Turtle Conservation *Indochina*

Newsletter of the Turtle Conservation and Ecology Program (TCEP)

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In this Newsletter

Turtle Conservation Indochina

In the past, the TCEP periodically produced a newsletter reflecting progress, news, and other issues of interest relevant to turtles and their conservation in the region. The newsletters helped keep people informed, and also helped promote our efforts to conserve the region's turtles. Unfortunately, we have not found the time to keep the TCEP newsletter going as we had hoped, and despite our very active efforts in conservation, we have not achieved very high marks in our efforts to keep the turtle world informed.

However, we hope to change this. Much is happening on the frontlines of conservation, and the TCEP Review will now be produced quarterly to help keep those in the international community with interest in the region better informed. This initial version is lengthy in that it represents a measure to bring many of you up-to-date since our last newsletter in December 2000. Future versions will be significantly shorter and even less formal.

We also hope to expand our website and make trade reports, captive ecology observations, news, and other information available in a timely manner. We are discussing with Jim Van Abbema of the New York Turtle and Tortoises Society (NYTTS) about further development of the current website (www.nytts.org/Vietnam).

Getting Your TCEP and TCC Sorted Out is Important

For the sake of clarity, please note the subtle differences between TCEP and the TCC. TCEP refers to the *Turtle Conservation and Ecology Program*, a conservation program focused on the protection of turtles. TCEP is involved regionally with turtle conservation in Indochina and is therefore often referred to as TCEP-Indochina or TCEP-Vietnam. Formerly based at Cuc Phuong National Park, TCEP is now located in Hanoi where it shares an office with a local NGO (at no cost!).

The Turtle Conservation Center (TCC) is located at Cuc Phuong. It is the largest project for which TCEP is currently involved. The TCC is managed by Cuc Phuong National Park, with TCEP providing technical assistance to the park, funding, and working with the park to develop the center further in order to integrate these efforts with regional conservation needs. TCEP's advisor staff includes Douglas Hendrie, Tim McCormack (research coordinator), Mr. Le Ai Vinh, and Ms. Nguyen Minh Hang. As turtles rarely pay salaries for safe-keeping, all of the TCEP technical staff is employed in other capacities that allow significant allotments of time dedicated to turtles and their conservation.

Introduction to the Turtle Conservation and Ecology Program

Origins

Why the TCEP? In 1996, I had the opportunity to witness a major trade seizure by the Ninh Binh Forest Protection Department that included, amongst other wildlife, large quantities of turtles. While some of the animals in the shipment were confiscated by the authorities and released or placed in rescue programs (primates, civets, and pheasants), the turtles were returned to the traders and sent onward to China. Having a life-long interest in turtles but knowing little about the Asian turtle crisis (which had not yet become the focus of international attention), I sought to determine whether there were any active programs in place for the conservation of turtles in Vietnam. Much to my surprise, I found that turtles were virtually without representation in the conservation and scientific community here, most previous work relating to a few brief trade surveys that had been carried out. Moreover, provincial wildlife protection authorities appeared to possess little understanding, interest, or concern for the seemingly inexhaustible supply of turtles that flowed through their provinces north to China. During the fall of 1996, I would witness a number of other trade seizures involving turtles, in one case resulting in more than 600 Malayan snail-eating turtles (*Malayemys subtrijuga*), native to the wetlands and emergent marshes of the southern Mekong region, released into the seasonal streams of Cuc Phuong's limestone forests in northern Vietnam.

Hence the autumn of 1996 was an impressionable period for me, culminating in the development of a project concept for establishing a conservation program focused on turtles, threatened by the combined impacts of the illegal wildlife trade and habitat loss. Top on the list of conservation needs was the necessity to train provincial wildlife protection authorities so that they could identify species in the trade, determine the species' legal protection status, and presumably know something about their range, ecology, and habitat that might enhance their ability to make a sound decision as to how the confiscated turtles are dealt with.

The second major conservation aim was to encourage recognition of the value and perceived importance of turtles amongst government decision-makers, wildlife protection authorities, protected area management and staff, and within the general public, in order to elevate the status of turtles as a priority species group in need of protection

Of equal importance was the need to invest in developing interest and expertise in turtles and their conservation amongst Vietnamese in the scientific and conservation communities. Without this investment, Vietnam's remaining turtles could not possibly be protected over the longer term.

Development of the TCEP

The TCEP was formally established in 1998 as a pilot component of a large conservation project based at Cuc Phuong National Park. We collected examples of each species from the trade, photographed them, and distributed laminated photo sheets to provincial wildlife protection authorities detailing each species' range, habitat, and distinguishing characteristics.

As cooperation with local provinces increased, wildlife protection authorities began shipping confiscated turtles to Cuc Phuong for placement in the project's very limited facilities (then about three enclosures encompassing a total of 60 square meters). By 1999, a turtle conservation project was in the making, and the TCEP sought formal endorsement from the government for a more comprehensive program focused on five important components:

- Raising public awareness and education
- Training of provincial wildlife protection authorities
- Rescue, rehabilitation and translocation of turtles confiscated from the trade
- Building the capacity, interest, and expertise of Vietnamese nationals in turtles and their conservation
- Research on the ecology and trade of turtles in Vietnam

Between 1999 and the end of 2001, the TCEP made significant progress in developing a major turtle conservation initiative based at Cuc Phuong National Park. Although the most visible portion of the project was the turtles and facilities at Cuc Phuong, the most valuable advances in turtles conservation

have without question, related to progress in the public awareness, education, and training of wildlife protection authorities. The turtles that are maintained at Cuc Phuong are an unfortunate result of our failures to keep them in the wild. While no one can argue that there are not certain benefits to rescuing turtles (education, research, establishing range state assurance colonies) the focus of conservation efforts must not ignore the need to protect turtles in their habitat. These efforts are far less visible, much harder to measure, and certainly more challenging to move forward on.

TCEP Today (2001-2003)

By the end of 2001 our situation had changed dramatically at Cuc Phuong. The larger Cuc Phuong Conservation Project, administered by Fauna and Flora International (FFI), was concluding. TCEP has taken on a national focus, and moved its base of operations to Hanoi. The Cuc Phuong Turtle Conservation Center (TCC) was transferred over to the national park, and all public awareness and education initiatives were transferred to Education for Nature- Vietnam (ENV), a new local NGO established by my wife Quyen, facilitating work with journalists and integrating turtle conservation as a priority species group into the organization's education and awareness programs.

The transfer of much of TCEP's actual conservation activities focused on turtles represents a significant positive development for turtle conservation in Vietnam, and although much remains to be done, there are now active nationally-led programs and activities underway specifically focused on the protection of turtles.

The present-day TCEP remains committed to advance the cause of conservation and protection of turtles in the region through initiatives focused on the five program priorities specified in the original TCEP strategy (see above), and reinforced by the recommendations of the first regional conference the Asian Turtle Crisis held in Cambodia, December 1999.

The Turtle Conservation Center (TCC) at Cuc Phuong remains a priority project for TCEP. The TCEP technical role remains focused on building the capacity of park staff to effectively develop the program, including helping the park establish Cuc Phuong as a range state assurance colony for specific species, establishing a strong research and public awareness (visitor) component at the TCC, and continuing to coordinate funding of these efforts.

Looking back at that trade seizure in 1996, I often wonder how all of this developed so quickly. Plenty of mistakes were made along the way, but the results of our collective efforts have done much to draw public attention to the crisis facing Vietnam's turtles, enhancing the knowledge and skills of the nation's wildlife protection forces, and helping to generate interest in turtles within the scientific and conservation community (including international organizations working in Vietnam). Indeed Vietnam's turtles have been moved upward from their lowly status amongst wildlife to become a species of national conservation concern. Most importantly, we have begun to plant the seeds for Vietnam to conserve its own turtles, a prerequisite for the conservation of Vietnam's turtles, into the future.

Douglas Hendrie
Turtle Conservation and Ecology Program

The Cuc Phuong Turtle Conservation Center Update (TCC)

Building a Sustainable Range State Conservation Program at Cuc Phuong

The biggest development of the TCC over the past two years was the transfer of the project to the park. This development resulted from the need to consolidate the progress and gains of the previous three years, and begin the process of making the program sustainable under the management of our park counterparts. In January 2002 the project, formerly managed by Douglas Hendrie of Fauna and Flora International (FFI), was signed over to the park.

However, the transfer was far from complete in terms of the capacity of the park to manage the captive population of turtles maintained at the center, let alone utilize the center as a conservation resource. The initial appointment of a park coordinator to manage the day-today operations of the center proved to be problematic, as the individual lacked the organizational skills and cognitive capacity to develop and run the program. It was eventually determined that further investments in training would not improve the situation, and efforts were made to encourage the park to find a suitable replacement.

In early December 2002, Mr. Bui Dang Phong, a member of the park scientific staff was assigned as the new coordinator of the TCC. Mr. Phong had served as a team leader for the FFI-administered environmental education project for four years, and represented an emerging group of young and dynamic leaders within the park staff for which training was a priority.

Most importantly, Mr. Phong's placement in the TCC greatly increases the possibility that the national park's turtle conservation efforts would become a sustainable over the longer term.

Principal Mission of the TCC

- Develop assurance populations for focus-species as part of a global initiative aimed at ensuring the survival of Asian species.
- Carry out research on the captive ecology and breeding of focus species
- Develop a public awareness component to the TCC whereby the center may be used to raise awareness of some of the park's 50,000+ annual visitors.
- Work with the nationally-focused TCEP to carry out training of wildlife protection authorities, educational programs, and other awareness activities focused on the public.

TCC Focus species include:
Mauremys annamensis
Pyxidea mouhotii
Cuora galbinifrons
Platysternon megacephalum
Sacalia quadriocellata
Cyclemys pullchristriata/C. tcheponensis

TCC Facilities

The TCC encompasses an area of approximately 2,000 square meters, and presently includes 69 enclosures for terrestrial species, 22 semi-aquatic enclosures, and 24 aquatic holding tanks. Enclosures range from one square meter to more than 84 square meters in size. The TCC's larger terrestrial and semi-aquatic habitats are been developed to represent near-nature environments for the resident turtles with natural leaf litter distributed weekly, and an abundance of natural plant growth including bamboo, banana, wild fig, or other forest trees and shrubs. Shelters consist of snags covered by grasses and cut vegetation, and are maintained in each enclosure to provide cover from the heat, wind, and cold. Permanent water basins or sunken tubs are available for soaking in all of the enclosures. The semi-

aquatic enclosures include water sources ranging from deep pools to functioning streams, and constructed wetlands with mud substrate.

Development of the TCC was based less upon a master plan than motivated by the urgent need for additional space for turtles resulting from a series of trade seizures by wildlife protection authorities through the autumn of 2000. Back in 1999 tea fields still covered the expanse of the TCC interior. That year the TCC gave local people permission to come inside the center and harvest a peanut crop and pick tea leaves. The TCC consisted of a perimeter fence and a single 6 x 14 meter secure cage housing all of the projects 40 or so turtles. A Master map of the compound laid out the developments plans for the center, clearly showing intentions to plant a large garden and banana tree plantation in the open southwest section of the compound where fruits and vegetables would be grown to feed the turtles. Today, virtually every square meter of the compound is developed. The planned garden area now hosts 34 enclosures for *Indotestudo elongata*.

New Facilities and Enclosures

Research Building and Vet Station

The most notable recent development within the TCC has been the construction of the research building and veterinary station. Thanks to the help of Dave Collins of the Tennessee Aquarium, and a CEF grant from the AZA, a small research facility was established in 2002. The 6x10 meter structure houses a small office for Mr. Phong and the TCC research program, in addition to a laboratory room where egg incubation and hatchling rearing have taken over all available space on the countertops. Also included within the modest structure are a food preparation room and a small storage room that will likely be converted to an egg incubation room later in 2003.

The new veterinary station includes a small treatment room and an indoor holding room for injured and sick turtles undergoing treatment. The vet station is located outside the fenced TCC compound, allowing sick turtles to be properly separated, treated, and held in areas away from the general population within the center. An 84 square meter quarantine cage was also established adjacent the vet station for housing of sick turtles outdoors.

Based upon the physical structure and location of the vet and quarantine facilities, and strict procedures that have been put into place relevant to operation of the station (separation from other TCC care and maintenance activities), the TCC has been able to make much progress in reducing the occurrence and future possibility of transmitting disease between turtles at the center. Under a training program that began in 2003, Mr. Phong and his keepers will receive formal instruction on veterinary care and treatment of turtles by experts from the Wildlife Conservation Society – Bronx Zoo (see vet care and husbandry training).

Mauremys annamensis

Other new developments have been the establishment of a series of specialized enclosures for *Mauremys annamensis*, thanks to support from the German Ministry of Education and the Environment and the Allwetter Muenster Zoo. The new enclosures include a 84 square meter secure cage with a deep pool at one end and adjacent marsh area with emergent vegetation and 30 cm of mud substrate. The interior of the free-ranging environment is developed so that the pool lies within a grassy area at one end with plenty of sunshine. The “wetland” area gives way to a fern edge zone, forest shrub zone, then closed canopy forest simulated with bamboo matting). The intent was to provide the *Mauremys annamensis* with an enriched and varied environment to encourage breeding. However the *Mauremys annamensis* spend most of their time in the water, though it is not uncommon to find turtles on land beneath a pile of vegetation debris in the fern zone, or in one of several rock crevices in the closed canopy forest zone during hot weather.

Since the new habitat was established, incidental breeding has resulted in some 15 successful births. Out of these, only two were hatched under supervision. The remaining 13 hatchlings were found in or adjacent to the enclosure pool.

Much more recently, a series of new *Mauremys annamensis* enclosures have been completed in the TCC. Each of the five new enclosures includes a shallow pool or “shoe tank”. The shoe tanks are named

for their foot-print shape, the heel consisting of a shallow area with mud substrate lying adjacent to a deeper pool. Two larger shoe tank enclosures are used for paired adult *Mauremys annamensis*, while the smaller enclosures are for yearling turtles.

Sacalia quadriocellata
In 2002, the British Chelonian Group (BCG) supported the development of a specialized enclosure for *Sacalia quadriocellata*. Encompassing an area of some 18 square meters, the enclosure includes a functioning stream through a gravel bed, mud-substrate wetland, and deep pool, bordered by a leaf litter shrub forest. *Sacalia quadriocellata* are one of the six identified focus species of the TCC program at the park. The new enclosure is intended to enhance efforts to breed *Sacalia quadriocellata* in captivity. This year, two in-situ nests have been laid, and the TCC staff remain hopeful of hatchlings in the coming weeks.

Platysternon megacephalum
In early 2003, the TCC modified ten aquatic tanks to hold *Platysternon megacephalum*. The TCC presently holds eight individuals which had been maintained in cement tanks for the past three years. Being excellent climbers and lacking social skills amongst other turtles, the *Platysternon* frequently escaped from their holding tanks, finding their way to neighboring tanks where they would cause or received injuries from their fellow *Platysternon*. Moreover, despite frequent water changes in the tanks, fungi growth was a re-occurring problem, combined with occasional injuries, contributing to the generally poor health of the animals.

The new modified tanks, supported by Conservation International (CI), include individual holding areas secured by a screen top to prevent the turtle's escape. The interior of the tank is divided into land and aquatic sections (separated by a cement divide), allowing the turtles to leave the water if desired. The aquatic portion includes a washed gravel substrate and several large rocks for the turtle to hide amongst. A fish tank bubbler to keeps the water circulating within each tank.

The Forest Hill
The TCC includes a large forested hill behind the compound with a perimeter fence constructed around the base of the hill encompassing an area of about 13,800 square meters. The forest hill enclosures was established with support from the Kadoorie Farm and Botanical Garden as a potential release site for turtles. The hill includes bamboo thickets, grassland, and secondary forest growth around the perimeter, and closed forest growing on rugged limestone outcrops covering most of the hill itself. Although the hill hosts a few native resident *Pyxidea mouhotii*, plans are to improve security at the site (indications are that local people are breaching the fence to cut bamboo and perhaps hunt for jungle fowl or other wildlife on the hill) by developing a patrol path around the perimeter and installing rings of barbed wire around the top of the existing fence.

A small number of male *Indotestudo elongata* will then be released along the base of the hill and monitored by TCC staff. Supplemental feeding will be provided at two or more feeding stations, and a shallow soaking pool will be constructed adjacent a bamboo grove on the southern perimeter. If the pilot population of *Indotestudo* do well, additional turtles may be released depending upon the assessed capacity of the local environment to support more turtles.

TCC Holdings (June 1, 2003)

Species	Quantities	Species	Quantities
Cuora amboninensis	27	*Rafetus swinhoei*	0
Cuora galbinifrons	28	*Pelochelys cantorii*	0
Cuora trifasciata	0	*Palea steindachneri*	0
Cyclemys pulchristriata	65	*Amyda cartilaginea*	0
Cyclemys tcheponensis	15	*Pelodiscus sinensis*	4
Geoemyda spengleri	2		
Heosemys grandis	83	*Indotestudo elongata*	276
Hieremys annandalii	6	*Manouria impressa*	1
Malayemsys subtrijuga	1		
Mauremys annamensis	24	*Platysternon megacephalum*	8
Mauremys mutica	0		
Ocadia sinensis	3	*Trachemys scripta*	2
Pyxidea mouhotii	24		
Sacalia quadriocellata	7		
Siebenrockiella crassicollis	18	***TOTAL***	**594**

Strengthening Efforts of the Park: CEF Training Mission 2003

During the spring of 2001, the TCC was fortunate enough to receive a delegation of turtle experts from the US including Dave Collins of the Tennessee Aquarium, Hugh Quinn of the Cleveland Zoo and current AZA TAG Chairman, Dr. Paul Calle, a veterinarian from WCS - Bronx Zoo, and Kurt Buhlmann of Conservation International. During the visit, Dr. Calle provided brief training to then TCC coordinator, Le Ai Vinh on basic health treatment procedures for turtles and necropsy methodology. Dr. Calle also took advantage of the low prices to purchase for the protect an adequate quantity of medication and other needed supplies on “medicine street” in Hanoi.

One of the most important outcomes of the visit was the recommendation that a portion of the CEF facilities grant for the research building be dedicated to construction of a separate vet station outside the TCC compound. Dr. Calle then returned to the states with promises of returning to help provide more comprehensive training for the TCC staff.

In March of 2003, Dr. Calle’s promised return was realized thanks to a new CEF grant that he put together to provide formal veterinary training to the TCC staff. Dr. Calle was accompanied by John Behler, IUCN/SSC TFTSG Chairman and Henk Zwartesporte of the Rotterdam Zoo who planned to help the park with improving the captive management and care of the turtles maintained at the TCC.

The March training mission kicked off with the successful sighting of the famed Hoan Kiem turtle (*Rafetus swinhoei*) in the Lake of the Restored Sword in downtown Hanoi (Sighting of the turtle is considered good luck in local tradition). Out at Cuc Phuong, Mr. Phong trained extensively on screening, treatment, and care of sick turtles, and carried out a series of necropsies collecting and preserving tissue samples that will later be shipped out and analyzed in US and European laboratories. Dr. Calle also looked at a problem the TCC was experiencing with ticks on its *Manouria impressa* and *Pyxidea mouhotii* maintained in forest enclosures, collecting and preserving samples of ticks for later identification.

On the captive management front, John Behler and Henk Zwartesporte reviewed the diet, enclosures and housing, incubation techniques, and general care and management protocols used at the TCC, making a series of some 22 recommendations to the park where current efforts could be modified or improved. These recommendations ranged from modifying incubation techniques in the TCC to improved hydration for species held in the dryer forest enclosures along the northern edge of the compound. John Behler took samples of a grain diet used as a supplement with the regular mixed vegetable diet for most terrestrial and semi-aquatic species to be analyzed by nutritional experts at the Bronx Zoo.

Under the CEF grant, Mr. Phong will travel to the US in June to undergo another round of training at the Bronx Zoo. The CEF grant allows for several more exchange visits during which WCS veterinarians will come to Vietnam and work with the park, and Mr. Phong will train at institutions in the US.

Captive Breeding

Breeding at the TCC can be divided into two categories; (1) Incidental breeding which includes nesting, and successful emergence of hatchlings of turtles species for which breeding was not intended and (2) focus-species breeding involving species where the TCC has specific interest in research and breeding for the species.

Results of breeding at the TCC since 2001 are as follows (as of May 31, 2003):

Indotestudo elongata: There have been several seasons of successful births at the TCC. *Indotestudo elongata* nests mainly in October and November. One to three eggs are laid underground in flask-shaped nest chambers. In 2002, several nests were left in-situ, however most eggs were retrieved and incubated. Hatching occurs in April and May. There have been 16 successful births at the TCC.

Heosemys grandis: Prior to 2003, there were three successful births of *Heosemys grandis* at Cuc Phuong. However in 2003 a total of 16 eggs were hatched. *Heosemys grandis* nest in November thru February, laying approximately 2-4 eggs with hatchlings emerging in April and May.

Mauremys annamensis have successful bred for two seasons in their semi-natural enclosure. In late 2001 and early 2002, five hatchlings were found in the enclosure pool. It is probable that these were all from autumn births in 2001. In September through January 2002, a total of 12 hatchlings were found in the enclosure. Nesting periods appear to be in May or June with hatching occurring in late August or September.

Sacalia quadriocellata nested (2) in their new enclosures in March and April. Both nests have been left in-situ and covered. A data-logger has been implanted to measure nest temperatures in one of the nests.

Other successful births: *Cuora amboinensis* (6), *Cyclemys pulchristriata* (1), *Cuora galbinifrons* (1), and *Pyxidea mouhotii* (1+).

The TCC breeding and research program will eventually focus on six or seven species (*Cuora galbinifrons*, *Platysternon megacephalum*, *Sacalia quadriocellata*, *Cyclemys pulchristriata/tcheponensis*, *Mauremys annamensis*, and *Pyxidea mouhotii*. *Indotestudo elongata* and *Heosemys grandis* may be included in this focus group due to the abundance of these species at the center.

The TCC has developed specialized enclosures intended for breeding of *Mauremys annamensis* and *Sacalia quadriocellata*, and plans to develop similar special enclosure for *Pyxidea mouhotii*, and *Cuora galbinifrons*. The TCC will also coordinate its efforts with international breeding programs and groups such as the TSA Taxon Management Groups so that range states efforts may be integrated into global conservation efforts for these species.

Captive Ecology Research

One of the objectives of 2003 is to develop a research program for the TCC. The program is aimed less at gleaning ground-breaking scientific information than it is on developing basic research skills of park staff involved in the program, and potentially providing opportunities for university students from Hanoi and the National Forestry College to carry out research projects involving turtles.

In 2003, TCEP-Vietnam was lucky enough to acquire the assistance from, Tim McCormack, a Masters' student from the University of East Anglia (UK). Tim is tasked with developing a series of basic research projects for the park that will focus on different aspects of the life history and ecology of some of the species maintained at the TCC. Notably, captive research will look at mating, nesting, incubation, and hatchling growth for a range of species. A second project will focus on *Mauremys annamensis* and *Pyxidea mouhotii*, looking at activity periods and microhabitat use within these species' free-ranging enclosures.

Much of the information derived from these basic studies could be useful to others in the turtle world as most of Vietnam's species lack information about their ecology and behavior. Research will also focus in the field with a pilot study planned for the summer of 2003 on the home range and habitat of *Pyxidea mouhotii* at Cuc Phuong National Park.

The field study will involve placing transmitters on turtles found in the park and monitoring their movement and seasonal habitat use. The success of such efforts will depend in part upon finding some Cuc Phuong turtles to radio tag, potential difficulties tracking turtles in the rugged karst landscape, and the ability of our few wild specimens to escape the scrutiny of Cuc Phuong's ever-present hunters.

A second component of the study will involve the release of *Pyxidea mouhotii* that are confiscated from local hunters and traders in the immediate area of Cuc Phuong (exact location of capture will not be known). The object of this study will be to determine what happens to the turtles following release. Will they establish a home range? Will they survive?

Although both of these studies will not result in significant findings (due to small sample sizes), these efforts will help promote the cause of turtle conservation in Vietnam, contribute to training and skill-building of TCC staff, as well as park rangers and scientific department staff involved in the study, and provide some insight, however vague, as to the activity and behavior of Cuc Phuong's native *Pyxidea mouhotii*.

TCEP Vietnam

Education and Awareness

One of the principal objectives of the TCEP since its establishment in 1998 has been to raise awareness about the need to protect Vietnam's turtles, threatened by trade and loss of habitat. Target groups have included functional agencies such as the wildlife protection authorities, the general public, and local communities bordering parks and protected areas.

Principal Awareness Objectives include:

- Making the authorities aware of the Asian turtle crisis, and elevating the perceived status of turtles so that enforcement agencies would take active steps to enforce laws relevant to the protection and trade of turtles.

- Increasing national media coverage of turtle trade and conservation issues in order to increase public awareness and bring pressure upon functional agencies to provide greater protection for turtles.

- Increase the awareness and understanding of people living in communities bordering parks and protected areas to reduce hunting and collection pressures upon turtles in the wild.

These awareness objectives were somewhat ambitious for the late 1990s when the world caught on to the Asian turtle crisis. Despite international recognition of the immediate threat ti the region's turtle, it was business as usual in Vietnam, and turtles were still being openly traded and shipped by the tons each day to China from Vietnam, Cambodia and Laos. Vietnam had not yet come to terms with the looming void in its turtle fauna resulting from uncontrolled harvest and trade of all 23 of the country's native species. Turtles were viewed as an inexhaustible resource to be traded and sold.

TCEP Awareness Activities

National Media: Development of holding facilities at Cuc Phuong National Park provided opportunities for journalists to visit and see turtles that were rescued from the wildlife trade, and opened the door for a sustained effort through the media to bring the turtle trade to the public eye. In addition to hosting frequent visits and interviews by national journalists, the project produced press releases and provided background information on the turtle trade , published a turtle conservation newsletter in Vietnamese and distributed it to some 70 national journalists throughout the country, made photos available of trade busts, translocations, and other conservation activities, and even arranged for coverage of important events like the major translocation of turtles to Cat Tien National Park in November 2000.

In September 2002, TCEP and Education for Nature – Vietnam (ENV), a local NGO focused on environmental education and awareness, hosted a workshop for the Vietnam Forum of Environmental Journalists on the wildlife trade (funded by WWF and the Humane Society International). Five journalists carried out field investigations on different aspects of the wildlife trade in the days leading up to the workshop, then used the workshop as a forum to report on their findings to journalists representing other major national publications, radio, and TV. One of the trade investigations focused specifically on the laundering of turtles through alleged "breeding farms" in the south, whereby traders use the cover of "captive breeding" to trade turtles that originate in the wild. Events like this workshop and other wildlife trade-specific events for journalists add significantly to the level and quality of reporting in Vietnam, and serve to keep the issue of turtles on the national conservation agenda and in the public eye.

ENV also reviews some 30 national media publications and sends copies of articles focused on turtles and the wildlife trade out to education programs, functional agencies, and institutions throughout the country as part of their efforts to keep principal partners and players informed.

Raising Awareness Amongst Frontline Wildlife Protection Authorities: In addition to providing wildlife protection authorities with skills and knowledge that will help them in their efforts to enforce Vietnam's wildlife protection laws, training of provincial enforcement units by the TCEP served to place a

greater emphasis on turtles as a trade species of concern. Since 2000, rangers have been trained in five critical provinces and four protected areas.

The publication of the Vietnamese language Photo-guide to the Turtles of Thailand, Laos, Vietnam, and Cambodia by WCS and Wetlands International in 2000 further fueled efforts to enhance the focus of protection on turtles by providing a resource to enforcement officers in all 62 provinces that enabled them to identify species observed in the trade. More recently, the publication has been distributed to customs officers and border guards as part of a training program carried out by TRAFFIC.

Educational Materials: TCEP has also worked closely with ENV and other international and local partners to develop educational resources that would promote the cause of protection for Vietnam's turtles. In 1999, the Columbus Zoo and Melbourne Zoo supported the development of an illustrated children's book, The Adventures of Lucky Turtle, about a turtle caught up in the trade that escapes and tries to get home. More recently, ENV has produced a special issue of its children's activity magazine, *Green Forest*, focused on turtles (2003), and worked with the Positive Action Conservation Team (AU) and the Melbourne Zoo to develop a Vietnamese-language awareness poster urging people to help protect turtles.

With help from TCEP, ENV is currently developing a number of other resources focused on turtles and the wildlife trade including an anti-hunting poster, a short film for children on the wildlife trade, and board game featuring Lucky Turtle.

Educational Programs: TCEP has developed a pilot educational program focused on turtles for use in schools and local communities. The lesson plan was field tested in 1999 in communities bordering Cuc Phuong National Park, and has since been revised as part of an effort to develop an educational package for distribution to community-based awareness programs throughout the country that will include a lesson plan and associated materials, posters, the board game, activity book, and Adventures of Lucky Turtle story book.

TCC Interpretation Program: The TCC also hosts educational visits to the center by visiting school groups and university students. Part of the TCC's 2003 plans call for developing a visitor interpretation component at the center that will allow TCC staff and park guides to help raise awareness amongst some of the park's 50,000 annual visitors about turtles and their conservation needs. The park plans to establish a tour route through a portion of the center involving a series of information stations at key sites such as a large holding enclosure for *Heosemys grandis* and the *Pyxidea mouhotii* forest habitat research cage. TCEP hopes that the new park program will help make visitors become more aware of the threats to Vietnam's turtles, and about some of the ways that they can help ensure that turtles survive these troubled times.

Representation: The TCEP has also provided turtles with a strong voice in the region, working with conservation and scientific institutions, and promoting the conservation and protection needs of turtles in government.

Ranger Training

The TCEP continued with ranger training for provincial wildlife protection officers in December 2002 with day-long workshop focused on turtles for frontline enforcement officers from Quang Nam Province (*Mauremys annamensis* territory). Participating rangers had the opportunity to learn something about the basic ecology of turtles and why they are threatened, as well as sharpen their turtle identification skills through a field component of the workshop at the TCC. The TCEP has carried out training for wildlife protection authorities from critical trade regions including Hanoi, Thanh Hoa, Ninh Binh, and Nghe An provinces, as well as for the rangers of Pu Mat, Cuc Phuong, and Cat Tien National Parks. In the coming months a workshop will be held for Ho Chi Minh City authorities.

Capacity Building

Ultimately, the future of Vietnam's turtles will depend upon the knowledge, skills, capacity, and will of our partners to do the job them selves. The TCEP places a particular focus on integrating training into all of its activities, and empowering local organizations, partners, and people to lead efforts forward. While time is certainly a factor for turtles, one cannot ignore the importance of also making efforts to conserve turtles sustainable. Back in those early days when I was investigating trade shipments and trying to find someone with an interest in what was going on, it became clear that the future of Vietnam's turtles hinged upon developing such interest where little existed, and building knowledge and expertise within the scientific and conservation community.

The TCEP has approached this objective on many fronts including training of rangers, transfer of the TCC to its national park partner, working with local organizations such as Education for Nature – Vietnam (ENV) to promote public awareness, providing opportunities for Hanoi University students to study turtles at the TCC, and countless other smaller initiatives.

The TCEP has also invested efforts into helping developing several young and enthusiastic conservationists, mainly through involvement in some of the TCEP's principal conservation activities, as well as through formal training at the institutional and international level. During the summer of 2000, Mr. Le Thien Duc, then TCEP ecologist, attended a summer internship at the Wetland Institute in New Jersey where he had the opportunity to work alongside American scientists and student volunteers on a project aimed at conservation of diamondback terrapins, *Malaclemys terrapin*. In early 2002, TCEP coordinator Le Ai Vinh attended a training course on animal management and conservation biology at the Durrell Institute (Jersey Zoo), thanks to support provided by the British Chelonian Group (BCG). Following the training he spent several weeks working with turtles experts at European Zoos. Mr. Bui Dang Phong, the current park staff coordinator of the TCC at Cuc Phuong is currently slated to attend several rounds of formal training in 2003 and 2004 through WCS and the Bronx Zoo. Under the same initiative, the first round of veterinary care and captive management training has been carried out at the TCC by visiting experts from WCS and Rotterdam Zoo.

TCEP has had its successes and failures along the way as it has sought to develop such interest amongst its counterparts. Notably, early efforts to make the TCC sustainable in preparation for that distant day when the FFI project would end, focused on developing project staff to coordinate the program following transfer, assuming that these individuals would stay on. In retrospect, this strategy was unrealistic in that any future leader of the TCC would need to be a long-term park staff member appointed by the government. Qualifications, training, and experience unfortunately have little to do with such appointments, and rarely are people accepted from outside.

Thus early investments in formal training for Mr. Duc and Mr. Vinh may not have helped make the TCC more sustainable did not pan out as planned. However these investments by TCEP and its international partners were positive developments towards the broader objectives of developing national expertise and interest in turtles. Both Mr. Duc and Mr. Vinh remain involved in turtles and their conservation, and in their present capacities as field biologist and university science teacher, they probably represent to two most knowledgeable turtle experts in the country.

TCEP Home Page

Introducing the TCC and TCEP Staff

Mr. Bui Dang Phong: Present manager of the TCC at Cuc Phuong. Mr. Phong is a long-term park staff member with a career contract with the park. He assumed responsibility for management of the TCC in December 2002. All efforts since then have focused on training and building his capacity to lead this effort forward.

Mr. Dinh Van Binh: Chief keeper 1999-present. Mr. Binh remembers when there were about 40 turtles at Cuc Phuong. His job was easier then. Mr. Binh is a resident of the local village, and probably knows more about turtles than any of us.

Mr. Ho Phuc Thien: Mr. Thien is also a resident of the local village. He has been a keeper at the TCC since early 2002. He is hard-working, reliable, and a lucky catch for the TCC.

Mr. Le Ai Vinh: Presently teaching at Vinh University, Mr. Le Ai Vinh worked full-time with TCEP from January 2001 to May 2002 as the program's coordinator at Cuc Phuong prior to the transfer of the TCC to the park. In his new capacity as a technical advisor (part-time), Mr. Vinh is involved in TCEP ranger training, translocation of turtles, and is organizing students to carry out field studies.

Ms. Nguyen Minh Hang: Ms. Nguyen Minh Hang began in July 2002 as an interpreter to help smooth out the bumps associated with the TCC's transfer to the park. However during this time, she managed to take an interest in turtles. Following the successful appointment of Mr. Phong to manage the program for the park, Ms. Hang was transferred to Education for Nature – Vietnam (ENV) and currently serves as the organization's evaluation and monitoring officer based at Cuc Phuong. As she is based at the park, Ms. Hang continues to assist the TCEP in its efforts to work with the park to develop the TCC.

Tim McCormack: Masters' student from East Anglia University, UK. Served on a Frontier Expedition in Vietnam 2001-2002. Joined the TCEP as research coordinator in January 2003 following an extended leave in the UK. Tasked with helping develop the park's research program at the TCC, including both captive and field studies.

Douglas Hendrie: Former project director of FFI's Cuc Phuong Conservation Project, for which the TCEP was a component. Left FFI in 2001 to help support development of Education for Nature – Vietnam, a local NGO. Currently serves as director of TCEP – Vietnam and as chief technical advisor to the TCC at Cuc Phuong National Park. IUCN/SSC TFTSG member, Masters in Wetland Conservation, University of Massachusetts, Amherst (1997), BS in International Relations, The American University (1988).

Rohan Holloway
Rohan is lost in the backwaters of the lower Cambodian Mekong delta region, playing with *Batagur baska* on nesting beaches and trapping *Malayemys subtrijuga* in rice paddies as part of his research Masters at the University of Canberra (AU). Rohan had spent a year with the TCEP processing trade seizures and helping coordinate the activities of TCEP (2000-2001).

Where is Duc?
The most frequently asked question regarding TCEP staff. Mr. Le Tien Duc was the TCEP's first turtle ecologist, joining the FFI-administered project back in 1999, and completing an internship with Asian Scholarship Program at the Wetland Institute during the first year of the program. Mr. Duc then returned to school to obtain his Masters at the Xuan Mai Forestry College. Having spent enough time playing with turtles at Cuc Phuong, Duc chose to focus his thesis on the diversity of Vietnam's turtles. Perhaps "focus" is the wrong word, but at any rate, Duc may be the first in his country to pursue a higher degree in a Vietnamese institutions relating to tortoises and freshwater turtles. Presently, Duc is finishing his degree and working for FFI again as a field research coordinator on their Pu Luong Conservation Project in Thanh Hoa. Although Duc may be counting butterflies and measuring DBH, he says that he wishes that he were looking for turtles.

Thank You Genevieve

A long overdue special thanks to “cousin” Genevieve Vega for her efforts during the spring of 2001 when the TCEP was in the midst of a inter-project negotiations with its national partners, and Genevieve came out and spent a month working with Mr. Vinh and Rohan Holloway trying to sort out health problems amidst our *Indotestudo elongata* population, as well as helping train Mr. Vinh on basic veterinary care of turtles.

Genevieve had just completed her first year at Tufts University School of Veterinary Medicine. Her interests lie in reptile and amphibian veterinary medicine and wildlife conservation medicine. She has worked closely with Dr. Barbara Bonner at the New England Turtle Hospital, and came to Cuc Phuong with some experience specific to Asian turtles.

Her efforts to assist us at Cuc Phuong were funded by the Tufts University School of Veterinary Medicine. Genevieve also received medical supplies, equipment, and support from Dr. Barbara Bonner and Dr. Jay Merrian of the Mass Equine Clinic, and the Fryer Company of Illinois (donated a microscope).

Turtle Conservation in the Region

Field Studies

***Mauremys annamensis*: The TCC Flagship Species**
Although *Mauremys annamensis* are not native to the region around Cuc Phuong National Park, the TCC has adopted this rare endemic turtle as the program's official flagship species. Thought to be native to the region of Quang Nam in central Vietnam, and possibly extending southward as far as Khang Hoa province, there are only two published field records for *Mauremys annamensis*, both localities in Quang Nam province and dating back to 1941.

Presently somewhat rare in the trade, the location of actual sites were these turtles may still exist in the wild remain a mystery. In 2001 and early 2002, TCEP carried out two field studies in central Vietnam, hoping to trace the species back through the trade and determine localities for wild populations. The field team initially focused on Quang Nam province, and although a single live specimen was observed in the trade, and local people reported that *Mauremys annamensis* could be found at a few sites, the field team could not confirm the presence of populations for any of these reported localities. The second survey in 2002 focused on Quang Ngai and Binh Dinh Provinces, south of Quang Nam. As experienced in Quang Nam, the team met with many traders, saw a fair number of turtle species in the trade, but only a single specimen of *Mauremys annemensis*, and a few possible localities surfaced, but nothing confirmed.

In 2003, TCEP will carry out a third survey in cooperation with WWF in Quang Nam, looking at some new possible locations in the region. TCEP will also produce a laminated flashcard for distribution to wildlife protection officers down to the district level that will include photographs of *Mauremys annamensis* and requesting further information about possible locations where this species may remain in the wild.

The *Mauremys annamensis* field project is supported by the German Ministry of Education and the Environment and the Alwetter Muenster Zoo.

Cambodia's *Batagur Baska* Rediscovered
Last recorded by scientists in the 19th century and since thought to be extinct in Cambodia, the *Batagur baska* was rediscovered in the Sre Ambel River system by Department and Fisheries (DoF) and WCS scientists in 2000. WCS is working with the DoF to preserve this rare population of turtles, native to the coastal marshes and river systems in the lower Mekong. In early 2002, WCS initiated a field project in cooperation with DoF aimed at securing key nesting beaches and nests, raising local awareness, habitat protection, and monitoring fishing activities. Nesting occurred between January and February, with six nestings observed during that period. A total of 68 eggs were laid resulting in 31 hatchlings emerging in May.

Batagur baska and Malayemys subtrijuga Research in Cambodia
Beginning at the end of 2002, Rohan Holloway, a Masters' student from the University of Canberra (AU) and former research associate with the TCEP in Vietnam, initiated a new field study in Cambodia's Koh Kong Province. Funded by WCS, the project will look at population parameters, movement patterns, and diet of two species; *Batagur baska* and *Malayemys subtrijuga*. Much of the *Batagur baska* research is directly applicable to conservation efforts including nest monitoring, field surveys, and environmental awareness already being carried out by the Department of Fisheries and WCS.

In the News

New Legislation
In 2002, several new important pieces of legislation were enacted in Vietnam.

Decree 11 of February 2002 provides the legal framework for Vietnam to fulfill its international; obligations under CITES. Although Vietnam became a signatory to CITES in 1995, wildlife protection authorities lacked national legislation that would put the treaty into force.

Decree 48 of April 2002 updates Vietnam's endangered species law (Decree 18 of 1992) expanding the list of protected species to include 69 animals and 24 plant species. As far as turtles are concerned, the 1992 law listed only *Indotestudo elongata* and *Pelochelys cantori* (*P. bibroni*) as protected under national law. The new decree adds *Cuora trifasciata*, *Heosemys grandis*, and *Hieremys annandalii* to list of protected species.

Conservation Status of Vietnam's Tortoises and Freshwater Turtles
Below is a hot list showing the conservation and legal status of turtles native to Vietnam.
An additional eight Vietnam-native species were added to Appendix II of CITES during the last Conference of Parties in 2002 bringing the total to 13. The IUCN Red List 2002 lists all 23 of Vietnam's turtle species, including 4 species as critically endangered and 10 more species as endangered. The Vietnamese Red Book lists nine species (VN RB), and five species are specifically protected under Vietnamese law.

Species	Common Name	**CITES**	**2000 IUCN RL**	**VN RB**	**Decree 18/48**
Platysternidae					
Platysternon megacephalum	Big-headed turtle	II	EN	R	
Emydidae					
Cuora amboinensis	Malayan box turtle	II	VU	VU	
Cuora galbinifrons g.	Indochinese box turtle	II	CR	VU	
Cuora galbinifrons bouretti	Indochinese box turtle	II	CR	VU	
*Cuora galbinifrons picturata***	Indochinese box turtle	II	CR	VU	
Cuora trifasciata	Chinese three-striped box turtle	II	CR	VU	I
Cyclemys pulchristriata	Striped-necked leaf turtle		LR		
Cyclemys tcheponensis	Striped-necked leaf turtle		LR		
Geoemyda spengleri	Black-breasted leaf turtle		EN		
Heosemys grandis	Orange-headed temple turtle	II	VU	VU	II
Hieremys annandalii	Yellow-headed temple turtle	II	EN	VU	II
Malayemys subtrijuga	Malayan snail-eating turtle		VU		
Mauremys annamensis	Vietnamese leaf turtle	II	CR		
Mauremys mutica	Asian yellow pond turtle	II	EN		
Ocadia sinensis	Chinese striped-neck turtle		EN		
Pyxidea mouhotii m.	Keeled box turtle	II	EN		
Pyxidea mouhotii obsti	Keeled box turtle	II	EN		
Sacalia quadriocellata	Four-eyed turtle		EN		
Siebenrockiella crassicollis	Black marsh turtle	II	VU		
Testudinidae					
Manouria impressa	Impressed tortoise	II	VU	VU	
Indotestudo elongata	Elongated tortoise	II	EN	VU	I
Trionychidae					
Amyda cartilaginea	Asiatic softshell turtle		VU		
Palea steindachneri	Wattle-necked softshell turtle		EN		
Pelochelys cantorii	Asian giant softshell turtle	II	EN	VU	II
Pelodiscus sinensis	Chinese softshell turtle		VU		
Rafetus swinhoei			CR		

Trade Seizures: Soc Son

A trade bust at Hanoi's Noi Bai International Airport resulted in the seizure of nearly 5 tons of wildlife boxed in crates labeled as soft-shell turtles. The shipment, confiscated from a Singapore Airlines flight from Malaysia, were addressed to a business in Hanoi. When Economic Police inspected the cargo they found that the contents of the shipment did not reflect the shipping papers. Amongst the wildlife cargo was 3.4 tons of pangolins, and an assortment of hard-shell turtles including *Heosemys grandis*, *Hieremys annandalii*, *Siebenrockiella crassicollis*, and *Cuora amboinensis*. The animals were transferred to Soc Son Rescue Center outside Hanoi until a determination could be made on what to do with the confiscated animals.

This case represents an new emerging trend in the trade whereby Vietnamese companies are playing a more prominent role in the broader trade network outside of Indochina. Vietnam has long played a role as middle-man in wildlife trade coming in from Cambodia and Laos. However, recently, there have been a series of cases involving Vietnamese companies playing a part in trade coming from Malaysia and Thailand, and perhaps Indonesia. Although some of the wildlife may be consumed in Vietnam, the market remains focused on China.

TRAFFIC Southeast Asia is working with the Malaysian authorities to shut down illegal trade routed through Malaysian airports. According to a recent report, evidence suggests that Malaysia may be a transit point for turtles coming out of Indonesia. Traders use false labeling on crates and fake permits to escape detection by airport inspectors in Kuala Lumpur, as was the case for the recent Hanoi shipment.

11 Tons of Turtle Incinerated

March 6: 11 tons of turtles were reportedly confiscated from a cargo ship in Hai Phong seaport. According to a newspaper account of the incident, the turtles originated in Malaysia and were to be received by the Viet Trung Company, which planned to export them on to China. All of the turtles were dead at the time of the discovery, and Hai Phong city authorities reportedly incinerated the entire shipment.

Volume of Turtle Imports to China

Hard-shell turtles comprise about 12% of the total number of turtles imported in 1999, according to Chinese officials attending the Technical Workshop on Conservation and Trade of Freshwater Turtles and Tortoises in Asia in Kumming, China, March 2002. About 300,000 hard-shell turtles were imported in 1999 out of a total of 2,520,000 turtle, the rest being soft-shells. These figures reflect import estimates prior to the Chinese ban on soft-shell imports from Thailand. Most imports are from Malaysia and Indonesia (Peter Paul van Dijk, Personal communication, May 2002).

Trachemys scripta Make Appearance in Hanoi Lake

Go to any city park in Bangkok and one will find red-eared sliders basking and frolicking about in green soup-like ponds as if they were taking in a sunny day in the backwaters of the bayou.

For decades, Vietnam has been spared the visible presence of red-eared sliders in its waterways. But times are changing. In the past few years, hatchlings have been seen for sale in Hanoi's Dong Xuan Market, and Hanoi's famed Hoan Kiem turtle (a large Raftetus swinhoei, measuring more than a meter in length) is no longer alone in the picturesque "Lake of the Returned Sword" in downtown Hanoi.

During a recent visit to the lake by visiting turtle scientists from WCS and the Rotterdam Zoo, more than a dozen juvenile red-eared sliders were observed basking on branches and lingering about the edge of a small island. Two adults were also observed basking near the pagoda at the lake's center.

The red-eared sliders, reportedly shipped in as hatchlings from Thailand, appear to have found their way to the lake by virtue of the Buddhist belief that releasing an animal will improve one's karma. According to a young entrepreneur hocking postcards to tourists along the edge of the lake, each year perhaps a hundred or more turtles are released into the lake by Hanoians as part of their tradition. Professor Ha Dinh Duc of Hanoi University supports this assertion noting that the Buddhist tradition of releasing wildlife has resulted in some pretty odd findings in the lake with 12 species of turtles thus far recorded including *Indotestudo elongata*, *Manouria impressa*, *Pyxidea mouhotii*, *Ocadia sinensis*, and *Pelodiscus sinensis*

Vietnam, A Safe Zone for Red-eared Sliders?
There is no clear evidence that the red-eared sliders are eaten in Vietnam or shipped to China, though larger individuals are occasionally observed in Ho Chi Minh and Hanoi Markets, and last year Mr. Nguyen Quang Truong, a biologist from the Institute of Ecological and Biological Resources (IEBR), reported observing two individuals in a restaurant in Cam Ranh town, Khanh Hoa Province. In any case, red-eared turtles are likely to get a foothold in Hoan Kiem Lake and possibly other places, as the lake offers a suitable nesting island, and it is likely that releases will continue augment existing numbers into the future.

Conservation Issues

Take Em or Leave Em: What to do with confiscated turtles?

Over the longer term, the TCC at Cuc Phuong National Park needs to think about an exit strategy for turtles. While certain species may remain the focus of conservation and breeding efforts, the TCC can not expand endlessly to accommodate turtles seized from the trade. The TCC holding capacity was breached in 2000, and current seizures are theoretically limited to the park's focus species, though in reality, they have included odd shipments of *Indotestudo elongata*, *Cyclemys sp*., and *Heosemys grandis*.

Potential solutions for confiscated turtles in Vietnam

- Place turtles in centers like the TCC at Cuc Phuong, and establish additional self-sustained facilities off-site that include large ponds where aquatic species such as *Heosemys grandis* can be "retired". *Limitations*: Holding facilities would fill quickly. Care and maintenance costs indefinite. Distraction of scarce $$$ resources.

- Placement in international conservation programs such as those sanctioned by the Turtle Survival Alliance (TSA) or their European equivalent. *Limitations*: Vietnam does not have a history of allowing legal exports of any wildlife with a few exceptions. Sufficient financial support to Vietnam's principal wildlife protection office could provide the impetus for allowing such exports, but at what cost? Additionally, there is limited capacity within the international turtle community to place the numbers of animals potentially in need of placement from trade seizures. This avenue must be explored further (see Soc Son Story).

- Release the animals back into the wild. *Limitations*: Most releases in Vietnam are carried out by provincial wildlife protection officers. Little consideration is given for the health of the animals, habitat needs, natural range, nor potential impact on existing populations of wildlife in the release area. Properly planned and prepared releases tend to be more expensive, are not immediate solutions as they require quarantine time for turtles, and without monitoring, provide no assurances that the released turtles survive. Although release of turtles is a present reality in Vietnam, such releases are generally frowned upon by the international scientific community and conflict with established IUCN Guidelines for release of confiscated animals. *Note*: The few releases carried out by the TCEP since 2000 have focused on using the occasion to raise public awareness about the turtle crisis, and not intended to augment existing populations or reintroduce a particular species to an area.

- Sell the animals back to traders: Another common method of disposing of wildlife in Vietnam. Statistics are not available indicating how much wildlife is sold back to traders, but until recently, this was probably the most common means of disposing of confiscated animals. *Limitations*: Encourages trade and rewards wildlife protection authorities for not doing their job.

- Euthanasia: If IUCN Guidelines were practiced in Vietnam, most confiscated wildlife would be disposed of in this way. Despite apparently recent press reports that tons of live turtles were incinerated in Hai Phong, there are no confirmed cases where wildlife seized by the authorities have been disposed of in this way. *Limitations*: Wildlife is a commodity in the eyes of the Vietnamese. Releasing wildlife in the forest is one thing, but destroying it is like burning money. Vietnam is a few years away from making these types of hard choices with their wildlife.

Well then what?

Based upon the limited experience of those of us involved in wildlife trade issues here, the answer probably involves a mix of approaches where obviously species of principal conservation concern end up in conservation programs here and abroad, while others are released or at some point in the future, euthanized. The focus in Vietnam needs to remain on conserving species in the wild, as well as combating the trade by making it more difficult and risky for traders to move animals, and denying wildlife traders of their profits when seizures are executed.

TCEP Review (in conclusion)

This concludes the massive transfer of information bringing the outside world up to date with events, progress, and issues. I have left out several sections in the report that would require further delays in distribution including the section on trade seizures report and busts involving turtles throughout Vietnam over the past two years, and the field records section for turtles found during the course of surveys throughout Vietnam. In the next (much more brief report) I hope to include updates on these sections, as well as more on conservation activities in Cambodia.

Needs and Aspirations

This section relates to the current needs of the TCEP and its programs. Any assistance in meeting these needs is greatly appreciated!

International Volunteer Needed: Wildlife Trade communications coordinator
Must come with funding to support living costs (~$5,000/year) for Hanoi-based position assisting with coordination of field studies, research, public awareness and education campaign efforts, and communications projects (newsletter, website etc.). Excellent writing and computer skills required. One year minimum commitment needed.

Proposed Small Grants Program Hopes to Place Greater Emphasis on Studies by Vietnamese in the Field

Vietnam is conspicuously void of field projects focused on turtles. In recent years little in the way of wholesome field research has been done on the life history and ecology of Vietnam's turtle fauna.

One new development that TCEP hopes to get funding for in 2003 is a locally managed small grants program for young Vietnamese biologists wishing to study turtles and turtle trade issues in the field. The program for which TCEP is still seeking funding would administer five to ten small grants ranging from $1000-$2000 each for pilot projects focused on one of eight priority species. Each field project's design and results would be reviewed by a qualified international turtle scientist to ensure that the project represents a meaningful contribution to science and conservation of the species. TCEP will provide coordination and in-country management of the grants program, and be responsible for making the outcome of each study available in Vietnamese and English to the broader scientific and conservation community.

Objectives:

- Involve Vietnamese students in field projects focused on turtles (generate greater interest in turtles within the VN scientific and conservation community)
- Initiate field studies that will benefit the conservation of species and open the door for conservation interventions to protect remaining populations in the wild.

Potential studies

1. Field Study of *Sacalia quadriocellata* in Ha Tinh Province
2. Radio telemetry study of *Pyxidea mouhotii* at Cuc Phuong National Park
3. *Cuora galbinifrons* habitat in Nghe An Province
4. *Geoemyda spengleri* of Tam Dao
5. Developing a Vietnam Herpetological Records Atlas
6. *Mauremys annamensis* of Quang Nam: Site identification

Wish List
Vermiculite for egg incubation
Humidifier (220v) for the vet station

Project Funding Needs

Small Grants for Field Studies: Initial needs are $10,000 to initiate the first year of the program. Five to eight grants will be administered under the initiative focused on field research (see description above)

TCEP coordinator: This position is essential to the continued development of TCEP conservation activities and programs in Vietnam. The Hanoi-based position will be held by a Vietnamese national, and involve coordinating ranger training, gather trade statistics, coordinating the small grants initiative, and working on public awareness and education initiatives. Cost: $2,400

TCC Operating Costs 2004: Annual operating costs for the TCC amount to about $5,400, including keeper salaries! Upon completion of the center's information display at the entrance of the center (2003), the donors supporting operational costs will be featured prominently to the park's visitors as providing the core support to keep this positive effort by Vietnamese going! This year these costs were covered mainly by the Melbourne Zoo and Conservation International.

Training of Provincial Rangers. Costs equal about $250/workshop at Cuc Phuong and $500/workshop in other regions.

Visitor Interpretation at TCC: Develop a visitor interpretation component of the TCC including signage, a small information display, and a forest trail. Estimated cost: $2,500

Expand TCC facilities fence: Extend the eastern fence of the TCC compound to incorporate an additional 1500 square meters of forest enclosures. Estimated cost is $750

Cuora galbinifrons cage: Construct a free-ranging habitat for *Cuora galbinifrons*. The 6x14 meter cage enclosure will include a functioning stream and misting system intended to provide a suitable habitat for breeding of the species. Estimated cost: $1,800

Lucky Turtle 2nd edition: The TCEP and ENV are printing a second run of The Adventures of Lucky Turtle, an illustrated story about a turtle caught up in the trade. The books will be distributed to school-children living in the buffer zones of parks and protected areas throughout Vietnam. Estimated cost: $3,000

Radio telemetry study at Cuc Phuong: The TCEP is hoping to get a study going during the summer of 2003 for *Pyxidea mouhotii* at Cuc Phuong. This would be the first radio telemetry study of a turtle species in Vietnam, and would involve park staff and others in determining the home range and habitat of *Pyxidea mouhotii* in the wild. Estimated cost for yearlong study: $2,500.

For more information, please contact us at:

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