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# TURTLE AND TORTOISE NEWSLETTER

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# Turtle and Tortoise Newsletter

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**TURTLE AND TORTOISE NEWSLETTER** (ISSN 1526-3096) is an international newsletter dedicated to providing an open forum for the timely exchange of information on freshwater / terrestrial turtle and tortoise conservation and biology issues. It incorporates and merges the previous publications of the Newsletter of the IUCN Tortoise and Freshwater Turtle Specialist Group and the Box Turtle Research and Conservation Newsletter.

Submissions are welcome from any source or individual and are in no manner limited to Specialist Group members. Articles may cover any aspects of turtle and tortoise news or research, with a preference for conservation or biology. TTN focuses on freshwater and terrestrial turtles and tortoises; items dealing with sea turtles should be directed to Marine Turtle Newsletter, an independent and separate publication. Of particular interest to TTN are news items and preliminary research or field reports dealing with conservation biology, population status and trends, human exploitation or conservation management issues, community conservation initiatives and projects, legal and trade issues, conservation and development threats, geographic distribution, natural history, ecology, reproduction, morphology, captive propagation, and husbandry. Newsnotes, announcements, commentaries, and reviews of interest to the turtle conservation and research community are also welcome. Submissions will not be peer-reviewed, but minor review and final acceptance for publication is at the discretion of the Editorial Staff. Submit material directly to either H. Kalb or A. Salzberg at the addresses above.

TTN will be published approximately quarterly or periodically as the need arises by Chelonian Research Foundation with additional support provided by Conservation International. Institutional association also includes the IUCN/SSC Tortoise and Freshwater Turtle Specialist Group, Chelonian Research Institute, Wildlife Conservation Society, Chelonia Institute, AZA Chelonian Advisory Group, and IUCN (The World Conservation Union) - Species Survival Commission. All opinions expressed are explicitly those of the authors and do not necessarily reflect those of the Editorial Staff or any of the Associated Institutions.

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The cover photo is by Chris Shepherd, TRAFFIC SE Asia. It depicts a daily shipment of hundreds of live *Cuora amboinensis* in a holding tank in Medan, Sumatra, Indonesia, destined for export to international food markets.

## **Publisher's Editorial: Turtle Survival Crisis**

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Turtles are in terrible trouble. Throughout the world they are threatened by a plethora of problems to which they are succumbing. Their habitats are being increasingly fragmented, destroyed, developed, and polluted. They are being collected, butchered, eaten, traded, sold, and exploited in overwhelming numbers. They are used for food, pets, traditional medicine - eggs, juveniles, adults, body parts, all are utilized indiscriminately, with no regard for sustainability. Populations nearly everywhere are shrinking. Species everywhere are threatened and vulnerable, many are critically endangered, others teeter on the very edge of extinction, some have already been lost forever.

Survivors of countless millennia, turtles on the brink of our new millennium face imminent demise at the hands of humans. We are facing a turtle survival crisis unprecedented in its severity and risk. Without intervention, countless species will be lost over the next few decades. We must work together now to save these creatures that we care for so passionately. We must work for the survival of turtles throughout the world, help each other understand the risks and threats turtles face, define the survival and conservation objectives to which we must aspire, and develop the successful strategies and alliances that can help us reach those goals.

Our legacy must be that we succeeded in preserving the diversity of turtles with whose care we have been entrusted. That innate responsibility has come from the privilege we enjoy in sharing this world and its habitats with other creatures who have evolved, as we have, to grace this planet with a most extraordinary diversity. We must not lose any of that diversity, but instead celebrate and preserve it, and defend the inherent right to continued existence for all species of turtles.

Of all the threats that turtles face, the most serious and critical is the uncontrolled and overwhelming trade for food and traditional medicine in southeast Asia. Imports of turtles to southern China from the southeast Asian region are measured in tons of live turtles per day, with more than 10 million individuals traded per year. All species of turtles in southeast Asia are traded, with indiscriminate exploitation of all accessible populations. This has resulted in severely depleted and extirpated populations near the consumer source in China, and ever-widening ripples of non-sustainable harvest reaching into all surrounding southeast Asian regions and even beginning to impact turtles in North America and elsewhere.

To address this problem, a regional workshop was held in Phnom Penh, Cambodia, on 14 December 1999, attended by about 40 delegates from 13 southeast Asian nations (China, Taiwan, Vietnam, Laos, Cambodia, Thailand, Myanmar, Bangladesh, India, Malaysia, Indonesia, Papua New Guinea, and Australia) to discuss the trade and conservation of turtles in the region. Organized by Wildlife Conservation Society, World Wildlife Fund, and TRAFFIC,

and supported by many organizations, including Chelonian Research Foundation, the workshop documented patterns of exploitation and trade of turtles in the southeast Asian and Oriental regions and made specific recommendations regarding that trade. Foremost among those recommendations was that since nearly all Asian turtles are threatened by trade they all should be considered for listing at least on CITES Appendix II (Convention on International Trade in Endangered Species), so that monitoring of that trade will become more easily enforceable. In fact, a lack of enforcement of current trade regulations was among the most serious threats identified by the workshop delegates as facing turtles in the trade today. There appears to be very little actual monitoring of the trade, and not enough regard paid to whether the turtles traded are listed by CITES or not. This appears to be true not only in China, but also in source countries and trans-shipment sites, and is related to a variety of factors, including limited resources and difficulties in species identification.

Therefore, more than just listing all Asian turtles by CITES, perhaps we need to begin thinking about possibly listing all chelonians on at least CITES Appendix II, as are many other whole groups of traded animals (e.g., all crocodiles, marine mammals, primates, cats, birds of prey, parrots, orchids, hard corals, etc.). All marine turtles and all tortoises are already listed by CITES; it may be time to list all freshwater turtles as well, thereby providing at least some degree of monitoring for all chelonians in international trade. Only with data on volumes and species in trade will we ever be able to determine what may constitute sustainable levels of utilization for turtles. A careful evaluation of the possible advantages and disadvantages of listing all chelonians on CITES Appendices needs to be considered. Issues regarding conservation breeding programs and commercial turtle farming need be considered in conjunction with such an evaluation. The goal should not be to hinder all trade in turtles, but to monitor that trade for sustainability and to take necessary conservation action when wild native species are seriously threatened.

We also need to increase communication and collaboration between the various stakeholders interested in turtle conservation and biology. To help address that need, Chelonian Research Foundation is now pleased to present this publication, *Turtle and Tortoise Newsletter*, the Newsletter of Chelonian Conservationists and Biologists (TTN). We hope that TTN can help provide timely information, developments, and viewpoints of interest to the chelonian conservation community. Edited by Heather Kalb and Allen Salzberg and backed by a consulting board of leading chelonian conservationists and their parent organizations, TTN represents an outlet for current turtle conservation and biology news and issues.

We welcome the support and participation of all interested parties and all viewpoints will be considered. Of particular interest are news items and preliminary research or field reports dealing with conservation biology, population status and trends, human exploitation or conservation management issues, community conservation initiatives and projects, legal and trade issues, conservation and development threats, geographic distribution, natural history, ecology, reproduction, natural variation, captive propagation, and husbandry. Newsnotes, announcements, commentaries, and reviews of interest to the turtle conservation and research community are also welcome.

TTN incorporates and merges two previous publications: Box Turtle Research and Conservation Newsletter, which appeared between 1994 and 1999 (edited by Heather Kalb), and Newsletter of the IUCN Tortoise and Freshwater Turtle Specialist Group, which appeared under various titles between 1981 and 1990 (edited primarily by Peter Pritchard). Distribution of TTN will be free of charge to those requesting it and will also be available as a free downloadable document on Chelonian Research

Foundation's WebSite ([www.chelonian.org](http://www.chelonian.org)). Automatically receiving TTN will be subscribers to Chelonian Conservation and Biology and Box Turtle Research and Conservation Newsletter, as well as members of the IUCN/SSC Tortoise and Freshwater Turtle Specialist Group and the AZA Chelonian Advisory Group. Scientific peer-reviewed contributions relating to turtle conservation and biology will continue to be accepted and published by our professional scientific journal, Chelonian Conservation and Biology. TTN in no way replaces that publication. Though TTN is distributed free of charge, donations for financial support are gratefully accepted and actively solicited. We will need to rely on the generosity of our supporters, both institutional and individual, to continue to provide this service free of charge. With broad-based support and participation from our readers and contributors we hope that TTN will become a forum for the exchange of time-sensitive information and news on turtle conservation. Perhaps if we all work together we can help overcome the terrible trouble turtles are in and achieve a secure and permanent future for turtles everywhere.

### Letter from the Editors

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Welcome to the first edition of the *Turtle and Tortoise Newsletter*. As editors of this newsletter, we hope to provide you with a wide variety of articles from the news, current research, and the conservation front, as well as requests for information, conference announcements and any other information that needs to be distributed in a timely manner.

Now is a desperate time for most species of turtles. Many of you who are on the mailing list are already aware of the problems facing chelonians, but some of you are not yet aware of these problems or the severity. As you read through this edition, you will learn about the problems turtles face in Southeast Asia. For those of you with a love for turtles, now is the time for you to take an active interest in their conservation.

So what is our, your editors, personal interest in turtles? As with probably all herpetologists, Heather's first introduction to turtles was with a family "pet" when she was young - in this case, an eastern box turtle collected from the middle of the local highway. After endearing the family to his turtlish ways, the family collection grew to at least 20 some box turtles, terrapins, and sliders - all highway rescues. Today, it is very rare to see any turtles along those same roads. Volunteer work on Pritchard's Island, South Carolina and an internship at the Smithsonian introduced her to sea turtles. She obtained her graduate degree at Texas A&M University after studying olive ridley sea turtles in Costa Rica.

Allen attributes his active role in educating people about reptiles and amphibians to his early role model, Roger Tory Peterson. Peterson wrote "A Field Guide to the Birds," one of the most important ornithological field books, yet he had absolutely no formal training. Peterson just loved birds

and watched them wherever he went. He originally made his living painting furniture. Allen makes his living as a writer, but spends his freetime in the passionate pursuit of turtle conservation. He is the compiler of HerpDigest (an excellent email source of news articles), and along with his wife, Anita, wrote the children's book "Turtles." Allen is also a past board member of the New York Turtle and Tortoise Society.

This newsletter is affiliated with the IUCN/SSC's Tortoise and Freshwater Turtle Specialist Group (TFTSG). For those of you not familiar with the IUCN and the specialist groups, let us introduce them. The IUCN (International Union for the Conservation of Nature-also known as The World Conservation Union) was formed in 1948 with the general goal to protect nature. Belonging to this union are over 100 governments, 105 government agencies (such as the US Environmental Protection Agency, the Ministry of Tourism and Wildlife in Kenya, the Chilean Forest Service, and the National Council for the Conservation of Wildlife in Pakistan), and more than 700 non-governmental organizations (ranging from Friends of the Earth to the Wildlife Clubs of Uganda)(IUCN website).

One part of the IUCN is the Species Survival Commission (SSC), whose objective is to conserve biological diversity by developing and executing programs to study, save, restore, and manage wisely species and their habitats (SSC website). The SSC is comprised of over 7,000 *volunteers* from 179 countries who are divided into more than 100 specialist groups. Some of the specialist groups are oriented towards specific types of plants and animals, i.e. the Tortoise and Freshwater Turtle Specialist Group

(TFTSG) and the Marine Turtle Specialist Group, while other groups are focused on specific topics, i.e. sustainable use of species.

The TFTSG has 105 members and is chaired by John Behler of the Wildlife Conservation Society. In addition, Conservation International has recently announced that they will finance a program officer position for this group. A program officer is the only paid person devoted to the issues of the specialist group. Very few specialist groups can afford program officers, thus it is with great joy that we welcome Kurt Buhlmann, Ph.D. to this position. For those of you who know Kurt, you know that with his energy and enthusiasm directed full-time to the preservation of freshwater turtles

and tortoises our odds of success are bound to improve.

The subscribers to this newsletter range from distinguished researchers and conservationists to high school students with simply a desire to learn more about turtles. This newsletter is for anyone with even the slightest interest in turtles, and perhaps even for their friends, who have not yet developed an interest in turtles. For those of you who were loyal supporters of the *Box Turtle Research and Conservation Newsletter*, Heather thanks you for your past encouragement and contributions and hopes that you will find this newsletter to be even more informative and useful. If there is anything that we, as your editors, can do to make this newsletter more useful please let us know.

## Letter from the IUCN Tortoise and Freshwater Turtle Specialist Group

**JOHN BEHLER**

*Chairman, IUCN Tortoise and Freshwater Turtle Specialist Group Email: JLBehler@aol.com*

Y2K, the unofficial New Millennium, is here! For the chelonian community, it arrives with the first issue of the *Turtle and Tortoise Newsletter*. It joins Chelonian Conservation and Biology which serves our community as the flagship peer-reviewed journal of freshwater and marine turtle conservation biology and fills a rapid communication need. For both, the Tortoise and Freshwater Turtle Specialist Group (TFTSG) is indebted to the Chelonian Research Foundation (CRF) and its principal steward and financial supporter, Anders G. J. Rhodin. I can think of no more important contribution to serve our communication needs than this new resource. TTN will dramatically improve our ability to expeditiously convey critical information around the globe. Indeed, turtles are in trouble and may well be facing the narrowest bottleneck in their evolutionary history. More than half are in danger and many species will not survive the next century. However, year 2000 could be a turning point. You will be asked to assist in the evaluation of all chelonian species for inclusion in the next generation of the IUCN Red List and to campaign for CITES compliance among its signatories. Through TTN, these issues, as well as local, state, country, and international turtle conservation problems, will come to your attention.

At the close of 1999, the global turtle crisis remained just as serious, if not more so, than in the year that preceded it. Asia remains the very worst situation for chelonians. Kurt Buhlmann, Conservation International's Coordinator for Amphibian and Chelonian Conservation (and serving double-duty as the TFTSG Program officer) traveled to Cambodia in early December to attend the International Workshop on Trade in Freshwater and Terrestrial Turtles and Tortoises in Asia. He has capsulated the results of the entire meeting into a single sentence: "The entire assemblage of freshwater turtles and tortoises native to southern Asia are in grave danger of extinction." Delegates - turtle trade specialists from Bangladesh, Cambodia, China, Hong Kong, India, Indonesia, Laos, Malaysia,

Myanmar, Papua New Guinea, Thailand, and Vietnam - discussed the trade and its impacts to their regions. Their consensus: the greatest threat to their turtle stocks (> 80 species) is unbridled exploitation for Chinese food markets. These markets are not well policed and the work of smugglers is obvious, as CITES Appendix I and II species from elsewhere in Asia are openly offered in them. The volume of trade into China is staggering and clearly unsustainable. It is measured in tens of tons per day and millions of turtles per year. Workshop attendees endorsed the recommendation to list all unlisted Asian turtles on Appendix II. At the midyear CITES Animal Committee meeting, China was queried about the unregulated trade. In response, China invited its neighbors to identify problem species. This veiled offer simply sidestepped honoring existing wildlife laws of their neighbors, policing markets and curtailing obvious smuggling activities, and dealing with their responsibilities as a CITES signatory. It was a very simple but effective delaying tactic. They continue. China failed to send a government representative to the Cambodian workshop in December.

While China is the biggest black hole for turtles, Madagascar and North American species are under assault as never before. Through my visits to the spiny desert and dry deciduous forests of Madagascar over the past decade, I've witnessed the degradation of large tracts of tortoise habitat. I've also seen local customs that served to protect tortoises subverted by overpopulation, tribal displacement, and expatriate activity. Now scores of radiated tortoises and spider tortoises (App. I & II) flow to Japan for its exotic pet market. Areas that held unbelievably dense populations of tortoises ten years ago have been swept clean by collectors for food markets and export. The Madagascar flat-tailed tortoise, certainly one of the world's rarest forms, can be found for sale (with legal permits!?) on the World Wide Web. You'll find them there with spider tortoises, and not far from rare laundered "captive-bred" *Graptemys* and *Clemmys*.

There is no vertebrate group facing greater survival problems today. Turtles saw the great dinosaurs come and go and are now facing their own extinction crisis. I appeal to you, taxon specialists, endangered species biologists, ecologists, zoo professionals, captive-breeders, veterinarians, hobbyists, and law makers and enforcers - the world's chelonian authorities - to come together in common cause and voice to address the challenge. TTN can serve as our call-to-arms. Please help however you can.

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# ARTICLES

## Asian Turtles are Threatened by Extinction

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### 1. Introduction

The trade to and in Southern Asian - especially Chinese - food markets has become the main threat to the survival of Southeast Asian turtles. While tortoises and freshwater turtles have been subjected to human predation for centuries, recent changes in Asian economics, spawned when Chinese currency became convertible, have opened direct access to foreign markets (Behler, 1997).

According to Dr. John Thorbjarnarson, co-ordinator of international reptile conservation programs at Wildlife Conservation Society (cited in Kaesuk Yoon 1999), the uncontrolled trade into China is the No. 1 threat to Asian turtles.

Tortoises and freshwater turtles are favored for their supposed medicinal value and consumed as food. China's native turtle species already have been depleted dramatically. Therefore the species present in Chinese markets are increasingly collected in countries further and further away. Besides Bangladesh, Pakistan, India and Nepal even species from New Guinea and the USA are now affected. Only a small portion of the turtles being observed in the markets in 1997 were native to China. This indicates a dramatic decline of the Chinese populations of all affected species. Lau *et al.* (1995) described the situation in China. In the late 1970s the hard-shelled chelonian trade was dominated by Chinese species. Now there are more Southeast Asian species for sale than Chinese ones. The import of food chelonians from outside countries has increased more than tenfold since 1977. This reflects an increase in demand in Southern China and the depletion of Chinese chelonians in the wild.

The situation of Asian chelonians is additionally sharpened by habitat destruction, scale deforestation (Collins 1990; van Dijk 1997; Studley 1998), chemical pollution and fragmentation of large rivers by dams (Fu, 1997). A summary of the situation of turtle species native to China is given in Table 1.

### 2. Population Trends of Key Species

All Southern and Southeast Asian species of turtles have been rapidly declining in the past decade, many face extinction in the wild. The following data are serious indications for the dramatic situation:

Some of the Chinese species, such as *Cuora mccordi*, are only known from the markets - there is no information about their population status, reproductivity, etc. *C. mccordi*, as well as *C. zhoui*, have not been available in the markets for a couple of years (Barzyk, 1999), although huge amounts of money have been offered by Western herpetologists. It has to be feared that these species are already extinct.

Of all chelonians *C. trifasciata* is the most demanded species which results in a tenfold price in comparison with other species (Jenkins, 1995; van Dijk, 1995, cited by the U.S. Fish & Wildlife Service, 1999). Meanwhile, the price for one specimen

has increased to \$1,000 U.S. (McCord, cited by Behler, 1997).

Softshell turtles (p.10) have a central role in Traditional Chinese Medicine (TCM) and are generally regarded as the most palatable non-marine chelonians within Southeast Asia (Jenkins, 1995). The populations of almost all softshell turtles are declining rapidly (for example, as described by Jenkins, 1995; Thirakhupt & van Dijk, 1995; Shrestha, 1997).

Meanwhile, even one of the formerly most abundant species, *Amyda cartilaginea*, has become rare (Jenkins, 1995). In Malaysia, where it had been the most abundant species on the markets, the numbers on sale decreased obviously since 1976. This decline was also reported from Vietnamese markets (Lehr, 1997).

Behler (1997) warns that *Chitra indica* and *Pelochelys bibroni* might become extinct in the wild without heroic intervention.

The Indian populations of *Kachuga sylhetensis* (p. 10) suffered a 90% decrease in the last decade. *K. kachuga* is showing a similar decline: During the last 20 years there was a reduction of more than 80% (BCPP, 1997). According to Das (1997) both species are reported as belonging to the ten most-threatened chelonians of the Oriental region.

All other species of the genus *Kachuga* are also decreasing - not only in India but also in Nepal and Bangladesh (Ernst *et al.*, 1997; Sarker & Hossain, 1997).

### 3. Volume of Trade

Although not documenting the extent of trade in all details, the following data are definite indications of the tremendous threats to Asian turtles:

Bill McCord reported that in two Chinese food markets alone an estimated 10,000 turtles are offered during a two-day period. He calculated that, "If China only had five or six markets, this would add up to at least 50,000 turtles on any given day. If the total replacement time was conservatively figured to be a full week (2-3 days given orally), then five or six markets would process at least 2.6 million turtles a year!"

Salzberg (1998) estimates the number of markets to be a lot higher and therefore calculates that more than 12 million turtles are sold each year in China alone. Almost all animals are wild-caught. Facing the low reproduction rate of most species there is no doubt that this exploitation is not sustainable and that within a few years many of the affected species will be extinct from the wild. The situation continues to worsen with the increasing demand from growing human populations and affluence especially in China.

Lau *et al.* (1998) described a dramatic trend in the import of food chelonians imported in the past few years: "In 1977, 139,200 kg of food chelonians was imported to Hong Kong. In 1991, 110,574 kg of food chelonians was imported and rose to 680,582 kg in 1993. In the first ten months of 1994,

a record high of 1,800,024 kg of animals was imported.”

Only about 10% of the turtles at Vietnamese markets are consumed by the domestic demand. The remaining 90% are to be exported to China and Hong Kong (Lehr, 1997). China's large-scale border trade with Vietnam began in 1989 and has developed rapidly since. Most of the exported animals are alive, but there are also exports of pharmaceutical products.

During an investigation by Yiming and Dianmo (1998) about 2.29 to 29.32 tons of wildlife/day were exported to China from Vietnam. More than 61% of this volume are tortoises, this results in 1.84 to 18.4 tons of turtles each day.

According to Martin & Phipps (1996) most turtles exported from Cambodia are destined for Vietnam, at least at first. Turtles have by far the largest turnover by weight among wildlife on sale in Neak Lung: In West Neak Lung approx. 9.5 tons were sold in 1993, while in East Neak Lung about 3.6 tons were sold in 1994.

This trade is unselective; species protected by international or domestic legislation are concerned as well as unprotected ones. The species presently affected represent about 25 % of the world's turtle species. The turtles which are exported to the Chinese food markets are often declared as “seafood.” This is one reason why there is a lack of statistics documenting the volume of the trade in separate species. The mortality rate of the turtles before arriving at the destination is often very high as a consequence of the suboptimal conditions during transport.

If this unsustainable trade continues, many Southeast Asian turtle species will be extinct within a few years. It is now vital to focus international attention on this issue and co-ordinate steps to reduce the trade in turtles to a sustainable level.

#### 4. Conservation Strategy for Asia's Turtles

The dramatic decline of Asian turtles can only be stopped in close co-operation with the range states. The following issues need to be considered on an international political level:

- to realize and discuss the fatal extent of the trade in Southeast Asian turtles within the up-coming CITES conference in April 2000.
- to work with and assist range states and local conservationists to win protection for turtles and prevent their extinction in the wild, e.g., i) to support coming-up proposals for a listing of Asian turtles in CITES App. I (e.g. exclusion from international commercial trade) or App. II (e.g. reduction and control of the international commercial trade) and ii) conducting field studies and assist in establishing in situ conservation projects in range states;
- to appeal to export countries to enforce national and international laws as well as IATA regulations (detailed declaration, conditions during transport);
- to encourage and support range states to run education programs to reduce the demand in medical products made from endangered species;
- to bring up the discussion of China's infractions against CITES: Western herpetologists report that App. I - species of turtles are offered in Chinese food markets that are non-native to China (*Aspideretes gangeticus*, *A. hurum*, *Batagur baska*, *Geoclemys hamiltonii*, *Kachuga tecta*, and *Morenia ocellata*). There are also several App. II species offered at the markets in high numbers (*Callagur borneoensis*, *Geochelone elongata*, *Geochelone platynota*, *Manouria emys*, and *Lissemys punctata*).

Table 1. Population trends of Chinese freshwater turtles and tortoises (based on the Chinese Red Data Book of Endangered Animals, 1998). (Traditional Chinese Medicine, TCM)

Species	Category / Status / Trends	Main Threats
<b>Family Platysternidae</b>		
<i>Platysternon megacephalum</i>	Endangered, very rare	Over-exploitation
<b>Family Bataguridae</b>		
<i>Chinemys megalocephala</i> *	Endangered, rare	Food markets
<i>Chinemys nigricans</i> *	Endangered, rare	Food markets
<i>Chinemys reevesi</i>	Conservation dependent, sharply declining	TCM, food markets
<i>Cuora aurocapitata</i> *	Critically endangered, rare	TCM
<i>Cuora flavomarginata</i>	Endangered, few animals	TCM, food markets
<i>Cuora galbinifrons</i>	Endangered, declining populations	Over-exploitation
<i>Cuora mccordi</i> *	Data deficient (only known from food markets)	Food markets
<i>Cuora pani</i> *	Critically endangered (CITES App.II), (only 22 specimens are known)	Food markets
<i>Cuora trifasciata</i>	Critically endangered, very rare	TCM
<i>Cuora yunnanensis</i> *	Probably extinct in the wild	No data
<i>Cuora zhoui</i> *	Data deficient, sharply declining numbers	Food markets
<i>Cyclemys dentata</i>	Endangered, rare	Food and pet trade
<i>Geoemyda spengleri</i>	Endangered, rare	Food markets
<i>Mauremys iversoni</i> *	Data deficient, very rare (only 29 specimens seen)	Food markets
<i>Mauremys mutica</i>	Endangered	Food markets
<i>Ocadia glyphistoma</i> *	Data deficient (only 10 specimens known)	No data
<i>Ocadia philippeni</i> *	Data deficient (only 9 specimens known)	No data
<i>Ocadia sinensis</i>	Endangered, decreasing populations	TCM
<i>Pyxidea mouhotii</i>	Endangered	Food markets, habitat loss

Table 1. Population trends of Chinese freshwater turtles and tortoises (cont.)

Species	Category / Status / Trends	Main Threats
<b>Family Bataguridae (cont.)</b>		
<i>Sacalia bealei</i>	Endangered	Over-exploitation, habitat loss
<i>Sacalia pseudocellata</i> *	Data deficient (only 3 specimens known)	No data
<i>Sacalia quadriocellata</i>	Endangered, rare	Over-exploitation
<b>Family Testudinidae</b>		
<i>Indotestudo elongata</i>	Endangered, rare	Over-exploitation, habitat loss
<i>Manouria impressa</i>	Endangered	Food markets, handicrafts
<i>Testudo horsfieldii</i>	Critically endangered	Over-exploitation, habitat loss
<b>Family Trionychidae</b>		
<i>Palea steindachneri</i>	Endangered, very rare	Food markets, export
<i>Pelochelys bibroni</i> (nomenclature unclear)	Extinct in the wild	Food markets
<i>Pelochelys maculatus</i>	Not evaluated (only 3 specimens known)	Food markets (illegal imports)
<i>Pelodiscus sinensis</i>	Vulnerable	TCM and food markets
* Endemic to China		

**Asian box turtles (*Cuora* spp.).** Asian box turtles have a very low reproduction rate which makes this genus highly sensitive for over-exploitation. Some of these species are only known from food markets with no data concerning their habitat or population size. (Red Data Book, RDB)

Species	Countries of Origin	Biological Data	Extent of Trade	Population Trends
<i>Cuora</i> <i>amboinensis</i> (1802) Malaysian box turtle	Indonesia, Malaysia, Laos, Myanmar, China, Thailand, Bangladesh, Philippines, Vietnam, Eastern India, Cambodia, Singapore	1 to 5 eggs/nest, sev- eral nests/year; incuba- tion period about 76 days	High level of exploita- tion for national and international trade (food, TCM, souvenirs)	Declining populations (Lehr, 1997; Thirakhupt & van Dijk, 1997); RDB of Vietnam (1992): “ <b>vul- nerable</b> ”; IUCN (1996): “ <b>near threatened</b> ”
<i>C. aurocapitata</i> (1988) Golden-headed box turtle	China (Anhui), found in Namling County, Yixian, Guande, Jingxian	Low reproduction rate in captivity (3 to 6 eggs, once a year)	One of the most re- quested & expensive species in the Chinese food markets (up to \$900US/animal)	Populations rapidly decreasing (Meier, 1998); RDB of China (1998): “ <b>critically endangered</b> ”; IUCN (1996): “ <b>data deficient</b> ”
<i>C. flavomarginata</i> (1863) Chinese box turtle	China (Anhui, Fujian, Henan, Jiangsu, Hunan, Szechnan, Shanghai, Taiwan), Japa- nese Riu Kiu Islands	Low reproduction rate in captivity (1 to 4 eggs/nest, once a year)	High level of exploitation in China and Hong Kong, offered in decreasing numbers	Populations obviously declining; RDB of China (1998): “ <b>endan- gered</b> ”; IUCN: “ <b>vulnerable</b> ”
<i>C. galbinifrons</i> (1939) Flowerback box turtle	Vietnam, China (Guangxi and Hainan), Southeast Laos	Low reproduction rate in captivity (2 eggs/ nest, once a year)	High level of exploitation for national and inter- national trade; Offered in decreasing numbers	Declining populations (Lehr, 1996); RDB of Vietnam (1992): “ <b>vulner- able</b> ”; RDB of China (1998): “ <b>endangered</b> ”; IUCN (1996): “ <b>near threatened</b> ”
<i>C. mccordi</i> (1988) McCord’s box turtle	Only discovered in Chi- nese markets (Guangxi), no data on natural habitat	No data	Offered in Chinese mar- kets (up to now only about 100 animals have been observed)	Rapidly declining populations (Behler, 1997; Meier, 1998); RDB of China (1998) and IUCN (1996): “ <b>data deficient</b> ”
<i>C. trifasciata</i> (1825) Three-striped box turtle	China (Guangxi, Fujian, Guangdong, Hainan), Northern Vietnam, maybe also in Laos and Cambodia	Low reproduction rate (2 to 6 eggs/nest), once a year	Most expensive and requested turtle in the Chinese markets (up to 3,000 US \$/ animals)	Rapidly declining populations (Pritchard, 1997); RDB of China (1998): “ <b>critically endangered</b> ”; RDB of Vietnam (1992): “ <b>vulnerable</b> ”; IUCN (1996): “ <b>endangered</b> ”
<i>C. yunnanensis</i> (1906) Yunnan box turtle	Only known from a few specimen in museums	No data	Not seen in trade, maybe already extinct	RDB of China (1998): “ <b>maybe already extinct</b> ”; IUCN (1996): “ <b>data deficient</b> ”
<i>C. zhoui</i> (1990) Zhou’s box turtle	Only discovered in Chi- nese markets (Yunnan, Guangxi)	Low reproduction in captivity (up to 5 eggs/ nest, once a year)	One of the most re- quested and expensive species in the Chinese markets (up to \$800 US)	Rapidly declining populations (Behler, 1997; Meier, 1998); RDB of China (1998) and IUCN (1996): “ <b>data deficient</b> ”

**Roofed turtles (*Kachuga* spp.).** As a consequence of the breakdown of the Chinese turtle populations, roofed turtles are imported from countries as far away as Bangladesh, India, and Pakistan.

Species	Countries of Origin	Biological Data	Extent of Trade	Population Trends
<i>Kachuga dhongoka</i> (1835) Three-striped roofed turtle	Northern India (Ganges), Nepal, Bangladesh (Brahmaputra)	21 to 34 eggs/nest, once a year; small populations	Meanwhile offered in Chinese food markets (imported by planes); National trade in Nepal	Declining populations (Choudhury & Bhutpathy, 1993); in India: “ <b>vulnerable</b> ” (BCPP, 1997); in Bangladesh: “ <b>few</b> ” specimen (Sarker & Hossain, 1997); IUCN (1996): “ <b>near threatened</b> ”
<i>K. kachuga</i> (1831) Red-crowned roofed turtle	Northern India (Ganges), Bangladesh (Brahmaputra), Nepal	20 to 25 eggs/nest, once a year; incubation: 80 to 86 days; small populations	Meanwhile offered in Chinese food markets (imported by planes); National trade in Nepal	Population decline in India more than 80 % in 20 years (BCPP, 1997); in India: “ <b>vulnerable</b> ”; In Nepal: “ <b>rare</b> ” (Shrestha, 1997); IUCN (1996): “ <b>endangered</b> ”
<i>K. smithii</i> (1863) Brown roofed turtle	Northern India (Ganges), Bangladesh (Brahmaputra), Pakistan (Indus)	Low reproduction rate in captivity (3 to 11 eggs/ nest, once a year)	Meanwhile offered in Chinese food markets (imported by planes)	Decreasing populations in Nepal (Ernst <i>et al.</i> , 1997); In India: “ <b>lower risk–least concern</b> ”; globally: “ <b>data deficient</b> ” (BCPP, 1997); in Bangladesh: “ <b>few</b> ” specimen (Sarker & Hossain, 1997)
<i>K. sylhetensis</i> (1870) Assam roofed turtle	India (Northern Bengal, Himalaya, Punjab, Assam)	No data	No data	Population decline in India 90+ % in 10 years (BCPP, 1997); in India: “ <b>critically endangered</b> ”; in Bangladesh “ <b>occasional</b> ”; IUCN (1996): “ <b>data deficient</b> ”
<i>K. tentoria</i> (1834) Indian tent turtle	India (Mahanadi, Godavari, Kistna, Ganges, Chambal), Bangladesh (Jamuna), Nepal	Low reproduction rate (3 to 12 eggs/nest, once a year)	Meanwhile offered in Chinese food markets (imported by planes)	Population decline in India more than 20 % in 10 years (BCPP, 1997); in India: “ <b>vulnerable</b> ”; IUCN (1996): “ <b>vulnerable</b> ”
<i>K. trivittata</i> (1835) Burmese roofed turtle	Myanmar (Salween-Irawaddy river system)	About 25 eggs/nest, once a year	National trade in Myanmar	Dramatically decreased populations (van Dijk, 1997); IUCN (1996): “ <b>endangered</b> ”

**Indo-Pacific Softshell Turtles:** Formerly, most species of this group were defined as *Trionyx* spp. (Red Data Book, RDB; Traditional Chinese Medicine, TCM)

Species	Countries of Origin	Biological Data	Extent of Trade	Population Trends
<i>Amyda cartilaginea</i> (1770) Asiatic softshell turtle	Myanmar, Vietnam, Laos, Brunei, Cambodia, Thailand, Malaysia, Singapore, Indonesia,	6-30 eggs/nest; up to 4 times a year; hatching after 135 to 140 days	High level of exploitation for national and international trade	Declining populations in all countries of origin (Jenkins, 1995; Thirakhupt & van Dijk, 1997; Lehr, 1997; van Dijk, 1997); IUCN (1996): “ <b>vulnerable</b> ”
<i>Aspideretes leithii</i> (1972) Leith’s softshell turtle	India, Pakistan	Nest size unknown, probably 2 nests/ year	Exploitation for national markets; No data on international trade	IUCN (1996): “ <b>near threatened</b> ”
<i>Chitra chitra</i> (1990) Kanburi narrow-headed softshell turtle	Thailand (point-endemic for the Mae Klong Basin)	No data on breeding and population size	National trade as pets; No data on international trade	There is only one population of about 16 animals (Das, 1997). This is one of the world’s most threatened turtles; IUCN: “ <b>critically endangered</b> ”
<i>Chitra indica</i> (1831) Narrow-headed softshell turtle	Pakistan, India, Bangladesh, Nepal, Myanmar, Thailand	67 to 187 eggs/nest; incubation period: 40 to 70 days; no data on population size	High level of exploitation for national and international trade; Offered in decreasing numbers	Populations declining (Rashid & Swingland, 1997; Shrestha, 1997); IUCN (1996): “ <b>vulnerable</b> ”
<i>Dogania subplana</i> (1809) Malayan softshell turtle	Malaysia, Indonesia, Myanmar, Singapore, Thailand, Brunei	No data	High level of exploitation for national and international trade	Declining populations in Thailand (Thirakhupt & van Dijk, 1997)

**Indo-Pacific Softshell Turtles. (Cont.)**

<b>Species</b>	<b>Countries of Origin</b>	<b>Biological Data</b>	<b>Extent of Trade</b>	<b>Population Trends</b>
<i>Niksonia formosa</i> (1869) Burmese peacock softshell turtle	Myanmar (Irawaddy-Salween), eventually also in Thailand and China	No data	Used for TCM in Myanmar; No data on international trade	Obviously declining populations (van Dijk, 1997); IUCN (1996): “ <b>vulnerable</b> ”
<i>Palea steindachneri</i> (1906) Wattle-necked softshell turtle	Southern China (also at Hainan), Vietnam; Introduced into Hawaii and Mauritius	3 to 28 eggs/nest, once a year, no data on population size	Offered in decreasing numbers in national trade, illegal exports to Chinese food markets	Obviously declining populations (Yiming & Dianmo, 1998), almost disappeared from the markets (Lehr, 1996); “ <b>very rare</b> ” in China (Nat. Environm. Protect. Agency of China, 1998); IUCN (1996): “ <b>near threatened</b> ”
<i>Pelochelys bibroni</i> (1993) Giant softshell turtle	Papua New Guinea	17 to 28 eggs/nest, no data on population size	Offered in decreasing numbers in Vietnam’s and China’s markets	Obviously declining populations (Rhodin <i>et al.</i> , 1993; Behler, 1997); IUCN (1996): “ <b>vulnerable</b> ”
<i>Pelochelys cantorii</i> (1864) Asian giant softshell turtle	India, Malaysia, Laos, S-China, Philippines, Indonesia, Myanmar, New Guinea, Bangladesh, Thailand, Vietnam, Singapore	20 to 28 eggs/nest, no data on population size	Offered in decreasing numbers at the Vietnamese and Chinese markets	Obviously declining populations (Jenkins, 1995; Thirakhupt & van Dijk, 1997); IUCN (1996): “ <b>vulnerable</b> ”; RDB Vietnam (1992): “ <b>vulnerable</b> ”
<i>Pelodiscus sinensis</i> (1835) Chinese softshell turtle	N-Vietnam, S-China, Taiwan, Japan, Korea, Indonesia, Singapore, Philippines	7 to 28 eggs, 2 to 4 times a year, no data on population size	Extensive trade within China, mainly for TCM	Obviously declining populations (Jenkins, 1995; Lehr, 1996; Yiming & Dianmo, 1998)

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The authoring organization, Pro Wildlife, is a German NGO recently started by people who are experienced in working on CITES and other wildlife issues. The organization is a member of the Species Survival Network (SSN).

Excerpts pertaining to turtles from the November 18, 1999 Federal Register announcement:

## **The United States' Final Submission For April CITES Conference**

**PATRICIA FISHER**

*United States Fish and Wildlife Service*

The U.S. Fish and Wildlife Service is calling for global attention to the impacts of unsustainable trade in marine species, reptiles, amphibians and plants as it submits its final proposals and papers to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Assistant Secretary of the Interior for Fish and Wildlife and Parks and head of the U.S. delegation to CITES, Donald J. Barry announced today. CITES is an international agreement designed to control and regulate global trade in certain wild animals and plants that are or may become threatened with extinction due to commercial trade.

These proposals and papers will be considered during the 11<sup>th</sup> meeting of the Conference of the Parties (COP11) to CITES in Nairobi, Kenya, in April 2000. Currently, 146 nations including the U.S. belong to CITES. Members meet approximately every two years to discuss improvements to the treaty and to review trade protections for wildlife.

"As we prepared the U.S. submissions, the Service worked closely with State wildlife agencies," Barry said. "More than ever before, they have been our partners in gathering the best scientific, trade and harvest information available on various species, especially native wildlife species."

A CITES-regulated species may be included in one of three appendices to the Convention. Any listing of a species in either Appendix I or II requires approval by two thirds of the CITES party countries. App. I includes species where it is determined that any commercial trade is detrimental to the survival of the species. Therefore, no commercial trade is allowed in App. I species. Noncommercial trade in such species is allowed if it does not jeopardize the species' survival in the wild. Permits are required for the exportation and importation of App. I species.

App. II includes species where it has been determined that commercial trade may be detrimental to the survival of the species if that trade is not strictly controlled. Trade in these species is regulated through the use of export permits.

App. III includes species where there is some question as to the potential negative impact of commercial trade. Permits are used to monitor trade in native species. Any member may place a native species on App. III.

In addition to proposals the United States itself is submitting, there are several it is co-sponsoring with other countries. For example, the U.S. is joining with Australia, Bulgaria, Kenya, Georgia, India, Nepal and Madagascar to propose or discuss protection for species such as sharks, tortoises, dolphins, tarantulas and Musk deer.

"Because Americans purchase great quantities of foreign wildlife and wildlife products, it is our responsibility to work with other countries to make sure that this trade in no way jeopardizes the future health of their native wildlife," Barry said....

### **Reptiles and Amphibians**

While environmental factors recently have been highly publicized in declines of reptiles and amphibians around the world, overharvest for human food and the pet trade is contributing to this decline. This trade impacts both U.S. and foreign species. Therefore, the U.S. is proposing several of these species for protection against trade.

"The legal international trade in reptiles has increased significantly in the last decade," Clark said. "At the same time, reptile smuggling has become a high-profit criminal enterprise which we cannot tolerate." According to statistics collected by the Service, in 1997 the United States imported 1.8 million live reptiles worth more than \$7 million and exported 9.7 million valued at more than \$13.2 million ...

### **Spotted Turtle (*Clemmys guttata*)**

The spotted turtle is another North American species which the U.S. considers to be in need of Appendix II protection. Native to southern Ontario, Canada, and in the Northeast, mid-Atlantic, Southeast and Upper Midwest U.S., the species' survival is threatened by over-collection; habitat fragmentation, alteration, and destruction; as well as road mortality. Human population growth and development, the disappearance of wetlands and pollution are some of the factors contributing to population declines. Also, illegal commercial collecting threatens the turtle's survival. From 1995 through 1997, substantial numbers of spotted turtles were exported from the United States.

### **Southeast Asian Box Turtles (*Cuora* spp.)**

The United States and Germany are co-sponsoring a proposal to include the nine species of Southeast Asian box turtles (*Cuora*) in Appendix II (p. 9). Many of these species are heavily exploited for food throughout southeast Asia. After consulting with other CITES countries where the turtles are found such as Vietnam, Nepal, Cambodia, China and Bangladesh, the U.S. and Germany determined that threats to the survival of these turtles warranted their protection.

### **Pancake Tortoise (*Malacochersus tornieri*)**

Along with Kenya, the U.S. is seeking to transfer the Pancake tortoise from Appendix II to Appendix I. Native to Kenya and Tanzania, this tortoise's habitat is limited to thorn-scrub and savannah areas with rock crevices and outcroppings. The species was listed in Appendix II in 1975 and in 1981 Kenya banned its trade. Immediately following the ban, there was a marked increase in exports from Tanzania. Recent surveys indicate that pancake tortoise numbers have become depleted in much of its Tanzanian

range. Increasing collection, the turtle's low reproductive rate and its habitat requirements all factor into this decline...

### Future Notices

A Federal Register notice announcing the preliminary agenda for COP11 is expected to be published in mid-December. At the same time, another Federal Register notice will be published announcing the final U.S. submissions for COP11. The U.S. proposed negotiating positions on other countries' COP11 submissions is expected to be published in early February 2000. At the same time, the Service will also announce a public meeting to be held later that month to discuss these submissions. On April 1, the Service will publish the final U.S. negotiating positions on other countries' submissions.

For copies of all Federal Register notices and to learn more about CITES, U.S. submissions, what other countries are proposing, fact sheets, COP11 updates and the latest news, check the Service's internet address: <http://international.fws.gov/cop11/cop11.html>.

The U.S. Fish and Wildlife Service is the principal Federal agency responsible for conserving, protecting, and

enhancing fish, wildlife and plants and their habitats for the continuing benefit of the American people. The Service manages the 93- million-acre National Wildlife Refuge System comprised of more than 500 national wildlife refuges, thousands of small wetlands, and other special management areas. It also operates 66 national fish hatcheries, 64 fish and wildlife management assistance offices and 78 ecological services field stations. The agency enforces Federal wildlife laws, administers the Endangered Species Act, manages migratory bird populations, restores nationally significant fisheries, conserves and restores wildlife habitat such as wetlands, and helps foreign governments with their conservation efforts. It also oversees the Federal Aid program that distributes hundreds of millions of dollars in excise taxes on fishing and hunting equipment to state fish and wildlife agencies.

**Editors note:** In addition to the above changes, France is proposing to transfer the Sulcata or African Spurred tortoise, *Geochelone sulcata*, from Appendix II to Appendix I. This is the only other change being proposed for freshwater turtles and tortoises.

## Current Review on China Food Market/Turtle Crisis WILLIAM McCORD

East Fishkill Animal Hospital, 285 Route 82, Hopewell Junction, NY 12533

There is a lot happening around the world on behalf of turtles right now! Much of which is already discussed in other articles within this newsletter, so I would like to briefly note some pros and cons of the current situation. My information and perspectives come from having visited China and from working with the "major players" in the Asian/Chinese turtle scene since the early 1980's.

### Pros

1. "Influential" people in the USA, Europe and SE Asia are meeting to discuss concerns about turtles.
2. Articles about turtles are being written and published in many popular, well-distributed Western publications. Even one article in a Hong Kong newspaper recently discussed the turtle crisis.
3. The declaration in a court case by one of the owners of a very large *Cuora trifasciata* "cancer cure" factory, that they lied about the turtle being responsible for a cure.
4. The government of China "appears" to be listening and new laws are said to be forthcoming.
5. A few private citizens and zoos within China are expressing concern.
6. A spirit of cooperation is developing between governments, zoos and private people worldwide working together to solve this problem
7. CITES proposals are being considered in the spirit of protecting some of the turtles. People with power are seeking a way to help.

### Cons

1. There has been no official government sponsored meetings of Chinese turtle people, known so far, within China.
2. IF China is listening, rumor has it that their probable response will be to close down only export of it's own turtles as of March 2000. Without stopping the trade of its indigenous species from within, this will further ensure their extinction by stopping the rest of the world from obtaining more Chinese turtles for captive breeding. Also it is estimated that 80% of the turtles sold in Chinese markets come from other countries. The control or banning of turtles imported into China must also be considered. The world's "turtle" people are concerned with all the turtles of the world, not just Chinese species. To seriously attack the problem, China, countries exporting their turtles to China (embarrassingly this includes the U.S.), and the airlines would also have to stop allowing turtles to be labeled and shipped inhumanely as seafood or catfish to evade quotas, regulations, and /or to get cheaper freight fees.
3. What should the people with "power" do? This question does not have a simple answer. CITES with very good data and the best of intentions is likely to "soon" declare all *Cuora* as appendix II. I fully respect the intentions of this tactic, but will it solve the problem? On one side I say it's not enough and may be too late for some of the *Cuora*! *C. trifasciata*, *C. aurocapitata*, *C. McCordi*, *C. Zhoui*, and *C. pani* realistically should be App. I now! On the other side, I see App. I or II status either

eliminating non-Chinese people from the future of some *Cuora* or making it more difficult than it presently is to obtain any Chinese *Cuora*. It would be harder for breeders to internationally exchange captive offspring. If China does remain "open" to export, the prices of the Cites App. II *Cuora* would go even higher, and some of these turtles already sell for \$2,000 US each, again making it more difficult for non-Chinese breeders to obtain *Cuora*. As for non-Chinese *Cuora*, the primary species involved would be *C. amboinensis* which definitely has a major presence in the food markets of China (*C. galbinifrons* to a lesser degree). But realistically, IF China respects Cites App. II and stops *C. amboinensis* from being imported without permits, I suspect other species will fill the gap, assuming exporting countries (for example, Indonesia) don't issue Cites II permits for unlimited *C. amboinensis* anyway.

My instincts tell me we have something good in motion. I'm not opposed to CITES doing what it thinks is best for the cause, and I truly hope their efforts produce positive results for turtles everywhere, but most important is that they presently are working for the turtles and want to help. It's up to us turtle people to speak up and help them figure the pros and cons of their actions.

#### Questions about solutions

1. Is there a way to encourage China to stop importing turtles for food and medicine, and to shut down the markets within it's own borders? Would education about mythical cures and public health issues

help? Does China care about its world image?

2. Is there a way to encourage China's non-Chinese turtle suppliers (present and future) to stop exporting turtles to China? Would replacing profit with fines and punishment make a difference? Would they like public recognition for what they do?

3. Is there a way to encourage all CITES signatory countries and all airlines to enforce present and future laws? I am afraid if the pro-turtle countries follow the rules while the turtle profiting and eating countries don't, it's not going to work!

Maybe while China is listening and powerful people want to help we should all turn up the noise!!? The people that supply the markets are vulnerable, not only through CITES regulations, but also IATA shipping regulations, fines imposed on airlines for breaking rules, bad publicity for airlines shipping turtles (don't forget seafood and catfish labels, plus whitewashing shipments through Bangkok and Singapore must be stopped), and quota systems in some countries that are presently not followed. Isn't it interesting how Indonesia can bypass all of it's own reptile regulations and laws set by the ministry of Forestry (Dept. PKA). This is done either by shipping turtles openly mislabeled as fish/seafood without inspection via its Dept. of Fisheries or even worse quite often without any permits as just "general freight" valued at \$2.50US/Kg, regardless of the species enclosed. Bangladesh has strict rules for shipments labeled turtles, yet large "fish (turtle)" shipments don't have these same rules!?

Don't give up, there is strength in numbers and our numbers are growing!!

## Asian Turtle Conservation Effort

DAVE COLLINS

*Asian Turtle Conservation Program Coordinator, Tennessee Aquarium, PO Box 11048, Chattanooga, TN 37401*

The Cuc Phuong Turtle Conservation and Ecology Project centered at the Cuc Phuong National Park in Vietnam has been identified by the American Zoological Associations Chelonian Advisory Group and the Australian Association of Zoological Parks and Aquaria as a primary site for a much needed regional conservation programs of Asian turtles. Cuc Phuong has established a multi-faceted approach to turtle conservation addressing the serious impacts of the illegal wildlife trade of the region's turtles and tortoises. Aspects of the project include species reintroduction's to protected areas, captive breeding for genetic preservation, conservation awareness, and research.

To help raise needed funds for Asian turtle conservation an account has been set up at the Tennessee Aquarium to receive donations for Cuc Phuong. To help jump start the effort the Tortoise Reserve will match one

donation from any single herpetological society or turtle and tortoise club up to the amount of \$1,000. Donations in any amount are encouraged. All donations will be acknowledged and contributors will receive periodic updates on the program's progress. Donations can be made to Asian Turtle Conservation Program and sent to the author at the address given above.

In order to help provide on-going support beyond the fund-raising effort the Tortoise Reserve also pledges all funds generated from its newly initiated sale of educational chelonian slide sets to the Asian Turtle Conservation Effort. Societies, clubs, and institutions can directly promote fund raising through sales of regional slide sets to members, or by offering them in museum, zoo, and aquarium gift shops. Annual reports on this program will be provided to all participating organizations. See article on p. 24.

## Powdermill IV: International Freshwater Turtle Conference

ANDERS G.J. RHODIN

Chelonian Research Foundation, Email: RhodinCRF@aol.com

A group of about 60 turtle specialists gathered on 13-16 August 1999 in Laughlin, Nevada, for Powdermill IV, the fourth in a series of occasional conferences focusing on freshwater turtles. Named after the site of the first such gathering, organized by the late C.J. McCoy (Carnegie Museum), at Powdermill, Pennsylvania, in 1980, the conference brings together, by invitation only, a small number of recognized experts on freshwater turtle biology and related fields. Originally conceived as a small, intimate workshop or seminar-type gathering of freshwater turtle ecologists, the meeting has gradually evolved to also include conservation, systematics, and other aspects of the biology of freshwater turtles and to a lesser extent, tortoises and marine turtles. In addition, the gathering has also gradually expanded to include a small group of students and other interested turtle specialists, also by invitation only.

The Powdermill IV conference was organized and chaired by Vincent Burke, Jeffrey Lovich, and Dawn Wilson, with organizational support provided by Chelonian Research Foundation, Univ. of Missouri, USGS-BRD Canyon Crest Field Station, and Univ. of Nevada-Reno.

Discussions at the conference centered to a large degree on the threats being faced by freshwater turtles and tortoises being exploited in the markets of southeast Asia and elsewhere. A press release voicing the concerns, conclusions, and recommendations of the meeting participants regarding this topic was subsequently released (see Lovich *et al.*, this issue) and publicized by the news media. A recurrent theme at the conference was the perceived need for more synergy between various turtle researchers and organizations and the need for partnering and working together through links with other organizations and individuals to help overcome the threats, both biological and organizational, faced by turtles all over the world. Several groups and organizations represented at the conference are working toward similar goals - strategic alliances between those groups and others will only help further the global efforts of turtle conservation. The following papers were presented:

- AKRE, TOM. Preliminary observations on nesting in a Virginia wood turtle population.
- AVERY, HAL. Importance of dietary constraints in the nutritional ecology of turtles and tortoises.
- BEHLER, JOHN. Hibernaculum fidelity and dispersal in New York spotted and bog turtles.
- BJORNDAL, KAREN. Evaluating trends and recovery goals in turtle populations.
- BODIE, RUSS. Fine-scale use of floodplain habitats by aquatic turtles.
- BROOKS, RON. Peculiarities of the life history of turtles on the northern frontier.
- BUHLMANN, KURT. Life history and ecology of *Deirochelys reticularia*.
- BURKE, VINCENT. Where have you been? The *Kinosternon subrubrum* nesting story.
- CHRISTIANSEN, JIM. Immune systems in turtles: the melanomacrophage.
- CONGDON, JUSTIN. Life history of painted turtles in Michigan.
- DODD, KEN. Estimates of abundance and survivorship in box turtles.
- EWERT, MIKE. Perspectives on a search for thermal developmental zero for turtle embryos.
- FRAZER, NAT. Philosophy of the turtle II: an eastern perspective for the new millenium.
- GALBRAITH, DAVE. A review of conservation genetics in freshwater turtles.
- GARBER, STEVE. Age-dependent mate selection: the sexy grandmother hypothesis.
- GEORGES, ARTHUR. The pig-nosed turtle - caught between a rock and a hard place.
- GERMANO, DAVE. Growth of western pond turtles: comparisons over time and geography.
- GIBBONS, WHIT. Presentation on Partners in Amphibian and Reptile Conservation (PARC).
- GIST, DAN. The turtle testis: primitive rodent or advanced frog.
- GRAHAM, TERRY. Sonic tracking and hibernaculum fidelity in Vermont map turtles.
- HARDING, JIM. Searching for ancestral emydines: speculations on fossils and hybrids.
- HERMAN, DENNIS. Ecology of the bog turtle, *Clemmys muhlenbergi*, in the southern states.
- IVERSON, JOHN. Life histories of ornate box turtles in the Nebraska sandhills.
- JACKSON, DALE. Basing taxonomy on range maps: a cautionary note (the Suwannee cooter story).
- JANZEN, FRED. Microevolutionary analyses of temperature - dependent sex determination.
- KIESTER, ROSS. The global turtle database and its role in conservation.
- KUCHLING, GERALD. Ecology of a freshwater turtle community at Ankarafantsika, western Madagascar.
- LINDEMAN, PETER. Comparative analyses of functional relationships in the evolution of trophic morphology in the map turtle (*Graptemys*).
- LITZGUS, JACQUELINE. Do Canadian spotted turtles really aestivate?
- LOVICH, JEFF. The evolution of sexual size dimorphism and trophic specialization in the diamondback terrapin.
- MITTERMEIER, RUSS. Freshwater turtle conservation in global hot-spots and megadiversity countries.
- MOLL, DON. Preliminary studies of *Chitra chitra* in Thailand.
- MOLL, ED. Vicariant events and the evolution of batagurid river turtles in tropical Asia.
- MUSHINSKY, HENRY. Gopher tortoise biology: landscape to microhabitat selection.
- PALMER, BRENT. Seasonal cyclicity in reproductive physiology and oviductal morphology in the slider turtle.
- PLUMMER, MIKE. Activity and thermal ecology of *Terrapene ornata* at its southwestern range limits.
- PRITCHARD, PETER. The Chelonian Research Institute: a demonstration project in chelonian systematics and conservation.

RHODIN, ANDERS. Celebrate the turtle: perception and preservation.  
ROOSENBURG, WILLEM. Ecological consequences of environmental sex determination in the diamondback terrapin.  
SEIDEL, MIKE. Systematics of slider turtles, genus *Trachemys*.  
SHAFFER, BRAD. Turtle walkabouts: phylogeography and systematics of Australian chelid turtles.  
TUBERVILLE, TRACEY. Invasion of new aquatic habitats by male freshwater turtles.

VALENZUELA, NICOLE. Is TSD II in turtles an artifact?  
VOGT, DICK. Using demographic data to access the status of turtle populations.  
WILSON, DAWN. How old is that turtle? An evaluation of the use of scute rings to estimate turtle age.  
YEOMANS, REBECCA. Experimental reductions in yolk reserves: are fitness components reduced?  
ZAPPALORTI, BOB. On becoming a turtle biologist.  
ZUG, GEORGE. Aging turtles: thoughts after two decades.

The following news release was prepared for public dissemination in August 1999 following Powdermill IV.

### **Powdermill Conference: Trouble for the World's Turtles**

*Jeffrey E. Lovich<sup>1</sup>, Russell A. Mittermeier, Peter C.H. Pritchard, Anders G.J. Rhodin, and J. Whitfield Gibbons*

*<sup>1</sup>U.S. Geological Survey, Dept. of Biology, Univ. of California, Riverside, CA 92521-0427*

About half of the world's turtle species face possible extinction due in large part to a growing demand for turtles as a popular dining delicacy and a source of traditional medicines. Sixty of the world's leading experts on freshwater turtles reached that conclusion at a special gathering in Nevada this month. The phenomenon described as a "turtle survival crisis" was the most urgent topic at a prestigious international conference held in Laughlin, Nevada, August 13-15. The Powdermill IV conference, also discussed freshwater turtle ecology, behavior, systematics and conservation.

"We are on the brink of losing a group of animals that has managed to survive the upheavals of the last 200 million years, including the great extinction episode that eliminated the dinosaurs," said Dr. Russell Mittermeier, president of Conservation International and an expert on turtles.

"Turtles are apparently at comparable risk as the world's declining amphibians yet they have not received the same level of attention," said Dr. Jeffrey Lovich, spokesperson for the researchers, co-organizer of the workshop, and a scientist with the U.S. Geological Survey. "Nearly half of all known species of turtles are considered to be at risk and threatened," he said.

"We have done a good job of educating the public about the plight of amphibians, but like them, reptiles such as turtles, need protection too," said Dr. Whit Gibbons of the Savannah River Ecology Laboratory. "Partners in Amphibian and Reptile Conservation (PARC) has begun to address this whole class of threatened animals. If turtles are to be saved, it will have to be through cooperative efforts, such as PARC."

"While many people are aware that sea turtles are endangered, few realize that many freshwater turtles and tortoises, several with very restricted geographic ranges, face an even more critical situation," said Dr. Peter Pritchard, director of the Chelonian Research Institute and vice chairman of the Tortoise and Freshwater Turtle Specialist Group.

"Many giant tortoises on oceanic islands have already been driven to extinction over the last three centuries because of human exploitation. So far, freshwater turtles have come through this century with the documented extinction of just one subspecies, a small mud turtle from

Mexico. However, all sea turtles, most remaining tortoises, and many freshwater turtles are endangered or threatened and require urgent conservation action. Some 12 turtle species are considered critically endangered, facing a high risk of imminent extinction unless long-term population trends are reversed," said Dr. Anders Rhodin, director of Chelonian Research Foundation and co-sponsor of the conference.

"Turtles are threatened in the United States as well. About 55 species of turtles, or approximately 20% of the world's total turtle diversity, are in the United States. Of these, 25 species (45%) require conservation action, and 21 species (38%) are protected, or are candidates for protection," said Lovich.

The turtle researchers found a striking contrast between the "declining amphibian phenomenon" and the "turtle survival crisis." The main causes of declines in amphibians are associated with ecological change. The turtle decline seems first and foremost to be driven by human consumption. The wealthy eat turtles as a luxury food item especially in Southeast Asia. In places like Madagascar and Mexico, they are eaten by the very poor, for subsistence. Some 50 percent of the total number of threatened turtles are at risk due to this type of exploitation.

The Southeast Asian trade is driven by an enormous and growing demand from China, where age-old traditions of consuming turtles for food and as medicine are growing dramatically with increased affluence and the recent convertibility of Chinese currency. Some of the most desired species fetch as much as \$1,000 in Southeast Asian markets. Scientists often discover turtles that are rarely seen in the wild in open markets and restaurants. "Although much of this is being done in the name of tradition, it now threatens the survival of a globally important group of animals. In light of the severity of the problem, this use of turtles should be stopped," said Mittermeier.

This trade has hit already depleted turtle populations in Southeast Asian countries particularly hard. China's own turtles are already decimated. Several Chinese species only discovered in the last two decades are possibly extinct due to high demand. Vietnam, Bangladesh and Indonesia are exporting large numbers of turtles to China and this

unsustainable trade now seems to be extending to other countries as well. Indeed, **well over 7 million turtles** of several species are **exported** every year **from the United States**, as pets or food products. Turtle species in the United States often receive little or no protection. In all, nearly 50 species of turtles worldwide are affected by this trade.

“Of particular concern are some of the large, slow-growing river turtles, with large females being among the most impacted,” said Pritchard. “Many turtle species are unlikely to survive the onslaught of human exploitation and habitat loss if current trends continue. As we enter the next millennium, there is a great risk that a number of turtles will become extinct, particularly in Southeast Asia.”

The scientists called for the following measures to address the turtle survival crisis:

- o Existing conservation trade laws and regulations must be enforced to ensure thorough and ongoing monitoring of the turtle trade, including numbers of animals, origins, and destinations.
- o Dialogues should open among international scientists and policy makers with Chinese authorities and other exporting nations to encourage much more effective national trade controls.
- o U.S. regulatory agencies should substantially increase import and export regulations and enforcement related to the international trade of freshwater turtles.
- o Non-governmental conservation organizations should develop turtle conservation strategies.
- o Captive breeding should be undertaken for some of the most endangered species, while the underlying problems that caused the declines are being addressed.

### Profiles of Turtles in Trouble

o Just a decade or two ago, the three-striped box turtle *Cuora trifasciata*, was sold in Hong Kong markets and in the American pet trade for a handful of dollars. This attractive, semi-terrestrial species, (10-11 inches long) is found in Laos, Vietnam and southeastern China, including Hong Kong and Hainan Island. In China, the species is considered to be a cure for cancer and to have other medicinal properties, and now fetches \$1,000 to \$1,500 per turtle. Buyers particularly seek specimens caught in the wild, driving collectors out in search of this declining species.

o *Geoemyda yuwonoi*, one of the most poorly-known and rarest turtles in the world, is a medium-sized forest-floor or leaf-litter species first described in 1995 and found in a limited area on the Minahassa Peninsula of Sulawesi,

Indonesia. Within a year of its discovery, specimens were showing up in numbers in food markets in mainland China. The species, which does not thrive in captivity, may well become extinct within just a few years of its discovery.

o Swinhoe’s softshell, also known as the Hoan Kiem turtle, is found inland from Shanghai, China and from northern Vietnam. It was described over a 100 years ago but little is known about it. It is probably the largest freshwater turtle in the world, adults reaching about 110 cm (42.9 inches) in shell length. So few individuals remain alive that it is functionally extinct. Live specimens are extremely rare finds in Vietnam, and most are sold for food or die quickly in captivity.

o Since the mid-1970s, fishing pressure for domestic markets has reduced the number of healthy populations of freshwater turtles in Veracruz, Mexico from seven or eight species to two species. The only intact populations are notably small species (about four inches at maturity), *Claudius angustatus* and *Kinosternon acutum*. Populations of the tropical snapping turtle, the Mexican slider turtle, the giant musk turtle, the white-lipped mud turtle, and the very large Central American river turtle have all collapsed with only occasional sightings of individuals.

o In China, “thousand year turtles” as they are known, are slaughtered and eaten by people seeking to extend their longevity. The species, one of the largest of the pond and river turtles of Southeast Asia, *Orlitia borneensis*, is a little-studied species that can reach a shell length of 70-80 cm (27.3-31.2 inches) and may be 20-30 years old when it reaches adulthood.

o Map turtles, found only in the U.S. (genus *Graptemys*), are especially at risk. A popular species with hobbyists, they are threatened by pollution and “plinking” a popular pastime that uses turtles for various types of target practice. Two of the 12 currently recognized species are protected under the Endangered Species Act. Nine of the 12 have small ranges, occupying specific habitat such as a single river, making them especially vulnerable to extinction from disasters such as toxic spills.

o Turtles of the North American genus *Clemmys*, the bog turtle, spotted turtle, wood turtle and western pond turtle, are all popular in the pet trade. The bog turtle has been called the “Cadillac” of turtles and sells on the international hobbyist market for as much as \$1,400 per pair, despite its status as a federally protected species under the Endangered Species Act.

**Editor’s note:** The 5th meeting in the Powdermill series is tentatively planned for 2002 in Brazil and organized by Dick Vogt.

For **more information** on the Southeast Asian turtle Crisis visit <http://nyttts.org/asianturtlecrisis.html>

### FYI: Box Turtle Enthusiasts, a New Dissertation is Available

Boucher, T.P. 1999. Population, Growth And Thermal Ecology of the Eastern Box Turtle, *Terrapene carolina carolina* (L.), In Fairfax County, Virginia. Unpubl. Ph.D. Dissertation, George Mason Univ., Fairfax, VA.

Dissertations can be ordered from UMI (just purchased by Bell and Howell). The Website is <http://www.umi.com>. Search by either name or Document # (AAT 9933169 for this dissertation). The site also has an accessible abstract database.

## Chelonian Relocation Projects and Heritage Collections

RAY ASHTON AND GHISLAINE GUYOT

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### Background

Relocation is a general term that covers the release of an animal in a location different from its original capture. This may include taking an animal from one spot (say the habitat is being destroyed) and releasing it immediately into another location in the wild. It also includes, wild animals that have been kept in captivity for some time before being released back into the wild. These may be short term captives (e.g. animals brought to a shelter or vet) or long term captives (e.g. animals from zoos or large collections that are being kept until the animals can be restocked).

A heritage collection is a collection that contains or produces animals that are fit for relocation in their natural habitat or other conservation goals. Fit meaning that "these animals are most likely to survive and reproduce." In addition, heritage collections should be able to sustain populations of extremely endangered or rare species over generations in such a way that the natural biology, behavior and genetic viability of the population or species are maintained.

Why do we need standardized protocols to guide us in the development of heritage collections and relocation efforts? For some endangered species, the only hope for the near future may be through heritage collections. We believe, that if they are done properly, relocations may have excellent potential benefits for the survival of a species or population. In truth, we really don't know. Even though there are millions of dollars being spent around the world on turtle and tortoise relocation projects, we have not produced any research on whether or not relocations actually work. Efforts need to be standardized so that all available knowledge is put to work on every project, thus saving money, time and energy.

There are many potential dangers to the animals with relocations. These fit into three major concerns: survivability of the relocated animal, introduction of "exotic" illnesses to the wild stock, and the proximate and ultimate effects on the behavior and survivability of the population which is receiving the introduced stock.

Unless great care is taken, most relocated animals do not survive. Many people feel that relocation is good for the individual animal and it will be "happy" in the wild. The fact is few animals survive. There are many reasons for this. Poor health, the wrong habitat, the wrong season are all obvious reasons why an animal might not survive, but what about less obvious reasons. For instance, did you know that if water turtles are kept in chlorinated water for just a few days, the entire flora in their digestive tract is nearly destroyed and apparently not recoverable. These bacteria are required for proper digestion and thus for survival.

Very serious diseases are spread from relocated tortoises to wild populations of the same and other species. Although it has not been proven, it is believed that Upper

Respiratory Tract Disease, a fatal illness which has been at epidemic levels among desert and gopher tortoises, may have originated from captive collections.

How are we affecting local populations by introducing new animals? Some turtles and tortoises have complex social communities, reproduction and social systems which may be seriously disrupted by relocation projects, leading to poorer survivorship. In addition, how are we affecting the local population's fitness when animals from a more distant gene pool are introduced? In all likelihood man has been moving some species around for many thousands of years (living lunch baskets).

In addition, there are social and economic concerns regarding relocations that must be addressed. How do the costs of relocation efforts compare to other methods of conservation (e.g. purchase of habitat which is sustaining healthy populations)? Pet turtles and tortoises are part of a growing multibillion dollar business. People love these animals. Over the past 50 years, we have also learned how to keep these animals alive, healthy and breeding for a long time. Our primary concern in the past was that people were taking animals out of the wild for the pet trade. Now, we are also worried about putting them back. For instance, red-eared sliders are now found around the world and frequently out-compete local turtle species for food. We need to learn how the pet trade can be part of the solution to long term conservation.

If we are going to be able to protect species, including relocated species, we must establish a reason for local communities to want to protect these animals over the long term. Therefore we must consider these issues when trying to successfully establish a relocation program. This may include such things as ranching, farming, tourism, and indirect economic impacts, not to mention such things as heritage and pride.

The Ashton Biodiversity Research & Preservation Institute (see p. 23) had been planning to hold a meeting this April to develop scientifically-based protocols for the establishment of heritage collections and the relocation of individuals. This initial "Round-Table" meeting has been **postponed**. It has been decided that at this stage the work should be conducted in smaller groups, by phone or internet. If a meeting is held, it will probably be in late summer or early fall of 2000.

The current plans are to develop seven different working groups or committees to address the following areas of importance to chelonian relocation, restocking, and reintroduction: diseases, genetics, ethics, environmental issues, socioeconomic considerations, intra-inter specific impacts, heritage collection. Each group will have 2 co-chairs who will be responsible for representing their group and co-ordinating the

development of the manuscript in their area.

Each working group will be composed of experts who have volunteered (contact the organizers). The co-chairs will provide assignments according to expertise and need. Each group may meet in person or via phone, mail or Internet. Co-chairs will be in charge of the advance compilation of materials to create a first draft of the protocols for relocation.

**Proposed Time Line.** Jan 7:Identify co-chairs; Jan 24:Organizing committees established; Jan 30-Apr 30:draft protocols; May 10:Circulate drafts to co-chairs; May 30:Edited drafts returned to authoring co-chairs; July

1:Send out finished Draft for review by co-chairs; July 20:Submit Protocol to editors; July 30:Submitt Protocol for publication and translation to Spanish and French.

We would like to thank the organizations and individuals (a total of 12 at this date) who have committed money to the development of the Protocol and the institutions that have offered to assist with translations and to publish the Protocol on their web pages. Those who contribute \$100 or more will be listed in the published protocol, while those who contribute \$500 or more will be listed as co-sponsors.

## LEGAL ISSUES

### Passage of the Louisiana Law Prohibiting the Commercial Harvest Of Wild Box Turtles

MARTHA ANN MESSINGER & GEORGE M. PATTON

Act 81 of the 1999 Session of the Louisiana Legislature prohibits the commercial harvest of Louisiana's box turtle populations. This law, which became effective August 15, 1999, was unanimously passed by both the Louisiana Senate and the House of Representatives. This is an outstanding victory for one of Louisiana's turtles and will have far reaching impact on box turtles in other states.

Any box turtles native to the state of Louisiana will be considered as originating from Louisiana. Therefore it will no longer be possible to smuggle box turtles out of other states where harvest is also illegal and claim they originated in Louisiana. Recreational possession is limited to four box turtles.

From January, 1995 to June, 1998 approximately 29,896 (LDWF, 1998) box turtles were collected for the pet trade and shipped from Louisiana. This law will help to insure that future generations of Louisiana adults and children will be able to take a walk in the woods and view box turtles in their native habitat.

#### How the Law Came Into Existence

Many years ago we attended a conservation seminar by the U. S. Fish & Wildlife Service. I'll never forget, one of the officials told us that if we wanted to get conservation work done, "sooner or later, you'll have to get into politics".

In May 1995, I volunteered to serve as the Louisiana Wildlife Federation's representative on the Louisiana Reptile & Amphibian Task Force, which is an advisory group to the Louisiana Department of Wildlife & Fisheries (LDWF). Since there were no bag limits or seasons for the harvest of box turtles, I tried everything possible to get the LDWF to regulate the commercial collection. We even had a special meeting with one of LDWF's top officials. We drove 200 miles for that meeting and carried three proposals with us, only to be told by the official, "You really don't

have anything to worry about, when the hunters can't find any more box turtles, they will quit collecting them."

In 1998, at my suggestion, the Task Force passed a resolution recommending that the LDWF and the citizens of Louisiana do everything possible to preserve the state's box turtles for future generations. The Task Force also recommended that the LDWF limit the harvest of box turtles to males. The LDWF informed us that they would soon install the "male only harvest" but its installation was postponed several times and finally abandoned.

We worked for over a year preparing a resolution for the 1999 Louisiana Wildlife Federation (LWF) meeting. We designed a poster display and a handout explaining why a sustainable harvest of wild box turtles is impossible. The LWF adopted our resolution which urged the governor, legislature, Department of Wildlife & Fisheries and citizens "to take all measures necessary to insure that the state box turtles will be saved for future generations to enjoy." The LWF has over 13,000 members, some of which are very concerned about the plight of Louisiana's box turtles. A resolution from this organization showed we had strong backing. (The LWF is a state affiliate of the National Wildlife Federation.)

Next, we went to the local university's library where we got copies of Louisiana laws prohibiting the commercial use of certain game animals. We used those laws as patterns to compose a piece of legislation that would prohibit the commercial harvest of Louisiana's box turtles. Drafting the legislation was not difficult. Some members of the LWF and an official of the LDWF helped us make some modifications. Finally, Senator Barham's office made additional corrections and put it into its final form.

The State Legislature convened in the spring of 1999. Senator Barham (Democrat) filed the bill just prior to the

filing deadline. We then asked our friends and e-mail correspondents for help, requesting that they contact Senator Barham and the LDWF and impress upon them the importance of the bill. Within two weeks SB 937 went before the Senate Committee on Natural Resources. By that time Senator Robert Barham had received mail from about two hundred people from around the world praising Louisiana's move to protect the box turtle. As a consequence he became quite zealous in his support for the bill.

Kathy Wascom (President of LWF), Randy Lanctot (Executive Director of LWF) and ourselves, met with the LDWF and asked them to join with us in supporting SB 937. (We had not let LDWF know about the bill ahead of time.) The LDWF declined saying they would make no recommendation for or against the bill. We then wrote letters to every member of the Natural Resources committees of both the House and Senate telling them why the legislation was necessary. Hundreds of people sent e-mail to every member of the Louisiana Legislature urging them to support it.

Many of the legislatures had pleasant memories of seeing a box turtles in their yards when they were children. Several expressed surprise when they were told that our states' box turtles were being commercially harvested. We were told that never before had they received so many letters about any legislation. Our Senators and Representatives were considerate, fair and listened to what we had to say about these animals.

We made trips to Baton Rouge to testify before both the Senate and House Committees on Natural Resources regarding this bill. Each committee member was given a copy of letters from herpetologists Dr. Neil Douglas of the University of Louisiana at Monroe and Dr. Harold Dundee of Tulane University. Both of these professors had worked with herps in Louisiana for more than thirty years. They stated that Louisiana's box turtle populations were decreasing and that a sustainable commercial harvest was not feasible.

We are still utterly amazed that the legislation passed both the Senate and the House unanimously. It greatly surprised us that there was no opposition, since we had been in a continuous battle with pet trade supporters within the Louisiana Reptile and Amphibian Task Force.

We are sincerely grateful to the Louisiana Wildlife Federation for their help and support. Also we are deeply indebted to the legislators of the State of Louisiana for passing the legislation. We can honestly say this is something we never thought would happen in Louisiana. Finally, we would like to take this opportunity to thank everybody who helped to make this dream a reality.

#### Literature Cited

- Louisiana Department of Wildlife & Fisheries. 1998. Unpublished Box Turtle Commerce Summary. Jeff Boundy (Comp.) Fur & Refuge Division, Baton Rouge. 29 June 1998

## Emergency Prohibition against Importation of Two African Tortoises Species into Florida

### FISH AND WILDLIFE CONSERVATION COMMISSION

620 South Meridian Street, Tallahassee, Florida 32399-1600,

**SPECIFIC REASONS FOR FINDING AN IMMEDIATE DANGER TO THE PUBLIC HEALTH, SAFETY, AND WELFARE:** Heartwater is an acute tick-borne disease of domestic and wild ruminants including cattle, sheep, goats and deer. This disease is caused by the rickettsial bacterium *Cowdria ruminantium* which is transmitted by the ticks of the genus *Amblyomma*. Animals or wildlife that contact this disease have a mortality rate of between 40-100%. There is no officially recognized treatment or vaccine for the disease other than to control the introduction of the tick vectors.

The Department of Agriculture and Consumer Services (DACS) recently notified the Fish and Wildlife Conservation Commission (FWCC) that 15 *Amblyomma sparsum* ticks collected from tortoises in Hillsborough County have tested positive for *Cowdria ruminantium* (Heartwater organism). Also, since 1997, nine reptile facilities in Florida have been found to have ticks capable of carrying Heartwater disease. The ticks primarily infect two African tortoises of the genus *Geochelone*, the African spurred or Sulcata tortoise (*Geochelone sulcata*) and the leopard tortoise (*Geochelone pardalis*). The Department of Agriculture and Consumer Services (DASC) has also filed

an emergency rule to deal with animals imported from countries where Heartwater disease is endemic and the FWCC emergency rule will parallel DACS efforts to control introduction of this disease though importation of tick-infected wildlife. The DACS rule asserts that "The introduction of the disease into Florida would be disastrous to the state's beef and cattle industry and the state's ruminant wildlife."

Therefore, the Florida Fish and Wildlife Conservation Commission, vested by Article IV, Section 9, Florida Constitution, with the state's executive and regulatory authority over wildlife, finds that there is an immediate danger to the public welfare if immediate action is not taken to prohibit the importation of the African spurred tortoise (*Geochelone sulcata*) and the leopard tortoise (*Geochelone pardalis*). The Commission also finds that this limited action is the best means to address the emergency and is in the best interests of the citizens of the State of Florida. It is the intent of the Commission to begin regular rulemaking to adopt permanent rules addressing this problem...

A COPY OF THE EMERGENCY RULE MAY BE OBTAINED BY CONTACTING: James V. Antista, General Counsel, at the above address or call (850) 487-1764

## Suit to Save Western Herps and Snails from Extinction

KIERÁN SUCKLING

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On 6-15-99, the Center for Biological Diversity, filed a formal notice of intent to sue the U.S. Fish Wildlife Service for failing to list and protect ten imperiled aquatic species under the Endangered Species Act. The agency determined that all of the species warranted listing under the ESA, but did not list them because of alleged higher priorities. Many of the species have languished in this state for over a decade as their habitat and numbers continue to dwindle.

The suit will include:

— **Northwest Species** : Columbia spotted frog (WA, OR, ID, CA, NV) and Oregon spotted frog (WA, OR)

— **Southwest Species** : Pecos assiminea snail (NM), Gila springsnail (NM), Roswell springsnail (NM), Chupadera springsnail (NM), Koster's Tryonia (NM), **Cagle's Map Turtle (TX)**, New Mexico hot-spring snail (NM), and California tiger salamander (CA)

## ORGANIZATIONS

### What is PARC and Why Should You Care?

J. WHITFIELD GIBBONS

*University of Georgia, Savannah River Ecology Laboratory, Aiken, SC 29802  
<http://www.parcplace.org>*

Partners in Amphibian and Reptile Conservation (PARC) is a recently developed initiative designed to address conservation of reptiles and amphibians. PARC is poised to find the solutions to the problems faced by herpetofauna. People who have an agenda that in some way involves snakes, frogs, turtles, salamanders, lizards, or crocodilians should find out about PARC.

The PARC Mission Statement puts it succinctly: **To conserve amphibians, reptiles and their habitats as integral parts of our ecosystem and culture through proactive and coordinated public/private partnerships.**

These beleaguered animals and their habitats may at last have people on their side in North America and perhaps the whole world. Reptiles and amphibians have been steadily disappearing from much of the United States during the past few decades. Everyone is familiar with the amphibian problems, but the reptile plight is every bit as severe. One example is the southern hognose snake, a small harmless species that once lived from Mississippi to North Carolina. No specimens have been seen in Alabama or Mississippi for more than 18 years. Another is the eastern indigo snake, the last sighting of a native specimen being reported from Alabama more than 40 years ago. And, of course, an amphibian, the flatwoods salamander of the Southeast, is the most recent species to be added to the federal list of threatened species. And the list goes on and on, from California to Maine to Florida.

PARC could be the answer to helping maintain the herpetofaunal component of our country's natural heritage and recover some of what we have almost lost. PARC's organizational meeting in Atlanta in early June was the first national gathering. Based on attendance, PARC is the most diverse group of individuals and organizations that have ever worked together to address the problems confronting reptiles and amphibians on a national and global scale.

Diversity has become a symbol of strength, health, and well-being in biological communities, and so it is with societies and organizations. The more than 200 individuals who attended the organizational meeting represented 170 organizations. Included among the participants were representatives of museums, nature centers, state wildlife departments, universities, federal agencies, conservation societies, research laboratories, forest products industry, the pet trade, and environmental consultants and contractors. The attendance included participants from 33 states, Canada (British Columbia), México (México City), and the District of Columbia. Many of the groups are unaccustomed to working together, but the time has come to put aside differences of opinion and to hear all sides. No one has an interest in eliminating more herpetofauna, but solutions for the conservation of wild populations vary among government agencies, conservation groups, and private industry. All sides must be listened to, all must be allowed to participate, because all can contribute to solving the problems. The diverse mix of people and organizations will not only be able to identify the problems confronting native herpetofauna but also can implement solutions, and provide the support needed to assure the effective conservation of native herpetofauna.

One consensus among the participants at the PARC meeting was that the only sustainable approach for conservation of reptiles and amphibians is to familiarize the public with the organisms and their habitats so that everyone develops an appreciation for them. Public support of such an effort, with any group of fauna or flora, is a vital ingredient for a long-term solution.

Some people have asked, "Why should people care about reptiles and amphibians?" My first response is, ask the millions of people in the country who do care. For every

person you can find who says he does not care about what happens to turtles, frogs, or salamanders, I can find ten or more who do care. Most people have just never been asked. In fact, a majority of U.S. citizens would be supportive of a nationwide conservation effort, not just for reptiles and amphibians, but for all wildlife.

Herpetofauna represent a major part of our natural heritage. If these animals are in trouble, we are in trouble. Reptiles and amphibians are sentinels of our environmental health. If they are declining and ultimately disappearing, we need to make amends. What happens to herpetofauna is a sign of what could happen to other wildlife and maybe even to us.

PARC is not looking for scapegoats but instead is looking for partnerships with people who want to do the right thing, who want to set the score right in the nation's conservation efforts towards herpetofauna, towards all reptiles and amphibians. My impression is that the PARC concept will be highly successful and lead this country and others onto the path of conservation of native wildlife. PARC has a vision of providing the remedies necessary to correct the environmental problems that confront this group of animals and their habitats. It may be the last chance we will have for us to assure that humans and herpetofauna can live harmoniously in today's world. Let us know if you want to participate ([parc@srel.edu](mailto:parc@srel.edu)) or check the PARC Web site ([www.parcplace.org](http://www.parcplace.org)).

### **What Can You Do to Help Reptiles and Amphibians?**

1. Visit the PARC Web site, now located on [www.parcplace.org](http://www.parcplace.org), or communicate directly with PARC.
2. Determine how you might contribute to PARC's Priority Conservation Needs for Reptiles and Amphibians (see the PARC Web site).
3. Lend your support to efforts by nature centers, museums, or schools in your community that are involved in educational projects directed toward reptiles and amphibians.

### **How is PARC Different?**

Included among the characteristics of PARC that make it distinctive from all other groups with a focus on herpetofaunal conservation are the following:

PARC includes reptiles under its purview as well as amphibians.

PARC is habitat focused and is taking a strategic and cooperative approach to developing a broadly based conservation plan.

PARC includes state agencies and the private sector, such as the timber industry, as well as specialists and non-specialists with an interest in herpetology.

PARC will focus on not only endangered and threatened species but will also work toward the objective of "keeping common native species common."

## **The Chelonian Research Institute, A New Systematics Resource**

**PETER C.H. PRITCHARD**

*Chelonian Research Institute, 401 South Central Ave., Oviedo, Florida 32765 USA*

The Chelonian Research Institute was formally founded in early 1998, when the Institute property and buildings were purchased with a grant from the Chelonian Institute of Arlington, Virginia. The site consists of about ten acres in Oviedo, Florida, with a two-story converted residential building, built in 1930 and completely renovated for office use in the early 1990s, and a single-story redecorated residential structure built in 1950. The grounds are largely wilderness, apart from a old orange grove (reminiscent of the "Orangerie" of academic and formal European gardens of the eighteenth century), and they harbor a thriving population of gopher tortoises and occasional Florida box turtles. Adjacent property is also undeveloped and forested despite the proximity to downtown Oviedo.

The intention has been to recapture the atmosphere and the spirit of enquiry of private academic institutions and universities of the late eighteenth and early nineteenth centuries. To this end, the facility offers a "user-friendly" atmosphere, with wilderness trails for unhurried contemplation, a commitment to the art of conversation, an art collection that documents attempts to portray or project the image of chelonian form over the last two and a half centuries, a thoroughgoing library with excellent collections of books, reprints, and videotapes, and the turtle collections themselves.

The specimen collections were accumulated by the author over the course of nearly forty years. Specimens were obtained both in the course of travel to about ninety countries and territories, and from numerous widely-distributed colleagues and contacts who have made either individual or repeated donations. One of the main purposes of the Institute is to serve as a demonstration project illustrating the potential for assembling a comprehensive, even exhaustive, collection if one's terms of reference are narrower than "the entire creation." While public natural history museums, whose highest-profile function is the provision of exhibits for the education of the general public, are generally not able to specialize (except possibly for some degree of regional emphasis), a non-governmental institute is free of such constraints and, with no obligation to feature beetles, whales, or anything other than chelonians, is in a position to offer an unrivaled collection of the chosen group.

The collections of the Institute include representation of all of the 91 recognized extant turtle genera, and 264 full species. In all, there are slightly over 6,000 specimens. By way of historical contrast, the British Museum included 1371 turtle specimens in 1873, listed by J. E. Gray as representative of 197 species. But reclassification by G. A. Boulenger in 1889 synonymized many of them, so that even

with the addition of nearly 300 new specimens in this 16 year interval the number of species in the collection was reduced to 176. Today, the Carnegie Museum (Pittsburgh, Pennsylvania) has the largest turtle collection in existence (about 25,000 specimens), but in terms of variety, few if any public collections have more than 200 turtle species even today.

The Chelonian Research Institute collection is dynamic, and every year many new specimens and a few new taxa are added. While not including type specimens, many newly-described taxa are represented in the Institute's collection within a year or two of their original description. All specimens were obtained by salvage, from natural or captive mortalities, or from specimens killed by turtle hunters or fishermen. The collection is especially strong in marine turtles, with large series of hatchlings and adult skulls of all eight extant species. It is also strong in chelonians of Florida, Guyana, southeast Asia, and Australia and New Guinea. No area of the world or individual family of turtles is seriously under-represented, but within the United States, representation of taxa from the northern and western states is relatively weak.

About fifty percent of the medium-sized and larger species in the collection are in the form of skeletons, generally with shells (carapace and plastron) and skulls intact and complete, and with the remaining bony elements conserved in unarticulated form. This is in contrast to most collections of Recent turtle taxa, in which the majority of specimens are usually liquid-preserved. The collection is

thus especially valuable to paleontologists who wish to make comparisons between the fossilized shells or bones of extinct forms and the corresponding parts of living species.

The Institute also houses a modest collection of living tortoises and turtles, ranging from local box turtles to Aldabra and Galapagos tortoises, and with a herd of alligator snapping turtles some of which have been in captivity since the mid-1960's. The exhibits include various displays of interest to the public. They concentrate upon shells and skeletons of specimens of unusual size, and include some dramatic mounts of articulated skeletons of huge softshells (*Amyda* and *Chitra*) as well as carapaces of Galapagos tortoises and astonishingly large alligator snapper and green turtle specimens. A recurring theme of the exhibits is an attempt to associate antique artistic renderings and engravings with actual specimens of the species depicted.

The policy of the Institute is to make the collections available to all responsible interested parties, whether professional, amateur, or student. A limited amount of overnight accommodation and kitchen facilities are available to users of the collection, although arrangements for this need to be made in advance. Short-term (three month) loans of material can also be made, but those needing to examine very large specimens - or very large numbers of specimens - are encouraged to make personal visits. Both casual visitors and potential users of the collection should make contact with the author at the above address, phone (407) 365-6347, or fax (407) 977-5142.

## **Ashton Biodiversity Research & Preservation Institute**

**GHISLAINE GUYOT**

*Research Director, Ashton Biodiversity Research & Preservation Institute,  
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The Ashton Biodiversity Research & Preservation Institute is a non-profit organization incorporated in September, 1999. It is located at Finca de la Tortuga Biological Reserve, on the Brooksville Ridge, 15 miles west of Gainesville, Florida. The Institute is devoted to promoting, supporting and providing opportunities for research and management on biodiversity. In particular, it will contribute to the development of knowledge in conservation biology on endangered species and in sustainable use of natural resources. Along with research the Institute has at its core, the education and training of students of all ages from school students to graduate students and professionals on wildlife preservation and management. A special emphasis is given to turtles and tortoises.

The Board of Directors include herpetologists and ecologists representing different expertise: Patricia S. Ashton and Ray E. Ashton, Jr. (Ashton, Ashton and Associates, Florida); Dave Collins (Tennessee Aquarium, Chattanooga, Tennessee); Elliott Jacobson (College of Veterinary Medicine, Univ. Florida); Henry R. Mushinsky

(Dept. Biology, Univ. South Florida); Peter C. H. Pritchard (Chelonian Research Institute, Florida). It's research director, Dr. Ghislaine Guyot from France studied the ecology and conservation biology of *Testudo hermanni* in France and rare side-necked turtles, *Pseudemys umbrina* and *Chelodina oblonga*, in western Australia. She is here on a post-doctorial position jointly sponsored by the Institute and the University of South Florida.

Two major projects which are on-going include a long term study on relocation and behavior of gopher tortoises, *Gopherus polyphemus*, and the development of long term management strategies for maintaining highly endangered species of savannah dwelling tortoises. Currently this cooperative study includes the use of the Indian Star Tortoise, *Geochelone elegans*, and the radiated tortoise, *Geochelone radiata*, to develop management protocols.

To obtain further information about involvement with the Institute, graduate studies, internships or cooperative research possibilities, contact the author at the above address, fax, or email address, or call 352-495-7449.

## **Tortoise Reserve: Their Projects and the New Chelonian Slide Collection**

**GREGORY POKRYWKA**

*The Tortoise Reserve, Inc. PO Box 7082, White Lake, NC 28337 Email: TorResInc@aol.com*

The Tortoise Reserve is involved in several projects. It oversees a red-footed tortoise captive breeding program. Over 1,000 adult tortoises, all confiscated from markets or donated by zoos, are used in a combination of research studies and educational programs. Hatchlings are sold worldwide in the pet trade and funds raised from the sales totally support the captive breeding, as well as other reptile conservation projects in South America. Each year about 15% of the hatchlings (ones with parents of known origin) are head-started and released back into the wild. Our goal is to provide enough tortoises for the international pet trade so that red-footed tortoises will no longer be taken from the wild.

Another project involves harvesting eggs and head starting the endangered South American Giant River Turtle. To date we have released over 10,000 7-8 inch young back into the wild.

We are working with the Bahama Government on life history studies and conservation programs for two endemic fresh water turtles: One on Cat Island and the other on Inagua. An educational exhibit is being developed in Nassau.

We have cooperative agreements for management of wildlife sanctuaries in North Carolina, Arizona and Venezuela. Together they total over 35,500 acres of key wildlife habitats.

The Tortoise Reserve gives annual awards and grants to individuals and non-government institutions for conservation. In 1998-99 we made five contributions ranging from \$500 - \$17,000. Examples include awards to the Baltimore Zoo, for an innovative educational Bog Turtle exhibit, and the Cleveland Zoological Society for an educational program on Giant South American River Turtles in Venezuela. We have set up an endowment fund which will be used exclusively to provide annual scholarships for students working on chelonian conservation projects.

### **Chelonian Slide Collection**

The Tortoise Reserve is developing a photographic library of chelonians. At this time we have about 60% of the

world's species represented, a cataloged collection of well over 7,000 images. These photos are available to anyone for noncommercial use. We distribute labeled, high quality, duplicate slides. These are intended for educational (projection) use, but, on request, may be used in newsletters, websites, and other activities which promote turtle conservation. We simply request that the individual photographers and the Tortoise Reserve be acknowledged for each use. At this time we have good images of all North American species and subspecies and all the marine turtles. Our collection from other regions is less complete.

Photographers retain the copyright to all images and are acknowledged. We make duplicates and return the original slides. Images will not be available for commercial use.

**Slides and Regional Slide Sets Available:** These slide sets contain labeled slides of all species and subspecies from a particular region. Currently, two sets are available. 1) Turtles of The Northern and Central Atlantic States (eastern Canada to Virginia) 29 slides: \$35 and 2) Turtles of the Carolinas (North and South Carolina) 25 slides: \$30. Please provide an additional \$3 for postage. Other regional slide sets will soon be available. Single slides are available at a cost of \$2.50 each or \$2 each in orders of 10 or more different images.

**Species Profile Series:** The first turtle featured is the Bog Turtle (*Clemmys muhlenbergii*). Two versions of this slide program are available. A 100 slide version and a shorter 40 slide version. Both sets come with an educational booklet which contains a detailed script for each slide. A second script for grade school groups is in preparation. It is cosponsored by the Baltimore Zoo, the Knoxville Zoo, and the US Fish and Wildlife Service. All profits from the sales of this set go to "Project Bog Turtle" and similar on-going bog turtle conservation programs. Cost \$100 for the complete set, and \$50 for the shorter one. Add \$3 for postage.

Please contact the author at the above address for more information or to order slides. ALL profits go directly to our Asian Turtle Conservation Effort (see article on p.14).

## **INFORMATION SOUGHT**

Is anyone aware of literature (preferably primary) on nest site selection in *Terrapene* and or other primarily terrestrial species?

Stephen J. Mullin,

Dept. of Biol. Sciences, Eastern Illinois Univ.

Charleston, IL 61920.3011

tel: 217.581.6234 fax: 217.581.7141 cfsjm@eiu.edu

Has anyone noticed an increase in the number of box turtles nesting in the morning in 1999? This summer we had 10 start to nest (7 successfully) in the morning. The

total number of nesting females at the site is about the same. We have been observing turtles here since 1989 and have never before seen this many morning nestings. Martha Ann Messinger & George M. Patton  
gpatton@bayou.com

A blood sample of *Terrapene yucatana* is needed for a mtDNA study. Please contact Pat Minx at  
Box 8501, 4444 Forest Blvd., St. Louis, MO 63108  
(314) 286-1806 or pminx@watson.wustl.edu

## CONFERENCES

### **American Society of Ichthyologists and Herpetologists 14 to 20 June, 2000 La Paz, Baja California Sur, Mexico.**

The host institution is Universidad Autonoma de Baja California Sur. The Chair of the Local Committee is Carlos Villavicencio (email:cvilla@calafia.uabcs.mx). Early reservations are strongly recommended. Individuals should make their own reservations. For more information, visit [www.utexas.edu/depts/asih/meetings/2000/prelim.html](http://www.utexas.edu/depts/asih/meetings/2000/prelim.html)

The principal hotels to be used are as follows:

**For ASIH and NIA:** Hotel Los Arcos, Tel 122-2744, Fax 125-4313, email:arcoslap@lapaz.cromwell.com.mx.

**For SSAR, HL and CAH:** Araiza Inn Palmira, Tel 121-6200, Fax 121-6227, 01-800-026-5444.

### **4th Asian Herpetological Conference, 16 to 20 July, 2000 Chengdu, Sichuan Province, China.**

This conference is hosted by the Chinese Society for the Study of Amphibians and Reptiles and co-sponsored by SSAR. If you want to have a copy of the Registration Circular, please send an e-mail to the following address [arcib@mail.cib.sc.cn](mailto:arcib@mail.cib.sc.cn)

For more information contact: Prof. Zhao Ermi

Chengdu Institute of Biology, P.O. Box 416

Chengdu, Sichuan, China

email:zhaoermi@mail.sc.cninfo.net

### **Annual Meeting of the Canadian Amphibian and Reptile Conservation Network (CARCN).**

Turtles were on the agenda at the annual meeting of the Canadian Amphibian and Reptile Conservation Network (CARCNET), in Québec City, 15 to 18 October. 13 turtle papers were presented, the majority on the ecology of wood turtles. Others dealt with the ecology of eastern spiny softshells and painted turtles, and another presented results from a continuing investigation into the effects of toxic contaminants on common snapping turtles. One paper documented a dramatic and worrisome decline of wood turtle numbers in a small population in Southern Ontario, while another outlined the success of a program in which volunteers initiated the first ever freshwater turtle monitoring effort. CARCN is a registered charitable organization which reports on the status and trends of Canadian herpetofauna. The annual meeting alternates each year between eastern and western Canada. For more information contact the Chairperson Dr. Christine Bishop

Canadian Wildlife Service,

867 Lakeshore Road, Box 5050,

Burlington Ontario L7R 4A6, CANADA

905 336 4843 (o); 905 336 6434 (f)

email: [cab.bishop@ec.gc.ca](mailto:cab.bishop@ec.gc.ca)

For information on the effects of pollutants on herps check out <http://www.cciw.ca/green-lane/herptox/>

For information on conservation of herps check out <http://www.cciw.ca/ecowatch/dapcan/>

## NEWSNOTES

**A new home for the 100+ Emydids of Don Zeiller.** The James A. McFaul Nature Center in Wyckoff, New Jersey has agreed to build a sanctuary and to continue the record keeping for the 100+ wood, box, spotted and painted turtles if funding is found. Don is 79 and no longer able to care for them. The Wyckoff/Midland Park Rotary Club will contribute \$1,000 toward the sanctuary and Wyckoff schools have also started to pull together funds. The sanctuary, a 17,000 ft.<sup>2</sup> enclosed space contains a 5 ft. deep concrete pool and an assortment of fruit trees. Among the turtles moved this fall were 20 adult and 30 young wood turtles, a threatened species.

Donations for the sanctuary can be sent to Wyckoff/Midland Park Rotary Club, P.O. Box 111, Wyckoff, N.J. 07481.

**Editors's note:** If you own turtles, please make arrangements for their care in your absence. Relatives may not always be happy inheriting a giant tortoise or 100 emydids.

### **New Version EMBL Reptile Database at**

<http://www.embl-heidelberg.de/~uetz/LivingReptiles.html>

You may find some information about what's new at <http://www.embl-heidelberg.de/~uetz/db-info/News.html>

Please inform us about any errors, omissions or broken links you may find. Peter Uetz [uetz@u.washington.edu](mailto:uetz@u.washington.edu)

**New Russian List Serve.** The Dept. of Vert. Zoo. at St.-Petersburg State Univ. (Russia) and the Dept. of Terrestrial Vert. of the Zoological Institute (St.-Petersburg) have announced a new email news list. The primary focus is on Morphology, Evolution, Developmental Biology, Speciation, and Paleontology. The List also contains information on current issues of the Russian Journal of Herpetology, new books and periodicals in the field, expeditions, job opportunities, grants, fellowships, conferences and information of general interest.

To subscribe visit the homepage of the List at <http://morphology.listbot.com> or send a blank message to [morphology-subscribe@listbot.com](mailto:morphology-subscribe@listbot.com)

### **Man Arrested for Illegally Importing 55 Red-Footed**

**Tortoises.** Rodney Carrington, a Barbados pet store owner, was arrested Dec. 3 for bringing 55 endangered red-footed tortoises into the United States. He had stuffed all 55, 4" turtles into his pants-which is what gave him away at customs! The turtles, which sell for \$5 in Barbados, sell for \$75 in the U.S. He has been charged with smuggling and violating CITES. The U.S. Fish & Wildlife Service currently have the tortoises.

## INSTRUCTIONS FOR CONTRIBUTORS

The Turtle and Tortoise Newsletter (TTN) will be published quarterly in January, April, July, and October of each year. Submissions will NOT be peer-reviewed, but may be edited. Submissions should be sent to the editors and NOT the editorial board.

**Text:** To ensure a swift turnaround of articles, we ask that, where possible, all submissions be in electronic format either as an attached e-mail file or on disc and saved as a Word, Wordperfect, or standardized text file. If compatible computer facilities are not available, hard copies of the article can be sent to the editors by mail or fax. Scientific names should be italicized and given in full in their first appearance. Citations in the text should take the form of (Kuchling, 1989), (Martin and Bateson, 1986), (Ernst *et al.*, 1994).

**Table/Figures/Illustrations:** Each figure should be stored as a separate documents in Word, Wordperfect, Excel, .bmp, .tif or .jpeg file. The editors will scan figures, slides or photos for authors who do not have access to such facilities. Tables and Figures should be given in Arabic numerals. Photographs will be considered for inclusion.

**References:** Citation format for different styles of references should be as follows:

*a. For an article in a journal:*

Gaffney, E.S. 1979. Comparative cranial morphology of recent and fossil turtles. Bull. Amer. Mus. Nat. Hist. 164:65-376.

*b. For a book:*

Cogger, H.G. 1975. Reptiles and Amphibians of Australia. Sydney: A.H. and A.W. Reed, 660 pp.

*c. For an article in an edited volume:*

Pritchard, P.C.H. 1979. Taxonomy, evolution, and zoogeography. In: Harless, M., and Morlock, H. (Eds.). Turtles: Perspectives and Research. New York: John Wiley and Sons, pp. 1-42.

*d. Citations with two or more authors have all authors listed last name first and separated by commas:*

Dodd, C.K., Jr., Franz, R., and Smith, L.L. 1994. Title. Reference.

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