	a	—	+++	++
Bears	Forest	3-5	Trap/shoot	a	a	++	++
Pangolins	Fields, forest	All year	Trap/catch by hand	—	a	+++	++
Striped rabbit	Forest	5-8	Trap/shoot	a	a	+++	++
Three-striped turtle	Good forest	All year	Catch by hand/ trap	—	a	++	+
Other turtles	Good forest	All year	Catch by hand	—	a	++	++
King cobra	Forest	All year	Catch by hand	—	a	+++	+
Other snakes	Forest	All year	Catch by hand	—	a	++	++
Wild cat	Forest	All year	Trap	a	a	+	+
Water monitor	Stream	All year	Catch by hand	a	a	+++	+
Pheasant	Good forest	All year	Trap	a	—	++	++
Forest rats	Forest	10-4	Trap	a	—	++++	++
Crested argus	Forest	All year	Trap	a	—	+++	++
Serow	Rock forest	9-11	Trap	a	a	++	+
Gibbon	Good forest	12-2	Shoot	a	—	++	+
Civets	Fields, forest	8-11	Trap	a	a	++++	+++

Table 6: Amount of Hunted Animals in Three Villages of A Roang Commune

Animal	Before 1997 Ka Ron No./year	Before 1997 A Roang No./year	Before 1997 A Min No./year	2001 Ka Ron No./year	2001 A Roang No./year	2001 A Min No./year
Tiger	1	0	0	0	0	0
Wild pig	20-30	20-30	20-30	5	7	3
Large-antlered muntjac	5-6	5-6	5-6	2	1	1
Common muntjac	10	10	10	5	8	2
Annamite muntjac	5	5	5	2	1	1
Sambar deer	5	5	5	1	0	0
Antler of sambar deer	3-4	3-4	3-4	1	0	0
Macaques	20	20	20	5	8	7
Douc langur	15	15	15	2	5	4
Bears	1-2	1-2	1-2	1	1	0
Pangolins	abundant	abundant	abundant	4	6	6
Striped rabbit	10	10	10	2	1	0
Three-striped turtle	common	common	common	0	0	0
Other turtles	abundant	abundant	abundant	16	5	26
King cobra	common	common	common	5	2	2
Other snakes	abundant	abundant	abundant	15	20	25
Python	common	common	common	2	3	1
Water monitor	common	common	common	3	5	5
Pheasant	—	common	common	—	—	—
Forest rats	—	abundant	—	—	—	—

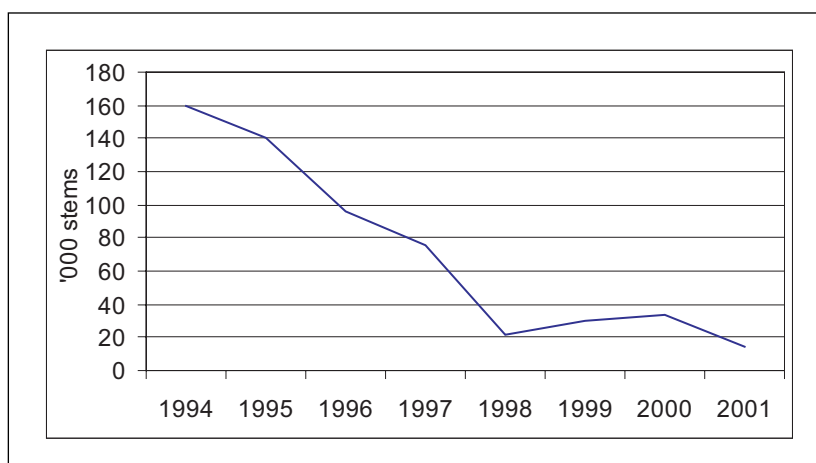
3.2 Two Villages in Hong Kim Commune

Table 7: Amount of Hunted Animals in Two Villages of Hong Kim Commune

Animal	Where Hunted	Method	Before 1997 Dut 5 No./year	Before 1997 Dut 6 No./year	2001 Dut 5	2001 Dut 6
Wild pig	Forest/field	Trap/shoot	15	20	2	4
Common muntjac	Forest/field	Trap/shoot	10	12	1	2
Sambar deer	Good forest	Trap/shoot	2	2	0	0
Macaques	Forest	Shoot	5	6	2	3
Douc langur	Good forest	Shoot	3	2	0	0
Bears	Good forest	Shoot/trap	1	0	0	0
Pangolins	Forest	Catch by hand	Common	Common	1	3
Turtles	Good forest	Catch by hand	Common	Common	2	3
King cobra	Forest	Catch by hand	Uncommon	Uncommon	0	0
Other snakes	Forest	Catch by hand	Common	Common	5	4
Pheasant	Good forest	Trap	Common	Common	0	0
Crested Argus	Forest	Trap	Common	Common	0	0

⁴ In 1997, all guns were confiscated by the local authorities

Figure 2: Hong Kim Commune Rattan Sales



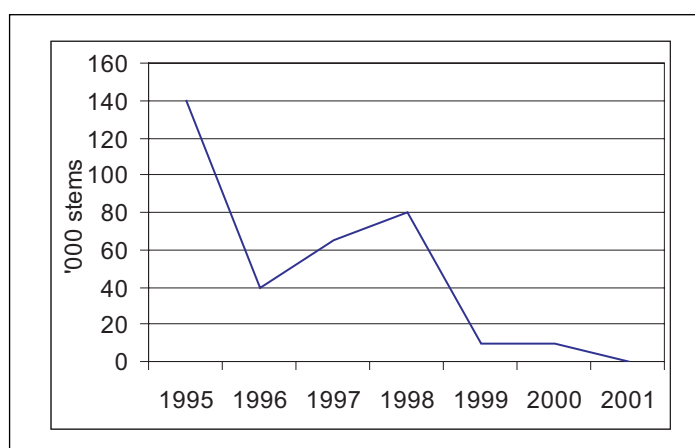
Source: A Luoi district FPD

3.3 Two Villages in Phong My Commune

Table 8: Amount of Hunted Animals in Two Villages of Phong My Commune

Animal	Where Hunted	2001 Ha Long No./year	Ha Long Estimated Weight (kg)	2001 Khe Tran No./year	Khe Tran Estimated Weight (kg)	Use or Sale
Wild pig	Hill agriculture	1	30	1	30	use and sale
Pangolins	O Lau	1	5	1	4	sale
Porcupine	O Lau, My Chanh	2	6	2	12	use and sale
Brush-tailed Porcupine	Forest	—	—	5	6	use
Water monitor	My Chanh	1	5	2	10	sale
Turtle species	O Lau, My Chanh	4	3	—	—	sale
Civets	Near village	1	6	—	—	use
Pheasants	Khe Lau	1	1	—	—	use
Crested Argus	O Lau, My Chanh	2	3	—	—	use

Figure 3: Phong My Commune Rattan Sales



Source: Phong Dien district FPD

3.4 Wildlife Traders

Table 9: Information from Wildlife Trader No. 1

Animals Bought	Weight (kg/ind.)	Estimated Total Weight	Individuals Bought in 2000	Price Paid to Hunters (VND/kg)	Animal Status
Wild pigs	25	500	20	20,000	dead
Muntjacs	20	100	5	15,000	dead
Serow	15	45	3	10,000	dead
Pangolin	5	30	6	400,000	live
Water monitor	5	50	10	80,000	live
Porcupines	9	90	10	25,000	live
King cobra	1.2	3	2	350,000	live
Other snakes	1.5	6	4	40,000	live
Civets	4	40	10	65,000	live
Monkeys	6.5	45	7	15,000	dead
All turtle species	0.7	10	15	30,000	live
Bears	90	90	1	300,000	live
Bear gall	0,01		1	4,000,000/gr	

Table 10: Information from Wildlife Trader No. 2

Animals Bought	Weight (kg/ind.)	Estimated Total Weight	Individuals Bought in 2000	Price Paid to Hunters (VND/kg)	Animal Status
Wild pigs	20	320	16	20,000	dead
Muntjacs	25	100	4	15,000	dead
Serow	20	100	5	10,000	dead
Pangolins	3	21	7	400,000	live
Water monitor	5	60	12	80,000	live
Porcupines	7	63	9	25,000	live
King cobra	1	1	1	350,000	live
Other snakes	1	7	7	40,000	live
Civets	3	33	11	65,000	live
Monkeys	7	35	5	15,000	dead
All turtle species	0.5	6.5	13	30,000	live

3.5 Key Questionnaire Results

From the 28 questionnaires completed by NTFP collectors and hunters in Phong My commune (on the border of Phong Dien Nature Reserve) come the following key results:

- Hunting trips and campsites are mainly in the core zone of Phong Dien Nature Reserve.
- Wildlife species hunted and trapped are sold to local traders in Phong My commune and the adjacent Phong Xuan commune.
- Hunting activity is frequently associated with rattan collection.

PART IV: ANALYSIS

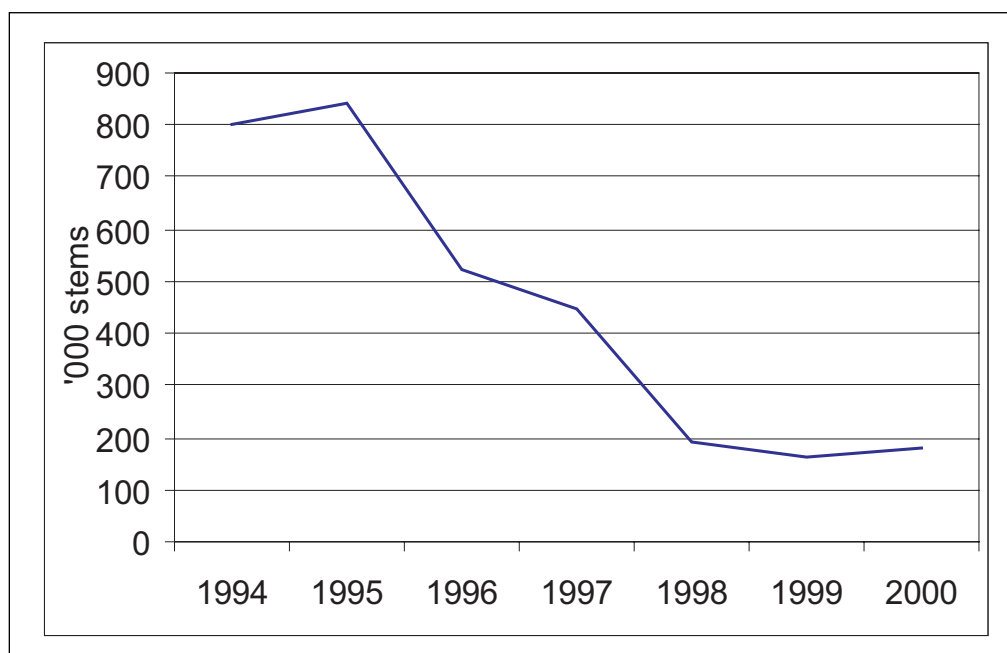
4.1 Forest Resource Trends

The trend that is clearly evident from the study is that in all cases (except bananas), the amount of a resource available today is less than 10 years ago. In a number of high-value forest products, such as honey, Uoi fruit, large rattan, tiger, bears (*Ursus* spp.), sambar deer (*Cervus unicolor*), and pangolins (*Manis* spp.), the amounts collected or hunted have dropped sharply. The larger mammals (tiger, bear, and sambar deer) are now rare.

Hunting has now decreased due to a lack of animals within collecting distance from the villages. The species that continue to be common are those that do well in degraded forest or fields such as wild pig (*Sus scrofa*) and common muntjac (*Muntiacus muntjak*).

The Ta Oi and related groups have a long history of collecting NTFPs and subsistence hunting in the study areas. They lived (and continue to live) at such low population densities that personal local resource use was sustainable. As Vietnam's economy and the regional economy grew rapidly in the 1990s, the demand for NTFPs and wildlife increased, and communities in the study area began to hunt and collect for profit rather than simply subsistence. The regional wildlife trade and markets for NTFPs such as rattan expanded as urban incomes increased in Vietnam and China.

Figure 4: Trend in Rattan Sales in the Three Communes



Sources: A Luoi and Phong Dien districts FPDs

Rattan was widely over-exploited in the 1990s to supply the furniture-making markets in Vietnam and China. It takes about 20 years for the most common species of rattan vine to reach more than 2 cm in diameter. Rattan regrows when it is cut.

Resource Collection Patterns

When? Most NTFPs are collected from May to August during the dry season, and most hunting is from October to February during the rainy season. The periods immediately after the wet-rice harvest (May-June and October-November) appear to be the most active times for forest resource collection.

Wildlife Trade: Animals that are generally sold dead, such as wild pig, muntjacs and serow (*Naemorhedus sumatrensis*), are bought by traders to sell to ‘forest meat’ restaurants in the towns and cities of Thua Thien Hue province. Those that are commonly sold live, such as pangolins, water monitors, snakes, and turtles, are often sold to wildlife middlemen or wholesalers who supply urban markets in Vietnam and southern China. Most of these species are used in traditional medicine.

Table 11: High-Value Wild-Caught Animals

Animal	Reason for Demand
Tiger	Bones are used in traditional medicine to cure a number of ailments
Bear	Bile from the gall bladder is believed to be a universal remedy
Three-striped turtle	Believed to cure cancer
King cobra	Traditional medicine
Pangolin	Scales are used for traditional medicine

Guns versus Traps: With the official collection of all guns in 1997, hunters turned to trapping. A single forest guard trip through Phong Dien Nature Reserve in 2000 netted 454 animal traps most of which were for large mammals. Some hunting with home-made guns continues in the study area. A larger problem is that traps are indiscriminate about what they catch and stay until removed. Guns are more selective because hunters need to aim them and physically be in the same place as the animal.

Gender Differences: With respect to NTFP collection, both men and women collect all the edible NTFPs as well as firewood with the exception of honey (perhaps due to the more dangerous and physically demanding aspects of wild honey collection). Men are the ones who harvest the most commercially valuable NTFPs such as large rattan and palm leaves. With regard to hunting, men do all the collection except for water monitors and turtles, which are collected by hand by both men and women.

4.2 Importance of Hunting

The 2001 average per capita gross domestic product for A Luoi district (including A Roang and Hong Kim communes) was VND 16,140,000⁵. The estimated number of people in the three villages of A Roang commune surveyed was 698. This yields an estimated income for the three A Roang villages of VND 11,265,720,000 in 2001. Income from the wildlife trade in 2001 (VND 77,215,000) is approximately 0.7 percent of the total income. The same calculation for Hong Kim commune finds that wildlife contributed less than 0.1 percent of income in 2001 in the two surveyed villages.

⁵ Statistical Yearbook 2001 A Luoi District

Table 12: Value of Hunted Animals in Three Villages of A Roang Commune

Unit: Vietnamese Dong

Animal	Estimated Weight (kg/animal)	Price*	Before 1997 Total No./year	2001 Total No./year	Before 1997 Total Value/year*	2001 Total Value/year	% Change
Tiger	100	—	1	0	—	—	—
Wild pig	40	15,000/kg	—	15	—	9,000,000	—
Large-antlered muntjac	45	15,000/kg	15-18	4	10,125,000	2,700,000	-73%
Common muntjac	25	15,000/kg	30	15	11,250,000	5,625,000	-50%
Annamite muntjac	15	15,000/kg	15	4	3,375,000	900,000	-73%
Sambar deer	70	20,000/kg	15	1	21,000,000	1,400,000	-93%
Antler of sambar deer	—	900,000/a set	9-12	1	8,100,000	900,000	-89%
Macaques	—	20,000-30,000/animal	60	20	1,200,000	400,000	-67%
Douc langur	—	20,000-30,000/animal	45	11	900,000	220,000	-76%
Bears	70	—**	3-6	2	—	—	—
Pangolins	5	400,000-600,000/kg & 20,000-50,000/kg of scales, 60,000-80,000/a stomach	abundant	16	—	32,000,000	—
Striped rabbit	—	15,000/animal	30	3	450,000	45,000	-90%
Three-striped turtle	—	Before 11million/animal Currently 28 million/animal for >1kg	common	0	—	—	—
Other turtles	0.5	25,000; 70,000 & 90,000/kg	abundant	47	—	1,175,000	—
King cobra	2.0	900,000-1,000,000/kg	common	9	—	16,200,000	—
Other snakes	1.0	200,000-300,000/kg	abundant	60	—	1,200,000	—
Python	10	15,000-30,000/kg	common	6	—	900,000	—
Water monitor	7	50,000-100,000/kg	common	13	—	4,550,000	—
Pheasant	—	15,000-20,000/animal	common	common	—	—	—
	TOTAL					77,215,000	

* using lowest number where a range is given

Table 13: Value of Hunted Animals in Two Villages of Hong Kim Commune

Unit: Vietnamese Dong

Animal	Estimated Weight (kg/animal)	Hong Kim Price*	Before 1997 Total No./year	2001 Total No./year	Before 1997 Total Value/year*	2001 Total Value/year	% Change
Wild pig	40	15,000/kg	35	6	21,000,000	3,600,000	-83%
Common muntjac	25	15,000/kg	22	3	8,250,000	1,125,000	-86%
Sambar deer	70	20,000/kg	4	0	5,600,000	—	-100%
Macaques	7	20-30,000/kg	11	5	1,540,000	700,000	-55%
Douc langur	9	20-30,000/kg	5	0	900,000	—	-100%
Bears	70	-	1	0	—	—	—
Pangolins	(5)	400,000/animal	—	4	—	1,600,000	—
Turtles	0.5	30-60,000/kg	—	5	—	75,000	—
King cobra	2	900,000-1,000,000/kg	—	0	—	—	—
Other snakes	1	200-300,000/kg	—	9	—	1,800,000	—
Pheasants	—	15-20,000/animal	—	0	—	—	—
Crested Argus	—	15,000/animal	—	0	—	—	—
	TOTAL					8,900,000	

** The price depends on the weight of the bear: <5kg (baby bear) = price of VND 2-2,5 million/animal; 6-10kg = price of VND 400,000/kg; and >20kg = price of VND 700,000/kg; Bear bile: small bile has a price of VND 2.5 million/one bile; Medium to big bile in size: VND 10-12 million/one bile.

The reported amounts of wildlife captured are almost certainly lower than the actual amounts, and some of the prices paid may be under-reported, but even doubling the number of animals collected still leaves less than 2 percent of income derived from wildlife. It is clear from this that wildlife hunting in 2001 was a very small portion of village income in the areas surveyed.

Data on Phong Dien district's gross domestic product were not available, so no estimates of the financial importance of wildlife hunting were possible.

There is a noteworthy difference between A Roang commune and the other two communes. Wildlife appears to be more plentiful (based on hunting results) in A Roang than near Phong Dien Nature Reserve. One factor that could partially explain this trend is the fact that defoliants and military action heavily impacted areas of Phong Dien Nature Reserve and its buffer zone during the Second Indochina War.

4.3 Other Issues

From the prices quoted above, there appears to be little link between conservation importance and price. Crested argus (*Rheinardia ocellata*) and other pheasants, for example, have little more value than a chicken, yet are red-listed species.

From interviews with village hunters and wildlife traders, the team found that for high-value species (such as tiger, pangolins and bears), professional hunters, often from outside the province, are operating in the study area.

The study found that palm leaf collection in Hong Kim commune was relatively unimportant compared to A Roang commune. Villagers in Hong Kim noted that palm leaf supplies have been exhausted due to over exploitation in the last few years.

According to wildlife hunting regulations for special use forests, all hunting activity is prohibited in protected areas. Some NTFPs, such as honey, fruit and nuts are allowed to be collected in some parts of the nature reserve (the regeneration zone). In A Roang commune, A Luoi FPD does not allow people to collect Uoi fruits in the forest of A Luoi Forest Enterprise because villagers cut down the trees before fruit collection.

PART V: RECOMMENDATIONS

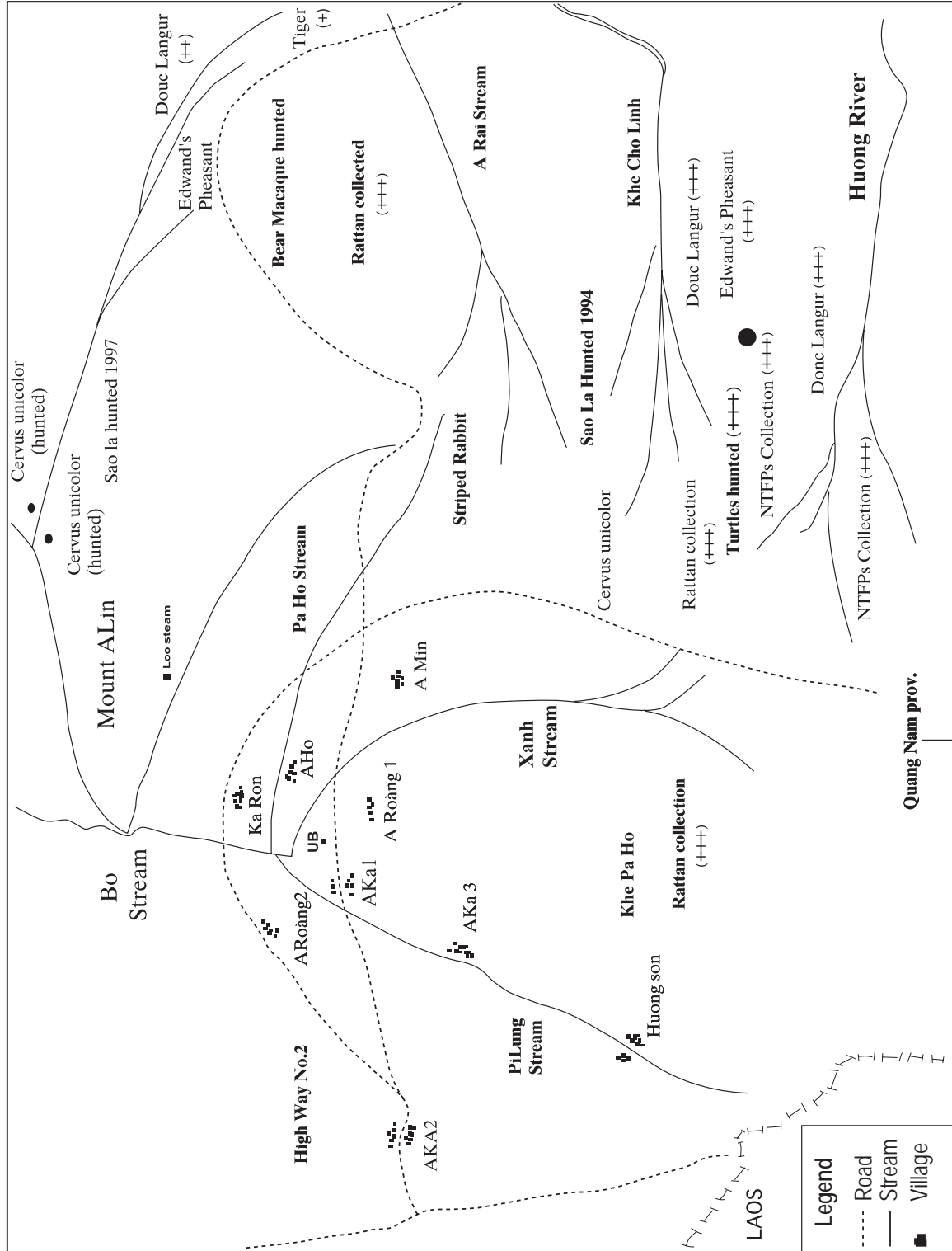
- Promote education and awareness in biodiversity and forest conservation for local communities living near or inside the forest areas.
- Build capacity for Phong Dien and A Luoi Forest Protection Departments in management of wildlife and conservation.
- Increase Forest Protection Departments' capacity for commune and village-level work.
- Develop projects on the extension of agriculture, forestry and handicraft for local communities.
- Local communities in the buffer zone of Phong Dien Nature Reserve should participate in forest protection and restoration programmes as well as wildlife hunting control.
- Phong Dien Nature Reserve should have a management board and forest guard stations established, as the main priorities for the first five-year work plan
- Local communities living near or inside the forest areas should be involved in forest protection and management. In other words, sustainable forest management should be based around the community. Local people want to use natural resources for the long term, but they do not know how to manage resource in sustainable way. Local communities in the buffer zone of Phong Dien Nature Reserve and A Luoi district would like to work on forest protection contracts and forest habitat restoration under the 661 Programme. This opportunity should be taken advantage of to carry out a programme of community-based forest management in these areas.
- Rattan and palm leaf collection in the rehabilitation zones of Phong Dien Nature Reserve could be allowed, but restrictions should be maintained on collecting in core zone of Phong Dien Nature Reserve. The primary study on habitat requirements of Edward's Pheasant indicated that clearance of ground cover in the forest of the core zone would impact Edward's Pheasant and other ground-feeding birds. Also, rattan collection is frequently associated with hunting using snares to catch ground-feeding birds, particularly pheasants.
- The two main watersheds in the core zone of Phong Dien Nature Reserve (O Lau and My Chanh) should be the focal sites for controlling hunting and illegal logging in the nature reserve's work plan.

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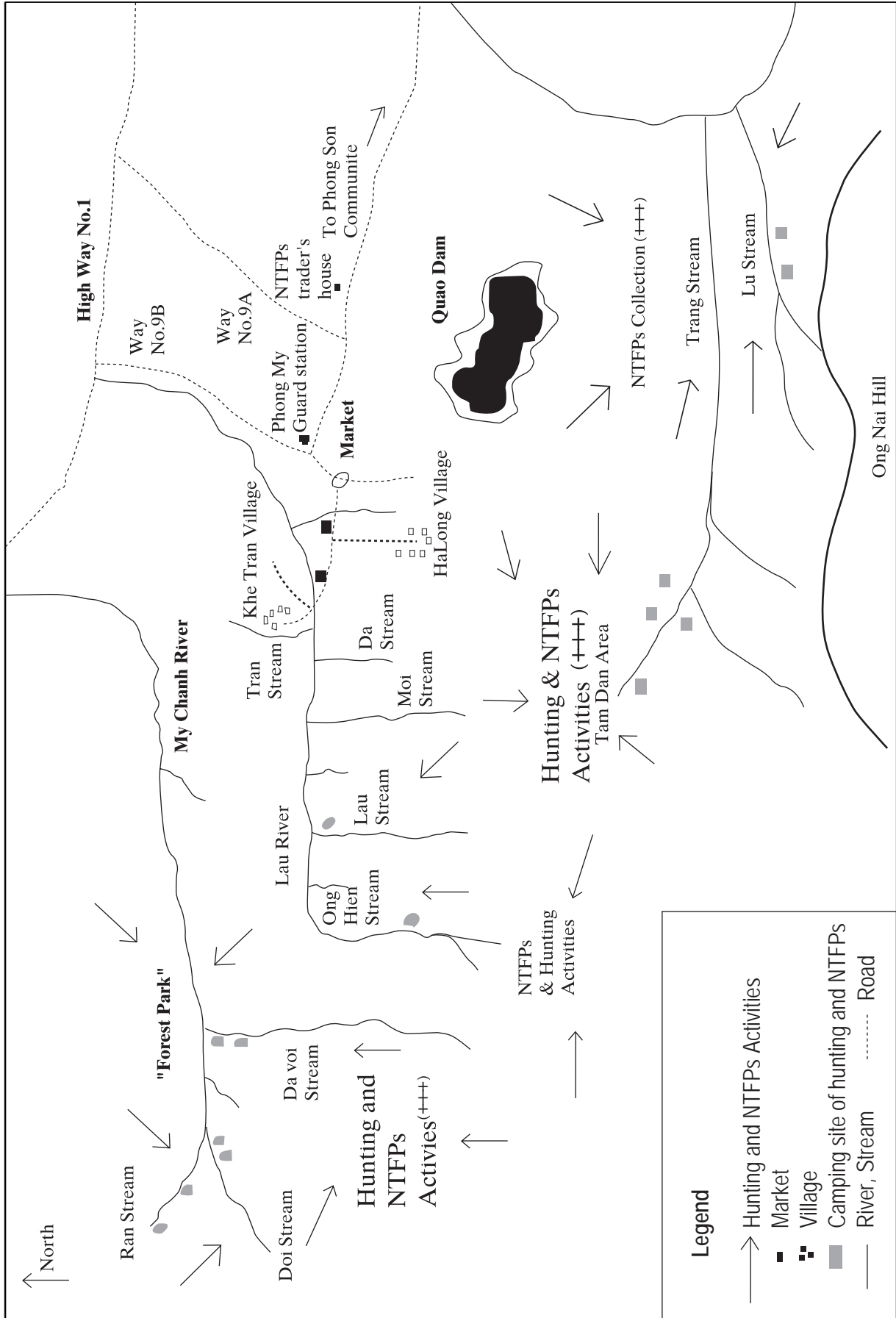
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APPENDIX I: HUNTING AND GATHERING LOCATIONS IN THE THREE COMMUNES

Map 2: Hunting activity and NTFPs collection by villagers in A Roang Commune



Map 3: Showing the Hunting and NTFPs Activities at Phong Dien Natural Reserve



APPENDIX II: SPECIES OF CONSERVATION INTEREST IN A ROANG COMMUNE

Other information on wildlife came from interviews and identification of hunting trophies in the houses of three villages visited.

Muntjacs

Three species of muntjac were identified from the remains of trophies displayed in hunter's houses (large-antlered muntjac, common muntjac and Annamite muntjac). Local people recognized them by differences in their size and habitat (e.g. big, medium and small; old forest, young forest or hill agriculture).

- **Large-antlered muntjac** (Local name A Doan Achor)
Three sets of antlers were identified for this species. Local people reported that the habitat of this species is old and young forest, and that they live in the forest far from villages. Large-antlered muntjac weighs 50-60 kg, and local hunters recognize them as the younger brother of sambar deer.
- **Common muntjac**
Animals and trophies of this species are still quite common. This animal is hunted for food, or sometimes for sale and family consumption. Common muntjac weighs 20-30 kg.
- **Annamite muntjac** (Local name Mat oos)
Two antlers were identified for this species; they were hunted in the forest within the watersheds of the Bo and Huong Rivers. Local hunters reported that the small and black muntjac (Annamite muntjac) was encountered and hunted in old and deep forest at Pa Ong, A Rai and Che Linh streams. This species has never been hunted in secondary forest. It weighs 20-25 kg.

Tiger

Local people reported that footprints of tigers were seen in the upper watershed of the Song Bo and Huong Rivers. They believed that the total population of tigers in the area is about 2-4 individuals. In A Roang commune, from 1997 to 1999, tigers killed twenty domestic buffalos. A tiger was trapped in hill agriculture close to the village in 1983.

Saola

A hunter in Ka Ron village trapped a single female at Pa Ong stream in 1997. Thua Thien Hue FPD released this animal into the forest. Informants in three villages visited indicated that Saola is found, but uncommon, in the forest within the two main watersheds of the Song Bo and Huong Rivers.

Primates

Local people reported that there are different primates occurring in the forest within upper streams of the Song Bo and Huong Rivers. From descriptions, these primates mentioned are douc langur, gibbon and bear macaque (*Macaca arctoides*).

Annamite Striped Rabbit

A few hunters reported that there are two species of hare in the area. The first species is brown in colour with long ears. It is likely that this species is the Siamese Hare (*Lepus peguensis*). The second species described as 1.5 kg in weight, with dark brown stripes on the body and short ears. This species was only trapped and encountered in the forest. Local hunters reported that this species eats spouts of cay mon thuc (*Homalonema occulta*) and slept on the sugar palm (*Arenga* sp). This species was said to be uncommon in the forest. Annamite Striped Rabbit was described as a new species for science in 2000. This species was recorded in a few locations such as Vu Quang, Pu Mat and Phong Nha Nature Reserves, and in the forests of Huong Son district, Ha Tinh province. Informants reported the occurrence of this species in the forest of the Song Bo and Song Huong watersheds. This is a considerable southerly extension of its range of distribution.

APPENDIX III: REPORT SERIES OF THE CENTRAL TRUONG SON INITIATIVE

Towards a Biodiversity Vision for the Forests of the Lower Mekong Ecoregion Complex Compiled by: Michael C. Baltzer, Nguyen Thi Dao, and Robert G. Shore

a) Main Report

This report, commonly termed “the biovision”, details the biodiversity of the Forests of the Lower Mekong Ecoregion Complex (FLMEC). The FLMEC is an amalgamation of four ecoregions - one of which is the Greater Annamites. This report is responsible for the delineation of the Greater Annamites Ecoregion. Within the report is a description of the ecoregion, its biological features of importance, and the threats faced by the ecoregion. The report goes further by identifying and ranking conservation priorities within the Greater Annamites, with the ultimate goal of ensuring the conservation of all biodiversity of the ecoregion for future generations.

b) Technical Annex

The Technical Annex is the second document in the “biovision” series. This report expands on the information provided in the main report by providing more detailed information about each area identified as a conservation priority (termed a “priority landscape”). In addition, the Technical Annex contains condensed versions of the scientific desk studies on the birds, mammals, vegetation and fish of the entire FLMEC.

Socio-economic Scoping Report for the Forests of the Lower Mekong Ecoregion Complex John Baker, Bruce McKenney and Jack Hurd

To compliment the large scale biological assessment conducted for the FLMEC, a socio-economic scoping study was also conducted.

This “situation analysis” is less detailed than the biological assessment, with the intention of providing only essential background information about the main threats to biodiversity and the underlying and exacerbating socio-economic factors. In conclusion, goals and recommendations improving biodiversity conservation are outlined.

1. A Biological Assessment of the Central Truong Son Landscape

Andrew W. Tordoff, Robert J. Timmins, Robert J. Smith and Mai Ky Vinh

Biodiversity Advisory Group: Nguyen Xuan Dang (IEBR); Jack Tordoff (Birdlife International); Le Trong Trai (FIPI); Le Xuan Canh (IEBR); Nguyen Cu (IEBR/Birdlife International); Nguyen Tien Hiep (IEBR); Nguyen Kim Son (IEBR); Vu Van Dung (FIPI); Do Tuoc (FIPI); Pham Mong Giao (FPD); Tran Quoc Bao (FPD); Pham Nhat (Xuan Mai Forestry College); Phan Ke Loc (Hanoi University); Nguyen Van Sang (IEBR); Nguyen Huu Duc (Hanoi Pedagogical University); Ros Shore (WWF Indochina); Alexander Monastyrski (VRTC); Andrey N. Kouznetsov (VRTC).

This is the first report produced under the Central Truong Son Initiative. Covering one of the Greater Annamites most critical priority landscape, A Biological Assessment of the Central Truong Son Landscape follows a similar process to the “biovision” report for the FLMEC.

This report details the biological importance and status of the Central Truong Son priority landscape, and identifies threats to the region. Furthermore, the report outlines conservation priorities for the region and develops broad targets for each of these priorities. Subsequent Geographical Information System (GIS) analyses aid in defining a “conservation landscape” for the Central Truong Son Landscape.

2. Socio-economic Issues in the Central Truong Son Landscape

Compiled by: Nguyen Lam Thanh

This report provides an extensive overview of the socio-economic situation and issues found within the Vietnamese portion of the Central Truong Son priority landscape.

The report contains a great deal of “benchmark data” that is essential to planning for successful conservation and development efforts. This information highlights clear differences between provinces within the priority landscape, and to a lesser extent within individual provinces. Due to the diverse nature of the region, resulting from vast geographical, climatic and cultural differences, the benchmark data is needed to tailor conservation efforts for each area.

3. An Assessment of Development Initiatives in the Central Truong Son Landscape

Compiled by: Aylette Villemain, Herbert Christ, Nguyen Thanh Hai, Tran Kim Long, Bach Tan Sinh and Do Duc Tho

The Central Truong Son Initiative aims to combine successful biodiversity conservation with sustainable development. In order to achieve a balance result, it is essential that existing and planned development initiatives are identified and integrated into conservation strategies.

This report focuses on the provinces located within the Vietnamese portion of the Central Truong Son priority landscape. Planned and existing development initiatives, such as road construction and poverty alleviation projects, are detailed in the report and the potential effects on conservation are commented upon.

4. Existing Land-use Management in the Central Truong Son Landscape

Compiled by: Tran An Phong

Within Vietnam, extensive work has been carried out in designating land-use management practices. This report attempt to pool the often confusing and scattered information into one cohesive map of existing land-use management practices in the Central Truong Son Landscape.

The main outputs of the study are detailed GIS data and maps; they may be combined with additional data for further analyses. However, a brief accompanying report provides some explanation of land-use management within the Central Truong Son Landscape.

5. People, Land and Resources in the Central Truong Son Landscape

Compiled by: Huynh Thu Ba

Research team: Huynh Thu Ba; Le Cong Uan; Vuong Duy Quang; Pham Ngoc Mau; Nguyen Ngoc Lung ; Nguyen Quoc Dung

In addition to extensive biological and situational data, an understanding of how local communities utilise and interact with their environment is essential to developing effective and integrated conservation strategies.

This report aims to develop a more detailed understand of current issues related to people, land and resources - in particular Community Based Natural Resource Management (CBNRM). The study focuses on two pilot sites within the Central Truong Son Landscape, where extensive fieldwork was conducted. Detail comparisons both within and between the sites are made and key recomendations are listed.

6. Tourism Potential of the Central Truong Son Landscape

Compiled by: Hoang Phuong Thao

Tourism within the region is a rapidly expanding sector. If developed property, this could provide significant financial benefits to the inhabitants of the Greater Annamites.

This report investigates existing tourist attractions and facilities with a view towards their potential enhancement. The study also examines the potential of developing additional tourism infrastructure, investigating the full range of possibilities (including ecotourism), as all tourism has the potential to either benefit or harm conservation in a direct or indirect manner.

7. Hunting and Collecting Practices in the Central Truong Son Landscape

Compiled by: Le Trong Trai, Dang Thang Long, Phan Thanh Ha and Le Ngoc Tuan

Phong Dien Nature Reserve (T.T Hue Province) is a critical part of the Central Truong Son conervation landscape as it protects one of the last remnants of lowland forest and it home to important species such as Saola and Edward's pheasant.

This study builds on existing data collected from Phong Dien, and expands the scope to include seven villages. The study investigated which natural resources are used in the area, where they are collected from and their valua in financial and cultural terms. The analysed information points out a local dependence on natural resources.

WWF embarked on **Ecoregion-Based Conservation** in 1998 in response to concerns about the increasing pace of biodiversity loss and the need to increase the scale and integration of global conservation efforts. Thinking and acting across large scales (such as ecosystems, bioregions, or - in WWF's case - ecoregions) can better address both the need to conserve viable species populations and ecosystem processes, and the need to integrate conservation and human development.

Ecoregion conservation begins with the "Global 200" ecoregions - 238 large, biologically-defined regions identified as representing the highest priorities for conservation across all the Earth's major habitat types. The Forests of the Lower Mekong is a complex of four diverse and threatened ecoregions, three of which are listed as Global 200 ecoregions. Established in 1999, the Ecoregion Action Program (EAP) in the Forests of the Lower Mekong is currently working to conserve the beautiful and endangered biodiversity of two of these ecoregions - the Greater Annamites and the Central Indochina Dry Forests.

The Greater Truong Son ecoregion comprises some of the world's most unique and threatened wildlife - from its charismatic endemic species such as the stunning Douc Langur and the remarkable Saola, to some of the world's most endangered and evocative species like the Asian Elephant, Tiger and Javan Rhinoceros. The future of these, and many other species is dependant on successful, long-term conservation of the ecoregion as a whole that must be undertaken immediately, before they are lost forever. EAP in the Greater Truong Son aims to conserve this ecoregion through:

- Mobilising conservation throughout the entire Greater Annamites ecoregion
- Protecting key sites and species through integrated conservation and development activities in priority landscapes
- Promoting a supportive policy environment for conservation and sustainable development
- Laying the foundations for lasting conservation

The Central Truong Son Initiative is a pilot initiative being developed by WWF's Greater Annamites EAP in cooperation with the Governments of Vietnam and Lao PDR. The aim of this fledgeling initiative is to create partnership of a broad range of stakeholders - from local communities to government institutions and international organisations - working together to secure biodiversity conservation and sustainable development in the Central Truong Son Landscape.

WWF is one of the world's largest and most experienced conservation organizations, with almost five million supporters and a global network active in more than 90 countries.

WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans can live in harmony with nature, by:

- Conserving the world's biological diversity
- Ensuring that the use of renewable natural resources is sustainable
- Promoting the reduction of pollution and wasteful consumption

Vietnam's Forest Protection Department (FPD) is a government partner in the Central Truong Son Initiative.

The FPD, located under the Ministry of Agriculture and Rural Development (MARD), is responsible for providing technical advice and guidance in regard to Special Use Forests, and for wildlife management and law enforcement.

The United States Agency for International Development (USAID), in conjunction with WWF - US, has generously provided funds towards the Central Truong Son Initiative.

USAID, an independent federal government agency, is the principal U.S. agency to extend assistance to countries recovering from disaster, trying to escape poverty, and engaging in democratic reforms.

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