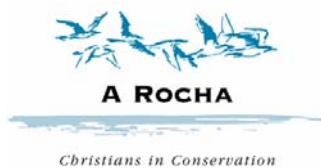


# THE FADING STAR

**An investigation into the illegal trade in Indian Star Tortoise  
in south India**



**Vijay D. Anand, Amoolya Moses & Surendra Varma**



**A Rocha India**



**Wildlife Trust of India**

**May 2005**

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# **THE FADING STAR**

## **An investigation into the illegal trade in the Indian Star Tortoise in south India**

**Principal Investigator: Vijay D. Anand**  
**Research Advice: Surendra Varma**  
**Field investigation: Joe Solomon & Vijay D. Anand**  
**Analysis and compilation: Amoolya Moses**



**A Rocha India**



**Wildlife Trust of India**

**May 2005**

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## **PREFACE**

The history of the Testudines goes back many centuries. They are believed to have existed during the Triassic era, 300 million years ago. With their remarkable body armour and unique physiology, their success in survival and their adaptation to an ever-changing environment is commendable. Their survival success these millions of years has been put at threat by humans. The Indian Star Tortoise has been widely exploited for various purposes. These evolutionarily important reptiles face a number of threats; the most prominent being large scale trade for their flesh and traditional medicine, especially in many parts of Asia. The various seizures over the last few years particularly at the Chennai International Airport kindled the curiosity to understand this species and the reasons for its smuggling. Thus the study began, primarily based on information from past seizures in Chennai and Bangalore. During the course of the investigation we came across several interesting pieces of information, which led us to not only confine the research to the four states of southern India but also to look into the global aspects of the trade. The source of collection was identified and the people involved were tracked down. Even the mode of transport till the exit from India was identified. However, counter intelligence by traders, lack of co-operation from certain quarters in enforcement agencies, constraints of time and resources kept us from making the final links between the facts that emerged in this study.

We have tried to present all information associated with the trade of the IST and believe this will lay the foundation for a more detailed study on the subject.

Vijay D. Anand  
Surendra Varma

Bangalore, May 2005

## EXECUTIVE SUMMARY

The Indian Star Tortoise (IST) is today synchronous with global wildlife trade. This is evident from the large number of seizures that have taken place in the past few years and the other transactions that have gone through unseen. Their survival success through these millions of years has been challenged by increased human activity today. Thus this study was done to investigate the illegal IST trade in south India.

All land tortoises are grouped under a single family, the Testudinidae. The IST is around 280 mm across its carapace. The females are much larger than the males. The average weight of the IST is 4.5 kg. They are omnivores but inclined to be vegetarian.

The species ranges over large parts of India, South-eastern Pakistan and Sri Lanka. The IST is found in a number of habitat types- from the semi-deserts to the savannahs to the moist deciduous forests.

The IST in India is protected under the Indian Wildlife (Protection) Act 1972 (No. 53 of 1972), where it has been placed under Schedule IV, making it illegal either to possess or to trade in the species within India. It is important to note that though it is not listed in the IUCN Red List of Threatened Species, it is listed in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

Our survey focused on:

Visits to offices of enforcement agencies to collect information about past seizures of ISTs, details of offenders, the status of prosecution and also the status of the seized animals.

Visits to rehabilitation and rescue centres to gather information on ISTs in captivity.

Field visits for trade investigation and habitat assessment.

Visits to urban pet shops and business establishments to assess their involvement in the trade.

Web page and literature surveys to determine the availability of information on the IST and its importance in global trade.

The statistics of wildlife seizures between 2001 and 2004 reveal that 12 out of 20 wildlife seizures made were of the IST and Chennai seems to be the main outlet for the smugglers. The trader's destinations appear to be the Southeast Asian countries. No record of any wildlife seizure was found in the seaport. IST distribution is more common to areas in and around the Palmaner

reserved forest of Chitoor district. Information collected during visits to villages in Chitoor district points out that the villages are located at an average distance of 1-3 km from the forests, suggesting that the proximity to IST habitat may make it convenient for their collection and transport to other places.

Investigation also suggests that the IST source is also centred in the Kolar and Madanpalle districts of Karnataka and Andhra Pradesh respectively. It was found that the 'Bird men' or the *kurvikar* (local name) community were the only ones dealing with wildlife, making a living by hunting birds either for consumption or for sale as pets. The Birdmen come only for brief periods to the city and are usually out in the wild. Thus their level of involvement in the trade is unclear. In Bangalore city, three seizures of ISTs were made between 1998 and 2000 from one single trader amounting to 3170 individuals. It was also found that the Hakke Pakke tribe (Nomadic hunters) were the first to handle the ISTs, collecting them from the wild particularly in Kolar district, in Karnataka. Visits to this tribal settlement confirmed collection at Bannerghatta National Park and the adjoining areas. Surveys of literature and the World Wide Web suggest that the ISTs are traded primarily as pets but are also sold as a delicacy in East Asian countries. Apart from this, the shells are used in the Traditional Chinese Medicine (TCM) industry. Several online pet shops were found to be exhibiting various animals for sale including the IST, with regular updates of the price list. The very presence of such online trading websites could indicate that North America is one of the final destinations of the IST in addition to Southeast Asian countries. In captivity nearly 60% of ISTs have been reported to have died at the Bannerghatta Biological Park due to water borne infections. Non-availability of information on the species has made its management in captivity very difficult.

Singapore's geographical location makes it an excellent trans-shipment point. In Japan, ISTs are imported legally and illegally, and are eaten as a delicacy. In Sri Lanka, where it is believed that there is no international trade, evidence of domestic use of the IST as pets has been found. In the United States of America undercover investigation and enforcement of laws appeared to be more effective but still a variety of animals and their products are smuggled in.

A comprehensive study on all aspects of the species will greatly help in mitigating trade of the species and also their management in captivity. Information on the distribution is vital in order to monitor and mitigate collection of the species from the source. General awareness among enforcement agencies on the wildlife trade will greatly help in enforcement, from stopping of collection to seizures in transit and at exit points. Publication of more information on the ecological importance of the species will surely create public awareness that will deter the buying of these creatures, thereby reducing the demand.



## 1. INTRODUCTION

Turtles and tortoises (Testudines) are believed to have appeared during the Triassic period around 245-208 million years ago. With their remarkable body armour and unique physiology, their success in survival and adaptation to the ever-changing environment through the years is creditable. Their practically unchanged body form and mode of living has remained stable through the years, giving us an insight into the livelihood of prehistoric life forms. Their survival success through these millions of years has been challenged by increased human activities today (Anonymous 2002a)



**Indian Star Tortoise**

Source: [www.turtletopia.com](http://www.turtletopia.com)

These evolutionarily important reptiles face a number of threats; the most recent and serious being large scale trade for their flesh for food and other parts for traditional medicine (primarily in Asia), and their use as pets in many parts of Asia and North America (Anonymous 1999). The Indian Star tortoise (IST) is today synchronous with wildlife trade globally. The trading of the star tortoises as pets will soon lead to them being known as a ‘domesticated’ species.

The objective of this study was to map the distribution of the species and to identify traders, their modus operandi, trade routes and monetary benefits.

## 2. SPECIES DESCRIPTION

### ***Classification:***

Kingdom: Animalia

Phylum: Chordata

Class: Reptilia

Order: Testudines

Family: Testudinidae

Genus: *Geochelone*

Species: *elegans*

Common name: Indian Star Tortoise

## *The Species*

All land tortoises are grouped under a single family, the Testudinidae. The IST is terrestrial and belongs to the ‘Starred’ group of tortoises, which have a distinctive radiating pattern on their carapace (shell). Included in this group are the Radiated spider and Flat-shelled tortoises of Madagascar, and the Geometric and Tent tortoises of southernmost Africa (Tortoise Trust 2005). The IST, like other tortoises, is enclosed in a thick keratinised shell



**Male and female Star Tortoise.**  
(Source: Tortoise Trust, UK)

made up of a number of plates called scutes. The body lies within the shell with retractable head, limbs and tail. The star tortoise is also known for its intricately coloured shell.

## *Size*

The IST is around 280mm across its carapace. The females are much larger than the males. (Daniel 2002) The average weight of the IST is 4.5 kg.

## *Appearance*

The dome shaped carapace comprises of a number of pyramidal scutes. At the centre of each scute is an elevation called the areola, which is coloured yellow. From the areola radiate yellow streaks that complete the star-like appearance characteristic to the IST. The shell as a



**Carapace and Plastron**  
(Source: Tortoise Trust, UK)

whole is elongated with marginal scutes serrated, and the back and front margins turned up slightly. The plastron has black rays on a yellow background. The head of the star tortoise is brownish yellow with black speckles and has small irregular shields. Head and neck are completely retractable. The legs are brownish yellow, columnar and club-shaped. (Daniel 2002) Sexual Dimorphism is distinct (see Appendix I for more details about the species).

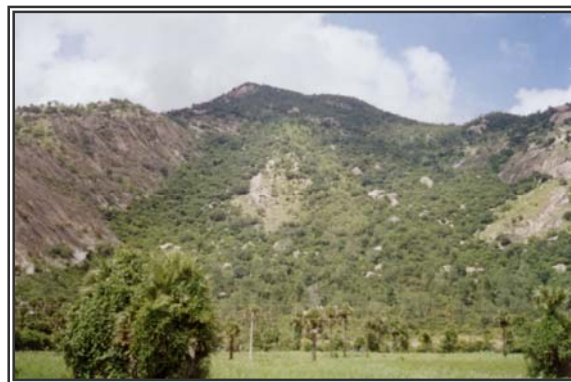
The juveniles are 35-45 mms long and lack the typical star pattern of the adults. They are either completely yellow or black and have a yellow 'butterfly' pattern on each scute. (Tortoise Trust 2005) The star pattern on the carapace mimics the light and shadow of the sunlight on the blades of grass, aiding in close to perfect camouflage. (Tabaka & Senneke 2003)



**Star Tortoise Juvenile**  
(Source: Tortoise Trust, UK)

### ***Habitat***

The IST is found in a number of habitat types - from the semi-deserts on the outskirts of the Thar Desert in Rajasthan and Gujarat of India, to the savannahs and the moist deciduous forests of southern and western Sri Lanka. They are also found in sand dunes, brushwood, and scrub forests, and also in human-altered habitats including waste areas, scrubland and plantations. The most distinguishing feature of the star tortoise habitat is its dryness. The



**A typical Star Tortoise habitat - Chitoor district**  
(Source: A Rocha India)

species cannot tolerate intense and continues sunlight and therefore seeks protection from the sun in the form of vegetation, rocks and shrubs (Tortoise Trust 2005).

### ***Distribution***

The species ranges over large parts of India, South-eastern Pakistan (SE Sind) and in Sri Lanka. They are characteristic to the Indian sub-continent and are said to be largely found in Chitoor & Madanpalle districts in Andhra Pradesh, Kolar district in Karnataka, Ramanathapuram district and the islands of Karaduva and Rameswaram in Tamil Nadu and also in parts of Kerala state. In North India they are found in the states of Rajasthan, Gujarat and Uttar Pradesh. (Tabaka & Senneke 2003, Daniel 2002, Tortoise Trust 2005)

## ***Food***

Star tortoises are omnivores but are inclined to be vegetarian. Their diet specifically consists of dry semi-arid desert vegetation like cacti, grass etc. They also feed on snails and insects. They may even feed on animal and bird excreta when food availability during the dry periods is extremely low. Being omnivorous, they are open to variety of foods, because of which they are well adapted to being kept as pets. However, lack of knowledge about their food habits has led to high mortality rates in zoos. Not much is known about their predators, thus leaving the food chain incomplete. During the long periods of drought the star tortoise is rather inactive and it can go without food for a long time (Daniel 2002).

## ***Reproduction***

Mating takes place during monsoon. Their adaptation to the dry and arid habitat is seen clearly during nesting. Star tortoises are specific about their nest site. The soil must be neither too damp nor too dry, but enough to be able to dig into. It must also show characteristics that indicate that it will not become waterlogged, too hot or too dry in summer. The gravid female builds a flask-shaped nest approximately 15 cm deep with her hind limbs (Tortoise Trust 2005). A clutch of around 3-7 eggs is laid in the excavated nest, and then the soil is replaced and flattened with the help of the plastron. Incubation of the eggs takes around 47 to 147 days (Daniel 2002). The eggs are significantly thinner and much more brittle than those of other tortoises, and hard shelled to resist the dry and hot atmosphere (Tortoise Trust 2005) (Appendix I).

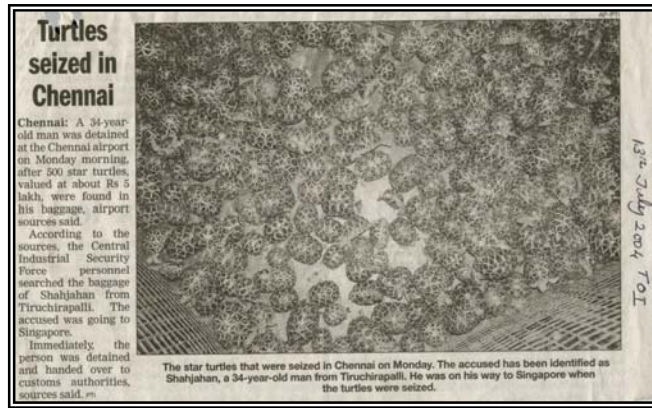
## ***Care in Captivity:***

The star tortoise has the reputation of being particularly sensitive and fragile. Being specific to habitat they are not very easy to maintain in captivity. Information on their diet, enclosure and health has been improved upon by trial and error (Tortoise Trust 2005) (Appendix I).

## **3. LEGAL STATUS**

The IST in India is protected under the *Indian Wildlife (Protection) Act 1972 (No. 53 of 1972)*, where it has been placed under Schedule IV, making it illegal either to possess or trade in Star tortoises within India.

It is important to note that the IST is not listed in the IUCN Red List of Threatened Species. However it is listed in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which lists species that are not currently endangered but are at a risk of becoming extinct. Apart from the CITES the IST is protected by legislation in each of the



**Times of India, 13<sup>th</sup> July 2004**

countries it is found in, i.e. India, Sri Lanka and Pakistan. In Sri Lanka the *Fauna and Flora Protection Ordinance 1938 (Amendment 1993)* prevents export of live and the native wild birds and animals, or their eggs, skin etc without a permit. The *Export Trade Control Order (1981)* and *Sind Wildlife Protection Ordinance 1972* imposed in Pakistan prohibits all export of wild mammals, reptiles and birds.

#### **4. METHODOLOGY**

The following approaches were adopted for the investigation and were carried out between August 2004 and January 2005.

##### **4.1. Visits to offices of Enforcement agencies**

These were done primarily to collect information about past seizures of ISTs, offenders, status of prosecution and of the seized animals. On these lines the Forest Cell wing of Karnataka Police was visited and a former officer of the Forest Cell was interviewed.

A visit to Chennai was made to interview the Regional Deputy Director (WP) and Wildlife Regional Cell (Southern Region) about the seizures of IST at Chennai International Airport in 2004. The Deputy Commissioner of Customs, Custom House (Port) and The Deputy Commissioner of Customs, Air Intelligence Unit, Air Cargo, Chennai airport were also met to discuss the recent and past wildlife seizures at Chennai. Detailed discussions were held about the type of seizures, agents involved, the accused, modus operandi and status of seized animals.

Officials from Andhra Pradesh Forest Department were met to collect information on the distribution and trade of the species.

#### **4.2. Visits to rehabilitation centres**

The Captive Rehabilitation Centre at the Jawaharlal Nehru Zoo in Hyderabad and the Bannerghatta Biological Park in Bangalore were visited to gather information on the IST in captivity.

#### **4.3. Field visit**

Chittoor district of Andhra Pradesh South India was monitored for a period of two months. Fifteen villages falling within a 25 km radius of Palmaner Reserved forest and Chittoor district were selected for the survey. General enquiry was made about the flora and fauna in the surrounding forests and the conversation was discreetly directed towards sightings and collections of the IST.

Chittoor town was particularly monitored for a week's time and several people from varied socio-economic and business backgrounds like taxi drivers, cloth merchants, vegetable vendors, hotel employees, porters and bullock cart drivers were discreetly questioned about the IST and its trade. Bus stands and railway stations were monitored. The length and breadth of the town was scanned for any evidence of wildlife trade through pet shops, meat shops, etc. The questionnaire (Appendix II) was kept as the basis for any discussion that was held. A keen vigilance of the various activities in the busy market place and the transportation outlets were checked for any suspicious cargo.

#### **4.4. Extent of urban involvement in the trade**

Russell market in Bangalore city was monitored- particularly the pet shops where earlier seizures were made. Pet shops were visited with the family to prevent any suspicion of motive. Subtle interrogation about animals in their possession was carried out to determine the presence and exit point of the IST from Bangalore.

The Bannerghatta National Park was surveyed to check the presence of ISTs that were released into the wild from the 1999 seizure. Based on some leads the Hakke Pakke settlement located close to the park was visited to ascertain the tribe's involvement in wildlife trade.

#### **4.5. Web Page and Literature Survey**

The World Wide Web was trawled to determine the availability of information on the IST and its significance in trade globally. From the various sites visited, the number of sites that concentrated on the description of the species and those specifically dedicated to trade was determined. Websites of a number of research and conservation organizations were visited to estimate the amount of work done on the species and general interest of the researchers on the species was determined. Literature and research publications on the IST were searched in libraries and research institutions to gather information on species distribution and trade.

### **5. RESULTS**

#### **5.1. Visits to offices of Enforcement agencies**

*Meeting with officials of Customs & Central Excise Department, Chennai*

Details of the seizures of ISTs were collected from the Deputy Commissioner of Customs, Custom House (Port) and The Deputy Commissioner of Customs, Air Intelligence Unit, Air Cargo, Chennai Airport. The statistics of wildlife seizures by the Customs in Chennai reveal that 12 out of 20 wildlife seizures made between 2001 and 2004 were of the IST. Many of the transactions take place through 'casual couriers' or naïve passengers. Travellers are asked to hand bags over to someone at the destination airport, and are themselves unaware of the contents of the baggage.

The table (1) below indicates that Chennai is the main outlet for the smugglers. It further indicates that an average of 501 individuals was retrieved at each seizure. Among the 12 seizures reported, only in 7 cases the individuals involved were known, thereby showing the trader's level of intelligence in maintaining anonymity. Out of the 9 flights mentioned, 5 of the seizures were from Singapore Airlines, 2 from Indian Airlines and one each from Air Lankan and Malaysia Airlines. Destinations could be any of the Southeast Asian countries. No record of any wildlife seizure was found at the seaport.

SL. NO.	DATE OF SEIZURE	PLACE	STATE	NUMBERS SEIZED	SEIZED BY	PERSONS INVOLVED	FLIGHT NUMBERS
1	10-Apr-01	Chennai International Airport	Tamil Nadu	365	Custom Officials	Unclaimed	SQ 409
2	14-Jul-01	Chennai International Airport	Tamil Nadu	440	Custom Officials	Abdul Latif Ismail	SQ 409
3	21-Aug-01	Chennai International Airport	Tamil Nadu	600	Custom Officials	KH Abdul Salam	SQ 409
4	21-Oct-01	Chennai International Airport	Tamil Nadu	315	Custom Officials	Unclaimed	IC 555
5	10-Apr-02	Chennai International Airport	Tamil Nadu	200	Custom Officials	M A S Abdul Kader	MH 181
6	13-Aug-02	Chennai International Airport	Tamil Nadu	714	Custom Officials	J Shekar & party	UL 122
7	11-Jul-03	Chennai International Airport	Tamil Nadu	441	C.I.S.F Officials	Not Available	Not Available
8	19-Jul-03	Chennai International Airport	Tamil Nadu	600	Custom Officials	Not Available	Not Available
9	7-Aug-03	Chennai International Airport	Tamil Nadu	900	Custom Officials	David John Thomas Jacob	SQ 409
10	17-Nov-03	Chennai International Airport	Tamil Nadu	540	Custom Officials	Unclaimed	Not Available
11	1-Jul-04	Chennai International Airport	Tamil Nadu	450	Custom Officials	Mohammed Shahjahan	SQ 409
12	17-Jul-04	Chennai International Airport	Tamil Nadu	452	C.I.S.F Officials	Abdul Latif	IC 974

(MH: Malaysia Airlines, UL: Air Lankan, IC: Indian Airlines, SQ: Singapore Airlines)



A meeting with the Regional Deputy Director (WP), Wildlife Regional Cell (Southern Region) led to information that the recently seized ISTs were released in Chengalpattu District of Tamil Nadu, where they are said to be found in the wild.

#### *Visit to Andhra Pradesh State Forest Department*

A meeting with the Additional Principal Chief Conservator of Forests confirmed that Chittoor & Madanpalle districts of Andhra Pradesh were known to be regions of maximum sightings of the IST, confirming the distribution of the IST in these areas. The IST's distribution is more common to areas particularly in and around the Palamner Reserved Forest. The AP Forest department particularly in Chittoor District has been very active in creating awareness on the IST, which was evident from the number of posters and hoardings put up around the town. This could probably be the reason for the lack of any intelligence break-through in Chittoor district.

#### **5.2. Visits to rehabilitation centres**

The discussions held at the Rehabilitation Centre of the Jawaharlal Nehru Zoo led to the conclusion that the official concerned was unsure about the exact number of ISTs in the zoo. A few had already died and the rest were in good condition. Four pens have been allocated to house 80 to 150 star tortoises. All were juveniles of similar size.



**Star tortoises at the Bannerghatta National Park and Jawaharlal Nehru Zoo**

(Pic: A Rocha India)

At the Bannerghatta Biological Park nearly 60% of the ISTs died between 2002 and 2003. Presently there are only 34 individuals remaining. According to the Officer-in-charge the animals

died due to water borne infection. Non-availability of information on the species has made its management in captivity very difficult.

### 5.3. Field visit:

The results of the survey carried out are summarised in the Tables below. Information collected from the questionnaire show that the villages visited were all of an average distance of 1-3 km from the forests (Table 2.). The habitat of the villages visited coincided with the habitat of the star tortoise, although there were no actual sightings of the specimens. If found in this region, the proximity of the village to the animal's natural habitat may make it convenient for their collection and transportation to other places. In spite of this information gathered there were no encounters of the trade.

Table 2. Village Survey

VILLAGE SURVEY								
VILLAGE STATUS			FOREST STATUS					
DISTANCE FROM FOREST			TYPE				LEGAL STATUS	
<i>Within Forest</i>	<i>Periphery</i>	<i>Average distance</i>	<i>DF</i>	<i>S</i>	<i>DS</i>	<i>SH</i>	<i>NP</i>	<i>RF</i>
19%	81%	3-4km	6%	31%	38%	25%	94%	6%

DF- Dry Forest, S- Scrubland, DS- Dense Scrubland, SH- Scrubland and Hillocks, NP-National Park, RF- Reserve Forest

From the survey, 47% (Table 3) of those interviewed confirmed the presence of the species in the forest vicinity; while the remaining 53 % of locals interviewed were totally ignorant of the species. Among the positive respondents, 57% were definite about the sightings but were not sure of timing and exact location, and 43% were not definite of the species.

Table 3. Status of Villagers

Average age group	25 - 75 years
Agriculturists	58.80%
Others (Teacher, Hotel worker, Driver, Grocery shop owner, former nomadic hunters now into garland making)	41.20%
% of people who visited forests	35.00%
% of IST sightings during visit	47.06%
Reasons for visiting forests	Collection of firewood and herbs.

### *Visit to the market*

The Chitoor town square is generally very crowded and buses at the old bus stand were parked haphazardly with loud music and blaring horns and people packed in like sardines. The frequency of buses leaving and arriving from various destinations is sometimes less than a minute. The cargo that was carried on these buses was generally agricultural produce like green leafy vegetable in baskets. Long distance buses usually cover the top with a tarpaulin. The area near the bus stand is filled with shops- from clothes and stationary shops to small eateries and restaurants, petty shops and phone booths.

Local taxi operators were unaware of any wildlife in the area and enquiries about any kind of tortoise only revealed that they could be seen in ponds and wells. Visits to the bus station showed that most long distance buses stop for a brief period in Chitoor. Traversed routes are to Chennai, Bangalore and interior Andhra Pradesh. Trucks and buses from Chitoor to Bangalore and Chennai are possible routes for transporting the IST. The stopover at the railway station for information on cargo was not very rewarding due to the horde of people thronging in before the arrival of trains.



**Chitoor Railway Station**

(Pic: A Rocha India)

### *Profiles of villages that were visited*

Talambedu is a small hilly village located approximately 15 km from Chitoor. General concerns were raised in Talambedu on the enquiries made, and the basis for the investigation was questioned.

Bangarupalyam, a village approximately 25 km from Chittoor, is a transit point for goods coming from in and around Chittoor district. General interviews with the locals indicated sightings of the IST in the neighbouring forested areas.

Palmaner, a small town that is 40 km from Chittoor on the Bangalore road, is in the vicinity of the forest reserve. Queries about the general flora and fauna revealed diversity in bird and reptile species in and around the forest cover, which is close to town. The IST has been sighted in the area and sometimes local people have even picked them up from the road and released in forest cover.



**Habitat of the Star Tortoise**  
(Pic: A Rocha India)

Aragunda, a small village approximately 25 km from Chittoor town is surrounded by arid hillsides with very little water. Enquires about the flora and fauna revealed the presence of some bird, snake and reptile species, including the IST.

One lead received from the visit to the various locations in and around Chittoor district was of the presence of the ‘Bird men’ or the *kurvikar* (local name) community. They were the only ones dealing with wildlife, making a living by hunting birds and other wildlife either for consumption or for sale as pets. The ‘Bird men’ come only for brief periods to the city and are usually out in the wild. Thus their extent of involvement in the trade of the IST is unclear.

#### **5.4. Extent of involvement of urban involvement in the trade**

Based on the discussion with a former Forest Cell Officer in Bangalore, it was possible to conclude that the IST source was also centred in the Kolar and Madanapalle Districts. Further investigation in these areas was not possible due to lack of time and resources. ISTs have been seized from traders in Bangalore in the past. Between 1998 and 2000 three seizures of ISTs from a single trader alone amounted to 3170 individuals. The animals were seized from a shop called *Zoo Land*. The shop is also known as *S.A Khader and sons*. The trader was arrested and two cases were booked in J.C. Nagar Police station (Crime No’s: 465/99 and 482/99) and one in K. G. Halli police station (Crime No: 480/99) by the Forest Cell of the Bangalore Police. Owner S. A. Khader is dead now, and no verdict has been made on this case at the time of writing of this report. His son Sadath now runs *Zoo Land*.



### **Star Tortoise seizure in Bangalore**

(Pic: A Rocha India)

The ISTs collected from Kolar and Madanpalle Districts are allegedly sent to Bangalore for further trade. The animals are of different age groups, but mostly very young when captured. The trader is said to be rearing them in his residence at Thomas town, east Bangalore. He also has two storage places on Tannery Road, and is said to have a variety of pets at his shop. He also breeds & deals with pedigree dogs.

From Bangalore the ISTs are transported by road using his personal four-wheeler and by train to Chennai. They are packed in small boxes and booked in cargo, and mostly unaccompanied. The consignment is booked in the name of the shop (Zoo Land) or in the name of the owner. After the 1999 seizures of ISTs there have not been any further seizures in Bangalore.

The investigation that was continued in the Bannerghatta National Park indicated the presence of the released star tortoises from the 1998 seizures. According to Forest Cell investigation the Hakke Pakke tribe (Nomadic hunters) were the first to handle the IST, collecting them from the wild. At the Bannerghatta Hakke Pakke colony, it was found that a few individuals visit them often claiming to be 'Doctors' and that the ISTs have medicinal value. They are said to leave behind some money



### **Hakke Pakke tribe in Karnataka**

(Pic: A Rocha India)

and phone numbers, which the Hakke Pakke call whenever they pick up ISTs. There are around nine major settlements of Hakke Pakke in Andhra Pradesh, Tamil Nadu and Karnataka. The tribe



confirmed collection at Bannerghatta National Park and the adjoining areas.

### 5.5. Web Page and Literature Survey

To further strengthen the results of the investigation, a survey of websites was done. The availability of information on the IST and the kind of information provided by the web pages was studied. It was found that information on most of the web sites concentrated on the trade aspects of the species. Several webs sites also carried very general information such as description, distribution and food habits of the animal. Very few of them had scientific references for the information presented. The following table summarizes the global seizures of IST between 1996 and 2003.

*Table: 4*

Date	Place of seizure	Country	Source of the seizure	Numbers seized	Seized by	Penalty
Nov 1996	Pearson International Airport	Toronto	Not Available	232	Canada Customs-Environment Canada	\$ 10000
03-Apr-02	Changi Airport	Singapore	India	334	Agri-Veterinary Authority	S\$5000
28-Jun-02	Changi Airport	Singapore	India	1011	Agri-Veterinary Authority	Not Available
31-Jul-02	Changi Airport	Singapore	India	1095	Agri-Veterinary Authority	Not Available
2002	Not Available	USA	Thailand	Not Available	United Sates Fish and Wildlife Services	\$2 million
24-Jul-03	Not Available	Malaysia	India	580	Malaysian Authorities	Not Available
15-Sep-03	Changi Airport	Singapore	India	499	Not Known	\$5000

From the above table it is seen that Singapore is the main point of seizure, and it probably continues to be the hub of global trade in the IST. Even though the IST is protected in India through a ban of its sale as well as its possession, growing international demand has increased the collection of the IST and its subsequent export to other countries that don't stop them from being traded.

ISTs are traded primarily as pets but are also sold as a delicacy in East Asian countries. They are also brought into the country legally, with a permit. Apart from this, the shells of the testudines are used in the Traditional Chinese Medicine (TCM) industry (Anonymous 1999). So it is possible

that the ISTs being sent to East Asian countries from Singapore in addition to being transported to North America.

The IST is sold as pets, particularly in North America. Several online pet shops were found exhibiting various animals for sale, including the IST, with regular updates of the pricelist (Table 5). Individual animals are sold for higher prices, with the prices varying according to the demand and the size of the animal (Anonymous 1999). The website of East Bay Vivarium (2005) (an online trading pet shop) in Berkley, California, shows that the price of the IST in 2004 was US \$600. In a year's time the price has shot up to US \$1500, depending upon the size and age of the tortoise. Shells four inches long were charged at \$650 to \$1500 and a length of four and a half was priced at \$1000 to \$1500. The very presence of such online trading websites clearly indicate that North America is one of the final destinations of the IST in addition the south-east Asian countries.

*Table 5: Price list - Spring 2005 - East Bay Vivarium, Berkley, California.*

<b>Local Name</b>	<b>Scientific Name</b>	<b>Size of the animal</b>	<b>Price/Demand</b>
African Spurred Tortoise	<i>Geochelone sulcata</i>	NA	Sold out
Bell's Hingeback Tortoise	<i>Kinixys belliana</i>	NA	Sold out
Burmese Brown Mountain Tortoise	<i>Manouria emys</i>	Captive bred babies	\$225
Redfoot Tortoise	<i>Geochelone carbinara</i>	Captive bred cherry head yearling	\$350
Redfoot Tortoise	<i>Geochelone carbinara</i>	Yearling	\$225
Redfoot Tortoise	<i>Geochelone carbinara</i>	Dwarf head cherry adults sold as pair.	\$700 a pair
Forest Hingeback	<i>Kinixys erosa</i>	NA	Sold out
Golden Greek Tortoise	<i>Testudo graeca</i>	NA	Sold out
Greek Tortoise	<i>Testudo graeca</i>	NA	\$175
Leopard Tortoise	<i>Geochelone pardalis babcocki</i>	Captive bred babies	\$225
Elongated Tortoise	<i>Indotestudo elongate</i>	NA	Sold out
Marginated Tortoise	<i>Testudo marginata</i>	Captive bred babies	\$200
Radiated Tortoise	<i>Geochelone radiate</i>	NA	Sold out
Russian Tortoise	<i>Testudo horsfeldi</i>	NA	\$60
Yellowfoot Tortoise	<i>Geochelone denticulate</i>	NA	Sold out
Forstein's Tortoise	<i>Testudo forsteni</i>	NA	Sold out
Indian Star Tortoise	<i>Geochelone elegans</i>	Adult male	\$1,000
Spider Tortoise	<i>Pyxis arachnoids</i>	NA	Sold out
Madagascar Spider Tortoise	<i>Pyxis arachnoides bragoi</i>	NA	Sold out

### *Mode of Transport*

The animals are often transported in boxes as artefacts. They are taped up to prevent any movement during the customs checking. They can also be manipulated to fit in luggage. Juveniles are traded as they are easier and cheaper to ship and more animals can be accommodated in baggage and crates. Therefore trading of the star tortoises is at its peak between July and November, which is the hatching season (Chanda 2004).

During the trafficking of the tortoises, every accessible conveyance is made use of. Transport by air is preferred as the survival rate of the traded animal is the highest, even though the risk of getting caught is also high. Land routes are used for transport within the country. Just like the smuggling of other goods, the concealment of the IST during transport takes place with a lot of innovation. Maximum possible care is taken during transport with live and motile goods. The IST is small and docile, and doesn't pose much of a problem when it comes to packing. Over short distances they are stored in crates and transported by road or rail.

The next stage in their transfer is through the customs at the airport. This is where utmost care is taken to prevent disclosure. The ISTs' head and limbs are mercilessly taped back so that they pass off as artifacts at the customs checking. They are transported in airline hand baggage, cargo luggage and even on the person. There was a particular seizure where the tortoises were arranged in egg cartons, stuffed in hand baggage and placed in the overhead locker of the plane. In some cases they are indigenously packaged in boxes marked as 'wooden handicrafts' or labeled as magazines or book samples in shipments of toys cars and figurines. There have been other desperate measures of hiding them underneath clothes to pass through scrutiny. It was also found that in many cases, the sniffer dogs used for narcotics and metal detectors for weapons do not come handy when dealing with the smuggling of the IST (Wire 2004). Due to the ways the tortoises are packed they go through a lot of complications and sometimes do not survive the journey. Smuggled animals stuffed into boxes suffer from stress, dehydration and or starvation. Some even are crushed to death (Chua 2003). General ignorance about the animal during customs checks seems to be the reason behind their easy movement in and out of airports.



### *An over view of global trade*

Singapore, Malaysia, India, Sri Lanka, Japan, Thailand, Britain, Canada and United States of America seem to be hotspots of global trade for IST. Details of the status of trade, investigation and law enforcement in Singapore, Malaysia, Sri Lanka, Japan and USA is given below.

*Singapore:* appears to be one of the hubs of illegal wildlife trade and growing at a dangerously high rate (Chua 2003a). Its geographic location makes it an excellent transshipment point. With a reputation of 21 cases of illegal trade in wildlife in just one year, it is said to be the second only to the drug trade. The animals mainly come in from India and Indonesia. From Singapore the animals go to North America. There is an opinion among conservation groups that Singapore's laws are not rigid enough to prevent smuggling (Chua 2003). Contrasting the illegal trade that happens in the country, the Wildlife Regulatory Branch of the Agri-Food and Veterinary Authority (AFVA), CITES Management Authority of Singapore and the Singapore Zoo took up the responsibility of rehabilitating and housing around 2000 Star Tortoises that were seized until they were shipped back to their homeland. Advancement in legislation has banned the keeping of reptiles as pets (Anonymous 2002).

*Malaysia:* A study carried out by TRAFFIC Southeast Asia concluded that it is very easy to carry out the trade of small animals in Kuala Lumpur. The study found that every two to three months, the local pet industry is able to import undetected illegal shipments of the IST. Once globally protected species pass through the Customs, loopholes in Malaysia's wildlife legislation allow the reptiles to be sold without constraint. Several other species protected by international laws are not licensed as protected animals under Malaysia's Protection of Wild Life Act, 1972 (Sabaratnam 2004). A survey carried out in 2003 found that 77.4% of the pet retail shops visited sold the IST. Dealers admitted that the tortoises were illegally brought in from India (83 %) and Sri Lanka (17 %). Though the retailers are aware of the strict legislation in their country of origin, they take advantage of the lack of law enforcement by concerned agencies in Malaysia that protect the animal. This allows them to sell ISTs openly, and no permits were used to import any of these animals. In fact 50% of the retailers volunteered advice about how to smuggle tortoises to avoid detection during international transit (Chris et al 2004)

*Japan:* The Japanese import ISTs legally and illegally, and these are destined for the kitchen. Star tortoises are a delicacy in Japan and in a year some 29,000 live tortoises are imported legally, accounting for about 54% of the International market for reptiles, according to TRAFFIC. Over a quarter of a million live tortoises and freshwater turtles were imported to Japan between 1981 and

2001. In the early 1980s some 2,000 individuals were imported each year, and since then imports have continued to increase, reaching 37,000 in 2001 (Anonymous 2005b & Anonymous 2005c). An IST can fetch between 20,000 and 2.5 million yen in Japan depending on the size, colour and shape. Official records show only 2,000 of them have been legally imported into Japan in the past decade. The retailers are not concerned about the legality of the pet imports. "The reality is that we don't ask questions," said a Tokyo pet shop manager, who declined to be named (Wire 2004).

*Sri Lanka:* Many believe that there is no international trade in Sri Lanka due to the efficiency of Sri Lankan customs officials. However, there is evidence of domestic use of the IST as pets. The other threats are injuries inflicted by human beings, injury due to burning in bush fires, local consumption as food, road kill and parasitic infections. For instance, a population of star tortoises found in good numbers at a particular location in Sri Lanka in the early 1900s is now totally extinct from that area as a result of human interference (Zoo Outreach Organisation 2003).

*United States of America (USA):* It appears that the United States has one of the world's largest markets for wildlife and wildlife products. Undercover investigation and enforcement of laws also appeared to be more effective in the USA but still a variety of animals and their products are smuggled in. There have been various means of transport of the animals into the USA (Anonymous 2004). Efforts are being made to educate officials on species identification and enforcement of laws. There is a constant vigil on trade of the species in USA. A man who tried to smuggle Fly River Turtles, ISTs and monitor lizards into USA from Singapore by express mail was sentenced to serve 37 months in prison in Florida. A six-month investigation into turtle and tortoise smuggling ended with the arrest and indictment of an Asian supplier and a Wisconsin reptile dealer. Even though severe enforcement continues, the trade on wildlife species does not seem to abate.

A summary of some of the worldwide Seizures of IST:

- In November 1996, a joint Canada customs-Environment Canada operation at the Pearson International Airport in Toronto rescued 232 Star Tortoises imported from India. A British citizen was fined \$10000. The tortoises, worth as much as US\$250000 in the international market, were carried in egg cartons disguised as eggs and concealed in the luggage. They were handed over to the federal government for safekeeping and later transferred to seven zoos (Anonymous 1996).

- Between April and August 2002, the Agri-Food Veterinary Authority (AFVA) of Singapore seized three large illegal shipments of IST at Singapore's Changi Airport. The first shipment of 334 tortoises weighing 45 kg was seized on April 3, 2002. The animals were packed tightly into a large suitcase. The guilty was fined S\$5000 (US\$2800), imprisoned for eight weeks and ordered to pay more than S\$10000 towards the care and repatriation of the animal. This shipment was handed over to the Singapore Zoological Gardens. The second shipment of 1011 hatchlings was seized on June 28, 2002. The zoo refused the animals until assurance was given by AVA that arrangements were made to repatriate the tortoises to India. On July 31, 2002, the third shipment of 1095 IST weighing approximately 80 kg was intercepted by AFVA. These were sent to the zoo on August 8 to be included in the repatriation operation. On August 22, 2002 over 1800 ISTs were shipped to Nehru Zoo, in Hyderabad, India.
  
- A reptile dealer in Wisconsin USA was caught in the possession of dozens of live turtles, tortoises, and other reptiles including the ISTs from Thailand in 2002. He was charged by the USFWS with nine felonies including conspiracy, smuggling wildlife, falsely labeling wildlife, making false statements and money laundering. If convicted he would face up to 20 years in prison and \$2 million in fines. His foreign supplier in Thailand was also indicted on 13 felony counts related to the alleged scheme. The tortoises were indigenously packaged in boxes marked as 'wooden handicrafts'. The USFWS wildlife inspectors intercepted several packages in Anchorage after X-rays revealed that one contained 24 turtles and another held 85 other live reptiles (Anonymous 2004a).
  
- Star tortoises were even stolen from Honolulu Zoo, Hawaii in March 2003. Police said the theft of juvenile tortoises is a crime that may result in a prison term of up to five years in jail and a fine of \$10,000. The tortoises are valued at \$300 to \$600 each in the global market. (Davenport 2003)
  
- In July of 2003 a Singaporean was indicted in the US for shipping 198 turtles, 25 tortoises and 3 monitor lizards from Singapore to Orlando. Between January and September of 2003 a total of 2,938 ISTs were seized in Singapore. They are sold for a price of S\$150 for each (Chua 2003a).

- In August 2003, around 1000 endangered IST were seized at the Chennai international Airport. Based on a lead the officials found the tortoises in an overhead locker in 3 pieces of hand luggage aboard a flight to Singapore. They were allegedly collected from the forests of Andhra Pradesh state in India.
- In September 2003 the Immigration officers at Changi Airport in Singapore seized 499 IST carried by an Indian citizen who flew in from Chennai with them stuffed in his carry-on baggage. The report says that they would have been worth about S\$ 30000. Those involved in the trade will be fined \$5000 & jailed for up to one year. The tortoises were jointly transported with other turtles, lizards and snakes
- In July 2004, 450 IST were seized from Mohammed Shahjahan, aged 62, as he was about to board the flight to Kuala Lumpur from the Chennai Airport. Investigations by wildlife officials revealed Shahjahan was acting as a channel for a much larger racket that operated out of Burma Bazaar in the city. The seizure was said to be the result of an intensive operation on to track down the IST smugglers.
- 10 live ISTs were seized while being imported from Singapore via international mail. They were smuggled into California in a shipment of toy cars and figurines.

#### *Problems faced by the customs officials*

As smuggling through air is preferred, customs plays a vital role in controlling IST trade, and it is important to know the efficacy of the customs officials and the problems they face. According to the officials, under reporting is a common practice in many countries, due to incorrect identification of species. Officials are under constant pressure, processing tens of thousands of airport users everyday, and have to bank mainly on their instinct to check for animal smuggling. Though they do their best, the intelligence of the smugglers makes their task difficult. The Customs lack animal experts who could spot violations of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Knowledge in identifying animals and animal parts to assess which animal it belongs to is difficult (Wire 2004). Thus officials trained for identification can help in stopping the trade at the initial stages.

## *Measures taken to the understanding of the species and their Protection*

There are positive signals for better understanding of this species. For the first time in India, nearly 90 ISTs were micro chipped and their activities were monitored in the year 2004. They were released into the forests of Mamandur and Palamaner in Chittoor district of Andhra Pradesh in southern India. The operation was carried out with technical help rendered by scientists of the Wildlife Institute of India, Dehradun. Habitat analysis has been carried out in areas and a few ideal habitats for the star tortoises were selected for 'soft release'. The project was ventured with the

guidance and support of the Central Zoo Authority, New Delhi, in active collaboration with the CCMB, Wildlife Institute of India and the Central Government (Anonymous 2003).

*Prakrithi*, an online newsletter of Indian Institute of Technology (IIT) Madras highlights environmental and ecological issues. Their October 2003 issue features the IST that is apparently found in the campus. Creation of general awareness about the illegality of their trade and possession follows the general introduction of the animal and their habits. Other much mistaken conceptions, such as the idea that they are aquatic, are dispelled. This small community of people plays a small but significant hand in protecting the animal (Anonymous 2003a).

## **6. DISCUSSION**

The multiple seizures of the IST between 1998 and 2000 in Bangalore suggest that the city is a mid way point between collection and exit to international destinations. The study reveals that the traders have a network of individuals who help them in transporting the tortoises especially through rail routes. There are possibilities of railway personnel helping the traders in this operation. Personal vehicles are also used for transportation to avoid suspicion at checkpoints. There have been no seizures after 2000, which indicates that individuals in various government departments are alerting traders.

Information gathered from the Customs and field surveys revealed the start and end of the trade route, but the precise trade route could not be chalked out. The ISTs are collected by the Hakke Pakke tribe from the wild and sold to traders. No further details were revealed about the traders who have bought the co-operation of the tribe. Longer interaction with the community may help to unearth this information too. As this tribe lives in large numbers in Chittoor and Madanpalle districts and also in Kolar and other parts of Karnataka (key IST habitat) their large-scale involvement in the trade is suspected.

The information from enforcement agencies provided the necessary lead for the continuation of the study. This was supplemented by the detailed list of seizures of the tortoises at the Chennai International Airport, where between the years of 2002 and 2004, 6017 star tortoises were seized. The absence of any records of wildlife seizures at the Chennai Sea Port indicates that the main mode of transport out of India is by air.

According to the Customs officials at Chennai the seized animals were released into the forested areas of the Chengalpattu district of Tamil Nadu, where they are said to be found. From here they are defenceless victims for further trade. Similarly the seizures in Bangalore that were released in the Bannerghatta National Park are also vulnerable to re-capture. The star tortoises are otherwise taken to rehabilitation centres like the Jawaharlal Nehru Zoo, Bannerghatta Biological Park, where they are safe from the trade. However, due to unavailability of information on enclosure design, vet care, their habitat, diet and disease diagnosis, many have died. Neither of the measures taken by the officials has helped improve IST numbers. Better information on the animal and its habits will aid the zoos in their safe keeping till they are ready to be released into the wild.

The field visits did not provide much information on the status of trade, neither were there any sightings of the IST. The possibility of Chitoor district being a centre for collection and trade was seen from the strict vigilance kept by the AP forest department. This could also be the major reason why people plead ignorance of the presence of ISTs in the area. The villages around Chitoor town appear to be a probable place for collection, as the semi arid, dry, hilly topography of these villages meet the habitat requirement of the star tortoises. The *kurivikars* of Chitoor may be involved with the traders either in collection or direct trade. No further information was available about them, thus no conclusions can be drawn. Bangarupalyam, where the locals indicated sightings of the IST in the nearby-forested areas, indicates the possibility of this village being a transit point for trade in the Chitoor district. Investigations into past seizures reveal that possible sources of collection are the Kolar and Madanpalle Districts. Further investigation is recommended to confirm this finding.

Research based on information from website and literature survey suggests that the trade in ISTs does not end in Singapore, but continues till North America. This is evident from the several seizures of ISTs in the United States and Canada, and the fact that they feature in online pet stores. In spite of laws meant to protect the species, the overt nature of their sale suggests the inability of the enforcement agencies in halting the trade.

## **7. CONCLUSION**

Research work such as this is expected to bring forth results that will reduce trade in wildlife. However, short-term studies on trade are very unlikely to bring out much information on traders, as familiarization and gaining the confidence of the suspected trader would in itself take a long time. Apart from this, the extensive network of trappers, hunters and middlemen make the investigation much more complicated. Posing as a 'buyer' to elucidate information from the trader has proved to be difficult during this work, as the trader has trusted middlemen who deal with very specific and regular customers for wildlife and their products. Such operations would also require huge financial backing, as posing as buyers would require monetary advances for decoy operations, as traders do not oblige unless such advances are made.

The support of government departments is highly imperative for such studies, without which no primary information can be obtained. Unfortunately, only influential recommendations work to gather any information from government departments. If not for the personal contacts of the Principal Investigator with the Customs officials in Tamil Nadu, no data on seizures would have been available. The intervention of religion may help prevent trade in the IST. Many places like Japan and India have an ethical and religious value for the Testudines in general. In Asia, people regard turtles as symbols of longevity, stability and strength, and are represented on temple walls. In Chinese mythology, the tortoise is one of four celestial beasts that were present at the creation of the universe.

A comprehensive study on all aspects of the species will greatly help not only in mitigating trade of the species but also their management in captivity. Studies to ascertain the exact distribution of the species will greatly help in investigations such as this, as time and resources can be harnessed to specific localities where they are found. Information on the distribution is vital to monitor and mitigate collection of the species from the source. General awareness among enforcement agencies on wildlife trade will greatly help in enforcement- from stopping collection to seizures in transit and at exit points. The presence of many online pet stores, along with details of the price, care in captivity and means of delivery, makes it easy for pet lovers to have one at home, which in turn creates a huge demand for the IST. Publication of more information on the ecological importance of the species will surely create awareness among the public, which will deter the buying of these creatures, thereby reducing the demand. Recognition of the immediate need for conserving the slowly declining numbers of the IST, improved enforcement of existing legislation and regulations, as well as raising public awareness and concern can prevent the entry of yet another species into the Red List.

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## APPENDICES

### APPENDIX I

#### SPECIES DESCRIPTION

**Appearance:** The star tortoise's carapace may range from smooth to fairly bumpy with elevated scutes giving it a pyramidal form. The reason for this natural pyramiding is uncertain, but it is believed that the raised scutes aid the animal to get back to normal position when turned over. The raised scutes would make it naturally slant to one side or the other, which is a genuine help in a flat grassy habitat. Due to this, the extent of the bumpiness of the carapace aids in a greater survival rate, and would be naturally selected in future generations (Tabaka & Senneke 2003). Large scales cover the anterior part of the front limbs, though absent in the hind legs. The Star tortoise has 5 claws on each foot, the posterior claws of females being longer and more curved than those of the male. This facilitates nest excavation in the often hard and dry ground. Jaws have alveolar ridges.

**Sexual Dimorphism:** Sexual dimorphism is distinct. Apart from the difference in size, females have a more rounded appearance, and the male's tail is much longer than that of the female, to aid in copulation. Along with these characteristics, males have a concave plastron to facilitate mounting during mating while the plastron of a female is completely flat (Tortoise Trust 2005). Females have broader shells; frequently the vertebrals and less often the costals are conical in shape. Males have narrow; relatively smooth shells and dingy markings.

**Mating:** Sex determination in *G. elegans* seems to be dependent upon incubation temperatures. The threshold temperature is said to be 30.5° C. Incubation temperatures below this (such as 28-30° C) will produce mostly males, while higher temperatures (31-33° C) will produce mainly females. The hatchling is provided with an egg tooth for breaking the shell. (An egg tooth is a temporary beak-like structure on the upper jaw.) The hatchlings normally grow rapidly for the first few months, and then settle down to a slower growth rate. Maturity in nature is attained at 6-8 years of age in males and at 8-12 years in females. In captivity, maturity can be reached far earlier, but then usually at the cost of unnatural growth, and among extremely quick-raised animals probable locomotion difficulties and reproductive problems in females (Tortoise Trust 2005).

**Care in captivity:** The species is extremely sensitive to respiratory problems if kept too cold or too damp; it is also very vulnerable to protozoan like *Hexamita* and *Trichomonas*. Star tortoises also

seem to be more sensitive to problems caused by exposure to other species of tortoises, and a strict isolation is crucial in star tortoise husbandry. Wild star tortoises generally adapt very slowly if at all to captivity, especially to the more unnatural conditions that are necessary when keeping them in northern climates (Tortoise Trust 2005).

As mentioned earlier, the diet of the Star tortoise is essentially herbivorous in the wild, and there is no reason to change this in captivity. In nature, where food availability during the dry periods is extremely low, it is understandable that a tortoise consumes animal matter when found, but in captivity, where food is plenty, offering animal food is not needed and may even be dangerous. (Tortoise Trust 2005)

## APPENDIX II



### *A Rocha India* *Study on Indian Star tortoise*

Date:

Observer and tracker name:

Name of the village:

Status of the village:  
(Enclosure/periphery village)

Distance from forest:

Forest type:

Legal status of forest:  
(RF/WLS/NP/others)

Status of forest:  
(Cattle grazing, wood cutting or collection other forest products – legal/illegal)

Name of the person interviewed:

Age/sex:

Main occupation:

Reasons for visiting forest:

Time spent

Few hours:

One day:

> a day:

Overall species list observed during visit (mainly, snakes, lizards, tortoises seen):

If animal seen is star tortoise, collect the details of the description of the animal, when and where it has been reported:

Any capture of Star tortoise? If yes, ask reasons (for meat/medicine/commercial):

If for commercial reasons, place of capture:

What are the different sizes and prices of IST

Size (cm)

Price (Rs.)

Size (cm)

Price (Rs.)

***Name and address of the person(s) to whom IST sold/ or purchased from:***

Information on any middlemen/secondary domestic trader/final domestic trader/exporter?

Trade of IST done from which month to which month:

Numbers of IST traded/purchased/sold this year:

Amount earned from IST trade in this year/last year:

What mode of transport does is used to transport IST:

How IST is carried? In bag/container/carton/wooden box/any others (please mention):

What is the IST fed with?

Where are the IST kept, Are they bred in captivity?

Which Indian cities are ISTs transported to:

How are ISTs transported/exported? By courier/hand baggage/Checked baggage/any other

How are they packaged during transportation?

Name and address of the courier/carrier of IST's

How many individuals die/100 IST during transportation?

Any other information: