

TRADE REVIEW

FIN, FEATHER, SCALE AND SKIN:

**OBSERVATIONS ON THE WILDLIFE
TRADE IN LAO PDR AND VIETNAM**

Edited by

Stephen V. Nash

A TRAFFIC SOUTHEAST ASIA REPORT

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Front cover photograph: (From top; Left to Right)

The Cho Cau Mong wildlife market in Ho Chi Minh City, Vietnam; Wildlife products (dried lizards) on sale at the road-side stalls in Lao PDR

One of the bird stalls at Cho Cau Mong market; A shop selling wildlife including tiger products, Ho Chi Minh City, Vietnam

Gall bladders for sale in Vietnam; Samples of products (snakes) for sale at the Pham Viet Chan market, Ho Chi Minh City, Vietnam

Dried and live geckos for sale in Vietnam

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and Vietnam**

**Edited by
Stephen V. Nash
1997**

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INTRODUCTION

Two thousand years ago, the region that is today the Socialist Republic of Vietnam was exporting pearls to China. By the second century, pearl-producing oysters were so exhausted in the area of Hop Pho that offerings of pearls had to be interrupted for years to let the oyster populations recover. As a result there remains to this day a saying in Vietnam, "to get the pearl back to Hop Pho," meaning to restore things to their original state. That an export trade in a wildlife product was suspended for the sake of management so long ago is remarkable, and it is interesting that such a case in time became a national idiom. Today, the demands for wildlife and wildlife products are quite different from what they were two thousand years ago, both in quantity and intensity. Population pressures are now huge, bringing with them ever-increasing demands on slowly diminishing numbers of wild species, occurring in ever-decreasing areas of habitat.

The biologically diverse countries of the Lao People's Democratic Republic (hereafter referred to as Lao PDR) and the Socialist Republic of Vietnam (hereafter as Vietnam) have, until very recently escaped the notice of the conservation world.

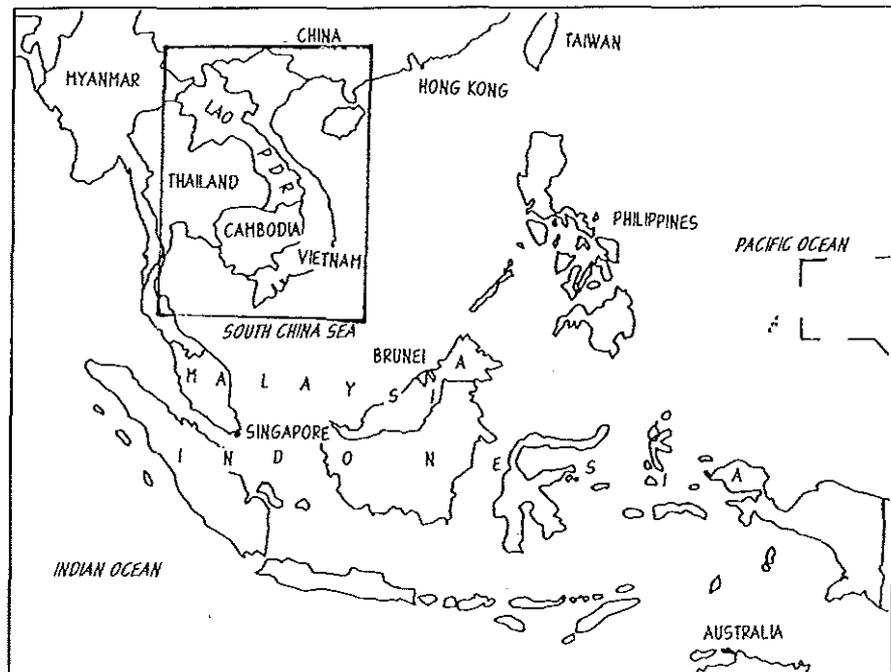


Figure 1: Map of Southeast Asian countries

There simply has not been the same degree of recent study in these two countries as has occurred elsewhere in Asia. Isolated from the rest of Southeast Asia by culture, language, and politics, both countries have been troubled by a long history of war and occupation. Yet these countries comprise the last real *terra incognita* in Asian natural history, and provide the region's greatest challenge in terms of wildlife conservation.

Recent discoveries such as a relict population of the Javan Rhinoceros *Rhinoceros sondaicus* in Vietnam in the late 1980s, the discovery of the previously unknown Vu Quang Ox *Pseudoryx nghetinhensis* and the Giant Muntjac *Megamuntiacus vuquanghensis* in the Annamite Range straddling the Lao-Vietnam border in the early 1990s, the rediscovery of the primitive pig *Sus bucculentus* in Laos in 1995, and evidence of a possibly new Kouprey-like bovid occurring along the Cambodia-Vietnam border only serve to underscore the unstudied nature of the region.

While these discoveries have attracted a great deal of attention in the conservation world, the species concerned were hardly new to the remote communities that have for generations hunted them for food and other uses. How many Vu Quang Oxen have been eaten over the years before scientists chanced upon remains in a hunter's camp? In the case of the Javan Rhinoceros, the Vietnamese population must have been hunted for medicinally important components for many decades, and traders in local medicines probably knew of the continued existence of animals in the wild long before the conservation community became aware of them.

The reality is that wildlife in Laos and Vietnam is primarily a locally consumable resource, mainly as food, and to a much lesser degree as ingredients in traditional medicinal formulations. The more

"typical" wildlife trade, namely the import, export and re-export of live specimens for pets and exotic skins for the fashion industry, is very much in its early days in Laos and Vietnam. Numbers of specimens in this type of trade are but a fraction of those traded in and exported from other countries in the region, such as Thailand, Malaysia, Singapore, and Indonesia.

However, it is the unrecorded trade involving the local use and consumption of wild species that is of serious concern. Very little wildlife is officially exported from Vietnam, and from Laos even less. What is actually exported usually leaves in unreported and often small-scale consignments, though these may be frequent in occurrence. Most of the wildlife trade in Laos and Vietnam is aimed at meeting the basic needs of food and medicine within those countries, and within neighbouring countries such as Thailand and China. This kind of trade bypasses any monitoring mechanisms, and evades any attempt to collect data systematically on the trade or on the myriad uses wild species are put to.

Furthermore, the attention of the conservation community is usually focused on warm-blooded vertebrates such as birds and mammals, but the local and export trade in other groups such as fishes, reptiles, and amphibians may pose an urgent threat to many species. Sadly, very little has ever been documented on the trade or use of these groups. The decline in numbers of many species, and the possible loss of species diversity in the region, are not only worrisome from the perspective of biodiversity conservation, but also from a human needs perspective as well. If wild populations are being reduced because of relentless human demands, what will fill those demands when these species or their local populations disappear entirely?

Can the "pearl be returned to Hop Pho" regarding wild resources in Laos and Vietnam? Unfortunately not, as the widespread physical changes that have occurred over even the past few decades have made a return to the region's historical richness an impossibility. Much can still be done, however, to ensure that the current biological richness and diversity are maintained for the benefit of present and future generations. However, managing and maintaining this natural wealth requires a very good understanding of the use and demand for those species, as well as a good understanding of the status of species occurring in Laos and Vietnam.

This report is a compilation of the use of and trade in wild species in Laos and Vietnam. From October 1991 to November 1995, TRAFFIC Southeast Asia gathered information on all types of wildlife use and trade within the two countries, from a variety of sources, and this report presents the observations noted in this work. This report aims to provide a better understanding of the range of species in trade, and of the trade dynamic that is particular to these two important countries. It is hoped that this information may help flag species or groups whose use and trade requires urgent attention by governments and the conservation community, and that the information may help guide future conservation actions.

Stephen V. Nash
June 1997
Kuala Lumpur,
Malaysia



Map of Indochina with the locations of survey

Lao PDR ¹

[The focus of the study site has mainly been in southern Lao PDR]

Background

Laos, officially known as the Lao People's Democratic Republic, is Southeast Asia's only landlocked country, covering an area of 231 000 square kilometers. Laos shares a very long border with Thailand to the west, and another with Vietnam to the east. Laos has smaller land borders with China and Myanmar to the north and northwest, and with Cambodia to the south. The population of Laos in 1995 was estimated to be 4.8 million, with an annual population growth rate of 2.9 percent. The urban population is estimated to be 22 percent of the total, and the country's per capita GDP amounted to US\$325 in 1995 (Anon., 1996). The Lao population is divided into three major ethnic groups comprising at least 68 smaller ethnic groupings. The three main groups are the Lao Loum (or lowland Lao - about 50 percent of the population), the Lao Theung (speaking Mon-Khmer, and inhabiting the north, central and south of the country), and the Lao Soung (living in the most mountainous parts of the country, mainly the north).

Much of the country is mountainous or hilly, and the Mekong River delineates most of the western border with Thailand. Roughly 54 percent of the country is covered in closed tropical forest. These are evergreen rainforests and monsoon forests, both lowland and montane. The most extensive stands of mature moist forests are now mainly in the southern and central parts (Anon, 1994b). Forest loss has been estimated to be approximately 1 percent annually, with shifting cultivation being the main cause (Anon, 1994b). The biodiversity of Laos has not been studied as closely as in other countries of the region, though concerning vertebrate diversity Laos is considered less diverse than Vietnam but generally more diverse than Cambodia (Nash, 1995).

There is very little literature documenting the history of wildlife trade in Laos, yet it seems likely that wildlife trade has long been conducted widely on a small scale and in an opportunistic way for food and medicine. At present, a wide range of wildlife is marketed for food and traditional medicine, and for a variety of other uses and purposes, including the sale of wildlife items as curios, souvenirs, and decorative items. Chazée, in Martin (1992a) noted that in the north a large proportion of meat consumed is from wild animals, and that mountain peoples earn some of their cash income by selling products from hunting and supplying various markets in Laos.

Items for the curio/souvenir trade have been noted by Martin (1992a), Nash (1992a), and Srikosamatara *et al.* (1992), including items as diverse as mounts of wild cats and ivory carvings. Items in trade for medicinal purposes, such as Gaur *Bos gaurus* bile, Serow *Nemorhaedus sumatraensis* blood and assorted dried gall bladders, have been noted on sale by the same observers. Srikosamatara *et al.* (1992) estimated that some 8000-10 000 mammals, 6000-7000 birds, and 3000-4000 reptiles are traded every year at the That Luang market in Vientiane (the capital of Laos) at a local value of approximately US\$160 000. Species reported for sale as food, curio and medicinal items in Vientiane are shown in Table 1.

Much of the wildlife trade in Laos is mainly of food items destined for local consumption, but wildlife trade in some form occurs across the borders with each of its neighbours. Strategically situated along the Mekong River, Laos has long been involved in wildlife trade with China and Myanmar to the north and northwest, Thailand to the west, Cambodia to the south and Vietnam to the east. The Mekong River is navigable the whole year round between Luang Prabang and Savannaket, and the long border with Thailand has been described as Laos's biggest wildlife law enforcement problem.

As early as the 1960s, foreign businesses were trafficking Lao wildlife across to Thailand (Mills and Servheen, 1991). Southern Laos and northern Cambodia have historically had close relations with each other, largely due to the trade route along the Mekong River. The northern Cambodian provinces of Ratanakiri and Stung Treng were part of the Lao kingdom before France re-drew the border between the two countries in the 1950s; Cambodians in these provinces can usually speak Lao. In 1975, when the Khmer Rouge faction assumed control in Cambodia, trade between Cambodia and Laos virtually ceased altogether, as travel along the Mekong between the two

¹ Based on the work of Ian G. Baird, consultant to TRAFFIC Southeast Asia (adapted from Baird, 1994; and Baird, 1995)

countries was halted and the land border was heavily mined by Khmer forces. However, by 1979 the Khmer Rouge was removed from power and trade between Cambodia and Laos resumed.

Cross-border trade with Vietnam was likely to have been obstructed during the 1964-1975 Indochinese war, when the infamous Ho Chi Minh Trail, which ran along or through the eastern Lao border, was subjected to intense aerial bombardment. Some two million tonnes of explosives and aerial mines were jettisoned over Laos, collectively estimated as the equivalent of a B-52 plane load dropped every eight minutes throughout the nine-year period the hostilities lasted; currently 40 to 50 percent of Laotian territory is still affected by unexploded ordnance or mines.

Table 1

Wild species for sale as food, curio and medicinal items in Vientiane

Sources: Srikosamatara *et al.* (1992); Martin (1992a)

Scientific Name	Common Name	US\$/kg	US\$/specimen
<i>Treron curvirostra</i>	Thick-billed Pigeon		0.70
<i>Gallus gallus</i>	Red Junglefowl		3.50
<i>Pavo cristatus</i>	Green Peafowl		4.00
Strigidae spp.	Owl		0.80
<i>Dendrocygna javanica</i>	Lesser Tree Duck		2.00
<i>Muntiacus muntjak</i>	Indian muntjak	4.30 - 5.70	5.00
<i>Cervus unicolor</i>	Sambar (dry meat)	4.10 - 7.00	
<i>Sus scrofa</i>	Wild pig	3.40 - 4.10	3.00
<i>Manis</i> spp.	Pangolin (meat)	2.10 - 3.40	4.00
<i>Petaurista</i> spp.	Flying Squirrel	1.70	
Sciuridae spp.	Squirrel		1.00
Viverridae spp.	Civet		8.00
<i>Tragulus napu</i>	Greater Mouse Deer		4.00
<i>Lepus siamensis</i>	Chinese Hare		3.00
<i>Rattus</i> spp.	Rat		0.70
<i>Varanus</i> spp.	Monitor Lizard		2.10
Serpentes spp.	Snake		4.00
Trionichidae spp.	Softshell Turtle	1.70	
Testudinidae spp.	Tortoise		2.00

* Exchange rate of Kip 700 per US\$

Regulation of wildlife trade in Lao PDR

Regulation of the wildlife trade in Laos is currently the responsibility of the Ministry of Agriculture and Forestry. Within this Ministry are the two Departments under which fall the control and management of the trade: the Department of Forestry, and the Department of Livestock and Fisheries. The division within the Department of Forestry that is presently delegated to centrally deal with wildlife trade matters is the Center for Protected Areas and Watershed Management. In addition, each of the country's 17 provincial authorities has a division dealing with agriculture and forestry (Nash and Broad, 1993).

The Forest Police force of the Ministry of Agriculture and Forestry operates as a separate division attached to the Department of Forestry, while maintaining direct links with the Ministry of Justice. The Forest Police's main tasks are to stop illegal logging and extraction of non-timber forest products, to stop illegal wildlife hunting and trade, and to raise public awareness of government regulations. The Forest Police force does not have responsibility for border checks. This authority is handled by the National Office of Forest Management and Protection of the Department of Forestry and the Customs service of the Ministry of Finance, which also have duties relevant to the implementation and enforcement of wildlife trade controls. The National Office of Forest Management and Protection operates at international and provincial border checkpoints, principally for the control of forestry products and wildlife. Nine official international border checkpoints were in

operation in 1993, with one for Cambodia, three for Vietnam, five for Thailand, and none with China or Myanmar. Six officers are maintained at each checkpoint, and these are responsible for inspection of wildlife shipments and documentation. They coordinate closely with the Forest Police who are responsible for law enforcement. The Customs service is responsible for the general operation of border checks, and prior to the adoption of the wildlife export ban policy (see below), the Customs service was responsible for the control of all wildlife shipments on entry to or exit from the country (Nash and Broad, 1993).

Venevongphet (1992) and Madar and Salter (1990) outline several decrees issued since 1979 involving the protection and/or management of wild resources. The most important of these is the *Decree on Management and Protection of Aquatic Animals and Wild Animals and on Hunting and Fishing No. 118/CCM (1989)*, which establishes that management of wildlife and aquatic animals is a function of the State, and that the development, implementation and control of such management are functions of the Ministry of Agriculture and Forestry. Article three of the Decree states that hunting and fishing using military weapons, grenades, poison and other forms of a 'mass destruction' character are prohibited, as is the hunting or fishing of endangered species, pregnant or suckling animals, or of any fish species during the spawning season. No plant species are currently protected in Laos.

This Decree also states that the importation or exportation of wildlife or aquatic animals (living or dead) or parts thereof requires specified forms of documentation. Sanctions for violations include warnings, penalties, confiscations and further prosecution, but none of these are explained in detail. Previous provisions not corresponding to the contents of Decree No. 118/CCM are declared as abolished, thereby consolidating and expanding provisions of previous decrees. Decree No. 118/CCM effectively provides for the importation and exportation of wildlife with proper documentation. Two schedule lists of species were attached to this Decree, for "totally protected" and "controlled" species (Table 2). In 1991, the Ministry of Agriculture and Forestry issued a list of instructions designed to clarify some ambiguous sections of Decree No. 118/CCM. However, in 1990 the government adopted a policy to stop all exports of wildlife (animals and aquatic fauna) from Laos (Nash and Broad, 1993).

The instructions also outlined the regulations and penalties for violations regarding each category. Species listed on Schedule I (Table 2) cannot be hunted or traded at any time, except with approval from the Council of Ministers. Those violating the rules for Schedule I species can be fined kip 50 000-500 000 (US\$71-714) and/or imprisoned from three months to two years. Species listed on Schedule II can be hunted outside the breeding and rearing seasons (though these are not defined). Nevertheless, these cannot be legally sold or exchanged, and can only be hunted for food consumption. Violators can be fined kip 5000-300 000 (US\$7-428) and/or imprisoned for three months to one year. All other species not listed in Schedules I and II can be legally hunted and traded within the country. Each province in Laos is allowed to upgrade wildlife species from the general category to Schedules I and II or from Schedule II to Schedule I, according to the local status of the species, but downgrading between schedules, or removal from the schedules, is prohibited (Anon., 1991).

According to Decree No. 118/CCM, the Ministry of Agriculture and Forestry is the only government body authorized to issue documents permitting the importation and exportation of wildlife (Anon., 1991), should a resumption of exports be authorized again. The present view expressed by certain officials is that exports of wildlife should not be resumed until more is known of the state of wild populations in Laos (Nash and Broad, 1993). Those who illegally import and export wildlife from Laos can be fined kip 100 000-1 000 000 (US\$142-1428) and/or be imprisoned from three months to two years (Anon., 1991). At the time of publication of this report, Laos is not yet a party to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), but authorities have expressed interest in the Convention.

Table 2

Protected and controlled species in Lao PDR, as appended to Decree No. 118 (1989), together with the most recent CITES status of 1996

(CITES status codes: I = Appendix I; II = Appendix II; III = Appendix III; - = not listed)

Source: Nash and Broad (1993)

Schedule I: Totally protected animals

Scientific name	Common name	CITES status
<i>Orcaella brevirostris</i>	Irrawaddy Dolphin	II
<i>Rhinoceros sondaicus</i>	Javan Rhinoceros	I
<i>Bos sauveli</i>	Kouprey	I
<i>Elephas maximus</i>	Asian Elephant	I
<i>Bubalus arnee</i>	Wild Water Buffalo	III
<i>Bos javanicus</i>	Banteng	-
<i>Bos gaurus</i>	Gaur	I
<i>Helarctos malayanus</i>	Sun Bear	I
<i>Ursus thibetanus</i>	Asiatic Black Bear	I
<i>Panthera tigris</i>	Tiger	I
<i>Panthera pardus</i>	Leopard	I
<i>Cervus eldi</i>	Eld's Deer	I
<i>Cervus nippon</i>	Spotted Deer	-
<i>Cervus porcinus</i>	Hog Deer	I
<i>Naemorhedus sumatraensis</i>	Serow	I
<i>Naemorhedus goral</i>	Goral	I
<i>Tapirus indicus</i>	Tapir	I
<i>Pygathrix nemaeus</i>	Variegated Langur	I
<i>Hylobates spp.</i>	gibbons	I
<i>Presbytis francoisi</i>	Francois's Langur	II
<i>Presbytis cristatus</i>	Silver Langur	II
<i>Pavo muticus</i>	Green Peafowl	II
<i>Buceros bicornis</i>	Great Hornbill	I
<i>Pelecanus philippensis</i>	Spotted-billed Pelican	-
<i>Grus antigone</i>	Sarus Crane	II
<i>Ibis leucocephala</i>	Painted Stork	-
<i>Pseudibis gigantea</i>	Giant Ibis	-
<i>Lophura nycthemera</i>	Silver Pheasant	-
<i>Ciconia episcopus</i>	White-necked Stork	-
<i>Leptoptilos dubius</i>	Greater Adjutant Stork	-
<i>Threskiornis melanocephalus</i>	White Ibis	-
<i>Gracula religiosa</i>	Hill Myna	III
<i>Cairina sculata</i>	White-winged Wood Duck	I
<i>Rheinardia ocellata</i>	Crested Argus	I
<i>Egretta alba</i>	Great Egret	III
<i>Crocodylus siamensis</i>	Siamese Crocodile	I
<i>Cuora amboinensis</i>	Southeast Asian Box Turtle	-
<i>Sieberckiella crassicollis</i>	Black Marsh Turtle	-
<i>Python reticulatus</i>	Reticulated Python	II
<i>Python molurus</i>	Burmese Rock Python	II
<i>Ophiogagus hannah</i>	King Cobra	II

Table 2. Continued

Protected and controlled species in Lao PDR, as appended to Decree No. 118 (1989), together with the most recent CITES status of 1996

(CITES status codes: I = Appendix I; II = Appendix II; III = Appendix III; - = not listed)

Source: Nash and Broad (1993)

Schedule II: Controlled animals

Scientific name	Common name	CITES status
<i>Cervus unicolor</i>	Sambar Deer	-
<i>Muntiacus muntjak</i>	Indian Muntjak	-
<i>Lutra</i> spp. (Lutrinae)	otters	I/II
<i>Paguma larvata</i>	Masked Palm Civet	III
<i>Viverricula indica</i>	Small Indian Civet	III
<i>Tragulus javanicus</i>	Lesser Mouse Deer	-
<i>Arctonyx collaris</i>	Hog-nosed Badger	-
<i>Melogale personata</i>	Ferret-badger	-
<i>Manis javanica</i>	Malayan Pangolin	II
<i>Macaca</i> spp.	macaques	I/II
<i>Nycticebus coucang</i>	Slow Loris	II
<i>Neofelis nebulosa</i>	Clouded Leopard	I
<i>Arctictis binturong</i>	Binturong	III
<i>Felis temmincki</i>	Golden Cat	I
<i>Felis viverrina</i>	Fishing Cat	II
<i>Cuon alpinus</i>	Asian Wild Dog	II
<i>Canis aureus</i>	Golden Jackal	III
<i>Felis marmorata</i>	Marbled Cat	I
<i>Felis bengalensis</i>	Leopard Cat	II
<i>Ratufa</i> spp.	giant squirrels	II
<i>Rhizomys</i> spp.	Bamboo rat	-
<i>Hystrix brachyura</i>	Porcupine	-
<i>Atherurus macrourus</i>	Asiatic Brush-tailed Porcupine	-
<i>Petaurista</i> sp.	flying squirrels	-
<i>Anthracoceros albirostris</i>	Pied Hornbills	II
<i>Gyps bengalensis</i>	White-backed Vulture	II
<i>Strix leptogrammica</i>	Brown Wood Owl	II
<i>Amaurornis phoenicurus</i>	White-breasted Waterhen	-
<i>Podiceps ruficollis</i>	Little Grebe	-
<i>Egretta intermedia</i>	Intermediate Egret	-
<i>Bubulcus ibis</i>	Cattle Egret	III
<i>Megalaima virens</i>	Great Barbet	-
<i>Ducula badia</i>	Mountain Imperial Pigeon	-
<i>Psittacula</i> spp.	parakeets	-
<i>Acridotheres tristis</i>	Common Myna	-
<i>Anas</i> spp.	Ducks	II/-
<i>Streptopelia tranquebarica</i>	Red Turtle Dove	-
<i>Streptopelia chinensis</i>	Spotted Dove	-
<i>Gallus gallus</i>	Red Junglefowl	-
<i>Upupa epops</i>	Hoopoe	-
<i>Glaucidium</i> spp.	owlets	-
<i>Picus</i> spp.	woodpeckers	-
<i>Eudynamis scolopacia</i>	Koel	-
<i>Dicrurus</i> sp.	Drongos	-
<i>Porphyrio porphyrio</i>	Purple Gallinule	-
<i>Ardea purpurea</i>	Purple Heron	-
<i>Lophura</i> spp.	pheasants	I/III
<i>Arborophila</i> sp.	partridges	III
Accipitridae	birds of prey	I/II
<i>Vanellus</i> sp.	lapwings	-

Table 2. Continued

Protected and controlled species in Lao PDR, as appended to Decree No. 118 (1989), together with the most recent CITES status of 1996

(CITES status codes: I = Appendix I; II = Appendix II; III = Appendix III; - = not listed)

Source: Nash and Broad (1993)

Schedule II: Controlled animals

Scientific name	Common name	CITES status
<i>Treron</i> spp.	green pigeons	III
<i>Varanus salvator</i>	Water Monitor	II
<i>Varanus bengalensis</i>	Indian Monitor	I
<i>Calotes</i> spp.	-	-
<i>Trionyx</i> spp.	softshell turtles	I/-
<i>Testudo</i> spp.	tortoises	II
<i>Pseudos ciensollado</i>	-	-
<i>Pangasius pangasius</i>	-	-
<i>Probarbus jullieni</i>	Jullien's Golden Carp	I
<i>Wallagonia miostoma</i>	-	-
<i>Pangasianodon gigas</i>	Mekong Giant Catfish	I
<i>Pangasius sanitwongsei</i>	catfish	-

A draft Nature Conservation Act was proposed in October 1990 by the IUCN Forest Resources Conservation Project of the Lao-Swedish Forestry Cooperation Programme (Madar and Salter, 1990). The draft Act covers a wide range of topics, including management of nature conservation, protected areas, protected species and hunting/fishing (including regulation of wildlife trade), and offences and penalties relevant to infractions involving the above, and centers around the establishment of a central state organ for nature conservation (tentatively named the Central Authority for Nature Conservation). As of 1997 the draft Nature Conservation Act was still under consideration by Lao authorities.

However, the relatively recent laws in Laos banning export of wildlife and restricting internal wildlife trade have probably not had any deep or widespread impact on such trade among the rural communities where such trade occurs or is initiated, as many rural hunters and traders are unable to speak or read the official Lao language. For example, in Sekong Province there are 14 separate tribes of Lao Theung people, all of whom speak different languages, or differing dialects of the same Lao Theung language. This makes the task of explaining laws and regulations a difficult job for government officials, who must often use local translators to communicate with villagers. Local people also find it culturally and economically difficult to change established living patterns to conform with new centrally-imposed regulations about which they were never consulted. Emerging incentives to trade in wildlife for ready income will not readily be dulled by new laws, at least in rural areas.

Trade and utilization in southern Lao PDR

The south of the country generally has less of a hunting tradition than in the north (Chazée, 1990a), but both the Lao Theung and the Lao Loum living in southern Laos still rely heavily on wildlife as a source of food, medicine and income (Baird, 1993b). The Lao Loum are traditionally not a hunting people like the Lao Theung. Chazée (1990a) observed that 80 percent of the Lao Loum do not engage in hunting, engaging instead in lowland rice cultivation and small-scale fishing activities. However, Lao Loum people living far from major rivers also hunt wildlife for food. The Lao Theung in the mountainous regions do most of their hunting in the dry season between February and May and between July and October, when rice is sometimes scarce.

Historically, in the south a wide diversity of very primitive weapons, snares and traps have been used to hunt with, and bows and arrows and crossbows are still commonly used by the Lao Theung to hunt small mammals and birds. Since World War II, modern firearms have been introduced and used for hunting wildlife, and this has made large-mammal hunting much easier (Baird, 1993b). Older, primitive muzzle-loading firearms are rarely seen in southern Laos, though these may still be found in use in the north (Chazée, 1990a).

Increasing demand for wildlife products in the cities and in neighbouring countries (especially Thailand and Vietnam) is providing a greater incentive for local people to hunt and trade in wildlife products. Chazée (1990a) observed that the Lao Theung in southern Laos obtain 30 to 60 percent of their income from selling wildlife and other forest products. Before the first organized market in Sekong Province was set up in 1990, money was used very little by the Lao Theung (who make up 95 percent of the province's population). Even now, many remote villages in Sekong Province (and to a lesser extent in Attapeu Province, where 60 percent of the population is Lao Theung) do not value money and refuse to accept it when outsiders visit their villages and ask to buy goods. Rural Lao Theung traditionally consume few items that they cannot obtain or make from locally available sources. On occasional visits to the cities in southern Laos and neighbouring Vietnam, they buy very few if any consumer goods, often restricting their purchases to salt and items of clothing. The market economy possibly plays less of a role among the Lao Theung than elsewhere in Laos, Vietnam and Cambodia.

In view of the physical isolation of the many tribes in southern Laos and their reliance on subsistence agriculture and hunting, it is unlikely there was any significant commercial trade in wildlife until recently, at least in the remote provinces of Sekong and Attapeu. Not only was travel restricted within the country by the government, but logistically travel has been and still is difficult. Many rural Lao Theung, and to a lesser extent Lao Loum, have to walk tens of kilometers to get to the nearest market. The one road between Sekong Province and Vietnam is passable only on foot, the journey between the provincial capital and the border typically taking two to three days, and only one official crossing exists between Attapeu Province and Vietnam.



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That crossing is passable only in the dry season and is generally in very poor condition, and there may not be much organised wildlife trade along this route (Baird, 1993b). In addition, Lao borders have often been closed or obstructed in the past. For instance, the border with Thailand was officially closed in 1975 and only re-opened in April 1989 at Chong Mek, when relations with Thailand improved (Srikosamatara *et al.*, 1992). From 1975 to 1978 Lao villagers avoided the Lao-Cambodia border area, owing to the presence of land mines and Khmer military activity.

Wildlife products for sale

However, the increasing demand for wildlife products in the larger towns and in neighbouring Thailand and Vietnam is providing a greater incentive for local people to hunt wild species and trade in products derived from them. Following the re-opening of the Chong Mek border crossing, wildlife trade via other crossings along the Lao-Thai border (such as that which opened near Ban Mai in Champasak Province in 1989) has become popular (Baird, 1993b). A slow resumption of trade to and from Cambodia has taken place, and fishes in particular began to be imported from Cambodia in the late 1980s and early 1990s. Within Laos generally, transportation routes were improved during this period and this has helped the growth of trade.

The uses of wildlife in southern Lao PDR

While fishes are the most important source of protein for southern Lao people (especially the Lao Loum), frogs and lizards also make up an important part of the local diet, as do even smaller species (grasshoppers, beetles, silkworms, red ant nests, and so on). This is particularly the case when other

sources of food, such as mammals and birds, are unavailable. Subsistence hunting and fishing are also carried out by forestry crews, military personnel and police officers assigned to border posts and other rural areas, while stands selling wildlife foods may be set up in busy locations. One example of the latter is along the route of the bus to Pakse, where roasted treeshrews *Tupaia* spp. sell in considerable quantities to passengers for kip 300 (US\$0.42) each.

Animism plays a large role in the everyday lives of the Lao Theung and Lao Loum (though the latter consider themselves Buddhists), and wildlife is often an important component of traditional animist ceremonies. For example, the Lao Theung hunt Indian Muntjak *Muntiacus muntjak* and other mammals, and offer part of the carcasses to forest spirits. The Lao Loum and Lao Theung also use Wild Pig *Sus scrofa* tusks, Irrawaddy Dolphin *Orcaella brevirostris* teeth, Tiger *Panthera tigris* and bear teeth and claws and other wildlife items as personal charms to protect themselves from ghosts and evil spirits.

Wildlife products and derivatives are an important component of traditional Lao medicine, a derivation of traditional Chinese medicine with a strong folk-medicine component. While animal ingredients are used, most traditional Lao formulations are plant-based. Traditional remedies are still widely respected and are commonly used throughout southern Laos. In remote areas (such as in most parts of Sekong and Attapeu provinces), traditional medicines are used almost exclusively. Although wildlife-derived medicines are widespread, there does not appear to be much organised trade in these. Instead, small quantities of raw wildlife products or derivatives are sold and exchanged between villagers on a very small scale and according to family needs.

Some notable wildlife products and derivatives that are highly valued in Laos for their medicinal and tonic properties include Serow "liquor," rhinoceros horn, Tiger bones and other parts of wild cats, bear gall bladders and paws, bat skeletons, softshell turtle heads, cobra blood and bile, and various lizards and geckos. Other items include catfish (family Ariidae) spines, and the head and stomach oil of the fish *Leptobarbus hoeveni* (the oil is used as a treatment for skin diseases). Python gall bladders are highly valued by the Lao Loum, who add them to rice whiskey given to relieve pain after childbirth.

The more valuable products, such as Tiger and rhinoceros parts, may be consumed only very rarely as these can fetch much higher prices in Thailand, and to a lesser extent in Vietnam. In 1993 the largest outlet for Lao wildlife products was a traditional Lao medicine stall on the Thai side of the Chong Mek border crossing, displaying products derived from protected and endangered Lao wildlife species.

Trade in fishes

Although the Mekong River is one of the most important rivers in Southeast Asia, little is known about the status of Mekong fishes and their ecology. IUCN classified two Mekong fish species, Blanc's Striped Featherback *Chitala blanci* as near threatened and the catfish *Pangasius sanitwongsei* as data deficient; one species, the Mekong Giant Catfish *Pangasianodon gigas*, is considered endangered if current levels of exploitation continue; and the status of Jullien's Golden Carp *Probarbus jullieni* is considered endangered (IUCN, 1996).

However, Blanc's Striped Featherback *Chitala blanci* can be seen in large numbers in several markets in southern Laos, and villagers consider the species to be relatively common (the similar Spotted Featherback *Chitala ornata* may in fact be a much rarer fish). Both the Giant Catfish *Pangasianodon gigas* and Jullien's Golden Carp *Probarbus jullieni* are listed in Appendix I of CITES and therefore banned from international commercial trade. Typical varieties of Lao fishes in trade (as seen in Thailand) are listed in Table 3.

Several fish species in the Mekong are of conservation concern. Jullien's Golden Carp *Probarbus jullieni* is subjected to intensive capture pressure, in particular during the November spawning/migration period. Harvesting of Jullien's Golden Carp *Probarbus jullieni* and other fish listed under Schedule II are only allowed if they follow the fishing regulations. These fish are exported to Thailand, which for Thailand is an undocumented (and therefore illegal) import trade in a CITES Appendix I-listed species. An important threat to the continued survival of Jullien's Golden Carp and

the allied species *Probarbus labeaminor* and *P. labeamajor*, and to other fish species, is the proposed construction of dams across the Mekong River at Stung Treng and Sambor in Cambodia.

Jullien's Golden Carp is historically known only from the Perak Basin in Malaysia and the Chao Phraya and Mekong Basins of Indochina. However, naturally-occurring populations no longer exist in the Chao Phraya Basin, and the species was essentially extirpated from the Perak Basin in Malaysia in the 1930s as a direct result of the Chenderoh Dam. *Probarbus labeaminor* and *Probarbus labeamajor* are known only from the Mekong Basin and could be severely affected if mainstream dams are built on the Mekong River (Roberts, 1992).

Table 3

Average prices of Lao fishes on sale at Ban Wernberk, Khong Chiam District, Ubon Ratchathani Province, Thailand, in July 1993.

Source: Baird (1993b)

Species	Common Name	Baht/kg	US\$/kg
<i>Aptosyax gryppus</i>	-	70	2.80
<i>Bagarius yarrelli</i>	-	30	1.20
<i>Belodontichthys</i> spp.	-	60	2.40
<i>Chitala blanci</i>	-	30	1.20
<i>Cirrhinus microlepis</i>	-	30	1.20
<i>Cosmochilus harmandi</i>	-	40	1.60
<i>Cyclocheilichthys enoplos</i>	-	90	3.60
<i>Hemisilurus mekongensis</i>	-	40	1.60
<i>Kryptopterus apogan</i>	-	90	3.60
<i>Labeo chrysophekadion</i>	-	35	1.40
<i>Mekongina erythrospila</i>	-	30	1.20
<i>Mystus microphthalmus</i>	-	75	3.00
<i>Probarbus jullieni</i>	Jullien's Golden Carp	50-75	2.00-3.00
<i>Probarbus labeamajor</i>	-	35-55	1.40-2.00
<i>Pangasius krempfi</i>	-	30	1.20
<i>Pangasius larnaudei</i>	-	30	1.20
<i>Pangasius sanitwongsei</i>	catfish	70-120	2.80-4.80
<i>Pangasianodon gigas</i>	Mekong Giant Catfish	180	7.40

Probably not more than a few Mekong Giant Catfish are caught in southern Laos each year. A Giant Catfish can take villagers up to three days to land, and it seems likely that the high price paid for the meat of this species in Thailand probably results in most individuals captured from the Lao side being smuggled across to Thailand. Srikosamatara *et al.* (1992) reported that Khong Chiam District in Thailand is famous for Giant Catfish meat, but one restaurant owner in Khong Chiam advertising dishes made from this species admitted that most restaurants in the area substituted the meat of the smaller *Pangasius sanitwongsei* because of the scarcity of Giant Catfish and the similar qualities of the meat of both species.

More catfishes are sold along the Lao-Thai border during the June to November monsoon season than scaled fishes. Despite the Thai Department of Fisheries' recent successes in artificially breeding and releasing Giant Catfish into the Mekong in northern Thailand, these are being caught at their point of release and there is no evidence these released fish are migrating to southern Laos. The Giant Catfish is considered endangered and liable to become endangered if current levels of exploitation continue (IUCN, 1996). Lao fisher living in Khong District, Champasak Province, consider the smaller *Pangasius sanitwongsei*, which is nevertheless said to reach over 100kg in weight, to be very rare, although not as rare as *P. gigas*. They claimed that neither species had ever been abundant in the Mekong River, even 50 years ago.

Several other Mekong fishes are now considered quite rare by local people. For example, the formerly abundant herring *Tenuulosa thibeaudaui* is now considered by Lao fisher to be close to extinction, who claim that it used to migrate up the river in large schools in January or February every year but has now almost vanished altogether. *Aptosyax gryppus* is a species that may never have been abundant but is now one of the rarest fishes in Southeast Asia (Dr. Tyson Roberts, pers. comm., 1992). *Wallago attu*, *W. leeri* and especially *Catlocarpio siamensis* are other species that are also becoming increasingly rare, and populations of *Boesemania microlepis* and *Cirrhinus microlepis* are also believed to be greatly reduced. *C. microlepis* is heavily targeted by gillnets when it migrates downstream in the Mekong River in June or July, and fisher in the Khong District of Champasak Province widely report that populations have declined considerably over the last years. Adult *Pangasius krempfi* catfish migrate upstream into Laos in late May and early June, possibly from as far away as the Mekong Delta in Vietnam, and are heavily targeted by fisher using gillnets and large bamboo and wood funnel traps in the Khong District (especially below the Khone waterfalls near the Cambodian border). Fisher in the area believe populations of this species have significantly decreased in recent years.

Presently, seven fish species are listed on Schedule II of the Lao list of protected species. These are *Boesemania microlepis*, *Pangasius krempfi* / *P. hypophthalmus*, *P. sanitwongsei*, the Mekong Giant Catfish, Jullien's Golden Carp, *Wallago leeri*, and "Pa daeng" *Tor* spp. According to the regulations these species may be caught outside the spawning season, but may not be sold or exchanged (however, the government does permit the re-export of fish imported from Cambodia). None of the Government officials or fisher interviewed in 1993 seemed aware of the regulations relating to fish trade. Some fisher were vaguely aware that the Giant Catfish is a protected species, while the Deputy Director of Pakse's taxation office said that this and the Irrawaddy Dolphin *Orcaella brevirostris* are the only "fish" species that cannot be legally exported from Laos, noting that his office was not authorized to collect the normal 5 percent export tax on either species (the Irrawaddy Dolphin is listed as a Schedule I "fish" under Lao law). It is worthwhile to note that Laotians respect dolphins highly and consider them "sacred creatures," thus the intentional killing of dolphins by Lao people is very unusual and the harming of dolphins is generally considered a grave offence.

In Laos using explosives to catch fish is illegal, but it is legal to buy or import fish caught using explosives in neighbouring Cambodia, though since the late 1970s fisher living near the Cambodian border have been concerned about the widespread use of explosives by Cambodians to catch fish in the Mekong and Sekong Rivers. Lao fisher recognize this method is destructive to fish populations and Irrawaddy Dolphins, and is extremely wasteful. However, despite the opposition to Cambodians fishing with explosives, most of the fish caught with this method are exported to Laos as dried or fresh fish.

Within southern Laos, the improvement of roads, increased public transportation, and the availability of ice in the southernmost part of Champasak Province over the last few years have contributed to an increase in fish trading in this area, compared with ten to twenty years ago when fish catches were largely unmarketable. In Khong District, fishing is now the most important income-generating activity for villagers, and many living on islands in the Mekong River are full or part-time fisher, since there is limited agricultural land available. These fishing communities sell excess catch to traders who send the fish to Pakse on a daily basis. The remoteness of Attapeu Province still restricts fish trading in that province, and although Sekong Province is now easily accessible by road from Pakse, fishing is not widespread there as most of the population are ethnic Lao Theung, and lack the fishing tradition of the Lao Loum.

Cambodian fish traders occasionally travel by boat to southern Attapeu Province to buy small quantities of fish from Lao villagers living near the border. Such trade occurs only during the March to May dry season, and local residents estimated that no more than 500kg of fish were purchased by Cambodian traders in 1993. Only certain species of fish are involved, of which *Cyclocheilichthys enoplos*, *Mystus micropthalmus*, *Hemisilurus mekongensis* and *Micronema apogon* are the most sought after. These fishes are transported back to Stung Treng in Cambodia, where they may be resold to other southern Lao traders. Villagers living along the Sekong River near the border reported those Cambodian traders unable to find enough fish to buy in Attapeu Province use explosives to catch fish on the Cambodian side so as not to return to Stung Treng empty-handed.

Lao officials do not record the amount of fish imported from Cambodia, but observations suggest that an estimated 750 to 1500t of dried and fresh Cambodian fish were imported into Laos in 1992. Fishes imported from Cambodia are currently the only ones legally allowed to be exported from Laos, and these legal re-exports are destined for Thailand. Originally only the Champathong Company in Pakse was permitted to re-export Cambodian freshwater fishes to Thailand, but a second company in Pakse is reportedly also doing so. According to the Pakse taxation office, a 5 percent import tax is collected on Cambodian fishes that enter Laos, thereby rendering the fishes exempt from export taxes when they are sent to Thailand. The taxation office's records show only one lot of 1000 to 1500kg of fish is officially exported to Thailand each week, though the real amount may be considerably more. According to Lao officials, fish legally re-exported to Thailand are recognized as exports, while in Thailand these fish are considered by local authorities to be Thai-origin fish, apparently to avoid the quality checks that are required to be performed on imported fish.

Legal re-exports and many illegal exports of fishes are sent to Thailand through the Ban Mai crossing. The fishes sent via this route are collected by traders from Ubon Ratchathani city at Ban Wemberk, a collection point several kilometers inside Thailand. It was reported to TRAFFIC investigators that some 200 Lao traders smuggle and sell an average of 100t of Lao-origin fish at Ban Wemberk each month. Fish traders claimed also that an average of one tonne of the catfish *Pangasius sanitwongsei* is smuggled into Thailand each month via this crossing. Most of the fishes are sold in markets in Thailand's Ubon Ratchathani Province, but some are also sold in Bangkok and other large Thai cities.

A few Lao traders illegally export dried fish originating from Khong District in Champasak Province, and from Cambodia, over to Khemmarat District in Ubon Ratchathani Province on a regular basis. The fish traders exit Laos at Ban Paktaphan, Salavan Province and enter Thailand on the other side of the Mekong River at Ban Paksaeng. Lao and Thai officials on both sides of the border apparently allow fish to pass into Thailand without questioning the legality of the exports. Probably less than 20t of dried fish enters Thailand at Paksaeng (representing approximately 70t of fresh fish).

Fisher in the southern part of Champasak Province normally sell most species of fish to local traders for kip 400 - 1000 (US\$0.57-1.42) per kg, while Cambodian traders pay Lao villagers in Attapeu Province the equivalent of approximately one US dollar per kg of fish (most often *Cyclocheilichthys enoplos*, *Mystus microphthalmus*, *Hemisirurus mekongensis* and *Micronema apogon*). Lao traders can sell fishes to Thai traders at much higher prices than they would obtain in their own country. Thai fish traders interviewed at Ban Wemberk normally pay baht 50 (US\$2) per kg for most species of fish, but the large catfish *Pangasius sanitwongsei* is said to fetch up to baht 200 (US\$8) per kg. Traders at Chong Mek, further south along the Thai-Lao border, pay baht 80 (US\$3.10) per kg for fishes in general. The higher price is the result of labour costs for carrying fishes overland to avoid the Lao and Thai border check-points.



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Giant catfish at the That Luang Market' Lao PDR

Some fishing methods in Cambodia are said to be affecting Lao fish stocks. In Cambodia's Stung Treng Province, local government officials are allowing the blocking of the mouths of major streams entering the Mekong River in October and November when migrating fish return from the flooded forests into the main river. The Cambodian fisherfolk then use large nets and concentrations of traps to catch virtually every fish exiting the stream. Lao villagers in adjacent Khong District, Champasak Province, claim this is devastating their stocks. This fishing strategy is apparently lucrative, where for example the Cambodians who own the fishing concession at the mouth of the Hooai Talak stream pay the local Stung Treng government riel 1 500 000 (US\$1500) for the seasonal fishery. The seasonal catch from this stream is 20-30t, much of which may be sold to Lao traders. One Lao trader at Wernkham has reportedly paid the concession owners an advance baht 100 000 (US\$4000) for

exclusive fish buying rights. This type of fishery is said to have been going on for the past several years.

Trade in reptiles

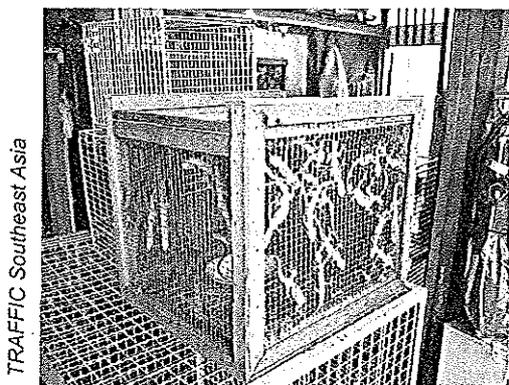
Turtles and tortoises are widely consumed domestically, and cross-border trade to Cambodia and Thailand has been observed. Information on native species of softshell turtles occurring in Laos is limited, but the Asiatic Softshell Turtle *Amyda cartilaginea* and the Asian Giant Softshell Turtle *Pelochelys bibroni* are known to occur. Considered by local fisher to be a type of fish, softshell turtles are the most widely eaten turtles in Laos and these are often considered a delicacy, and softshell turtles are also used in making certain traditional medicines. The turtles are caught on hooks and in "falling-door" fish traps during the June to November monsoon season.

While it is said that large populations of softshell turtles used to occur in southern Laos, trade in these turtles is expanding rapidly and many villagers now consider softshell turtles to be rare. In March 1994, villagers interviewed in Champasak Province reported that in January of that year they were approached for the first time by traders wanting to buy softshell turtles. With traders willing to pay as high as kip 1800 (US\$2.50) per kg, many fisher began hunting these turtles on a large scale (Baird, 1994). Many people in southern Laos are unaware that softshell turtles are protected under Lao law.

There appears to be some cross-border trade in pond turtles (fam. Emydidae) and tortoises (fam. Testudinidae) between Champasak Province and Thailand. One informant reported to TRAFFIC that between 60 and 70 live Malayan Box Turtles *Cuora amboinensis* are sent through Pakse each year before being carried over to Thailand via Ban Mai. Most of these Schedule I-listed turtles apparently come from Salavan Province, east of Champasak. Elongated Tortoises *Indotestudo elongata* are also commonly caught in southern Laos for food, often with the use of hunting dogs, but an undetermined number of live specimens are smuggled via Ban Mai to Thailand each year.

Some shells of this Schedule II-listed species are also believed to be exported. An informant claimed that about a tonne of shells from the Malayan Snail-eating Turtle *Malayemys subtrijuga* is exported to Thailand from Pakse each year. These shells are apparently collected for many months before being exported once a year in bulk, via Chong Mek. The Malayan Snail-eating Turtle is not protected under Lao law, and is considered relatively common.

However, it is still unclear whether exporting parts of the species under the present restriction on wildlife exports is legal. There is also reported to be a small amount of illegal trade in the Schedule I-listed Black Marsh Turtle *Siebenrockiella crassicolis* between Champasak and Thailand. Forestry Department officials in Sekong Province claimed that Black Marsh Turtles are commonly consumed as food in southern Laos. In the Khong Chiam District of Thailand, a restaurant owner claimed that about 100 live pond turtles (species unknown) are imported from Laos via Ban Mai every month, mainly to be consumed as food. In December 1993, Lao middlemen arrived at a village in Champasak Province searching for a supply of live softshell turtles weighing less than five kilograms, which would be carried over to Vietnam. Only small turtles were sought, since larger ones are difficult to transport (Baird, 1994). It appears likely that Elongated Tortoises are also caught and exported to Vietnam, for re-export to China (Jenkins, 1995).



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Reptiles for sale (Geckos)

Skins of the Schedule I-listed Reticulated Python *Python reticulatus* and Burmese Python *P. molurus bivittatus* are commonly traded in small quantities in southern Laos, and specimens are also traded for food and as ingredients for traditional medicines. Small quantities are also sold to traders in

Pakse, before being smuggled across to Thailand. In July 1993 a trader at Chong Mek, Thailand was offering a dozen Lao python skins for baht 50 (US\$2) per skin. Chazée (1990b) reported seeing Reticulated Pythons for sale in Attapeu Province in 1990, but none were seen during TRAFFIC surveys in August 1993.

Water Monitors *Varanus salvator* and Indian Monitors *V. bengalensis* are an important food source in southern Laos, and are commonly hunted with dogs (the skins are usually discarded). Subsistence hunting and consumption of monitor lizards are allowed under Lao law, but not their commercial trade. However, Salter *et al.* (1992) observed small numbers of monitor lizards for sale in markets in Sekong, Attapeu and Salavan Provinces in 1992. The lizards are usually sold live, and killed shortly before being cooked. Prices ranged between kip 700 and 3000 (US\$1 and US\$4.30) per specimen, depending on the size of the animal and the location of the market.

Forestry officials report that 200 to 300 live monitor lizards are sent from Sekong and Attapeu provinces to Pakse each year. While some are locally sold, others are smuggled to Thailand via Ban Mai and the forests near Chong Mek. A trader on the Thai side of the Chong Mek border crossing offered Lao monitor lizards for about baht 150 (US\$6) per animal. The trader claimed that live lizards and monitor meat brought over from Laos are available in the vicinity of Chong Mek on a regular basis. A few monitor lizard skins were observed for sale on the Thai side of the Chong Mek crossing. However, cross-border trade on a very small scale is likely to be more typical. For example, in July 1993 a villager was observed bringing across a live monitor lizard from Cambodia through Wernkham, back to his home in Laos. The animal had been bought for kip 1000 (US\$1.40), for food.

Siamese Crocodiles *Crocodylus siamensis* are listed under Schedule I and are fully protected. They have been extirpated from a number of areas in southern Laos and are now extremely rare in the Mekong River and mainly confined to a few wetlands and remote streams. A high demand for both live crocodiles and their skins remains in Thailand. Salter *et al.* (1992) reported that skins obtained from animals occasionally caught in fishing nets in Attapeu Province are taken to Pakse to be sold. In Savannakhet city, Thai traders have reportedly advertised their willingness to buy live or dead crocodiles, offering baht 2800 (US\$112) per live hatchling. There also appears to be an active trade in live crocodiles and crocodile skins to Thailand from Cambodia, via Champasak Province and Ban Mai. In April 1992, 27 live Siamese Crocodiles of varying sizes were illegally imported into Champasak Province from Cambodia, destined for smuggling to Thailand. The trader involved had apparently carried similar shipments before.

Trade in birds

Wild birds are an important food source in southern Laos, especially in rural areas (Martin, 1992a). One of the most popular and widely-hunted food birds is the Thick-billed Pigeon *Treron curvirostra*. Noose-shaped snares are set in fig trees to capture pigeons, which are then sold for kip 100 to 150 (US\$0.14-0.21) per bird. Some 50 Thick-billed Pigeons were seen in Wernkham in October 1993, brought over from Cambodia and destined for sale in Pakse. The selling price in Wernkham was higher, at kip 300 (US\$0.42) per bird. Salter *et al.* (1992) reported this species for sale as food and pets in markets in Attapeu and Salavan provinces.

In the remote area around the Xe Pian River (bordering Champasak and Attapeu provinces), Grey Peacock-pheasants *Polyplectron bicalcaratum*, Siamese Firebacks *Lophura diardi*, and Bar-bellied Pittas *Pitta ellioti* are said to be specifically sought after. These are snared, plucked and cooked in the forest before being brought back to villages (Cambridge Survey, 1993a). Chazée (1990b) observed a bundle of Green Peafowl *Pavo muticus* feathers for sale in Attapeu Province for the equivalent of US\$42.90. The Green Peafowl is now rare in southern Laos due to over-hunting and habitat destruction (Cambridge Survey, 1990b). Various species of eagles, hawks and kites (fam. Accipitridae) are also hunted in southern Laos, and these are either shot or captured live. Most live-caught birds of prey are consumed as food by the catchers, although a few are kept as pets.

Pied Hombills *Anthracoceros albirostris* and other hombill species are still relatively common in many forested areas in southern Laos, despite trapping and habitat loss owing to commercial logging (Cambridge Survey, 1993a). Salter *et al.* (1992) observed a hombill casque in a pharmacy in

Attapeu town, and casques of the Great Hornbill *Buceros bicornis* were observed for sale in Vientiane (Nash, 1993a); the Great Hornbill is a Schedule I-listed species.

Waders (fam. Scolopacidae, Charadriidae) and waterfowl (fam. Anatidae) are hunted along the Mekong River and in wetlands in Champasak and Savannakhet Provinces, and this activity is common between September and November (G. Claridge, pers. Comm., 1993). While this hunting is primarily for subsistence, tens of thousands of birds may be involved (Claridge, 1993). Villagers have noted that wildfowl populations are much reduced over previous years.

The Alexandrine Parakeet *Psittacula eupatria*, the Red-breasted Parakeet *P. alexandri*, and the Blossom-headed Parakeet *P. roseata* are widely hunted in southern Laos. In Attapeu Province farmers capture parakeets using folding traps baited with rice (the same method is also used to catch Thick-billed Pigeons). Sticky tree resins placed in fruiting trees are also used to capture parakeets, and nestlings are removed from nests during the March to May dry season. Large parakeets are eaten as food while nestlings are sold as pets.

Salter *et al.* (1992) recorded a number of nestling and full-grown parakeets for sale in southern Lao markets in March 1992, selling for kip 200 to 350 (US\$0.29-0.50) each. Parakeets were observed for sale in Attapeu town in April 1992, though none were seen in August 1993. Thais and Laotians alike try to teach young parakeets to imitate human speech, creating little demand for already-adult birds. One informant estimated that between 300 and 500 young parakeets are smuggled to Thailand via Ban Mai and Chong Mek each year, while Sekong Forestry officials estimated 500 were sent from Attapeu and Sekong Provinces to Pakse each dry season.

One species widely caught and almost exclusively sold for the pet trade is the Hill Myna, despite being listed as a protected Schedule I species. The Hill Myna is the most popular cage bird in southern Laos, and is kept mainly for its ability to mimic human speech. Salavan may be one of the larger centres for the cage bird trade in southern Laos, where more than 100 Hill Mynas were seen during one visit to the market during the 1992 April-May dry season (R. Salter, pers. comm., 1993). Nestlings are taken from nests in the dry season, and sold at relatively high prices.

Salter *et al.* (1992) observed five nestlings for sale in the Attapeu market for kip 4000 (US\$5.71) each, while a Hill Myna that can "talk" can fetch around kip 30 000 /US\$50. One informant estimated that 50 to 100 Hill Mynas are smuggled to Thailand each year through Pakse, while another estimated that 50 to 100 birds are caught each year in Attapeu Province, of which some are sent to Pakse and the rest sold locally. Several Hill Mynas were seen in cages in Attapeu and Pakse. One trader from Thailand explained she would normally carry back two Hill Mynas and two parakeets on each trip to Laos, to sell the former for baht 400 (US\$16) each and the latter for baht 500 (US\$20) each.

Trade in mammals

Southern Laos is the last refuge for most of the country's wild Asian Elephant *Elephas maximus* population, and although this Schedule I species is fully protected, there is evidence of hunting for its ivory in the early 1990s. Forestry officials in Mounlapamok District, Champasak Province, reported that several people were arrested for hunting elephants in 1992 (Martin, 1992a). No official border crossings exist between Thailand and Mounlapamok District, and hunters could easily smuggle ivory across to Thailand. In January 1990, 12 men were arrested for shooting elephants in Attapeu Province (Martin, 1992a). Salter *et al.* (1992) reported seeing some ivory for sale in jewellery shops in Attapeu Province, but none was observed in Champasak, Sekong or Attapeu provinces in 1993.

Some ivory may be sent to Vientiane to supply a small ivory amulet carving industry. Apparently the price of ivory increased in Vientiane from US\$100 a kilogram in 1988 to US\$200 in 1990, and the four-centimeter amulets crafted in Vientiane usually sell for about US\$8 each (Martin, 1992a). However, most Lao ivory is likely to be smuggled across to Thailand, where the ivory carving industry is well established and access to the tourist market is greater. In April 1991, three pairs of small tusks were seen for sale at Ban Mai (Srikosamatara *et al.*, 1992), but no ivory was observed there in July 1993. One of a pair of 30-centimeter tusks reportedly originating from Laos was offered for sale

on the Thai side of the Chong Mek border crossing for baht 1500 (US\$60) in July 1993. The former practice of organized capture of wild elephants in some parts of Attapeu and Champasak provinces has not taken place in recent years owing to government opposition to this practice and the increasing difficulty of finding elephants. Captured elephants were used for logging operations and for clearing agricultural lands, and some of these elephants are still kept by villagers.

The introduction of modern firearms to Laos in the 1940s has made it much easier to kill large mammals, including Tigers and other wild cats (Chazée, 1990a). Hunting pressure is a serious concern, and Lao villagers generally believe that Tigers should be shot on sight as they are a threat to their livestock and themselves (Kemf, 1995). Several instances of trade in cats were noted by TRAFFIC investigators. For instance, in early 1993 a young Tiger was killed by a hill tribesman along the Lao-Vietnam border, and sold to a Vietnamese trader. A live Leopard Cat *Felis bengalensis* was sold in June 1993 to a wildlife dealer in Dak To by hill tribespeople.

A Lao Theung hunter carried a wild cat carcass (species unknown) 40 kilometers to Sa Thay village, where it was sold. Two Clouded Leopard *Neofelis nebulosa* skins and one Leopard *Panthera pardus* skin were for sale on the Thai side of the Chong Mek border crossing in April 1992 (Srikosamatara *et al.*, 1992), and in July 1993 two Leopard skins were offered there as well. The Leopard skins were seemingly new and in good condition, and priced at baht 2000 and 2500 (US\$80 and US\$100). The seller explained the skins had been smuggled over from Laos because none were left in Thailand.

Both the Asiatic Black Bear *Ursus thibetanus* and the Sun Bear *Helarctos malayanus* are fully protected Schedule I species. Both are said to inhabit most of the 17 provinces of Laos, and the country may be one of the last refuges for these species (Mills and Servheen, 1991). Laotians will eat bear meat and use bear parts medicinally. However, because of high prices paid in Thailand, bears and bear products are smuggled across the Mekong. Investigators in Thailand were told that supplies of bear products were obtained from Laos, owing to a depletion of native Thai bears (Mills and Servheen, 1991). Observations in Thailand in 1991 of bear parts near the Lao border include a Black Bear skull at the Chong Mek crossing and a Sun Bear skin at Khemmarat, Ubon Ratchathani Province. Thai traders claimed that skins from Laos were becoming harder to obtain (Srikosamatara *et al.*, 1992). In August 1993 two bear teeth and three gall bladders (the latter at baht 300/US\$12 each) were observed at the Chong Mek crossing. The owner of the stall said that orders could be placed for bear products and other wildlife products from Lao traders who deliver wildlife products to Thai customers regularly.

All species of wild cattle, including Gaur, Banteng *Bos javanicus*, wild Water Buffalo *Bubalus arnee*, and Kouprey are fully protected Schedule I species. The latter two species may have already been extirpated from Laos, though a few unconfirmed sightings of both species have been reported in the last few years, and as recently as 1990 it was reported that 100 000 to 150 000 Water Buffaloes were being smuggled annually from Laos to Thailand (Mills and Servheen, 1991). Local people and Forestry officials have reported that both Gaur and Banteng still inhabit several different forest areas in southern Laos, particularly in the provinces of Sekong and Attapeu. Some villagers were reportedly arrested and tried for killing nine Gaur in Champasak Province in 1991 (KPL, 1991). Chazée (1990b) and Salter *et al.* (1992) reported Gaur horns on sale at kip 35 000 (US\$50) for one set of male horns, and kip 20 000 (US\$28.50) for two sets of female horns.

Chazée (1990b) also reported five sets of Banteng and two sets of Gaur horns on sale in Attapeu city. In August 1993, TRAFFIC investigators did not find any wild cattle horns for sale in Attapeu or Sekong. Srikosamatara *et al.* (1992) observed five vendors selling 81 sets of Gaur and Banteng horns at Ban Mai, in 1991. Prices for old horns ranged from baht 300 to 700 (US\$28 to US\$12), the horns from males being the more expensive. One fresh pair of Gaur horns was offered for baht 7500 (US\$300). At the same border crossing in July 1993, TRAFFIC investigators observed 41 sets of Gaur and Banteng horns for sale, but only two wildlife traders were present. One of these said that he had been trying to sell the same horns for a long time and added that most of the wild cattle horns he was selling originated in Cambodia. He explained that while Lao authorities allowed him to sell the horns, tourists could not legally export them to Thailand. Both traders were selling old horns for baht 1500 - 2000 (US\$60-80) per set.

Also at Ban Mai, Srikosamatara *et al.* (1992) observed two sets of wild Water Buffalo horns on sale for baht 800 (US\$32) each in April 1991, (though none were seen there by TRAFFIC investigators in July 1993). Srikosamatara *et al.*, (1992) were told that approximately five sets of Kouprey horns were exported from Ban Mai to Phibun Mangsahan and sold for baht 50 000 (US\$2000) per set before their visit to Ban Mai in 1991. During a return visit to Ban Mai in April 1993 a vendor of wildlife products said he had sold a set of Kouprey horns to a Thai for US\$800. He also said he had two more sets of Kouprey horns for sale for US\$2800 and US\$12 000 respectively (Srikosamatara *et al.* 1993). No Kouprey horns were seen by TRAFFIC investigators at Ban Mai in July 1993.

While doing so is illegal, dried deer meat is sold openly at all the major markets in southern Laos, and is the only wildlife product still openly sold on the Lao side of the Chong Mek border crossing. Twenty to 30 live and dead Indian Muntjak are estimated to be smuggled into Khong Chiam, Thailand, from Ban Mai each month. Fresh deer meat sells for baht 150 (US\$6) per kg in Khong Chiam and is widely available in restaurants in the area. Villagers in Champasak Province report that Sambar *Cervus unicolor* meat is brought in from Cambodia.

In Sekong and Attapeu provinces, 5-10 kilograms of dried deer meat are usually on sale in each of the province's major markets each day, and turnover is relatively brisk. A 300-gram bundle of dried venison strips normally sells for kip 250 (US\$0.40) in Attapeu and Sekong, making the meat a relatively cheap source of protein (often cheaper than meat from domestic cattle and pigs). The same dried deer meat can be sold on the Thai side of the border at Chong Mek for baht 90 (US\$3.60) per 300g, and in Bangkok the price increases to baht 150 - 200 (US\$6-8) for the same amount.

Deer antlers can be found on display in houses, shops and restaurants throughout southern Laos. Chazée (1990b) reported more than 100 sets of Indian Muntjak antlers, more than 100 sets of Sambar antlers, at least five sets of Eld's Deer *Cervus eldi* antlers and one pair of Hog Deer *Cervus porcinus* antlers on sale in Attapeu during a survey conducted in 1990, but surveys carried out by TRAFFIC in August 1993 did not find any there. Deer antlers are frequently carried across from southern Laos to Thailand. It is not clear whether this trade is legal or not, although Lao Forestry Department officials in Vientiane have not approved the export of deer antlers. In June 1993 a shipment of one tonne of Sambar antlers was said to have been exported to Thailand from Pakse. According to one informant, two or three dealers in Pakse buy antlers from southern Laos and Cambodia and send them to Thailand in bulk a few times a year.

Otherwise, Srikosamatara *et al.* (1992) found 52 Sambar antlers, two Eld's Deer antlers and eight Indian Muntjak antlers at Ban Mai, while surveys in July 1993 noted 10 Sambar antlers at the same location, on sale at two shops for baht 1500 (US\$60) per set. One shop owner said the antlers mainly came from the Lao/Cambodian border. At the Chong Mek crossing point, a dozen Indian Muntjak antlers supposedly from Laos were noted at a stall on the Thai side. Most sets of antlers are believed to be sold for decoration in Thailand.

Wild Pigs can be legally hunted and traded in Laos, although cross-border trade in the species is not permitted. Wild Pigs are still common throughout the south, and are a relatively important source of protein in the local diet. In some areas Wild Pigs also cause a considerable amount of crop damage. The traditional method used to catch Wild Pigs (and Indian Muntjaks and other similarly sized animals) involves using a 20 to 30-meter-wide rope net (called a nang), and 20 to 30 hunters. One person is stationed at each end of the net, and others act as "beaters" to drive animals into the net. Approximately 100 Wild Pig carcasses are smuggled into Thailand's Khong Chiam District from Laos each month, where they are openly sold in markets for baht 60 to 70 (US\$2.40-2.80) per kg.

Macaques *Macaca* spp. can be legally hunted and kept as pets, but not sold. In Sekong and Attapeu, a few young Rhesus Macaques *M. mulatta*, Crab-eating Macaques *M. fascicularis* and Pigtail Macaques *M. nemestrinus* were seen being kept as pets. These are normally bought illegally from hunters for approximately kip 4000 to 6000 (US\$4.70-8.40) each. While these animals are popular as pets when young, macaques are killed and eaten before attaining their full size. Macaques and other primates such as gibbons *Hylobates* spp. are reportedly smuggled to Thailand regularly.

One informant said that smugglers normally carry these from Pakse to Ban Mai, and can get past a police post seven kilometers south of Pakse by explaining the primates are personal pets and are not

for sale. Thai traders at Chong Mek explained that many species of wildlife, including live macaques, Variegated Langurs *Pygathrix nemaeus* and gibbons could be ordered from Lao traders and delivered on request. Wildlife traders from Dong Ha in Vietnam reported that Lao traders sometimes sell live macaques brought by road from Savannakhet, and traders in Play Cu in Vietnam near the Lao border said that live primates from Attapeu Province were sometimes sold to them.

Pangolin *Manis* spp. scales are highly sought after in Thailand for their medicinal value, and most local trade in pangolin derivatives in Laos is destined for Thai markets. Confusion exists about the legality of exporting pangolin scales and skins from Laos. While the Forestry Department in Vientiane maintains that all wildlife product exports are illegal, an official in Pakse claimed that "old" pangolin scales could be exported legally, subject to a 5 percent export tax. An informant reported to TRAFFIC that a considerable quantity of pangolin scales is exported to Thailand via Ban Mai each year, but that traders avoided reporting this to avoid paying the export taxes. Forestry Department officials in Sekong estimated that 50kg of pangolin scales are transported from Sekong and Attapeu to Pakse and on to Thailand each year.

Chazée (1990b) reported seeing at least 30 pangolin skins on sale in Attapeu town in 1990, but none was observed in August 1993. Srikosamatara *et al.* (1992) reported the existence of a pangolin skin factory at Ban Don Du, 10 kilometers from Vientiane, producing various processed leather goods. It was estimated that 6100 tanned skins were exported from Laos to Thailand in a one-year period between 1990 and 1991. Dealers in Pakse and Savannakhet were said to be supplying the factory with much of its raw pangolin skin at that time (Srikosamatara *et al.*, 1992). In Dak To, Vietnam, wildlife traders claimed to frequently obtain pangolin skins and scales from Lao hill tribes.

While the Schedule I-listed Javan Rhinoceros is fully protected by Lao law, the Sumatran Rhinoceros *Dicerorhinus sumatrensis* is not listed as a protected species as Lao authorities do not recognize its existence within the country. There are no recent reports of either species occurring in southern Laos. Salter *et al.* (1992) reported seeing a small piece of rhinoceros horn in a jewellery shop in Attapeu town, and two other horn pieces and a piece of rhinoceros skin in another jewellery shop in Salavan city. The owner said he bought the rhinoceros parts from villagers living near the Lao-Vietnamese border for kip 80 000 (US\$115) and had used some of the horn for medicinal purposes. Nash and Broad (1993) observed many counterfeit horns and horn pieces for sale in Vientiane in March 1993.

Villagers and forestry officials living in southern Attapeu Province near the Cambodian border reported that a group of Cambodians had traveled up the Sekong River into Laos in search of otter (*Aonyx cinerea* and *Lutra* spp.) skins in 1992. These buyers had offered up to kip 8000 (US\$11.40) per skin. Villagers living near the Cambodian-Lao border in Champasak Province reported that Cambodian traders used to visit in search of otters skins but had not done so since 1970, possibly because of declining otter populations.

The Serow is a fully protected (Schedule I) species, but parts such as the head, bones, feet and tendons are often preserved in alcohol. This extract is then used as a traditional medicine applied externally to treat bone and joint ailments. In August 1993, small bottles of this extract were observed for sale at Chong Mek for baht 20 (US\$0.80) each, and one Serow bladder was offered at baht 100 (US\$4). A full Serow carcass generally sells for baht 1500 (US\$60) at Chong Mek, but in Ubon Ratchathani, Thailand, a carcass was offered for sale for baht 4000 (US\$160). Eight sets of Serow horns were observed by Srikosamatara *et al.* (1992) at Ban Mai in 1991 on sale for baht 200 (US\$8) each. In 1992 Salter *et al.* observed two sets of horns for sale at a local pharmacy in Attapeu town, and another set of horns was observed at a jewellery/hardware shop in Sekong town. Chazée (1990b) observed more than 50 sets of Serow horns for sale in Attapeu in 1990. TRAFFIC found no Serow products for sale in Sekong or Attapeu in August 1993.

Other Lao-origin mammal species were observed at the large Nikom 2 wildlife meat market located about 10 kilometers from Chong Mek. This morning market open eight days a month, and approximately 20 stallholders operate from it. All animals in this market originate from Laos or from along the Lao/Thai border, and the main customers are Thais. Wild meat sold at the market includes that of the Siamese Hare *Lepus peguensis* and mouse deer *Tragulus* spp. at baht 200 (US\$4) each; Malayan Hog Badger *Arctonyx collaris* at baht 150 (US\$6) each; porcupines *Hystrix* spp.; civets (fam.

Viverridae) at baht 120 (US\$4.80) each; squirrels (fam. Sciuridae); and Malayan Flying Lemur *Cynocephalus variegatus* at baht 90 (US\$3.60) each. More wild meat is available in the March to May dry season than at any other time of the year. However, it should be noted that the sale of wild meat is banned in Thailand.

Vietnam²

Background

The Socialist Republic of Vietnam is situated along the eastern coastline of Southeast Asia, with China to the north, Laos and Cambodia to the west, and a 3200-km long shoreline with the Gulf of Tonkin and the South China Sea to the east. Vietnam's population in 1996 was 75 million people, and it is expected this figure will double by the year 2025 (Thanh, 1996). Approximately 70 percent of the population derive their livelihood from agriculture (Smith, 1993), within the urban population around 20 percent of the total population. The annual per capita GDP in 1995 was US\$220 (Anon., 1996).

Vietnam has been rated as the 16th most biologically diverse country in the world (WCMC, 1992). Endemism is high in Vietnam, notably in plant species (1260 species) reptiles (39 species), amphibians (26 species), and fish fauna, and is in higher proportion than in any of Vietnam's neighbours (WCMC, 1994a; Nash, 1995). While there are few endemic mammals and birds (7 and 10, respectively), Vietnam forests house important populations of rare Asian species such as the Kouprey, Javan Rhinoceros, Asian Elephant, Tiger, Eld's Deer, Crested Argus and Green Peacock (WCMC, 1994b). Green Turtle *Chelonia mydas* and Hawksbill turtles *Eretmochelys imbricata* are also found along its sea coasts.

Vietnam is mostly hilly and mountainous, with level land covering no more than 20 percent of the area. The country is made up of the highlands and the Red River Delta in the north, the narrow Central mountains (or Annamite Chain) and coastal lowlands region, and the large Mekong River Delta in the south. The country's arable land is mostly within the Mekong River Delta (39 million hectares) and the Red River Delta (1.5 million hectares) (Vu Tu Lap, 1979). Vietnam's highest peak is the Phansipan (3143m) in the Hoang Lien Son mountains in the north-west. These mountains form an extension of the Hengduan mountains of China; the mountains to the east of the Red River are connected to the limestone ranges of Guangxi (WCMC, 1994b).

Both the Red River and the Mekong deltas were formerly occupied by swamp forests. These have been cleared for agriculture although the coastal areas still support mangroves and parts of the Mekong delta support *Melanoleuca* forests. Low-lying dry land forests were semi-evergreen but have been largely destroyed; hill forests remain of both evergreen and semi-evergreen types. In some areas of the north and centre are distinctive forest formations on karst limestone. Montane forests range from oaks and chestnuts mixed with conifers to upper montane forests dominated by conifers and with an understorey of bamboo. The highest peaks of Hoang Lien Son emerge above the cloud layer and exhibit a specialized xerophytic montane heath vegetation. The central highlands support extensive areas of dry dipterocarp monsoon forest (Anon, 1994b).

The condition of these forest habitats has been one of continuous decline. By 1943, forest cover in Vietnam had declined to 43 percent, with extensive areas cleared in the coastal regions and in the floodplain of the Mekong and Red Rivers. The period from 1945 to 1975 witnessed almost uninterrupted warfare, which severely damaged natural resources. An estimated 22 000 km² of forest and farmland were destroyed (mainly in the south of the country) by intensive bombing, tactical spraying of herbicides, mechanical forest clearance and the targeting of flammable *Melanoleuca* forests with napalm bombs (Agarwal, 1984; Vo Quy, 1985). Forest cover has declined even more rapidly since hostilities have ceased, principally owing to clearance for agriculture, forest fires, extraction of timber and firewood and urban expansion (Anon., 1985; Vo Quy, 1985). The forest cover is presently estimated at less than 20 percent of the original extent (Kemf, 1995), with the rate of deforestation estimated at 3110km² per year (Collins *et al.*, 1991). Thanh (1996) estimates the remaining forest cover at only 9 percent.

Vietnam has long been an exporter of wildlife. From the beginning of Vietnamese recorded history up until the 10th century, Vietnamese kings paid tribute to the then Chinese leaders. Such tribute often included gift of rare wildlife and its products. The book of *Dia ly chi* (by Tien Han Thu, 206BC-08AD) mentioned that "the territory of Viet stretches along the coasts. It is endowed with products

² Based on the work of Dr. Le Dien Duc, University of Hanoi (see Le Dien Duc *et al.*, 1993).

from rhinoceros, elephants, tortoises, pearl clams and precious metals such as gold, copper... Merchants from China have made high profits through the trading of these commodities." The impact of this trade was noted, where as early as the 2nd century AD pearl-producing oysters were so exhausted in the Hop Pho area that offerings of these had to be interrupted for years to let oyster populations recover.

Today there is still a strong internal and foreign demand for Vietnamese wildlife, and the pressure of uncontrolled hunting is seriously threatening many species in Vietnam. While some 90 protected areas have been gazetted or proposed, 78 mammal species, 83 bird species, 54 reptile species and 75 fish species are now included in Vietnam's 1993 Red Data Book listing of threatened species (MoSTE, 1992). Direct air links to Taipei, Hong Kong, Seoul, Singapore and Bangkok, easy access to sea routes, and overland routes to China link Vietnam with important and ready markets for its wildlife exports.

Legislative instruments have been weak, and conservationists have expressed concern about the lack of effective controls on wildlife trade (Baird and Sly, 1992; Le Dien Duc *et al.*, 1993; Smith, 1993). However, Vietnam acceded to CITES on 20 January 1994, and the Convention entered into force on 20 April 1994. More recently in 1995 Vietnam joined with China in a pledge to improve co-operation over the conservation of wildlife. This agreement includes the intention to adopt effective action to regulate cross-border wildlife traffic between China and Vietnam more effectively (Li *et al.*, 1996).

Little in the way of published or unpublished information exists on the wildlife trade in Vietnam. Surveys were carried out for this report by TRAFFIC and by the Centre for Natural Resources Management and Environmental Studies (CRES) of the University of Hanoi in 1992 and 1993. These surveys were carried out in Hanoi, Ho Chi Minh City, Nha Trang, Daklak/High Plateau, Da Lat, and the Chinese border area, concentrating on wildlife markets, tourist shops, and traditional medicine outlets. Field surveys were timed to coincide with the northern (October-April) and southern (November-May) dry seasons, when hunting is at its peak.

Regulation of wildlife trade in Vietnam

Vietnam passed legislation for the protection of wildlife on 17 January 1992. *The Decree of the Council of Ministers Determining the List of Rare and Precious Forest Flora and Fauna and Regulations for their Management and Protection* (Decree No. 18) was issued by the central Government to prohibit the sale or export of certain species and subspecies (see Table 4). According to this Decree, trade of species listed in Group I is prohibited, though exceptions are permitted for scientific research or international exchange.

Species included in Group II include those of high economic value but which are in danger of being overexploited. Species in Group II may only be captured to supply breeding stocks, for scientific research, or other justifiable purposes, following a strict permitting system. An additional permit is required to transport specimens outside the province of capture. To export Group II species legally, an application for an export licence must be submitted, a resource utilization tax and permit fee must be paid, and if the export is for commercial purposes, an annual export plan for the species concerned must be submitted to the Ministry of Forestry for approval.

On March 27, 1993, the Instructions of the Prime Minister Regarding the Management and Protection of Rare and Precious Flora and Fauna in Vietnam was promulgated. These instructions repeat the main points of the Decree No. 18, and instruct related authorities to "place maximum restrictions on the exploitation for sale in foreign countries of all animals used in specialty dishes such as snakes, turtles, crabs, frogs, and other flora and fauna which even though neither rare nor precious are in danger of depletion and thereby inducing a loss of ecological balance." Thus, species not listed in the Decree No. 18 but which are consumed as food abroad may receive protection according to this law (Le Dien Duc *et al.*, 1993).

Table 4

Protected (Group I) and regulated (Group II) species in Vietnam, as established by Decree No. 18 of the Council of Ministers, together with the most recent CITES status of 1996. (CITES status codes: I = Appendix I; II = Appendix II; III = Appendix III; - = not listed)

Scientific Name	Common Name	CITES Status
GROUP I		
Fauna		
<i>Rhinoceros sondaicus</i>	Javan Rhinoceros	I
<i>Bos gaurus</i>	Gaur	I
<i>Bos sauveli</i>	Kouprey	I
<i>Bos javanicus</i>	Banteng	-
<i>Bubalus arnee</i>	Asiatic Buffalo	III
<i>Elephas maximus</i>	Asian Elephant	I
<i>Cervus eldi</i>	Eld's Deer	I
<i>Axis porcinus</i>	Indochinese Hog Deer	I
<i>Moschus moschiferus</i>	Musk Deer	II
<i>Panthera tigris</i>	Tiger	I
<i>Panthera pardus</i>	Leopard	I
<i>Neofelis nebulosa</i>	Clouded Leopard	I
<i>Helarctos malayanus</i>	Sun Bear	I
<i>Pygathrix nemaeus</i>	Variiegated Langur	I
<i>Pygathrix avunculus</i>	Tonkin Snub-nosed Langur	I
<i>Presbytis francoisi</i> sp.	Francois's Leaf-monkey	II
<i>Presbytis phayrei</i>	Phayre's Langur	II
<i>Hylobates concolor</i>	Black-crested Gibbon	I
<i>Hylobates lar</i>	White-handed Gibbon	I
<i>Arctictis binturong</i>	Binturong	III
<i>Hemigalus derbyanus</i>	Banded Palm Civet	II
<i>Prionodon pardicolor</i>	Banded Linsang	II
<i>Galeopithecus temminki</i>	-	-
<i>Martes flavigula</i>	Yellow-throated Marten	III
<i>Nycticebus pygmaeus</i>	Lesser Slow Loris	II
<i>Petaurista elegans</i>	Spotted Flying Squirrel	-
<i>Petaurista lylei</i>	-	-
<i>Belomys pearsoni</i>	Hairy-footed Flying Squirrel	-
<i>Canis aureus</i>	Golden Jackal	III
<i>Pavo muticus</i>	Green Peafowl	II
<i>Lophura diardi</i>	Siamese Fireback	-
<i>Lophura imperialis</i>	Imperial Pheasant	I
<i>Polypectron bicalcaratum</i>	Grey Peacock-pheasant	II
<i>Polypectron germaini</i>	Germain's Peacock-pheasant	II
<i>Rheinardia ocellata</i>	Crested Argus	I
<i>Grus antigone</i>	Sarus Crane	II
<i>Crocodylus porosus</i>	Estuarine Crocodile	I/II
<i>Crocodylus siamensis</i>	Siamese Crocodile	I
<i>Ophiophagus hannah</i>	King Cobra	II
<i>Paramesotriton deloustali</i>	Tamdao Salamander	-
GROUP I		
Flora		
<i>Calocedrus macrolepis</i>	-	-
<i>Taxus chinensis</i>	-	-
<i>Cephalotaxus fortunei</i>	-	-
<i>Podocarpus nerifolius</i>	-	-
<i>Pinus kwangtungensis</i>	-	-
<i>Pinus dalatensis</i>	-	-
<i>Glyptostrobos pensilis</i>	-	-
<i>Keteleeria calcarea</i>	-	-

Table 4. Continued

Protected (Group I) and regulated (Group II) species in Vietnam, as established by Decree No. 18 of the Council of Ministers, together with the most recent CITES status of 1996. (CITES status codes: I = Appendix I; II = Appendix II; III = Appendix III; - = not listed)

Scientific Name	Common Name	CITES Status
GROUP I		
Flora		
<i>Amentotaxus argotenia</i>	-	-
<i>Abies nukiangensis</i>	-	-
<i>Aquilaria crassna</i>	-	-
<i>Copressus torulosa</i>	-	-
<i>Ducampopinus krempfi</i>	-	-
GROUP II		
Fauna		
<i>Macaca arctoides</i>	Bear Macaque	II
<i>Macaca mulatta</i>	Rhesus Macaque	II
<i>Macaca nemestrina</i>	Pigtail Macaque	II
<i>Macaca assamensis</i>	Assam Macaque	II
<i>Naemorhedus sumatraensis</i>	Serow	I
<i>Felis bangalensis</i>	Leopard Cat	II
<i>Felis marmorata</i>	Marbled Cat	I
<i>Felis temmincki</i>	Golden Cat	I
<i>Lutra lutra</i>	Eurasian Otter	I
<i>Ursus thibetanus</i>	Asiatic Black Bear	I
<i>Cuon alpinus</i>	Asiatic Wild Dog	II
<i>Ratufa bicolor</i>	Black Giant Squirrel	II
<i>Buceros bicornis</i>	Great Hornbill	I
<i>Indotestudo elongata</i>	Elongated Tortoise	II
<i>Pelochelys bibroni</i>	Asian Giant Softshell Turtle	-
Flora		
<i>Dalbergia oliverrii</i>	-	-
<i>Dalbergia bariaensis</i>	-	-
<i>Dalbergia dongnaiensis</i>	-	-
<i>Azelia xylocarpa</i>	-	-
<i>Sindora cochinchinensis</i>	-	-
<i>Sindora tonkinensis</i>	-	-
<i>Pterocarpus pedatus</i>	-	-
<i>Pterocarpus cambodianus</i>	-	-
<i>Pterocarpus indicus</i>	-	-
<i>Chukrasia tabularis</i>	-	-
<i>Chukrasia sp.</i>	-	-
<i>Dalbergia cochinchinensis</i>	-	-
<i>Dalbergia annamensis</i>	-	-
<i>Dalbergia combodiana</i>	-	-
<i>Fokiena hodginsii</i>	-	-
<i>Diospyros mun</i>	-	-
<i>Diospyros sp.</i>	-	-
<i>Markhamia pierreii</i>	-	-
<i>Madhuca pasquieri</i>	-	-
<i>Burretiodendron hsienmu</i>	-	-
<i>Erythrophloeum fordii</i>	-	-
<i>Padocarpus fleuryi</i>	-	-
<i>Rauwolfia verticillata</i>	-	-
<i>Morinda officinalis</i>	-	-
<i>Lilium brownii</i>	-	-

Table 4. Continued

Protected (Group I) and regulated (Group II) species in Vietnam, as established by Decree No. 18 of the Council of Ministers, together with the most recent CITES status of 1996. (CITES status codes: I = Appendix I; II = Appendix II; III = Appendix III; - = not listed)

Scientific Name	Common Name	CITES Status
GROUP II		
Flora		
<i>Panax vietnammensis</i>	-	-
<i>Amomum longiligulare</i>	-	-
<i>Amomum tsaoko</i>	-	-

The Ministry of Forestry is responsible for the overall management of the country's international trade in wildlife. The responsibility for controlling the trade is delegated to the Central Forest Inspectorate, while the responsibility for overseeing exports is mostly delegated to the government-owned but independently operated Native and Forest Products Import and Export (NAFORIMEX) companies. NAFORIMEX branches exist in Hanoi, Da Nang, and Ho Chi Minh City, with additional offices in other provinces, and the various branches primarily operate large-scale logging operations and the marketing of secondary forest products, which can include wildlife and wildlife products.

Permitting is handled by the Central Forest Inspectorate, and the Head is authorized to issue special permits for the capture and hunting of mammals and birds, hunting permits for tourists, and wildlife export/import licences. Forest Inspectorate officers are required to monitor implementation of current laws and regulations, and to co-operate with security forces and legal authorities to enforce of these laws and regulations. In addition, the Directors of Forest Services, and Agriculture and Forest Services of the Provinces, Cities and Special Zones, all under central government jurisdiction, are held responsible for strict control of permits and licences issued according to national legislation, and of all activities related to permit procedures.

Vietnam has not yet adopted legislation to implement the provisions of CITES, despite its obligation as a Party to the Convention to do so.

Trade and utilization in Vietnam

Wildlife is primarily used in Vietnam as a source of food. Most major cities and towns have wild meat markets, where live animals and carcasses are sold at prices that compete favourably with meat from domestic animals. Surveys found meat from Sambar, Wild Pig, pangolins, deer, civets, turtles, tortoises, lizards and various snakes widely sold in cities. Some specialty sellers in Ho Chi Minh City were also selling bear paws and other high-value delicacies. Markets in small communities commonly sell birds such as munias *Munia* spp., weaver finches *Ploceus* spp., Red Avadavats *Amandava amandava*, and Sand Martins *Riparia riparia* and various other swallows for the protein they supply. Birds and turtles are also sold for release by Buddhists, to fulfill a ritual aimed at earning favour by doing good deeds.

Traditional Vietnamese medicine, based on the tenets of traditional Chinese medicine, has long used plant and animal parts and derivatives for curing diseases and treating ailments. More than a thousand medicinally active plants are recognized, and many more certainly await discovery (Anon, 1994b). This reference quoted a publication by Ly Thoi Tran in 1595 of over 1892 traditional remedies, of which more than 400 were based on animal derivatives. Tue Tinh, a well known physician of the 17th century, contributed much to the development and adoption of Vietnamese traditional medicine. His book, *Nam Duoc Than Hieu* (Effective Vietnamese Remedies), listed over 630 remedies, many of which are animal-based.

In the 18th century Hai Thuong Lan Ong (also known as Le Huu Trac) wrote many books dealing with traditional medicine, of which the *Linh Nam Ban Thao* has become famous. This book describes

many animals that may be used for medical treatments, including 24 species of insects, 8 species of sharks, 35 species of fish, 6 species of molluscs, 31 species of "terrestrial" birds, 10 species of waterbirds, and 6 species of cattle. Recently, Do Tat Loi (1991) listed 36 vertebrates and 23 invertebrates whose parts and/or derivatives may be used in traditional medicine.

The *Duoc dien Viet Nam* (Dictionary of Vietnamese Pharmaceutical Products, Vol.2, 1983) lists 18 animal species in use in traditional medicine, demonstrating that wildlife is still an important source of medicinal compounds used in traditional health care. From these sources, the uses of some wildlife species in traditional Vietnamese medicine and Vietnamese folk treatments are summarized in Table 5, while the cost of certain wildlife medicinal ingredients in Ho Chi Minh City are presented in Table 6.



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Powder made from primates byproducts are used in Vietnamese traditional medicine

Table 5

Some medicinal uses of animal products in Vietnam

Source: CRES (1993)

Species/Group	Derivative/part used	Application
Sika Deer <i>Cervus nippon</i> Sambar Deer <i>C. unicolor</i>	balm made from antler velvet	for loin, liver, heart ailments; general weakness, weak sight, male impotence; menstruation/female urinary problems
	dried embryos, ground into powder	same as for antler velvet
	penis, testicles, dried blood	for male impotence
	tendons	for bone fractures, wounds
	tails	as a general health tonic
Tiger <i>Panthera tigris</i> (also other large cats)	balm made from bone	for bone ailments, rheumatism, assorted body ailments, general weakness
Primates (mainly <i>Macaca</i> spp.)	balm made from bone	for lack of appetite, insomnia, anaemia; is said to improve hemoglobin generation and renal functions
	bile stones, ground into powder	for reducing fever, curing coughing, beriberi
Rhinoceroses- Rhinocerotidae	horn, ground into powder	for heart and liver ailments, reducing fevers, treating headaches and ulcers, improving blood circulation, and preventing internal hemorrhage
Asian Elephant <i>Elephas maximus</i>	ivory dust	for stopping hemorrhage, accelerating scar formation, reducing fevers and nervousness, and reducing skin inflammation

Table 5. Continued

Some medicinal uses of animal products in Vietnam

Source: CRES (1993)

Species/Group	Derivative/part used	Application
Bears- Ursidae	dried skin, burned for ashes	for healing wounds, skin inflammation and boils
	dried bile salts	for heart and liver ailments, reducing fever, pain relief, decongestion of blood circulation, conjunctivitis, and as an antiseptic.
Serow <i>Naemorhedus sumatraensis</i>	meat	for strengthening masculinity
	fresh blood, mixed with alcohol	to improve body strength, to stop giddiness, and to cure headaches and backaches
	liver	for liver ailments, to improve eyesight
	sperm, mixed with alcohol stomach	for kidney ailments for body weakness, vomiting
Musk Deer <i>Moschus</i> spp.	balm made from bone	for anaemia, body weakness, stomach pains, and backache
	musk	for difficult childbirth
Civets- Viverridae	musk	for similar uses as deer musk
Pangolin <i>Manis</i> spp.	scales	for smallpox, improving lactation, for prevention and treatment of breast cancer
Porcupine <i>Hystrix</i> spp.	stomach	bleeding piles
Birds- Aves	stomach and liver membranes; dry sparrow droppings	improve body strength
Coucals <i>Centropus</i> spp.	nestlings	improve body strength
Edible Swiftlets <i>Collocalia</i> spp.	nests	to cure physical weakness, asthma, tuberculosis, and blood vomiting
Fishes (<i>Mylopharyngodon piceus</i> , <i>Ctenopharyngodon idellus</i>)	swim bladders	conjunctivitis
Seahorses <i>Hippocampus</i> spp.	whole, dried	to increase virility; to treat senility; for difficult childbirth
Snakes- Serpentes	gall bladders	to relieve coughing, backache and headache
	meat	to relieve pain and cure paralysis; for convulsions, skin inflammation and boils
	shed skin	to strengthen liver function, for convulsions in children, for sore throats and as an antiseptic
	balm made from bone	to relieve bone pains and backaches
	fresh blood (from pythons), mixed with alcohol	to cure giddiness and for backaches

Table 5. Continued

Some medicinal uses of animal products in Vietnam

Source: CRES (1993)

Species/Group	Derivative/part used	Application
	fat (from pythons), applied as a salve	for burns
Toads	mucus from dorsal glands	for beriberi, to relieve pain, to treat skin inflammation and boils, for sore throats
Monitor lizards <i>Varanus</i> spp.	meat, dried and powdered gall bladders	for infant malnutrition for asthma
Geckos <i>Gekko gekko</i>	whole (minus eyes), dried and ground into powder	to increase male potency; to cure kidney ailments and asthma
Cuttlefish	cuttlebone, dried and ground into powder	for stomachaches and to stop bleeding
Sea cucumber- <i>Holothuria</i>	whole, dried and mixed with tea or alcohol	general tonic; as an anti-dysenteric, to cure bronchitis and mental fatigue
Silkworms	whole; frass	to cure body convulsions in children; for sore throats, laryngitis; the frass is used to relieve rheumatism
Bees	honey; queen jelly; venom; pollen	for physical weakness, constipation, coughing, stomachaches, and poisoning

Table 6

Prices for wildlife products observed for retail sale in oriental pharmacies in Ho Chi Minh City during March-May 1993.

Source: CRES (1993)

Item	Price (in US\$)
Gecko	0.70 each
Tortoise shell	4 (whole shell)
Serow, Goral skeleton	5/kg
Primate skeleton	4/kg
Tiger skeleton	100/kg
Leopard skeleton	80/kg
Pangolin scales	15/kg
Rhinoceros skin	50/kg
Rhinoceros horn	16000 for a 2.3kg horn
Seahorses	10-20/kg
Deer antlers	8/kg
Deer legs	14 for four
Deer tendon	0.04 each
Dried cobra	10/kg
Cobra gall bladder	150/kg
Bear gall bladder	400 each
Tiger balm	25/100g
Monkey balm	100/kg
Porcupine stomach	0.50 each

The principal wildlife hunting/catching areas in the southern part of the country are in Song Be, Tay Ninh, Dong Nai, and Minh Hai. In the central region, hunting is carried out in Lam Dong and Daklak Provinces. Wildlife collected in these areas is usually destined for Ho Chi Minh City. Wildlife is hunted in the north of Vietnam in Nghe An, Ha Tinh, Thanh Hoa, and Hoa Binh Provinces, destined for Hanoi, Haiphong, and Lang Son and Mong Cai at the Vietnam-China border (Le Dien Duc *et al.*, 1993). Large amounts of wildlife were also observed being carried across the border into China at the Nongrao and Donxing frontier sites (Li *et al.*, 1996).

Hunters normally sell their wildlife catches to middlemen who own either their own shops or temporary storage facilities. From there, wildlife is usually sent on to a market in a large city, either directly or through another middleman. Occasionally, hunters bring their catch direct to city markets. Wild meat is sold from specialized markets, and buyers purchase the meat already prepared, or as live animals to be killed and prepared in the home.

Wildlife products such as skins and other parts, and live specimens aimed at the pet trade are sold to private-sector exporters, government-affiliated export companies, or directly to mainly foreign buyers, including tourists (Le Dien Duc *et al.*, 1993). Vietnamese researchers report that China is the biggest buyer of its wildlife, after Hong Kong, Taiwan, South Korea and occasionally Thailand (Kemf, 1994). Large amounts of wildlife are legally and illegally imported to Guangxi Province, China, from Vietnam (Li *et al.*, 1996).

Wildlife is also brought into Vietnam through various points along the extensive border with Laos and Cambodia. Vietnamese hunters are said to hunt large mammals in Cambodia and Laos, on trips taking place once or twice per year (Anon., *in litt.*, February 1996). Wildlife hunted in northern Laos is transported across to Dien Bien Phu and then to Hanoi/Haiphong or to the China-Vietnam border markets, while wildlife from southern Laos is often brought through Quang Tri Province to Hanoi (Le Dien Duc *et al.*, 1993). Tay Ninh Province in the south of Vietnam is probably a major point of entry for wildlife contraband originating in Cambodia, and hundreds of large Elongated Tortoises *Indotestudo elongata* observed for sale in Ho Chi Minh City in June 1992 were supposedly obtained in eastern Cambodia (Nash, 1992a).

However, it is difficult to assess the true status of wildlife trade in Vietnam. The trade often bypasses the wildlife markets, and is increasingly conducted from private houses. Very often, the wildlife for sale in markets are only advertisements for more species and greater numbers available from other, more discreet locations. Still, the following observations on trade in certain species and groups of species gives some indication of the type of trade that commonly goes on in Vietnam for food, medicinal ingredients, and other purposes.

Trade in reptiles

Snakes are popular trade items in Vietnam, for food, medicinal properties, and for their skin products. In surveying Ho Chi Minh City's Cau Mong market in January 1991, Martin (1992b) noted Asian Cobra *Naja naja* and Burmese Python *Python molurus bivittatus*. An albino python was on sale for US\$3500, which the shopkeeper was hoping to sell to foreign collectors. Souvenir shops were selling many products made from reptile skins, such as snakeskin purses, shoes and belts. In January 1994, Bezuijen (1994) listed 38 snake species on sale at the Cau Mong market. Those sold in bulk included the Common Rat Snake *Ptyas korros*, Asiatic Rat Snake *P. mucosus*, Sunbeam Snake *Xenopeltis unicolor*, Banded Krait *Bungarus fasciatus*, and Asian Cobra. Shops in Ho Chi Minh City were noted selling handbags, wallets and belts made from Indian Python and Reticulated Python (Bezuijen, 1994).

Snakes (especially cobras) are commonly seen in Vietnam preserved in alcohol as tonic remedies, as well as dried specimens for medicinal purposes (I.G. Baird, pers. comm., 1993). Traditional Vietnamese formulations use snake gall, meat and skin. Snake gall is used (often in combination with other ingredients) to relieve coughing, backache, and headache. Low doses are consumed, as snake gall is regarded as poisonous. Snake meat is served for its tonic qualities to relieve pain and cure paralysis, convulsions, skin inflammation, and boils.

Python balm is made from python bones, and is used to relieve bone pains and backaches; python blood is usually mixed with alcohol and used to cure giddiness and backache; python fat is used to treat burns. Dried Asiatic Cobras at the equivalent of US\$10/kg and preserved reproductive organs from the same species at US\$150/kg were for sale in a medicine shop in Ho Chi Minh City's Lan Ong Street in 1993 (Nash, 1993b). In 1992 and 1993 live Burmese Pythons and Reticulated Pythons were observed on sale in Hanoi's Dong Xuan market and Ho Chi Minh City's Cau Mong market, and also their skins, fat and gall bladders (Nash, 1992b; Nash, 1993b).

Martin (1992b) noted Water Monitors *Varanus salvator* and Indian Monitors *Varanus bengalensis* in the Cau Mong market. In later surveys by TRAFFIC, live monitors and skins were noted on sale at almost every stall selling wildlife. Live Water Monitors in particular were observed in quantities of up to 100 at one time, in April and May 1993 (Nash, 1992b; Nash, 1993b). However, in that market Bezuijen (1994) noted a low turnover in trade for Water Monitors.

There is a large trade in Tokays *Gekko gecko* in Vietnam (Martin, 1992b; Nash, 1992b; Nash, 1993b). These geckos are gutted and then either sun- or kiln-dried. Care is taken not to damage the tail, as this is considered the most valuable part. When being prepared for use, the eyes and feet are removed and the body is dried to remove any moisture which may have been absorbed during storage. The body is then ground into powder. This powder is ingested to increase male potency, and for treating kidney ailments and asthma. Dried geckos are also preserved in alcohol, and the flavoured alcohol is sold by roadside vendors.

The shell scutes of Hawksbill Turtles *Eretmochelys imbricata* are used to make tortoiseshell products that are widely offered for sale to tourists in Ho Chi Minh City and Hanoi. Whole prepared specimens are also widely sold. Prices for whole prepared Hawksbill Turtles ranged from US\$10 for one with a 10cm- diameter carapace to US\$60 for larger specimens (Le Dien Duc and Broad, 1995a). The collection and domestic sale of Hawksbill Turtles or their products are legal in Vietnam, and the trade has increased in recent years (Le Dien Duc and Broad, 1995a). Nash (1992b) noted that tourist shops in Ho Chi Minh City displayed far more tortoiseshell products than ivory. In the following year, the amount of tortoiseshell products on display appeared to have increased (Nash, 1993b).

Chelonians are used for food, medicine, ornament and symbolic significance in Vietnam, and more than 50 trading sites for turtles and tortoises, involving more than 100 traders, were noted in a survey carried out by CRES in 1994 (Le Dien Duc and Broad, 1995b). According to information supplied by traders, domestic sales are equal to only one tenth of the volume of turtles sold to China each year. Some 22t of freshwater turtles are estimated to be consumed locally, and the study estimated annual exports to China totaled 240t, representing more than 200 000 specimens. Hunters reported the best collecting season as falling between April and October, and methods used include capture by hand, and the use of hooks, electricity, and dogs (CRES, 1994b).

All four native species of softshell turtles, namely the Asian Giant Softshell Turtle *Pelochelys bibroni*, Asiatic Softshell Turtle *Amyda cartilaginea*, Chinese Softshell Turtle *Pelodiscus sinensis*, and Wattle-necked Softshell Turtle *Palea steindachneri* were observed in trade in Vietnam, and generally these were found to fetch higher prices than other chelonians. An unknown but probably significant proportion of this trade is thought to originate in Cambodia and Laos, destined ultimately for China (Jenkins, 1995). Bezuijen (1994) noted softshell turtles were sold in the Cau Mong market to buyers from restaurants. Except for the Asian Giant Softshell Turtle, trade in softshell turtles is legal in Vietnam.

Vietnam's pond turtle (fam. Emydidae) fauna is known to be one of the largest and most diverse in the world. Thirteen of the possibly 17 Emydid species known or believed to occur in Vietnam were noted in trade during a TRAFFIC study conducted in 1993 and 1994 (Le Dien Duc and Broad, 1995). Most specimens are said to be exported to China. Records of the Annam Leaf Turtle *Mauremys annamensis* in trade are interesting in that this very little-known species has only been recorded from the wild from central Vietnam, yet TRAFFIC observed it in trade in Ca Mau, Minh Hai Province, in the extreme south of the country.

Chelonians on sale at Ca Mau are usually collected locally in the Mekong Delta region, and if correct, this would represent a significant range extension. However, the possibility of misidentification by observers or transportation south from the centre of the country remains. The three most abundant pond turtle species recorded in trade by TRAFFIC were the Indochinese Box Turtle *Cuora galbinifrons*, the Southeast Asian Box Turtle *C. amboinensis*, and the Malayan Snail-eating Turtle *Malayemys subtrijuga*. Prices for pond turtles ranged from US\$2-10/kg, with the notable exception of the Chinese Three-striped Box Turtle *Cuora trifasciata* that sold for US\$50-150 per specimen. The high price paid for this small northern species is apparently related to its value to the traditional medicine industry (Jenkins, 1995).

Table 7

Chelonians observed in trade in Vietnam in 1992-1993.

Sources: Le Dien Duc and Broad (1995a); Le Dien Duc and Broad (1995b)

Family / Scientific Name	Common Name
TRIONYCHIDAE	
<i>Pelochelys bibroni</i>	Asian Giant Softshell Turtle
<i>Amyda cartilaginea</i>	Asiatic Softshell Turtle
<i>Pelodiscus sinensis</i>	Chinese Softshell Turtle
<i>Palea steindachneri</i>	Wattle-necked Softshell Turtle
EMYDIDAE	
<i>Mauremys annamensis</i>	Annam Leaf Turtle
<i>Geomyda spengleri</i>	Black-breasted Leaf Turtle
<i>Cuora trifasciata</i>	Chinese Three-striped Box Turtle
<i>Sacalia quadriocellata</i>	Four-eyed Turtle
<i>Heosemy grandis</i>	Giant Asian Pond Turtle
<i>Cuora galbinifrons</i>	Indochinese Box Turtle
<i>Pyxidea mouhotii</i>	Keeled Box Turtle
<i>Malayemys subtrijuga</i>	Malayan Snail-eating Turtle
<i>Cuora amboinensis</i>	Southeast Asian Box Turtle

Table 7. Continued

Chelonians observed in trade in Vietnam in 1992-1993.

Sources: Le Dien Duc and Broad (1995a); Le Dien Duc and Broad (1995b)

Family / Scientific Name	Common Name
<i>Cyclemys tcheponensis</i>	Stripe-necked Leaf Turtle
<i>Hieremys annandalii</i>	Yellow-headed Temple Turtle
<i>Mauremys mutica</i>	Yellow Pond Turtle
PLATYSTERNIDAE	
<i>Platysternon megacephalum</i>	Big-headed Turtle
TESTUDINIDAE	
<i>Indotestudo elongata</i>	Elongated Tortoise
<i>Manouria impressa</i>	Impressed tortoise

Tortoises are used in Vietnam for both food and medicinal purposes and to a lesser extent for pets, decoration, and release animals by Buddhists. In the medicine shops of Ho Chi Minh City's Lan Ong street, most chelonian products are derived from tortoise species. The plastron is the main part used, with the carapace serving only as an additive; the former commands a higher price (US\$3-4/kg) than the latter (US\$1/kg) (Jenkins, 1995). Elongated Tortoises *Indotestudo elongata* were noted by TRAFFIC to be the most abundant chelonians in trade in 1993, where it was estimated that approximately 500 kg of live specimens, representing some 250 to 500 individuals, were sold daily at the Cau Mong market. The demand for this Group II-listed protected species was apparently for medicinal use. An unknown proportion of these specimens may originate from Cambodia and Laos (Jenkins, 1995).

Trade in birds

Commercial trade in wild birds is a recent development in Vietnam. Despite Vietnam's very long history of trading wildlife with China and with other neighbouring countries, no historical record exists of a significant trade in birds. Current economic conditions have encouraged several traders and semi-private trading companies to become involved in wildlife trade (especially in the more trade-focused south), and during the past few years Vietnamese birds have been appearing in Southeast Asian markets in increasing numbers. Many species now exported from Vietnam have traditionally been obtained by Southeast Asian traders from elsewhere in the region. Oriental White-Eyes *Zosterops palpebrosa* (Malaysia), Red-whiskered Bulbuls *Pycnonotus jocosus* (Thailand), Black-throated Laughingthrushes *Garrulax chinensis* (China), and Red Avadavats (Indonesia). As stricter legislation and regulations are imposed in these countries, and as the availability of birds from these countries decreases and their prices increase, Vietnam is seen as an attractive alternative source, especially as prices are usually lower (Nash, 1993c).

The existing bird trade is largely in native species, and there is no evidence that significant numbers of specimens from neighbouring countries such as Cambodia and Laos are brought in for local use and/or re-export. Interviews with Singaporean importers suggest the main species exported from Vietnam include Red-whiskered Bulbuls, Oriental White-Eyes, Hill Mynas, White-crested Laughingthrushes *Garrulax leucolophus*, Black-throated Laughingthrushes (including the black-cheeked form *G. chinensis lugens*), Red Avadavats, and various munias and weaver finches (Nash, 1993c). Other species observed in Singapore shops that originated in Vietnam include the Black-headed Sibia *Heterophasia melanoleuca* and the Large Scimitar-Babbler *Pomatorhinus hypoleucos*. One Singaporean trader admitted receiving trogons *Harpactes* spp. from Vietnam (Nash, 1993c), though none were observed in the market surveys carried out by TRAFFIC in Vietnam. No live birds were noticed for sale on surveys at Lang Don, Dong Dang, the Friendship Gate (Huu Nghi Quan) and the Cong Trang Slope in the Chinese border region. However, traders revealed that Silver Pheasants *Lophura nycthemera* and White-crested Laughingthrushes were commonly exported to China from Vietnam (CRES, 1993). One report exists of Vietnamese Pheasants *Lophura hatinhensis*

being exported to Europe apparently for captive breeding purposes. This rare endemic species is seriously threatened, although it is not yet listed in the CITES Appendices (Anon., *in litt.*, February 1996).

A domestic trade in birds exists, but it is often difficult to distinguish between trade supplying a local demand for food and trade destined for the live-bird export market. Markets in small communities may sell birds such as munias, weaver finches, Red Avadavats, and various swallows and Sand Martins. However, these are sold mainly for food and there appears to be only a very limited local demand for singing birds. Birds in the larger markets in Hanoi and especially Ho Chi Minh City may be for the local songbird trade, or may serve as advertisements for species available for export, in larger numbers. Traders claimed to rotate part of their stock daily for advertising purposes, which could account for the apparently high turnover rate of specimens in the markets (Nash, 1993b).

CRES and TRAFFIC investigators examined markets in Ho Chi Minh City, Hanoi, Haiphong, and Nha Trang between December 1992 and May 1993. TRAFFIC surveys conducted in Ho Chi Minh City's Cau Mong market during this time observed 12 of the 18 stalls offering a total of 44 species of wild birds. Eames and Robson (1992) counted 15 stalls offering birds at Cau Mong, and their three surveys in 1991 reported 43 bird species in trade. As for numbers, surveys by Eames and Robson (1992) and CRES noted that species from the family Passeridae (such as munias and weaver finches) and the family Hirundinidae (swallows and Sand Martins) were predominant, where for example 5100 Scaly-breasted Munias *Lonchura punctulata* and White-bellied Munias *L. leucogastra* were observed at Cau Mong for sale on one day in April 1993. These birds were likely to be destined for release, or as food.



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On 2 May 1993, a Buddhist monk was observed buying a cage full of Sand Martins and Barn Swallows *Hirundo rustica*, which were immediately released (Nash, 1993b). Other species were usually displayed in very small numbers (one to three specimens of each type), though these may have been advertisements for larger numbers held in stock elsewhere. Bezuijen (1994) recorded 66 species of birds on sale at Cau Mong market in observations made in January 1994, noting a daily average of 2400 birds offered for sale. The main species in trade at the time were Scaly-breasted Munias and Yellow-breasted Buntings *Emberiza aureola*. Although Cau Mong is the most important market for live birds in Vietnam, as to numbers of species and individual birds sold (CRES, 1993), this market is very small and of little regional significance to the overall Southeast Asian bird trade (see Nash, 1993c). Species noted in trade in the Cau Mong market in 1991-1993 are listed in Table 8.

A Buddhist monk releasing sand martins at Cho Cau Mong market, Vietnam

Table 8

Bird species noted in trade in Ho Chi Minh City's Cau Mong Market 1991-1993, from various sources.

Sources: Eames (1991); Baird & Sly (1992); Martin (1990-91); TRAFFIC Southeast Asia/CRES survey data 1992-1993.

Family / Scientific Name	Common Name
PHASIANIDAE	
<i>Francolinus pintadeanus</i>	Chinese Francolin
<i>Lophura</i> sp.	pheasant
<i>Lophura diardi</i>	Siamese Fireback
<i>Lophura nycthemera</i>	Silver Pheasant
<i>Pavo muticus</i>	Green Peafowl
DENDROCYGNIDAE	
<i>Dendrocygna javanica</i>	Lesser Whistling-Duck
ANATIDAE	
<i>Nettapus coromandelianus</i>	Cotton Pygmy-Goose
<i>Anas poecilorhyncha</i>	Spot-billed Duck
BUCEROTIDAE	
<i>Anthracoceros albirostris</i>	Oriental Pied-Hornbill
<i>Aceros corrugatus</i>	Wrinkled Hornbill
COLUMBIDAE	
<i>Treron vernans</i>	Pink-necked Green-Pigeon
<i>Columba punicia</i>	Pale-capped Pigeon
<i>Streptopelia tranquebarica</i>	Red Collared-Dove
<i>Streptopelia chinensis</i>	Spotted Dove
CUCULIDAE	
<i>Clamator coromandus</i>	Chestnut-winged Cuckoo
CENTROPODIDAE	
<i>Centropus sinensis</i>	Greater Coucal
PSITTACIDAE	
<i>Psittacula eupatria</i>	Alexandrine Parakeet
<i>Psittacula finschii</i>	Grey-headed Parakeet
<i>Psittacula roseata</i>	Blossom-headed Parakeet
<i>Psittacula alexandri</i>	Red-breasted Parakeet
<i>Loriculus vernalis</i>	Vernal Hanging-Parrot
RALLIDAE	
<i>Gallicrex cinerea</i>	Watercock
<i>Amauornis phoenicurus</i>	White-breasted Waterhen
ACCIPITRIDAE	
<i>Spizaetus cirrhatus</i>	Changeable Hawk-Eagle
<i>Spilornis cheela</i>	Crested Serpent-Eagle
<i>Accipiter trivirgatus</i>	Crested Goshawk
<i>Accipiter badius</i>	Shikra
ARDEIDAE	
<i>Bubulcus ibis</i>	Cattle Egret
<i>Egretta garzetta</i>	Little Egret
<i>Egretta intermedia</i>	Intermediate Egret
CICONIIDAE	
<i>Leptoptilos javanicus</i>	Lesser Adjutant

Table 8. Continued

Bird species noted in trade in Ho Chi Minh City's Cau Mong Market 1991-1993, from various sources. Sources: Eames (1991); Baird & Sly (1992); Martin (1990-91); TRAFFIC Southeast Asia/CRES survey data 1992-1993.

Family / Scientific Name	Common Name
PELECANIDAE	
<i>Pelecanus philippensis</i>	Spot-billed Pelican
IRENIDAE	
<i>Chloropsis aurifrons</i>	Golden-fronted Leafbird
CORVIDAE	
<i>Corvus macrorhynchos</i>	Large-billed Crow
<i>Dicrurus paradiseus</i>	Greater Racket-tailed Drongo
<i>Cypsiirina temia</i>	Racket-tailed Treepie
MUSCICAPIDAE	
<i>Saxicola caprata</i>	Pied Bushchat
<i>Copsychus saularis</i>	Oriental Magpie-Robin
<i>Copsychus malabaricus</i>	White-rumped Shama
STURNIDAE	
<i>Sturnus sinensis</i>	White-shouldered Starling
<i>Sturnus nigricollis</i>	Black-collared Starling
<i>Sturnus burmannicus</i>	Vinous-breasted Starling
<i>Acridotheres tristis</i>	Common Myna
<i>Acridotheres fuscus</i>	Jungle Myna
<i>Acridotheres cristatellus</i>	Crested Myna
<i>Gracula religiosa</i>	Hill Myna
ZOSTEROPIDAE	
<i>Zosterops sp.</i>	white-eye
<i>Zosterops palpebrosa</i>	Oriental White-Eye
<i>Zosterops japonica</i>	Japanese White-Eye
PYCNONOTIDAE	
<i>Pycnonotus jocosus</i>	Red-whiskered Bulbul
<i>Pycnonotus goiavier</i>	Yellow-vented Bulbul
<i>Pycnonotus aurigaster</i>	Sooty-headed Bulbul
<i>Pycnonotus blanfordi</i>	Streak-eared Bulbul
<i>Pycnonotus finlaysoni</i>	Stripe-throated Bulbul
SYLVIIDAE	
<i>Garrulax chinensis</i>	Black-throated Laughingthrush
<i>Garrulax chinensis lugens</i>	Black-throated Laughingthrush
<i>Garrulax canorus</i>	Hwamei
<i>Heterophasia melanoleuca</i>	Black-headed Sibia
<i>Leiothrix argenteauris</i>	Silver-eared Mesia
PASSERIDAE	
<i>Anthus rufulus</i>	Paddyfield Pipit
<i>Passer montanus</i>	Eurasian Tree Sparrow
<i>Ploceus sp.</i>	weaver
<i>Ploceus manyar</i>	Streaked Weaver
<i>Ploceus philippinus</i>	Baya weaver
<i>Amandava amandava</i>	Red Avadavat
<i>Lonchura striata</i>	White-rumped Munia
<i>Lonchura punctulata</i>	Scaly-breasted Munia
<i>Lonchura malacca</i>	Black-headed Munia

Investigations into hunting pressures in the Red River Delta affecting migratory birds caught for food and export to China showed that 14 883 birds of 22 waterbird species were taken by hunters during an eight-month investigation period between August 1992 and April 1993. The local income derived from this trade was estimated to be equivalent to US\$10 300 (CRES, 1993).

The nests of four species of swiftlet have been harvested for human consumption (Lau and Melville, 1994), with the most prized being the all-saliva "white" nests of Germain's Swiftlet *Collocalia germani*. This is the species that occurs in commercial quantities in Vietnam, so that Vietnam's exports of swiftlet nests have been a high-value industry. The Edible Swiftlet (Khanh Hoa) Company in Nha Trang collected 2150kg of swiftlet nests in 1991, representing a harvest of some 215 000 nests with an estimated market value of US\$2 000 000. Overall, the export trade in edible swiftlet nests has risen dramatically from 1450kg in 1990 to 2500kg in 1993.

Since 1991, the Nha Trang-based company has been conducting this trade, which formerly involved exports to Hong Kong, Taiwan, and Canada. However, in 1994 Canada became the main customer, importing 90 percent of Vietnam's nest harvest. Hong Kong ceased importing nests from Vietnam, and Taiwan accepted only 120kg per year (CRES, 1994a). The reason for this change in the market is unknown.

Traditional medicines are prepared from many species of birds. However, of particular interest is the trade in nestling Lesser Coucals *Centropus bengalensis* and Greater Coucals *C. sinensis*. Active nests are sought after, and when found, the nestlings's legs are broken; it is believed the parent birds will then feed the nestlings with healing herbs. The nestlings are later collected, plucked, and steeped in alcohol. The alcohol is then consumed for its believed healing properties. Interestingly, this practice is also common in remote areas of southern Kalimantan, Indonesia (S.V. Nash, pers. comm., June 1997). Additionally, adult coucals are eaten in Vietnam for their special tonic qualities.

Trade in mammals

Of all the types of wildlife trade, the trade in mammals and mammal parts has attracted the most attention. This trade involves several very high-profile species groups such as rhinoceroses, primates, and Tigers and other large cats. In addition, the recent discoveries of several new mammals in the Annamite Chain have focussed attention on the plight of all larger mammals in Vietnam, as scientists race to find possibly still- undescribed species. The 1992-1993 TRAFFIC/CRES surveys noted quite a variety of species in trade, and various observations are summarized below.

Sambar antlers and meat were the most commonly observed deer products at the Cau Mong and Phan Viet markets in Ho Chi Minh City (Nash, 1992a; Martin, 1991; Baird and Sty, 1992). Martin (1991) found live Indian Muntjak and Greater Mouse Deer *Tragulus napu* at the Cau Mong market. In 1993, Greater Mouse Deer said to have been caught in central Vietnam were on sale at the Phan Viet market for US\$3.50 each. Deer legs were selling for US\$15 for four, and deer bone (for making deer-bone balm) was selling for US\$0.15/kg. Deer meat was selling for US\$2.5/kg (Nash, 1993b).

Besides being a popular source of meat, deer products are widely used medicinally in Vietnam. Traditional Vietnamese medicine practitioners commonly refer to *Nhung* as being among the most important effective drugs in use. *Nhung* is a substance obtained from the "green" or velvety antlers of male deer. Male deer can provide antlers as early as two years of age, but antlers from deer three years of age and over are more desirable. "Green" or velvety antlers are new antlers 5-10 cm in length which appear in the spring, which are highly vascularized and covered with velvety hair. These antlers appear in February to March for Sika Deer *Cervus nippon*, and April to in August for Sambar *C. unicolor*.

Captive breeding of Sambar and Sika Deer is not yet widespread, but in some areas of Nghe An (in Do Luong, Anh Son Province) and Ha Tinh (in Huong Son, Huong Khe Province), there is household-level breeding of deer for the production of deer velvet. In Huong Khe there is a state farm in which captive breeding of deer is being practiced, though some maintain that deer velvet derived from captive-bred specimens is not as effective as that obtained from wild specimens. Other trade items

derived from deer include penises, leg bones, legs, and prepared salve made from antler velvet (Baird and Sly, 1992; Nash, 1992a).

Tiger bone is used as medicine in Vietnam, and is most commonly seen in the form of prepared tiger-bone balm. The whole skeleton may be used in the manufacturing of bone balm, but the foreleg bones are considered the most valuable. Every 100 kg of tiger bone may yield as much as 30 kg of balm. Tiger bone balm is used to treat bone ailments, rheumatism, assorted body ailments, and general weakness. Balm may be used pure or mixed with other ingredients, at full strength, or diluted in alcohol. Bones from Leopards and other large cats are used as tiger bone substitutes in making balm. The trade in Tiger specimens in Vietnam is of particular concern.

Knowledge of the status of the Tiger in Indochina is greatest for Vietnam (Kemf, 1995). The estimated population for the species in the country is 150, and during the first five months of 1995, at least four Tigers are known to have been shot in an area of the Mom Ray forests where the borders of Vietnam, Laos and Cambodia converge, and where the largest single concentration of Tigers in Vietnam is believed to occur (Kemf, 1995). Despite being afforded the highest protection under Vietnamese law (Category I), CRES investigators found seven mounted Tigers and one live Tiger on sale during their 1992-93 market surveys.

In April 1994, the Beautiful Taiwan Foundation investigated the Tiger trade in Ho Chi Minh City and found that Tiger skeletons were selling for US\$1000 each, with Tiger bone priced at US\$125/kg (Mills and Jackson, 1994). One Lan Ong Street shop was seen selling two large sacks of Tiger bones, to be made into tiger bone balm. Approximately 20 kg of bones was involved, selling at US\$100/kg. The shop claimed to obtain approximately 10 tiger skeletons a year (Nash, 1993b). Locally made tiger bone balm was selling for US\$25 for a 4cm x 1.5cm x 4cm square; a commercially-packaged version imported from China, said to be inferior to the local product, was selling for US\$7 a package.

In the Cau Mong market on 27 and 28 June 1992 investigators found one young Clouded Leopard, a Clouded Leopard skin, 8 Leopard skins, a mounted Leopard, 2 Tiger skins, an Asian Golden Cat *Felis temmincki* skin, 2 mounted Leopard Cats. Also on 27 June 1992, in traditional medicine wholesalers' shops on Ho Chi Minh City's Lan Ong Street (in the Saigon district), were four Tiger skins, seven Leopard skins, full sets of Leopard bones, 12 Clouded Leopard skins, Leopard Cat mounts, and various cat teeth and claws. On 1 May 1993 the same shops displayed five Tiger skins, 4 Clouded Leopard skins, 2 Asian Golden Cat skins. One shop offered Leopard bones at US\$100/kg. Another shop was selling Tiger teeth at US\$100 each, and a Clouded Leopard skin. On 30 April and 2 May 1993, the Cau Mong market contained 12 Leopard Cats, 5 Clouded Leopard skins and a mount, an Asian Golden Cat skin and a mounted specimen (Nash 1992a; Nash, 1993b).

Cat skins are also sold through tourist souvenir and handicraft shops. On 28 June 1992 the main tourist shops of Ho Chi Minh City were visited (on Dong Khoi Street, from Tan Duc Thang Street to Le Loi Boulevard). One shop was selling two Clouded Leopard mounts along with two full skins and two Clouded Leopard-skin handbags, a Marbled Cat *Felis marmorata* mount, an Asian Golden Cat skin, three Leopard skins, and a Tiger skin. One shop had a Clouded Leopard skin, and another shop had a Tiger skin and two Leopard skins. On 29 April 1993 the same shops offered a Clouded Leopard skin and mount, two Tiger skins (one of which was very small), and a Leopard skin (Nash, 1992a; Nash, 1993b).

Primates (mainly macaques) are used to prepare "monkey bone" balm. The balm is mainly made from bones (though meat may also be used) and is used to improve hemoglobin generation and renal functioning, and to treat a lack of appetite, insomnia, and anemia (Loi, 1991). Certain primates were frequently observed on sale in Vietnam. More than 170 live Crab-eating Macaque *Macaca fascicularis*, including 100 young, were counted by TRAFFIC at the Dong Xuan market in Hanoi and the Cau Mong market in Ho Chi Minh City in 1992.



Long-tailed macaques for sale

Other species observed in trade in the Cau Mong market include Rhesus Macaque *Macaca mulatta*, Pigtail Macaque *Macaca nemestrinus*, Bear Macaque *Macaca arctoides*, Francois's Leaf-Monkey *Presbytis francoisi*, Silvered Langurs *Presbytis cristata*, White-cheeked Gibbon *Hylobates leucogenys*, Black-crested Gibbon *H. concolor*, Slow Loris, and the Pygmy Loris *Nycticebus pygmaeus* (Nash, 1992a; Nash, 1993b; Eames, 1991; Baird and Sly, 1992; Martin, 1992; CRES, 1993).

Only an estimated 10-15 Javan Rhinoceroses remained in Vietnam in 1988 (Martin, 1992b). Rhinoceros products are rare and expensive ingredients in traditional Vietnamese medicines. A medicine wholesaler's shop on Lan Ong Street, Ho Chi Minh City, was selling rhinoceros skin (from southern Vietnam) at US\$50/kg (with 30-40kg in stock), and a 2.3 kilogram rhinoceros horn was offered for US\$16 000 (Nash, 1993b). Several poor examples of counterfeit rhinoceros horn were seen, and many tourist shops in Ho Chi Minh City were noted to carry a few such items during a visit in 1992. All these counterfeit "horns" were highly polished and with irregularly shaped bases (Nash, 1992b). Fewer examples of counterfeit rhinoceros "horn" were noted on sale in Ho Chi Minh City the following year (Nash, 1993b).

A maximum of 400 Asian Elephants are estimated to survive in Vietnam, close to the borders with Laos and Cambodia (Kemf and Jackson, 1995). Shrinking forest habitat is thought to be the greatest threat to elephants' survival in Vietnam (Kemf and Jackson, 1995), while open trade in elephant ivory, teeth and hide likely poses an additional threat, despite the Asian Elephant's protected status in national law. In June 1992, approximately eight pairs of Asian Elephant tusks were seen in tourist shops in Hanoi, with the larger shops having display cases filled with ivory trinkets. Many shops in Ho Chi Minh City were also stocking elephant products, including whole Asian Elephant tusks, carved tusks, raw ivory pieces, signature seal blanks, carved items, ivory panels and elephant tooth carvings (Nash, 1992b).

During observations in 1993, many shops in Ho Chi Minh City continued to sell the same range of ivory goods (Nash, 1993b). Elephant ivory can also be used as a medicine, and ivory dust is prescribed to stop hemorrhaging, to accelerate scar formation, to reduce fever and nervousity, and to reduce skin inflammation. Elephant skin can be dried and used to heal wounds, skin inflammation and boils that do not respond to other treatments. The dried skin is burnt, and the ashes are spread over the wound. The skin may also be baked with other ingredients, and ground into powder to be spread over wounds. In 1992 elephant skin was seen for sale in a medicine shop in Lan Ong Street at US\$3.50/kg (Nash, 1992b).

The Sun Bear (Group I) and Asiatic Black Bear (Group II) are both native to Vietnam and feature prominently in trade, as live animals and as parts for medicinal and food use despite their protected status. TRAFFIC noted one live young Asiatic Black Bear *Ursus thibetanus* on sale in the Cau Mong market in 1992, and one at Hanoi's Dong Xuan market in 1993 (selling for US\$285) (Nash, 1992b; Nash, 1993b). Seven live Sun Bear were noted at Cau Mong on one June day in 1992 and five days later two more of the bears appeared, one so young as to still have unopened eyes.

Twenty-one gall bladders were also on sale (Nash, 1992b). One live Sun Bear was seen for sale at the same market in 1993 during a further two separate days of observations (Nash, 1993b). In Kom Tum, Vietnam, near the border with Attapeu Province, Laos, a bear claw was offered for sale for US\$20 in June 1993. In the Vietnamese city of Hue, two Asiatic Black Bear cubs were offered for sale for US\$350 each. The bear cubs were reportedly bought in A Luoi District, which borders the Lao province of Sekong (Le Dien Duc *et al.*, 1993). Bear bile is prescribed for heart and liver ailments, reducing fever, pain relief, "decongesting" blood circulation, conjunctivitis, and as an antiseptic. Bear gall bladders were commonly seen in Ho Chi Minh City, as well as bear teeth and paws, and dried skins and mounted specimens (Nash, 1992b; Nash, 1993b).

On 24 June 1992 the animal section of the Dong Xuan market in Hanoi was selling 50 pangolins. The Cau Mong market in Ho Chi Minh City was observed on 27 and 28 June 1992 to have some 18 live and five mounted pangolins. On 30 April and 2 May 1993, the Cau Mong market contained approximately 40 Malayan Pangolins *Manis javanica*. On 27 June 1992 the Phan Viet Chan meat market in Ho Chi Minh City was selling pangolin meat, and on 1 May 1993, that market was selling live Malayan Pangolins at US\$9.50/kg. Pangolins in this market are said to arrive from the Dalat

region of central Vietnam (Nash, 1992a; Nash, 1993b). Pangolin scales are claimed to be effective for the prevention of breast cancer.

Other mammal species observed in trade include the Common Palm Civet *Paradoxurus hermaphroditus*, Binturong *Arctictis binturong*, Indian Palm Civet *Viverra zibetha*, Small Indian Civet *Viverricula malaccensis*, Yellow-throated Marten *Martes flavigula*, Hog Badger *Arctonyx collaris*, Small-clawed Otter *Aonyx cinerea*, and flying foxes *Pteropus* spp. Horns from Gaur and Serow were commonly encountered, and in June 1992, one shop was selling a set of female Kouprey *Bos sauveli* horns (Nash, 1992a; Nash, 1993b).

One unusual form of mammal utilization in Vietnam is the domestication of otters for their fishing abilities. In villages in central Vietnam, there is said to be a strong demand for young otters (*Aonyx* spp., *Lutra* spp.), for which high prices are paid (US\$120). These are reported to be trained to catch fish for their owners, by raising them entirely on cooked fish. These captive otters do not develop a taste for raw fish, and when released in a waterway the otter will catch and bring back fish to be cooked by the owner. The otter is given part of the catch as cooked fish, and in this way the owner can fish without the use of nets or traps. Both live otters and otter skins were frequently seen on sale at Vietnamese markets (Nash, 1992b).

Conclusions and Recommendations

Trying to assess the significance of any previously little and poorly recorded trade is extremely difficult, and the preliminary information gathered for this study only provides an introduction to the trade in the region. Still, from this limited information several basic conclusions can be made. The first of these is that the main demand for wild species in Laos, and most likely in Vietnam as well, is for food. Much of the hunting and collection of wild species for food is opportunistic, and is subject to seasonal availability. Thus the observations gathered for this study can only supply individual snapshots on the extent of the trade, and for many species it is not possible to assess what the impact of the trade might be. Much additional research must be done before the conservation impact on individual species can be properly evaluated.

Another point is that the trade for food is wholly unregulated, everything that can possibly be captured or collected almost certainly will be, and the demand probably outstrips the supply. This would account for the oft-heard complaints that fish and game species are no longer as plentiful as they once were, and in many cases, certain species have become quite rare.

Of this food trade, the trade in Lao fishes is of specific concern. Several species in the Mekong River basin appear to be threatened with over-harvesting, and the cross-border trade with Thailand is essentially illegal according to both countries' laws. Trade in the CITES Appendix I-listed Jullien's Golden Carp and Mekong Giant Catfish, and in other large catfish species, deserves particular attention. In Vietnam, the trade in mammals for food and medicinal ingredients appears to be a serious problem, one that is compounded by a ready local tourist market for wildlife mounts, skins, and trinkets, and a growing number of international tourist arrivals.

The application of legislative controls is a problem, particularly for a food and medicine trade in developing countries. Laos and Vietnam both have domestic legislation aimed at protecting certain native species against harvesting, and Vietnam is a Party to CITES. However, current legislation in either country is almost impossible to enforce in remoter areas, and the hunting, collecting and trade in wild species for food or medicine remains effectively uncontrolled. This is particularly worrisome considering the number of Appendix I-listed species that have been observed in trade (Table 9); any trade in an Appendix I-listed species must be serious cause for concern, and a reason for immediate action by the governments.

It is highly unlikely that any trade for food or medicine purposes will be controllable until viable options in terms of diet and health care are widely available in both countries. Considering the critical level at which certain species occur, finding solutions to this challenge will require innovative thinking and a strong commitment from governments and the conservation community.

The problem of cross-border trade can be addressed with the help and co-operation of neighbouring countries, particularly China and Thailand. Much of the unofficial export trade in Vietnam is headed for southern China, and any initiative aimed at controlling this trade will require China's full assistance. Similarly, the main export trade from Laos appears to be in fishes and other items aimed at the Thai market. At the very least, a dialogue on these matters between the Lao and Vietnamese governments, between Laos and Thailand, and between Vietnam and China should be initiated as soon as possible. Furthermore, the government of Laos should accede to CITES. Doing so would facilitate international co-operation on wildlife trade issues, particularly concerning trade with other Parties in the region, such as Thailand, Vietnam, and China. Co-operation on specific issues, such as the trade in Tiger and rhinoceros parts and derivatives, and in traditional Asian medicines in general would be enhanced by the country becoming a Party.

Table 9

CITES Appendix I-listed species observed in trade in Laos and Vietnam.

Source: TRAFFIC/CRES surveys, 1992-1993

Family / Scientific Name	Common Name
MAMMALIA	
Cercopithecidae	
<i>Pygathrix nemaeus</i>	Variegated (Douc) Langur
Hylobatidae	
<i>Hylobates concolor</i>	Black-crested Gibbon
<i>Hylobates lar</i>	White-handed Gibbon
Ursidae	
<i>Helarctos malayanus</i>	Sun Bear
<i>Ursus thibetanus</i>	Asiatic Black Bear
Felidae	
<i>Neofelis nebulosa</i>	Clouded Leopard
<i>Panthera pardus</i>	Leopard
<i>Panthera tigris</i>	Tiger
Elephantidae	
<i>Elephas maximus</i>	Asian Elephant
Rhinocerotidae	Rhinoceroses
Cervidae	
<i>Axis porcinus annamiticus</i>	Hog Deer
<i>Cervus eldi</i>	Eld's Deer
Bovidae	
<i>Bos gaurus</i>	Gaur
<i>Bos sauveli</i>	Kouprey
<i>Naemorhedus goral</i>	Goral
<i>Naemorhedus sumatraensis</i>	Serow
AVES	
Ciconiidae	
<i>Mycteria cinerea</i>	Milky Stork
Anatidae	
<i>Cairina scutulata</i>	White-winged Wood Duck
Phasianidae	
<i>Rheinardia ocellata</i>	Crested Argus
Bucerotidae	
<i>Buceros bicornis</i>	Great Hornbill
REPTILIA	
Cheloniidae	
<i>Eretmochelys imbricata</i>	Hawksbill Turtle
<i>Chelonia mydas</i>	Green Turtle
Crocodylidae	
<i>Crocodylus siamensis</i>	Siamese Crocodile
Varanidae	
<i>Varanus bengalensis</i>	Indian Monitor
PISCES	
Cyprinidae	
<i>Probarbus jullieni</i>	Jullien's Golden Carp
Pangasiidae	
<i>Pangasianodon gigas</i>	Mekong Giant Catfish

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The TRAFFIC Network is the world's largest wildlife trade monitoring programme with offices covering most parts of the world. TRAFFIC is supported by WWF (World Wide Fund For Nature) and IUCN (the World Conservation Union) to monitor trade in and utilisation of wild plants and animals. It works in close co-operation with the Secretariat of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). As the majority of its funding is provided by WWF, the Network is administered by the WWF Programme Committee on behalf of WWF and IUCN.

The TRAFFIC Network shares its international headquarters in the United Kingdom with the World Conservation Monitoring Centre.

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