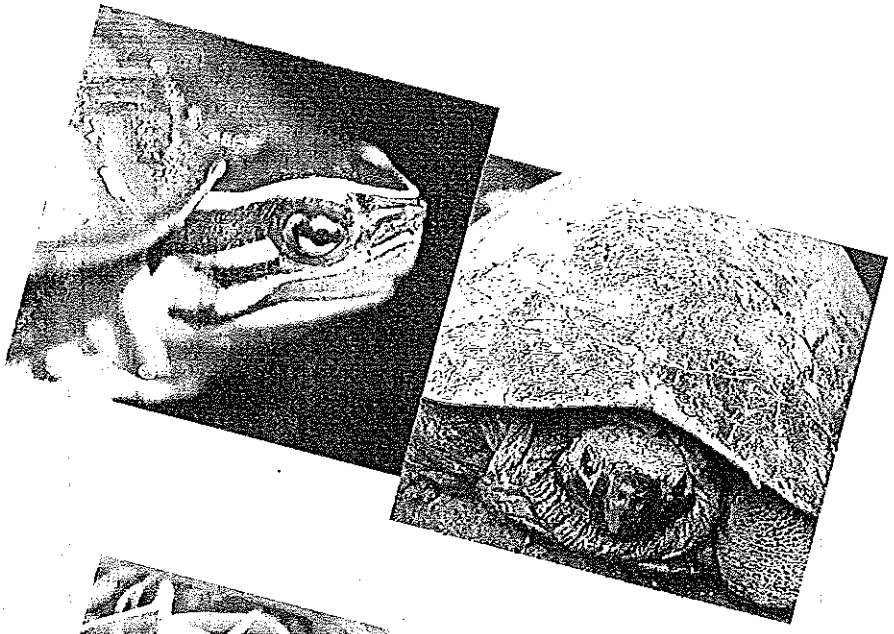

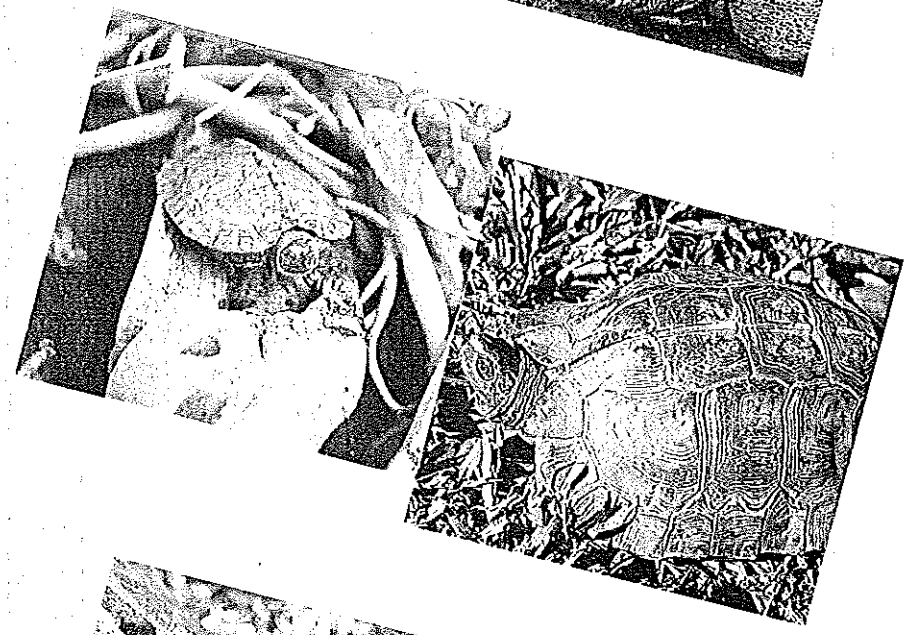

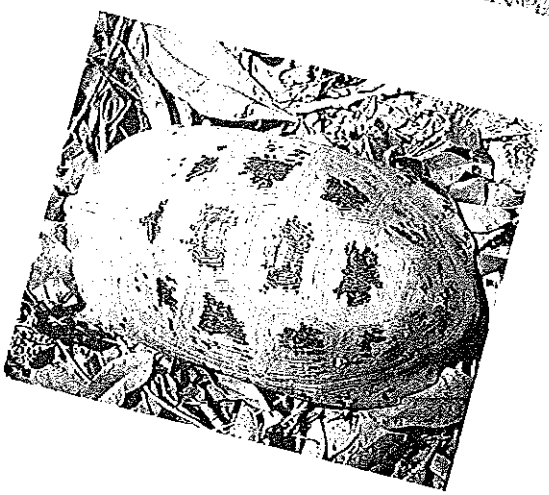

TRADE REVIEW

TORTOISE AND FRESHWATER TURTLE TRADE AND UTILISATION IN PENINSULAR MALAYSIA

By

Dionysius S.K. Sharma

A TRAFFIC SOUTHEAST ASIA REPORT

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

1) Malayan Box Turtle *Cuora amboinensis*
2) Asian Giant Turtle *Orlitia borneensis*

3) Giant Asian Pond Turtle *Heosemys grandis* (juvenile)
4) Spiny Turtle *Heosemys spinosa* (Adult male)

5) Painted Terrapin *Callagur borneoensis* (Adult male in breeding colour)
6) River Terrapin *Batagur baska* (Adult male in breeding colour)

7) Elongated Tortoise *Indotestudo elongata*

Photo credit: 1 and 2 by C.Shepherd/TSEA
3 TRAFFIC Southeast Asia
4 to 7 by Dionysius Sharma

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TORTOISE AND FRESHWATER TURTLE TRADE AND UTILISATION IN PENINSULAR MALAYSIA

By

Dionysius S.K. Sharma

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FOREWORD

This study explores the trade in wild species of tortoise and freshwater turtles in Peninsular Malaysia. This trade is little known and in most cases, there is limited protection of the species that are being traded. While the fieldwork was carried out in 1994, the results and recommendations appear to remain valid even today. This report serves the useful purpose as a reference document, and provides guidance on future actions that are needed.

Much work remains to be done in order for the species native to Peninsular Malaysia receive adequate protection, and those that can be sustainably traded receive effective management action.

The recommendations of this report provide steps that could be used to address the threats to the species. We hope that the appropriate government authorities will look into this and help ensure the survival of our tortoises and freshwater turtles in Peninsular Malaysia.

Chen Hin Keong
Director
TRAFFIC Southeast Asia

14 July 1999

Habitat loss is one of the major threats to wild species in Malaysia. In addition, traditional beliefs and customs continue to prevail in the use of wild animals and plants. This examination of domestic and foreign trade in tortoises and freshwater turtles in Peninsular Malaysia is timely and essential. While the study is not exhaustive in statistics, it explores the direct and indirect causes of current threats and recommends urgent management and enforcement measures.

But, as with many other species threatened by traditional lifestyle patterns embodied within evolving lifestyles, public education and awareness will remain just as essential.

It is envisaged that appropriate follow-up steps will be taken, based on some of the recommendations made in this report to address the threats to non-marine turtles in Malaysia.

Dr. Isabelle Louis
Director of Conservation
WWF Malaysia.

20 October 1997

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Dionysius S.K. Sharma
Senior Scientific Officer
WWF Malaysia.

20 October 1997

EXECUTIVE SUMMARY

Turtles, generally meant to include tortoises, terrapins, softshell turtles and marine turtles, are reptiles belonging to the order Chelonia. Peninsular Malaysia is home to three families and 18 species of freshwater turtles and tortoises from the family Bataguridae, Testudinidae and Trionychidae. Their habitats includes rivers, wetlands including paddy fields and forest streams to hill forests. Some of these species are rare or not commonly found in the wild. The trade involves the eggs and flesh of the animals, either as food or for medicinal purposes as well as pet trade. The eggs are mainly from the River Terrapin *Batagur baska*, Painted Terrapin *Callagur borneoensis*, the softshell turtles Asiatic Softshell Turtle *Amyda cartilaginea*, Malayan Softshell Turtle *Dogania subplana* and the Asian Giant Softshell Turtle *Pelochelys bibroni*. The flesh are taken from species like Asian Box Turtle *Cuora amboinensis*, Giant Asian Pond Turtle *Heosemys grandis*, Malayan Softshell Turtle *Dogania subplana*, Asiatic Softshell Turtle *Amyda cartilaginea*, Asian Brown Tortoise *Manouria emys*, Black Marsh Turtle *Siebenrockiella crassicollis* and smaller numbers of Asian Leaf Turtle *Cyclemys dentata*.

The more attractive species of chelonians, especially juveniles of semi-aquatic turtles and tortoises are often found in local and international pet trade. Juveniles of Spiny Turtle *Heosemys spinosa*, Malayan Flat-shelled Turtle *Notochelys platynota* and the Elongated Tortoise *Indotestudo elongata* are attractive in shape and colour and therefore make interesting pets. However, it appears that the diversity of species available in the pet trade is low. The most commonly sold species is the Asian Box Turtle *Cuora amboinensis*. Turtles are also exhibited in zoos, parks and other recreational areas. Some of these, especially the "turtle temples" in Perak, also serve as turtle depositories for people who believe that the act of rescuing a turtle and sending it to a temple will bring them good fortune or long life. Asian Box Turtle *Cuora amboinensis*, Giant Asian Pond Turtle *Heosemys grandis* and the Red-eared Slider *Trachemys scripta elegans* are found in abundance in concrete ponds in these temples. Unfortunately, even terrestrial species like the Asian Brown Tortoise *Manouria emys* can also be found in these ponds. These ponds are often over-crowded with turtles and husbandry conditions are deplorable.

Most of the species found in domestic markets are from the wild. Small-scale farming of Chinese Softshell Turtle *Pelodiscus sinensis*, a non-native species, was observed in Perak as well as other states in the Peninsula. This species is supplied to local restaurants and Chinese pet shops for food and pet trade. However, the accidental release of these animals into the wild can be expected and may have undesirable consequences for local habitats and species. It cannot be ascertain if native species are being farmed in the country. The only native species that is bred in captivity is River Terrapin *Batagur baska*. PERHILITAN manages captive breeding facilities for the species in Perak (Bota Kanan), Terengganu (Bukit Paloh) and Kedah (Bukit Pinang). The Bota Kanan Terrapin Sanctuary was established in 1968, whilst both the Bukit Pinang and Bukit Paloh breeding facilities were set up in 1982. Initially, all three facilities merely functioned as hatcheries. Large concrete pools were subsequently designed and hatchlings were retained for the purposes of captive breeding. All the eggs are purchased from licensed egg collectors who harvest the eggs from the wild.

Peninsular Malaysia exports large number of chelonian species. However, the only records available are for the three CITES listed species, Asian Brown Tortoise *Manouria emys*, Impressed Tortoise *Manouria impressa*, and Elongated Tortoise *Indotestudo elongata*. The main importers from records available from 1990 to 1993 are Japan and USA, in which both countries account for 6,707 individuals or 95.24% of the tortoises exported from the country in the three years. There is evidence that Peninsular Malaysia also exports to Hong Kong and Singapore. Some exotic species are also imported into the country to serve the local pet trade and for display in recreational areas (zoos, parks and gardens).

The highest diversity of exotic species can be seen at the Taman Hibiscus dan Reptilia, Bukit Jambul, Penang. The imports come from Bangladesh, South America, Seychelles and Tanzania among others. The species imported in small numbers, possibly for private collection as no re-exports are recorded are: softshell turtle i.e. Indian Softshell Turtle *Aspideretes gangeticus* and Peacock Softshell Turtle *Aspideretes hurum*, Mata-mata *Chelus fimbriatus* (a South American species) for sale for RM 200 (US$ 77), Aldabran Giant Tortoise *Aldabrachelys elephantina*, 150 Leopard Tortoises *Geochelone pardalis*, 150 African Pancake Tortoises *Malacochersus tornieri* and 150 Bell's Hinge-back Tortoises *Kinixys belliana* were imported into the country (DWNP, 1991). Hatchlings of the Red-eared Slider *Trachemys scripta elegans* are currently imported into the country by the hundreds to serve the local pet trade. More recently there has been several local pet shops selling the Indian Star Tortoise *Geochelone elegans*.

Eggs retailers sell the eggs of mainly Painted Terrapin *Callagur borneoensis*, and River Terrapin *Batagur baska* for up to RM1.60 (US$0.59). The price sold to the government for their captive breeding and hatchery operations are at market price mainly. In Terengganu, in 1992, 1993 and 1995, the value of eggs of Painted Terrapin *Callagur borneoensis* was valued at RM18,944.70 (US$7,285). At one wet market in Kuala Lumpur, the weekly sale of meat from just one species Asiatic Softshell Turtle *Amyda cartilaginea* was estimated at RM350-RM560 (US$135-US$215).

The Protection of Wildlife Act, 1972 (Amendment 1990), covering Peninsular Malaysia only, does not include the protection of fishes, turtles and amphibians. The Fisheries Act, 1963 (Federal statute) allowed for the control of the exploitation of inland fisheries and turtles to be a prerogative of the various States. This right to set rules and regulations was mainly for marine turtles and Painted Terrapin *Callagur borneoensis*. The amended Fisheries Act, 1985, provides for similar action to be taken by the various States. This new act has been adopted by the following States: Melaka, Perak, Penang, Perlis, Johore, Kedah and Negeri Sembilan.

Currently, freshwater turtles are afforded some form of protection in the various States in Peninsular Malaysia. Most state laws regulate the collection of Painted Terrapin *Callagur borneoensis* and River Terrapin *Batagur baska* eggs through a licensed egg collection system. Adult terrapins of both species are also protected and it is illegal to kill, harm, injure or possess both Painted Terrapin *Callagur borneoensis* and River Terrapin *Batagur baska*. There is therefore an urgent need to review all current state and federal legislation that relates to the trade, use and conservation of tortoises and freshwater turtles in Peninsular Malaysia. Adequate and comprehensive monitoring of domestic and international trade and utilisation of chelonians in trade are also urgently required. Enforcement personnel from PERHILITAN and Customs would also benefit greatly from an identification guide of turtle species in trade and native to Malaysia. While all the above priorities need to be addressed, it is important for PERHILITAN, in cooperation with other agencies and organisations to conduct field surveys to determine and establish distribution, population sizes, quantify threats and assess the overall conservation status of all species.

INTRODUCTION

Turtles (generally meant to include tortoises, terrapins, softshell turtles and marine turtles) are reptiles belonging to the order Chelonia (Testudines). The order includes approximately 240 species world-wide ranging from the enormous Leatherback Turtle *Dermochelys coriacea* which may reach 2.5 metres in length and weigh up to 1000 kg, to the small Kinosternid turtle *Sternotherus* spp. (rarely > 12cm carapace length). With the exception of the seven extant species of marine turtles, all other chelonian species are loosely grouped as either freshwater turtles or tortoises.

Peninsular Malaysia is home to a rich and diverse assemblage of non-marine chelonians. Some three families (Bataguridae, Testudinidae and Trionychidae) and 18 species are found, inhabiting an array of habitats (Table 1). The batagurids are the most diverse with 11 species. The most aquatic among the batagurids are the three species of hard-shelled river turtles: Painted Terrapin *Callagur borneoensis*, River Terrapin *Batagur baska* and Malaysian Giant Turtle *Orlitia borneensis*. The remaining members of this family are generally amphibious in nature, although some are more terrestrial than others. The Spiny Turtle *Heosemys spinosa* for example is normally found in hilly forests. The three species of testudinids (tortoises) in the Peninsula are forest dwelling and are strictly terrestrial. The Asian Brown Tortoise *Manouria emys*, however, is known to spend much time close to forest streams. The four species of trionychids (softshell turtles) generally inhabit rivers and forest streams.

Dionysius Sharma

Malayan Flat-shelled Turtle
Notochelys platynota

While several species are more widespread in the Peninsula and are quite abundant e.g. Asian Box Turtle *Cuora amboinensis* and the Black Marsh Turtle *Siebenrockiella crassicollis*, others are more restricted in their distribution. Boulenger (1912) reported that Asian Box Turtle *Cyclemys amboinensis* (= *Cuora amboinensis*) and Malayan Flat-shelled Turtle *Cyclemys platynota* (= *Notochelys platynota*) were the most commonly seen of the Malayan tortoises. Although this may have been true in the past, the Malayan Flat-shelled Turtle *Notochelys platynota* is rarely seen nowadays. Certain species are able to adapt in man-made habitats. Asian Box Turtle *Cuora amboinensis*, Giant Asian Pond Turtle *Heosemys grandis* and Black Marsh Turtle *Siebenrockiella crassicollis* for example are commonly found in rice fields. Asian Box Turtle *Cuora amboinensis* is also commonly encountered in swampy areas and streams in rubber and oil palm plantations.

Some species are less adaptable and a notable example is the Impressed Tortoise *Manouria impressa*. The Impressed Tortoise *Manouria impressa* is found in forests at high altitudes within the Main Range and is generally limited to the northern half of the Peninsula. Similarly, the rare Malayan Snail-eating Turtle *Malayemys subtrijuga* and the Temple Turtle *Hieremys annandalii* are limited to swampy habitats in the extreme northern parts of the country. Malayan Snail-eating Turtle *Malayemys subtrijuga* is fairly abundant in rice fields in the State of Perlis, the northernmost state in Peninsular Malaysia. The Giant Asian Pond Turtle *Heosemys grandis* is also fairly restricted as this species is not known to occur south of Selangor while the Malaysian Giant Turtle *Orlitia borneensis* occurs only in large water bodies and rivers in the southern States

of Peninsular Malaysia. Not all species of tortoises and freshwater turtles are exploited in the same magnitude or for the same purpose. Whilst some species can be easily hand picked from their natural habitats others are more cryptic in their behaviour and therefore are more difficult to collect. Seasonal and habitat-specific nesting turtles are the main species prone to be exploited for their eggs due to their predictable nesting habits. The harvest and consumption of marine turtle eggs has been a long tradition in the country amongst coastal communities. Likewise, the eggs of the seasonal-nesting River Terrapin *Batagur baska* and the Painted Terrapin *Callagur borneoensis* are harvested for human consumption. While both these terrapins are river dwelling, the former nests on sand banks upriver and the latter normally on coastal beaches. The harvest of terrapin eggs is legal in the country through a license agreement with the respective State management authorities. Eggs of softshell turtles e.g. Asiatic Softshell Turtle *Amyda cartilaginea*, Malayan Softshell Turtle *Dogania subplana* and Asian Giant Softshell Turtle *Pelochelys bibroni* are harvested for consumption by coastal and riverine dwellers rather opportunistically. The eggs of these species are difficult to locate since there are no communal nesting grounds and are therefore less prone to exploitation.

Apart from the eggs, the flesh of tortoises and freshwater turtles is also eaten in Peninsular Malaysia. Consumption of the flesh of species like Asian Box Turtle *Cuora amboinensis*, Giant Asian Pond Turtle *Heosemys grandis*, Malayan Sotshell Turtle *Dogania subplana*, Asiatic Softshell Turtle *Amyda cartilaginea* and Asian Brown Tortoise *Manouria emys* is in some instances purely for food, especially among aboriginal people. In other instances, turtles are eaten for their supposed medicinal value (mainly among Malaysian Chinese). The species most commonly hunted for their flesh are the softshell turtles. The widespread Asiatic Softshell Turtle *Amyda cartilaginea* for example is caught from rivers, ponds, swamps and streams and frequently sold in Chinese restaurants, where herbal preparations are made. Several semi-aquatic species are sold for their flesh in so-called 'pet shops'. These shops sell a variety of animals as pets (for example dogs, birds, cats and aquarium fish) according to their trade licence but also sell animals for their meat (for example freshwater eels, freshwater turtles and quail). Large quantities of Asian Box Turtle *Cuora amboinensis* and Black Marsh Turtle *Siebenrockiella crassicollis* and smaller numbers of Asian Leaf Turtle *Cyclemys dentata* are offered for sale daily in these 'pet shops' in Malaysia's capital city, Kuala Lumpur.

Table 1

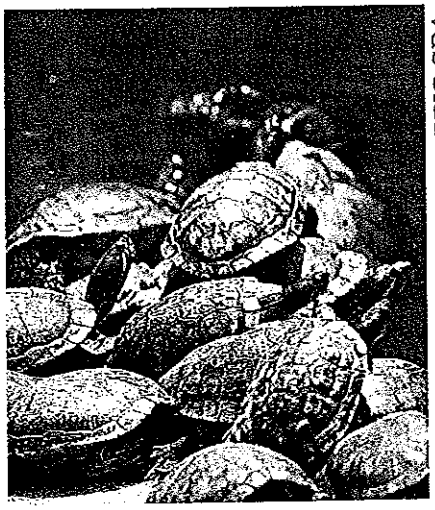
Freshwater turtles and tortoises in Peninsular Malaysia: species, habitat and distribution.

Species	Common name	Habitat	Distribution
Emydidae			
Batagur baska	River Terrapin	Rivers	Several large rivers in the Peninsula
Callagur borneoensis	Painted Terrapin	Rivers	Medium to large rivers through throughout the Peninsula
Orlitia borneensis	Malaysian Giant Turtle	Rivers, lakes	Southern half of the Peninsula
Heosemys grandis	Giant Asian Pond Turtle	Swamps, rice fields, ponds	More abundant in northern half of the Peninsula
Heosemys spinosa	Spiny Turtle	Forested hills, streams	Widespread
Cyclemys dentata	Asian Leaf Turtle	Streams, forests	Widespread
Cuora amboinensis	Asian Box Turtle	Swamps, ponds, rice fields streams	Widespread
Hieremys annandalii	Temple Turtle	Swamps	Extreme north of the Peninsula
Notochelys platynota	Malayan Flat-shelled Turtle	Streams, rivers	Widespread
Malayemys subtrijuga	Malayan Snail-eating Turtle	Swamps	Extreme north of the Peninsula
Siebenrockiella crassicollis	Black Marsh Turtle	Swamps, rice fields, ponds	Widespread

Testudinidae			
Manouria emys	Asian Brown Tortoise	Forests	Widespread
Manouria impressa	Impressed Tortoise	Upland forests	Limited to upland forests in the Main Range and upland areas in Kelantan
Indotestudo elongata	Elongated Tortoise	Forests	Lowland and upland forests
Trionychidae			
Amyda cartilaginea	Asiatic Softshell turtle	Rivers, ponds, streams	Widespread
Dogania subplana	Malayan Softshell Turtle	Forest streams, rivers	Widespread
Chitra indica	Narrow-headed Softshell Turtle	Rivers	Poorly known
Pelochelys bibroni	Asian Giant Softshell Turtle	Rivers	Widespread

The more 'attractive' species of chelonians, especially juveniles of semi-aquatic turtles and the tortoises, are often found in the local or international pet trade. Juveniles of Spiny Turtle *Heosemys spinosa*, Malayan Flat-shelled Turtle *Notochelys platynota* and the Elongated Tortoise *Indotestudo elongata* are attractive in shape and colour and therefore make interesting pets. Aboriginal people are paid by traders to hunt tortoises to cater for the international pet trade demand (Jasmi b. Abdul, *pers. comm.*, 25 June 1994).

Turtles are also exhibited in zoos, parks and other recreational areas to fulfil the curiosities of people; and also for educational purposes. The 'turtle temples' in Penang and Perak (Ipoh) are a popular tourist attraction. Visitors are encouraged to buy 'kangkong' (*Ipomea* spp.) from the temple caretakers to feed the captive turtles. These temples also serve as turtle depositories for people who believe that the act of rescuing a turtle (e.g. picking it up from a road) and sending it to a temple will bring them good fortune or long life. Asian Box Turtle *Cuora amboinensis*, Giant Asian Pond Turtle *Heosemys grandis* and the Red-eared Slider *Trachemys scripta elegans* are found in abundance in concrete ponds in these temples. Unfortunately, even terrestrial species like the Asian Brown Tortoise *Manouria emys* can also be found in these ponds. These ponds are often over-crowded with turtles and husbandry conditions are deplorable. Most temple authorities report that the ponds are cleaned once in several weeks and that numerous animals are found dead during these clean-ups.



TRAFFIC SEA

Chelonians at Kek Lok Si Temple, Penang

There is generally inadequate legislation in the country to properly manage and conserve chelonians. The Fisheries Act, 1985, which covers only Peninsular Malaysia, allows for the various states to draw up 'Rules and Regulations' with regard to turtles and inland fisheries. In line with this, several State enactments' afford some form of protection to marine and freshwater turtles and their eggs. The system of issuing licenses to prospective egg collectors, which is allowed under some of these state enactments, unfortunately, favours regulated exploitation with limited emphasis on conservation. The Protection of Wildlife Act, 1972 (Amendment 1990), which is only applicable in Peninsular Malaysia, does not provide any form of protection to the 18 species of non-marine chelonians. Trade and hunting of wild tortoises and certain semi-aquatic species for the international pet trade, particularly species listed in the Appendices of CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) i.e. Asian Brown Tortoise *Manouria emys*, Impressed Tortoise *Manouria impressa*, Elongated Tortoise

Indotestudo elongata and River Terrapin *Batagur baska*, is regulated by the Department of Wildlife and National Parks (PERHILITAN). All other freshwater turtles and tortoises are exploited without limitation.

The main problems regarding the conservation and management of freshwater turtles and tortoises and the major threats to their long-term of survival in Peninsular Malaysia are:

- loss or degradation of nesting habitats of coastal and riverbank nesting species;
- alteration, degradation or conversion of natural habitats (e.g. freshwater swamps, mangroves) inhabited by semi-aquatic species;
- harvest and consumption of eggs of seasonal nesting species;
- over-harvesting for food (especially softshell turtles);
- inadequate Federal and State legislation to properly manage and protect the various species; and
- lack of knowledge on species biology for proper management and conservation.

While natural habitats are being degraded or converted to other land-use forms rapidly, it is inevitable that harvesting of freshwater turtles and tortoises from remaining natural habitats may increase to supply the demand. This requires monitoring over the long-term to assess the impacts on the various species. Localised and moderate utilisation of these chelonians may be possible if sustainable harvest rates are determined, if at all these are likely. Short-sighted commercial interests often result in harvesting of animals beyond any acceptable limits, especially if there is a strong market demand.

This report is not a result of an exhaustive literature review and extensive field data collection. It is rather a compilation of information from available literature, the author's experience studying chelonians, anecdotal information gathered and additional short field surveys from May to October 1994. Nevertheless, the data compiled provide a preliminary insight into the trade and utilisation of freshwater turtles and tortoises in the Peninsula. The recommendations made for future research, monitoring, management and improving legislation are intended to address the gaps in our knowledge and to improve local conservation efforts. It is envisioned that this report will stimulate relevant Federal and State authorities to take the necessary conservation action required to conduct further in-depth studies on turtle population status and the impacts of commercial trade on the different species. This is to ensure that turtles can be properly managed and conserved based on sound data and that localised extinctions do not occur in the foreseeable future.

A draft of this report formed one of a series of national studies used to compile the TRAFFIC *Species in Danger* Series report entitled "Tortoise and Freshwater Turtles: The Trade in Southeast Asia".

OBJECTIVES AND METHODOLOGY

The main aim of this project was to collect information on the use of and trade in tortoises and freshwater turtles in Peninsular Malaysia. This was conducted in conjunction with an on-going series of studies being undertaken by the author for WWF Malaysia. It is intended that this

report be used to set priorities for further research on freshwater turtle and tortoise populations and to assess the impacts of trade on these reptiles. It will also function as a basis for the development of recommendations to governments in the region regarding international trade in turtles and the need for appropriate management and conservation measures.

Objectives

The objectives of the project were:

- to document the nature and scale of domestic trade in and utilisation of tortoises and freshwater turtles in Peninsular Malaysia, including use within the country, together with any import and export trade;
- to document which species are in trade, and to identify species which may be traded at levels which may constitute a conservation threat; and,
- to document the economic value of the tortoise and freshwater turtle trade in Peninsular Malaysia.

Methods

The main methods of data collection and research were:

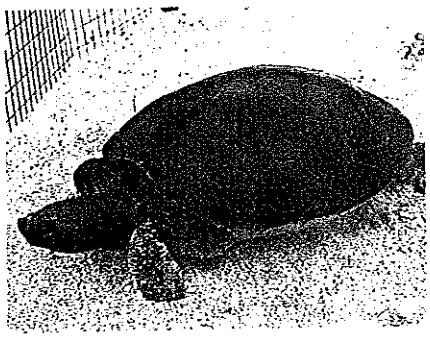
- compiling existing information from readily available published materials;
- discussions with individuals familiar with Malaysian turtles;
- survey of pet shops, zoos, parks and recreational areas in Terengganu, Melaka, Selangor, Federal Territory, Perak and Penang (from May to October 1994); and
- survey of several markets and Chinese restaurants in Kuala Lumpur, Terengganu (Dungun, Paka, Kuala Terengganu) and Petaling Jaya (from May to October 1994);
- to review trade volumes in CITES listed species from annual reports produced by the Department of Wildlife and National Parks, Peninsular Malaysia;
- to review available price lists of Peninsular Malaysian species in foreign trade (from internet sources); and,
- unpublished information based on previous observations by the author.

TRADITIONAL, CULTURAL AND RELIGIOUS USE OF CHELONIANS

Malaysian chelonians may have been eaten by aboriginal peoples for hundreds of years. Since these animals are defenceless, they may have been relatively easy to catch and may have been important in providing the animal protein in aboriginal diets. Amongst these peoples, the tradition of restricting the eating of tortoises or freshwater turtles to certain times of the year may have been linked to some fore-sighted conservation practise. Skeat and Blagden (1906), report that at certain times of the year, eating of the flesh of `kura-kura' (Asian Box Turtle *Cuora amboinensis*), `baning' (Asian Brown Tortoise *Manouria emys*), `biuku' (Malayan Flat-shelled

Turtle *Notochelys platynota*) and `jahuk' is forbidden among the Jakuns. Evans (1916) noted that the women of the Central Sakai of Kubu may not eat `baning'.

Turtles and their eggs would have been a good source of protein to native peoples. Turtle eggs may have been especially important to coastal and riverine peoples (Siow and Moll, 1981). The introduction of the Islam religion some 500 years ago may have reduce consumption as the religion disallows the eating of the flesh of any kind of amphibious animal. This includes terrapins and softshell turtles, whose gravid females leave their aquatic environment in search of sand banks to nest. There is no prohibition, however, on the consumption of turtle eggs. In fact, turtle eggs are considered a delicacy and an aphrodisiac by some Malaysians of various races. The most harvested freshwater turtle eggs are that of River Terrapin *Batagur baska* and Painted Terrapin *Callagur borneoensis*. These turtles are easy targets as they nest seasonally, mainly along coastal beaches and river sand banks. Moll (1990) reports that River Terrapin *Batagur baska* is uncommon south of the State of Selangor and that Painted Terrapin *Callagur borneoensis* is more widespread in occurrence. The main, although not exclusive, consumers of these eggs are coastal communities which harvest Painted Terrapin *Callagur borneoensis* eggs along with those of marine turtles. People come from as far as Singapore to Terengganu (a state on the east coast of Peninsular Malaysia) in search of turtle eggs.



River Terrapin *Batagur baska*, River Terrapin Breeding Centre, Bota Kanan, Perak

The River Terrapin *Batagur baska* population in the Perak river has had a long tradition of exploitation. In 1915, the 'River Rights Enactment' passed by the Perak State Government gave the Ruler of the State sole and exclusive rights to harvest turtle eggs (of the genera *Orlitia*, *Callagur*, *Batagur*, or *Hardella*) from designated areas and prevented anyone from killing turtles. Certain fishing traps including 'bubu jatuh' and 'pengilu' which may have been efficient in trapping river turtles were banned in the same enactment. This was, however, restricted to the period 'from and including the first day of the month Moharram (Muharam) to and including the last day of the month Jemad Alawal (Jamadil Awal) in any year'.

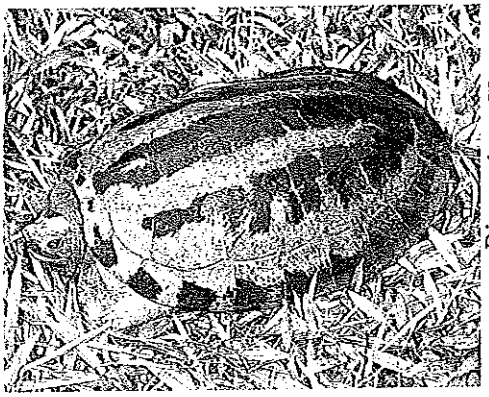
The decline in turtle numbers began during the Japanese occupation (World War II) when adult turtles were caught by the hundreds for food. The state of decline has been well documented by Loch (1951), Mohammad Khan (1964), Moll (1978a, 1980) and Siow and Moll (1982). More recently, Moll (1990) estimated the Perak River River Terrapin *Batagur baska* population to contain only 307-923 nesting females.

Although Painted Terrapin *Callagur borneoensis* is widespread in Peninsular Malaysian rivers, nesting populations are extremely small. Only the Setiu and Paka Rivers in Terengganu, may have more than 100 nesting females. The Setiu River is estimated to contain at least 179 to 193 breeding females (Moll, 1978; Sharma, 1994a) while the Paka River population is estimated to contain at least 80 nesting females (Sharma, 1994c). Turtles are quite prominently displayed in some Chinese temples in Penang and Ipoh, Perak. The turtles are housed in artificial ponds for the amusement of tourists, temple devotees and to fulfil some religious beliefs. The most popular temples are the Sam Poh Tong in Ipoh and the Kek Lok Si in Penang. A Chinese employee at the Sam Poh Tong Temple in Ipoh, Perak, reported that there is no special significance for keeping turtles at the temple and there was no connection between turtle keeping and the Buddhist religion. Smith (1933) made similar observations regarding this. Nevertheless, some Buddhists (Kiew, 1984) consider it an act of benevolence to send a turtle to the temple as this will prevent it

from being eaten by someone else. Some Chinese paint turtles with red paint prior to release as a sign that the turtle had been set free and should not be caught for food by someone else. Some Buddhists also offer up prayers seeking blessing, or that their ill luck to be taken away, in releasing a turtle. Moll (1976a) reports being informed that the act of finding a turtle and delivering it to a temple is considered as having saved a life, the reward being good fortune and long life. Smith (1933) was, however, informed that the merit of this act is only gained in the next world. With regard to this, Burkill (1966) was of the opinion, nevertheless, that tortoises are used merely as 'scape-goats' by the Chinese who write a wish or a pious phrase on the carapace, believing that the animals carry away their misdeeds. Devotees or visitors to the turtle temples in Ipoh, Perak or Penang may buy kangkung *Ipomea reptans* to be fed to the turtles.

The only record of malicious use of tortoises or turtles is reported by Gimlette (1913). Apparently, a tortoise may be boiled in water with a cobra to form a gummy fluid. This may be smeared on the forehead of the person to be annoyed, during sleep. It is believed to cause baldness, and even death, if no counter-spell is used.

The wearing of a tortoise carapace over the pudenda by a Jakun girl as described by Evans (1915) may be an isolated case of the use of a tortoise carapace in this manner. Burkill (1966), however, reports the use of a carapace as a gong by the Malays. A ring may also be made out of the carapace for use as the mouth piece of a blow-pipe. The shell of an adult female Painted Terrapin *Callagur borneoensis* used as a decorative piece was observed in a village garden in Melaka.



Dionysius Sharma

Adult male Painted Terrapin
Callagur borneoensis in non-breeding colour.

CHELONIANS AS FOOD AND MEDICINE

The earliest account of softshell turtles being eaten in Peninsular Malaysia comes from Cantor (1847). He reports that the Chinese relish Narrow-headed Softshell Turtle *Chitra indica* and Asiatic Softshell Turtle *Amyda cartilaginea* as food. Burkill (1966) noted that Asian Brown Tortoise *Manouria emys* and Asiatic Softshell Turtle *Amyda cartilaginea* is good for food, although the latter has coarse flesh. Asian Brown Tortoise *Manouria emys* was described as being an easy prey by Smith (1933) as "it frequents streams and is killed by natives for its flesh whenever met". Contrary to Burkill (1966), Pan (1990a) mentions that Asiatic Softshell Turtle *Amyda cartilaginea* and Malayan Softshell Turtle *Dogania subplana* are the most widely eaten softshells in Peninsular Malaysia, whereas Asian Giant Softshell Turtle *Pelochelys bibroni* is the species that is not considered a delicacy due to its tough meat. On the contrary, Moll (1985) found that the Chinese relish the meat of Asian Giant Softshell Turtle *Pelochelys bibroni*. This is not to be the case in Terengganu. Several Chinese anglers questioned in Terengganu informed that whenever caught on the hook, Asian Giant Softshell Turtle *Pelochelys bibroni* is always released. The meat of this species was described as being not tasty. The preferred softshells are Asiatic Softshell Turtle *Amyda cartilaginea* and Malayan Softshell Turtle *Dogania subplana*.

According to Dr. Ong Hean Chooi (*pers. comm.*, 1994), an ethnobotanist at the University of Malaya, aboriginal people (Orang Asli) in Peninsular Malaysia consume turtles and tortoises mainly for food, and not for any medicinal value. Freshwater turtles are normally probed for in the mud and sand when the waters are low or are speared from a perahu (dugout) in clear

swamps and rivers (Moll, 1976a). Preparation is simple; the plastron is opened and the intestines removed, cleaned, salted, and then replaced. The turtle is then placed on an open fire until cooked. It has also been reported that natives living near Gombak Forest Reserve, Selangor, eat several species of freshwater turtles (Bah Tera, *pers. comm.*, 1993). The species which occur there include Malayan Softshell Turtle *Dogania subplana* and Spiny Turtle *Heosemys spinosa*. Whilst the capture of Malayan Softshell Turtle *Dogania subplana* may be easy with hook and line, capture of Spiny Turtle *Heosemys spinosa* would surely be incidental.

There are some Chinese restaurants that sell softshell and Asian box turtle meat in Terengganu (Kuala Terengganu and Dungun), Melaka, Perak (Ipoh) and in Petaling Jaya.

Freshwater turtle eggs are probably eaten in various ways amongst the different consumers. Eggs are known to be eaten with pullet (glutinous) rice or eaten with wild honey (Moll, 1976b). In Terengganu, the coastal communities believe that terrapin eggs have medicinal value. Some go as far as to say that the eggs may be taken as an aphrodisiac. Some elderly villagers at Paka, Terengganu mentioned that the eggs of Asian Brown Turtle *Manouria emys* are also edible. They apparently find eggs occasionally whilst working in the forest or looking for non-commercial forest produce. The eggs of Asian Giant Softshell Turtle *Pelochelys bibroni* are eaten by Malays living along the Perak River (Sahir b. Othman, *pers. comm.*, 1994) and Terengganu River (Yunus b. Hj. Taib, *pers. comm.*, 1993).

Turtle soup (without reference to which species) has been used in Singapore as a 'hot food' for curing and strengthening the body (Wu, 1979). The meat and cartilaginous portions of the shell of Asiatic Softshell Turtle *Amyda cartilaginea* may be boiled with a variety of herbs, including ginseng, into a delicious soup (Moll, 1976a). Hardshell turtles is also reported eaten steamed with Chinese herbs (Moll, 1976a). The carapace of terrapins, boiled with vinegar to form a jelly, may be used to cure fevers, debility, and acute rheumatism (Hooper, 1929). The carapace may also be burned, powdered, and used as a cure for sores or given to parturient women (Burkill, 1966). A summary of the published and unpublished known uses of tortoises and freshwater turtles in food and medicine in Peninsular Malaysia is provided in Appendix 6.

RESULTS

Local pet trade

Historically, the culture of rearing reptiles as pets, as is popular in Europe and America, has not been common in Malaysia. However, in recent years, there seems to be a growing interest in keeping these animals amongst other reptiles. This may be due to the current availability of attractively coloured juvenile turtles, for example, the Red-eared Slider *Trachemys scripta elegans* and the Indian star tortoise *Geochelone elegans* in numerous pet shops around the country. Whilst certain Malaysian Chinese keep turtles as a symbol of longevity, the rearing of turtles is considered to bring ill luck by the Malaysian Indian community. The Malays are similarly not known to rear turtles as pets in the past.

Out of the 26 pet shops surveyed (between May to October 1994) in Penang, Perak (Ipoh and Taiping), Melaka, Terengganu (Kuala Terengganu) and Kuala Lumpur, 12 (46%) of these offered turtles for sale. The diversity of species available in the pet trade, however, appears to be very low. The most commonly sold native species was Painted Terrapin *Cuora amboinensis*, appearing in five (42%) of the 12 shops visited. In the wild, this turtle is by far the most common of the 15 species of freshwater turtles found in the country. The imported Red-eared Slider *Trachemys scripta elegans* was for sale in 10 (83%) of the 12 shops. Both juveniles and adults were on sale. Whilst juveniles were on sale by the hundreds and presumably came from foreign farms, the few adults on sale were mainly those caught from the wild, presumably released by pet owners or

escapees. Several pet shop owners in Kuala Lumpur reported that both the Asian Box Turtle *Cuora amboinensis* and adult Red-eared Slider *Trachemys scripta elegans* are bought by Chinese not as pets but for food and medicinal value.

In so-called Chinese 'pet-shops', where turtles are purchased primarily for food and medicine, and rarely as pets, Moll (1976a) recorded eleven (out of 18) species being sold. In a subsequent survey, Moll (1987) found that only Asian Box Turtle *Cuora amboinensis*, Black Marsh Turtle *Siebenrockiella crassicollis* and Giant Asian Pond Turtle *Heosemys grandis* were common. Based on results from the present study, there seems to be a general lack of variety of chelonians for sale compared to that reported by Moll (1976a, 1987). Moll (1987) expressed concern that species like Asiatic Softshell Turtle *Amyda cartilaginea*, Asian Leaf Turtle *Cyclemys dentata*, Spiny Turtle *Heosemys spinosa*, Malayan Flat-shelled Turtle *Notochelys platynota* and Asian Brown Tortoise *Manouria emys* which were seen more abundantly in 1976, were absent in his 1987 survey. While Moll recorded 11 and nine species in his initial and subsequent surveys respectively, only five species were seen in the present study. Notably absent were Spiny Turtle *Heosemys spinosa* and Malayan Flat-shelled Turtle *Notochelys platynota*.

C. Shepherd/TSEA

Asian Leaf Turtle *Cyclemys dentata*

Nevertheless, it is possible that the variety of species and quantity on sale may vary throughout the year depending on the suppliers and availability of wild specimens. Several pet shop owners reported that they acquire more turtles from traders during the rainy seasons (October-January). The author previously observed Asian Box Turtle *Cuora amboinensis*, Black Marsh Turtle *Siebenrockiella crassicollis*, Asian Leaf Turtle *Cyclemys dentata*, Giant Asian Pond Turtle *Heosemys grandis*, Spiny Turtle *Heosemys spinosa* and Asiatic Softshell Turtle *Amyda cartilaginea* for sale in a Chinese 'pet shop' in Petaling Street, Kuala Lumpur on several occasions in 1990. Pan (1990a) reported that Asian Leaf Turtle *Cyclemys dentata*, which is not commonly found in the wild, may appear in fair numbers in pet shops, depending on the season. During any one visit, though, only two or three species were available for sale during the present study.

The number of each individual species available was usually between 10-30 animals. Pan (1990a), however, reports seeing hundreds of Giant Asian Pond Turtle *Heosemys grandis* for sale in a pet shop in Kedah. This species is abundant in the northern states of Peninsular Malaysia, and are common in man-made habitats such as rice fields and irrigation canals.

Due to the fact that species may appear in the market seasonally, it is obvious that a solitary visit to any one pet shop is not a good indicator of the variety nor quantity of species sold. Five pet shops in Petaling Jaya and Subang Jaya which were visited on numerous occasions between 1990-1994 often had only Red-eared Slider *Trachemys scripta elegans* for sale and no native species. Comments by Moll (1987) and observations during this study indicate that either populations of various species have declined or a more lucrative foreign trade has developed over the years. Between 1990 and 1994, hatchlings of the Chinese Softshell turtle *Pelodiscus (Trionyx) sinensis* (an exotic species) were occasionally seen on sale, presumably bred in local farms. Several farms that specialise in breeding these turtles are now found in Peninsular Malaysia. Softshell turtles bred in these farms are predominantly exported to Taiwan and China for human consumption. Only on one occasion, in 1991, was a juvenile Asiatic Softshell Turtle *Amyda cartilaginea* for sale at RM 30 (approximately US$ 11) in a shop in SS2 Petaling Jaya. The owner of the shop reported that this species is not commonly sold and availability is based on the

incidental capture of this species during collection of freshwater fish from the wild. A pet shop in Petaling Street, Kuala Lumpur, always had a good supply of Asian Box Turtle *Cuora amboinensis* and Black Marsh Turtle *Siebenrockiella crassicollis* on sale for food (only large juveniles and adults were on sale). Sack loads (at least 30-40 animals) of both species have been observed to arrive in the morning on several occasions. When questioned, the shop owner reported that the whole stock is normally sold off in a week, mainly to Chinese who buy these for medicinal purposes. Asiatic Softshell Turtle *Amyda cartilaginea* is another species which was seen for sale quite regularly in the same shop. Again, very small sized specimens were never seen on sale. This suggests that most animals sold were harvested from the wild and were not farm-bred. This is with the assumption that small specimens caught from the wild are released since they do not weigh much and are therefore of little commercial value.

More recently, there have been imports of the Indian Star Tortoise *Geochelone elegans* into the country for the pet trade. This tortoise was periodically seen on sale in Kuala Lumpur and Ipoh at a retail value of between RM 80 to RM 120 (US$30 to US$46) per animal. This species is increasingly becoming popular amongst reptile hobbyist in Kuala Lumpur. A full listing of pet shops surveyed and the local and foreign species of chelonians observed on sale are presented in Appendix 1.

Wet-market surveys and meat trade

Out of the three wet-markets (these are large markets that sell a wide variety of fresh produce) surveyed during the study, only the Pudu Market in Kuala Lumpur had turtle meat for sale. Whole individuals of Asian Box Turtle *Cuora amboinensis* (approximately 20) and cut up pieces of a large Asiatic Softshell Turtle *Amyda cartilaginea* were available. The meat of the Asiatic Softshell Turtle *Amyda cartilaginea* was being sold at RM5 to RM 8 (US$1.90 to US$3.10) per kilogram, depending on the age of the specimen and the portion of the animal bought. The dealer offered the entire intestines of the animal for RM 30 (US$11.50) to a prospective buyer. Asiatic Softshell Turtle *Amyda cartilaginea* was said to be on sale every day. During a second visit a week later, there were approximately 30 Asian Box Turtle *Cuora amboinensis*, 10 Black Marsh Turtle *Siebenrockiella crassicollis*, six Red-eared Slider *Trachemys scripta elegans* and at least two adult Asiatic Softshell Turtle *Amyda cartilaginea* (chopped up into small portions) for sale. Apparently Asian Leaf Turtle *Cyclemys dentata* is often available at the Pudu Market (Chai Koh Shin, *pers. comm.*, 1991) although none were observed during the current surveys. One dealer commented that he occasionally sells Asian Brown Tortoise *Manouria emys* if middlemen traders bring them in.

Asiatic Softshell Turtle *Amyda cartilaginea* is extensively collected by forest natives and sold to Chinese traders for the food market. Animals stocks in areas regularly hunted by these natives are becoming scarce. The hunters apparently sometimes organise big hunting parties to hunt in new and distant areas, away from those that have been over-harvested (Chai, 1991). At a wet market in Cheras, a poultry trader stated that he occasionally sells Asian Box Turtle *Cuora amboinensis* but only brings these to the market when there has been an order. A wet market at Kepong, Selangor is also known to sell freshwater turtles (Chu Wan Loy, *pers. comm.*, 1991). Based on available information, it appears that different species may be on sale at different times of the year although Asiatic Softshell Turtle *Amyda cartilaginea* and Asian Box Turtle *Cuora amboinensis* may predominate due to relative abundance in the wild.

During his surveys of a market in Teluk Anson, (now Teluk Intan), Perak, Moll (1976a) found that the most common species sold were Asiatic Softshell Turtle *Amyda cartilaginea* and Asian Box Turtle *Cuora amboinensis* with Black Marsh Turtle *Siebenrockiella crassicollis* and Asian Giant Softshell Turtle *Pelochelys bibroni* showing up occasionally. Although River Terrapin *Batagur baska* and Painted Terrapin *Callagur borneoensis* were never observed on sale during the current

survey, Moll (1976b) obtained information from a 'reliable source' that 'tuntong' (the local name that is used for both species) were secretly sold in markets in Telok Intan, Ipoh, Kampar and Sg. Sekinchan, in the State of Perak. The largest wet market in Teluk Intan was visited on several occasions during the present survey but no terrapins nor any other species of turtles were seen on sale. Both species are protected either by local State laws or under provisions provided for by the Fisheries Act, 1985. If illegal sale of either Painted Terrapin *Callagur borneoensis* or River Terrapin *Batagur baska* is still ongoing, this would require investigation by the Department of Fisheries Malaysia (DoFM) and the Department of Wildlife and National Parks (DWNP). Whilst Painted Terrapin *Callagur borneoensis* is managed by DoFM, River Terrapin *Batagur baska* falls under the jurisdiction of DWNP.

Exotic freshwater turtles and tortoises can sometimes be found on sale in night markets (pasar malam). Hatchling Indian Star Tortoise *Geochelone elegans* were seen on sale for RM 80 (US$32) each at a night market at SS2 Petaling Jaya in June 1994. Night markets at Petaling Jaya (Section 17 and SS2) and Subang Jaya (SS18) frequently have hatchlings of Red-eared Slider *Trachemys scripta elegans* and Chinese Softshell Turtle *Pelodiscus sinensis* for sale. No native species were seen on sale in any of the night markets visited during this study.

Farming operations

Limited information on turtle farming was gathered during the current survey. Small scale farming of Chinese Softshell Turtle *Pelodiscus sinensis* was observed in Perak. This was mainly experimental breeding of the species at a large freshwater prawn breeding facility. Apart from this observation, another farm was reported in Muar, Johore (Kiew Bong Heang, *pers. comm.*, 1993). Farms were also reported in Selangor and Ulu Sungai, Kota Tinggi, Johore (Khairiah Mohd. Shariff, *pers. comm.*, 1994). The farm in Johore was reported to be linked up to a Singaporean trading company, dealing mainly in the import and export of turtles and freshwater fish. The incidence of people requesting for licenses to farm freshwater turtles was reported to be on the rise (Khairiah Mohd. Shariff, *pers. comm.* 1994) (Note: In Peninsular Malaysia, the Department of Agriculture and not DWNP is responsible for issuing turtle farming licenses). It was also reported that another turtle farm was in the process of being established in Raub, Pahang. Apparently the entrepreneurs intended to breed 'terrapins', although it was uncertain which species were to be bred. It was reported that there was a lucrative export market, with most turtles produced being sent to China. The turtle farm was to be a joint venture between the Malaysian company and one in China, which was to provide technical expertise on 'terrapin' breeding.

Hatchling of Chinese Softshell Turtle *Pelodiscus sinensis* were seen on various occasions on sale in Petaling Street, Kuala Lumpur and SS18, Subang Jaya in 1992. This suggests that not all young turtles produced in the country are meant for the export market. Some invariably end up in the local pet trade although their popularity amongst turtle hobbyist are uncertain. On one occasion, 12 juvenile (approximately 10-12 cm disc length) Chinese Softshell Turtle *Pelodiscus sinensis*, all packed individually in transparent holed plastic containers, were seen on sale in a Chinese pet shop in Petaling Street, Kuala Lumpur. The origin of these turtles could not be determined as the proprietors were reluctant to disclose any information when questioned. The local softshell turtle breeding farms apparently supply Chinese Softshell Turtle *Pelodiscus sinensis* both for food and for the pet trade to local Chinese restaurants and chinese pet shops (Kiew Bong Heang, *pers. comm.*, 1994)

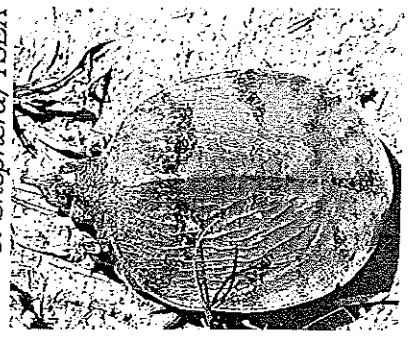
Turtle farming seems to be increasing with more interest in breeding Chinese Softshell Turtle *Pelodiscus sinensis*. Farming of non-native softshell species such as Chinese Softshell Turtle *Pelodiscus sinensis* may reduce the need to harvest native species from the wild and thus prevent over-harvesting of wild animals. This is with the assumption that there is no preference amongst consumers over the different softshell turtle meat. However, the accidental release of these

animals into the wild, either by pet owners or from the breeding farms, can be expected and there may be undesirable consequences. Chinese Softshell Turtle *Pelodiscus sinensis* has been found in the wild in Peninsular Malaysia (Dionysius Sharma, unpublished observation, 1993). It is nevertheless unknown if there are breeding populations in the wild.

Subsistence harvesting from the wild

The Muslim community in Peninsular Malaysia do not eat the meat of tortoises nor freshwater turtles as this is against their religion. There is no prohibition, however, on the consumption of eggs of these reptiles. The eggs of River Terrapin *Batagur baska*, Painted Terrapin *Callagur borneoensis* and several species of softshell turtles are eaten. Aboriginal people, nevertheless, eat the meat of tortoises and freshwater turtles as well as the eggs whenever these are found. While the harvest of softshell turtle eggs may be opportunistic, the harvest of River Terrapin *Batagur baska* and Painted Terrapin *Callagur borneoensis* eggs by riverine and coastal inhabitants are regulated by local laws through a licenced egg collection system (see section on local trade). A Temuan native friend reported that he regularly goes on 'labi-labi' (= softshell turtle)(possibly Asiatic Softshell Turtle *Amyda cartilaginea* and Malayan Softshell Turtle *Dogania subplana*) hunting trips with Chinese wildlife dealers. The turtles are sought from rivers and forest streams and the hunting parties often comb large areas to locate these reptiles. The animals are hunted by these experienced reptile collectors who use sharpened spears to kill the turtles. Apparently several large turtles (presumably adults) may be caught in a single days effort. A large specimen of Malayan Flat-shelled Turtle *Notochelys platynota* was once caught and consumed by the same Temuan native at the Ulu Gombak Forest Reserve in Selangor (Dionysius Sharma, unpublished observation, 1988). Similarly natives of the Temuan tribe in the state of Perak reported that all forest-dwelling turtle species are eaten if they are caught.

Chinese anglers that were interviewed in Kuala Terengganu and Dungun in Terengganu State, between August and September 1994, reported that softshell turtles are generally eaten or sold to Chinese restaurants whenever these are caught incidently. Nevertheless, these anglers who fished mainly in the Terengganu and Dungun rivers, reported that *Pelochelys bibroni* (called 'lesing' in Terengganu) is often released back into the rivers if caught, as the meat is apparently inferior to that of Asiatic Softshell Turtle *Amyda cartilagine* or Malayan Softshell Turtle *Dogania subplana*. Asiatic Softshell Turtle *Amyda cartilaginea* is apparently the species that is sought after by most people. During surveys of Painted Terrapin *Callagur borneoensis* at Setiu river in Terengganu between 1993-1994, it was observed that Asiatic Softshell Turtle *Amyda cartilaginea* and Malayan Softshell Turtle *Dogania subplana* were occasionally caught by local fishermen using hook and line. This was mainly from the upper reaches of the river, particularly near Kg. Banggol where the waters were usually fresh i.e. not under tidal influence. Both these species and Asian Giant Softshell Turtle *Pelochelys bibroni* occur in this river, although the latter was more frequently seen in areas under tidal influence. Numerous carcasses of Asian Giant Softshell Turtle *Pelochelys bibroni* were seen washed up on the Setiu beach or on the banks of the Setiu River between 1993-1994. These were presumably animals that were killed by local anglers or fishermen upon retrieving these reptiles on their fishing hooks.



C. Shepherd/TSEA

Asiatic Softshell Turtle *Amyda cartilaginea*

Several local Malay villagers at Setiu reported seeing weekend anglers (mainly Chinese from Kuala Terengganu, the capital of Terengganu State) frequently capture Asiatic Softshell Turtle *Amyda cartilaginea*. Captures were reportedly taken away, either for own consumption or for sale at the Kuala Terengganu or Dungun Chinese restaurants. It was also reported that an adult female Painted Terrapin *Callagur borneoensis* was caught from the Setiu River (near Fikri village) by these weekend anglers and was taken away for human consumption. During turtle surveys conducted in Setiu, Perak, Paka and Linggi Rivers by the author from 1993-1996, there were no instances of Painted Terrapin *Callagur borneoensis* or River Terrapin *Batagur baska* being captured for its meat and the above incident may have been an isolated case.

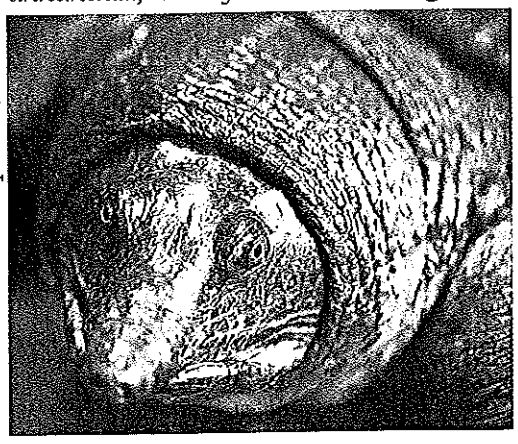
Painted Terrapin *Callagur borneoensis* and River Terrapin *Batagur baska* are protected by State Fisheries laws (in most states) in the country and law offenders are subject to fines and jail sentences. This may be an adequate deterrent to most anglers.

During a four month wildlife survey at Mata Ayer Forest Reserve, Perlis (the northernmost State of Peninsular Malaysia) in 1993, the author observed cut-up and burned shells of Spiny Turtle *Heosemys spinosa*, Giant Asian Pond Turtle *Heosemys grandis*, Malayan Flat-shelled Turtle *Notochelys platynota*, Elongated Tortoise *Indotestudo elongata* which were obviously remains from a meal. The remains of these animals were near a make-shift camp of some labourers (Thai nationals) working on a project to grow oil palm on a newly cleared forest. Several plantation workers said that tortoises and freshwater turtles are eaten whenever caught. The animal is placed over a fire to kill it and then the meat is removed, seasoned with spices, replaced in the carapace and cooked over a fire. Cooking a turtle is considered convenient as it comes with its own pot.

Species in captivity in recreational areas

The use of tortoises and freshwater turtles for display in recreational areas seems quite popular in Peninsular Malaysia. Several zoos, several recreational parks and tourist destinations were observed to exhibit turtles and tortoises. Zoo Negara in Kuala Lumpur, had the highest diversity, exhibiting 13 of the 18 native species. Zoo Melaka had the second highest diversity with eight species. The most common species observed were Asian Box Turtle *Cuora amboinensis* and Giant Asian Pond Turtle *Heosemys grandis* followed by River Terrapin *Batagur baska* and Asiatic Softshell Turtle *Amyda cartilaginea*.

The species that were not seen in any of the recreational areas were Temple Turtle *Hieremys annandalii*, Malayan Snail-eating Turtle *Malayemys subtrijuga*, Impressed Tortoise *Manouria impressa* and Narrow-headed Softshell Turtle *Chitra indica*. These species were also not seen in any of the pet shops, which may be due to the fact that they are rare in the wild. Two specimens of Malayan Softshell Turtle *Dogania subplana* and a single Asian Giant Softshell Turtle *Pelochelys bibroni* were on display in Zoo Negara and Rantau Abang Turtle Information Centre, respectively, in September 1994. While Malayan Softshell Turtle *Dogania subplana* is fairly common in forest streams, Asian Giant Softshell Turtle *Pelochelys bibroni* is not abundant anywhere. The author has recorded Asian Giant Softshell Turtle *Pelochelys bibroni* in the Setiu, Perak, Pahang and Linggi Rivers but sightings are rare. Two specimens of



C. Shepherd/TSEA

Malayan Softshell Turtle *Dogania subplana*

Malayan Snail-eating Turtle *Malayemys subtrijuga* were purchased for display at Zoo Negara in late 1993 but both died in captivity. The animals were believed to originate from Thailand (Chai Koh Shin, *pers. comm.*, 1993).

This species apparently does not do well in captivity if care is not taken to provide the right diet. The typical zoo diet for chelonians of fish and kangkong (*Ipomea reptans*) is not suitable for Malayan Snail-eating Turtle *Malayemys subtrijuga*. This species is known to feed exclusively on snails in the wild. In addition to this, the marine turtle hatchery at Pasir Panjang, Perak had three hatchling and two juvenile Painted Terrapin *Callagur borneoensis* on display in fibreglass tanks. The animals were obtained from the turtle hatchery at Padang Kemunting, Melaka.

The exotic species that was common in most recreational places visited was the Red-eared Slider *Trachemys scripta elegans*. Periodically, other species are imported but do not survive well. One specimen of Alligator Snapping Turtle *Macroclemys temminckii* was purchased for display by Zoo Melaka in 1994 but died in captivity (Zainal Zahari Zainuddin, *pers. comm.*, 1995). A full listing of foreign tortoises and freshwater turtles exhibited in local zoos, parks and other recreational areas surveyed is presented in Appendix 3.

Captive breeding programmes for native species

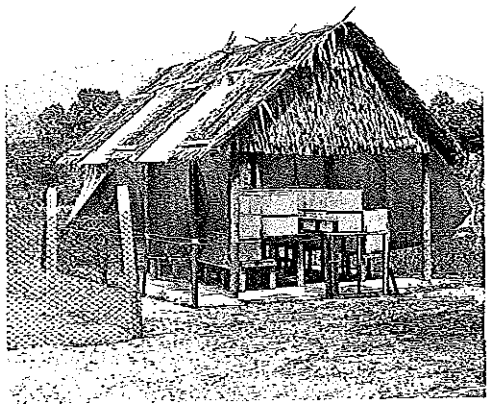
The only native species that is bred in captivity is River Terrapin *Batagur baska*. PERHILITAN manages captive breeding facilities for the species in Perak (Bota Kanan), Terengganu (Bukit Paloh) and Kedah (Bukit Pinang). The Bota Kanan Terrapin Sanctuary was established in 1968, whilst both the Bukit Pinang and Bukit Paloh breeding facilities were set up in 1982. Initially, all three facilities merely functioned as hatcheries. Large concrete pools were subsequently designed and hatchlings were retained for the purposes of captive breeding. Juveniles are segregated by age class whilst all adults are kept together to form the breeding colony. During the egg-laying season, eggs are collected from the wild by PERHILITAN staff, or purchased from licensed egg collectors at RM 1 to RM 1.30 per egg, (US$0.38 to US$0.50) for incubation. Allocations for egg purchase are provided by PERHILITAN headquarters in Kuala Lumpur. The conservation programme in Perak receives between RM3000 to RM5000 (US$1153 to US$1923) annually while the ones in Terengganu and Kedah receive between RM1000 to RM2000 (US$385 to US$769). The amount of terrapin eggs that may be purchased for conservation purposes is limited by the annual allocation.

At all the captive breeding centres today, eggs are still harvested from the wild and brought to the centres for incubation. Whilst adults are kept together in breeding pools, hatchlings and juveniles are separated by age classes and often maintained for 3-4 years prior to release. Some juveniles are annually retained for the captive breeding programme. There has only been partial success in all the breeding programmes. The captive adult population produces too few eggs. An imbalance of diet fed to the terrapins resulted in brittle-shelled eggs being produced. The problem was rectified with providing more fish to supplement calcium requirements.

More recently, large numbers of juveniles (ages 1-4 years) were dying daily from unknown fungal and bacterial infections (Razeem Mazlan, *pers. comm.*, 1994). When the breeding centre was visited in 1994, approximately 10-15 juveniles were reported dead daily. There are also numerous problems associated with the licensed eggs collection system, relocation of eggs and successful hatchling production and degradation of natural sand banks for egg relocation purposes. At Bota Kanan, overall hatching success varied between 5-72% (n=24 years) (Jasmi, 1996). Artificial sandbanks and styrofoam boxes were used at Bukit Paloh in an effort to increase hatchling success. The styrofoam box method was found to increase hatchling success (70-85%) and is currently being practised. Hatchlings are reared and either selected for the captive breeding programme or released when they are 10-24 months old.

One problem with this well-intended effort is the lack of scientific study to assess the actual success of the programme. There have been no attempts for example to conduct assessments on the survival rate of released juveniles.

Apart from management problems and technical obstacles in the hatcheries and breeding facilities, an additional major problem is the impact of the Temenggor and Chenderoh dams on the Perak River and the Kenyir dam on Terengganu River. The control of river water flow by the dams has impeded sedimentation transport. The effects of dam construction on the Perak and Terengganu rivers include the loss of nesting sand banks, colonisation of plants on the more stable sand banks, flooding of sand banks when the sluice gates are opened and unseasonal flooding (Mohd. Yunus b. Hj. Taib and Jasmi b. Abdul, *pers. comm.*, 1995). This has direct impact on the breeding programmes since wild eggs are still used annually to eestablish new batches of juveniles.



Dionysius Sharma / TSEA

Eggs incubated in styrofoam boxes, Hatchery Centre in Pasir Panjang, Perak

There are also some records of turtles breeding in recreational facilities. There has been quite some success with captive Giant Asian Pond Turtle *Heosemys grandis* in Zoo Negara (Chai Koh Shin, *pers. comm.*, 1993). Several clutches of eggs have successfully produced hatchlings. Eggs are also laid by Asian Brown Tortoise *Manouria emys* at the same zoo but these are normally destroyed by pen mates. The Taiping Zoo is currently in the process of redevelopment and is planning small enclosures to exhibit more species of chelonians in the near future (Majlis Perbandaran Taiping, 1994). As in Zoo Negara, there have been some hatchlings produced from captive *Heosemys grandis*. In addition to this, captive Asian Brown Tortoise *Manouria emys* have been laying eggs but no hatchlings have been produced (Kevin Lazarus, *pers. comm.*, 1993). The eggs were reportedly eaten by hornbills that were kept in the same enclosure. Some eggs were also reportedly predated on by monitor lizards, which are free ranging on the zoo grounds.

TRADE AND ECONOMICS

International trade

Records of international trade in Peninsular Malaysian tortoises and freshwater turtles are only available for species listed in the CITES Appendices. River Terrapin *Batagur baska* is listed in Appendix I while Asian Brown Tortoise *Manouria emys*, Impressed Tortoise *Manouria impressa* and Elongated Tortoise *Indotestudo elongata* are listed in Appendix II. PERHILITAN, which is the CITES Management Authority for Peninsular Malaysia, maintains records on the import and export/re-export of these species. From the annual national CITES reports for the years 1990, 1991 and 1993, produced by PERHILITAN, a total of 7,042 native tortoises were exported from Peninsular Malaysia during these three years (approximately 2,347 tortoises per year). This comprised 1,282 specimens of Asian Brown Tortoise *Manouria emys*, 808 specimens of Impressed Tortoise *Manouria impressa* and 4,952 specimens of Elongated Tortoise *Indotestudo elongata*. The main importers of tortoises were Japan and the USA. Together, these two countries imported 95.24% of the tortoises exported from the country in the three years. The breakdown of the imports in the three years by USA and Japan only are shown in Table 2. Details of the exports by other countries are presented in Appendix 5.

Table 2

Total exports of tortoises from Peninsular Malaysia for 1990, 1991 and 1993 to the USA and Japan.

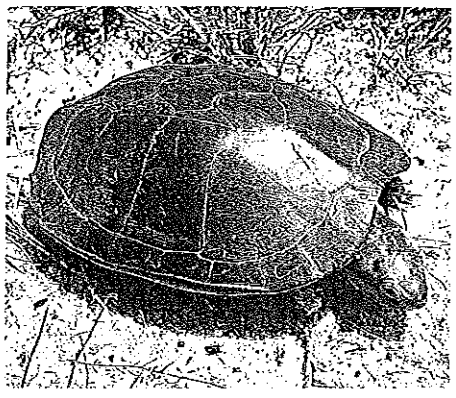
Species	USA	JAPAN	Total
Manouria emys	484	703	1,187
Manouria impressa	235	556	791
Indotestudo elongata	1,639	3,090	4,729
Total	2,358	4,349	6,707
% of total (7,042) tortoises exported to all countries (including USA and Japan)	33.48%	61.76%	95.24%

(Source: PERHILITAN Annual CITES Reports for 1990, 1991 and 1993)

The trade in tropical freshwater turtles and tortoises can be quite a profitable business. A review of available information through internet advertisements on USA reptile and amphibian pet shops reveal that several Southeast Asian turtles and tortoises species are available for purchase (Table 3). The origins of these animals are not known, i.e. specifically from which country they were bred in captivity in the USA. Similarly, a foreign investment company located in Indonesia, advertises on the advertises on the internet that it has a wide range of reptiles available for wholesale purchase, including Southeast Asian freshwater turtles and tortoises. The origins of the animals are not known although it is likely that some may be harvested from East Malaysia. Table 4 shows the various species sold and the prices quoted for wholesale purchase. Based on these figures, the total USA pet trade retail value of Asian Brown Tortoise *Manouria emys* and Elongated Tortoise *Indotestudo elongata* exported to the USA from Peninsular Malaysia in the three years can be estimated.

Table 4 shows the various species sold and the prices quoted for wholesale purchase. Based on these figures, the total USA pet trade retail value of Asian Brown Tortoise *Manouria emys* and Elongated Tortoise *Indotestudo elongata* exported to the USA from Peninsular Malaysia in the three years can be estimated. Because the purchase prices from the Malaysian exporters are unavailable, the total export value cannot be estimated. Based on the retail price of US$300-US$375 for Asian Brown Tortoise *Manouria emys*, it is estimated that 484 specimens are worth between US$145,200-US$181,500.

Similarly, at the retail price of US$100-US$300 for Elongated Tortoise *Indotestudo elongata*, 1,639 specimens would have fetched between US$163,900-US$191,700. The overall retail value would have been worth between US$309,100-US$373,200. This is approximately US$103,033-US$124,400 (RM 257,583-RM 311,000) per year. The overall figures should be higher if the sale of Impressed Tortoise *Manouria impressa* is included. The actual retail value of the exported tortoises, within the three years can best be calculated if retail prices are available for the Japanese and minor importing countries pet trade markets.



Dionysius Sharma

Black Marsh Turtle *Siebenrockiella crassicollis*, Setiu, Terengganu

Similarly, at the retail price of US$100-US$300 for Elongated Tortoise *Indotestudo elongata*, 1,639 specimens would have fetched between US$163,900-US$191,700. The overall retail value would have been worth between US$309,100-US$373,200. This is approximately US$103,033-US$124,400 (RM 257,583-RM 311,000) per year. The overall figures should be higher if the sale of Impressed Tortoise *Manouria impressa* is included. The actual retail value of the exported tortoises, within the three years can best be calculated if retail prices are available for the Japanese and minor importing countries pet trade markets.

None of the three tortoise species were seen for sale in local pet shops during the current survey although the figures above show that quite a large number are exported for commercial purposes. It may be the case that it is not profitable to sell tortoises locally compared to the returns gained from the international pet trade. The volume of the export trade in species not listed in the CITES Appendices is not known. Pan (1990a) reports that Giant Asian Pond Turtle *Heosemys grandis* are exported to Singapore via Johore and to Western countries via Penang. There are also some Asian Giant Softshell Turtle *Pelochelys bibroni* and Asiatic Softshell Turtle *Amyda cartilaginea* that are caught periodically from the Setiu River, Terengganu and exported to Singapore (Kamarruddin Ibrahim, *pers. comm.*, 1994). Whenever available, the turtles are packed in crates of ice together with commercial marine fish and are exported to Singapore via road.

Table 3.

Peninsular Malaysian freshwater turtle and tortoise species sold in selected USA reptile pet shops (as advertised on the company web-site). Prices quoted are for 1997. Origins of these animals are unknown.

Company	Species	Common name (as given on pricelist)	Price per animal
Bill Lubak's Reptile Centre	*Cuora amboinensis*	Asian Box Turtle	US$10
Central Florida Reptile Farm	*Indotestudo elongata*	Elongated Tortoise	US$110
	Manouria emys (?)	Burmese Brown Tortoise	US$300
	Heosemys grandis	Asian Pond Turtle	US$35
	Cyclemys dentata	Leaf Turtle	US$15
	Cuora amboinensis (?)	Malayan Box Turtle	US$40
New England Reptile	*Cuora amboinensis (?)*	Asian Box Turtles	US$14
	Manouria emys?	Burmese Mountain Tortoises	US$375
	Indotestudo elongata	Elongate Tortoises	US$300
Rare Reptiles Inc.	*Hieremys annandalii*	Temple Turtle	US$35
	Cyclemys dentata	Leaf Turtle	US$15
Tom Crutchfield's Reptile Enterprise	*Manouria emys*	Burmese Mountain Tortoise	US$1,975
	Chitra indica	Giant Flower-back Softshell Turtle	US$1,275
	Cuora amboinensis	Asian Box Turtle	US$9
Whyte Ark Reptile	*Indotestudo elongata*	Elongated Tortoise	US$100

(Source: Various websites on the internet).

Table 4

Species and prices of freshwater turtles and tortoises sold wholesale by a foreign investment company based in Indonesia (prices quoted are for 1997).

Species	Common name	Price
Manouria emys	Burmese Brown Tortoise (adults)	US$100
Cyclemys sp. (Possibly *Cyclemys dentata* as this is found in Borneo)	Borneo Black Leaf Turtle	(100+) US$2.00 (75+) US$2.50 (50+) US$3.00 (50-) US$3.50
Cyclemys sp. (Possibly *Cuora amboinensis* as the common name suggests)	Asian Box Turtle	(100+) US$2.00 (75+) US$2.50 (50+) US$3.00 (50-) US$3.50
Heosemys spinosa	Spiny Turtle	US$15
Notochelys platynota	Flat-shelled Turtles	US$25

(Source: Various websites on the internet).

There is also evidence that freshwater turtles and tortoises are exported to Hong Kong from Malaysia, although the exports may not necessarily be from the Peninsula. Bousfield (1995) reports that between the years 1991 to 1994 some 3,637,474kg of turtles were imported into Hong Kong. He estimates that 95% of these are imported from Indonesia, while the remaining 5% are from Malaysia, Singapore and USA. It is highly likely that some of the re-exports from Singapore are indeed from Malaysia. Moll (1976b) noted that turtles were being exported to Singapore for consumption although no details were provided regarding species nor export volumes. It is highly unlikely that there are enough wild habitats left in Singapore to support large numbers of turtles for the food trade. The main species that were imported into Hong Kong during this period were Asiatic Softshell Turtle *Amyda cartilaginea*, Asian Box Turtle *Cuora amboinensis* and Giant Asian Pond Turle *Heosemys grandis*. Giant Asian Pond Turtle *Heosemys grandis* is not known to occur in Singapore. Similarly, Lee (1996) provides figures of imports of 'live turtles' from Malaysia and Singapore which end up in the food trade (Table 5).

Table 5.

Imports of 'live turtles' into Hong Kong (by kg) from Malaysia and Singapore between 1993 and August 1996.

Country	1993	1994	1995	1996 (Jan-Aug)
Malaysia	560	-	25,196	15,818
Singapore	-	8,498	30,622	7,412

Source: Lee (1996)

Some exotic species are also imported into the country to serve the local pet trade and for display in recreational areas (zoos, parks and gardens). The highest diversity of exotic species can be seen at the Taman Hibiscus dan Reptilia, Bukit Jambul, Penang (see Appendix 3). Two species of softshell turtle i.e. Indian Softshell Turtle *Aspideretes gangeticus* and Peacock Softshell Turtle *Aspideretes hurum* are reported to have been exported from Bangladesh to Malaysia (Das, 1990). Both these species are listed in Schedule III of the Bangladesh Wildlife (Preservation) Act of 1974.

In 1990, there were two Mata-mata *Chelus fimbriatus* (a South American species) for sale for RM 200 (US$ 77) each at Central Market, Kuala Lumpur. In 1991, 10 specimens of the Aldabran Giant Tortoise *Aldabrachelys elephantina*, 150 Leopard Tortoises *Geochelone pardalis*, 150 African Pancake Tortoises *Malacochersus tornieri* and 150 Bell's Hinge-back Tortoises *Kinixys belliana* were imported into the country (DWNP, 1991). The first species mentioned was imported from the Seychelles, while the last three were imported from Tanzania. There were no records of re-imports to other countries so it is assumed that these are now in private collections. Hatchlings of the Red-eared Slider *Trachemys scripta elegans* are currently imported into the country by the hundreds to serve the local pet trade. More recently there has been several local pet shops selling the Indian Star Tortoise *Geochelone elegans*.

Domestic trade

The harvesting of Painted Terrapin *Callagur borneoensis* and River Terrapin *Batagur baska* eggs provides income for licensed egg collectors, in some instances middlemen, and the egg retailers in the markets. In the 1950's and 1960's, not all eggs were harvested from the beach. This was mainly due to the abundance of eggs and the lack of commercial demand. During the 1980's up to the present time, almost all eggs laid are harvested, both due to the decrease in adult females (hence a decrease in egg production) and also due to a higher commercial demand. In the east coast states of Peninsular Malaysia, the sole rights to collect Painted Terrapin *Callagur borneoensis* eggs from a stretch of beach 2-3 km long may cost the licensee anything between RM 20 to RM 3,000 per year (US$7.6 to US$1153). This fee includes the right to harvest marine turtle eggs within the same stretch of beach. The licence agreement stipulates that egg collectors have to submit a predetermined number of eggs to the Department of Fisheries for conservation purposes and the rest may be sold for consumption.

In 1994, eggs were bought by the Department at RM1 (US$0.40) per egg and the retail value in the open market was RM1.40 (US$0.56). In 1995, the Department offered RM1.30 (US$0.48) per egg but the market price rose to RM1.60 (US$0.59). The price per egg may be higher in the open market if there are middleman involved in the business. The case is almost similar in the management of River Terrapin *Batagur baska* at Bota Kanan, Perak. While all eggs laid at the sand banks within the Terrapin Sanctuary, Bota Kanan are collected by PERHILITAN staff, adjacent nesting banks are tendered for licensed egg collection at RM20 (US$8) per site (Mohd. Nazri Idris, *pers. comm.*, 1994). A licensee is required to sell a portion of eggs harvested (sometimes 50%) to PERHILITAN, for the conservation programme, at RM 1 (US$0.40) per egg. This requirement may vary from season to season, depending on the requirements made by PERHILITAN annually. Allocations provided by PERHILITAN Headquarters for the programme are used to purchase terrapin eggs from the collectors, especially when nesting occurs at low numbers within the Sanctuary grounds.

The local trade in Painted Terrapin *Callagur borneoensis* eggs in Terengganu can be estimated from reported figures of annual nesting numbers compiled by the state Department of Fisheries. The price of each Painted Terrapin *Callagur borneoensis* egg varied from RM 1.30 to RM 1.60 (US$ 0.52 – US$ 0.64) between 1992-1995. In 1976, Moll (1976a) reported that the price of *Batagur baska* and *Callagur borneoensis* eggs were for US$ 0.12 – US$ 0.16 each. Table 6 shows that for the years 1992, 1993 and 1995, the estimated annual value of *Callagur borneoensis* eggs in Terengganu was between RM 4,522.5 to RM 7,764.8 (US$1739 to US$2986). Data for 1994 were unavailable.

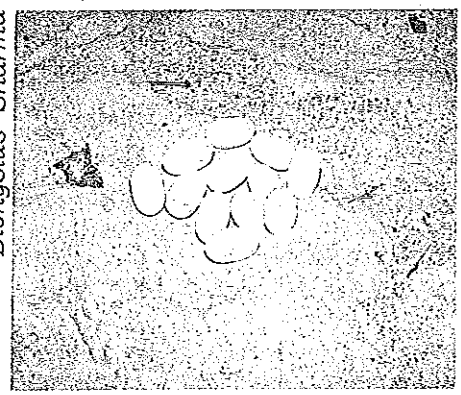
Table 6

Estimated annual value of Painted Terrapin *Callagur borneoensis* eggs in Terengganu for 1992, 1993 and 1995. (* - value quoted per egg)

Trade variable	1992	1993	1995
Total eggs harvested (as reported)	5,789	6,752	3,119
Estimated percentage sold in open market	50%	50%	50%
Open market price*	RM1.30	RM1.30	RM1.60
Price paid by conservation programme* (State Department of Fisheries)	RM1.00	RM1.00	RM1.30
Estimated open market retail value	RM3,762.9	RM4,388.8	RM2,495.2
Sum paid by conservation programme	RM2,894.5	RM3,376.0	RM2,027.3
Estimated annual value of eggs	**RM6,657.4 (US$ 2,560)**	**RM7,764.8 (US$ 2,986)**	**RM4,522.5 (US$ 1,739)**

(Source: Dionysius Sharma, unpublished data and Department of Fisheries Malaysia unpublished data, 1 US$ = RM 2.6)

Moll (1976a) reported that softshell turtles bring the best prices in the market due to their tender meat. In 1976, Asiatic Softshell Turtle *Amyda cartilaginea* could be bought for US$ 1.33 per kg (RM3.23 per kg) while Asian Box Turtle *Coura amboinensis* was sold for US$ 0.60 – US$ 0.80 each. Chicken eggs at that time were priced at US$ 0.4 – US$ 0.6 each. The sale of softshell and freshwater turtle meat can be a profitable business. Based on the market prices observed at Pudu, it is estimated that the daily sale of a 10kg of Asiatic Softshell Turtle *Amyda cartilaginea* at RM5-RM8 (US$1.92 – US$3.07) per kg can fetch between RM50 to RM80 (US$19.20 – US$30.76) per day. This amounts to RM350-RM560 (US$135 – US$215) per week. Asiatic Softshell Turtle *Amyda cartilaginea* may attain a weight of 35kg.

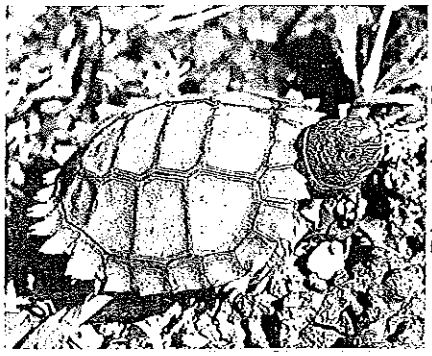


Dionysius Sharma

Painted Terrapin *Callagur borneoensis* eggs, Setiu, Terengganu

Assuming that the amount of Asian Box Turtle *Cuora amboinensis* and Black Marsh Turtle *Siebenrockiella crassicollis* seen at the market on the two visits are sold in a week (a modest estimate of 30 individuals) at RM5 (US$1.9) per animal, this would amount to a retail value of RM150 (US$58). In total, a turtle meat retailer could earn between RM500-RM710 (US$192 – US$273) per week or between RM2,000-RM2,840 per month (US$769 – US$1,092 per month).

The retail value in the domestic pet trade in freshwater turtles and tortoises can likewise be estimated (Table 7).



Dionysius Sharma

Impressed Tortoise *Manouria impressa* (hatchling), Belum Forest Reserve, Perak

Table 7

Total retail value of freshwater turtles and tortoises sold at seven pet shops visited in a period of five days in 1994. (Note: These turtles were sold for their meat and not as pets. Individual prices and species can be found in Appendix 1)

Date	No. of pet shops visited	No. of native species on sale	Total individuals on sale	Total retail value (based on price per species)
20 May 1994	2	3	44	RM 655.00
25 May 1994	1	2	2	RM 30.00
3 June 1994	2	1	64	RM 434.00
3 Sept 1994	1	2	13	RM 130.00
5 Nov 1994	1	4	62	RM 345.00
Total	**7**	-	**185**	**RM1,594.00 (US$637.60)**

US$1=RM2.6

CURRENT LEGISLATION

The Protection of Wildlife Act, 1972 (Amendment 1990), covering Peninsular Malaysia only, does not include the protection of fishes, turtles and amphibians. This is unfortunate as the legislation provides adequate protection for most mammals and birds in the country. Malaysia became a party to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) in 1977. The Ministry of Science, Technology and Environment functions as the Scientific Authority while the Department of Wildlife and National Parks is the Management Authority for Peninsular Malaysia.

The earliest legislation concerning Peninsular Malaysian turtles was promulgated in 1915 in the States of Perak and Pahang. While the 'River Rights Enactment, 1915' prohibited the killing of turtles of the genera *Batagur, Callagur, Orlitia* and *Hardella,* in Perak, the 'Turtles Eggs Enactment, 1915' of Pahang controlled egg collection for any reptile of the genera *Chelone, Thalassochelys, Dermochelys, Orlitia, Batagur, Callagur* and *Hardella.* (Note: *Hardella* does not occur in Peninsular Malaysia).

The Fisheries Act, 1963 (Federal statute) allowed for the control of the exploitation of inland fisheries and turtles to be a prerogative of the various States. This right to set rules and regulations was mainly for marine turtles and Painted Terrapin *Callagur borneoensis.* The amended Fisheries Act, 1985, provides for similar action to be taken by the various States. This new act has been adopted by the following States: Melaka, Perak, Penang, Perlis, Johore, Kedah and Negeri Sembilan.

Currently, freshwater turtles are afforded some form of protection in the various States in Peninsular Malaysia. Most state laws regulate the collection of Painted Terrapin *Callagur borneoensis* and River Terrapin *Batagur baska* eggs through a licensed egg collection system. Adult terrapins of both species are also protected and it is illegal to kill, harm, injure or possess both Painted Terrapin *Callagur borneoensis* and River Terrapin *Batagur baska.*

The state laws and the species afforded some form of protection (in parenthesis) are as follows:

- **Perak**: River Rights Enactment, 1915 (*Orlitia, Callagur* and *Batagur*);

- **Kedah**: Turtles Enactment, 1972; Turtles Rules, 1975 (*Callagur picta* [=*Callagur borneoensis*], 'tuntong' [the Malay word for terrapin, and could therefore mean both *Callagur borneoensis* and *Batagur baska*).
- **Kelantan**: Fisheries Act 1963; Fisheries (Turtles and Turtle Eggs) Rules, 1978 ('tuntong' = the Malay name for terrapin. The common names River Terrapin and River Tortoise are also used in the legislation). Note that while the River Terrapin is *Batagur baska*, it is uncertain which chelonian species is meant by the use of the common name of River Tortoise in the legislation.

- **Terengganu**: Turtle Enactment, 1951 (Amendments) 1987 ('tuntong' = terrapin). Note that this has traditionally been applied to only *Callagur borneoensis* and not including *Batagur baska*.

- **Pahang**: Fisheries Enactment, 1937; Fisheries Rules, 1938 (*Orlitia, Batagur, Callagur*).

- **Johore**: Fisheries Act 1985; Fisheries (Turtles and Turtle Eggs) Rules, 1984 ('tuntong' = *Batagur baska* and *Callagur borneoensis*).

- **Melaka**: Fisheries Act, 1985; Fisheries (Turtles and Turtle Eggs) Rules, 1989 (*Callagur borneoensis*).

In spite of the fact that the three tortoises found in the country are listed in CITES Appendix II, and all three are listed in IUCN Red List of Threatened Animals (IUCN, 1996) as 'vulnerable', none of them are afforded any protection under the Protection of Wild Life Act, 1972. A summary of the current legal and conservation status of Peninsular Malaysian tortoises and freshwater turtles is provided in Appendix 7.

RECOMMENDATIONS FOR CONSERVATION, MANAGEMENT AND RESEARCH

There is an urgent need to review all current state and federal legislation that relates to the trade, use and conservation of tortoises and freshwater turtles in Peninsular Malaysia. If the killing of turtles for their meat and the consumption of their eggs (mainly the terrapins) is not controlled and regulated, turtle populations in the wild can be expected to be affected. Because current local laws do not require turtle collectors or traders to obtain permits or licenses to collect turtles from the wild (apart from tortoises and terrapins), either for national or international trade (pet trade, food trade), there are no records of the volume of turtles that are captured and traded. In view of this, some recommendations for future trade regulations, research and management of turtles in Peninsular Malaysia are provided below. For effective conservation and management of turtles, it is essential that these recommendations be viewed holistically and not individually. Together they would constitute what could be highly effective measures for the conservation of tortoises and freshwater turtles in Peninsular Malaysia.

Criteria for suggested species inclusions in Schedule 1 (Totally Protected Animals) and Schedule 2 (Protected Animals) of the Protection of Wild Life Act, 1972 (PWA, 1972), and for research and monitoring work are personal suggestions by the author.

A turtle species is proposed to be listed in Schedule 1 of the PWA, 1972, if one or more of the following criteria are met:

✓ It is captured locally for international trade and is listed on CITES Appendix I or II;

- ✓ It is a threatened species (critically endangered, endangered or vulnerable) according to prevailing IUCN listing;
- ✓ It is captured and traded locally;
- ✓ It is not common, or not widespread in its distribution, or restricted to certain habitat types in the country;
- ✓ It is threatened by habitat loss or degradation;
- ✓ It is likely that populations in the wild are declining based on a combination of the above factors.

A turtle species is proposed to be listed in Schedule 2 of the PWA, 1972, if one or more of the following criteria are met:

- ✓ It is captured and traded locally;
- ✓ It is threatened by habitat loss or degradation;
- ✓ It is not common, or not widespread in its distribution, or restricted to certain habitat types in the country;
- ✓ It is likely that populations in the wild are declining based on a combination of the above factors.

- **Recommendation 1:** Amend the Protection of Wild Life Act, 1972 (Amendment 1990) as follows:

1.1 List the following species of turtles under Schedule 1 of the above Act:

River Terrapin*	*Batagur baska*
Painted Terrapin*	*Callagur borneoensis*
Malaysian Giant Turtle*	*Orlitia borneensis*
Temple Turtle***	*Hieremys annandalii*
Malayan Snail-eating turtle***	*Malayemys subtrijuga*
Asian Brown Tortoise**	*Manouria emys*
Impressed Tortoise**	*Manouria impressa*
Elongated Tortoise**	*Indotestudo elongata*
Narrow-headed Softshell Turtle***	*Chitra indica*
Asian Giant Softshell Turtle	*Pelochelys bibroni*
Malaysian Giant Turtle***	*Orlitia borneensis*

*- these species are afforded some protection in the Fisheries Act, 1963 or Fisheries Act 1985 and the respective State Rules and Regulations provided for under these Act's.

** - these species are listed in CITES Appendix II and are categorised as 'vulnerable' by IUCN (1996)

*** - these species have restricted distribution in Peninsular Malaysia

1.2 List the following species of turtles under Schedule 2 of the above Act:

Malayan Flat-shelled Turtle	*Notochelys platynota*
Spiny Turtle	*Heosemys spinosa*

1.3 Strongly recommend that the rules and regulations that apply to species protected under Schedule 1 and 2 be amended to make it illegal to harvest eggs from the wild of all the above-mentioned species.

- **Recommendation 2:** Amend all state legislation that cover turtles as allowed for by the Fisheries Act, 1985 as follows:

  2.1 All states in Peninsular Malaysia should amend and standardise their 'Turtles and Turtles Eggs Rules and Regulations' to provide uniform protection to hard-shelled riverine turtles as listed below:

River Terrapin	*Batagur baska*
Painted Terrapin	*Callagur borneoensis*

  2.2 State Fisheries legislation should specify the species protected by listing in a standardised manner scientific names, common names and local names.

  2.3 'Protection' to *Callagur borneoensis* and *Batagur baska* under State Fisheries legislation should include protection to nesting beaches and nesting riverine sand banks, protection to adult turtles particularly nesting females, protection to terrapin nests and should provide stringent laws in relation to harvest and commercial sale of terrapin eggs. 'Protection' should also address the use of destructive fishing gear that trap and drown terrapins in rivers.

- **Recommendation 3:** Monitor domestic and international trade and utilisation of turtle species as follows:

  3.1 PERHILITAN (Department of Wildlife and National Parks Peninsular Malaysia), with the support of TRAFFIC Southeast Asia, should monitor the international and domestic trade of the following species:

Giant Asian Pond Turtle	*Heosemys grandis*
Asian Leaf Turtle	*Cyclemys dentata*
Asiatic Softshell Turtle	*Amyda cartilaginea*
Asian Box Turtle	*Cuora amboinensis*
Malayan Softshell Turtle	*Dogania subplana*

  3.2 Monitor both domestic and international trade of all turtle species proposed to be listed under Schedule 1 and Schedule 2 of the Protection of Wild Life Act, 1972 as discussed above.

- **Recommendation 4:** Produce a Turtle Identification Book for PERHILITAN (Department of Wildlife and National Parks Peninsular Malaysia) and Customs use.

It is recommend that an identification book be produced by TRAFFIC Southeast Asia to illustrate all turtle species listed on Schedules 1 and 2 of the Protection of Wildlife Act, 1972. This book will be of tremendous use to enforcement personnel from PERHILITAN and Customs officials. While there are numerous books on mammals, birds and some reptiles (e.g. snakes) of Peninsular Malaysia available, there are no identification books on tortoises and freshwater turtles. The book should include coloured photographs and line drawings for easy identification of the various species.

- **Recommendation 5:** Conduct turtle species population assessments to determine current status in the wild.

It is recommended that PERHILITAN collaborate with local government agencies, institutions of higher learning and interested non-government agencies to conduct field surveys of turtle species to determine and establish distribution, population sizes, quantify threats and assess the overall conservation status of all species.

CONCLUSION

Trade (domestic and international) and utilisation (as food or medicine, or for traditional, cultural or religious purposes) obviously have an impact on wild populations of freshwater turtles and tortoises. While harvest and consumption of eggs of certain species (e.g. *Batagur baska* and *Callagur borneoensis*) and use as food in others (e.g. *Amyda cartilaginea* and *Cuora amboinensis*) are mainly domestic threats, the capture and export of tortoises pose a huge threat to the long-term survival of these chelonians. The threats from commercial harvest, coupled with habitat loss will bring about undesirable consequences to tortoise populations. While local traditions of eating turtle eggs and their meat may be gradually changed through awareness and education programmes, the commercial exploitation of tortoises can only be prevented through legislative means. If sustainable levels of harvest and consumption of local chelonians can be determined, then traditional, cultural and religious use may persist. The long tradition of egg harvest, and in more recent decades, the regulation of harvesting through a licensing system, needs to be reviewed to conserve declining Painted Terrapin *Callagur borneoensis* populations (Sharma, 1994b).

The volume of tortoises captured and exported from the country is alarming. There is obviously a lucrative market in the international pet trade. Both Elongated Tortoise *Indotestudo elongata* and Impressed Tortoise *Manouria impressa* are limited in their distribution in Peninsular Malaysia. Although often difficult to find in the wild, tortoises are defenceless against humans and are easily captured. If these tortoises are harvested at the current levels, it would not be too long before localised extinctions occur. There has been a general decline in the diversity of species in local trade during the last 20 years (see Appendix 4). This is an indication of either a decline in abundance or the increase in demand by the foreign market. Based on the annual CITES reports by PERHILITAN, it is evident that tortoises are still being caught from the wild. To what extent specimens caught in the wild can continue to support the foreign trade is unknown. Population studies of the various species in Peninsular Malaysia are lacking and are urgently needed.

There is obviously a weakness in legislation regarding tortoise and freshwater turtle protection. There is an urgent need for consistency in national and state laws and consistency between these and international laws. There is a need for PERHILITAN and the Department of Fisheries to collaborate to bring about the necessary legislative change. Further research and field surveys to determine population status of the various species will be necessary to formulate conservation action plans.

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APPENDICES

Appendix 1

Peninsular Malaysian and exotic turtles in the pet trade and location of pet shops surveyed in 1994

Date	Operation	Species	Age	No.	Price (RM)	
20 May	Akuarium Gama, Penang	*Trachemys scripta*	H	30	5.50	
20 May	Penang	*Trachemys scripta*	H	10	5.00	
20 May	Teck Sun, 184 Perangin Road, Penang	*Cuora amboinensis*	J	2	10.00	
			A	8	10.00	
		Siebenrockiella crassicollis		J	10.00	
20 May	Kedai Burung Burung Tan Bee Eng, New Jetty, Weld Quay, Penang	*Heosemys grandis*	A	10	20.00	
				J	20.00	
		Cuora amboinensis	A	18	15.00	
		Siebenrockiella crassicollis		A	15.00	
		Trachemys scripta	A	1	15.00	
			J	1	15.00	
21 May	Kedai Perniagaan Khar Lock Seng, Ipoh, Perak	*Trachemys scripta*	H	70	5.50	
		Trachemys sp.	J	1	12.00	
25 May	Petaling Street, Kuala Lumpur	*Trachemys scripta*	J	3	5.50	
			A	6	?	
		Heosemys grandis	J	1	?	
		Amyda cartilaginea	J	1	?	
		Geochelone elegans	J	2	100.00	
25 May	Wildlife Zoological Supplies, Kuala Lumpur	*Trachemys scripta*	H	1	?	
		Geochelone elegans	J	15	100.00	
3 June	Kedai Ikan dan Burung Black Sea, Melaka	*Trachemys scripta*	H	3	6.00	
3 June	Melaka	*Cuora amboinensis*	A	14	6.00	
3 June	Kedai Meng Sun, Melaka	*Trachemys scripta*	J	14	8.00	
		Cuora amboinensis	A	50	7.00	
3 Sept	Teck Sun, 184 Perangin Road, Penang	*Trachemys scripta*	H	11	6.00	
		Cuora amboinensis	J	12	10.00	
		Amyda cartilaginea	J	1	10.00	
19 Oct	Akuarium Seng Fatt, Ipoh, Perak	*Trachemys scripta*	H	26	5.00	
		Geochelone elegans	J	2	100.00	
			H	?	60.00	
30 Oct	Wildlife Zoological Supplies, Kuala Lumpur	*Geochelone elegans*	H	3	100.00	
		Trachemys scripta	H	23	6.00	
5 Nov	Petaling Street, Kuala Lumpur	*Trachemys scripta*	H	30	5.00	
		Cuora amboinensis	A/H	59	5.00	
		Siebenrockiella crassicollis	A	1	?	
		Amyda cartilaginea		A	1	?
		Pelodiscus sinensis		J	1	?
		Cyclemys dentata	J	1	?	

H - hatchling, J - juvenile, A - adult, ? - number or value unknown
1 US$ = RM 2.5

Appendix 2

Peninsular Malaysian tortoises and freshwater turtles exhibited in zoos, parks and other recreational areas [from Pan (1990b)]

Species	Operation								
	ZNS	ZMM	BPM	ORP	KLSP*	SPTP	TNP*	TICT	ZTP
River Terrapin *Batagur baska*	1A	24A 1J	-	-	P	P	P	2J	2A 2J
Painted Terrapin *Callagur borneoensis*	1A	2A 1J	1A 2J	-	P	P	-	51J	-
Malaysian Giant Turtle *Orlitia borneensis*	2A	1A	-	-	P	P	P	-	-
Giant Asian Pond Turtle *Heosemys grandis*	13A 4J	1A	2J	1A 2J	P	P	P	-	P
Spiny Turtle *Heosemys spinosa*	5A 1J	-	7J	2J	-	-	-	-	-
Asian Leaf Turtle *Cyclemys dentata*	3A 2J	-	-	-	-	-	-	-	-
Asian Box Turtle *Cuora amboinensis*	22A 5J	15A	1H	-	P	P	P	P	5
Temple Turtle *Hieremys annandalii*	-	-	-	-	-	-	-	-	-
Malayan Flat-shelled Turtle *Notochelys platynota*	1A	1A	-	-	-	-	-	1A	-
Malayan Snail-eating Turtle *Malayemys subtrijuga*	-	-	-	-	-	-	-	-	-
Black Marsh Turtle *Siebenrockiella crassicollis*	3A	-	-	-	-	P	-	P	1A
Asian Brown Tortoise *Manouria emys*	5A	1A	-	-	-	3A	P	-	5A
Impressed Tortoise *Manouria impressa*	-	-	-	-	-	-	-	-	-
Elongated Tortoise *Indotestudo elongata*	1J	-	-	4J	-	-	-	-	-
Asiatic Softshell Turtle *Amyda cartilaginea*	3A 3J	1A 1J	1A	1A	-	-	P	1A	4
Malayan Softshell Turtle *Dogania subplana*	2J	-	-	-	-	-	-	-	-

Narrow-headed Softshell Turtle *Chitra indica*	-	-	-	-	-	-	-	-	-
Asian Giant Softshell Turtle *Pelochelys bibroni*	-	-	-	-	-	-	-	1J	-

H - hatchling, J - juvenile, A - adult, P - present but number not counted

ZNS - Zoo Negara, Ampang, Selangor
ZMM - Zoo Melaka, Air Keroh, Melaka
BPM - Butterfly Park and Museum, Air Keroh, Melaka
ORP - Taman Orkid dan Bunga Raya dan Taman Reptilia, Bukit Jambul, Penang
KLSP - Kek Lok Si Temple, Penang
SPTP - Sam Poh Tong Temple, Penang
TNP - Tasek S.M. Nor, Batu Gajah, Perak
TICT - Turtle Information Centre, Rantau Abang, Terengganu
ZTP - Zoo Taiping, Taiping, Perak

Appendix 3

Foreign tortoises and freshwater exhibited/kept in Peninsular Malaysian zoos, parks and other recreational areas in 1994

Operation	Species	Number
Zoo Negara, Selangor	Red-eared Slider (*Trachemys scripta elegans*)	1A 5J
	Chinese Softshell Turtle (*Pelodiscus sinensis*)	1J
	Aldabran Giant Tortoise (*Aldabrachelys elephantina*)	2A
Zoo Melaka, Melaka	Red-eared Slider (*Trachemys scripta elegans*)	5A 1J
Taman Hibiscus dan Reptilia, Penang	Aldabran Giant Tortoise (*Aldabrachelys elephantina*)	2A
	Mata-mata (*Chelus fimbriatus*)	2A
	Alligator Snapping Turtle (*Macroclemys temminckii*)	2J
	Red-eared Slider (*Trachemys scripta elegans*)	138H*
	South American Long-necked Turtle (*Hydromedusa tectifera*)	1A
	Spotted Wood Turtle (*Clemmys* sp.)	2A
	Red-bellied Side-necked Turtle (*Emydura subglobosa*)	3A
Sam Poh Tong Temple, Ipoh Perak	Red-eared Slider (*Trachemys scripta elegans*)	P
Nan Thian Tong, Ipoh, Perak	Red-eared Slider (*Trachemys scripta elegans*)	P
Rantau Abang Turtle Information Centre, Terengganu	Red-eared Slider (*Trachemys scripta elegans*)	3J
	Chinese Softshell Turtle (*Pelodiscus sinensis*)	1J
Zoo Taiping, Perak	Red-eared Slider (*Trachemys scripta elegans*)	5A

H - hatchling, J - juvenile, A - adult, P - present but number not counted

* - these specimens were for sale at RM 3 each (US$ 0.79)

Appendix 4

Comparison of occurrence of native freshwater turtle and tortoise species in local trade in Peninsular Malaysia during the last 20 years.

Species	Moll (1976a)	Moll (1987)*	Present survey*
River Terrapin *Batagur baska*	-	-	-
Painted Terrapin *Callagur borneoensis*	+	-	-
Malaysian Giant Turtle *Orlitia borneensis*	+	-	-
Giant Asian Pond Turtle *Heosemys grandis*	+	+	+
Spiny Turtle *Heosemys spinosa*	+	+	-
Asian Leaf Turtle *Cyclemys dentata*	+	+	+
Asian Box Turtle *Cuora amboinensis*	+	+	+
Temple Turtle *Hieremys annandalii*	-	-	-
Malayan Flat-shelled Turtle *Notochelys platynota*	+	+	-
Malayan Snail-eating Turtle *Malayemys subtrijuga*	-	-	-
Black Marsh Turtle *Siebenrockiella crassicollis*	+	+	+
Asian Brown Tortoise *Manouria emys*	+	-	-
Impressed Tortoise *Manouria impressa*	-	-	-
Elongated Tortoise *Indotestudo elongata*	-	+	-
Asiatic Softshell Turtle *Amyda cartilaginea*	+	+	+
Malayan Softshell Turtle *Dogania subplana*	-	+	-
Narrow-headed Softshell Turtle *Chitra indica*	-	-	-
Asian Giant Softshell Turtle *Pelochelys bibroni*	+	-	-

A '+' indicates presence of the species on sale while a '-' indicates absence of the species.

Appendix 5

Export of Peninsular Malaysian tortoises and freshwater turtles listed in CITES Appendices* between 1990-1993

Species	CITES APP.	Year	Number	CI	Purpose
Bataguridae					
River Terrapin *Batagur baska*	I	1990	5	Singapore	Zoological exchange
		Total	5		
Testudinidae					
Asian Brown Tortoise *Manouria emys*	II	1990	454	U.S.A.	Commercial
			420	Japan	Commercial
			57	United Kingdom	Commercial
			10	Switzerland	Commercial
			5	Canada	Commercial
			10	Italy	Commercial
		Total	956		
		1991	19	U.S.A.	Commercial
			69	Japan	Commercial
			4	United Kingdom	Commercial
			8	Italy	Commercial
		Total	100		
		1993	10	U.S.A.	Commercial
			1	U.S.A.	Confiscated
			214	Japan	Commercial
			1	KP	Non-commercial
		Total	226		
Impressed Tortoise *Manouria impressa*	II	1990	183	U.S.A.	Commercial
			506	Japan	Commercial
			12	United Kingdom	Commercial
			5	Italy	Commercial
		Total	706		
Impressed Tortoise *Manouria impressa*	II	1993	52	U.S.A.	Commercial
			50	Japan	Commercial
		Total	102		

Elongated Tortoise *Indotestudo elongata*	II	1990	687	U.S.A.	Commercial
			659	Japan	Commercial
			45	United Kingdom	Commercial
			55	Canada	Commercial
			25	Italy	Commercial
			42	Germany	Commercial
		Total	1,513		
		1991	50	U.S.A.	Commercial
			208	Japan	Commercial
			13	United Kingdom	Commercial
			16	Italy	Commercial
		Total	287		
		1993	902	U.S.A.	Commercial
			2,223	Japan	Commercial
		Total	3,152		

I - Listed on Appendix I in CITES
II - Listed on Appendix II in CITES
CI - Country of import

Zoological exchange - specimens were exchanged for other animals between a local zoo and a zoo in the importing country.

Commercial - specimens were used for commercial purposes e.g. pet trade.

Confiscated - specimens were confiscated due to illegal trade

Non commercial - may be used for personal purposes, scientific research, museum specimens or zoological exchange.

* Data was extracted from DWNP (1990; 1991; 1993).

Appendix 6

Tortoise and freshwater turtles used as food and medicine in Peninsular Malaysia

Species	Part Used	Purpose	Source
River Terrapin *Batagur baska*	Flesh Eggs-raw Eggs-in brine	Food Food, aphrodisiac Appetiser(?)	Moll (1985) Moll (1985) Moll(1976), Unpublished data
Painted Terrapin *Callagur borneoensis*	Flesh Eggs-raw Eggs-in brine Eggs-raw	Food Food, aphrodisiac Appetiser(?) Improve general health	Unpublished data Moll (1985), Sharma (1994A) Moll (1976), Unpublished data Unpublished data
Asian Box Turtle *Cuora amboinensis*	Flesh-with herbs	Cure for nocturnal urination in bed in children	Unpublished data
Asian Giant Softshell *Pelochelys bibroni*	TurtleFlesh Eggs-raw	Food Food	Moll (1985) Unpublished data
Asian Softshell Turtle *Amyda cartilaginea*	Flesh Flesh and cartilage-withherbs/ginseng Blood-raw	Food Medicine(?) Energy booster	Unpublished data Moll (1976) The Malay Mail (Sept 24, 1994)
Malayan Softshell Turtle *Dogania subplana*	Flesh	Food	Unpublished data
Asian Brown Tortoise *Manouria emys*	Flesh Eggs-raw	Food Food	Unpublished data Unpublished data
Turtle (species Unknown)	Meat-steamed with with Indian herbs Flesh-heated with the fat Eggs-with wild honey Eggs-preserved by boiling or smoking	Cure for piles Food Food(?) Food	Moll (1976) Burkill (1966) Moll (1976) Burkill (1966)
Hardshell turtles (species unknown)	Meat (?) steamed with Chinese herbs	Food/medicine (?)	Moll (1976)
Terrapin (species unknown)	Carapace-boiled with vinegar to form a jelly	Fevers, debility, and acute rheumatism	Hooper (1929)
Terrapin (species unknown)	Carapace burned and powdered	Given to parturient women Cure for sores	Burkill (1966)

Appendix 7

Tortoises and freshwater turtles occurring in Peninsular Malaysia with current legal and conservation status

Species	PWA	FA63	FA85	S	RDB	CITES	Recommended action*
River Terrapin *Batagur baska*	-	K,S?,	J Ph	P,Kd	EN	-	-
Painted Terrapin *Callagur borneoensis*	-	K,T, Ph,S?	J,M,N?	P,Kd Pg?,Ps?	CR	-	-
Malaysian Giant Turtle *Orlitia borneensis*	-	-	-	P	LR:nt	-	S1
Giant Asian Pond Turtle *Heosemys grandis*	-	-	-	-	LR:nt	-	Mo
Spiny Turtle *Heosemys spinosa*	-	-	-	-	VU	-	S1
Asian Leaf Turtle *Cyclemys dentata*	-	-	-	-	-	-	Mo
Asian Box Turtle *Cuora amboinensis*	-	-	-	-	LR:nt	-	-
Temple Turtle *Hieremys annandalii*	-	-	-	-	VU	-	S1
Malayan Flat-shelled Turtle *Notochelys platynota*	-	-	-	-	Data Deficient	-	S2
Malayan Snail-eating Turtle *Malayemys subtrijuga*	-	-	-	-	-	-	S1
Black Marsh Turtle *Siebenrockiella crassicollis*	-	-	-	-	-	-	-
Asian Brown Tortoise *Manouria emys*	-	-	-	-	VU	II	S1
Impressed Tortoise *Manouria impressa*	-	-	-	-	VU	II	S1
Elongated Tortoise *Indotestudo elongata*	-	-	-	-	VU	II	S1
Asiatic Softshell Turtle *Amyda cartilaginea*	-	-	-	-	VU	-	Mo
Malayan Softshell Turtle *Dogania subplana*	-	-	-	-	-	-	-
Narrow-headed Softshell Turtle *Chitra indica*	-	-	-	-	VU	-	S1
Asian Giant Softshell Turtle *Pelochelys bibroni*	-	-	-	-	VU	-	S1

The usage of a '-' denotes the species is not protected within the legislation.

PWA - Protection of Wildlife Act, 1972

FA63 - Fisheries Act, 1963 (Revised 1978)

FA85 - Fisheries Act, 1985

K - Kelantan: Fisheries (Turtles and Turtle Eggs) Rules, 1978

T - Terengganu: Turtle Enactment 1951 (Amendments) 1987

Ph - Pahang: Fisheries Enactment, 1937; Fisheries Rules, 1938

J - Johore: Fisheries (Turtles and Turtle Eggs) Rules, 1984

M - Melaka: Fisheries (Turtles and Turtle Eggs) Rules, 1989

N - Negeri Sembilan

S - Selangor

P - Perak: River Rights Enactment, 1915

Kd - Kedah: Turtles Enactment, 1972; Turtles Rules, 1975

Pg - Penang

Ps - Perlis

RDB - Red Data Book (1996 IUCN Red List of Threatened Animals) (CR = Critically Endangered, EN = Endangered, VU = Vulnerable, LR:nt = Lower Risk:near threatened, Data Deficient = Lack of data needed to make an assessment of risk possible)

CITES - Convention on International Trade in Endangered Species of Wild Fauna and Flora (Washington 1973) (I = Listed in Appendix I of CITES, II = Listed in Appendix II of CITES)

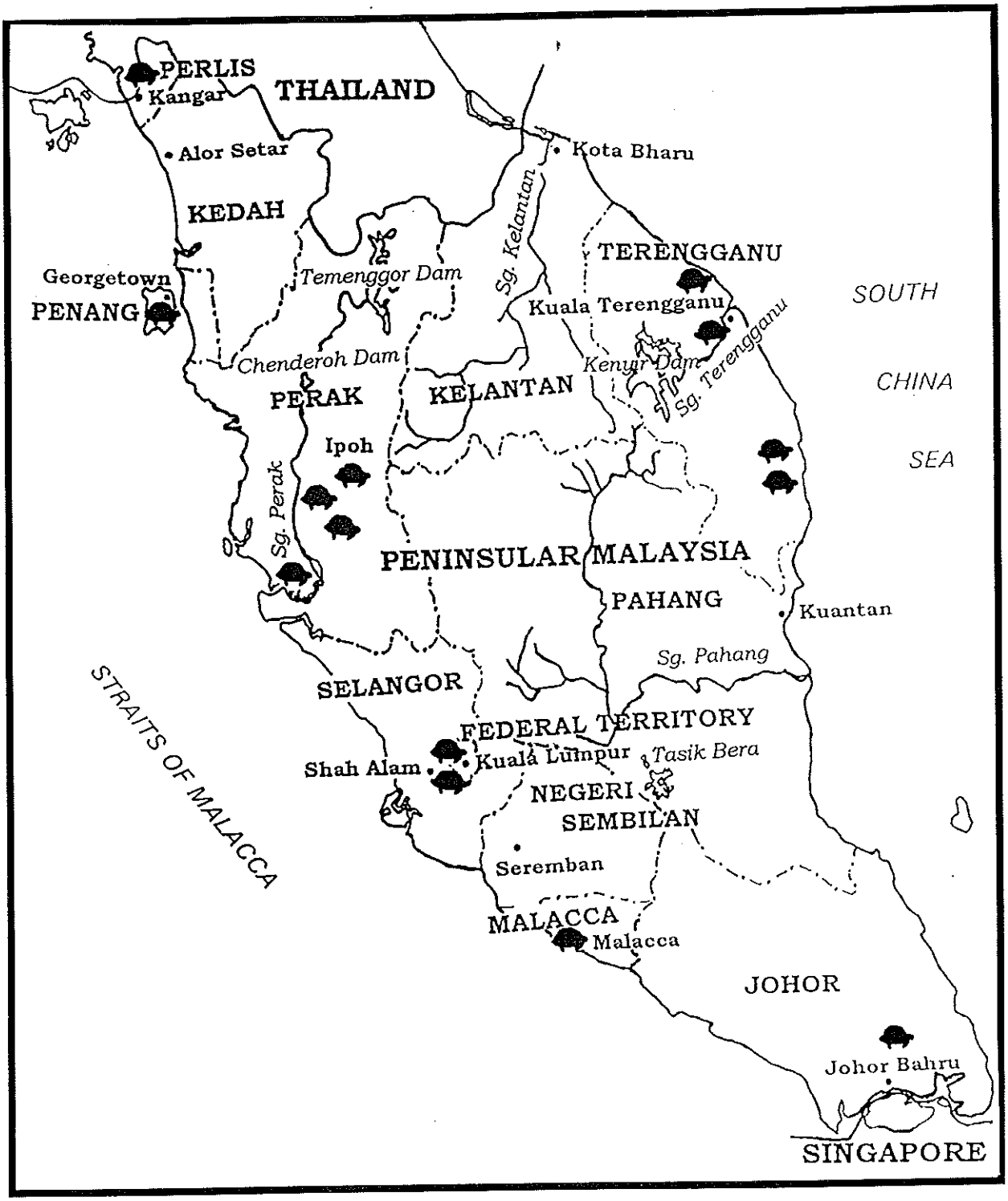
***Proposed** - The proposals made under this category are proposed by the author and are based on the author's personal experience looking at 18 species of freshwater turtles and tortoises in Peninsular Malaysia over several years. Animals proposed to be listed in S1 are either limited in their distribution in Peninsular Malaysia, rare or locally heavily exploited. Species proposed to be listed in S2 are quite rare but not necessarily heavily exploited. Species proposed for monitoring (Mo) are quite abundant but heavily exploited either for foreign trade or consumed locally.

S1 = Proposal for thisa species to be listed under Schedule One (Totally Protected Wild Animals) of the Protection of Wilds Life Act, 1972.

S2 = Proposal for this species to be listed under Schedule Two [Protected Wild Animals] of the Protection of Wild Life Act, 1972.

Mo = Proposal that use and trade of this species be closely monitored by the Department of Wildlife and National Parks in collaboration with TRAFFIC.

Map of Peninsular Malaysia



Places surveyed and observed during research for this report

IUCN
The World Conservation Union

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

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

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