

Exploitation of Hawksbill Turtles in Vietnam

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Hawksbill Turtles have long been exploited in Vietnam for food, for the production of ornamental items crafted from their shells and for use in the preparation of medicinal products. In recent years the amount of stuffed Hawksbill Turtles and tortoiseshell products on sale in the country has increased enormously, in parallel to the opening up of the country's economy and to the growing number of tourists who visit Vietnam and buy these items.

Prompted by concern about the effect of this trade on Hawksbill populations in Vietnam, TRAFFIC, in collaboration with the Centre for Natural Resources and Environmental Studies of the University of Hanoi, undertook a study of their harvest and trade in the country in 1993/1994 with a view to developing recommendations for the Government of Vietnam on steps to be taken to conserve this Appendix I-listed species. The study indicates that the trade, compounded by the alteration of coastal habitats, is having a deleterious effect on Hawksbill populations in Vietnam.

INTRODUCTION

The Hawksbill Turtle *Eretmochelys imbricata* is a widespread marine reptile species, known to nest in at least 60 countries in the tropics and sub-tropics, but suspected to be in decline in many parts of its range (Groombridge and Luxmoore, 1989). It is listed in the 1994 IUCN Red List of Threatened Animals as "Endangered" globally (Groombridge, 1993), its populations having suffered large-scale exploitation for eggs and tortoiseshell. Pacific populations of the species were transferred from CITES Appendix II to Appendix I in 1977.

One of 30 species of chelonians native to Vietnam, the Hawksbill Turtle was reportedly common and found all along the coast in the early part of the present century (Bourret, 1941). However, after decades of habitat disturbance and direct exploitation, it is now listed in *The Red Data Book of Vietnam* as "Endangered", though still thought to be widely distributed along the coasts and around the islands of the country - from Quang Ninh, Hai Phong (Cat Ba), to Thanh Hoa, Quang Tri (Cua Tung), Quang Nam-Da Nang, Quang Ngai, Binh Dinh, Khanh Hoa, Binh Thuan, Ninh Thuan, Kien Giang (Ha Tien, Phu Quoc, Tho Chu), Con Dao, Hoang Sa and Truong Sa archipelagos (MoSTE, 1992). Nesting appears to have been limited mainly to the islands, but little detailed information is available (Groombridge and Luxmoore, 1989).

Historically, the species has been heavily exploited in Vietnam, principally for the production of tortoiseshell goods, but also for food (both eggs and meat) and



Map showing some of the primary sites for the collection and processing of Hawksbill Turtles in Vietnam.

preparation of medicinal products. Over-exploitation is not solely a recent trend - in the 1920s population reductions were attributed to excessive egg collection and harvesting in some areas was halted for a number of years (Le Poulain, 1941). However, Vietnam did not figure as a prominent supplier to the Japanese tortoiseshell (known there as "bekko") industry, the major user of this product in recent decades (Groombridge and Luxmoore, 1989).

Outside a small number of protected areas, the killing and sale of Hawksbill Turtles and products is not prohibited in Vietnam and this trade has increased enormously in recent years. Table 1 shows the numbers of such items observed in tourist shops along Dong Khoi Street in Ho Chi Minh City during one day in May 1993 (CRES, 1994), and observations by TRAFFIC Southeast Asia during 1993 and 1994 have revealed similar quantities for sale in the city. The trade is supplied through the capture of adult animals and the collection of eggs and juveniles from nesting beaches for rearing purposes (CRES, 1994).

Item	Quantity	Price (US\$) each
Bangle	250	2
Spectacle frames	120	80
Fan	150	80
Comb	142	29
Knife	53	10
Small box	75	54

Table 1. Hawksbill Turtle products on sale in Ho Chi Minh City, May 1993.

Source: CRES, 1994.

Anecdotal reports received in 1992 during general surveys of wildlife trade in Vietnam (CRES, 1994), suggested that exploitation was exerting enormous pressure on Hawksbill Turtle populations in Vietnam and that, together with development pressure at nesting beaches, this harvest was a serious threat to the species' survival in the country.

In response to these concerns, TRAFFIC Southeast Asia initiated an investigation into Hawksbill Turtle exploitation in collaboration with the Centre for Natural Resources Management and Environmental Studies (CRES) of the University of Hanoi. The aim of the study was to obtain baseline information on the harvest of and trade in this species, in order to develop recommendations for the Government of Vietnam on steps that should be taken to conserve the Hawksbill Turtle in the context of the long-term economic development of Vietnam. The project complemented simultaneous investigation of trade in tortoises and freshwater turtles in the country, the results of which have been published separately (see page 62).

METHODS

Preliminary research indicated the importance to the study of three sites, all in central and southern Vietnam: Kien Giang, Con Dao and Nha Trang. The aim was to document the harvest and use of Hawksbill Turtles in these areas, through interviews with fishermen, traders and tortoiseshell processors. The research was carried out from September to November 1993, at a time when the rainy season conditions caused some logistical problems.

RESULTS

KIEN GIANG PROVINCE

Kien Giang Province is situated along the south-western coastline of Vietnam, directly adjacent to Cambodia. The human population was estimated at 1 266 000 in 1991, thought to be growing in number at a rate of around 2.4% a year. Owing to its long coastline and numerous islands, Kien Giang has well-developed industries in agroforestry and fisheries. Approximately 15% of the population is situated in

rural coastal areas, and is largely dependent on fishing. The coastal habitats cover at least 13 000 ha and Hawksbill Turtles are believed to have been quite common in many parts of the province in the past.

During the war in Vietnam in the 1960s and early 1970s, coastal forests in the province were severely damaged and large areas destroyed as a result of intensive attacks with napalm and toxic chemicals, mainly Agent Orange. This is thought to have adversely affected the size of the Hawksbill Turtle population through direct poisoning and alteration of habitat. Additionally, after the war there was an increased demand for curios and jewellery made from Hawksbill shell: eggs and juveniles were removed from nesting beaches for captive-rearing and adult females were killed and sold as stuffed specimens or processed into tortoiseshell. As a result, the species has become increasingly rare in the province.

At present, Hawksbill Turtles are found mainly in the districts of Ha Tien, Phu Quoc and Kien Hai, especially on the islands of Hai Tac, Nam Du and Tho Chu and northern Phu Quoc. There are three Hawksbill ranching sites in the province: two in Ha Tien district and one on Hon Mot island, located in Phu Quoc district.

Hawksbill Turtle exploitation in Kien Giang province

Captive-rearing

The investigation revealed a total of 173 young Hawksbill Turtles being raised in captivity in 1993, although significantly higher numbers were reported to have been raised in earlier years. The animals are collected in the wild as eggs or juveniles and no captive-breeding is known to take place in these facilities.

Ha Tien district: in August 1993, 20 Hawksbills were being raised at a ranch in My Duc village, established in 1981 by a private owner. Previously, the owner had a ranch in Tran Hau, also located in Ha Tien district, where he raised about 200 Hawksbills. However, the site was abandoned because the source of juveniles became less fruitful and the water quality was no longer suitable for raising the turtles.

A second Hawksbill ranch, also in My Duc village, was established in 1990 by another private owner. In that year, some 100 Hawksbills were being raised, but many of these were killed as a result of flooding and a high incidence of infectious diseases. In August 1993, 21 Hawksbills were being raised here.

Phu Quoc district: a ranch in Xa Moi village, established in 1992 by a private owner, had 113 Hawksbills in November 1993. The owner collects eggs from nesting beaches for captive-rearing purposes. In March 1993, he collected 241 eggs from 2 clutches at the Hon Co Rong, and Hon Ong Hon Ba

islands in Cambodian waters. Of these, 201 hatched, but only 113 survived. In 1991, he collected 4 clutches of eggs, containing a total of 250 eggs from the Tho Chu islands and the Hon Ong Hon Ba islands.

Prior to 1992, the owner was contracted by a trading company to establish two Hawksbill raising basins (ponds in which the turtles are raised) at Xa Moi village, where he reared about 500 Hawksbills. However, this ranch no longer operates because of the decline in the number of wild Hawksbills available and the dissolution of the trading company.

In addition, there are several small raising sites located in various households in Phu Quoc district. Recently, five households captured 13 young Hawksbills from the wild to raise for personal ornamental purposes.

Kien Hai district: a small ranch was established in this district in 1990. In 1993, there were only six Hawksbills which were being raised as personal pets and not for sale.

Capture of adult Hawksbills

In addition to the eggs and juvenile turtles captured for captive-rearing, interviews revealed that in 1993, 56 adult Hawksbills were captured for direct use of their shells - 30 in Ha Tien and 26 in Phu Quoc districts. The total weight of Hawksbill shell sold by local fishermen in Kien Giang in that year was reportedly 50.4 kg. One kilogramme of marketable shell per animal can be expected (Groombridge and Luxmoore, 1989), although no specific data for Vietnam are available. A further 20 kg were imported from Cambodia. In addition, 32 adult Hawksbills - 10 in Ha Tien and 22 in Phu Quoc - were captured for sale to tourists as stuffed specimens.

Local fishermen reported that female Hawksbills are sometimes intercepted just prior to nesting. In early 1993, a female Hawksbill on her way to find a nesting site was captured by naval forces on Rong beach, Tho Chu Island. From June to December 1993, 9 nesting females are known to have been captured and killed by naval forces personnel and local fishermen.

Processing of Hawksbill products

Tortoiseshell is derived from the thick plates of the Hawksbill carapace, the marginal scutes (the scales along the rim of the shell) and the bony plates that form the ventral part of the shell. The plates are strikingly-patterned and are fashioned into ornamental items, jewellery, and spectacle frames. In addition, some specimens are stuffed and sold as curios. Turtle collectors sell tortoiseshell and stuffed specimens of both wild-caught and captive-raised turtles direct to the processing establishments, rather than through middlemen.



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Polished shell of the Hawksbill Turtle *Eretmochelys imbricata*, prized for its use in the production of tortoiseshell items.

In 1993, there were two Hawksbill processing centres in Kien Giang province. The total monetary value of the annual production of these operations was approximately 20 million dong (US\$2000) and the total production of and wholesale value of items processed by those facilities in that year is summarized in Table 2.

One of these operations is located in Ha Tien town and was established before 1950. The operation processes both stuffed turtles and tortoiseshell; in 1993, 40 kg of scales were produced, of which 20 kg had been imported from Cambodia. The second operation, in Ham Ninh town, Phu Quoc district, usually manufactures items in response to specific orders; in 1993, 2 kg of scales were processed and 10 stuffed specimens were polished. A small number of stuffed Hawksbills were used for local display or sold to other traders.

The value of unprocessed tortoiseshell depends upon the colour and 'vein' quality. In 1993, three classes of scale were priced as follows:

First-class:	3 500 000 dong/kg (US\$350)
Second-class:	2 500 000 dong/kg (US\$250)
Third-class:	1 500 000 dong/kg (US\$150)

In addition to the manufacture of jewellery and curios, some Hawksbill shell is used as an ingredient in traditional medicine: the shell, renowned for its sweet taste, is apparently effective as an antidote, antipyretic and antispasmodic in cases of blood poisoning, smallpox, heat convulsions and febrile delirium. A normal dose is 3 g to 8 g (Keys, 1976).

Product	Processing establishments		Total	Price (dong/item)
	Ha Tien	Phu Quoc		
	Number	Number		
Comb	18	12	30	30 000-100 000
Hand fan	12	2	13	300 000
Bracelet	32	19	51	30 000
Hairpin	24	12	36	25 000
Hairslide	16	27	43	10 000-20 000
Match box	4	27	4	35 000
Cosmetic box	6	27	6	80 000
Framed spectacles	18	27	18	30 000
Ring	32	4	6	20 000
Earring	25	4	25	18 000
Stuffed Hawksbill	9	8	17	300 000-600 000

Table 2. Hawksbill Turtle products processed in Kien Giang Province in 1993 (10 000 dong = US\$1).

Retail trade in Hawksbill products

Surveys of tourist shops in Kien Giang province in August 1993 revealed a total of 59 stuffed Hawksbills on sale; much of this trade and the sale of other Hawksbill products in the province is concentrated in Phu Quoc and Ha Tien. A specimen with a carapace of 10 cm in diameter is valued at about 100 000-150 000 dong. Larger specimens may range in price from 350 000 to 600 000 dong.

Hawksbill products are also transported for sale in Ho Chi Minh City, but they are not known to be directly exported out of the country from this province.

Conservation of Hawksbills in Kien Giang province

The prospect for Hawksbill populations in Kien Giang province is very poor owing to habitat disturbance and direct exploitation through egg-collection and the capture of juveniles and adults. Anecdotal reports suggest that many nesting beaches in the province have been abandoned by nesting turtles. There is an urgent need for the development of conservation measures to protect potential nesting beaches and prevent uncontrolled collection of eggs and capture of nesting females. If captive-rearing operations are to continue (for supply of the domestic market), strong control will need to be exerted on the collection of stock in future.

CON DAO ISLANDS

The Con Dao archipelago consists of 16 islands with a total area of about 7570 ha. The islands are situated to the east of the southern tip of Vietnam, approximately 315 km south of Ho Chi Minh City. The site of a major prison complex for over a century,

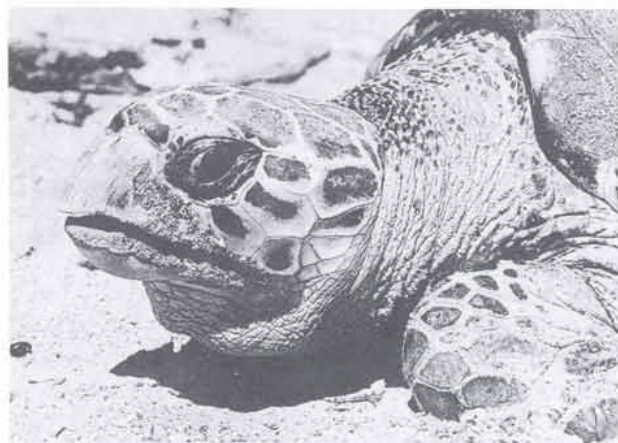
the islands' natural resources suffered intensive exploitation during that period. Many of the coral reefs around the islands were destroyed for use as building material and a wide range of marine species were harvested for local consumption and for sale to mainland markets.

Since the closure of the prison in the 1970s, attempts have been made to protect the islands' unique flora and fauna. In 1984 the archipelago was declared a nature reserve and a National Park in 1992 (covering 14 of the islands and a 4 km-wide buffer zone around the coast).

According to local sources, Hawksbill Turtles were once abundant in the Con Dao archipelago, but collection for tortoiseshell production disturbed nesting and drastically reduced numbers in the islands' waters. However, since the introduction of protection measures, nesting has been recorded on the beaches of four of the islands.

Hawksbill Turtle exploitation on Con Dao islands

The Con Dao islands were reportedly the site of a flourishing industry for the extraction of Green Turtle *Chelonia mydas* oil around the end of the 17th century (Parsons, 1962). No detailed historical accounts of Hawksbill Turtle exploitation in the Con Dao archipelago exist, but information about more recent harvesting is available. Between the late 1970s and 1985, a handicraft operation based in the archipelago produced jewellery made from Hawksbill carapace which it offered for sale to visitors to the islands. The enterprise also had a captive-rearing facility. When juveniles had reached about 20 cm-30 cm in size, they were slaughtered and stuffed: 50-100 were reportedly sold each year. However, this business was closed-down in 1985 when the first protective measures were introduced in the islands. No Hawksbill processing plants have operated on Con Dao islands since that time.



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*Conservation of Hawksbills on
Con Dao islands*

Since 1987, specific protection has been afforded to sea turtles around the islands. Beaches on islands where nesting has been recorded (Hon Tre Lon, Hon Bai Canh, Hon Cau and Hon Tai Lon) are monitored and protected from hunters and egg collectors by National Park rangers who have recorded the laying of a total of over 30 clutches a month (nesting takes place between March and August). The Board of Directors of the Con Dao National Park and the local government authority have passed a specific regulation which prohibits marine turtle hunting; violators may be penalized and made to return Hawksbills to the sea.

NHA TRANG

Nha Trang, 450 km north of Ho Chi Minh City, is the capital of Khanh Hoa province and its population of over 200 000 people benefits from a thriving fishing industry and the town's growing popularity as a beach resort.

Hawksbill Turtles inhabit most of the coastal area of Khanh Hoa province, but are more concentrated around the islands that have large fish populations, such as Dai Lanh, Hon Cha La, Hon Tre, Cam Ranh and, in particular, Hon Noi and Hon Noc, the latter island being the largest source of fish in the area. No detailed information on the status of populations is available though.

Hawksbill Turtle exploitation in Nha Trang

Some of the turtles processed and sold in Nha Trang are collected in the province, but others are purchased from Kien Giang province and from Da Nang, a major port/city over 500 km north of Nha Trang. Locally-caught specimens are believed to produce a total of 150 kg-200 kg of tortoiseshell annually.

Processing of Hawksbill products

There are many Hawksbill processing operations in Nha Trang, but four businesses dominate the market for the processing of stuffed specimens and carapaces. During visits by the investigators in November 1993, 53 Hawksbills were found in the store of one operation. Traders at these establishments claimed that they sought carapaces of at least 40 cm in diameter for processing; a carapace of that size was reported to be worth 600 000 dong (US\$60). Wholesale prices in Nha Trang for finished products were quoted as follows:

Bracelets:	15 000-50 000 dong/US\$1.50-US\$5)/item
Fans:	150 000-200 000 dong/item
Spectacle frames:	400 000 dong/item

Retail trade in Hawksbill products

There are four main retail stores in the city that sell stuffed Hawksbills. Shop owners reported that they each sell 200 to 300 specimens a year. In addition, 10 smaller stores reportedly sell between 10 and 20 specimens each a year. These figures would suggest that between 900 and 1400 stuffed turtles are sold annually in Nha Trang. The average retail price per specimen was 1 000 000 dong.

Interestingly, retailers claimed that stuffed turtles are seldom bought by foreign tourists because of the difficulty in transporting the specimens. Instead they are reportedly bought by government institutions and private businesses as presents. During November 1993, a company from Hanoi was observed to buy 12 stuffed Hawksbills with carapace diameters of over 30 cm. Products made from Hawksbill shell are sold locally to visitors (including foreign tourists) or transported to Ho Chi Minh City for sale.

Overall, interviews with traders indicated that as many as 2000 Hawksbill Turtles are traded annually in Nha Trang, both as stuffed specimens and for processing into products.

One informant claimed that Hawksbill carapaces are sometimes purchased from Singapore.

CONCLUSIONS AND RECOMMENDATIONS

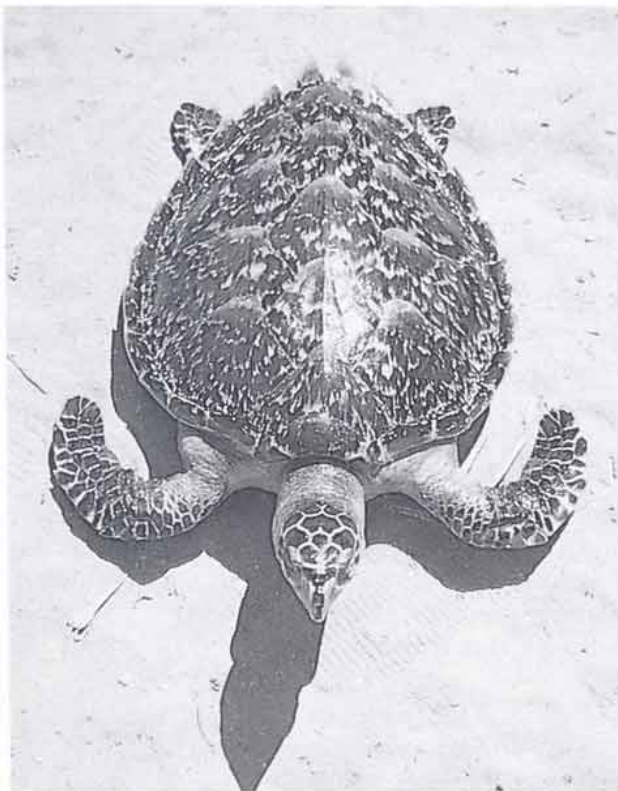
Hawksbill Turtles are being extensively exploited in Vietnam through egg collection on nesting beaches and capture of both juveniles and adults. The turtles are killed, sometimes after a period of captive-rearing, for use largely in the production of jewellery, decorative curios, and as an ingredient in traditional medicine. This exploitation, together with destruction and alteration of coastal habitats essential for nesting, has resulted in dramatic reductions in population numbers.

Protection measures are urgently required in order to safeguard the future of the species in the country and to conform with the requirements of CITES, of which Vietnam has been a Party since April 1993. These measures should include:

- a status of full-protection conferred on the Hawksbill Turtle under the country's wildlife protection legislation, until populations can be adequately assessed and in order to provide a basis for the enforcement of a ban on harvest and trade;

- publication of Government instructions and regulations;
- regulations for the prosecution of offenders;
- encouragement of fishermen and processors currently involved in the trade to suspend exploitation of the species whilst populations are being assessed;
- discouragement of foreign tourists and local buyers from purchasing Hawksbill products.

In conclusion, the plight of the Hawksbill Turtle in Vietnam needs urgent attention through legislative action and subsequent enforcement of a suspension on commercial use of its products. The example of the conservation measures introduced in the Con Dao archipelago illustrates the fact that protection of Hawksbills in Vietnam can be successful, but the challenge of extending this security to all of the species' populations in Vietnam will be far greater. Measures taken to halt the trade must be complemented by a thorough assessment of the populations of Hawksbill Turtles, in order that long-term management strategies can be developed.



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Hawksbill Turtle *Eretmochelys imbricata*

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