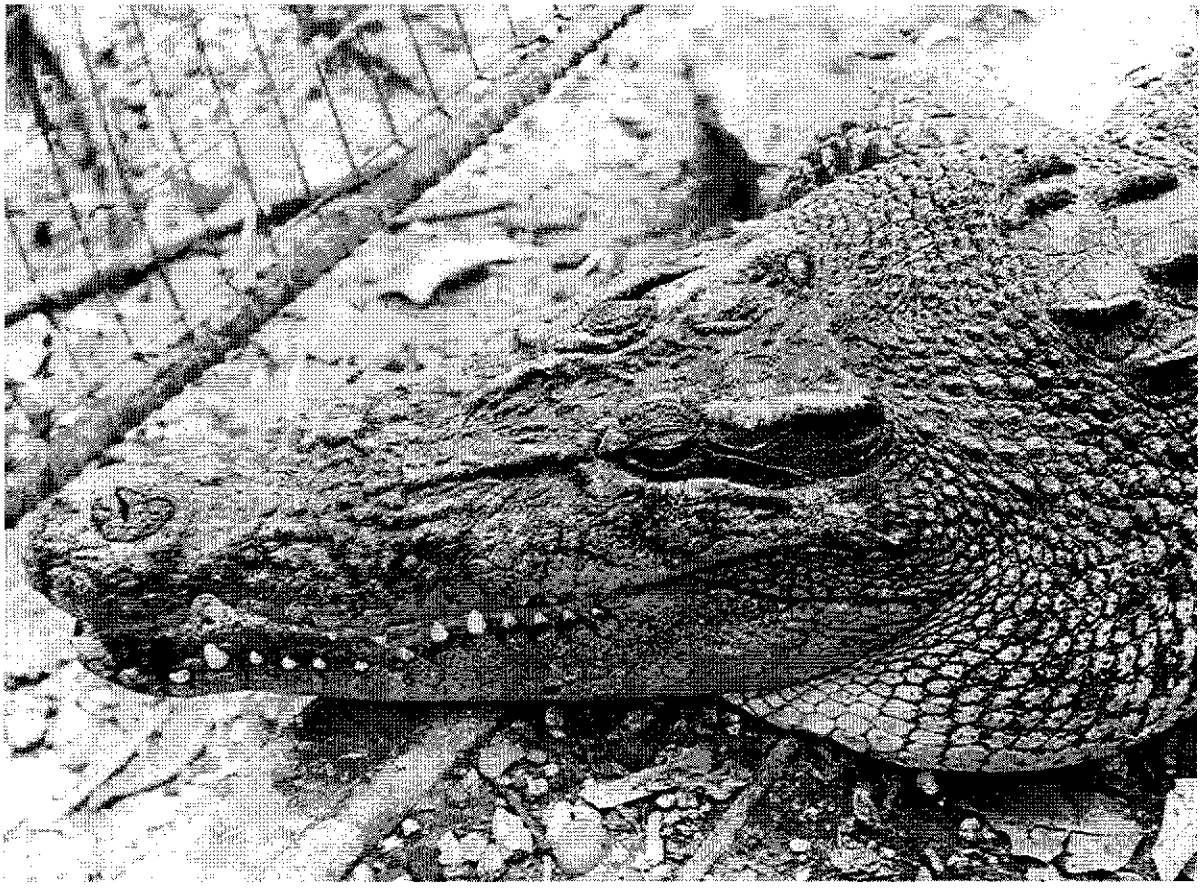
CROCODILE SPECIALIST GROUP

NEWSLETTER

VOLUME 16 No. 3 ■ JULY 1997 - SEPTEMBER 1997



IUCN - World Conservation Union ■ Species Survival Commission

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IUCN--The World Conservation Union
Species Survival Commission

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COVER PHOTO: *Crocodylus porosus* male 10 feet total length, dominant male at Palau Crocodile Farm and Preserve. J. Eberdong photo.

The CSG NEWSLETTER is produced and distributed by the Crocodile Specialist Group of the Species Survival Commission, IUCN - World Conservation Union. CSG NEWSLETTER provides information on the conservation, status, news and current events concerning crocodilians, and on the activities of the CSG. The NEWSLETTER is distributed to CSG members and, upon request, to other interested individuals and organizations. All subscribers are asked to contribute news and other materials. A voluntary contribution (suggested $40.00 US per year) is requested from subscribers to defray expenses of producing the NEWSLETTER. All communications should be addressed to: Dr. J. P. Ross, Executive Officer CSG, Florida Museum of Natural History, Gainesville, FL 32611, USA. Fax: 1 352 392 9367, E-mail: prossesg@flmnh.ufl.edu

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Scott Anderson, Cypress Creek Farms, Starke, FL, USA
Claybrook Farms/Jungle Adventures, Christmas, Fl. USA

EDITORIAL

FINANCIAL STRAIN (AGAIN). Once again the CSG finds itself on the verge of a cash flow crisis. Donations received to date this year total $55,545 of which $5,000 is dedicated to Special Projects, leaving a scant $50,000 to meet general operating expenses. The surplus balance which we carried over from last year will probably enable us to meet all our commitments through this calendar year but we will face a critical cash shortage early in 1998 without substantial additional donations.

Our basic expenses are distributed as follows: Executive officer salary $35,911, Payroll taxes, social security, medical insurance etc. $10,600, Newsletter printing $5,500, Newsletter mailing $4,200, other mail $1,500, Phone and fax $2,400, office operations (supplies, equipment repairs) $1,000, bank fees and accounting $1,600. That is about $63,000 a year just to maintain basic operations. This year travel to regional meetings and CITES has cost another $5,200.

To their very great credit, and our thanks, a good proportion of our regular Patrons have made their donations this year and are listed above. Other previous Patrons have not yet sent a donation, but we look forward to adding their names back to the list of current donors shortly (You know who you are!). The problem remains as always that not only must we maintain the interest and confidence of current donors, but we must constantly expand our donor base so that the strain does not fall constantly upon the same willing shoulders. A reminder letter has been sent to solicit donations from regular donors but I urge all CSG members to assist us in locating new supporters. For those of you who have never made a donation- Now would be a good time!

Should we fail to make operating costs the Chairman has indicated his simple solution- we will begin to curtail activities, reducing the frequency of Newsletter production and cutting back the Executive Officer's time commitment and reducing services. Hopefully this will not be necessary. -- Perran Ross, *Executive Officer*.

Mexico Regional Meeting

REGIONAL MEETING REPORT. Between 4 and 8 August, 125 participants convened at Villahermosa, Mexico, for a regional meeting for Central America and the Caribbean. Among these were 51 scientific presenters, 6 keynote speakers and the remainder professors, assistants and students from the University Juarez Autonoma de Tabasco and Industrias Moreletii crocodile farm. Countries represented among the participants were Bolivia, Venezuela, Belize, Brazil, Argentina, Guatemala, Costa Rica, USA, Cuba, Colombia, Thailand, Spain, France, Ireland, Switzerland and Mexico. The meeting was hosted for the CSG by the Sociedad para Conservacion de los Cocodrilos de Mexico (SECCOM) supported by a consortium of commercial, academic and government agencies.

The meeting opened with an address by Dr. Enrique Lahman, Director of the IUCN Regional office for Central America, who provided a clear foundation for discussion of crocodilians in the context of general wetland conservation. Presentations by a large number of Mexican

participants detailed the extensive work on crocodilian biology currently underway in Mexico and the developing structure for protection, regulation and sustainable use of Morelet's crocodile in farms and ranches. New reports from Belize and Guatemala provided additional details on the current status of Morelet's crocodile in the region. We also heard from representatives of Venezuela, and Cuba where studies of crocodilians and development of sustainable use programs are well advanced. Fifteen presentations were given on the status and biology of the American crocodile in Mexico. Workshop sessions then considered this information and generated recommendations for priorities for action. Our thanks are due to Beatriz Figueroa Ocaña, President of SECCOM and meeting organizer, and her excellent team of helpers who ensured a very efficient, comfortable and thoroughly pleasant meeting. We are also grateful for financial and organizational assistance to the meeting donated by Jose Carlos Rodarte (Cocodrilos Mexicano), Gonzalo Quintana (Industrias Moreletii) and Manuel Muñiz (Cocodrilos de Chiapas).

CONCLUSIONS OF WORKSHOPS. The Round Table discussion on Research and Conservation generated the following conclusions.

1) Existing research groups in Mexico must improve the following topics:

a) Information exchange between scientists, NGO's and the public.

b) Development of regional field teams to undertake populations surveys.

c) Zonation of conservation and use of crocodiles in the different regions of Mexico to reflect regional differences in resources and capacity.

d) Educational programs to improve the understanding of conservation of Mexican crocodiles.

2) Establish a workshop on the understanding and application of methods for wild population studies to increase the human resources on this topic and improving those which already exist.

3) Standardize the techniques applied to wild populations in Mexico with reference to those applied in other countries of the region and countries involved in crocodile management.

4 Utilize SECCOM and the Institute of Ecology (INE) to bring together all the existing information on crocodiles in Mexico to allow the assessment of their current status. INE should assume the responsibility to distribute this information according to the standards established in order to manage crocodiles in Mexico.

5) Create environmental education programs to integrate cultural, political, economic and social aspects in all the local communities in relation to the use of the resource.

6) Establish, in collaboration with government institutions and the private sector, a committee to provide legal and financial support for programs of conservation established in each region of Mexico.

The Round table discussion on Sustainable Use generated the following conclusions:

1) A pilot program for the experimental ranching of *C. moreletii* in the States of Chiapas, Tabasco and Quintana Roo is proposed.

2) Prepare the scientific information necessary to prepare a proposal to CITES for the downlisting of *C. moreletii* to Appendix II.

3) Compare the experiences of Venezuela and Argentina to reinforce the development of the Mexican crocodile ranching program.

4) It is recommended that an NGO such as SECCOM defines a strategy to seek funding to implement the proposed pilot program.

5) Incorporate those private interests currently established as captive breeding centers to participate in ranching in the future as a fundamental component of the program.

6) Consider in the short term the organization of a workshop to train human resources to conduct population studies of Mexican crocodiles.

7) Locate and systematically record the available information on *C. moreletii* prior to November 1997.

8) Incorporate local communities into ranching programs.

9) Prepare a strategy for improving the misapprehensions of some protectionist NGO organizations about the value of sustainable use for conservation.

10) Clearly define on paper the states within the distribution of *C. moreletii* which will participate in the pilot ranching program.

11) Involve the petroleum industry (and its financial resources) in sustainable use and conservation activities of crocodiles.

12) Consider the acquisition of terrain for ranching through the petroleum industry.

13) Prepare a legal structure which will be able to administer funds for the implementation of a ranching and conservation program..

14) Undertake an evaluation and categorization of the habitat of crocodiles in Mexico.

Additional recommendations concerning international programs were generated by the meeting:

Bolivia. It is recommended that Bolivia establish a correspondence with Venezuela to advance the development of the Bolivian national strategy for crocodilian use based on the Venezuelan experiences.

Cuba. Should consider a proposal for ranching *C. acutus* and for this it is necessary to bring together all the available information on this species.

Guatemala. Permanent communication with Mexico regarding actions on *C. moreletii* is recommended.

REUNION DE LA RED ACUTUS EN LA 4TA REUNION REGIONAL DEL CSG EN VILLAHERMOSA. La 4ta reunion regional fue propicia retomar una iniciativa propuesta or diversos investigadores que trabajan en la region con *Crocodylus acutus*, en reunion del CSG realizada en mayo de 1996 en Argentina. Dicha iniciativa representa un logro del trabajo de consolidar grupos de trabajo dentro del plan de accion del CSG y en esta reunion se sostuvieron dos encuentros que sirvieron para actualizar el directorio de investigadores y establecer los siguientes acuerdos:

1) Establecimiento de la Red Acutus como un grupo tematico dentro del CSG

2) Que los investigadores de la Red Acutus trabajen en la ampliacion y actualizacion del plan de accion del CSG que esta en las fases finales de revision. Para mayor informacion visitar la pagina web del CSG.

3) La Red Acutus abogo por la publicacion de las memorias del reciente Taller Internacional de *Crocodylus acutus* celebrado en Cuba (10-16 de junio de 1997), el cual conto con la presencia de investigadores que intercambiaron experiencia tecnica y de campo sobre esta especie. El investigador Cubano Roberto Rodriguez Soberon dejo abierta la invitacion para realizar un proximo encuentro en esa localidad para 1998, durante la epoca de puesta de esta especie en cayos costeros y manglar.

4) Considerando el adelanto de las investigaciones de cocodrilos en la Isla de Cuba, la Red Acutus dio un voto de apoyo para que se realice una Reunion Regional o la 15va internacional del CSG en el 2000 en ese pais. En este sentido, los investigadores Cubanos Roberto (Toby) Ramo, Roberto Rodriguez Soberon y Manolo Gonzales seqalaron que ello era propicio y que trabajarian en la organizacion de Reunion Internacional llevando una propuesta a la venidera 14va reunion del CSG en Singapur.

Otros aspectos tocados en los encuentros de investigadores que forman La Red fueron la necesidad de organizar en el marco de la proxima Reunion Regional en America, un simposio sobre ecologia y conservacion de *C. acutus* para establecer estrategias regionales en el marco del Plan de Accion del CSG; la necesidad de mantener un intercambio de informacion y de trabajo en la region con la finalidad de propiciar una estandarizacion de las metodologias de estudio; establecer un banco de referencias bibliograficas de facil acceso; y finalmente, incluir las otras especies en las areas de trabajo para realizar estudios integrales sobre alopatria o simpatria, factores limitantes y facilitadores, y estrategias de manejo conjunto. Para mayor informacion sobre la Red Acutus, comunicarse con -- Ana Maria Trelancia, *C/o L. Alcazar, depto. Finanzas, Av. Pardo y Aliaga 696, Lima 27, Peru, o Lic.* Alfredo Arteaga, *Fudena, Venezuela, e-mail: 93-78060@usb.ve, Fudena@reacciun.ve*

ACUTUS NETWORK MEETING IN VILLAHERMOSA. (*Free translation of the preceding article*) The Villahermosa meeting was an opportunity to further develop proposals made by investigators working with *Crocodylus acutus* in May 1996 at the CSG meeting in Argentina. This initiative is a working group to consolidate activity defined by the CSG Action Plan and two meetings were held in Villahermosa to establish the following agreements:

1. To establish the Acutus Network as a thematic group within CSG.

2. Researchers in the network would amplify and implement the activities proposed for *C. acutus* in the revised CSG Action Plan.,. For more information see the CSG web pages.

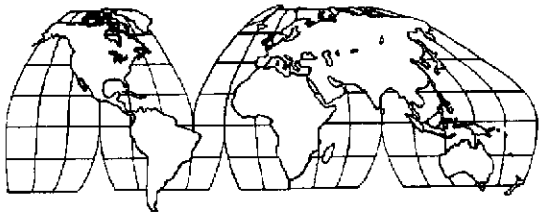
3. The Acutus Network will publish the proceedings of the recent international workshop held in Cuba. Roberto Soberon from Cuba offered an open invitation to hold a similar workshop at the same locality in 1998.

4. Considering the above and the investigations being undertaken in Cuba, the Acutus Network again gave its support to the possibility of holding the next CSG working

meeting in Cuba. Cuban researchers Toby Ramos and Roberto Soberon undertook to make some preliminary feasibility studies and offered to bring an invitation to the 14th CSG Working Meeting in Singapore next year.

Other discussions of this working group concerned the value of organizing a symposium on the ecology and conservation of *C. acutus* for the next Regional meeting to establish regional strategies under the umbrella of the CSG Action Plan: the need to maintain an interchange of information and work in the region and continue the project to standardize methods of study; the establishment of an easily accessible reference library; and finally to include the other species in our working areas to develop integrated studies of sympatric and allopatric species, limiting factors and methods and strategies for their management together. For more information contact -- Ana Maria Trelancia, *C/o L. Alcazar, depto. Finanzas, Av. Pardo y Aliaga 696, Lima 27, Peru, o Lic.* Alfredo Arteaga, *Fudena, Venezuela, e-mail: 93-78060@usb.ve, Fudena@reacciun.ve*

AREA REPORTS

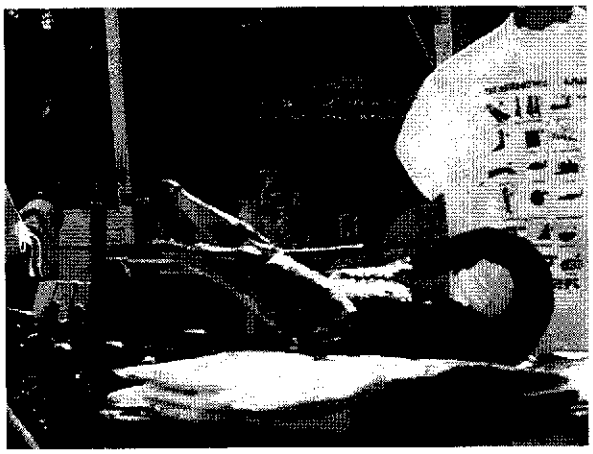


AFRICA

Egypt

NILE CROCODILE RECOVERY IN LAKE NASSER. Nile crocodiles were reported in the Nile delta during Roman times and in the lower Nile in the last century, but were apparently eliminated by the mid 1800's. The construction of the Aswan high dam in the 1960's and the creation of a huge potential crocodile habitat has long fueled speculation that Nile crocs would recover in their namesake river, perhaps colonizing from upstream in the Sudan. Two reports suggest this has now happened.

Dr. Klaus Kabisch reports that, "During our visit to Egypt in August 1996 street vendors in Luxor at the bank of the Nile (Shari Bahr el Nil-street) and in the bazaar offered about 25 live juvenile crocodiles (25 -30 cm length) for sale. Everybody agreed that the place of origin of these crocodiles is Lake Nasser by Aswan. Fishermen are said to have caught the crocodiles in their nets. At street stands on the landing stage of the Philae Temple and even in the Valley of the Kings by Luxor we saw prepared (stuffed) crocodiles up to 1.2 m. In the Luxor bazaar we were offered stuffed specimens of 1m and also a crocodile of more than 2m length, all said to come from lake Nasser. After questioning people in Aswan and Luxor who know their way around, there do not seem to be any secure reports of crocodiles coming down stream from Aswan toward Luxor. The increase of the crocodile population in Lake Nasser is ascertained in common. Because of strict military restrictions we were unable to make direct observations in Lake Nasser."



Nile crocodiles, stuffed Valley of the Kings (top) and live Luxor (bottom) for sale in Egypt. K. Kabisch photo.

Additional information was received from Dr. John Grainger of IUCN and IUDSCI, Cairo, of several recent reports of crocodile attacks on people in Lake Nasser. Details were unclear but at least one fatality is reported and the problem has attracted the attention of the Regional Governor who has requested assistance from IUCN to deal with it. Dr. Grainger has in turn approached CSG and a preliminary communication outlining several options for nuisance control, crocodile population assessment and the development of a crocodile management plan has been sent to him. -- *from correspondence*: Prof. Dr. Klaus Kabisch, *Universitat Leipzig, Augustusplatz 10/11, 04109, Leipzig, Germany, &* Dr. John Grainger, *C/O IUDSCI, Cairo, Egypt.*

ASIA

China

CHINESE ALLIGATOR REMAINS CRITICALLY ENDANGERED. In August, I had the opportunity to travel to China and visit the Anhui Research Center for Chinese Alligator Reproduction (ARCCAR) and the National Chinese alligator reserve, which protects most of the sites where wild alligators remain. The Wildlife Conservation Society has a long history of work in China, and I was able to take advantage of a number of our contacts there to arrange this visit. In going to China I had two main goals: 1) review the current status of the Chinese alligator conservation program, and 2) determine if WCS could play a constructive role in assisting field conservation efforts (following the recommendations made by Webb and Vernon in their 1992 report). In China I worked with Prof. Xiaoming Wang, from the East China Normal University. We were hosted by the Anhui Provincial Government and stayed at the breeding center, meeting regularly the head of the Anhui Natural Resource Management department, Mr. Kui Chu Shi, and his colleague Mr. Gu Chang Ming, as well as with the ARCCAR staff, particularly Mr. Xie Wan-Shu, the director of the center.

During our two week stay we visited four areas where small numbers of wild alligators remain, and had lengthy discussions about the breeding center, the reserve, and future plans for conservation efforts. The situation with Chinese alligators is certainly grave. While they were once widespread throughout the lower Yangzi River valley, today only a small number of alligators remain in scattered localities living in completely altered habitats. The plight of the alligator has been recognized for some time in China. The species was protected by the government in 1972. The initial conservation program focused on collecting a large number of alligators (212) to create a breeding program (1979-1983). In 1986, a national reserve was declared to protect most of the last wild populations. The reserve is 433 km^2 and has 13 protected sites. At each site, a local resident is paid by the province to be a caretaker. The thirteen sites are divided among 5 counties, and each county has a program coordinator. While some general knowledge exists among the caretakers and county coordinators regarding the number of alligators in the different sites, no monitoring program exists.

Trying to summarize the results of previous survey efforts has been a bit difficult as different sources give varying accounts. However, it seems that the last attempt to count alligators was in 1985-1987, and indicated that about 735 alligators remained. No real information on population trends are available. It turns out that information previously published on population trends (Webb, G. and B. Vernon, 1992) was information provided by ARCCAR based on initial estimates of wild animals, and assumptions regarding the number of annual nests and surviving hatchlings. However, the only problem was that they were collecting the eggs to incubate at ARCCAR and keeping the young in captivity These values then reflect the number of alligators in the wild, plus those in captivity that originated from that county, and are not an accurate representation of the current status of the wild population. We discovered that contrary to what had been believed previously, the ARCCAR has continued collecting eggs from wild nests, even after the declaration of the national reserve. No animals are being released nor was release seriously contemplated prior to our visit. The center did try to release animals back into the wild (2 were released at one site, but this was deemed a failure, we were told largely due to resistance from local people.).

The clear, overriding conservation factor is that no habitat remains, and there is a constant human pressure on the few remaining pools harboring alligators. Alligators are living mostly in small irrigation ponds wedged between fields of rice or other crops. Although the reserve itself is quite large (433 km^2) the actual protected areas

where alligators are found is very small. In the five county region where the reserve is located there are over 2.2 million people. Driving through the reserve all one sees are villages, small cities, agricultural fields, and low hills covered with pine trees and tea plantations. Alligators only remain in thirteen official sites; which are tiny patches where the only protected areas are the small ponds themselves. Rice and other crops are grown to the very edge of the water, leading to inevitable conflicts with the alligators who only survive by burrowing. The shores of these ponds are usually footpaths, leaving no buffer areas of vegetation which could serve as areas for alligators to bask, or to nest. (Under these circumstances, the existence of small islands may offer more protection for the alligators and one of the things we noticed was that in many of the areas where alligators remained were characterized by the presence of islands). Aside from these 13 sites, there are other areas where alligators are known to remain, and where they are even worse off (greater habitat alteration and no local caretakers). Throughout the reserve there is heavy use of pesticides and other chemicals which drain into the pools that form the last refuges of the alligators. These chemicals may affect the alligators directly, or indirectly by eliminating the invertebrate prey base. In these small ponds, alligators that burrow into or move overland though rice fields are deemed problem animals. On top of all this, eggs found by local residents are collected and taken to the breeding center, ostensibly to "protect" them. The fact that alligators still survive in this area is a tribute to the resilient nature of crocodilians, their population dynamics, their longevity, and their ability to remain almost undetected (by their secretive habits and prowess as master burrowers) in the midst of intensive human use and alteration of their natural habitats.

However, there is hope. There is a large captive population, numbering some 5,000 animals. In the reserve, we saw some juvenile animals, indicating that somehow, somewhere, the alligators were reproducing. Of even greater importance is the receptivity of the people we met with, and their interest in undertaking evaluations of the wild population. Until now, the Chinese program has been focused almost exclusively on the captive breeding center. Relatively little attention has been given to assure the long-term survival of the wild populations. A joint three-year program between the Anhui Forest Bureau, East China Normal University, and WCS is being developed to expand the scope of the conservation program by including the wild population to a much greater degree. Much of this proposed study follows the recommendations of Webb and Vernon (1992), and we believe that this can be an important first step towards designing a strategy to ensure the long-term survival of alligators in the wild. The work will provide an up-to-date estimate of population size throughout the range of the alligator, initiate a monitoring program, train Chinese students to conduct ecological research, and evaluate management alternatives for the remaining populations. -- John Thorbjarnarson, *Wildlife Conservation Society, Bronx, New York, USA from a letter to Prof. H. Messel.*

POSTSCRIPT. The CSG Chairman, Professor Messel, has indicated that the Chinese alligator remains one of CSG's top priorities and CSG will throw its full support behind WCS's initiative in China and endorses the following activities:

Support for Chinese Participation at CSG Meeting. The Chinese alligator should be one of the highest priorities for attention in Singapore. Two Chinese candidates will be invited to attend these meetings.

American alligator problem. The staff of ARCCAR have expressed interest in obtaining American alligators. There is already one farm in the known range of Chinese alligators (a commercial turtle breeding farm) that has a stock of American alligators and ARCCARs request for American alligators may reflect ideas for their commercial breeding. Singapore, will provide an opportunity to openly discuss appropriate commercial ventures for ARCCAR to enter into.

Support for undertaking the project. CSG will write to support approval of the WCS/ARCCAR project by both the province, as well as the national government in Beijing.

Malaysia

TOMISTOMA SURVEY. Malaysia's only Ramsar site, a predominantly freshwater and peat swamp, is historically the habitat for the False Gharial *Tomistoma schlegelii*, yet a recent 2-week intensive survey by Wetlands International did not make a single sighting of this globally threatened species.

The crocodile survey at Tasek Bera was carried out by Boyd Simpson of Wildlife Management International Pty. Ltd. under the auspices of the

IUCN Crocodile Specialist Group (CSG), in conjunction with staff from Wetlands International and the Malaysian Government's Wildlife Department (PERHILITAN). Funding was provided by DANCED, CSG (through donations from the Chicago Zoological Society) and the Asian Conservation and Sustainable Use Group.

The False Gharial is the only crocodilian species known to occur in the Tasek Bera freshwater swamp system, and its status must now be considered critical. Local people report that numbers have declined drastically, but the species is still seen occasionally. However, nightly sightings are reported from two nearby tributaries of the Pahang river, and these will be surveyed shortly.

Among factors that may have led to the decline of the species in the Tasek Bera system is intensive hunting in the late 1950's - mainly for skins. The reported drop in the market value for crocodile skin in the early 1960's is probably the reason why hunting has since stopped. Local people also consumed some crocodile meat, and certain body parts were used for their medicinal value.

Unlike other crocodilians, the False Gharial feeds mainly on fish, although its diet may include various small mammals. Nevertheless, local people are still generally afraid of encountering this species, which may grow up to 8 m (25 ft).

As so little is known about the False Gharial, Wetlands International - Asia Pacific Malaysia Program's Tasek Bera Project is in the process of incorporating recommendations for future research and monitoring into its management plans for the lake to determine conservation priorities for this declining species. -- Scott Frazier, *Ramsar/Wetland Sites Officer, Wetlands International, PO Box 7002, Marijkeweg, 6700 Wageningen, The Netherlands.*

WESTERN ASIA

India

STATUS OF GHARIAL IN ARUNACHAL PRADESH. The State of Arunachal Pradesh is located in north-eastern India, adjacent to Assam and between Bangladesh and Mayanmar. The region is mostly hilly and mountainous, with small plains occurring along the valleys of the upper Brahmaputra River system. Important rivers are the Siang (also called the Dihang or Lali), Lohit, Dibang, Subansirti, Kameng, Noa-Dihing and Sesseri. *Gavialis gangeticus* was once not uncommon in many of these rivers and older human residents are familiar with them. However, the species is now extremely rare with only occasional sightings. From 1989, I have made regular trips to Arunachal Pradesh as part of a broad survey of wildlife and I collected data on the occurrence of gharial summarized here.

Siang river. A small specimen of around 1.5 m length was seen between Poba Reserved Forest and Kobo Chapori in 1991. This location is in Assam but near the border with Arunachal Pradesh and suggests the species also occurs on the A.P. side of the river.

Subansiri River. The staff of the Brahmaputra Board and locals sighted a gharial 3 km upstream of Gerukamukh during 1978-79 and another was seen basking in 1989 at the same spot.

Noa-Dihing river. A small specimen was spotted by Forest staff at the 22 mile point inside Namdapha National Park. Another specimen was reported in 1989 in the Park.

The gharial is on the verge of extinction in the entire Brahmaputra river system. The reasons for the decline in Arunchal Pradesh are: 1) Deliberate shooting by local people. Firearms, including home made muzzle loaders, are easily available and the reptile is eaten by local tribes. 2) Lack of basking and breeding beaches as most locations are disturbed by human activities, including setting up fishing camps. 3) Siltation of river pools due to deforestation. Although it is very difficult to assess the population size, there may be fewer than 10 individuals, mostly in the Subansiri and Siang rivers which also move across to the Assam side from time to time. No reports of breeding were gathered, however, the record of a young individual, such as the one seen in the Siang river in 1991, suggests some reproduction occurs in remote areas. There are protected areas with potential Gharial habitat such as the D'Ering Memorial Sanctuary and Namdapha National Park. Perhaps gharial from captive bred stock such as those in Uttar Pradesh might be released because the current population has reached such a low ebb that building a viable population from that base is no longer possible. -- Anwaruddin Choudhury, *The Rhino Foundation for Nature in N.E. India, c/o The Assam Co. Ltd., G. Bordoloi Path, Bamunimaidam, Guwahati 781 021, Assam, India.*

Sri Lanka

CROCODILE SURVEY AND PUBLIC RELATIONS PROGRAM. Deni Porej, from Yugoslavia has spent the last year in Sri Lanka working for the Wetlands Conservation Project of the Central Environmental Authority.developing a small scale crocodile project with advice from the CSG. Nature protection in Sri Lanka dates back to the 3rd century BC and there continues to be much public interest today. Almost 100 protected areas exist, comprising a significant percentage of the island's area. Sri Lanka has very advanced legal regulations for nature conservation, although practical implementation is hindered in some areas due to limited finance and capacity and to the continuing unresolved ethnic conflict in the north and east of the island.

Deni undertook a comprehensive inventory of the herpetofauna of the Muthurajawela marsh and Negombo lagoon, a coastal wetland north of Colombo. He successfully ran crocodile surveys using standard spotlight techniques and established the presence of a small population of *C. porosus* in this region. He also developed information on crocodiles for tourists visiting the area.

In addition, Deni compiled reports he assembled in the Wetlands Conservation Project on all the major accessible protected wetland areas in Sri Lanka, noting area and habitat, human impacts and the presence of crocodiles. While these are mostly non-quantitative, they represent the best recent information on the distribution of crocodiles in Sri Lanka and are a valuable addition to our current knowledge.

Deni reports on 21 wetland areas ranging from ancient artificial impoundments ('tanks') of a few hundred ha to the extensive oxbows ('villus') of the Mahaweli Ganga river comprising over 10,000 ha of protected wetlands and the Puttalam Lagoon estuary complex of 46,000 ha. Crocodiles are reported present in all but one of these wetlands, although greatly reduced, declining and rare in 4. These are all coastal lagoons subject to fishing and development and the species most affected is *C. porosus*. In contrast, several large reservoirs and significant protected wetlands still contain populations of crocodiles thought to be quite extensive (although counts are lacking). Prominent among these are Maduru Oya, Senanayake and Minneriya Reservoirs (*C. palustris*) and Yala National park (*C. porosus* and *C. palustris*).

Table: wetland areas and crocodiles of Sri Lanka.

Puttalam lagoon, Dutch Bay and Portugal bay	46,000ha	C. po	present declining
Mundel Lake	3,600 ha	C. po ?	rare
Chilaw estuary	1,800 ha	C. po	present declining
Annaiwilund tanks	188 ha	C. pa	present
Tabbowa Res.	591 ha	C. pa	present
Mi Oya River	110km	C. pa	present
Anuradhapura & Nachchaduwa tank	2,994 ha	C. pa	present depleted, rare
Minneriya Res.	2,550 ha	C. pa	common
Mahaweli Ganga villus	approx 10,000 ha	C. po & C. pa	present
Senayake Res.	7,790 ha	C. pa	abundant
Udawalawe Res.	3,400 ha	C.pa	numerous
Bundala N.P.	6,200 ha	C. po & C. pa	present, large adults
Wirawila Tisa Sanctuary	1,500 ha	C. pa	numerous
Kogalla lagoon	720 ha	C. po	extirpated
Kalametiya lag.	600 ha	C. po	present
Lunama lagoon.	200 ha	C. po	present
Palatupana lag.	160 ha	C. po	present.
Muthurajawela marsh and Negombo lagoon	3,100 ha	C. po	rare declining
Bentota River estuary	?ha.	C.po. & C. pal	present
Madura Oya Res.	4,000 ha	C. pal?	abundant
Yala N.P.	1,000 km^2	C. pal & C. po	present

The status of *C. porosus* is considerably worse than *C. palustris*. Crocodiles are not particularly popular among rural people in Sri Lanka and are subject in many areas to persecution, nest destruction and capture in fishing nets. Tourist developments in some coastal areas and fishing

activities are also responsible for declines. However, the two species remain widely distributed, and in a few large proteced areas, quite abundant. Special thanks are offered to the rangers of the Wildlife conservation Project and to to the local people. who were always kind and helpful, although my interest in crocodiles was sometimes puzzling to them. -- *From correspondence and a report* CROCODILES IN SRI LANKA. Deni Porej, *Jurija Gagarina 185/45, 11070, Belgrade, Yugoslavia.*

EUROPE

CITES SUCCESS CITED. In a document prepared by the Organization for Economic Cooperation and Development and distributed at the CITES meeting (Doc Inf. 10.7) the following passage appears (page 49), 'It should also be noted that CITES has had some clear success stories -- in particular the crocodilians. Thanks to the innovative measures of ranching, quotas etc. and detailed technical work on tagging hides from such sources, illegal trade in the larger alligator and crocodilian skins has all but disappeared (although problems still remain in the smaller caiman hides). Today 70% of crocodilians have escaped the threat of extinction and trade in crocodilian skins is expected to grow from 1.3 million units in 1993 to more than 2 million by the year 2,000.' -- D. Jelden, *Bundesampt fur Naturschutz, Konstantin Strasse 110, D-53179, Bonn, Germany.*

NEW CITES WILDLIFE TRADE LEGISLATION IN THE EUROPEAN UNION. In order to take account of the changed situation with regard to the common market, the abolishment of border controls between member states but also because of continuous international criticism over the last two years, the European Union (EU) has adopted new wildlife trade regulations. These two regulations (Council Regulation (EC) No 338/97 and Commission Regulation (EC) No 939/37) came into effect on 1 June 1997. Both regulations replace the respective former regulations in force since 1984. In principle, the new regulations enforce CITES in a uniform manner in all member states of the EU. However, the two regulations also provide for other additional conservation regulations.

Through these new regulations the import and export, as well as the commercial use of specimens listed in the CITES appendices are now uniformly regulated within the EU. The new regulation lists protected species in the European Community quite differently from CITES using Four Annexes (not three CITES Appendices) as follows:

Annex A. Includes all CITES Appendix I species and also lists some CITES Appendix II species (although no crocodilians) and some CITES Appendix III species, for which the EU has adopted stricter domestic measures. Annex A. also includes some non-CITES species.

Annex B. Includes all other CITES Appendix II species, some CITES Appendix III species and some non-CITES species.

Annex C. Includes all other CITES Appendix III species.

Annex D. Includes some CITES Appendix III species for which the EU holds a reservation but mostly includes non-CITES species.

For any species listed in Annex C or D only a so called 'import notification' has to be issued at the port of entry through EU Customs. For species listed in Annexes A or B, an EU import permit is required. Such an import permit has to be applied for by the European importer prior to any shipment at his or her responsible CITES Management Authority. All CITES Appendix I crocodilians are listed on Annex A and all CITES Appendix II species (and populations) as well as all other Crocodylia are listed in Annex B of the new regulations

Trade in crocodiles, whether alive, or as parts and derivatives like skins, meat or manufactured products are subject to the following new provisions:

Annex A. species. In the case of an import into the EU a CITES export permit and an EU import permit are required. In addition, linked to the issuance of the import permit is the official prohibition of any commercial use of specimens taken from the wild. For instance the commercial sale of a wild caught *Melanosuchus* being imported for a bona fide government zoo by an animal trader, or the commercial exhibition of a Nile crocodile hunting trophy from Namibia at a hunters outfitters trade fair are prohibited!

Annex B. species. Again, an export permit or re-export certificate from the country of origin and an EU import permit are required. However, once an Annex B species is imported into the EU it can be freely traded between EU member states without additional CITES documentation.

A new feature of the EU regulations is that most of the relevant 'Resolutions of the Conference of the Parties to CITES' are now legally implemented in all EU states and have to be uniformly applied in the Community. In this context the following examples of crocodilian trade are of significance:

EU member states can only issue import permits and re-export certificates for raw, tanned or finished crocodilian skins and flanks if these products are tagged and the tag numbers are included on the CITES documents (implementation of Res. Conf. 9.22 Universal tagging), and

Where exporting countries have established annual export quotas, EU member states can only accept export permits if the total annual quota and the previously exported quantity from that quota appears on the document (implementation of Res. Conf. 9.3, Permits and Certificates)

Another important change to previous EU provisions are those relating to personal effects, but not including live animals. Since June 1997, for crocodilian products manufactured of species included in Annex B., (i.e. all CITES Appendix II species) an EU import permit is not required where the original CITES export or re-export document is presented together with a copy of it at the port of Customs entry. For example this procedure would apply to a trophy hunter who had shot a Nile crocodile in Tanzania (CITES Appendix II = EU Annex B) and would only have to show his Tanzanian CITES export permit. In addition, personal effects and household goods of non-EU residents visiting an EU member state do not require permits. -- D. Jelden, *Bundesampt fur Naturschutz, Konstantin Strasse 110, D-53179, Bonn, Germany.*

LATIN AMERICA

Ecuador

BLACK CAIMAN ATTACK. There has been considerable commentary concerning crocodilian nest and hatchling defense display and the extent that crocodilians carry out aggressive behavior. It is generally agreed that the range of such behavior varies greatly among individuals within a species and that attendant females of some species are more aggressive than others. This report records an expedition led by Pablo Evans to collect *Melanosuchus niger* hatchlings at Imuya Lagoon (Lagartococha) in the Rio Napo region of eastern Ecuador and an attack by an attendant female.

The expedition consisted of two nights collecting at Imuya during 26-27 February 1997. Evans and his crew were catching hatchlings by hand, grabbing them from a 7 m long canoe powered by a 'Go Devil' outboard motor. This is an area where motors are almost never used. On the first night (the 26th) they found a pod of hatchlings and collected about four of them when a 'large' animal, which they assumed was the attendant female, appeared puffing up and hissing. When approached by the canoe she backed into the vegetation and disappeared. The crew continued to collect several more hatchlings before moving on.

The following night they returned with four people in the canoe (Pablo in front) to the same spot. Since the evening had not become completely dark, they moved on but returned about 9 p.m. and spent nearly an hour picking up ten more hatchlings which were placed in an open cooler. The hatchlings in the cooler vocalized continuously (probably emitting a hatchling distress call). Another hatchling was sighted and captured by a person sitting behind Pablo. As Pablo stood with bent knees and partially turned to observe the capture, an adult caiman came out of the water to a height of approximately one meter directly behind him. She grabbed part of the raincoat he was wearing and his left buttock and snatched him backwards directly out of the canoe. The others in the canoe all witnessed the attack. Pablo was pulled underwater about 6 feet by his estimation before being released. When he surfaced he was about 4 m from the canoe. According to the other three observers, as Pablo made a mad swim for the canoe, the caiman surfaced behind him facing away from the canoe. As she turned, her tail pushed Pablo toward the canoe and underwater. When he resurfaced she was about one meter to his right. One of Pablo's companions in the canoe struck the caiman a sound blow to the head with a small paddle. She submerged as Pablo scrambled back into the canoe and they saw her no more.

Other than being justifiably unnerved, Pablo received one puncture wound and some broken skin accompanied by a large bruise in the shape of a caiman's lower jaw on his left buttock. Fortunately one member of the expedition was a certified nurse who cleaned the wounds and administered oral antibiotics and no infection

occurred. -- *As told by* Pablo Evans *to* Phil Wilkinson, *Meeting Street, Georgetown, SC, USA.* [We attempted to obtain documentary photographs of this important observation during the Villahermosa Regional Meeting, but despite the application (internal) of large quantities of Rum drinks, Pablo declined to show us his scar! -- *Eds.]*

Colombia

COLOMBIA DECLARES ORINOCO CROCODILE A NATIONAL ENDANGERED SPECIES. In a move designed to improve conservation action and stimulate local authorities, The Ministry of Environment declared in resolution 21 July 1997, No. 0676 that *Crocodylus intermedius* has the status of an endangered species in Colombia. This is the first Colombian species to be officially declared.

The importance of this administrative action is due to the implications that it has. The main objectives of the resolution are:

1. The Instituto para la Investigación de los Recursos Biológicos "Alexander von Humbolt" with the National University will prepare the "National Plan for *C. intermedius* Conservation". The plan must contain continuity between other surveys and monitoring and also habitat conservation activities.

2. Also the plan must recognize sustainable use and protected areas as conservation strategies.

3. The resolution ordered the Regional Corporations, with administrative responsibility in the natural area of occurrence, to adopt or implement immediately actions in order to diminish or alleviate the factors that are putting pressure on the known populations

4. The same order was given to the Natural National Parks System.

5. The resolution recognizes the importance of working together with the Venezuelan authorities and include the issue in the Comisión de Vecindad Colombia - Venezuela agenda.

6. With the resolution, the Ministry ordered the Colombian Administrative and Scientific CITES Authorities to look for economical support for the plan with CITES and other international and national institutions, and for the scientific and technical advice of the CSG.

Please be aware that the declaration of *C. intermedius* as endangered species in Colombia is designed to develop political and social reactions that help us to work in a united national plan for the effective conservation of this species. A copy of the resolution has been forwarded to CSG and your support for this move is appreciated. -- Miguel Rodriguez, Div. Recursos Naturales, Pizano S.A., Apdo. Aereo 6927, Santa Fe de Bogota, Colombia.

Cuba

ADDITIONAL *C. RHOMBIFER* SENT TO VIETNAM. News reports submitted by several CSG members around the world were confirmed by an inquiry to Cuban colleagues this month. In August this year 150 live Cuban crocodiles were sent by Cuba to Vietnam. This action was reportedly undertaken at a high level within the Cuban Ministry of Industrial Fisheries in response to a reciprocal agreement with the government of Vietnam. The transfer was conducted with correct CITES permits issued by the Cuban Management Authority, but apparently without prior consultation with Cuban crocodile researchers.

The problem of previous transfers of *C. rhombifer* to Vietnam in 1984 was discussed with Cuban researchers on several occasions since the initial CITES visit to Cuba in 1991. We had hoped that the potentially detrimental effects of exotic transfers, and this transfer in particular, were fully understood and further exports unlikely. Unfortunately, this perspective does not appear to have been passed up the hierarchy to higher levels of government.

The concerns about exporting live crocodiles into the range of other species involve both the potential for introducing invasive exotics which could disrupt local ecosystems and threaten endemic crocodilians and the complex, but uniformly negative, effects on sustainable use programs for native crocodilians. A letter expressing these concerns and recommending wider consultation before any additional exports has been sent to the Cuban Ministry of Industrial Fisheries and additional dialogue requested. -- Perran Ross, *Executive Officer.*

Venezuela

ORINOCO CROCODILE BREEDING PROGRAM. Agropecuaria Puerto Miranda C.A., a private cattle ranch in the Venezuelan llanos just north of San Fernando de Apure, established a *C. intermedius* captive breeding facility in 1990.

Seven years later it has become the largest Orinoco crocodile breeding program in Venezuela holding 19 full grown adults.

The number of hatchlings produced through 1996 had been disappointing. Substantial improvements were made in late 1996 to the incubation building and the incubator and we are happy to report that for 1997 Agropecuaria Puerto Miranda collected a little over three hundred eggs from eight nests and 190 hatchlings are alive and well at our facility. -- Manuel Dennis *Agropecuaria Puerto Miranda C.A., Venezuela <j0806450-1@cantv.net>.*

NORTH AMERICA

Mexico

FIRST AND SECOND REUNION FOR THE CONSERVATION OF *CROCODYLUS ACUTUS* IN JALISCO, MEXICO. On March 7, the Foundation AMARSI, in coordination with local government and NGO's, held the 1st Reunion for Investigation, and Conservation of the *C. acutus* in Puerto Vallarta, Jalisco

This meeting was attended by 43 investigators, subdelegates and heads of the offices of the Jalisco SEMARNAP, Ecology Department from municipality of Puerto Vallarta, fishermen, people who live in areas with human-crocodile problems, members of "La Iguana" ecology group, students from the CUC of the University of Guadalajara and Biologist José Juan Pérez, coordinator of the National Project for the Conservation of Crocodiles in Mexico (SEMARNAP-INE).

Reports were presented about Avifauna in "El Salado" estuary; Characteristics of the Mangrove in "El Salado" estuary and the Focus of the Meta-populations in the Conservation of *C. acutus* by the University of Guadalajara; Program of Attention to Tidelands in Jalisco by SEMARNAP Jalisco; Status, Problems and Conservation of *C. acutus;* and Advances in the Researches for Conservation of *C. acutus* in Jalisco by members of the Foundation AMARSI. The need for the conservation of the species and its habitat was emphasized. With the help of a questionnaire the problems of the species were analyzed with different perspectives of the groups present.

The most important motive of the meeting was to present the "Plan for the Conservation of American Crocodile *Crocodylus acutus* Cuvier (CROCODYLIDAE) in the State of Jalisco, Mexico" which was developed by the Foundation AMARSI which has, as its main objective to contribute to the development of the National Project for Crocodiles Conservation in Mexico.

The plan was elaborated taking into account the problems, the information that has been published on the *C. acutus* in Jalisco and the field experience. The plan is based on simple and basic actions, adapted to the long and short term objectives and specific programs.

At the end of the meeting it was agreed to hold another meeting on April 12 at the Estuary of "Majahuas" (on the coast of Jalisco State) proposed by fishermen of the location. This meeting was achieved by the Foundation AMARSI in coordination with the fishermen, group of "Cooperativa Roca Negra" of Majahuas Estuary.

Twenty-five people attended the second meeting, in which the main subjects were the problems of the cooperatives and people who are in direct contact with crocodiles.

In the conclusions the participating groups undertook a variety of actions to assist crocodile conservation.

At the end of the meeting a dinner was offered with which the fishermen obtain some small support on part of all the participants. After dinner a visit was made to a part of the tideland where two large croc's are found - one "El mudo", of almost 5 meters in length and the other "Zamorita", of approximately 3.5 meters in length. Both are imprinted so a fisherman called them, hitting the water with a branch and calling them by their names to feed them. The fisherman fed them at a safe distance (about 1.5 meters distance). At night, with the people who had stayed to camp out, we took a trip through the tideland to observe croc's.

Foundation AMARSI is a multidisciplinary working group for investigation for conservation. The group is based on the main points: investigation, conservation (including sustainable exploitation) and the social point of view. The Foundation is seeking financial support and equipment to carry out the project. Persons, groups and institutions that would like to give any donation can communicate with -- Paulino Ponce, *Fundación AMARSI A.C., Av. López Mateos Sur # 1836 Col. Chapalita, Guadalajara, Jalisco. C. P. 45040 MEXICO. Apartado Postal 5-515. Fax: (3) 617 8938.*

Biol. Sarah Huerta and participants of the Meeting at Estero de Majahuas, Jalisco, Mexico, examine 'Zamorita' a large wild *C. acutus* tolerated by local fishermen and habituated to humans, P. Ponce photo.

Biologist Carlos Cervantes and Dr. Luis Sigler with 'Don Che' a 2.6 m wild *C. moreletii*, L. Sigler photo.

LARGE MORELETII IN CHIAPAS. Investigators of the Miguel Alvarez del Toro Zoo of the Natural History Institute, Chiapas, captured a Morelet's crocodile of 2.6 m total length at Rancho Alejandria in Juarez Municipality in the north of Chiapas. The captured crocodile, nicknamed 'Don Ché', is estimated to be more than 25 years old, and was removed to the ZOOMAT facility in Tuxtla Gutierrez for inclusion in the breeding and exhibit stock there. Finding a crocodile of this size in the wild is uncommon because of the pressure of predators, particularly humans, in the past.

This capture is significant because 28 years ago, professor Alvarez del Toro began a recuperation project for Morelet's crocodile at this location, when there were not even juveniles of one meter present. Crocodiles, including some adults, were introduced to this location from surrounding areas. Today, three decades later, the crocodiles have been successfully recuperated and are found in lagoons, swamps, reservoirs and rivers throughout the region. Hatchlings are found every year indicating successful reproduction. These observations indicate the valuable conservation work undertaken by Professor Alvarez del Toro and the Guichard Romero family who removed the threat of extinction from these crocodiles in Chiapas. -- *from ES! Diario Popular, Tuxtla Gutierrez, March 1997, submitted by* Louis Sigler, *Inst. de Historia Natural, Aptdo. Postal No. 6., Tuxtla Gutierrez, Chiapas CP 29000, Mexico.*

CROCODILES OF NAYARIT. The State of Nayarit lies on Mexico's Central Pacific Coast. In 1992 an International Reserve for Coastal Systems was declared with an area of 220,000 ha (including a small portion of the adjacent State, Sinaloa). The area consists of an immense network of coastal lagoons, mangroves and estuaries dominated by Red mangrove (*Rhizophora mangle*) in the larger rivers and entries and Black mangrove (*Avicennia germinans*) in the lagoons. The area is a major site for breeding and migration of aquatic birds.

Crocodylus acutus is found in this area. They are found throughout Nayarit in the National Coastal Zone Reserve and also in other areas. The area near San Blas is very important for reproduction of crocodiles, but little by little, the area is being reduced by agricultural and aquacultural activities. Because of this the communities are being displaced to areas with less pressure.

In one area called La Tovara- Estero San Christobal- Los Negros, there has been most activity by a combined effort of Federal, State and Community organizations to protect and rescue young crocodiles and nests which are found to be threatened. Another locality no less important is the reservoir of the Aguamilpa Dam where, prior to the dam construction, the distribution of crocodiles was much wider. This has caused displacement of the animals to adjacent habitats, particularly the River Huaynamota, where there is an area of about 800 ha.

The area of Platanitos-Jolotemba-Potrerillos near San Blas has about 600 ha where there is another important crocodile population, but also, like the rest of the San Blas region, very heavy pressure from agriculture. There are other smaller areas but which are still significant for crocodile survival. It is necessary to continue the crocodile protection programs and to develop a program of integrated resource use involving sustainable use, regeneration of the crocodile populations and the involvement of local communities. -- Manuel Muñiz Canales, *Secretario de SECCOM, Tapachula, Chiapas* & Ing. J. Luis Aragon Morales, *Delegado Federal de la SEMARNAP, Nayarit, Mexico.*

USA

UNUSUAL REPRODUCTIVE PATTERN IN ALLIGATORS. During 1992 at Brazos Bend State Park, Texas, USA, we observed some unusual phenomena relating to American alligator reproduction. There were two peaks of reproductive behaviors in 1992 and nesting coincided with the second one. Courtship and breeding first peaked on 11 May. The first bellow signaling the onset of mating had been heard six weeks earlier. All mating behavior declined after mid-May and the first nest was found 17 June. On 18 June there was an intense, sudden onset of bellowing, grouping behavior (especially in pairs) and possible copulation. This second peak lasted through 21 June and abruptly ended.

A total of 21 nests were discovered at Brazos Bend during 1992. Four were devoid of eggs though they physically resembled nests containing eggs. Fully formed nests without eggs are different from 'False nests' which are unfinished

and often found near a completed nest with eggs. Fully formed nests without eggs have not been previously reported although 15 such nests were seen at Lake George, Florida, in 1990 (F. Percival pers. comm.). Although the proximate cause of the second peak of courting and why females constructed nests without eggs remains elusive, we feel that unusual flooding in 1992 could be related to the phenomena. There was flooding from 31 December 1991 to 14 March 1992 with water levels 1.2 -1.5 m above normal resulting in the formation of one large body of water over much of the Park. -- *Extracted and summarized from* Hayes-Odum , L. T. *et al. 1996. Herpetological Review 27(4):199-200.*

EVERGLADES ALLIGATORS THIN. Alligators in Everglades National Park are so skinny that biologists are worried about their future. Alligators there are living on a diet of mostly salamanders, snakes and snails. They are taking 20 years to reach maturity and reach maximum sizes of only 200 lb. (90 kg). Seventy miles north on Lake Okeechobee alligators start reproduction at five years and reach much larger sizes.

Experts say the problem could be extreme water fluctuations caused by the massive flood control system built over the last half century which drained half the Everglades and diverts water away from the other half. Mercury pollution may also be involved. Another postulated cause is the climate, which may be too warm for these temperate crocodilians.

Dr. Brady Barr, now a post doc at Miami University, is extending his doctoral thesis work on alligator diets to investigate this problem, analyzing over 1,000 alligator stomachs. Alligators are considered a 'keystone' species in the Everglades, creating habitat for other species and refuges at times of low water. -- *from MIAMI HERALD 4 June 1997 submitted by* Brady Barr, *Dept. of Biology, University of Miami, P.O. Box 249118, Coral Gables, FL 33124, USA.*

CROCODILE DANDY: DETROITERS DEVELOP A FETISH FOR GATORS.. The hottest item on the streets of the motor city these days doesn't have four wheels. "Gators", Flashy alligator-skin shoes, are cropping up everywhere, from the night club to the law office to the pulpit. They are hard to miss: just look for the screaming electric blues, pastel pinks, or any of 27 colors in all.

Until recently, garish gators mainly were a fashion hallmark of entertainers and street hustlers. But the shoes' bad-boy image is waning as sports stars and professionals lace up. It also helps that the American alligator was removed from the Endangered Species list. Detroiters, now far past the excesses of the $140 Air Jordan and the $340 Brooks Brothers wingtip, have embraced the reptilian footwear, which can run as much as $3,000 a pair. Rodney "Rock" Smith, a 35-year-old clothing-store manager, owns about 20 pairs, which cost him between $400 and $1,200 each. "I could have a brand new car paid up," Mr. Smith says. "But inexpensive shoes just don't meet my standards." On a recent evening at a downtown nightclub, he sports a lime-green pair that cost him $1,050. "A woman sees a man with gators and knows he's got something going on," he says.

Cecil Fielder, a former Detroit Tigers baseball slugger, now with the New York Yankees, says he has owned every gator color but pink and boasts that there are a couple hundred pairs in his closet. Mr. Fielder bought his first gators in the late 1980's, when he was a rookie to both baseball and fashion. Like many other gator groupies, Mr. Fielder says he caught the bug for high-style admiring the dapper, sometimes-shady street characters in his native Los Angeles. Mr. Fielder continues to buy his shoes, by phone, from Detroit's biggest gator retailer. The 18-year-old store is the largest U.S. seller of top-of-the-line, Italian Mauri Gators, which are made from Louisiana alligator skin and sold from London to Moscow to Tokyo. There are close to 150 color-and-style combinations, ranging in price from $450 for an alligator-and-leather hybrid to $2,000 for a midcalf alligator boot. About 90 percent of the store's Mauri shoes are exclusively designed for the store. "Italians," says City Slicker co-owner Pepper Martin, "have the finest Craftsmen."

There are plenty of consumers with more traditional tastes who favor gators: attorney Thomas Marshall won't wear any other dress shoes. Remembering his childhood in Norfolk, Va., which was, "a little toward the poor side," he eyed a pair for months before buying them. Now he owns 10 pairs in brown and black .

Why are gators so popular in Motown? "We are a stylish people," explains Wayne T. Jackson, a local nondenominational bishop who owns one of the city's popular gator outlets. Bishop Jackson, who stomped and tapped his flashy two-toned gators to emphasize his points in a recent sermon, acknowledges that his shoes help him grab the

attention of young people. On a recent Sunday morning, the Rev. Jim Holley, donning a Versace tie and black gators with a gold-colored Mauri emblem, seizes the pulpit and uses his fancy dress to make a spiritual statement. "I've graduated from the university of adversity!" he proclaims. He says his gators speak volumes about the goodness of god. "They represent me, the statement that I want to make," he says. "I have arrived." -- Corey Takahashi, *The Wall Street Journal-Detroit. Submitted by* George H. Burgess *Florida Museum of Natural History, University of Florida, Gainesville, FL 32611 USA.*

RECORD FLORIDA ALLIGATOR. The longest alligator recorded in Florida, a reptile more than 14 feet long, was captured in Lake Monroe on 30 September 1997. The large alligator was captured by licensed state trapper Mike Taylor after a local resident reported concern that it was dangerous. Florida's nuisance alligator control program responds to public concerns about alligators close to people and receives over 15,000 calls annually. Each year about 5,000 alligators are legally killed in this program.

The alligator was captured after taking a beef lung bait and the hooked animal was secured several hours later. The alligator was 14 feet and 5/8th inch long beating the previous record of 14 feet and 1/16th inch (both approx. 4.28 m). Unfortunately, attempts to find a buyer for the live animal were unsuccessful and it was dispatched, as required by Florida nuisance alligator regulations. The heaviest alligator taken in Florida was a 13 foot 11 inch specimen which weighed 1,043 lb. (473 kg) -- *from news reports,* Perran Ross *Executive Officer, CSG.*

RESEARCH

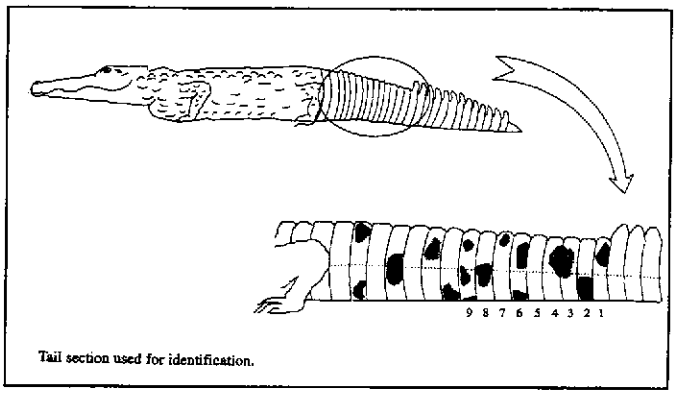
GROWTH RATES OF ALLIGATORS IN SOUTH CAROLINA. Growth rates were thought to be slower in the more northern portion of the American alligators' range, which would have important implications on life-history traits such as age and size of sexual maturity. We used capture-recapture data from 1972 to 1993 to determine growth rates of alligators in South Carolina (USA). We marked 1,967 alligators by toeclipping and notching dorsal scutes and 140 were recaptured and used for growth curve analysis. The average interval between capture and recapture was 738 grow days.

The fit of the von Bertanlaffy growth model to our data was satisfactory and use of the Richards model provided little gain in fit to our data and no difference in the estimation of biological parameters. Males grew faster (20.2 cm/yr., 0-6 years age; 7.22 cm/yr., 6 years to asymptote) than females (18.0 cm/yr. 0-6 years age and 6.34 cm/yr. 6 years age to asymptote) and reached a larger mean asymptotic size (Males= 3.79m, Females = 2.78 m). On average it took 34 years for males and 24 years for females to reach the asymptotic size. South Carolina alligators reached sexual maturity at an older age and a larger body size than alligators elsewhere. Delayed breeding at larger size may be related more to social dominance than to growth rates. Understanding age and size relations are essential if alligators are to be managed effectively. -- *from GROWTH RATES OF AMERICAN ALLIGATORS IN COASTAL SOUTH CAROLINA. J. Wildl. Manage. 61(2):397-402 by* Phil Wilkinson, *SC Dept. Natural Resources, 420 Dirleton Rd, Georgetown, SC 29440 USA &* Walter Rhodes, *SC Dept. Natural Resources, P.O. Drawer 190, Bonneau, SC 29431 USA.*

IDENTIFICATION OF CROCODILES USING NATURAL MARKS. The tail marks (pigment) of 190 Nile crocodiles were documented and processed into codes. The codes were based upon the number of pigmented patches of black and gray occurring on each of nine tail segments counting forward from the most posterior double caudal crest scutes. These result in a unique code for each side of the tail of each animal. Codes were compiled for 267 'sides' of 190 crocodiles in the Mvuleni crocodile farm and a section of the Oliphants river in Kruger National Park. Computer analysis of the codes indicate that 95% of crocodiles are unique and different if no account of the color of the pigment patches is taken. If black and gray pigment patches are scored separately, then 100% of coded sides can be distinguished. Left and right sides of each crocodile's tail code differently and each crocodile appears to have a unique pattern of natural marks.

Some difficulty is found in nature as only one side of each crocodile's tail is usually seen. However, the technique was used with great success with breeding females. At known nest localities both sides of attending females tails

could be identified over time. The biggest advantages are that the identifying marks can be observed without catching the animal and that the marks cannot be lost. -- *summarized from.* IDENTIFICATION OF NILE CROCODILES, CROCODYLUS NILOTICUS, BY THE USE OF NATURAL TAIL MARKS. *Koedoe (South Africa) 1996, Vol 39/1:113-115 by* D. G . J. Swanepoel, *National Parks Board, Private Bag X402, Skukuza, 1350, Republic of South Africa.*



Tail section used for identification.

TRADE

COLOMBIA WITHDRAWS CAIMAN SIZE LIMIT. By notification No. 978, 2 June 1997, Colombia modified its regulations concerning sizes of caiman skins exported. Since 1993, Colombia has restricted the trade in *Caiman crocodilus fuscus* and *Caiman crocodilus crocodilus* to skins of a maximum of 1.20 cm in length. In 1994, the assessment, by the CITES Secretariat mission, of the captive-breeding system in Colombia was very positive. It suggested a series of recommendations that are being implemented by the Management Authority of Colombia, notably the adoption of a uniform system of marking for skins and manufactured products, and improvement of the knowledge of the status of the crocodilians occurring in Colombia, to allow establishment of more effective management

The conditions of the market for skins as well as that for meat and other products have led the producers of these two sub-species to decide to let the animals grow to sizes bigger than 1.20 cm, to obtain a better profit. Several of the operations dedicated to the captive-breeding of these sub-species have some specimens that currently exceed this size.

Taking into account that this issue was discussed during the CITES Secretariat mission to Colombia in December 1996, the Colombian Management Authority has decided to withdraw, from 1 March 1997, the trade restriction that it had established on maximum size of specimens that may be exported. From this date, it will allow international trade in skins of animals of the sub-species *Caiman crocodilus fuscus* and *Caiman crocodilus crocodilus* produced in the captive-breeding program that are longer than 1.20 cm.

The Management Authority of Colombia has pointed out that the current stock of skins that are longer than 1.20 cm is approximately 1,500 skins of *Caiman crocodilus crocodilus* and 58,500 of *Caiman crocodilus fuscus*. When these have been sold, the Management Authority of Colombia will evaluate the effects of the above decision to determine whether or not it should be maintained. -- *From CITES notification 978, CITES Secretariat, P.O. Box 456, CH-1219 Chatelaine, Geneva, Switzerland.*

REGISTERED CROCODILE CAPTIVE BREEDING OPERATIONS. CITES notifications 940, 4 September 1996 and Not. 981, 2 June 1997, list the following 23 facilities which have been registered as operations breeding Appendix I crocodilians in captivity.

Anhui Research Center of Chinese Alligator Reproduction (ARRCAR), *Alligator sinensis.*

Zoocriadero de la Cienaga Zapata, Cuba, *C. rhombifer.*

Cocodrilos Mexicanos S.A. Mexico, *C. moreletii.*

Societe Reptel, Madagascar, *C. niloticus.*

Bioculture Mtuis. Ltd. Mauritius, *C. niloticus.*

Crocodile Ranch, Otjiwarongo, Namibia, *C. niloticus.*

Sandakan Crocodile Farm, Sabah, Malaysia, *C. porosus.*

Jong's Crocodile Farm, Sarawak, Malaysia, *C. porosus* (also holds *Tomistoma schelegelii*).

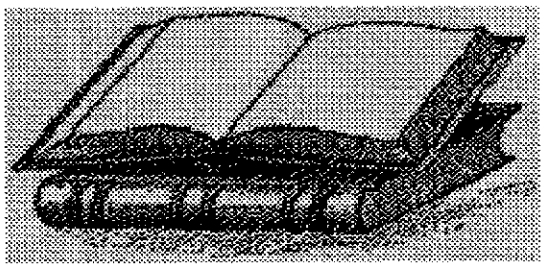
Taman Buaya Langkawi SDN BHD, Darulaman, Malaysia, *C. porosus.*

Crocodile Farming Institute, Palawan, Philippines. *C. porosus* (also holds *C. mindorensis*).

Tan Moh Hong Reptile Skin and Crocodile farm, Singapore, *C. porosus*.
Long Kuan Hung Pte. Ltd., Singapore, *C. porosus*.
Jurong Crocodile Paradise, Singapore, *C. porosus*.
Singapore Crocodilarium Pte. Ltd., Singapore, *C. porosus, C. siamensis, C. noveaguineae* and hybrids of these.
Samutprakan Crocodile Farm and Zoo, Thailand *C. porosus, C. siamensis* and hybrids (also holds other species).
Sriracha Farm, Thailand, *C. porosus, C. siamensis*.
Samphran Crocodile Farm, Thailand, *C. porosus, C. siamensis*.
Prasit Farm, Thailand, *C. porosus, C. siamensis*.
Wat Singh Crocodile Farm, Thailand, *C. siamensis*.
Chonburi Crocodile Farm, Thailand, *C. siamensis*.
Crocodile Farm Pattaya Ltd., Thailand, *C.siamensis*.
Kumpanat Farm, Ban Paew, Thailand, *C. siamensis*).
JR Farm, Rajaburi Province, Thailand, (*C. siamensis*.

[The recent decision of the CITES Parties in Harare adds San Pedro Sula Crocodile Farm, Honduras (*C. acutus*), to this list and a notification is forthcoming. *–Eds.*] -- *from CITES notifications 940 981, WCMC web pages <ftp://ftp.wcmc.org.uk/services/species/trade/cites > Cambridge UK.*

REVIEW



ALLIGATORS, PREHISTORIC PRESENCE IN THE AMERICAN LANDSCAPE. by Martha A. Strawn, with essays by Le Roy Overstreet, Jane Gibson and J. Whitfield Gibbons, Johns Hopkins University Press, Baltimore:227 p.(1997). Dinosaurs are 'in' with the American public, and if dinosaurs are in can crocodilians be far behind? Not if this beautiful and carefully produced book has anything to do with it. It presents a thoughtful and sensitive treatment of the beauty and importance of the integrity of wild wetland habitats and their most noted 'flagship' species, the alligator.

This book is well suited to the task of serving as a vehicle of outreach to a lay public hungering for information about big, spectacular (and potentially dangerous) reptiles, especially those in their midst. It is very attractive, inviting passers-by to thumb through the superb photographs. The book's strength in this area comes from the principle author's background as a photographer and professor of art at the University of North Carolina at Charlotte. The book grew from the author's efforts directing a group of students photographing the controlled alligator hunts in Florida in 1985 and her later work with the Florida Game and Fresh Water Fish Commission creating an education package. The photographs in this book, however, are not just educational or informational; they are art in every sense of the word.

The photographic body of the work is structured in sequences, each of which is based on a central concept or feeling and supported by a series of poems, song lyrics, vignettes and essays. Much of the text is focused on the three essays: "Living in Wetlands" by Jane Gibson, a conservation anthropologist, describes the history, economics and impact of the alligator meat and skin industry upon "Shellcracker Haven", a pseudonym for a small Florida fishing town in the Oklawaha River watershed. No one has to be told that Le Roy Overstreet, the 70 year old author of the second essay "Memories of gator hunts", is well experienced in his subject. Although much of this information may be 'old hat' to crocodilian field biologists, it is still an enjoyable read-particularly when supplemented with the incredible photographs of alligator hunting and processing? Just wait until you see the photo of several dozen dismembered alligator eyeballs looking up at you from an ice chest! But then I learned that University of Florida researchers are working on the molecular biology of the eyeballs rhodopsin pigment. The link between the striking photograph and interesting information works well. J. Whitfield Gibbons' essay, "Living with alligators," adds a degree of scientific authority and credibility to the book's call for sustainability as a paradigm for managing alligator populations and their wetland habitats. Gibbons' essay stands as one of the book's high points and further supports his growing reputation as the heir to Aldo Leopold and one of today's leading standard

bearers for a sustainable and defensible American land ethic.

The only downside I can see in this book is the potentially inflammatory impact it could have in galvanizing the animal rights community into action against the alligator industry. There are some quite vivid and pull-no-punches photographs taken at alligator slaughter and processing facilities, although these are clearly done as an expression of artistic creativity and I would strongly defend the author's right to include them. I would only suggest that, as this book becomes widely available, the industry may want to 'brace' itself accordingly.

One of my few annoyances with the book was the lack of condensed captions adjacent to each photograph. In its present format one has to continually turn to a concluding section of photo credits to learn where, what or who is depicted. There are a few captions, but the book would benefit from many more. The book uses the literary style of annotated footnotes for its literature cited. I did not find anything new from the open scientific literature, but there were quite a few references to gray literature and government documents that I was glad o learn about.

In summary, I would compare this book favorably to a series of recent rather spectacular publications such as "Gator" by L. T. Mahoney, Ten Speed Press, Berkley CA 91991) and "A Social History of the American Alligator" by L. Vaughn, Glasgow, St. Martins Press, New York (1991). This book by Strawn clearly outclasses most of the others in the quality of its creativity and art. It even begins to fall into the same class as "Eyelids of the Morning", which places it in very good company indeed. -- I. Lehr Brisbin Jr., *Savannah River Ecology Laboratory, P.O. Drawer E, Aiken, SC 29802, USA.*

MEETINGS

14TH WORKING MEETING OF THE CROCODILE SPECIALIST GROUP, 14 -17 JULY, SINGAPORE INTERNATIONAL CONFERENCE AND EXHIBITION CENTER, SINGAPORE. PRELIMINARY REGISTRATION FORM WITH THIS NEWSLETTER. RETURN THE FORM TO RECEIVE FULL REGISTRATION, HOTEL AND GENERAL INFORMATION. Early registration is recommended to allow the organisers to secure the necessary facilities for the meeting. The Meeting Hosts, Singapore Reptile Skin Trade Association, have established the venue and a conference organizing team and arrangements for facilities and field trips are underway. Meeting organisation is in the hands of Foreword Communications and regular contact between them and the Executive officer has been established. A Program Drafting Committee has been established and is considering the following topics for presentation by keynote speakers and discussion by panels and audience.

- Critically endangered crocodiles of the Asian region: an evaluation of status and discussion of conservation needs and priorities: The Chinese alligator, The Philippine crocodile, The false gharial.
- Developments in crocodile production and trade in S.E. Asia; issues and directions: Thailand, Indonesia, Vietnam, Cambodia, China.
- IUCN status evaluation criteria; do they work for crocodilians?
- Effectiveness of Captive Breeding as a conservation tool.
- Effectiveness of Reintroduction as a Conservation tool; examples, techniques and cautions.
- Models of crocodilian sustainable use; Ranching, farming and wild harvest.
- Transfer of crocodilians outside their range for commercial purposes; examples and analysis of the problems.
- World Skin Markets and Crocodilian Conservation: the interaction of economic and production factors.
- Molecular Genetics and pollution studies.

It is the current intention of the Program Committee to invite speakers on these topics, however, members interested in presenting on these topics should communicate with the Executive Officer to request inclusion in the program. For program information contact the Executive Officer. For Registration information contact -- Foreword Communications, *420 North bridge Road, #06-29 North Bridge Center, Singapore 188727, Fax 65 338 5917, 65 339 4708, E-mail<foreword@singnet.com.sg>.*

CROCODILIAN BIOLOGY AND EVOLUTION, BRISBANE. A conference sponsored by the Department of Zoology at The University of Queensland, 8-10 July 1998. The Crocodilian

Biology and Evolution conference will bring together researchers from the diverse fields of crocodilian research. For full information, Registration and Conference details see the web site at <http://www.zoology.uq.edu.au/Crocodile/index.html>. The conference and the published proceedings will provide an up-to-date review of current research and knowledge. The conference will comprise several symposia. There will be no concurrent sessions. Spoken papers and posters will deal with scientific research rather than management and husbandry, which will be a focus of the Crocodile Specialist Group meeting in Singapore (13 July - 17 July 1998).

To facilitate rapid publication of the proceedings, we ask authors to bring their manuscripts with them. Formatting details are available on this web site. The Department of Zoology is in pleasant surroundings on The University of Queensland's beautiful campus in a bend of the Brisbane River. Weather in July is usually sunny, dry and mild. -- Crocodile Conference, *Department of Zoology, The University of Queensland, Brisbane Qld Australia. tel: + 61 7 3365 2471, fax: + 61 7 3365 1655, email:< crocodile@zoology.uq.edu.au>.*

WORKSHOP ON CROCODILIAN MANAGEMENT AND CONSERVATION. 4 December 1997, Santa Cruz, Bolivia. The Workshop planned for the 3rd International Conference on Wildlife Management in Amazonia 3-7 December 1997 will be opened by a keynote address by F. Wayne King titled, Is sustainable use of wildlife possible if it is dependent on an external market? Presentations follow: P. Ross: Biological basis for the sustainable use of crocodilians; R. da Silva: Ecologia reproductiva de Jacarés em Mamirauá, Brasil; A. Arteaga: Manejo de cocodrilos en la Amazonia de Venezuela; A. Velasco & J. Thorbjarnarson Programa de manejo de Babas en Venezuela; R. Godshalk: CITES program for the management and sustainable use of caimans in Bolivia; A. Larriera: Development of caiman ranching in Argentina: L. Verdade: Caiman morphometrics and conservation and W. Magnusson, Habitat, capacidade de suporte, e estrategias de exploracao de crocodilianos. A general moderated panel discussion with audience participation will follow. For registration and details see < http://www.tcd.ufl.edu/tcd/congres3/> or contact.-- Dr. Mario Suarez Riglos, *Facultad de Ciencias Agricolas, Universidad Autonoma "Gabriel Ren Moreno," Museo de Historia Natural "Noel Kempff Mercado," Casilla 1321, Santa Cruz de la Sierra, Bolivia, tel/fax: (591) 336-6574, Museo@mitai.nrs.bolnet.bo or* Dr. Richard Bodmer *Tropical Conservation and Development Program University of Florida, P.O. Box 115531, Gainesville, FL. 32611-5531 USA. Fax: (352) 392-0085.*

Lawrence Henriques, St. Thomas, Jamaica, with his tame C. acutus 'Alice'. P. Ross photo.

Steering Committee of the Crocodile Specialist Group

Chairman: Professor Harry Messel, Chancellor, Bond University, Australia.
For further information on the CSG and its programs, on crocodile conservation, biology, management, farming, ranching, or trade, contact the Executive Officer or Regional Vice Chairmen:

Deputy Chairmen (New World): Prof. F. Wayne King, Florida Museum of Natural History, Gainesville, FL 32611, USA. Tel: (1) 352 392 1721 Fax: (1) 352 392 9367. <kaiman@flmnh.ufl.edu> **(Old World)** **Dr. Dietrich Jelden**, Bundesamt für Naturschutz, Konstantin Str. 110, D-53179 Bonn, Federal Republic of Germany. Tel: (49) 228 954 3435 Fax: (49) 228 954 3470.

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