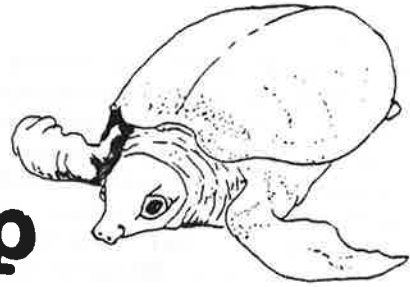


SSC Freshwater Turtle Group Newsletter



Chairman and Editor:
Peter C. H. Pritchard
Florida Audubon Society
1101 Audubon Way
Maitland, Florida 32751
USA

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EDITORIAL

Your present Chairman (no longer your "new" Chairman) notes with embarrassment the long interval that has elapsed since the last Freshwater Turtle Newsletter. He apologizes, and hopes to produce another after a much shorter interval, probably in early 1987. This will require external contributions that may range from news notes, ideas and plans, to scientific breakthroughs and discoveries. They are hereby solicited.

Under the distinguished chairmanship of my predecessor, Dr. Ed. Moll, six newsletters were produced, and these remain important reference documents. Please keep them and read them. They include a number of items listing priorities for conservation action within the field of freshwater turtle conservation, worldwide. However, the IUCN Secretariat informs me that we should still attempt to produce a "Comprehensive Action Plan," that should include a thorough overview of the status of all species within our brief, a system of setting priorities, and a detailed compilation of proposed projects.

We should do this. We are not seriously derelict, since only seven of the 75 IUCN Specialist Groups have done theirs, and most groups are concerned with far fewer species than we (although some have many more). Indeed, 41 of the groups have apparently produced no action plans or recommendations at all.

I propose that I draft a "first cut" of a Freshwater Turtle Comprehensive Plan, and I shall try to have this completed in the course of the next few months. Please feel free to make input at any time. I have already asked Walter Sachsse to start drafting a section relating to the role that captive

breeding may play in the conservation of endangered freshwater turtles, in conjunction with a subcommittee of our Group that shall be formed. Please make contact with the Chairman or with Dr. Sachsse (Institut für Genetik, Johannes Gutenberg-Universität, Saarstr. 21, Postfach 3980, D-6500 Mainz, Fed. Rep. of Germany) if you wish to be associated with this subcommittee.

Finally, it was my proposal last year to combine the Tortoise and Freshwater Turtle Group newsletters into one, in view of the extensive overlap of interest and my editorial role with both. This, I still propose to do. However, having a shortage of contributions relating to tortoise conservation news, we shall postpone this "marriage" for at least one more issue.

REPORT ON 1985 NESTING SEASON OF PODOCNEMIS EXPANSA IN BRAZIL

Jeanne Mortimer (University of Florida) is about to depart for a return visit to the nesting grounds of the arrau river turtle (*Podocnemis expansa*) on the Rio Trombetas--the most important nesting ground remaining for this species in Brazil. Mortimer visited the nesting zone in 1985, and reported some disquieting occurrences.

Both the duration of the nesting season and the numbers of nesting turtles were severely restricted in 1985. Mortimer found that nesting took place on only five days of the season--November 8, 9, 10, 15, and 16--with only 250-400 nests made altogether (by contrast, in 1978 and 1979, there were respectively 5,000 and 6,823 turtles nesting). Moreover, only one clutch is known to have produced hatchlings in 1985.

During the November 8 to 10 nesting episode, the six armed guards protecting the nesting beach were vastly outnumbered by 30-50 armed poachers, who took control of the nesting beach, and took somewhere between 100 and 300 turtles. Moreover, the second nesting episode (November 15-16) occurred on a beach 5.5 km north of the guard station. Although the guards, realizing that they could not effectively protect this other beach, attempted to dissuade the turtles from nesting by pouring kerosene and motor oil into the adjacent waters, nevertheless the turtles did nest there, and virtually every egg clutch was excavated and removed by local people.

PODOCNEMIS EXPANSA IN VENEZUELA...

Peter Pritchard visited the principal Venezuelan (Orinoco) nesting beaches for the arrau turtle in March 1986. The primary purpose was to obtain film of the nesting, and there was no opportunity to make accurate counts of nesting turtles. However, nesting appeared to be taking place in considerable abundance, and many hundreds of turtles were seen. National Guard patrols seemed to be quite conscientious, although a small number of the turtles are taken for consumption by local people. One interesting development was that the turtles were emerging principally by daylight, and by dawn, it was possible to see not only turtles basking in several tight concentrations of hundreds close to the water's edge, but also large numbers excavating their nest pits on the upper part of the beach. Several frolicking freshwater dolphins (*Inia*) and a clear view of Halley's comet combined with the turtles to make the overall spectacle an especially memorable one.

IUCN has received a grant application from the Venezuelan Ministerio del Ambiente y de los Recursos Naturales Renovables (MARNR) to develop a comprehensive management and protection program for the arrau in the Orinoco.

... AND IN PERU

The arrau (locally known as "Charapa") does not form dense nesting colonies in Peru, but it does nest in Amazonian Peru in reasonable numbers. Pekka Soini, in "Informe de Pacaya No. 14," reports on the surveys and conservation effort for this species and other *Podocnemis* (including the "taricaya," *P. unifilis*, and the "cupiso," *P. sextuberculata*), in an area of the Río Pacaya Basin, the Reserva Nacional Pacaya-Samiria, in June to December 1984. All of the fifteen beaches in the 15 km of river surveyed were visited at least once by *expansa*, but only on nine did any nesting occur, and on only four was there regular nesting. The nests are threatened by poachers, and eggs are also subject to natural predation by tegu lizards, so transplant of the eggs to a protected beach was essential. Eggs of *expansa* proved to be more subject to mortality during transport than the smaller eggs of *unifilis* and *sextuberculata*, but with careful handling, it was

possible to obtain a 70% hatch of the 2,936 *expansa* eggs relocated (24 nests), compared to 80% of the 5,147 eggs of *unifilis* (175 nests), and 64% of the 119 eggs of *sextuberculata* (9 nests). Soini calculated that the *expansa* nesting population in the Reserve was only 35-36 animals, assuming each nested only once in a season.

BRAZILIAN FRESHWATER TURTLE GROUP FORMED

The Fundação brasileira para a Conservação da Natureza - FBCN--has announced the formation of a Chelonian Specialist group. The principal purposes of the Group will be to promulgate knowledge of the Brazilian turtle fauna, and to develop coordinated plans for its conservation. The coordinator of the Group is:

Maria Teresa de Jesus Gouveia
FBCN--Grupo de Quelônios
Rua Miranda Valverde 103
Rio de Janeiro, RJ
22281 Brasil

to whom inquiries should be addressed.

CATCH 22 IN BENGAL

Ed Moll (former FTSG Chairman), who studied turtles in India for nine months in 1982-1983, has observed that large numbers of freshwater turtles from an extensive area of northeastern India are offered for sale in markets in West Bengal. The turtles are caught principally in the states of Orissa, Uttar Pradesh, Bihar, and Madhya Pradesh, in all of which the taking of freshwater turtles for commercial purposes is illegal, and no trapping licenses are issued.

Moll made a recommendation to the Chief Conservator of Forests for West Bengal, to the effect that it would be very difficult to control this illegal trade at the point of capture of the turtles, and an attempt to stop the shipment of the turtles to West Bengal by railway would probably lead to the use of alternative means of transportation. However, since the turtles were sold by relatively few major dealers concentrated near the railway stations in West Bengal, this would be the obvious point at which to control the trade.

The official reply received confirmed that the take of these turtles was indeed illegal, but since it occurred in other states than West Bengal, the only option of the Government of West Bengal for control was to restrict trade and commerce, rather than to control hunting. But to institute such restrictions, the individuals selling the turtles would have to be classified as dealers--and no dealership license could be issued since the turtles being sold were illegally captured, even though outside the jurisdiction of West Bengal. The

conclusion reached by this convoluted document was that action in West Bengal was not feasible, and the problem should be referred back to the states in which the turtles had been trapped.

Moll has recommended that the list of turtles on Schedule I of the IWL(P)A 1972 be revised to reflect more accurately the list of species threatened with extinction. In particular, the softshells Lissemys punctata, Trionyx hurum, and T. gangeticus should be placed on Schedule IV, legalizing the trade, and thus allowing West Bengal to regulate it. Moll further recommended that the most effective regulations would establish closed seasons during the turtles' breeding seasons--August to December for softshells, and January to May for emydids.

NEW SPECIES PROPOSED FOR U. S. THREATENED SPECIES LIST

Three freshwater turtle species with very restricted ranges have been formally proposed for "threatened" status by the United States Department of the Interior.

The Ringed Sawback Turtle, Graptemys oculifera, was proposed for "threatened" status in the Federal Register on January 21, 1986. This species is confined to the Pearl River of Louisiana, and its population density appears to be significantly lower than that of other Graptemys species in neighboring rivers. No Critical Habitat was proposed. The comment period ended March 24, and a final ruling is now pending.

The Alabama Redbelly Turtle, Pseudemys alabamensis, was proposed for "Threatened" status on July 8, 1986; all comments were to have been received by September 8. This species is restricted to a few small rivers around Mobile Bay, Alabama, and only a single locality at which regular, annual nesting occurs has been identified. This site is subject to considerable human disturbance and egg predation. No Critical Habitat was proposed, mainly because public disclosure of the location of this nesting site was deemed inadvisable.

The Flattened Musk Turtle, Sternotherus depressus, represents a more controversial case. This species was proposed for "threatened" status on November 1, 1985, and the comment period was

*1986. "The Effects of Mining Siltation on the Distribution and Abundance of the Flattened Musk Turtle, Sternotherus depressus, in Northern Alabama. Denver Wildlife Research Center, 412 N.E. 16th Avenue, Room 25, Gainesville, FL 32609. Copies no longer available, but results will be published.

extended more than once as new data became available, notably the extensive report on the status of this species by Dodd, Enge, and Stuart*, which is restricted to a small area of north-central Alabama. A public hearing was held in Birmingham, Alabama, on February 6, 1986, at which much somewhat misleading input from industrial representatives was presented. It was held, for example, that declaration of this species as "threatened," even though no Critical Habitat was proposed, could result in the loss of thousands of jobs in the coal mining industry. The species does indeed occur in a coal mining area, and is very sensitive to water pollution; but maintenance of a suitable buffer zone of intact terrestrial vegetation between mined areas, and the streams where the turtles live (as is already required by a generally ignored Alabama law) would minimize dangerous pollution. The species has also suffered from extensive collection for the pet trade in the last few years.

All of the above proposals, plus the proposal for "threatened" status for western populations of the Gopher Tortoise, Gopherus polyphemus, originated in the Jackson, Mississippi, Office of the U.S. Fish and Wildlife Service. Further information may be obtained from that office (Dennis B. Jordan, Endangered Species Field Station, U.S. Fish and Wildlife Service, Jackson Mall Office Center, Suite 316, 300 Woodrow Wilson Avenue, Jackson, Mississippi 39213, USA. Information may also be obtained from Bruce Jones, Endangered Species Office, U. S. Fish and Wildlife Service, Washington, D.C. 20240.

NEWS OF PSEUDEMYDURA

Mary Mendonça, formerly of the University of Central Florida and Berkeley, now at the University of Western Australia, writes as follows about the status of Pseudemydura umbrina, the only species in what must be the rarest genus of freshwater turtle. The species is confined to two small sites ("Twin Swamps" and "Ellen Brook") near Perth, Western Australia. There are an estimated 25 animals left in the wild, and 25 in captivity; there may have been about 100 when the species was rediscovered (after 114 years) in 1953. The Perth Zoo has a collection of seven live males and two unsexed juveniles. The females were formerly at the zoo, but the Conservation and Land Management Agency (CALM) has taken possession of them, since the zoo was experiencing very low egg production and high hatchling mortality. CALM is doing slightly better than the zoo, but egg production is still very low, although the few eggs produced generally show good fertility. Captive growth is even slower than in the wild--13 to 15 years for maturity (for a turtle only about 13 cm long!)

Mendonça reports that there are no obvious shortcomings with the captive facilities at CALM--the species simply appears to be extremely hard to help. Meanwhile, a recent paper by Hans Budde (1985, Die Aquarien und Terrarien Zeitschrift 38(2):88-90) reports on the status of the wild habitat of Pseudemydura. Although the known habitat has been acquired for conservation purposes, drainage of adjoining land has lowered the water table, and the sites now have standing water in them very rarely. Pseudemydura has always had to contend with periods of drought, but is presumably dependent upon some critical minimum annual total of days of standing water in the habitat in order to feed and reproduce.

MOVES TO CONTROL COMMERCIALIZATION OF TURTLES AS PETS

The following resolution was passed unanimously by the Board of the Society for the Study of Amphibians and Reptiles:

Whereas millions of hatchling turtles produced on breeding farms in the southeastern United States are being exported to Europe, the Far East and other parts of the world for the pet trade, and

Whereas these turtles are an important route for the transmission of salmonellosis, and

Whereas the trade requires the taking of an estimated 100,000 adult turtles out of the wild every year to replace breeding stock which has perished, and

Whereas the pet turtle industry is continuing efforts to get the existing domestic ban on the sale of hatchlings lifted, thus necessitating severe exploitation of wild populations for breeding stock,

Therefore Be It Resolved that SSAR goes on record as opposed to the commercial exploitation of chelonians for pet industry purposes.

Although Trachemys scripta elegans, the turtle involved in the above trade, is still plentiful in much of its range, and indeed is, ecologically speaking, an aggressive species that can colonize distant habitats when transported outside its natural range, there is definitely merit in instituting some controls. Moreover, the constant take of breeding stock from the wild has depleted wild populations in Louisiana, and, indeed, it has been estimated that as many as 100,000 wild adults are taken annually, just to replace dead captive breeding stock (Clifford Warwick, pers. comm.). There is also a potential for the disturbance of

distant ecosystems if this turtle is exported (e.g. in Venezuela, where the related, but very restricted subspecies T. s. callirostris and T. s. chichiriviche exist naturally, and where large numbers of T. s. elegans are sold commercially), and also, it seems cynical to permit the export of turtles that have been deemed a health hazard in the United States--somewhat comparable to export of DDT.

One possible means of instituting some controls on the export of hatchling T. s. elegans is the placement of the subspecies on Appendix II of CITES. This proposal has now been made formally, to the U. S. Office of the Scientific Authority for CITES, by Donna Hart, Senior Program Director of the International Wildlife Coalition, P. O. Box 142, Elsau, IL 62028, USA. The proposal is now achieving some momentum. It would not ban export outright, but would require exporting countries (essentially the USA, although the subspecies does extend into northeastern Mexico) to determine formally that the export did not jeopardize the natural populations of the subspecies.

REEVALUATION OF THE MALAYSIAN CONSERVATION PROGRAM FOR THE RIVER TERRAPIN

Edward Moll has recently received funding from Wildlife Conservation International to reevaluate the Malaysian Conservation program for Batagur baska on the Perak River, during its twentieth anniversary. This conservation program, one of the oldest in the world for a freshwater turtle, offers an unique opportunity to determine whether hatcheries combined with headstarting programs are effective conservation techniques for long-lived river turtles. Moll worked with this same population in 1975-76, and established baseline data on the size of the nesting population. In this study, he will recensus the population and see what changes have occurred over the last 10 years. Biotelemetry will also be utilized to study the movements of the females on the nesting migration. The project will begin in December of this year.

SYMPOSIUM: TORTUGAS DE AGUA DULCE NEOTROPICALES

In 1975, Drs. R. Bruce Bury and Carl H. Ernst organized the first symposium on the Ecology and Behavior of Freshwater Turtles which was held in conjunction with the American Society of Ichthyologists and Herpetologists meeting held in Williamsburg, Virginia. This symposium proved to be such a great success that the participants decided to make it a regular event. Five years later, Drs. C. J. McCoy and Richard Vogt hosted the Powdermill Turtle Conference at Carnegie Museum in Pittsburgh.

This year, the third symposium was held 4-8 March at the Estacion de Biologia "Los Tuxtlas" of the Universidad Nacional Autonoma de Mexico in Veracruz. The meeting was again coordinated by R. C. Vogt with help from C. J. McCoy.

The meeting was once again a great success. Twenty-five papers were presented and forty chelonologists attended. Papers were presented during the day, and slide shows were given in the evening. Short field trips were made in the vicinity of the field station grounds to demonstrate the use of drift fences, biotelemetry and turtle-catching dogs. The majority of papers and discussions concerned freshwater Neotropical species, but a few papers dealt with North American and Asian species, as well as sea turtles and tortoises. Authors and papers presented at the meetings are listed below:

Gustavo Aguirre, Instituto de Ecologia, Mexico: **Exploring and Exploiting Bolson Tortoise (Gopherus flavomarginatus) Reproductive Strategies**

James F. Berry, Dept. of Biology, Elmhurst College, Elmhurst, IL 60126: **Sexual Selection, Sexual Dimorphism, and Intersexual Resource Partitioning in Emydid Turtles**

James F. Berry, Elmhurst College: **Biogeographic and Systematic Relationships Among the Members of the Kinosternon leucostomum Complex in Mexico, Central, and South America**

John W. Bickham and Brian Hanks, Department of Wildlife and Fisheries Sciences, Texas A & M University, College Station, Texas 77843: **Diploid-Triploid Mosaicism in Platemys platycephala**

Ronald J. Brooks, E. Graham Nancekivell, David A. Galbraith and Christine Bishop, Dept. of Zoology, University of Guelph, Guelph, Ontario, N1G 2W1 Canada: **Variation in Threshold Temperatures in Two Ontario Populations of the Common Snapping Turtle, Chelydra serpentina**

R. Bruce Bury, Denver Wildlife Research Center, 1300 Blue Spruce Dr., Fort Collins, CO 80524: **Patterns and Tactics of Basking Behavior in Freshwater Turtles**

John L. Carr, Dept. of Zoology, Southern Illinois University, Carbondale, IL 62901: **Preliminary Explorations into Relationships Among Rhinoclemmys Species**

Justin D. Congdon, Savannah River Ecology Laboratory, Aiken, SC 29801: **Reproduction, Nesting Ecology: Implications for the Demographics of Three Species of Freshwater Turtles**

Michael A. Ewert, Indiana University, Bloomington, IN 47405: **Comparative Aspects of Oxygen Consumption Among Slowly and Rapidly Developing Turtle Eggs**

Oscar Flores Villela, Museo de Zoologia, Facultad de Ciencias, UNAM Mexico D.F. 04510, Mexico: **Ciclo Reproductivo de la Hembra de Claudius angustatus en el Sur de Veracruz**

J. Whitfield Gibbons, Savannah River Ecology Laboratory, Aiken, SC 29801: **Demographic and Life History Interpretations Based on Two Decades of Mark/Recapture Studies of Freshwater Turtles**

John B. Iverson, Dept. of Biology, Earlham College, Richmond, IN 47374: **Systematics and Ecology of Kinosternine Turtles with Emphasis on Generic Relationships**

Dale Jackson, Florida Natural Areas Inventory, The Nature Conservancy, Tallahassee, FL: **Predation on Turtles by the American Alligator: Ecological and Morphological Correlates**

John M. Legler, University of Utah, Salt Lake City, Utah 84112: **The Genus Pseudemys in Mesoamerica: Taxonomy, Distribution and Origins**

H. Merchant Larios, I. Villalpando, B. Centeno, Instituto de Investigaciones Biomedicas, UNAM: **Desarrollo Embrionario de la Gonada de Tres Especies de Tortugas Marinas (Lepidochelys olivacea, Chelonia mydas y Dermochelys coriacea)**

Peter Meylan, Dept. of Vertebrate Paleontology, American Museum of Natural History: **The Phylogenetic Relationships of the Trionychoidea and the Monophyly of the Trionychoidea (Sensu Gaffney)**

Joseph C. Mitchell, University of Richmond, Richmond, VA: **The Sexual Strategy Model of Turtle Activity: Tests with Chrysemys picta and Sternotherus odoratus, and Applications to Neotropical Turtles**

Edward O. Moll, Dept. of Zoology, Eastern Illinois University, Charleston, IL 61920: **Nesting Biology of Callagur borneoensis, an Unusual Tropical Asian River Turtle**

Salvado A. Morales V., Universidad Nacional Autonoma de México, México: **Aspectos en la Dinámica de Poblaciones de Kinosternon leucostomum**

Anders G. J. Rhodin, Russell A. Mittermeier, and Carlos Yamashita: **Morphology, Distribution and Taxonomic Status of the South American Chelid Turtle Phrynops vanderhaegei Bour, 1973**

Michael E. Seidel, Marshall University, Huntington, WV: **Systematics and Ecology of West Indian Emydid Turtles (Genus Trachemys)**

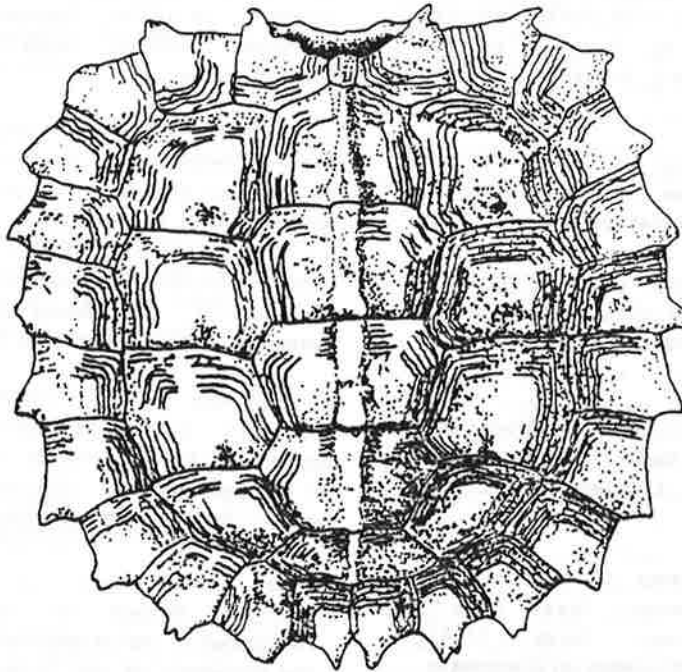
Richard C. Vogt, Estacion de Biología Tropical "Los Tuxtias," San Andrés Tuxtla, Veracruz, Mexico: **Determination del Sexo y Ciclos de Reproduccion de Tortugas Neotropicales**

Robert G. Webb, Dept. of Biological Sciences, University of Texas at El Paso, TX 79968:

Resurrection of the Subfamily Chitrinae (Testudines: Trionychidae)

Robert M. Winokur, Dept. of Biological Sciences, University of Nevada, Las Vegas, Nevada 89154: **Some Patterns of Adaptations in the Buccal Mucosae of Neotropical Chelonians**

George R. Zug, Dept. of Vertebrate Zoology, National Museum of Natural History, Smithsonian Institution, Washington, DC 20560: **Age Determination in Turtles**



FLORIDA AUDUBON SOCIETY
1101 Audubon Way
Maitland, Florida 32751