

**The Turtle Conservation and Ecology Project**  
**Cuc Phuong Conservation Project**  
Cuc Phuong National Park  
(January 2000)

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# The Turtle Conservation and Ecology Project

## Species Conservation Program

### Cuc Phuong National Park

(January 2000)

## Background Summary

There are 22 native species of tortoises and freshwater turtles in Vietnam. Of these species, two are presently protected under Vietnamese law, and two more receive protection under CITES Appendix II (of which Vietnam is a signatory, but has not yet implemented enforcement legislation). The IUCN Red Data Book (1996) lists twelve of Vietnam's turtle species as endangered, threatened, vulnerable, or near threatened (*See Table 1*). However, based on the sheer volume of the turtle observed and reported within the trade, and the corresponding widespread and steady destruction of natural forests within the country, Vietnam's turtles are *all* effectively endangered, with wild populations of some species unlikely to survive into the near future.

For example, highly sought after species like *Cuora trifasciata* can not possibly sustain market values quoted as high as \$1000/kg. Their disappearance from the trade is evidence of the low numbers of this species presently remaining in the wild. Other species like the endemic *Mauremys annamensis* are only known from a few areas in south-central Vietnam, and are becoming less common in the trade.

Collective evidence from the trade suggests that Vietnam's surviving turtle populations are being systematically extirpated from nature. Insatiable demand from the markets of China has generated a lucrative business for Vietnamese profiteers, providing the economic incentives for export that have all but eclipsed traditional consumptive uses of most wildlife resources in Vietnam.

While there is obvious need for greater protection of Vietnam's turtle species in their native habitat and the need to address the issue of *demand* in China, Vietnam's turtles may not survive the duration required to bring about effective and lasting change.

Subsequently, in-situ conservation programs with congruent efforts to improve enforcement, enhance public awareness, and provide protection for remnant wild populations are immediate priorities in Vietnam.

**Table 1: Turtle Species in Vietnam**

<b>Platysternidae</b>	<b>Common Name</b>	<b>CITES</b>	<b>1996 IUCN RL</b>	<b>VN RB 1992</b>	<b>Decree 18</b>
<i>Platysternon megacephalum</i>	Big-headed turtle			R	
<b>Emydidae</b>	<b>Common Name</b>	<b>CITES</b>	<b>1996 IUCN RL</b>	<b>VN RB 1992</b>	<b>Decree 18</b>
<i>Cuora amboinensis</i>	Malayan box turtle		NT	VU	
<i>Cuora galbinifrons g.</i>	Indochinese box turtle		NT	VU	
<i>Cuora galbinifrons bouretti</i>	Indochinese box turtle		NT	VU	
<i>Cuora galbinifrons picturata**</i>	Indochinese box turtle		NT	VU	
<i>Cuora trifasciata</i>	Chinese three-striped box turtle		EN	VU	
<i>Cyclemys pulchristriata</i>	Striped-necked leaf turtle				
<i>Cyclemys tcheponensis</i>	Striped-necked leaf turtle				
<i>Geoemyda spengleri</i>	Black-breasted leaf turtle				
<i>Heosemys grandis</i>	Orange-headed temple turtle		NT	VU	
<i>Hieremys annandalii</i>	Yellow-headed temple turtle		VU	VU	
<i>Malayemys subtrijuga</i>	Malayan snail-eating turtle				
<i>Mauremys annamensis</i>	Vietnamese leaf turtle				
<i>Mauremys mutica</i>	Asian yellow pond turtle				
<i>Ocadia sinensis</i>	Chinese striped-neck turtle		NT		
<i>Pyxidea mouhotii m.</i>	Keeled box turtle				
<i>Pyxidea mouhotii obsti</i>	Keeled box turtle				
<i>Sacalia quadriocellata</i>			VU		
<i>Siebenrockiella crassicolis</i>	Black marsh turtle				
<b>Testudinidae</b>	<b>Common Name</b>	<b>CITES</b>	<b>1996 IUCN RL</b>	<b>VN RB 1992</b>	<b>Decree 18</b>
<i>Manouria impressa</i>	Impressed tortoise	II	VU	VU	
<i>Indotestudo elongata</i>	Elongated tortoise	II	VU	VU	II
<b>Trionychidae</b>	<b>Common Name</b>	<b>CITES</b>	<b>1996 IUCN RL</b>	<b>VN RB 1992</b>	<b>Decree 18</b>
<i>Amyda cartilaginea</i>	Asiatic softshell turtle		VU		
<i>Palea steindachneri</i>	Wattle-necked softshell turtle		NT		
<i>Pelochelys cantori</i>	Asian giant softshell turtle		VU	VU	II
<i>Pelodiscus sinensis</i>	Chinese softshell turtle				

(January 31, 2000)

\*\* Not in Vietnam but observed in the trade from Cambodia

## About the Cuc Phuong Conservation Project

The Cuc Phuong Conservation Project is a multifaceted conservation initiative implemented and administered by Fauna and Flora International (FFI) in cooperation with Cuc Phuong National Park, and the Ministry of Agriculture and Rural Development (MARD). The project was established in 1996 as part of an effort to assist the park in protection of its natural resources, threatened by human populations living in the area immediately surrounding the park. Major project components include a community-based conservation education program active in 35 schools and fifteen communes surrounding the park, a socioeconomic research program examining the relationship between local communities and forest resource use, a visitor education program targeting the park's 40,000 annual visitors, and biological research on the park's fauna and flora.

The Cuc Phuong Conservation Project also manages two species conservation programs focused on wildlife threatened by the illegal trade. A conservation program for the Owston's palm civet (*Chrotogale owstoni*) was established in 1995. The Owston's program involves the first successful captive breeding of this globally threatened small carnivore in the world, research on their behavior and ecology, and translocation of civets confiscated from the trade (and born in captivity) back into the wild.

A second species conservation program was initiated in 1998 focusing on tortoises and freshwater turtles confiscated from the trade. Since 1998, the Turtle Conservation and Ecology Project has developed steadily and has become a major component of overall project activities.

During the summer of 1999, the project received official endorsement from the Ministry of Agriculture and Rural Development, formally integrating the Turtle Conservation and Ecology Project into the larger Cuc Phuong Conservation Project, and becoming the first official freshwater turtle and tortoise conservation project in Vietnam.

## Objectives

The objective of the Turtle Conservation and Ecology Project is to initiate immediate and urgent action in response to the threat to Vietnam's native turtle populations resulting from the illegal wildlife trade. The project involves six major program components:

- (1) Public awareness and education
- (2) Training and institutional capacity building of national protection authorities
- (3) Research on captive ecology and reproduction.
- (4) Translocation of turtles back into protected areas and habitat
- (5) Field surveys and research on the natural distribution and status of Vietnam's turtles
- (6) Research and monitoring of the wildlife trade

## Scope

The scope of the overall turtle conservation project is national, with program activities starting at the regional level and expanding outward as the project grows and resources become available. However, some components of the project will retain their regional base, such as the in-situ research and breeding program at Cuc Phuong.

## 1.0 Public Awareness and Education Program

A major focus of the project will involve a broadly based and aggressive public awareness campaign aimed at raising the national level of understanding and awareness about the need to protect Vietnam's turtle fauna.

The public awareness campaign's objective will be to begin the difficult process of changing public perceptions and attitudes about turtles, and the assumption held by most people that turtles are an unlimited resource to be exploited. The campaign will focus on the general public, as well as authorities on the national, provincial, and local level, and protected area managers responsible for critical remaining habitat. Since the extent of funding for this program will determine the level of exposure possible, initial efforts will focus on practical avenues of information dissemination such as media, film, posters, and other resource materials.

An education program is also being developed that will be pre-tested, packaged, and made available for use in local schools and communities within critical habitat areas. The education program will also carry out special programs for children, special interest groups, and visitors of Cuc Phuong National Park.

### ***Public Awareness Campaign and Educational Program Components***

- ☞ *Media*: Encouraging Vietnamese journalists to write articles about the wildlife trade and turtle conservation activities with the goal of introducing and increasing public exposure to the threats to Vietnam's turtles resulting from the illegal trade and habitat loss. Similar efforts will be made to increase television and radio coverage of these core issues.
- ☞ *Film*: Production of a film on the turtle trade in cooperation with Ninh Binh provincial television that may be used as a training and education tool, as well as be aired on regional television.
- ☞ *Posters and informational resources*: Development and distribution of posters and other educational materials (i.e., brochures and "fact sheets") about the wildlife trade. Distribution will target high profile areas, schools, government offices, parks and protected areas.
- ☞ *Education package*: Development of an educational package to be used at schools, including a lesson plan, related materials, and series of children's books, "*The Adventures of Lucky Turtle*" (in Vietnamese). The community-based education program will be pre-tested in the communities surrounding Cuc Phuong National Park.
- ☞ *Cuc Phuong National Park*: Use the project's Turtle Conservation and Ecology Center as an educational resource, in conjunction with the park's new visitor center, to highlight the threat to Vietnam's turtles resulting from hunting and habitat loss amongst the park's annual 40,000 visitors. *Note*: Cuc Phuong National Park is an ideal location to increase national exposure to core conservation issues, being the country's first national park and pilgrimage site for most Vietnamese, particularly young students.

### ***Progress on Planned Activities***

In 1999, the project received support from Melbourne Zoo (Australia) and Columbus Zoo (USA) to initiate public awareness and educational activities. Posters and educational materials are currently being designed to support initial efforts to bring the turtle trade issue into the public eye, as well as support a “turtle conservation” lesson plan that has already been drafted and pre-tested within the project’s community-based education program. Once a finalized lesson plan is complete, along with supporting materials, the program will be packaged and distributed for use in other areas.

The project is also working to develop contacts with national newspaper journalists and the television media. Reports and important activities relating to the project’s turtle conservation efforts are presently distributed to a list of some 57 journalists nationally.

Additionally, construction of the Visitor Center at Cuc Phuong National Park is nearly complete (early March). The building will include a major exhibit on the illegal wildlife trade, the project’s turtle conservation activities, and live turtle exhibits.

## **2.0 Training and Capacity Building**

One of the major difficulties influencing protection of Vietnam's wildlife is the relatively low capacity of enforcement authorities. The Forest Protection Department (FPD) is the principal agency responsible for enforcement of Vietnam's wildlife protection laws. However, rangers tend to be poorly trained and motivated, in most cases lacking the skills to identify animals that are confiscated from the trade. Subsequently, monitoring and enforcement efforts are often limited to ambiguous references to "turtles" by weight, with animals often returned to the trade or released in protected areas without consideration for the health, habitat, natural range, or ecological consequences of such action.

The project's training component will focus on increasing the institutional capacity of relevant government agencies and developing national expertise and interest in turtle conservation and ecology through involvement and cooperation with project activities.

### **Enhancing Enforcement and Monitoring through Training**

Initial efforts will focus on training of Forest Protection Department (FPD) rangers at the provincial level. Efforts will eventually be expanded to include other government agencies and institutions including the Border Police and the protection departments at National Parks and Protected Areas.

Training will be aimed at helping these agencies develop effective enforcement measures that include identification and monitoring of trade, increasing their knowledge of Vietnam's wildlife protection laws, and developing appropriate guidelines for what to do with the large number of turtles confiscated in trade seizures.

A more difficult focus of the program will involve determining how best to enhance regional protection for wild populations of turtles within their native habitat, addressing hunting and habitat loss as the core issues affecting the overall decline in wild populations. Training of park and protected area staff should benefit protection efforts, particularly when employed in conjunction with regional education and public awareness activities.

The project began these efforts informally in 1998, and has been working closely with Ninh Binh Provincial FPD, assisting with trade seizure inspections, providing photo identification sheets for common trade species, and providing information about the distribution and range that would enable the rangers to enforce relevant trade regulations.

The project is also planning a workshop for provincial rangers on "Enforcement and Monitoring the Turtle Trade" that will take place in early 2000, and coincide with the release of a Vietnamese language field guide on the turtles of Indochina.

### **Developing National Expertise**

The future of turtles in Vietnam will be largely dependent upon developing expertise and scientific interest at the national level. Developing national expertise through cooperation with institutions such as the Institute of Ecology and Biological Resources (IEBR) will comprise an important part of the capacity building program. Participation of several young student biologists from IEBR is expected to begin in early 2000. Additionally, a member of the CPNP scientific staff has been involved within the program since the spring of 1999, and is rapidly gaining the knowledge and expertise to perhaps make this young biologist the country's leading expert on turtles in the future.

### 3.0 Captive Ecology and Breeding

The Turtle Conservation and Ecology Project began in early 1998 with the receipt of a half dozen turtles confiscated from the illegal wildlife trade by provincial rangers. Through the later part of 1998 and 1999, the numbers of turtles received from national and regional authorities have increased steadily, with captive facilities at the center expanding accordingly. At present, the project holds 158 turtles (February 2000) of 17 species (and three sub-species).

Turtles are received from the trade and maintained at the Turtle Conservation and Ecology Center for the following purposes:

- ✂ ***Translocation***: Quarantine and recovery prior to translocation back into native habitat (species and range dependent). *See section 4.0 - Translocation Program*
- ✂ ***Captive Ecology and Research***: Specific turtle species identified as high-priority species based on trade volumes, conservation status, and legal protection (*see Appendix II*).
- ✂ ***Breeding***: Captive breeding and headstart for specific turtle species identified as high priority species (*see Appendix II*).
- ✂ ***Educational Resources***: Examples of Vietnam's native species used for education and training programs.
- ✂ ***Incidental Receipt***: Turtles received from trade seizures that are not native to the north, but were delivered to the project by authorities (includes turtles used for educational and training purposes).

#### ***Captive Ecology and Research***

The captive ecology component of the project is focused on gaining greater insight into the ecology of Vietnam's poorly studied turtle species. At present, research is limited to observing the behavior and activity of specific species in captivity (as a function of temperature, humidity, and weather conditions), as well as investigating preferential diets, and monitoring health and growth.

Research is currently carried out by a member of the park's scientific department employed by the project. Plans for 2000 include providing an opportunity for an international student (Masters degree candidate) to coordinate this research component and provide training for Vietnamese from national institutions and universities through involvement with the project (funding dependent).

#### ***Facilities***

In 1998, the project established its first enclosures in a small area adjacent the Endangered Primate Rescue Center. However, these facilities quickly became overcrowded as more turtles were received from trade seizures through early 1999. After the project received formal endorsement from the Ministry of Agriculture and Rural

Development (MARD) in August of 1999, Cuc Phuong National Park consigned an area of approximately 2,800 m<sup>2</sup> for the center's expansion, bringing the total area to 3,700 m<sup>2</sup>. An additional area of approximately 30,000 m<sup>2</sup> that includes a large forested hill has also been provided to the project to establish a semi-free natural environment for turtles.

***Breeding***

In 2000, the project plans to initiate its first attempt at captive breeding of specific high-priority turtle species (*see Appendix II*) and establish a head-start program that will run concurrently with translocation efforts aimed at augmenting wild populations in designated protected areas and parks (see translocation below). The project will also seek to formulate international cooperation and partnerships with "sister breeding projects" abroad that will help ensure the survival of these species.

## 4.0 Translocation

### *Translocation*

Translocation offers one possible solution for how to dispose of turtles confiscated from the illegal trade. Presently, confiscated animals are either given back to traders or released into natural areas with little consideration given to health, habitat suitability, natural range, or existing populations of turtles in the area. Through training and cooperation with protection authorities, the project intends to provide some practical alternatives for turtles confiscated from the trade. Efforts will focus on translocation of native species into suitable habitat after appropriate health screening and quarantine (*see Table 2*). While this option is not perfect, it will constitute a step forward over the present wholesale release of animals into parks and protected areas, and provide an opportunity to reduce the number of confiscated animals that are simply returned to the trade for lack of better alternatives. These efforts will also provide a “second chance” for many of Vietnam’s less fortunate turtles caught up in the trade.

More importantly, the translocation program will serve as a mechanism for encouraging and enhancing local protection efforts at designated release sites, and increasing the awareness and understanding of rangers involved in the process about the need to actively protect Vietnam’s turtle species.

Releases of turtles at designated sites will correspond with greater enforcement activities in target areas, public awareness, community-based education, and a practical monitoring system (through marking) for released animals.

#### **Table 2: Translocation Criteria**

The following criteria has been established for translocations of turtles received from the illegal trade in order to protect native species and ensure the welfare and best chance of survival for released animals.

- ☒ Routine health screening and quarantine following receipt from the illegal trade.
- ☒ Assessment of habitat suitability at proposed translocation sites.
- ☒ Assessment of local hunting pressures at proposed translocation sites.
- ☒ Practical assessment of the population status of any potential remaining wild populations of turtles at the release site.
- ☒ Release of only turtles that are native to the region.

## 5.0 Field Research

Another component of the Turtle Conservation and Ecology Project involves conducting field research on existing native populations of Vietnam's turtle species in support of the previously described program activities. Surprisingly, very little field research has been carried on turtles in Vietnam. This is partly because the numbers encountered in the wild reduce the ability to acquire meaningful scientific information from such fieldwork. However, establishing some data on existing native populations of certain species may be critical in some cases, such as in the case of *Mauremys annamensis*, only known to science from a few locations around Da Nang. Determining the population status and distribution of *M. annamensis* is probably critical to this endemic species' survival in the wild, and would provide opportunities to focus protection around remaining habitat.

### Objectives of field research include:

- ∞ **Population Status and Distribution:** Determine the status of wild populations of selected turtle species such as *Mauremys annamensis* (endemic) in south-central Vietnam. The information derived from field surveys will provide the basis for developing species conservation plans for protection of surviving wild populations within remaining natural areas.
- ∞ **Translocation Site Assessment:** Conduct field surveys to determine the status of native turtle populations at proposed translocation sites. This ecological consideration is meant to ensure that turtles released at these sites are not likely to influence the health of existing populations of the species that may be present in the area.

### Progress on Planned Activities

Prior to the formal project endorsement (received August 1999) and availability of resources to support expanded field research activities, all field research has been restricted to Cuc Phuong National Park and the immediate surrounding region.

Surveys within local communities around Cuc Phuong National Park have been used to determine which species are likely to be native to the park (there are only two confirmed field records for Cuc Phuong). One survey was carried out during the late fall of 1998, followed by a second survey coinciding with the spring rains (principal hunting season). The information gained from these surveys will help the project implement its translocation program for two species at Cuc Phuong during the late spring of 2000.

The project is also working with other scientific institutions and organizations in Vietnam to develop an atlas on the distribution of Vietnam's turtle species, using records available from biodiversity surveys in many parks and protected areas around the country, as well as confirmed reports from field biologists in the region that have incidental encounters with turtles in the wild during the course of their work.

## **6.0 Research and Monitoring of the Wildlife Trade**

In reality, very little is known about the volume and mechanism of the turtle trade in Vietnam. Most information has been derived from a few critical studies (Jenkins, 1995/ Duc, 1995/ and Lehr, 1996) that were carried out over a short period of time and provide important pieces to the larger puzzle. While these studies accurately reflect the serious threat to Vietnam's turtles resulting from the trade, efforts must be taken to develop a systematic and ongoing approach to understanding and monitoring the trade.

This more systematic approach must begin with developing an effective monitoring program to be used by protection authorities from which accurate statistics can be collected on the volume of trade, in addition to other information about the trade network derived from enforcement actions. Efforts must also be undertaken to improve communication and information sharing between regional protection authorities that would facilitate enforcement.

Equally important is the need to develop a network of agencies, institutions and organizations, and individuals with exposure to wildlife trade issues (both in and outside of Vietnam) that would facilitate greater information sharing and provide a more complete understanding of the turtle trade and its workings. Bringing about effective results will depend upon the cooperation and interest amongst a broad spectrum of agencies and organizations in Vietnam and abroad.

### ***Project activities in relation to trade research will focus the following:***

- ✧ Encourage and facilitate establishment of an effective monitoring system to be used by wildlife protection authorities, and encourage the sharing of information between regional authorities.
- ✧ Establish baseline information about the overall volume of the turtle trade in Vietnam through cooperation with government agencies, institutions, and NGOs (i.e., Traffic SE Asia).
- ✧ Encouraging/facilitating the establishment of a "Wildlife Trade Network" that would permit improved flow of information relating to wildlife trade observations, management issues, and progress on protection efforts to be shared amongst government and non-government organizations and institutions.
- ✧ Conduct focused regional surveys on the wildlife trade in association with proposed translocation sites, biological field research locations (priority species hotspots), or to determine more information about the mechanics and volume of turtle trade in a given region.

### ***Progress on Planned Activities***

The project has been involved in monitoring wildlife trade seizures along the country's principal trade route (Highway No. 1) for nearly two years, as well as collected data and resources from other organizations and institutions in order to gain a clearer picture of the turtle trade in Vietnam.

In 1999, trade research activities were expanded to include investigation of trade networks in regional centers and collection points such as Hue, the Lao Bao border crossing, Na Trang, and Hanoi, and other more localized trading points. Despite these largely opportunistic efforts, information gained thus far provide only snapshots of the inner mechanism of a complex and elaborate trade network, documented in a series of reports to TRAFFIC Southeast Asia.

The project has also conducted domestic market surveys at Hanoi's Dong Xuan Market since February 1998 as part of an effort to examine the domestic pet trade, seasonal availability of species, and trade volumes. A report to be completed in March 2000 will document the findings of this two-year study.

In December 1999, the author was invited to represent Vietnam at a workshop on the turtle trade in Phnom Penh, Cambodia, during which situation reports were presented by each of 16 countries in the south Asia region. The outcome of the conference included the submission of proposed changes to the IUCN Red List, support for a German initiative to list all Cuora species on CITES Appendix II, and a series of recommendations for immediate action to provide greater protection for the region's turtles. The recommendations resulting from the December 1999 Cambodian turtle conference also reflect the project's long-held views and strategy for protecting Vietnam's turtles.

## **7.0 Administration**

The Cuc Phuong Turtle Conservation and Ecology Project concept represents a multifaceted approach to addressing the threat to Vietnam's turtles from the illegal wildlife trade and habitat loss. Understandably, not all project activities can be developed simultaneously, and priorities must be identified so that the program develops within its means.

A steering committee will be formed in 2000 consisting of regional and international specialists that will provide advice and expertise in helping set immediate and attainable goals for project, as well as monitor progress.

### **Funding**

Growth of the Turtle Conservation and Ecology Project in 1999 brought in funding from a number of international institutions and experts including:

**Columbus Zoo:** *Support for the turtle-focused public awareness and education program.*

**Melbourne Zoo:** *Support for care and maintenance of turtles recovered from the trade.*

**Tennessee Aquarium:** *Support for new enclosures and housing for turtles.*

**James Bazyrk Fund:** *Support for new enclosures and housing for turtles.*

**Rotterdam Zoo:** *Support for new enclosures and housing for turtles.*

## Appendix I: Project Activities Summary

Activity	Action	Status
<b>Public Awareness</b>	Information dissemination to journalists	In progress and expanding since September 1999
	Develop (2) counter-trade posters	In progress
	Short film on Vietnam's turtle trade	Planned for 2000
	Colorful information fact sheet on the turtle trade	Presently not funded
<b>Educational Program</b>	Exhibit in CPNP/s visitors center featuring the wildlife trade and turtles	Visitor Center structure complete. Planning underway.
	Illustrated children's book: <i>The Adventures of Lucky Turtle</i>	Near completion
<b>Development of National Expertise</b>	Educational program for schools (Lesson plan and resources)	Draft program tested. Revisions underway. Associated resource materials not developed.
	Employment of one member of the park scientific staff in the project	In progress since spring 1999
<b>Enforcement and Monitoring</b>	Short-term involvement of university students in project activities	Planned for spring 2000
	Training workshop for Ninh Binh FPD rangers	Planned for spring 2000
<b>Research</b>	Training workshop for CPNP rangers	Planned for February 2000
	Indochina turtles field guide	In print February 2000
	Behavior, activity, and diet research	Underway
<b>Facilities</b>	International student involvement in research activities	Planned for 2000 (Funding dependent)
	Construction of a perimeter fence around the turtle center	Completed October 2000
	Expansion of enclosures within the 2,800 m <sup>2</sup> center area	Six terrestrial, 12 aquatic tanks completed. Development continuing within area.
	Fencing around the proposed semi-free hill site behind the center	Planned for early 2000 (Funding dependent)
<b>Breeding</b>	Construction of a secure cage within the center	Completed August 2000
	Establishment of semi-aquatic breeding enclosures	Eight units completed January 2000
	Construction of a small (6 x 10 meter) building for research, egg incubation, juveniles, and veterinarian care	Planned for 2000 (Funding dependent)
<b>Translocation</b>	Determine the feasibility of exporting small numbers of certain priority species to support establishment of conservation-focused "sister" breeding projects abroad.	Planned for 2000
	Initial release of turtle species native to CPNP.	Planned for spring 2000
	Establish guidelines for quarantine and release of animals confiscated by protection authorities	Planned for 2000

	Establishment of a “sister” facility in the south of Vietnam whereby southern species may be returned to their native range.	No action
<b>Field Research</b>	Conduct field research on the population status and natural distribution of <i>Mauremys annamensis</i> .	(Funding dependent)
	Assessment of translocation sites in neighboring provinces, determined by species habitat requirements	Planned for 2000
	Completion of an atlas showing distribution of Vietnam’s turtle species	In progress (Not funded)
<b>Trade Monitoring</b>	Assist FPD in developing an effective monitoring program for enforcement actions.	Planned for spring 2000
	Encourage greater cooperation and information sharing amongst provincial enforcement authorities.	Planned for 2000
	Work with TRAFFIC SEA to develop a network for sharing of information on the wildlife trade amongst institutions and organizations.	Planned for 2000
	Conduct regionally focused trade surveys in support of translocation and biological research activities.	Planned for 2000 (Funding dependent)
	Continue with efforts to gather information about the turtle trade through cooperation with authorities and opportunistic investigation throughout Vietnam	Ongoing (in progress)
	Dong Xuan market domestic pet market survey	In progress

## **Appendix II: Priority Species**

The Turtle Conservation and Ecology Project has selected seven species for which research, breeding, and/or translocation program activities will initially focus. Species selection is based upon different criteria as indicated below:

### *Indotestudo elongata*

CITES II listed species (and protected under VN Decree 18)

Trade Status: Common

Selection criteria: Protected from trade under CITES II and VN Decree 18. Native to the regions around Cuc Phuong National Park.

Planned activities: Translocation, research, and breeding

### *Manouria impressa*

Trade Status: Common but in small numbers.

Selection criteria: Protected from trade under CITES II. Native to the regions around Cuc Phuong National Park.

Planned activities: Translocation, research, and breeding

### *Pyxidea mouhotii*

Trade Status: Common

Selection criteria: Native to Cuc Phuong National Park.

Planned activities: Translocation and research

### *Cuora galbinifrons*

Trade Status: Common in large numbers

Selection criteria: Recommended for protection due to harvest levels. Native to the regions around Cuc Phuong National Park.

Planned activities: Translocation, research, and breeding

### *Cyclemys tcheponensis*

Trade Status: Fairly common

Selection criteria: Native to Cuc Phuong National Park.

Planned activities: Translocation and research.

### *Mauremys annamensis*:

Trade Status: Uncommon

Selection criteria: Endemic to south central regions. Recommended priority species. Planned activities: Research and breeding

### *Cuora trifasciata*:

Trade Status: Extremely rare

Selection criteria: Highly valued species and likely to become extinct in the wild (in Vietnam) in the immediate future.

Planned activities: Research and breeding (if this species is recovered from the trade).

Translocation efforts may include other species such as *Platysternon megacephalum*, *Ocadia sinensis*, *Sacalia quadriocellata*, and *Geomyda spengleri*, depending upon the volumes received from the trade and practicality of including additional species into the program.

Representative specimens of other native species are maintained by the project for educational and training purposes. The project has elected not to work with some species due to the limited opportunities to return these species to their native range. However, these species may be incorporated into future project plans and activities if effective cooperation and partnerships may be formed with institutions or organizations within the southern provinces that would support translocation efforts there.