

WILDLIFE TRADE IN LAO P.D.R. AND BETWEEN LAO P.D.R. AND THAILAND

*Sompoad Srikosamatara**, *Boun-oum Siripholdej***
*and Varavudh Suteethorn****

A B S T R A C T

The trade in wildlife meat and parts was surveyed (1) in and around Vientiane, the capital city of Lao P.D.R., (2) in Savannakhet, Southern Laos, (3) along the Thai Lao border from Amphoe Chiang Khan, Loei Province to Amphoe Nam Yun, Ubon Ratchathani Province and (4) in Northeast Thailand. Information on the trade in Attapeu was obtained from Chazee (1990). A detailed study on the wildlife meat trade was made at That Luang Fresh Food Market in Vientiane during January to April and July to October 1991. Wildlife trade in Lao P.D.R. is not for subsistence since wildlife meat is much more expensive than meat from other domestic animals. Wildlife trade around Vientiane and intercountry trade with Thailand pose a threat to wildlife populations in central Lao P.D.R. The cross-border trade, especially in trophies, with Thailand is also a major threat to wildlife resources in southern Lao P.D.R. The continued demand for wildlife products in China, through Yunnan, has been a major factor causing depletion of wildlife resources in northern Lao P.D.R. A pangolin tannery at Ban Don Du near Vientiane produces pangolin leather for export on a large scale, which will jeopardize pangolin populations in the future.

The following immediate actions are recommended: (1) wildlife meat trade at the That Luang Fresh Food Market should be discouraged and limited to certain species. (2) The pangolin tannery at Ban Don Du and its supply and distribution network should be closed down. (3) Attempts should be made both by Thailand and Lao P.D.R. to discourage cross-border wildlife trade. Authorities at Champassak Province should be informed so that the trade in trophies at Ban Mai opposite Amphoe Khong Chiam, Ubon Ratchathani Province, can be stopped. (4) The commercial trade in wildlife meat and products should be recognized as a major threat to wildlife resources in Lao P.D.R.

Wildlife trade is international and the demand is impossible to control. Lessons from Thailand have indicated the consequences of failing to recognize this factor, which eventually encouraged a large network of illegal wildlife trade. Non-systematic control of commercial wildlife cropping and legal possession of wildlife by the private sector are factors jeopardizing wildlife conservation and management in both Thailand and Lao P.D.R.

* Department of Biology, Faculty of Science, Mahidol University, Rama 6 Road, Bangkok 10400, Thailand

** Department of Biology-Chemistry, Teachers' Training College, Dong Dok, Vientiane, Lao P.D.R.

*** Vertebrate Paleontology Section, Geological Survey Division, Department of Mineral Resources, Ministry of Industry, Rama 6 Road, Bangkok 10400, Thailand

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I N T R O D U C T I O N

Lao P.D.R. is a poor country judging from its annual GDP or Gross Domestic Product (the value of all goods and services produced in the country in a year) of only \$ 180 per capita (*Asiaweek Magazine*, July 12, 1991). A question which any poor country such as Lao P.D.R. must address is how can her wildlife resources be used in a sustainable way so that their diversity can be maintained for future generations. Can current practices concerning the uses of wildlife resources in Lao P.D.R. be used as a basis for future development of the country, or are these resources being depleted in an unsustainable way? This study addresses the above questions.

At the present time there is no wildlife conservation legislation in Lao P.D.R. (MADAR & SALTER, 1990) and wildlife meat is sold in various markets throughout the country (CHAZEE, 1991). In the capital city of Vientiane, wildlife meats are sold in a few fresh food markets and various dishes of wildlife meat are even offered in the best hotel, Lan Xang. Wildlife products including horns, antlers and ivory are also on sale in various souvenir shops around Vientiane. MADER & SALTER (1990) attempted to encourage wiser use of wildlife resources by writing a draft Nature Conservation Act. This act has not yet been approved.

Prior to 1986, the illegal trade across the Thai-Lao border along the Mekong involved bribery and the use of false documents (Venevongphet, August 1990, cited by MILLS & SERVHEEN, 1991). An account of the wildlife trafficking business out of Lao P.D.R. between 1966 and 1970 can be found in DOMALAIN (1977a, b). More recent studies on the trade in wildlife and their products were undertaken in 1990 by BRADLEY-MARTIN (1992 a, b) and on bears and bear parts by MILLS & SERVHEEN (1991). The present study was done in the belief that information on the current utilization of wildlife resources will be helpful in the development of wildlife laws and management plans in Lao P.D.R.

This study reports on the trade in wildlife meat and products within Lao P.D.R., especially around Vientiane (Figure 1). Surveys were also carried out along the border between Thailand and Lao P.D.R. (Figure 2) and at a few fresh food markets in Northeast Thailand (Figure 2). Lao P.D.R. was visited during January 17–27 and May 19 – June 5, 1991. Surveys along the border between Thailand and Lao P.D.R. and in Northeast Thailand were conducted during March 25 – April 9, June 5–14 and July 23–31, 1991. A detailed study of the wildlife meat trade at That Luang Fresh Food Market was carried out during January-April and July-October 1991. Some information was also gathered from local newspapers in Thailand and Lao P.D.R., and from Thai television.

Prices asked for goods were in Lao (kip) or Thai (baht) currency, but have been converted to US\$ equivalents at the rate of 700 kip or 25 baht per \$.

W I L D L I F E T R A D E W I T H I N L A O P . D . R .

Wildlife Meat Trade in Fresh Food Markets around Vientiane

Surveys were carried out at Khua Din Market, Thong-Khan-Kham Market, Sikai Market, Ban-Lak-Hasib-Song Market and Thabok Market (Figure 1). We were unable to visit Ban Talat Market which is also famous for its wildlife meat trade. The detailed survey

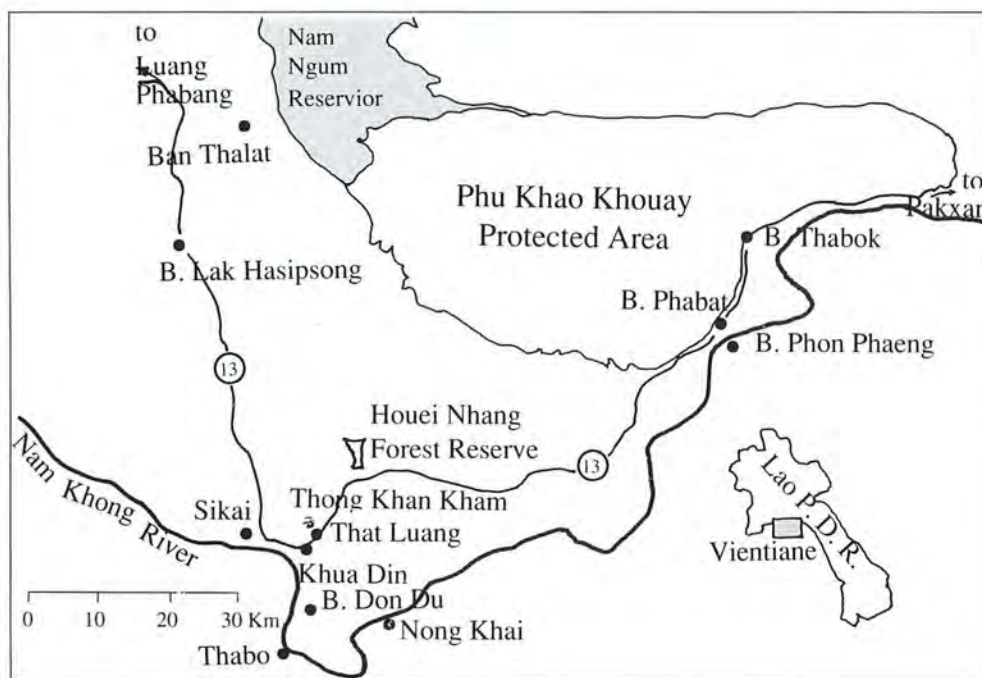


Figure 1. Locations of fresh food markets visited around Vientiane: (1) Ban Thalat, (2) Ban Lak Hasipsong, (3) Sikai, (4) Thong-Khan-Kham, (5) That Luang, (6) Khuu Din, (7) Ban Prabat and (8) Ban Thabok. The pangolin tannery was located at Ban Don Du. The Nam Ngum Reservoir, Houei Nhang Forest Reserve and Phu Khao Khouay Protected Area and highway number 13 are also shown. "Nam Khong" = Mekong River.

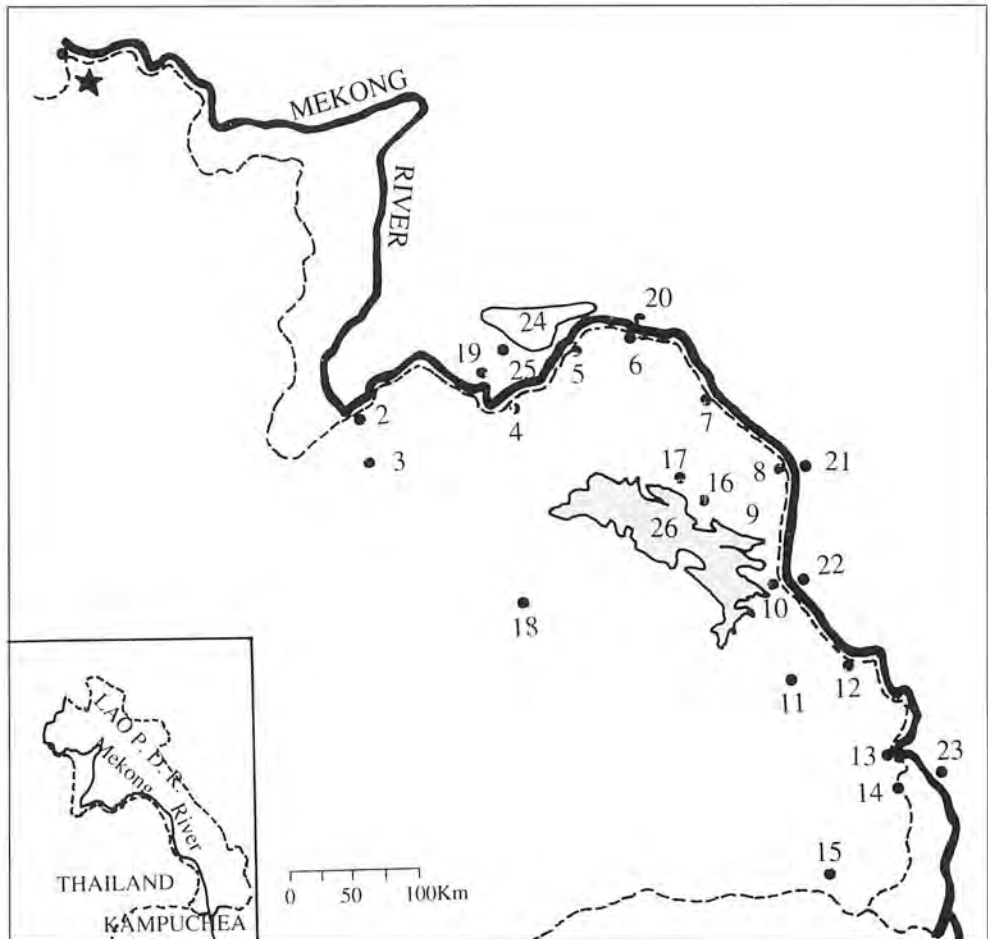


Figure 2. The locations along the Thai-Lao border where wildlife trade between the two countries was surveyed and compiled. The locations from north to south were (*) Mae Sai, (1) Chiang Khong, (2) Chiang Khan, (3) Loei, (4) Nong Khai, (5) Ban Phon Phaeng, (6) Bung Kan, (7) Ban Phaeng, (8) Nakhon Phanom, (9) That Phanom, (10) Mukdahan, (11) Amnat Charoen (12) Khemmarat, (13) Khong Chiam, (14) Chong Mek and (15) Nam Yun. The locations where the gekko traders were located were (16) Sakon Nakhon and (17) Ban Na Wa. The gekko traders had to move further to Petchabun Range to Phu Wiang and Phu Kao west of (18) Khon Kaen. The other locations are (19) Vientiane, (20) Pakxan, (21) Thakhek, (22) Savannakhet and (23) Pak Xe. Numbers 24, 25 and 26 represents Phu Khao Khouay Protected area, Houei Nhang Forest Reserve and Phu Phan Mountain Range, respectively.

Table 1. Prices of meat of domestic animals and other wildlife sold in fresh food markets around Vientiane.

Type of Meat	Price(\$/kg)	Place
<i>A. Domestic animals</i>		
1st class beef	2.90	Thong-Khan-Kham
2nd class beef	2.60	Thong-Khan-Kham
1st class water buffalo meat	2.60	Thong-Khan-Kham
2nd class water buffalo meat	2.30	Thong-Khan-Kham
1st class pork	2.10–2.40	Thong-Khan-Kham
2nd class pork	2.10	Thong-Khan-Kham
Chicken	1.90	Ban Thabok
Snake-head Fish	1.90	Ban Thabok
Fish	3.60	Thong-Khan-Kham
Frog	1.00	Ban Thabok
<i>B. Wildlife</i>		
Common Barking Deer	4.30–5.70	Thong-Khan-Kham, Sikai
Sambar Deer (dry meat)	4.10–7.00	Thong-Khan-Kham, That Luang
Common wild pig	3.40–4.10	That Luang
Malayan Pangolin (Meat)	2.10–3.40	Ban Lak Hasipsong
(Scales)	10.00	
Flying Squirrel	1.70	Ban Thabok
Great Bandicoot	1.70	Ban Thabok
Monitor Lizard	2.10	Ban Thabok
Soft-shelled Turtle	1.70	Ban Thabok

done by Mr. Boun-Oum Siripholdej at That Luang fresh food market will be presented in a separate section. A brief visit was also made to a pangolin tannery at Ban Don Du. The price of wildlife meat sold in each market in comparison with the meat of domestic animals can be seen in Table 1. Wildlife meat is more expensive than that of domestic animals. The details of the trade in the seven different locations are now reported:

Khua Din Market: This market is situated next to the Morning Market (Talat Chao) in downtown Vientiane. There was no wildlife meat trade there. The merchants were well aware of the reputation of That Luang Fresh Food Market for the wildlife meat trade.

Thong-Khan-Kham Fresh Food Market: Wildlife meat was traded on a small scale. Fresh meat of common barking deer and dry meat of sambar deer were seen on sale.

The merchants in this market were also aware of the availability of wildlife meat at That Luang Market.

Sikai Fresh Food Market: Wildlife meat was sold on a small scale. One vendor sold meat of common barking deer and sambar deer.

The Fresh Food Market at Ban Lak Hasipsong: During our visit on the afternoon of May 26, 1991 a pangolin was being slaughtered; the scales and meat were sold separately. There were also two live pangolins for sale; one weighed 4–5 kg (Figure 3). Dried squirrel and monitor lizard, and dry meat of wild pig were also for sale. Other wildlife may be sold in this market but we had little chance to look through it. A documentary film on the Hmong of Lak Hasipsong (Thai Television Channel 5 on Sunday July 21, 1991 during 1630–1710 h.) showed a live 4 kg pangolin for sale at the fresh food market for \$12.60.

Ban Thalut Fresh Food Market: Although we did not have a chance to visit, the WOMEN'S INTERNATIONAL GROUP (1991) described it as a "fascinating place with many animals such as deer, rodents, and pangolin, etc., on sale".

Ban Thabok Fresh Food Market: A fresh food market (Figure 4) was opened twice per day, in the early morning and in the evening between 1700–2100 h. On the early morning of May 25, 1991, two great bandicoots and a flying squirrel were sold. One great bandicoot which weighed 500 g was sold for \$0.90 and the flying squirrel (150 g) was sold for \$0.25. A 5 kg soft-shelled turtle, just caught from the river, sold for \$8.60. In the previous evening, two monitor lizards (1.5 and 2 kg) were sold to a shopkeeper.

Wildlife Meat Trade at That Luang Fresh Food Market

The reputation of this market as a place for wildlife meat trade was well-known by almost everybody in Vientiane. WOMEN'S INTERNATIONAL GROUP (1991) recommended tourists go there to find exotic foods or forest animals, e.g., snake and deer. ROBINSON & CUMMINGS (1991) also wrote about this place as a source for exotic foods such as bear paws and snakes which are favoured by some Vietnamese and Chinese.

The market is open daily from 6.00 a.m. to 6.00 p.m. for the whole year and provides necessary food, including wildlife meat, for about one fourth of the Vientiane citizens. The market was first visited briefly by SS in January 1991. BS then did a detailed study during dry (January to April 1991) and wet seasons (August to October 1991). Surveys were carried out two or three times per week with a total of 30 survey days during the dry season and 16 survey days during the wet season. During both periods, three vendors operated the trade (Figure 5). These vendors had merchant permits from Saysetha District with the approval of the Vientiane Municipality. They paid \$50–57/month in taxes and \$0.29/day for market fees. Wildlife trade in this market probably started in or before 1983 (SAYER, 1983) and has probably flourished since 1986 when the government launched an economic reform program and the Laotian economy started to aim toward a market economy (WOMEN'S INTERNATIONAL GROUP, 1991).

A total of 23 mammal, 33 bird and 8 reptile species were traded (Tables 2, 3 and 4). The five most common mammal species seen on sale during the dry season were variable squirrel, red bellied tree squirrel, lesser mouse-deer, common barking deer and

Figure 3. A live pangolin was offered for sale in a fresh food market at Ban Lak Hasipsong in Lao P.D.R.



Figure 4. Fresh food market at Ban Thabok in Lao P.D.R.





Figure 5. A vendor selling wildlife meat at That Luang Fresh Food Market.



Figure 6. A vendor selling wildlife products at Morning Market in downtown Vientiane. The vendor was a Hmong.

black giant squirrel. Great bandicoot, lesser mouse-deer, Siamese hare, variable squirrel and Malayan pangolin were the most common wet season mammals (Table 2). Common bird species seen on sale were red junglefowl, greater coucal, white-breasted waterhen, mountain imperial pigeon and thick-billed pigeon during the dry season and thick-billed pigeon, ashy wood-swallow, Asian palm swift, wood sandpiper and pintail snipe during the wet season (Table 3).

Average numbers of mammals, birds and reptiles on sale per day were similar during both seasons (Tables 2, 3 and 4). 21–26 mammals, 17–20 birds, 9–12 reptiles were seen for sale each day. It is estimated by simple arithmetic extrapolation that 8,000–10,000 mammals, 6,000–7,000 birds and 3,000–4,000 reptiles are sold at the That Luang Fresh Food Market every year.

The average prices for the meats of mammals, birds and reptiles were \$6.03, \$2.53 and \$1.43/kg, respectively. The meat of wild mammals was about two times more expensive than that of domestic stock (Table 1). Wild birds were also more expensive than domestic chicken (Table 1). The daily average value of the meat of mammal, bird and reptile on sale was \$360, \$17.11 and \$63.69, respectively (Tables 5, 6, 7). The total value of wildlife sold in this market may be extrapolated to around \$160,000/year. The total weight of wildlife on sale per day was 60, 7.2 and 24 kg for mammals, birds and reptiles respectively (Tables 5, 6 and 7). The total weight of wildlife sold was therefore about 33,000 kg/year.

The dry season lasts about nine months (November to June) and transportation within the country is easier than during the rainy season. The rainy season (July–October) coincides with the Buddhist cultural period, between Khao Phansaa and Awk Phansaa, when monks are expected to station themselves in a monastery and less hunting occurs. However, during the rainy season, some areas become flooded and animals are easier to catch. Thai Television Channel 7 visited this market on October 29, 1991 which was just after Awk Phansaa. Wild pig, two Siamese hares, pangolin, two red-cheeked squirrels, plenty of dry mouse deer, two crested serpent eagles and many snakes were on sale. Prices were \$3.57–\$11.43 per individual.

Wildlife Products Sold in Souvenir Shops around Vientiane

Talat Chao (Morning Market): At one shop belonging to a Lao Sung (Hmong) women (Figure 6), a mixture of wildlife products in whisky were offered for sale as an aphrodisiac. Other products included an old clouded leopard skin, a wild dog skin, a set of male banteng horns, two sets of female banteng horns, four sets of sambar deer antlers and a few serow horns. The asking price of a pair of sambar deer antlers was more than US\$120.

Wildlife products were also seen in a gold shop, where a few horns and antlers were on sale (Figure 7). The price was \$48–56 for sambar deer antlers, \$16 for serow horns and \$16 for a pangolin skin. They also sold bear gall bladders. A third shop specialized in the bear gall bladder trade.

Souvenir Shops In Downtown Vientiane: Some horns and antlers were displayed for sale to tourists. Most of these were old and were seen during both the first (January 1991) and second visits (June 1991). The price of a pair of serow horns was \$8. The

Table 2. Mammals sold at That Luang Fresh Food Market. n=number of survey days.

Species	Dry Season (n=30)		Wet Season (n=16)	
	No. of days observed	No. of individuals observed	No. of days observed	No. of individuals observed
1. Pygmy Slow Loris*	3	4	1	1
2. Large Indian civet	-	-	1	1
3. Civet 1**	17	34	-	-
4. Civet 2**	13	22	-	-
5. Common Wild Pig	9	9	6	6
6. Lesser Mouse Deer***	22	103	12	94
7. Common Barking Deer	22	26	6	6
8. Sambar Deer	4	4	2	2
9. Serow	2	2	-	-
10. Malayan Pangolin	20	37	9	18
11. Black-Giant Squirrel	22	83	-	-
12. Variable Squirrel	25	107	9	19
13. Red-bellied Tree Squirrel	25	106	-	-
14. Indochinese Ground Squirrel	4	8	1	2
15. Red-cheeked Squirrel	21	56	1	2
16. Red Giant Flying Squirrel	16	61	-	-
17. Flying Squirrel	12	40	-	-
18. Particolored Flying Squirrel	1	1	-	-
19. Giant Bamboo Rat	-	-	3	4

Table 2 (continued)

Species	Dry Season (n=30)		Wet Season (n=16)	
	No. of days observed	No. of individuals observed	No. of days observed	No. of individuals observed
20. Hoary Bamboo Rat	3	8	-	-
21. Great Bandicoot	-	-	8	146
22. Bush-tailed Porcupine	5	7	-	-
23. Siamese Hare **	14	58	11	27
Total		776		334
Average/day		26		21

Civet 1 = *Viverra* spp, Civet 2 = *Paradoxurus* spp
 *Alive, **Cut up in pieces, ***Some of them alive.

Table 3. Birds sold at That Luang Fresh Food Market. n=number of survey days.

Species	Dry Season (n=30)		Wet Season (n=16)	
	No. of days observed	No. of individuals observed	No. of days observed	No. of individuals observed
1. Chinese Pond-Heron***	-	-	2	5
2. Yellow Bittern	-	-	1	1
3. Northern Shoveler***	1	1	-	-
4. Lesser Whistling Duck	4	7	-	-
5. Black Kite	1	2	-	-
6. Shikra	2	3	-	-
7. Grey-Headed Fish-Eagle	1	1	-	-

Table 3 (continued)

Species	Dry Season (n=30)		Wet Season (n=16)	
	No. of days observed	No. of individuals observed	No. of days observed	No. of individuals observed
8. Kalij Pheasant	3	7	1	1
9. Silver Pheasant	1	1	-	-
10. Red Junglefowl	20	103	2	2
11. Green Peafowl	1	1	-	-
12. Water Rail***	-	-	1	3
13. Slaty-breasted Rail	-	-	1	1
14. White-breasted Waterhen	13	32	1	1
15. Wood Sandpiper***	-	-	3	18
16. Pintail Snipe ***	-	-	5	18
17. Thick-billed Pigeon *	12	92	11	166
18. Mountain Imperial Pigeon *	13	62	5	13
19. Rock Pigeon *	-	-	1	2
20. Red Turtle Dove	1	1	-	-
21. Spotted Dove*	6	9	1	2
22. Alexandrine Parakeet**	2	6	-	-
23. Red-breasted Parakeet **	8	38	-	-
24. Greater Coucal	16	50	-	-
25. Common Kingfisher	5	8	1	2

Table 3 (contiuned)

Species	Dry Season (n=30)		Wet Season (n=16)	
	No. of days observed	No. of individuals observed	No. of days observed	No. of individuals observed
26. Oriental Pied Hornbill	4	4	-	-
27. Common Flameback	-	-	1	1
28. Asian Palm Swift	3	40	2	31
29. Red-rumped Swallow	1	15	-	-
30. Ashy Drongo	-	-	1	1
31. Bronzed Drongo	8	23	2	6
32. Asian Fairy-Bluebird	-	-	1	2
33. Ashy Wood-swallow	-	-	1	51
Total	22	506	20	327
Average/day		17		20

*Alive, **Birds were sold for pets ***Migrant

Table 4. Reptiles sold at That Luang Fresh Food Market. n=number of survey days.

Species	Dry Season (n=30)		Wet Season (n=16)	
	No. of days observed	No. of individuals observed	No. of days observed	No. of individuals observed
1. Monitor Lizard	19	76	14	48
2. Indian Rock Python	-	-	1	5
3. Copper-headed Racer	16	180	11	125
4. Yellow Tortoise	-	-	1	1
5. Unidentified tortoise	8	18	-	-
6. Unidentified turtle	3	6	-	-
7. Malayan Snail-eating Terrapin	-	-	3	7
Total		280		186
Average/day		9		12

*All reptiles were captured alive and kept in boxes or fastened by cords.

Table 5. Weight and value of mammals sold at That Luang Fresh Food Market during wet season, July 6–October 24, 1991. The number of individuals seen on sale can be seen in Table 2.

Species	Unit weight (kg)	Unit individual price (US\$)	Total weight (kg)	Total price (US\$)
1. Pygmy Slow Loris	0.7	14.29	0.7	14.29
2. Large Indian Civet	8	17.14	8	17.14
3. Common Wild Pig	20-50	50-143	200	693
4. Lesser Mouse Deer	3-5	6.43-14.29	230	3.197
5. Common Barking Deer	20-60	86-214	165	679
6. Sambar Deer (Young, live)	40	171-200	80	371
			29.2	145
7. Malayan Pangolin	4-8	10.71-28.57	95	300
8. Variable Squirrel	0.25-0.4	0.57-0.86	7	13.71
9. Indochinese Ground Squirrel	0.2	0.43	0.4	0.86
10. Red-cheeked Squirrel	0.25	0.71	0.5	1.43
11. Giant Bamboo Rat	1.2-5	11.43-12.14	12.7	75.71
12. Great Bandicoot	0.2-0.3	0.21-0.43	31.1	45.21
13. Siamese Hare	3-5.5	6.43-8.57	95.5	209
Total			955	5,762
Average/day			60	360

Table 6. Weight and value of birds sold at That Luang Fresh Food Market during July 6–October 24, 1991. The number of individuals seen on sale can be seen in Table 3.

Species	Unit weight (kg)	Unit individual price (US\$)	Total weight (kg)	Total price (US\$)
1. Chinese Pond-Heron	0.4-0.7	1-3.57	2.6	10.14
2. Yellow Bittern	0.2	0.36	0.2	0.36
3. Kalij Pheasant	1.5	10.71	1.5	10.71
4. Red Junglefowl	0.5-0.8	2.86-3.57	1.3	6.43
5. Water Rail	0.4	0.71	1.2	2.14
6. Slaty-breasted Rail	0.4	0.71	0.4	0.71
7. White-breasted Waterhen	0.4	0.71	0.4	0.71
8. Wood Snipe	0.2-0.3	0.36-0.71	5.3	12.5
9. Pintail Snipe	0.2-0.3	0.21-0.71	4.25	7.43
10. Thick-billed Pigeon	0.35-0.4	0.64-0.86	61.9	145
11. Mountain Imperial Pigeon	0.5-0.8	1.71-2.14	9	33.86
12. Rock Pigeon	0.4	1.14	0.8	2.29
13. Spotted Dove	0.4	1.07	0.8	2.14
14. Common Kingfisher	0.15	0.43	0.3	0.86
15. Common Flameback Woodpecker	0.3	0.43	0.3	0.43
16. Asian Palm Swift	0.2-0.3	0.43-0.71	8	15.86
17. Ashy Drongo	0.2	0.29	0.2	0.29
18. Bronzed Drongo	0.2-0.25	0.29-0.43	1.25	1.86

Table 6 (continued)

Species	Unit weight (kg)	Unit individual price (US\$)	Total weight (kg)	Total price (US\$)
19. Asian Fairy-Bluebird	0.4	0.71	0.5	1.43
20. Ashy Wood-swallow	0.3	0.36	15.3	18.21
Total			115.5	273
Average/day			7.22	17.1

Table 7. Weight and value of reptiles sold at That Luang Fresh Food Market during July 6–October 24, 1991. The number of individuals seen on sale can be seen in Table 4.

Species	Unit weight (kg)	Unit individual price (US\$)	Total weight (kg)	Total price (US\$)
1. Monitor Lizard	3.5-5.0	9.29-14.29	199.5	534
2. Indian Rock Python (Dry skin)		7.14		35.71
3. Copper-headed Racer	0.3-3.0	0.71-11.43	173.9	420
4. Yellow Tortoise	1.0	11.43	1.0	11.43
5. Malayan snail-eating Terrapin	0.3-4.0	2.14-3.57	10.1	17.86
Total			384.5	1,019
Average/day			24.0	63.69



Figure 7. Horns and antlers for sale in a gold shop at Morning Market in downtown Vientiane.



Figure 8. Tanned pangolin skins being nailed on the board at a tannery at Ban Don Du, 10 km from downtown Vientiane.

abnormal antlers of a sambar deer cost \$30 a pair. A shop owned by a Vietnamese specialized in elephant ivory carvings. A pair of carved ivory tusks could cost about \$ 1,800. The ivory tusks were bought elsewhere in Lao P.D.R. at a price of \$240/kg and were sent to be carved in Vietnam. Most customers were Thai and they took their purchases home by overland transportation through Tha Dua to avoid problems with the international airlines. Foreigners other than Thais did not like to buy ivory products because of legal restrictions on export and import. During 1990 at least 10 pairs of carved ivory tusks were sold, and during the first six months of 1991, a further six pairs were sold.

Pangolin Tannery at Ban Don Du Near Ban Bo-O

Detailed information about this tannery was obtained from merchants at That Luang Fresh Food Market. Ban Don Du is near Ban Bo-O and about 10 km from downtown Vientiane. At the time of our visit at midday on Thursday, May 30, 1991, about seven workers were seen. Three were Thais who had experience in tanning other kinds of hide (possibly snake and monitor lizard) before coming to Lao P.D.R. Some pangolins were bought at That Luang Fresh Food Market and others were brought over from southern Laos (see below). The animals were kept in a cage before being slaughtered. Seven pangolins were seen in the cage on the day of our visit. Pangolins were killed and their meat was sold to nearby villagers at the low price of \$1.40/kg and their scales were sold for \$10/kg. Tanned pangolin skins were nailed on a board and dried in the sun (Figure 8). There were nine skins on each board with the total of about 300 pangolin skins. At least another 300 skins were processed and waiting to be nailed for drying. An officer of the Directorate of Wildlife and Fisheries Conservation (DWFC) of the Department of Forestry and Environment (DFE) told us that these skins were probably exported to Switzerland by way of Italy. Some export were made legally (Salter, personal communication) but some had probably been sent illegally across the Mekong to Thailand. The tannery was registered by a Laotian at district level as a normal tannery about one year ago. When it became known to DWFC as a pangolin tannery on February 1991, the owner of the tannery was asked to close the operation. We also informed DWFC about our findings. As a result, the tannery were examined by the Law Enforcement Unit of DFE. However, in the absence of national wildlife legislation in Laos, there was still some uncertainty about exactly what legal action could be taken to halt this operation.

Wildlife Trade in Khanthabuli, Savannakhet, Southern Lao P.D.R.

Khanthabuli, Savannakhet is known briefly as Savannakhet and lies on the Mekong River opposite Mukdahan, Thailand. We visited this place with a tour group on July 26, 1991 on Buddhist Khao Phansaa Day, marking the start of the rainy season. For a Thai to join this one-day tour would cost \$12.80–\$14.80. We had a chance to visit two fresh food markets. The merchants told us that there was usually a vendor in each market selling wildlife meat. Only one old pair and one deformed pair of sambar deer antlers were seen for sale. One Vietnamese merchant told us that she had recently sold six pairs of sambar antlers to Thai tourists. Thai tourists usually cannot carry antlers openly from Lao P.D.R. to Thailand but by a special arrangement a Laotian could be hired to carry wildlife products separately. One informant told us about a house which kept and raised pangolins. One merchant who sold wildlife meat told us that she has sold one pangolin that morning, and

she asked a man to lead us to the house where she usually bought pangolin meat for sale. We visited a house where pangolins were kept and which was situated close to a popular fresh food market where Thai tourists usually shop. The owner of the house and the workers, all Laotian, were very friendly when we asked permission to examine the pangolins. One live pangolin was kept in a cage and a few pangolin skins were preserved with salt and kept in a box. Both the owner and workers told us that they worked for a pangolin tannery based in Vientiane. Most pangolins came from Ban Donghen which is 75 km east of Savannakhet on highway route number 9 toward the Vietnam border. They usually received about 100 pangolins each month but for some reason 200 could be obtained in May. Pangolins were usually bought for \$2.80 per kg. Live pangolins were killed and their skins were preserved in salt while the meat was sold to a dealer at the fresh food market in Savannakhet for \$1.40/kg. Pangolin skins were shipped to Ban Don Du tannery near Vientiane once a month. We estimated that about 1,400 pangolin skins from Savannakhet were supplied yearly to the pangolin tannery at Ban Don Du.

Wildlife Trade in Attapeu Province, Southern Lao P.D.R.

Information on this region was obtained from CHAZEE (1990). In February 1990, the following wildlife products were counted on sale in markets of Attapeu: over 100 pairs of sambar deer antlers, over 100 pairs of muntjak antlers, over 50 pairs of serow horns, over five pairs of Eld's deer antlers, over five pairs of banteng horns, one pair of hog deer antlers, two pairs of gaur horns, more than 30 skins of pangolins, one skin of giant squirrel, more than 10 skins of wild cats. The following live wildlife species were also seen for sale: Siamese hare, reticulated python, jungle fowl, Indian roller, pangolin, grass snake, spotted turtle dove. Dry meat of monitor lizard, mouse deer and sambar deer were also for sale. The prices of wildlife products were as follows: \$43/kg for ivory tusks, \$14.30–\$42.90 per pair of sambar deer antlers, \$160/kg for tiger bone (and an additional \$53/kg for exporting), \$42.90 per bundle of green peafowl feathers. Some rhino horn and pangolin scales were also for sale.

Wildlife was commonly sold in fresh food markets which were open 0600–0900 h every day. Some trophies were also seen for sale in pharmaceutical shops. There is a picture in CHAZEE's (1990) report showing three pairs of sambar deer antlers, two pangolin skins, two pairs of muntjak antlers, two bundles of green peafowl feathers on sale in one pharmaceutical shop in Attapeu. Laotian tribes collectively called Lao Theung, who live on mountain slopes, and constitute about 60% of the total population of Attapeu, are the main ethnic group selling wildlife products. Such wildlife trade was more commonly seen in the eastern part of the province where the forests and wildlife populations are less disturbed. Lao Lum who live in the lowland (40% of the population) in Attapeu traded wildlife products with Lao Theung.

WILDLIFE TRADE ALONG THAI-LAO BORDER

From 15 locations (Figure 2) along the Thai-Lao border we observed for sale more than 100 pairs of wild cattle horns, three pairs of wild water buffalo horns, eight pairs of Siamese Eld's deer antlers, 93 pairs of sambar deer antlers, 11 pairs of serow horns and

Table 8. The number of pairs of horns and antlers of wildlife on sale along Thai-Lao border. Locations are identified in Figure 2. 9.1, 9.2 represent two surveys at location 9.

Species	Number of pairs on sale each location (Figure 2)							Total
	1	7	8	9.1	9.2	13	14	
Kouprey	-	-	-	-	-	-	-	-
Gaur and Banteng	-	10	1	4	-	81	4	100
Wild Water Buffalo	-	1	-	-	-	2	-	3
Siamese Eld's Deer	-	3	-	2	-	2	1	8
Serow	-	-	-	-	2	8	1	11
Sambar Deer	3	5	10	1	2	52	20	93
Common Barking Deer	-	-	-	1	18	8	17	44

44 pairs of barking deer antlers (Table 8). Amphoe Muang, Mukdahan Province (Number 10, Figure 2) and Ban Mai on the Laotian side (Number 13, Figure 2) opposite to Amphoe Khong Chiam, Ubon Ratchathani Province were the most important for trans-boundary or international trophy trade. The details on the trade in each location are now described:

Amphoe Mae Sai, Chiang Rai Province or Golden Triangle (*, Figure 2): A film on "Beautiful World by Our Hands" (Lok Suay Duay Mue Rao) shown on Thai television Channel 5 on 21 July 1991 documented the very large scale of the trade in wildlife products on the Myanmar side of the border. There were many serow horns, bear skulls, clouded leopard skins, hornbill casques and heads of big cats, etc. To import these wildlife products into Thailand is illegal according to Thai wildlife law. Regardless, bear skins were being dried to make leather products on the Thai side and the trade has been carried on for at least 10 years. These wildlife products probably originated in Lao P.D.R., southern China and Myanmar. One informant visited the site in December of 1990 and saw 4–5 Burmese shops selling horns and wildlife products. Eld's deer horns sold there were of the Burmese subspecies.

Amphoe Chiang Khong, Chiang Rai Province (No. 1, Figure 2): Our information was obtained from a Thai weekly newspaper (*Manager*: 6–12 May 1991, p.72). Tourists can cross the Mekong from Chiang Khong in Thailand to Houayxai, the main city of Bokeo Province, Lao P.D.R. A photograph showed three sambar deer antlers, each with skin on the forehead laid down on the ground for sale by a vendor at Houayxai. The price was about \$400 per pair. Antlers were offered to tourists, mostly Thais. The buyers had to pay an export tax to Lao Customs officials in order to bring back the antlers. At that time, 50–80 tourists crossed to Houayxai each day.

Amphoe Chiang Khan, Loei Province (No. 2, Figure 2): One can cross the river from Chiang Khan to Muang Sanakham on the Lao side. The fresh food market where Lao

wildlife products are for sale opens only on Tuesdays and Thursdays. On the day we stopped by, Monday 8 April 1991, the market was very quiet and no wildlife or wildlife products were observed. There is an official Thai customs office in Chiang Khan where the Thai-Laos trade may be monitored tightly. Chiang Khan is also close to Ban Rom Klao, which was the principal site in the Thai-Lao border conflict which covered an area of 80 square km during December 1987 to February 1988 and cost 100 Lao and 500 Thai lives (SESSER, 1990). The wildlife products trade was probably diminished by this conflict.

Amphoe Muang, Loei Province (No. 3, Figure 2): The fresh food market was visited early in the morning of Monday April 8, 1991. No wildlife trade was seen but wildlife meat reportedly was sold in the night market in the city (letter to the editor of the Thai monthly *Feature Magazine*, June 1991, p.71–72). The writer said that the wildlife meat trade in the night market of the city had been carried on since 1984. Mouse deer, common barking deer, procupine, civet, leopard cat, wild pig and various kinds of birds were sold daily. Most of them were not alive and it was likely that they came from Lao P.D.R. The writer estimated that the number of common barking deer sold in that market during 1984–1991 possibly numbered as many as 10,000 probably an overestimate. A subsequent letter to *Feature Magazine* of September 1991 (p. 75–76) confirmed the wildlife trade in this market. The magazine published pictures of two pangolins and four large bamboo rats.

Amphoe Muang, Nong Khai Province (No. 4, Figure 2): This is the main Thai border city opposite to the capital city of Lao P.D.R., Vientiane. Tha Sadet is the port where one can cross the Mekong by ferry from Thailand to Tha Dua of Lao P.D.R. Vientiane is 22 km by road from Tha Dua. About 68,000 passengers crossed the Mekong to Lao P.D.R. through this port in 1990 and 150,000 visitors were projected for 1991 (*Than Sethakit* or *Economic Base*, a Thai weekly newspaper, 19–25 August 1991).

On the Thai side, there is a big plaza where goods from Laos are sold. Artificial antlers and horns (said to be made in Taiwan) were seen on Sunday of 7 April 1991. A shopkeeper promoted his products with a poster saying “Don’t conserve just by talking. Help wildlife conservation by buying artificial horns.” The prices of artificial sambar deer antlers and artificial gaur horns were \$60 and \$64 per pair, respectively. Two months later, on June 5, only artificial horns and antlers were sold at the plaza.

The Nation newspaper of Bangkok (13 October 1987) reported trade in wildlife at a government-run shop at Tha Dua, Laos. Various parrots, monitor lizard, slow loris, wild pig meat and muntjak legs were offered for sale. Prices of live animals were: \$0.80–1.00 per parrot, \$17.50 per slow loris, \$2.25 per monitor lizard. No trade was observed during our visit in June 1991, about 4 years later.

Ban Phon Phaeng, Amphoe Phon Phisai, Nong Khai Province (No. 5, Figure 2): This area is of special interest because wildlife can be brought across from a proposed protected area, Phou Khao Khouay, in Lao P.D.R. One can cross the Mekong to Ban Phon San, next to Ban Prabat which is near the border of Phou Khao Khouay. We were informed that a female white-cheeked gibbon was brought to a high-ranking Thai civil servant in Phon Phisai in 1991. The informant also said that he bought monkeys from the Lao P.D.R. in 1991. We visited Ban Pak Kha on the Thai shore on Sunday, April 7, 1991, and S.S. visited Ban Prabat and Phou Khao Khouay, Laos, in January and May, 1991. On 25 May

1991 a Siamese hare recently shot by a villager at Ban Prabat was sold for \$5.00 by a small vendor at Ban Prabat. During SS's visit to Phou Khao Khouay in January 1991, he was asked by a local villager whether he wanted any white-cheeked gibbons.

Amphoe Bung Kan, Nong Khai Province (No. 6, Figure 2): There is a Thai customs office at this site. One can cross the Mekong by boat to Pak Sane (Pak San or Pakxan) on the Lao side. Wildlife was brought from Lao P.D.R. to the fresh food market in Bung Kan every Tuesday and Friday. Our visit on Sunday, 7 April 1991, yielded no evidence of wildlife trade. A Laotian journalist, Mr. Miti Chaiyasang, reported the export of wildlife from Pak San for sale in Bung Kan in a daily Laotian newspaper, *Sieng Pasason*, 14 May 1991. The article included a picture of a dead leopard cat and one Malayan pangolin.

Amphoe Ban Phaeng, Nakhon Phanom Province (No. 7, Figure 2): One can cross the Mekong by boat to the Laotian side by paying \$0.40 to a Laotian officer. Formerly, antlers and horns from Lao P.D.R. were brought to the fresh food market every Monday and Thursday to be sold, but this is now unusual. Horns and antlers were hung on the walls of some houses and shops in Ban Phaeng. In one house, a pair of gaur and banteng horns, two pairs of sambar antlers and a pair of Burmese Eld's deer were hung on the wall. In the next house, there were three pairs of gaur horns, a pair of sambar antlers, a pair of Siamese Eld's deer antlers (probably from Lao P.D.R.) and a pair of banteng horns. All the horns and antlers were mounted on artificial heads. In a house, a pair of gaur horns was offered for sale for \$320. In a soft-drink shop, the following were seen: three pairs of gaur horns, a pair of banteng horns and two pairs of sambar antlers. There were horns and antlers on the wall in at least five other houses. One set of horns probably belonged to a wild water buffalo and two were Siamese Eld's deer.

Amphoe Muang, Nakhon Phanom Province (No. 8, Figure 2): On April 7, 1991, only artificial heads without horns and antlers were seen at a market near the Thai customs office. Prior to our visit, antlers of sambar deer, possibly 10 pairs, and a pair of banteng horns had just been confiscated by Thai government authorities. At the fresh food market, a live 6.4 kg pangolin was offered for sale for \$24. Other wildlife sold there included two dead flying squirrels, two live green imperial pigeons, and two live blue magpies. The flying squirrels were offered for \$1.40 and \$1.60. One vendor told us that monkeys and gibbons were sometimes sold there.

Amphoe That Phanom, Nakhon Phanom Province (No. 9, Figure 2): The area was visited twice, on Saturday, April 6, and on Thursday, July 25, 1991. On the first trip, horns and antlers were being offered for sale at three souvenir shops near the Mekong River. A fresh pair of male banteng horns (Figure 9) was sold for \$140 and two pairs of Siamese Eld's deer antlers and a pair of gaur horns were displayed in the same shop. An adjacent shop displayed sambar and barking deer antlers and pairs of gaur and banteng horns. The fresh food market near the customs office where goods from Laos were brought over was open every Monday and Thursday. Two live Oriental pied hornbills and some other birds were seen in the main fresh food market in town during our April visit but they were not for sale.



Figure 9. A pair of banteng horns for sale at a souvenir shop at That Phnom on the Thai side of the Mekong River.



Figure 10. A shop at Mukdahan where the sign advertises the buying and selling horns and antlers of sambar deer, Eld's deer, gaur, kouprey, Schomburgk's deer and banteng. The sign also notes that trophy pictures and prices could be seen in a photo album.

The second visit nearly 4 months later was unfortunately made in the afternoon when activity was nil at the fresh food market. The three souvenir shops mentioned above were closed and seemed to have ceased business. But we discovered two other shops near That Phanom Stupa. In one shop, 18 pairs of common barking deer antlers, two pairs of serow horns and a pair of sambar deer antlers were offered for sale. Common barking deer antlers cost \$4/pair and serow horns cost \$8/pair. In the other shop one pair of sambar deer antlers in velvet were offered for \$152.

Amphoe Muang, Mukdahan Province (No. 10, Figure 2): Visits were made on Friday March 29, 1991 and on Thursday and Friday of 25–26 July 1991. On the first trip, two vendors were obviously engaged in the wildlife business. One offered a young pig-tailed monkey and a leopard cat and other live wildlife could be ordered. The other vendor sold horns and antlers of various ungulates including kouprey and Schomburgk's deer (Figure 10). This vendor also offered to buy horns and antlers. Horns and antlers were not on display, but customers could examine photographs in albums. The price had to be asked of a young girl whose father, from Rayong Province, Southeast Thailand, owned the shop. A pair of Eld's deer antlers cost \$120–\$160. A pair of female kouprey horns was, however, more expensive than the male horns, costing \$6,000–8,000 per pair compared with \$2,000 for a male pair. The horns of male kouprey were polished so that the shredded ties could not be seen. Kouprey horns offered for sale here were more expensive than those offered in southern Champasak Province in Lao P.D.R. where in November 1989, a pair of male kouprey horns cost \$4,000 and female horns cost \$1,600 (SALTER et al., 1990). Live animals could be also ordered from this vendor—Douc langurs cost about \$120–\$160. Other wildlife products offered included bear gall bladder, tiger's teeth and claws and green peafowl tail feathers.

On the second visit the activity of the vendor who had offered so many horns and antlers for sale appeared to be less. The sign at the shop offered only gaur and banteng horns. Only one pair of artificial gaur horns and one pair of artificial sambar deer antlers (at \$60 each) and green peafowl feathers were displayed. The other vendor displayed one pair of old banteng horns (\$140) and one pair of old water buffalo horns (\$200).

On July 27, 1991, at a small restaurant at Ban Nong Sung, 100 km west of Mukdahan, we found a captive hill myna and a captive parakeet, both bought from Mukdahan and of Laotian origin. A local informant told us that wildlife meat used to be commonly sold in the fresh food market in Mukdahan but that there was less trade now, possibly due to stronger law enforcement.

Amphoe Khemmarat, Ubon Ratchathani Province (No. 12, Figure 2): We stopped at Amphoe Amnat Charoen (Number 11, Figure 2), about 70 km west of Khemmarat, where a restaurant offered meat of wild pig, sambar deer and barking deer on the menu. A sun bear skin decorated the wall and we asked whether we could obtain a similar trophy. Our informant said they acquired the skin from Lao P.D.R. in 1983 or 1984 but that they were harder to obtain now. He said we could place an order though, and he also offered to sell the displayed skin for \$340.

At Khemmarat, a restaurant on the Mekong River also offered dishes with wild pig, barking deer and hare. The owner of the restaurant told us that she obtained wild meat

from Amphoe Khong Chiam, Ubon Ratchathani Province. We also walked around in the early morning market at Khemmarat; most products observed were those typical of northeastern markets: frogs, crabs, some reptiles, various kinds of insects, ant eggs and snails.

A new Thai customs office is situated at Ban Pak Saeng, about 25 km away from Khemmarat and had been open for less than a year. A small village on the Lao side is Ban Paktaphan which is the center of Lakhonpheng District of Salavan Province. A customs official told us that only a small amount of wildlife trade occurred at this site. Most wildlife meat and wildlife products traded in this area appear to come from Khong Chiam.

Amphoe Khong Chiam, Ubon Ratchathani Province (No. 13, Figure 2): Khong Chiam is a tourist spot at the junction of the Mun and Mekong Rivers. It is very close to the prehistoric site, Pha Taem. Crossing the Mekong to the Laotian side is a common tourist activity, although in 1991 it was illegal by Thai law and there are signs warning against doing it without official permission. Once in a while, a navy unit which patrols this part of the river enforces the law, but most of the time people can cross the Mekong by hiring a long-tailed boat operator for \$1.00 per person round trip and paying \$0.20 tax to a Laotian authority for stepping on Laotian land. Over 80,000 tourists have visited the city of Ubon Ratchathani per year during the past few years (*Bangkok Post* newspaper, 6 February 1992).

Ban Mai is a village on the Laotian side in Champasak Province. The village has come into existence since 1989 when Thai-Lao relations improved following the border conflict at Ban Lom Klao and the Prime Minister, Kaysone, visited Thailand in February 1989. The main income of this village is based on the cross-border exchange of goods. Most Laotians are from southern Lao P.D.R. near Pakse and Wat Phu. The shops on the Laotian side offer Thai tourists Vietnamese and Soviet merchandise and also wildlife products. We visited this site twice: on April 1, 1991 and on July 25, 1991. Following our first visit, we passed our observations to the Laotian wildlife officers in Vientiane.

On the first trip, five vendors on the Laotian side were selling antlers, horns and other wildlife products (Figure 11). The total of 52 pairs of sambar antlers, 81 pairs of wild cattle horns (gaur and/or banteng), two pairs of wild water buffalo horns, two pairs of Siamese Eld's deer antlers, 15 pairs of common barking deer antlers, eight pairs of serow horns, three pairs of small tusks from cow elephants, and some tiger teeth were on sale (Table 9).

One informant told us that most tourists buy only one or two pairs of sambar antlers and that this trade has been carried on openly for about 3 years and intermittently before that. One buyer we met had bought a pair of sambar antlers for \$64 without knowing what species it was. Another informant told us that about five pairs of kouprey horns were exported from this place to Amphoe Phibun Mangsahan on the Mun River, 30 km from Khong Chiam.

Only two vendors were selling wildlife products on the second trip. The fifth vendor described on the first visit still had 30 pairs of wild cattle horns, 30 pairs of sambar deer antlers and other minor wildlife products for sale. A fresh pair of gaur horns were offered for \$300. The other vendor was new and not seen previously. He had 18 pairs of old gaur and banteng horns for sale. Gaur or banteng horns cost \$28/pair and \$12/pair for



Figure 11. Antlers and horns were on sale at a vendor on the Lao side at Ban Mai opposite to Khong Chiam, Ubon Ratchathani Province. The picture was taken in April 1, 1991.



Figure 12. Vendors selling wildlife products at Chong Mek Border Crossing, Ubon Ratchathani Province.

Table 9. The number of pairs of horns and antlers and their prices seen on sale at Ban Mai, Laos, opposite to Khong Chiam, Ubon Ratchathani Province.

Species	Number of pairs on sale each vendor					Total	Price \$/pair
	1	2	3	4	5		
Kouprey	-	-	-	-	-	-	2,000
Gaur and Banteng	6	40	7	3	25	81	160–300
Wild Water Buffalo	-	1	-	1	-	2	32
Siamese Eld's Deer	-	-	2	-	-	2	120–140
Serow	-	-	-	-	8	8	8
Sambar Deer	9	20	5	3	15	52	72–80
Common Barking Deer	-	-	-	-	8	8	4

male and female horns, respectively. Two live young pigtailed macaques were for sale for \$16 each. Dried deer and wild cattle meat was also for sale. The lower level of business observed was probably due to the drop of tourism associated with the rainy season. There was no evidence of any official Laotian activity to discourage wildlife trade at this site.

Khong Chiam was not only popular for its giant catfish (*Pangasias gigas*) meat but also for other wildlife meat. The meat of sambar deer, common barking deer and wild pig was offered in four river bank restaurants. The strong impression gained during our first survey, that Klong Chiam was a major source of wildlife meat for other areas in Ubon Ratchathani, prompted us to make a special effort to visit the local fresh food market. On July 25, 1991, no wildlife meat was being sold in this very small market. However, we saw many large refrigerators where giant catfish and other big fish bought from local villagers were kept prior to shipment to big cities like Bangkok. It is probable that wildlife meat may also be bought from Laos and kept refrigerated here until it is transported elsewhere.

Chong Mek Border Crossing, Ubon Ratchathani Province (No. 14, Figure 2):

Chong Mek is about 87 km east of Amphoe Muang, Ubon Ratchathani Province and 42 km west of Pakse by road. Cross-border trade was officially made possible after April 1, 1989 (*Matichon* newspaper, 6 May 1989). *Tourism Business*, a Thai monthly magazine, reported on the availability of wildlife products locally in June 1989: live common barking deer (\$120 per individual), a juvenile monkey (\$32), monitor lizard (\$16), and fledgling hill myna. In 1991 there was a joint Thai-Lao customs office at this place. One shop in the market on the Thai side offered wildlife for sale. Though very few live animals were on display, wild animals including Douc's langur, gibbons, young gaur, etc. could be ordered by looking at a poster. The informant told us that one wildlife trader from Prachinburi in Southeast Thailand came to buy many wild animals at a time.

At the border on the Thai side, an old-fashioned pharmaceutical vendor offered serow oil. This vendor and four others displayed about 20 pairs of sambar deer antlers, 17

pairs of barking deer antlers, three pairs of gaur horns, one pair of female banteng horns, one pair of Siamese Eld's deer antlers and one pair of serow horns (Figure 12). They also displayed deformed deer antlers and a skull of an Asiatic black bear. The vendors on the Laotian side did not display any antlers or horns but dried deer meat was offered. On June 1991, one informant who visited the place with us on the first trip felt that the wildlife products trade at this site had been recently reduced.

Amphoe Nam Yun, Ubon Ratchathani Province (No. 15, Figure 2): This place is close to both the Cambodian and Laotian borders. An informant at a small restaurant told us that wildlife meat, antlers and horns used to be offered for sale in this area about 8–9 years earlier. These wildlife meats and products were probably brought from Cambodia by traders. Such trade was rare in 1991 but we were told that wildlife meat could be bought in Ubon Ratchatani, 85 km away. Such meat probably came from Laos (through Khong Chiam).

W I L D L I F E M E A T T R A D E I N N O R T H E A S T T H A I L A N D

On June 8, 1991, during our survey on the status of wildlife in proposed Phu Wiang National Park, we came across a pick-up truck which traveled around buying gekkos (Figure 13). The truck was registered in Sakon Nakhon, at least 200 km away. We were told that the trader had visited the village twice per week for the last 1–2 years. We heard the same thing at a village near Phu Kao which is a part of Phu Kao-Phu Phan Kham National Park. The trader travelled to various villages in a pick-up truck and announced his intention to buy live gekkos over a loudspeaker. The price offered per gekko varied from \$0.08–0.36 and the trader could resell large gekkos for \$0.40–0.48 and small gekkos for \$0.20–0.32. Both Phu Wiang and Phu Kao are near to the Phetchabun Mountain Range.

These incidents prompted us to find out more about the gekko trade. Detailed study had previously been undertaken of a gekko trading factory in Sakon Nakhon by Mr. Surat Warangrat, a professor at Sakon Nakhon Teachers' Training College. According to WARANGRAT (1985), the trader at Sakon Nakhon started her business in Bangkok and then moved to Ban Tha Makhom, Ratchaburi Province for two years before establishing herself in Sakon Nakhon in 1975. Whole gekkos are dried in an oven and sent to Hong Kong, Taiwan and the Peoples' Republic of China through the seaport at Khlong Toey, Bangkok. Some Chinese believe that the meat at the base of the gekko tail has medicinal value and some Thai believe that gekko meat can make a weak skinny child eat more food and become healthier. In 1985, the trader at Sakon Nakhon sent a truckload of dried gekkos once a week, on average. Each truck carried about 126 boxes, each containing 800 gekkos or a total of at least 100,000 gekkos each week. In some months, the demand was about five truckloads of gekkos. Exported gekkos cost about \$200–\$240 per box so that the total value of exported gekkos was \$25,200–\$30,240 per week. The value of this trade thus exceeded the estimated gross value of wildlife held at the Weekend Market in Bangkok: \$20,544 each week during 1987–1989 (ROUND, 1990). House gekkos (*Gekko gekko*) are not protected by the Wild Animals Reservation and Protection Act of 1960 (WARPA 1960)



Figure 13. Gekkos bought from villagers in northeast Thailand. This picture was taken at Phu Wiang near Khon Kaen.



Figure 14. Ant eggs, insects and snails sold in a fresh food market of northeast Thailand.

although the other eight Thai gekko species were declared as Protected Animal Category 1 on December 1985. It is expected, however, that many of the gekkos in trade in this region have been of the protected species. Some local people have had some success in farming house gekkos in captivity (*Matichon* newspaper, 1, 30 October 1988; Warangrat, personal communication).

The Thai monthly magazine, "*Archeep Liang Sat*" or "*Animal Raising Occupation*", published a story about the same gekko trader at Sakon Nakhon in August, 1991. The trader claimed that she was the first in the business. Eventually, her former employees started their own businesses in Ubon Ratchathani, Udorn Thani, Khon Kaen, Kalasin and Nakhon Phanom and they acted as branches for her business by buying live gekkos locally and sending them to her in Sakon Nakhon. In Sakon Nakhon, 500–1,000 dried gekkos are produced daily and the best months of production are April–May. Taiwan now is her best customer.

The above data are low compared with the statistics reported by the Wildlife Conservation Division during 1984–1989: 1.2–4.2 million gekkos were exported yearly through Don Muang International Airport and Khlong Toey Port (Table 10; SRIKRACHANG et al., 1990)

Trade in other wildlife meats in northeast Thailand has become rare. Sambar deer have been exterminated from most areas, even in the national parks and wildlife sanctuaries (SS, personal observation). Other wildlife which is still captured or netted for local consumption includes siamese hare and francolin. Wild pigs, monitor lizards and pangolins are still captured sometimes by villagers using dogs. Various kind of frogs, crabs, snails, insects and ant eggs are commonly seen for sale in the fresh food markets in this region (Figure 14). Detailed information on the species, prices and seasonality of the insects on sale has been obtained by VARAASVAPATI et al., (1975), MUNGKORNDIN (1981), SANGPRADUB (1982), and WATANABE & SATRAWAHA (1984). VARAASVAPATI et al., (1975) reported 16 out of more than 50 species of insects consumed by the people in this region were commonly sold in the fresh food markets.

Table 10. Number of gekkos exported through 1) Don Muang International Airport and 2) Khlong Toey Port during 1984–1989 (SRIKRACHANG et al., 1990).

Year	Live house gekkos (individual)(1)	Dried house gekkos (pieces)(1)	Dried house gekkos (pieces)(2)	Total
1984	26,372	260,190	905,800	1,192,362
1985	30,511	528,432	830,509	1,389,452
1986	33,975	943,720	645,740	1,623,435
1987	39,506	536,696	3,439,680	4,015,882
1988	34,164	554,648	3,648,518	4,237,330
1989	39,884	379,270	1,892,266	2,311,420

TROPHY COLLECTION IN THAI HOUSES

The use of wildlife horns and antlers to decorate the walls of houses and shops in towns and cities in Thailand reflects traditional Thai view of the value of wildlife. Trophy decorations are not rare but in only a few towns such as Ban Phaeng is it popular. While surveying the status of wildlife in northeast Thailand, the following trophy collections were noted without any special effort: (1) Two pairs of Burmese Eld's deer antlers and one pair of sambar deer antlers were seen in a house at Amphoe Warin Chamrab, Ubon Ratchathani Province. (2) In Amphoe Muang, Khon Kaen Province, one pair of Siamese Eld's deer antlers and two pairs of sambar deer antlers hung in one house, and one serow skull with horns, one pair of sambar deer antlers, one pair of artificial gaur horns and one pair of artificial sambar deer antlers adorned a restaurant in Khon Kaen. The artificial horns were for sale for \$34 per pair. (3) One pair of Burmese Eld's deer antlers and one pair of sambar deer antlers decorated a hotel in Amphoe Somdet, Kalasin Province. (4) A life size wooden Siamese Eld's deer with a real pair of antlers stood in a restaurant at Amphoe Nang Rong, Buri Ram Province. (5) Two pairs of muntjak antlers decorated a house in Amphoe Phu Wiang, Khon Kaen Province.

Artificial horns and antlers were not only offered for sale along the Thai-Laos border but also in interior towns such as Khon Kaen. Even in Central Department Store, Phahon Yothin Road Branch, Bangkok, the following artificial antlers were for sale, Eld's deer, large sambar deer, small sambar deer and muntjak, with prices of \$120, \$114, \$60 and \$30, respectively.

According to WARPA of 1960, owners of real trophies or other wildlife carcasses are required to hold permits from the Wildlife Conservation Division of the Royal Thai Forest Department. Surprisingly, only 17 owners asked for official permission to possess wildlife parts during 1990–1991 and a few years before. Only two owners had registered the horns and antlers they had. One owner, in Bangkok, registered eight pairs of sambar deer antlers, six pairs of gaur horns and three pairs of muntjak antlers. The second registered five pairs of gaur horns, three pairs of banteng horns, seven pairs of sambar deer antlers, four pairs of muntjak antlers, two hornbill casques and two sets of green peafowl feathers. Most other registrations involved snake skins (886,031 skins). Only one owner has ever registered a tiger skin.

DISCUSSION

Trade in Wildlife Meat and Parts in Lao P.D.R.

Wildlife meat appears to be a luxury in Lao P.D.R, considering the prices of such meat compared with those of domestic animals. This was also true in 1983, when game meat in the markets of Vientiane was three times the price of domestic livestock (SAYER, 1983). The typical Laotian meal consists of glutinous rice served with chili and a spicy fish paste (HALPERN, 1960). Whole fish is served occasionally and meat is rarely consumed. Meat is usually eaten only on ceremonial and special occasions. According to DOMMEN (1985, p. 161), fish is the staple source of protein for Laotians while water buffalo, pork, chicken and duck are the most commonly eaten meats. Game such as wild chicken, quail, small birds, monitor lizards and snakes are served as supplements. One American aid

worker who travelled widely around Lao P.D.R. told SESSER (1990) that in a typical village, the diet is a monotonous parade of rice, soup broth, and fermented fish.

The wildlife sold at That Luang Fresh Food Market probably originated far away from Vientiane region as there is very little wildlife left there today. In 808 ha of Houei Nhang Forest Reserve, 14 km north of Vientiane, only 36 species of birds, six species of reptiles and nine species of small mammals were reported in Houei Nhang by a Vietnamese Expert Team in 1982 (SALTER & VENEVONGPHET, 1989). In comparison, at least 53 species of resident birds and 11 species of migratory birds were reported in Phu Wua Wildlife Sanctuary near the Mekong on the Thai side (survey by James Wolstencroft and Martin Goodey on 23 January 1989; data stored in the Conservation Database, Mahidol University). The remaining populations of mammals, including pygmy slow loris, mouse deer, civets, small cats and squirrels in this reserve are probably very small. SALTER & PHANTHAVONG (1990) also mentioned the decline of wildlife populations in 2,000 sq.km of proposed Phu Khao Khouay protected area which is 40 km from Vientiane. The personal experience of SS in Phu Khao Khouay during May 1991 also supports the above conclusions; villagers were still allowed to hunt and very few signs of wildlife were seen.

Fresh food markets in Lao P.D.R. have become more important in the national economy since the loosening of economic restrictions in 1986. People can bring various kinds of goods to barter for things they need. Wildlife is currently a tradeable commodity and is sold all over the country (CHAZEE, 1991). Much of the trade occurs within provinces where minorities sell wildlife to the Laotian majority or Lao Loum. Due to the poor state of the roads, inter-provincial trade is discouraged unless it is linked with a well-organized network like that we observed for pangolin skins and trophies at Mukdahan. The poor state of Laotian roads has indirectly encouraged international wildlife trafficking, both legal and illegal. It is known that some forest products from Luang Prabang avoid Vientiane and are exported at Ban Houei Sai on the Thai-Lao border (STUART-FOX, 1986). Certain Lao state enterprises and the army have the right to enter into direct negotiations with foreign companies and states. In addition, apart from certain restricted exports and imports, private individuals and companies may be granted licences to engage in foreign trade. A unknown amount of smuggling also occurs across the Mekong to Thailand.

That Luang, Vientiane, as a center of trade, can be compared with the Bangkok Weekend Market in Thailand (MCCLURE & CHAIYAPHUN, 1971; LENG-EE, 1974; ROUND, 1990). The Bangkok Weekend Market was opened at Sanam Luang near the Royal Palace in 1948 in order to implement a government policy to remedy commodity shortages and to help farmers sell their own products (KLAUYAMAI NA AUYDHYA, 1982). Eventually it came to occupy the whole Sanam Luang and had to be moved to Chatuchak Park in late 1981, before the commemoration of Bangkok's Bicentennial. The market is open every Saturday and Sunday.

In comparison, there were more shops selling wildlife in Bangkok Weekend Market (59 shops in 1987–1988) than in That Luang Fresh Food Market (3 shops in 1991). The number of species of birds on sale yearly at Bangkok Weekend Market (350 species in 1967–1969, MCCLURE & CHAIYAPHUN 1971; 276 species in 1987–1988, ROUND 1990) is higher than at That Luang Fresh Food Market (23 species) while the numbers of species of mammals and reptiles on sale are similar (23–24 mammalian species and 7–8 reptilian species in both markets). The numbers of mammals and reptiles on sale yearly were,

however, five or more times smaller at Bangkok Weekend Market (2,132 mammals and 336 reptiles, ROUND 1990) than at the That Luang Fresh Food Market (8,000–10,000 mammals, 3,000–4,000 reptiles) while the number of birds on sale was 6–40 times greater at Bangkok Weekend Market (300,000 birds in 1967–1969, MCCLURE & CHAIYAPHUN 1971; 42,840 native birds, 1,954 exotic birds, ROUND 1990) than at That Luang Fresh Food Market (6,000–7,000 birds). Most mammals sold in That Luang Fresh Food Market are for food whereas those at the Weeked Market in Bangkok are sold as pets. Few species of birds are sold for food at the Bangkok Weekend Market. In 1967–1969, birds sold for food at Bangkok Weekend Market included mainly weavers, but buntings and shorebirds were also sold in season (MCCLURE & CHAIYAPHUN, 1971). The weavers and buntings were sold skinned and bundles of five. The shorebirds were skinned and sold individually. About 90,000 yellow-breasted bunting were estimated to be sold as food per year in Bangkok Sunday Market during 1967–1969 (MCCLURE & CHAIYAPHUN, 1971). ROUND (1991) reported no wildlife sold as food in Bangkok Weekend Market during 1987–1988 but yellow breasted buntings were frozen in large numbers and sent to Japan for sale as a luxury food until at least 1982.

Hunting and Wildlife Management in Lao P.D.R.

Most of the hunting in Lao P.D.R. has probably been by tribal minorities who live in the hill country. Some of their wildlife meat and products are sold at provincial markets to lowland people and some is probably smuggled to Thailand. Officially, there are 68 different tribes living in Lao P.D.R. (STUART-FOX, 1986) but government policy to minimize the differences between these groups recognizes only three composite groups of Laotians: Lao Theung, Lao Sung and Lao Loum. Both Lao Theung and Lao Sung have hunting traditions.

The Hmong people, grouped with the Lao Sung, trapped chiefly for birds and rodents and preferred to hunt larger game with their own hand-made guns (HALPERN, 1960). They were the only group in northern Lao P.D.R. which used poisoned arrows. As hunters they were less cooperative than the Khmu but they did use dogs. In Xieng Khouang, the Hmong hunted tigers, bears, wild boar and deer. In the former times, bears were pests in their rice and corn fields. Their chief game were wild boar, bear and deer.

The Lamut people, now classified as Lao Thueng, trapped the larger part of their wild game and obtained the balance by hunting with crossbows (IZIKOWITZ, 1951). Dogs and hunting cocks were not used. Highly organized hunts did not seem to exist, nor did hunting with nets or pitfalls. Hunting with the crossbow was used only for small animals like birds, squirrels, gibbons, rats, etc. Large game such as wild pigs, deer and gaur were captured in spear-traps. When a gaur was caught, a big feast lasting ten days was held.

The Khmu people (classified as Lao Thueng) also had a hunting tradition and their folklore mentioned their hunting season as starting in April (HALPERN, 1960). The animals hunted include squirrel, jungle fowl, pigeon, monkey, gibbon, deer, wild pig and elephant. The meat is sold or given free to relatives and friends; antlers were typically sold. The Khmu sometimes used dogs for hunting.

Today, Lao Thueng in Attapeu still hunt with home-made rifles, traps, and crossbows (CHAZEE, 1990). They have slowly changed their style of living and now spend

more time growing rice and vegetables and raising fish than hunting (CHAZEE, 1990). Men still hunt in March, April, November and December in a village of Hatxan in Saixaita district in Attapeu (CHAZEE, 1990).

As the present government owes a lot to these minorities, it encourages them to maintain their cultures and identities. Minority representation is evident at the provincial and local levels of both party and government organizations (STUART-FOX, 1986). In all the far northern provinces, including Luang Prabang and Houa Phan, members of ethnic minorities hold one or both of the two most powerful positions: Secretary of the Party Committee and Chairman of the People's Administrative Committee. The same is true of the southern provinces of Salavan, Sekong and Attapeu, covering the area of the Bolovens Plateau. In the minority areas, local Party branches and local administration are often entirely in the hands of minority cadres. The stated policy of effectively integrating minority groups into the political life of the country is thus well underway, at least where local administration is concerned.

In contrast, wildlife conservation and management are presently in the hands of the non-hunting Lao Loum centered in Vientiane. Some minorities claim that hunting and the trading in wildlife meat and products is necessary for their subsistence so regulations are difficult to enforce. Law enforcement is therefore complicated by very sensitive ethnic issues.

Trophy Trade and Tourism in Lao P.D.R.

Foreign tourists did not seem to be the major source of demand for wildlife products in Lao P.D.R. in 1991. After the Persian Gulf War in January 1991, the number of tourists visiting Lao P.D.R. dropped dramatically. The numbers increased again in July 1991 (16,000 visitors compared with only 5,200 visitors the previous month). Most visitors travelled to extend their Thai visas (*Than Sethakit* or *Economic Base*, a Thai weekly newspaper, 19–25 August, 1991). The numbers of Thai tourists who went shopping in Vientiane has also decreased after an initial boom when Laos first opened to tourists in February 1989 (ROBINSON & CUMMINGS, 1991). Since August 1989, most tourists have had to join package tours which are relatively expensive. It now costs a Thai about \$30–50 to cross from Nong Khai to Vientiane for a one day visit. Most Thai tourists purchase silver, Laotian silk, porcelain from Vietnam and electronic goods from the Soviet Union rather than wildlife products.

Laotian trophies can, however, quickly disappear into the established wildlife trade network in Thailand. The 249 trophies and skins seized in two raids by police from the Crime Suppression Division in Bangkok on 28 January 1992 suggest a high level of wildlife trade in Thailand (*Bangkok Post*, 29 January 1992). Included were five pairs of serow horns, 17 pairs of Eld's deer antlers, two pairs of Schomburgk's deer antlers, a pair of wild water buffalo horns, eight pairs of sambar deer antlers, seven pairs of banteng horns, nine pairs of gaur horns and 33 pairs of barking deer antlers (*Matichon*, 29 January 1992). A pair of horns reported as being kouprey (*Bangkok Post*, 29 January 1992) were, in fact, faked from banteng as the distance between the base of the horns was too great for kouprey and the shredded ties on the horns appeared to have been artificially made (SS, personal observation).

Trade in Wildlife Meat and Parts and Wildlife Law in Lao P.D.R.

Laotian laws on wildlife trade appear to be contradictory. According to the Decree of the Council of Ministers No. 185/CCM, in Relation to the Prohibition of Wildlife Trade (21 October 1986), all kinds of trade in wildlife and wildlife products are prohibited and the responsibility for implementation and enforcement is given to the central and provincial forestry authorities (MADAR & SALTER, 1990). The decree also indicates that violators will be punished but penalties are not specified. The violators, however, can be punished by six months to two years imprisonment according to Penal Code of Lao P.D.R. (23 October 1989).

However, the Decree of the Council of Ministers No. 47/CCM, on the State Tax System (26 June 1989) would seem to indicate that the trade in wildlife meat and products is legal as the traders are subjected to tax (MADAR & SALTER, 1990). The use of wildlife for subsistence is exempted from resource taxes but it has to be carried out in accordance with the existing state regulations. Transgressions of state tax regulations are punishable by three months to three years imprisonment or by fines according to tax regulations (Article 141 of Penal Code of Lao P.D.R., 23 October 1989). However, there is nothing in this decree to specifically cancel the validity of decree No. 185 so that there is an obvious contradiction between these two decrees.

Wildlife Trade along Thai-Lao Border

The demand for wildlife meat and products in Thailand and China are a major threat to the wildlife resources of Lao P.D.R. The same is not the case with the three remaining Laotian neighbours: Myanmar, Vietnam and Cambodia. Using GDP per capita of these five Laotian neighboring countries (*Asiaweek Magazine*, July 12, 1991) as an indicator for potential international wildlife demand, Thailand (\$1,418) can be ranked first, China (\$325) second, Myanmar (\$278) third, Vietnam (\$200) fourth, and Kampuchea (\$110) last. GDP per capita of Lao P.D.R. is \$180.

The demand for traditional Chinese medicine may be the major factor depleting wildlife resources in northern Lao P.D.R. as Chinese traders have long been importing wildlife products from Lao P.D.R. The traders, meanwhile, provided hunting supplies (gun powder, gun barrels, etc.) to minorities in the northern Lao P.D.R. (CHAZEE, 1991). Wildlife products including bear paws are commonly seen for sale as medicine on streets in Kunming, the capital of Yunnan (Ji Weizhi, personal communication).

Wildlife trade occurs through the mountain passes between these countries. There are only three official border crossings between Lao P.D.R. and Vietnam: Ked Nua (Lakxao) Pass and Mu Gia Pass Border Crossings in the north and Lao Bao Border Crossing in the south. Barthelemy and Ban Kurai Pass (DOMMEN, 1985), are apparently not officially open. Ked Nua Pass Border Crossing is 97 km from Vinh in Nghe Tinh Province, an area described by ROBINSON & CUMMINGS (1991) as one of the most destitute regions of Vietnam. The market at this border crossing is opened twice a month and the Laotian carry forest and wildlife products for trade (Bouphane Phanthavong, personal communication). Vietnamese minorities also crossed the border at this site and 12 elephants were hunted on the Laotian side in 1991 (Bouphane Phanthavong, personal communication, April 1992). Lao Bao Border Crossing is about 250 km east of Savannakhet on National Highway No. 9. Lao Bao Market in Laos is 2 km from the border post. Thai goods are smuggled through

the bush from Laos to Vietnam and are readily available in this market (ROBINSON & CUMMINGS, 1991). Vietnamese goods make the return trip. For example: Laotian traders at Ban Mai, opposite Khong Chiam, travel by ferry from Ban Mai to Pakse and then from Pakse to Savannakhet, and from Savannakhet to Lao Bao to pick up Vietnamese goods for sale to Thai tourists from Khong Chiam. Wildlife and their products for sale both locally and internationally in Ho Chi Minh City of Vietnam came mostly from inside Vietnam, Cambodia and, to a lesser extent, from Lao P.D.R. (BAIRD, 1992). Only one major border crossing exists between Cambodia and Lao P.D.R. over Cambodian National Route 7 which is about 50 km north of Strung Treng (ROBINSON & CUMMINGS, 1991).

At the time of our survey, the cross-border trade in wildlife products was largest at Mae Sai in the far north of Thailand, but those imports were only partly from Lao P.D.R. Most were probably from Myanmar and southern China. According to our survey, trade in wildlife products, especially antlers and horns, between Thailand and Lao P.D.R. is greatest at Mukdahan and Khong Chiam. The demand for wildlife products in Thailand is therefore probably the major threat to wildlife resources in southern Lao P.D.R.

Not all wildlife exported from Lao P.D.R. originates from there. Some wildlife smugglers from Thailand have been reported to export wildlife illegally from Thailand to Lao P.D.R. before reimporting those animals back to Thailand in Transit to the West (see also DOMALAIN 1977a, b). In October 1987, two Thai wildlife dealers, Mr. Preecha Varavichit, the owner of Pimchai Bird Company, and Mr. Kamporn Pisaipong, were sentenced to jail by the Laotian Supreme Court for falsifying documents to smuggle wildlife species out of Lao P.D.R. (*Bangkok Post*, 2 October 1987). The falsified documents were for the export of 10 Indian elephants, 10 clouded leopards, 20 Eurasian otters, 10 brush-tailed porcupines, 10 Malayan tapirs, 20 Malayan sun bears, 20 leopard cats, 10 binturongs, 20 Bengal tigers, 20 leopards, 20 Asiatic black bears and 20 reticulated pythons. The men were sentenced to 2–3 years in prison, and fined \$120,000 and \$48,000, respectively. Their pardon and release in January 1988 was evidently due to diplomatic intervention (*Bangkok Post*, 26 August 1990).

The Trade in Malayan Pangolin

The trade in pangolin leather we found at Ban Don Du in Lao P.D.R. is quite different from previous reports which emphasized pangolin skins and scales. At the pangolin tannery, the meat of pangolin was sold at only half of the fresh food market price (\$1.43/kg vs \$2.86/kg). Pangolin scales were also given less attention than expected; the owner offered the scales for sale locally at the same price as at fresh food markets, \$10/kg. However, the price would have been higher if the scales had been smuggled from Lao P.D.R. to Thailand and then exported to the Republic of Korea. The price of imported pangolin scales in the Republic of Korea in 1990 was \$18.20/kg. The Korean customs import statistics indicated that during 1980–1990 pangolin scales were imported from Thailand in 1981, 1983, 1984, 1985, 1989 and 1990 in the weights of 300, 702, 795, 2,202, 2,997 and 1,000 kg, respectively (ANON., 1992). As there is no record of the export of such pangolin scales by the Royal Thai Forest Department during that period (SRIKACHANG & IAMNON, 1983; SRIKACHANG et al., 1990), such exports must have been illegal. The scales are said to be used by the Chinese for treating various skin diseases, both internally and externally (LEKAGUL & MCNEELY, 1977).

The pangolin tannery discovered at Ban Don Du is the first record of the production of pangolin leather in a country where pangolins are native animals. In the past, pangolin skins were exported primarily to USA and Japan for later production of leather goods such as boots (ANON., 1992). However, NICHOL (1987) mentioned the use of pangolin skins from Thailand for boots and wallets and he also mentioned a leather factory which was full of various kinds of skins, including pangolin skins, in Bangkok. In 1987 and 1988, Luxmoore found small numbers of leather products made from pangolin skin on display in Thai shops (ANON., 1992). Boots made of pangolin leather could also be ordered from leather shops along Sukhumvit Road in Bangkok in June 1992.

The pangolin trade at Ban Don Du was part of a larger operation. At least two other centers, in Savannakhet and Pakse, were involved in this network. The pangolin skins were shipped from southern Lao P.D.R. and combined with those obtained from That Luang Fresh Food Market in Vientiane. We saw the drying operation at Ban Don Du at the end of May. At least 600 skins had been prepared during that month. According to the information obtained from Savannakhet, May is the best month for obtaining pangolins, and we estimate that less than 500 pangolins were processed each month during the rest of the year. On this basis, a total of 6,100 tanned skins were exported from Lao P.D.R. during the previous one-year period (1990–1991).

ANON. (1992) reported records showing that during 1983–1989, Lao P.D.R. exported Malayan pangolin skins only during 1987 and 1988 : 4,020 and 4,600 skins. In contrast, during this period, Thailand was reported as the country of origin of 4,943, 4,601, 15, 182, 12,720, 4,088, 477 and 7 exported skins, respectively. The peak period of export was 1985–1986 when it was known that Thai wildlife traders operated from Lao P.D.R., before they were found guilty of falsifying export documents (*Bangkok Post*, 2 October 1987). Most of the above pangolin skins were probably smuggled from Lao P.D.R. to Thailand during that period and then exported illegally to countries like Japan and USA. The decline in exports after 1987 was, in part, due to a ban on imports of Thai pangolins, their skins and products, after May 5, 1987 imposed by USA (ANON., 1992).

Under the old Thai law (WARPA of 1960), the Malayan Pangolin was listed as a Protected Wild Animal Category I. It is, however, unprotected in Lao P.D.R. It is listed in CITES Appendix II as a species which, although not necessarily now threatened with extinction, could become so unless trade is subject to strict regulation (NICHOL, 1987). Pangolins are difficult to maintain in captivity because of their specialized diet (ROBERTS, 1977). Captive births have been reported only in *M. crassicaudata* and *M. pentadactyla* (Masui, 1967, OGILVIE & BRIDGEWATER, 1967). There are no statistics on the number of pangolins kept in captivity (ANON. 1992).

Wildlife Law Enforcement in Thailand

Wildlife resources in Lao P.D.R. are much affected by the demand for wildlife from neighboring countries, especially Thailand. Even though there is reasonably good wildlife legislation in Thailand and Thailand has been a member of the Convention on International Trade on Endangered Species of Wild Flora and Fauna (CITES) since 21 April 1983, she has not taken serious measures either to enforce her own domestic wildlife laws or to implement CITES. This is well illustrated by the volume of illegal trade in protected animal species at Bangkok Weekend Market in Chatuchak Park, only 3 km from

the Royal Forest Department (RFD). ROUND (1990) reported that over 20% of all native birds and 75% of all native bird species for sale at this market were those in which trade is totally forbidden by national law. Exotic species on both CITES Appendix I and Appendix II were also being sold.

Restaurants serving wildlife meat are well known in Bangkok and many other places in Thailand. In 1991, local newspapers reported on a number of restaurants in Bangkok including "Rau" Restaurant at Rangsit in which most of the game probably comes from Kanchanaburi, a large restaurant near New Petchaburi Road and a restaurant in Intamara 29 and 31 (*Matichon*, July 5, 1991; source: Wildlife Fund Thailand). Wildlife meat restaurants were also described at the fresh food market in Amphoe Muang, Chanthaburi Province, at the snake-steak restaurant in Chiang Mai Province, at Ban Thung Kwian, Amphoe Hang Chat, Lampang Province (with meat probably from the Khun Tan Mountain Range), at Amphoe Muang, Surat Thani Province, at Amphoe Hat Yai, Songkhla Province, at Amphoe Thong Pha Phum, Sangkhla Buri and Sai Yok, Kanchanaburi Province, at many restaurants in Nakhon Nayok, Saraburi, and Nakhon Ratchasima Province (where most wildlife meat probably come from Khao Yai National Park), at Phetchaburi Province (where wildlife meat probably comes from both Myanmar and nearby Kaeng Krachan National Park), at Prachuap Khiri Khan Province near the Chumphon border, at Nakhon Sawan, where wild water birds, especially ducks, are hunted from Bung Boraphet and sold in fresh food markets downtown, at Amphoe Aranyaprathet, Prachin Buri Province where both live and dead wildlife is brought from Cambodia and sold at the border (*Matichon*, July 5, 1991; source: Wildlife Fund Thailand).

Thailand is now seen by international conservation groups as the main center of the illegal wildlife trade in Asia. In 1989, Thailand exported 313,208 live wild animals and 658,196 wildlife hides or skins (Royal Forest Department Statistics cited by Documentary film on Channel 5 on Beautiful World by Our Hands (Lok Suay Duay Mue Rao) during 1600 h on Sunday, July 21, 1991). The World Wide Fund For Nature (WWF International) asked its 110 member countries to ban all trade in wildlife products with Thailand in April 1991. Possibly due to this decision the Thai Government proposed amendments to WARPA 1960 so that stronger punishment can be meted out to illegal wildlife traders. News concerning the strong wildlife law has appeared in Thai newspapers following the application of CITES-led sanctions. Whether these moves will have effect wildlife conservation in a significant manner is still uncertain.

A series of reports on wildlife law enforcement has appeared in Thai newspapers since the WWF-International action. The first important action was taken by the Law Enforcement Unit of the Wildlife Conservation Division, Royal Forest Department when, on April 18, 1991, hundreds of protected wildlife species were seized from two farmhouses belonging to two internationally well known wildlife traders, Mr. Kamphaeng Ploentham and Mr. Suchin Nivessanond. 72 talking mynas, three spotted cats, six Nicobar pigeons, three land tortoises, 50 Indian hanging parakeets, 25 green pigeons, five monitor lizards, 10 green imperial pigeons and three hawks were found (*Bangkok Post*, 19 May 1991). The second important action was taken by the Crime Suppression Division Police on July 2, 1991, when arrests were made at a farm at Samut Prakan which offered wildlife delicacies including bear paws to foreign tourists, especially Koreans (*Bangkok Post*, July 3-4, 1991). At this farm there were 103 live wild animals including 39 hog deer, 17 sambar deer, two

tapirs, 11 Eld's deer (all of the Burmese subspecies), two pelicans, two siamese fireback pheasants, two silver pheasants, seven Malayan black bears, one sun bear, three clouded leopards, three leopards, two tigers, a lion, 93 crocodiles, and a large number of snakes (*Bangkok Post*, July 4, 1991; *Matichon*, July 4, 5, 1991). Other wildlife products included two bear carcasses, 10 kg of snakes, 40 bear paws, five rhino parts, three rhino horns, 19 bear gall bladders, 19 deer testicles, 25 civet scent glands, six pairs of deer antlers and two pairs of gaur horns. A Dusit zoo veterinarian offered an opinion that these wild animals were smuggled from Myanmar through Amphoe Mae Sot, Tak Province (*Thai Rath*, July 5, 1991) but the restaurant owner said they were brought from Cambodia through Trat Province (*Matichon* and *Bangkok Post*, July 6, 1991). The Director General of the Royal Forest Department, on the other hand, said without providing evidence that they were from northern Thailand (*Matichon*, July 6, 1991). The antlers of male Eld's deer indicated they were of the Burmese subspecies. Four Karen tribesmen arrested at the restaurant provided additional evidence that some of these animals were from Burma. The restaurant was partly owned by a Thai businessman who had run an international tourist business with Korea and had placed advertisements in both Korean magazines and videos. The restaurant had been open for only one month before it was raided by the police. Customers reportedly paid \$4,000-6,000 for a bear. More news about police raids on wildlife owners appeared on subsequent days. On July 6, the Crime Suppression Division police and forest officials raided two Chinese herbal drugstores where the owners kept wildlife products, including tiger hides (*The Nation*, July 6, 1991).

According to the current wildlife law, violators may be punished with imprisonment not exceeding six months, or fined not more than \$200, or both, for possessing Protected Wild Animals without any official permit. The violators may also be imprisoned for up to two years, or fined not more than \$800, or both, for possessing Reserved Wild Animals without an official permit. Many people have suggested that the punishment should be stronger. The updated wildlife law will punish a violator with imprisonment not exceeding seven years or a fine not exceeding \$4,000 or both, for trading in Reserved or Protected Wild Animals or their carcasses without an official permit.

Wildlife Values: Thai Perspectives

There is no critical study on how Thai or Lao view wildlife values. The following discussion is based on very limited evidence but the problem should be addressed at some point as it will help explain why the development of wildlife conservation in Thailand has not progressed as fast as a lot of people expected it would during the last 30 years.

The attitude towards wildlife values which will influence wildlife conservation and management in Thailand comes from at least three major sectors: the general public, wildlife consumers and wildlife managers. In general, the public attitude toward wildlife conservation and management is very passive. The public has been educated about the cultural importance of wildlife, for example, elephants. Recently, they have been informed about the beauty of animals and their ecological role. But the public contributed almost nothing in the shaping of the new wildlife law. This is shown by the number of public opinions concerning wildlife issues in newspapers as compared with other national issues.

Wildlife traders have played the most important role in shaping government policy towards wildlife utilization as embodied in the new wildlife law. At a meeting discussing

the new wildlife law on December 1991, wildlife traders formed a strong and coherent lobby. They have been successful in shaping the law to allow the private sector to keep wildlife in unlimited numbers and to permit captive breeding for commercial purposes.

The success of wildlife management also depends a lot on the convictions of wildlife managers. In Thailand, most wildlife managers have earned degrees or diplomas in forestry, in which the curriculum is biased towards forest and forest product utilization. Most Thai wildlife managers view wildlife management as a part of forest management. There is little emphasis on actual management of wildlife or protected area. Competent wildlife managers usually concentrate their efforts in law enforcement or administration.

Our brief surveys on trophy collections in Thai houses provides some other insights. One is that trophy owners give no particular value to wildlife and trophy collection is just another form of status decoration. In many cases, the trophy advertise the owner's wealth as only wealthy people can afford such decorations. Large elephant tusks often decorate the reception room of a wealthy and influential person (*The Nation*, 5 January 1992).

The use of trophies as house decorations in Thailand does not indicate any special ability or sportmanship as it does in countries where hunting is still a status symbol, or where there is a long tradition of hunting for sport. In fact, no status value is placed on such skills in Thailand. In the interior of Sarawak where hunting is still a way of life, CALDECOTT (1988) found that most longhouses were decorated by hornbill and argus pheasant feathers, bearded pig mandibles, and sambar deer and muntjak antlers. Bear paws and deer trophies are mostly seen in shops (CALDECOTT, 1988).

Lessons for Wildlife Conservation and Management in Lao P.D.R.

The wildlife trade was missed as the major threat to wildlife resources when Thailand adopted her first wildlife law in 1960. As a key person in drafting WARPA 1960, Dr. Boonsong LEKAGUL (1959) proposed that the law follow examples of those in Europe and America whose purposes were (1) to limit the number of game to be taken, (2) to limit the hunting season, and (3) to limit the sex and the size of the game to be taken. The law, however, recognized the economic value of wildlife by allowing trade in certain species. Coinciding with the growth of the fresh food markets after the Second World War, Sanam Luang in Bangkok slowly became a hub of both the national and international wildlife trade network. Wildlife markets created incentives for hunting adult wild animals and their young so that the latter could be sold as pets. This problem has not been appreciated clearly and is ignored by the newly modified wildlife law which was approved by parliament on 24 January, 1992 and came into effect on 19 February 1992 (*Bangkok Post*, 26 April 1992). The new law allows commercial wildlife farming and the private ownership of selected species of wildlife in unlimited numbers. This will allow some private wildlife owners to participate in the illegal wildlife trade. The Chief of Crime Suppression Division Police, Maj-Gen Rangsit Yanothai, commented on the new law that the private ownership of wildlife in unlimited number will promote poaching and wildlife trade (*Matichon* newspaper, 29 January 1992).

At present, Lao P.D.R. still tolerates wildlife trade providing that it is for subsistence purposes. Our data indicate that the current usage of wildlife resources in Lao P.D.R. is not at a subsistence level and that large scale export now exists. This situation is similar to that which prevailed in Thailand about 30 years ago. To avoid the problems that Thailand

has now, Lao P.D.R. should carefully regulate the species of wildlife allowed to be traded. Experience gained in Thailand indicates that only those bird species living in open country, which adapt well to man-modified environments and which have high reproductive rates, should be traded. Trade in all wild mammals, except rats, should be totally prohibited. At least three laws should be adopted to deal with the management of wildlife resources: one should control wildlife utilization and trade and the other two should concern the conservation and management of endangered species and of protected areas, respectively.

S U G G E S T I O N S

1. The wildlife meat trade at That Luang Market, Vientiane, Laos, should be discouraged. Assistance and compensation should be given to the three traders involved so that they may find alternative jobs.

2. The pangolin tannery at Ban Bo-O and its network should be stopped immediately.

3. The Forest Authority of Champassak Province should be informed about the trophy trade at Ban Mai so that it may be stopped.

4. An agreement should be made at both local district and provincial level and the Ministry level to discourage wildlife trade between Thailand and Lao P.D.R.

5. Lao P.D.R. should become a member of the Convention of International Trade on Endangered Species of Wild Flora and Fauna (CITES) and develop enabling laws.

6. Trade in wildlife meat and products should be recognized to be as important as hunting and fishing as major threats to wildlife resources in Lao P.D.R. Strong measures should be set up to regulate or suppress the trade.

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Note added in proof:

1. The reader should consult an independent study by BRADLEY-MARTIN (1992a, b) on wildlife products sold in souvenir shops around Vientiane.
2. CITES - led sanctions to ban all trade in wildlife products with Thailand lasted about a year. On 2 April 1992, the CITES Secretariat informed Parties that the recommended ban on trade in CITES specimens with Thailand was lifted with immediate effect (TRAFFIC Bulletin 13 (1), May/June 1992). The Secretariat did, however, recommend that Parties be vigilant when accepting CITES documents from Thailand, as when accepting any CITES documents.
3. When the new wildlife law in Thailand came into effect on 19 February 1992, owners of wild animals and wildlife parts were asked to register at the Royal Forest Department within 90 days or before 19 May 1992. Due to political unrest in Thailand in May 1992, the Forest Department extended the registration periods for another 90 days. In July 1992, a total of 20,000 individuals were registered of possessing 40,000 wild animals and 1,400,000 wildlife parts (*Naew Nha* daily newspaper, 2 July 1992). This can be compared with 17 registered individuals during 1990-1991 and a few years before (see page 33).

Appendix 1. Scientific names of animals mentioned in the text

Mammals

Bandicoot, Great, *Bandicota indica*
 Cat, Leopard, *Felis bengalensis*
 Civet, *Viverra* spp
 Civet, Indian Large, *Viverra zibetha*
 Civet, *Paradoxurus* spp
 Deer, Common Barking, *Muntiacus muntjak*
 Deer, Lesser Mouse, *Tragulus javanicus*
 Deer, Sambar, *Cervus unicolor*
 Hare, Siamese, *Lepus peguensis*
 Loris, Pygmy Slow, *Nycticebus pygmaeus*
 Monkey, Pig-tailed, *Macaca nemestrina*
 Pangolin, Chinese, *Manis pentadactyla*
 Pangolin, Indian, *Manis crassicaudata*
 Pangolin, Malayan, *Manis javanica*
 Pig, Common Wild, *Sus scrofa*
 Porcupine, Bush-tailed, *Atherurus macrourus*
 Rat, Giant Bamboo, *Rhizomys sumatrensis*
 Rat, Hoary Bamboo, *Rhizomys pruinosus*
 Serow, *Capricornis sumatraensis*
 Squirrel, Black Giant, *Ratufa bicolor*
 Squirrel, Flying, *Petaurista* spp.
 Squirrel, Indochinese Ground, *Menetes berdmorei*
 Squirrel, Particolored Flying, *Hylopetes alboniger*
 Squirrel, Red-bellied Tree, *Callosciurus erythraeus*
 Squirrel, Red-cheeked, *Dremomys rufigenis*
 Squirrel, Red Giant Flying, *Petaurista petaurista*
 Squirrel, Variable, *Callosciurus finlaysoni*

Birds

Bittern, Yellow, *Ixobrychus sinensis*
 Bluebird, Asian Fairy-, *Irena puella*
 Bunting, Yellow-breasted, *Emberiza aureola*
 Coucal, Greater, *Centropus sinensis*
 Dove, Red Turtle, *Streptopelia tranquebarica*
 Dove, Spotted, *Streptopelia chinensis*
 Drongo, Ashy, *Dicrurus leucophaeus*
 Drongo, Bronzed, *Dicrurus aeneus*
 Duck, Lesser Whistling-, *Dendrocygna javanica*
 Eagle, Grey-Headed Fish-, *Ichthyophaga ichthyaetus*
 Francolin, Chinese, *Francolinus pintadeanus*.
 Heron, Chinese Pond-, *Ardeola bacchus*
 Hornbill, Oriental Pied, *Anthracoceros albirostris*

Junglefowl, Red, *Gallus gallus*
 Kingfisher, Common, *Alcedo atthis*
 Kite, Black, *Milvus migrans*
 Parakeet, Alexandrine, *Psittacula eupatria*
 Parakeet, Red-breasted, *Psittacula alexandri*
 Peafowl, Green, *Pavo muticus*
 Pheasant, Kalij, *Lophura leucomelana*
 Pheasant, Silver, *Lophura nycthemera*
 Pigeon, Mountain Imperial, *Ducula badia*
 Pigeon, Rock, *Columba livia*
 Pigeon, Thick-billed, *Treron curvirostra*
 Rail, Slaty-breasted, *Rallus striatus*
 Rail, Water, *Rallus aquaticus*
 Sandpiper, Wood, *Tringa glareola*
 Shikra, *Accipiter badius*
 Shoveler, Northern, *Anas clypeata*
 Snipe, Pintail, *Gallinago stenura*
 Swallow, Ashy-Wood, *Artamus fuscus*
 Swallow, Red-rumped, *Hirundo daurica*
 Swift, Asian Palm, *Cypsiurus balasiensis*
 Waterhen, White-breasted, *Amaurornis phoenicurus*
 Woodpecker, Common Flameback, *Dinopium javanense*

Reptiles

Lizard, Monitor, *Varanus bengalensis*
 Python, Indian Rock, *Python reticulatus*
 Racer, Copper-headed, *Elaphe radiata*
 Terrapin, Malayan Snail-Eating, *Damonia subtrijuga*
 Tortoise, unidentified, *Testudo* spp
 Tortoise, Yellow, *Testudo elongata*
 Turtle, unidentified, *Emys* spp.

