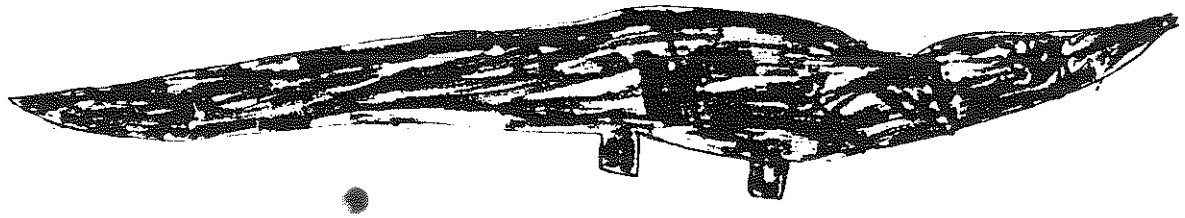
CROCODILE SPECIALIST GROUP

NEWSLETTER

VOLUME 12 No. 2 ■ APRIL 1993 - JUNE 1993

kerryanne



this is a crocodile

IUCN World Conservation Union ■ Species Survival Commission

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IUCN--The World Conservation Union
Species Survival Commission

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COVER: Drawing of a crocodile by Kerryanne Needham, age 5, of Bromley, UK sent to Dr. Phil Hall as a birthday greeting. [see page 18]

PATRONS

The following Patrons of the CSG have contributed more than U.S. $500.00 during the past 12 months. The funds donated have been deposited with University of Florida Foundation, Inc., and are used to support the CSG program:

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Crocodile Farmers Association of Zimbabwe, Harare, Zimbabwe.
Utai Youngprapakorn, Samutprakan Crocodile Farm, Samutprakan, Thailand.
Asociación Colombiana de Zoocriaderos, Bogotá, Colombia.
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Sergio Trachter, Triton Imports Inc., El Paso, Texas, U.S.A.
Crocodile Farmers Association of Indonesia, Jayapura, Indonesia.
Paul H. Slade, Nell and Hermon Slade Trust, Mona Vale, Australia.
Kurt Preiss, Reptilia Inc., Miami, Florida, U.S.A.
Crocodile Management Association of Thailand, Bangkok, Thailand.

F. Wayne King, Gainesville, Florida, U.S.A.
IUCN-World Conservation Union, Gland, Switzerland.
Prof. Harry Messel, Sydney, Australia.
Wayne Sagrera, Vermilion Gator Farms, Abbeville, Louisiana, U.S.A.
Robert and Ellen Young, Thonotosassa, Florida, U.S.A.
Terry Cullen, Cullen Vivarium, Milwaukee, Wisconsin, U.S.A.
Gabriel & Miguel Rey, Hacienda el Molino Ltda., Bogotá, Colombia.

GUEST EDITORIAL

CAPTIVE BREEDING OF CROCODILIANS. At the Steering Committee meeting in Darwin I was asked to try and put on paper some ideas for discussion about the effect of closed cycle captive breeding operations ("farming" sensu CITES) on sustainable use programs. The primary concern, developed during discussion in Darwin is that closed cycle captive breeding is independent of, and has little conservation benefit for, the wild population. Unfortunately many conservation groups prefer farming operations that use captive breeding rather than animals captured from the wild. Many of these groups appear to perceive any use of animals as immoral and have failed to appreciate the conservation benefits of sustainable use of wildlife (SUW).

These opponents of SUW are increasingly well organized, for example recently amalgamating as the 'Species Survival Network', to oppose the IUCN Sustainable Use Guidelines, and the alleged benefits of SUW will come under close scrutiny. The CSG needs to carefully consider just what levels and forms of commercial exploitation we should support and which we should not. To be effective our endorsement needs to be withheld under some circumstances.

One attitude is that CSG should not be interfering in commercial operations. The time for a review of CSG support for different projects is due, not because the price of croc skins has fallen, but because a combination of low prices and new commercial ventures is going to damage existing successful SUW programs. This makes it a CSG issue.

For example, it would be economically feasible for a large commercial investment in captive bred *Crocodylus porosus* to be made in PNG or Indonesia to produce up to 50,000 skins per year. Regardless of prices, such an operation would severely damage existing SUW programs in the region that have made significant advances in favour of crocodile conservation. Developing SUW projects in Thailand, Laos, Vietnam and India would be discouraged and their potential conservation benefits lost. In such a scenario it would be difficult for CSG to refuse to take a position in favour of the programs that yield proven conservation benefits. The fact that a captive breeding operation is economically viable does not mean it is necessarily in the interests of wildlife conservation. However the issue is clouded by the different roles that a captive breeding operation can perform.

While a captive breeding operation may not directly support the wild population, it is possible for it to support SUW objectives by other means such as releasing farm raised animals to the wild, financial support for wildlife management or research that benefits the population. For some crocodilian species captive breeding is the best current means to ensure their conservation in the face of severe habitat loss. Such captive breeding for conservation may include selling surplus production and using the revenue for conserving the species. A prime example is the Chinese alligator with over 4,000 in captivity but only 400 in the wild and little prospect of sufficient wild habitat for future expansion in the wild.

Some countries have already established farming industries based on captive breeding because the policy of some governments has been to discourage wild harvest. While ranching probably offers the wild population the better chance of survival in the long run, in the short term there may be good arguments to encourage captive breeding if the wild population is already depleted. However, if the wild population then recovers, and ranching becomes more feasible, the problem is then how to phase out investments in closed cycle captive breeding that have become inappropriate.

The CSG has a role to advise national management authorities about the relative benefits of farming and ranching and our serious reservations about captive breeding as a long-term conservation strategy. Captive breeding requires a long-term investment and action is needed now to re-direct misguided programs so that they do not harm valuable SUW programs in the future. We need to distinguish between

projects that have some conservation benefit and those that are purely commercial although reaching agreement among our diverse CSG representation will be difficult.

The CSG should take the position that it only supports programs with conservation merit and will oppose commercialization that is harmful to the objectives of conservation and SUW. If we fail to address this issue it will be perceived that CSG will not oppose any commercialization of crocodiles. The Group would then become irrelevant to producers and traders and come into conflict with other specialist groups, undermining its credibility to the point where we will no longer be effective in promoting SUW. If the commercial interests can dictate the preferred options for captive breeding without restraint then the result is unlikely to be beneficial for wildlife or for sustainable use. Therefore the CSG has an obligation to take a position on this issue and promote it, even at the expense of offending some members.

As a base for discussion I propose the following framework from which a CSG position could be developed.

1) CSG should only support use of wildlife in trade when there is a conservation benefit for habitats and wild populations.
2) Ranching, by harvesting eggs or juveniles from the wild, is strongly preferred to closed cycle captive breeding if the wild population will support such harvest.
3) In countries outside the normal range of a species, commercial captive breeding should be discouraged, except for conservation, scientific and educational purposes (e.g., Zoos).
4) CSG should examine all proposals for extension of trade of crocodilians on the basis of conservation merit.
5) Captive breeding projects which put existing SUW programs at a disadvantage, and will therefore have a negative conservation impact, should be opposed by CSG.
6) CSG should oppose new large commercial farms based on captive breeding for any species that already has significant trade based on SUW.
7) The CSG should evaluate the relative conservation costs and benefits of programs to species and their habitats, taking the impact in other countries into account.
8) For existing farms based on captive breeding, CSG should request the urgent establishment of a viable wild population verified by scientific surveys and the conversion of farm operations to ranching.
9) CSG should recognize and support the valuable contribution to conservation of captive breeding for species severely threatened in the wild and should approve that in some cases breeding surpluses of these programs may enter commercial trade.

Responses and comments on this issue are invited. -- Brian Vernon, *Deputy Vice Chairman Eastern Asia, Australia and Oceania, 12 Halimah Street, Chapel Hill Brisbane, QLD 4069, Australia.*

REMINDER

HAVE YOU COMPLETED AND RETURNED YOUR SUBSCRIPTION FORM FOR THE CSG NEWSLETTER? The NEWSLETTER is currently distributed to over 850 individuals and organizations world wide. The cost of producing and distributing the NEWSLETTER exceeds $9,000 US /year and we cannot afford to send it to inactive recipients. Our traditional policy still applies, if we do not hear from you in over 12 months we will assume you are no longer interested and we will no longer send the NEWSLETTER.

We encourage all recipients to send us their news and photographs. For those whose budgets allow it we encourage donations to support NEWSLETTER production and distribution. The donations received allow us to distribute the NEWSLETTER without charge to many recipients who could not otherwise afford it. The CSG NEWSLETTER is the premier medium for communication of news and views on crocodilian conservation and management. Send in your news, photographs, poems and other contributions now! -- *Eds.*

MEETINGS

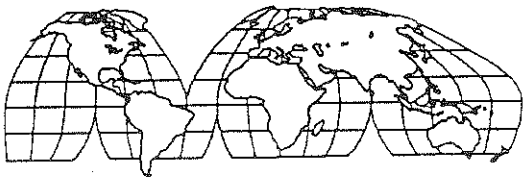
12TH WORKING MEETING OF THE CSG, Pattaya, Thailand. 2-6 May 1994. First announcement. A preliminary call for papers for the scientific sessions is included on page 19. Preliminary registration forms are enclosed (page 20) and should be returned to the organizers. -- c/o Dr. P. Ratanakorn, *President, CMAT. Faculty of Science, Kasetart University, Bangkok, Thailand.*

IUCN/SSC. The World Conservation Union will hold its 19th triennial General Assembly, 18 - 26 January, 1994, in Buenos Aires, Argentina. The Species Survival Commission will meet immediately prior to the General Assembly, 15 - 17 January, 1994, in Buenos Aires. CSG members are reminded that the General Assembly is the occasion for the dissolution and re-constituting of all SSC Specialist Group memberships. Registration materials for both meetings can be requested from -- *General Assembly Logistics Coordinator, IUCN, Rue Mauverney 28, 1196 Gland Switzerland.*

WORLD CONGRESS OF HERPETOLOGY - CALL FOR NOMINATIONS. At the Second World Congress of Herpetology, Adelaide, Australia, 29 December 1993 - 6 January 1994, half the members of both the Executive Committee and the International Herpetological Committee will retire. Membership of these committees is open to all herpetologists. Representation on these committees should be widely representative of geographic area and discipline and retiring members can be re-nominated. Nominations to fill these vacancies will be accepted until 29 August 1993 and should be sent to Dr. Marinus S. Hoogmoed, Secretary General, World Congress of Herpetology, at the address below. A full list of present and retiring members and further details can be requested from Dr. Hoogmoed at -- *Nationaal Natuurhistorisch Museum, Postbus 9517, 2300 RA Leiden, The Netherlands*

ACUACULTURA Y PESQUERIA. A three day course offered 23 - 25 August 1994 by Texas A & M University with objective of technological transfer to Latin America. Instructional seminars in Spanish on aquaculture of caiman and crocodiles will be presented as well as on shrimp, catfish, tilapia, bass and crawfish. Contact -- Mexican and Latin American Programs, *Texas A & M University, College Station , Texas 77843-4251, tel. 1 409 845 3367, fax. 1 409 845 4824.*

AREA REPORTS



AFRICA

Congo:

PARASITE STUDY OF DWARF CROCODILES. African dwarf crocodiles *Osteolaemus tetraspis* slaughtered at markets in Brazzaville, Republic of the Congo, were examined for parasites and pathology during a two week visit by Dr. Fritz Huchzermeyer of Onderstepoort Veterinary Institute, Republic of South Africa, in cooperation with Marcellin Agnagna of Wildlife Conservation International of Brazzaville. During this period 23 crocodiles were examined, all internal parasites collected and representative samples taken for further identification and study. It is hoped to continue this cooperation in a broadened and expanded project eventually leading to the protection of *O. tetraspis* in the Congo from overexploitation. -- F.W. Huchzermeyer, *Onderstepoort Veterinary Institute, Private bag X5, Onderstepoort 0110, Republic of South Africa.*

EASTERN ASIA & OCEANIA

Australia:

FREMANTLE CROCODILE PARK. This innovative public display of crocodilians is located at the waterside in Fremantle, Western Australia. The facility is located in one of the huge

boatshed/warehouses constructed for the Americas Cup challengers in 1984. The display may be unique in that it is entirely enclosed in a climate controlled building and operates on a recirculating water system. Owner/developer Don Weiringa has broken most of the traditional rules for a crocodile facility resulting in a surprising economic, educational and aesthetic success. The facility is located in a premium location at a busy tourist center and generates most of its income from visitor fees. Visitors enter the rather industrial looking warehouse and are immediately immersed in a humid tropical ambience where they can easily view the excellently maintained collection. Tropical plantings and free ranging finches add to the quasi-natural feeling as visitors circulate along well planned catwalks about 10 feet above the display pens and look down on the crocs beneath. The crocs lie in concrete pools of crystal clear water surrounded by smooth pebble areas. A sophisticated series of drains and frequent hose downs remove all fecal and food material so that these are probably the cleanest and sweetest smelling crocs on display anywhere.

The key to the system is the water re-circulating and filtering system which combines a multiply redundant series of pumps and a backup emergency generator, with filterbeds, UV treatment and chemical conditioning that allows Don to re-use more than 90% of his water and release a very small volume of solids and sludge, meeting local regulations, into the municipal sewer system. The air has a faint tang of chlorine similar to a swimming pool, but the crocs seem to prosper in mildly chlorinated water.

At present Don has saltwater and Johnson's crocodiles on display, including breeding pairs and the results of successful breeding and incubation at the facility. In association with a local university, a series of experimental studies on disease control and growth enhancement are underway and the size and plumpness of the 1 and 2 year old captive bred crocs indicates that the regime at the facility is supporting very good growth.

The offering for tourist visitors includes educational presentations and the gift shop sells some very attractive locally tanned and manufactured items from wallets and key chains to briefcases and a daring ensemble of miniskirt and halter top in brown crocodile suede. The company also owns one of the commercial crocodile farms in Broome, Western Australia. A complementary supportive function is envisaged between the more traditional, pen raising grow out farm in Broome and the high tech, research and tourist system in Freemantle. However, Don insists he is generating significant numbers of hatchlings for commercial growout from his pampered breeding stock who loll in exclusive jacuzzi like luxury in the Freemantle facility. Given what other researchers are finding out about the detrimental effects of stress on breeders, perhaps Don is onto something. -- J. Perran Ross, *Florida Museum of Natural History, Gainesville Fl 32611 USA,* with grateful thanks for hospitality and information to *Don Weiringa, Fremantle Crocodile Park, Mews Road, Freemantle, Western Australia.*

China:

REACTION OF *ALLIGATOR SINENSIS* TO ALKALINE CONDITIONS. Two hundred chinese alligators were being raised on Chonming Island, Shanghai, where the water is strongly alkaline with a pH of 7.4 - 8.4 (CSG NEWSLETTER Vol. 11 no. 4. p. 5.). Until November of 1992 no adverse phenomena were observed, however, when the animals began to hibernate an intense sickness developed. The symptoms observed were that the scale armour became corroded by the alkaline water resulting in severe dermatological ulcers. In the most extreme cases ulcers proliferated to the throat and lungs causing the animals to die of pneumycosis. Mortality was over 10%. The greater part of the surviving animals are being moved to alternate (normal alkalinity) facilities at other centers. However a small number will be retained at Chongming to maintain the breeding program in a new breeding pond constructed for them with a normal environment. --Zhang Zheng-dong, *Anhui Research Center of Chinese alligator Reproduction, Xuancheng, Anhui, Peoples Republic of China.*

NEUROLOGICAL HISTOLOGY OF THE CHINESE ALLIGATOR. The histology and embryology of the Chinese alligator is being studied by the Dept. of Biology, Anhui Normal University. Studies of the histology of the sense organs, respiratory system and excretory system are now complete.

Results of the study of the nerve fibres indicate both myelinated and unmyelinated fibres

were seen, many unmyelinated fibres usually closely in contact with one another. Astrocytes and oligodendroglia cells were found along the optic nerve. In longitudinal sections the nuclei were distributed in long rows. Quantitative analysis indicated the number of myelinated fibres is about 20,000 - 30,000 with diameters of cross section ranging from 0.41 - 6.66 um. The highest frequency was at 1.31 um. The ratio of axis cylinder to the diameter of the fibre is about 0.73 - 0.75. Statistical analysis indicated a difference in the number of fibres in left and right sides of individuals but no difference in the same side between individuals. -- Chen Bi Hui, *Dept. of Biology, Anhui Normal University, Wuhu, Anhui Province. China.*

Thailand:

THAI ASSOCIATION FOR CAPTIVE BREEDING FOR TRADE IN CROCODILE AND REPTILE LEATHER (TABICARL). This new association in Thailand held its first meeting 17 April 1993 and formed a board of Directors led by President Mr. Tian Sukosol and Secretary General Mr. Charoon Youngprapakorn. Mr. V. Nuttaphan, Mr. M. Samittikui and Dr. P. Youngprapakorn are Vice Presidents. Nine other positions of Treasurers, Registrar and other functions were also filled. The Group will be advised by Mr. Uthai Youngprapakorn, Mrs. Rarchanekorn Youngprapakorn, Professor Dr. Predee Kasamsup, Mr. Pluem Dumsanit and Dr. Parntep Ratanakorn. The new association joins Crocodile Management Association of Thailand, The Royal Thai Forest Service and various aid agencies as an important player in the conservation and management of crocodiles in Thailand and the region.

In other news, the CSG Review Committee for Thailand has agreed to re-schedule its next inspection visit to 25 April - 29 April 1994. This will enable Review committee members to attend the CSG Steering Committee Meeting and the 12th Working Meeting which immediately follow. -- Charoon Youngprapakorn, *Secretary General, TABICARL, 555 Taiban Rd. Samutprakarn, Thailand.*

WESTERN ASIA

Bangladesh:

SURVEY OF CROCODILE RESOURCES. Jack Cox and M. M. Rahman of the Bangladesh Forest Research Institute undertook a survey of the current status and distribution and potential for sustainable use of crocodiles in Bangladesh during December 1992 and January 1993. All species are reported to be very rare, if not eliminated from the wild, although the Sunderbans Reserve Forest may support a viable *C. porosus* population. Factors affecting the prospects for sustainable use were evaluated including suitable sites, food sources, tourist potential, government funding priorities and technical capacity. A full report is in preparation that will include a management plan for the recovery of crocodiles in Bangladesh. -- J. Cox, *2919 Colony Road, Charlotte, NC 28211, USA.*

India:

INDIAN NGO'S SLAM SUSTAINABLE USE. At a meeting in Delhi on 4 May 1993 a broad spectrum of Indian NGOs concerned about conservation met to discuss the IUCN Draft Guidelines for Sustainable Use. The meeting was convened by WWF India and TRAFFIC India who solicited written comments on the IUCN document and presented these as a background paper on the issue. The majority of both the background papers and the discussion in Delhi were vehemently opposed to the idea of applying sustainable use strategies to India's wildlife conservation problems. The issue appears to have become polarized and somewhat distorted as the bulk of comments and concerns refer to sport hunting. Other examples such as the Irula tribal snake venom collection project and the potential for sustainable crocodile ranching were presented but failed to sway most participants. Despite the cogent arguments of CSG Vice Chairman, Rom Whitaker, and a minority of other commentators, the general conclusion of the meeting was that opening any of India's wildlife to sustainable use would pose problems of enforcement and would not aid conservation. Significant minority opposition to this view came from those involved in crocodile captive breeding and the management of ungulates such as Blackbuck, Sambar and Nilgai which could derive significant financial support from sustainable use. The issue of animal use in India is made complex by the cultural and religious prohibitions and a deep seated and up till recently, successful, commitment to

preservationist strategies. Growing problems reconciling India's conservation programs with increasing human population pressure, and declining funding will be exacerbated by the pressure opposed to sustainable use solutions. -- Editors, extracted from correspondence; *Sustainable Use of Wildlife, views and perspectives, a TRAFFIC India background paper, 15 February 1993*; and *Workshop on Sustainable Use of Wildlife, 4 May 1993, Minutes* by A. Kumar, *WWF-India. 172-B Lodi Estate, New Delhi, India.*

UTTAR PRADESH CROCODILE MANAGEMENT PROGRAM MAY CLOSE. Seventeen years ago there were barely 60 gharials in the major rivers of Uttar Pradesh and the species was on the verge of extinction. Today, due to the Gharial Rehabilitation Project launched in 1975 by the UP Forest Department there are over 3,000 Gharial and Mugger in the rivers of UP. With the population of crocodiles reaching a stage where they can no longer be considered as extinct (sic), the rehabilitation project will be wound up within a few years. As Mr. R.S. Bhadouria, chief conservator of Forests (Wildlife) said, "This kind of rearing project cannot continue for an indefinite period. We have been successful at achieving our primary objective of saving the reptile from becoming extinct. Gradually the scheme will be wound up but not before arrangements have been made for the 687 gharial still at the Kukrail and Katerniyaghat centers." Elaborating further he said that, "Since the last two years the central government has stopped giving grants for this project. It is subsisting on the aid being given by the state government but it is increasingly felt that this money should now be diverted towards protecting other endangered species." -- from PIONEER *newspaper, Lucknow, India, 18 September 1992.*

FOOD HABITS OF MUGGERS. Although research on Indian crocodiles has been extensive since the 1970's, capturing or sacrificing crocodiles for stomach content analysis to study food habits has not been possible since all crocodiles are protected in India. Hence, food habits of adult and subadult muggers were studied through fecal analysis. The study indicated that fish remains an important component of the diet of muggers throughout their life. Adults were found to feed on a wide variety of organisms including small insects, molluscs, amphibians, fish, reptiles birds and large mammals. The subadults fed on fish, arthropods and amphibians and showed little preference for mammalian food items. The importance of providing mixed diets to captive crocodiles to provide a suitable range of nutrients comparable to natural diets was noted. -- V. Vijaya Kumar, *Dept. of Biosciences, Saurashtra University, Rajkot 360 005, India.*

SALTWATER CROCODILES IN BHITARKANIKA, ORISSA. The annual survey of crocodiles in the Bhitarkanika Wildlife Sanctuary was conducted during the last week of December 1992 and the first week of January 1993. A total of 414 *Crocodylus porosus* were counted including 32 hatchlings, 64 juveniles, 242 adults and 76 adults. This compares with 500 crocodiles sighted in the survey the previous year. So far 1,300 captive raised young *C. porosus* have been released into the Sanctuary and numbers have increased since the first surveys in 1976/77 which indicated about 130 crocs in the sanctuary at that time. The current survey confirmed the close association between crocodile density and healthy mangrove habitat. 75% of the crocodiles sighted are found in about 40% of the sanctuary area. Other areas with low croc densities have poor mangrove cover or are disturbed by illegal fishing. It is suspected that some released crocodiles have been killed by fishermen.

The apparent decline in crocodile numbers since the previous year is being discussed with the Sanctuary managers and steps are being taken to check illegal fishing and provide rigid protection for mangrove forest habitat. It is hoped the 1994 survey will indicate the success of these measures. -- Sudhakar Kar, *Research Officer, Wildlife, C/O Chief Wildlife Warden, 7-Saheed Nagar, Bhubaneswar, 751 007 Orissa, India.*

Iran:

INTEREST IN CROCODILE CONSERVATION. Correspondence has been received by the Madras Crocodile Bank from the Department of Environment in Iran, informing of an extensive study of *Crocodylus palustris* planned in Iran. Dr. Haji Gholi Kami and Mr. Seyed Amir Ayafat are initiating a program and are interested in sending

personnel to the Crocodile Bank for a short training program in crocodile conservation, captive breeding husbandry and research.

Information on crocodilians in Iran has been sparse in recent years and this new initiative is greatly welcomed by the CSG. -- H. Andrews, *Madras Crocodile Bank, Post Bag 4, Mammalapuram, TN, India.*

CENTRAL & SOUTH AMERICA

Brazil:

MORE ON NILE CROCS. A local society for the protection of the environment in Brazil (AGAPAN) has obtained a restraining order to separate the sexes of Nile crocodiles held at the facilities of Contaregis, Animales Silvestres Ltda., in Rio Grande do Sul. This would presumably prevent breeding and further production of this exotic species in Brazil.

The Nile crocs were imported in 1990 and prompted a widespread outcry from environmentalists both in Brazil and elsewhere, concerned about the consequences of Nile crocs escaping and becoming feral in the Amazon [Additional comment on page 21. *Eds.*]. Efforts to have the animals re-exported or euthanised were inconclusive. The incident prompted the CSG to develop a policy against introduction of exotic crocodilians into the range of other species. In conversation last year the director of the Contaregis farm, Mr. Michael Denley, assured CSG representatives that the animals were being maintained in a very secure facility and would not be released or sold irresponsibly.

The current court injunction is being contested in court and the outcome remains uncertain at press time. -- W. Magnusson, *Dpto. de Ecologia, INPA, CP 478, Manaus 69011 AM, Brazil.*

Colombia:

NEW CHIEF FOR INDERENA CROCODILIAN PROGRAM. Ing. Antonio Villa was appointed Chief of the Division of Terrestrial Fauna of INDERENA, with responsibility for management of crocodilians, replacing Mr. Bernardo Ortiz Von Halle. At a recent meeting in Florida, Ing. Villa re-assured the CSG that he was well aware of the correspondence that had passed between CSG and INDERENA and of the excellent steps begun to improve crocodilian management in Colombia. He stated his determination to continue working with local producers, traders and CSG experts to develop sustainable use of crocodilians in Colombia. -- F. Wayne King, *Deputy Chairman CSG, Florida Museum of Natural History, Gainesville FL 32611, USA.*

Paraguay:

CAIMAN PROJECT PHASE II. The second phase of the CITES caiman project in Paraguay, monitoring of populations, has begun under the direction of Dr. Norman Scott and Aida Luz Aquino Shuster. In October 1992 Chairman and Deputy Chairman of the CSG, Professors Harry Messel and Wayne King, visited Paraguay to carry out a four day preliminary visit in northeastern Paraguay and to provide guidance on conservation and the possibility of sustainable use of caiman in Paraguay. They met with the staff of the Caiman Project and discussed several points for consideration as the projects develops.

The second phase of the project is financed by the United Nations Development Program (UNDP), the Ministry of Agriculture of Paraguay, the CITES Secretariat, the Japanese Leather Industries Association (JLIA) and the Cámara de Industriales Curtidores de Pieles Silvestres de Paraguay. Funds are administered by UNDP in Paraguay.

The first step of the project was to visit localities and establish several permanent monitoring sites. In 1992 a number of difficulties hindered the project, especially the flow of funds due to administrative problems. Additionally, floods throughout Paraguay have made any survey extremely difficult. This year several tributaries of the Paraguay and Parana rivers will be surveyed. The survey staff consists of four Paraguayan biologists and a new staff member with experience in caiman surveys will be added if funds are available.

CITES Paraguay has been very active in developing strategies to control illegal trade of caiman skins in Paraguay. They are also investigating the possibility of sustainable use of *Caiman yacare* and *Tupinambis* sp. with assistance from CSG, TRAFFIC, US Fish and Wildlife Service and the CITES Secretariat. Unfortunately some local NGO organizations have opposed the sustainable use plan. We have

encountered a struggle between conservation and science versus sentimental values. The question has been raised by some international organizations and the government, "where were these people when Paraguay was the center of illegal trade in wildlife?" and are wondering if these NGO's are defending true values or are serving as a front for people who are unwilling to compete in a world of legal, regulated, sustainable use and trade. It is clear to the international community that Paraguay has made a significant change in direction towards legality since the present administration of the Ministry of Agriculture took over and the CITES-Paraguay office was created. We intend to continue in this direction. -- Aida Luz Aquino Shuster, *Officina CITES-Paraguay, Ministerio de Agricultura y Ganaderia, Asuncion, Paraguay.*

Venezuela:

FUDENA PARTICIPA ACTIVAMENTE EN LA REINTRODUCCION DE CAIMANES DEL ORINOCO. Desde 1974, la Fundación para la Defensa de la Naturaleza (FUDENA) ha promovido la conservación del *Crocodylus intermedius* (Caimán del Orinoco), especie amenzada de extinción y que adicionalmente sólo se encuentra en la cuenca media del Rió Orinoco entre Venezuela y Colombia. Los esfuerzos para su recuperación se comienzan a materializar en el presente cuando, con el apoyo de FUDENA, se han reproducido en cuativerio ejemplares de esta especie en el zoocriadero del Fundo Pecuario Masaguaral, ubicado en el Estado Guárico y propiedad del Zootecnista Tomás Blohm. A partir de 1990, los caimanes nacidos en este zoocriadero y los provenientes de otros centros: Zoocriadero de la Universidad Exp. Nacional de Los Llanos "Ezequiél Zamora" (UNELLEZ), y Zoocriadero de la Estación Biológica de la Salle, Hato el Frió; se han reintroducido en el Refugio de Fauna Silvestre Caño Guaritico. Hasta la fecha se han liberado 159 Caimanes del Orinoco en este refugio. En 1991 se inició el programa de repoblamiento en el Parque Nacional Santo Luzardo, en el cual se han liberado 376 individuos en el río Capanaparo, lugar donde existe una importante población silvestre de esta especie. La totalidad de estos últimos ejemplares fueron criados en el Zoocriadero Masaguaral, con la finalidad de garantizar su supervivencia. Por otra parte, en Noviembre de 1992 se liberaron por primera vez en el Embalse de Tucupido, Estado Portuguesa, 18 caimanes criados en el Zoocriadero de UNELLEZ, institución que ha contado con el apoyo de FUDENA en los proyectos de conservación de esta especie.

En general, en un periodo de 3 años se han reintroducido al medio natural 553 Caimanes del Orinoco, de los cuales 481 (87%) fueron criados en el Zoocriadero Masaguaral, lo que demuestra que es el principal centro para la cría de esta especie en Venezuela. Actualmente este centro se encuentra a cargo del B.Sc. Gustavo Hernández, con la supervisión del Biólogo Alfredo Arteaga, ambos investigadores de FUDENA. Para 1993 se tiene programada la liberación de 153 caimanes en el Caño Guaritico y de 215 en el Capanaparo. Así mismo, se cuenta con la colaboración de un nuevo centro de cría en cautiverio de Caimanes del Orinoco, el cual se encuentra ubicado en el Hato Puerto Miranda, Estado Guárico, propiedad de la empresa Algodonera Mata C.A.. Dicha empresa, al igual que FUDENA esta interesada an la conservación de esta especie. -- Lic. Alfredo Arteaga, *FUDENA, Apart. 70376, Caracas 1071, Venezuela.*

FUDENA PARTICPATES ACTIVELY IN THE REINTRODUCTION OF ORINOCO CROCODILES. Since 1974 FUDENA has promoted the conservation of the Orinoco crocodile, an endangered species that is found only in the middle reaches of the Orinoco river in Venezuela and Colombia. The program for this species recovery began with the FUDENA project to raise specimens of this species in captivity at the facility in Masaguaral owned by Thomas Blohm. Beginning in 1991 the hatchlings raised at this center, and at other facilities at UNELLEZ and the Biological Station La Salle at Hato el Frió, were released in the Wildlife refuge at Caño Guaritico. Since that time 159 Orinoco crocodiles have been released in this refuge, principally in the Caño Macanillal, a tributary located to the north of Hato el Frió. In 1991 a program of repopulation was begun in the Rio Capanaparo and 376 crocodiles have been released at this locality where there is an important population of wild crocodiles in the Santos Luzardo National Park. All of these specimens were raised at Masaguaral where their health is guaranteed. In addition, in November 1992 for the first time 18 crocodiles were

released in the Tucupido Reservoir in Portuguesa State. These animals were raised at the UNELLEZ Facility which has a joint project with FUDENA for the conservation of this species.

In summary, over a three year period we have reintroduced 553 Orinoco crocodiles into the natural environment of which 481 (87%) were raised at Masaguaral, which is the principal center for raising this species in Venezuela. At the moment the center is run by B.Sc. Gustavo Hernandez, with the supervision of Biologist Alfredo Arteaga, both investigators with FUDENA. For 1993 we plan to release 153 crocodiles at Caño Guaritico and 215 at Rio Capanaparo. At the same time we are also developing a new raising center located at Hato Puerto Miranda, in Guarico State, owned by the company Algodonera Mata C.A.. This company, just like FUDENA, is interested in the conservation of the species. -- *Free translation of the preceding article.*

POLITICAL UNREST AFFECTS ORINOCO CROC PROGRAM. Releases of captive raised Orinoco crocodiles into the Capanaparo-Cinaruco National Park have been going well until late last year. Up until that time over 400 juvenile crocodiles had been released and a follow up monitoring program was underway. Unfortunately in December 1992 there was an outbreak of violence in the Park which has severely affected the program. The problems are based on the discontent of people living in the Park which was inflamed by political maneuvering associated with regional elections. The project represents one of the few obvious symbols of the National Parks Department in the area and is an easy target. One of the project boats was burned and a small house constructed for researchers was destroyed.

The project has about 200 yearling crocodiles ready for release in the Park but tensions in the area are still high and the President of Venezuela has ordered Park personnel to stay away from the area until the problem is resolved. Discussions have begun with residents of local communities including the possibility of changing the Park boundaries to meet local desires. It is hoped that the problem can be resolved soon as this is the largest known remaining population of Orinoco crocodiles. -- John Thorbjarnarson, *Wildlife Conservation International, Bronx, New York, 10460, USA.*

SIZE OF CAIMAN FLANKS AS A FACTOR IN CONTROLLING TRADE. In order to improve customs controls in the trade of caiman skins we should be able to define differences in flanks coming from caiman from natural habitats and caiman reared in captive centers. A preliminary study conducted by members of the Servicio Autonomo de Fauna, Venezuela, and participants from the industry has compared the length, width, area and size of the largest scales of flanks obtained from animals of different sizes and sources to address this need.

The area of flanks from captive raised Venezuelan *Caiman crocodilus crocodilus* of 1.0m length was 0.25 -0.30 sq. feet. The area of flanks from captive raised *C. c. fuscus* from Colombia of 1.2 m length was 0.30 - 0.35 sq. feet.

For flanks from wild caught Venezuelan *C.c.crocodilus* we found, for animals of 1.2 m length, flanks were 0.71m long, 0.06m wide (width of useful skin without large scales) and the total area of both flanks averaged 0.40 sq. feet. For wild caught animals of 1.5m length, flanks were 0.87m long, 0.06-0.07m wide and the area of both flanks was 0.75 sq. feet.

The most significant difference was seen in the size of the largest scales of the flank, which were significantly larger in wild caught caimans than similar sized captive raised animals.

Table 1. Size of the largest flank scales of captive raised and wild caiman.

Species & origin	Total length m	Largest scale size length x width cm
C. c. crocodilus captive raised	1.0 m	1.2 x 0.5 cm
C.c. crocodilus wild	1.5 m	2.5 x 1.4 cm
C.c. fuscus captive raised	1.2 m	1.3 x 0.6 cm
C.c. fuscus wild	1.9 m	2.6 x 1.5 cm

This information will useful to management authorities in verifying the sources and documentation of caiman flanks from this region. -- Mirna Quero de Peña, *Directora de Manejo de Especies Comerciales, Servicio Autonomo de*

Fauna, Ministeria del Ambiente y de los Recursos Naturales Renovables, Caracas, Venezuela.

NORTH AMERICA

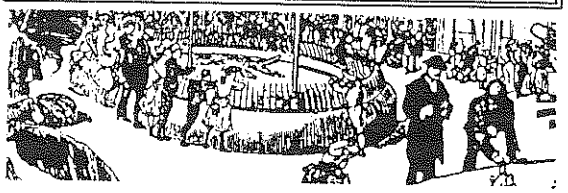
United States:

FISH AND WILDLIFE SERVICE REORGANIZATION. Many of the biologists within the US Department of Interior will soon join a new agency, the National Biological Survey (NBS). This will consolidate biologists from several branches of the US government service including National Parks, Geological Survey and Fish and Wildlife Service. The NBS will remain within the Department of Interior but will focus on research on communities and species rather than on administrative matters. Startup date for the new agency is expected in October 1993. Many professional biologists within the Service are looking forward to this rejuvenated biodiversity approach to biological research in the US.

The reorganization is part of a general shakeup of Interior by the Clinton administration's new Secretary of Interior, Bruce Babbitt. It is not yet clear how this re-organization will affect the CITES Management Authority and the permiting and enforcement system for Endangered Species and CITES controls. It is hoped by the CSG that the reorganization will speed up the greatly delayed delisting of Nile crocodile, Australian *Crocodylus porosus* populations and *Caiman yacare*. The changes are being greeted with general enthusiasm with expectations of a more dynamic, responsive and efficient service to result. -- Editors *with information from* Ken Dodd, *US Fish and Wildlife Service, National Ecology Research Center, 412 N.E 16th Ave. Gainesville, FL 32601, USA.* & Pat McIntosh, *US Fish and Wildlife Service, P.O. Box 8487, Savannah Ga 31412, USA.*

ALLIGATOR PROMOTION. The Southern United States Association (SUSTA) is announcing a project to promote American alligator hides in the Pacific rim. A seminar was planned for Tokyo in April and the Association manned a booth at the Hong Kong Leather Show. The Pacific rim is an important market for finished consumer products using alligator hides. Market constraints including the presence of caiman skins from South and Central America, high inventories of skins and hides, consumer confusion regarding the legal status of alligator products and misidentification of other reptile products as American alligator has led to lower prices for raw skins in the US. This project is designed to combat these restraints by educating individuals involved with importation, distribution, tanning, design, manufacture and retailing sectors. Topics to be covered include conservation, the sustainable use program for American alligators, the versatility and marketability of alligator skins, and the perils of using incorrectly labelled skins. For further information contact -- SUSTA, *American Alligator Promotion, 2 Canal Street, Suite 1540, World Trade Center, New Orleans LA 70130-1408, USA.*

ZOOS



ZOO SURPLUS AND REQUESTS. Wanted, *Tomistoma schlegelii, Paleosuchus palpebrosus, Alligator sinensis, Crocodylus rhombifer, C. palustris, C. siamensis, C. niloticus,* for a new reptile house. Also wanted, one *Alligator mississipiensis* about 1 meter long. Contact John Rens B.V., Zoo Animal Brokers, P.O. box 169, 2240 AD Wassenaar, The Netherlands 31 70 356 3366.

Surplus, 0.1 *Caiman crocodilus* adult. Dr. W. Everts, Zoo Osnabruck, D 4500 Osnabruck, Germany 49 5 415 1424.

Surplus, 7 Nile crocodile (1991), 1 Nile crocodile (1987), Zoo Copenhagen, D 2000 Frederiksberg, Denmark 45 3630 2555.

Surplus, *Crocodylus cataphractus*, 0.0.2, captive born 1992. Noorder Dierenpark, Emmen, NL, Germany, tel. 49 59 101 8800, fax: 49 59 109 0275. -- R. Honegger, *Zoo Zurich, CH-8044 Zurich, Switzerland.*

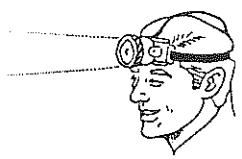
MORELETS CROCODILE EGG WITH TRIPLE EMBRYOS. The pair of *Crocodylus moreletii* held at Ellen Trout Zoo, Lufkin, Texas, USA, produced fertile eggs this year but they failed to hatch. Upon opening the eggs one was found to

contain three embryos. Director Gordon B. Henley would like to find out if such multiple embryos are common.

In other news, the zoo opened their new Siamese crocodile exhibit last year featuring a pool, waterfall, lush plantings and a pair of *siamensis* that produced a clutch of infertile eggs in their new home. The zoo is hopeful that fertility will improve this year. -- Gordon B. Henley, *Director, Ellen Trout Zoo, 402 Zoo Circle, Lufkin Tx 75901, USA.*

ST. AUGUSTINE ALLIGATOR FARM OPENS LAND OF CROCODILES. In May, St. Augustine Alligator Farm opened their new exhibit to commemorate the centennial of the farm. The exhibit houses all 22 species of the worlds crocodilians and may be the only complete living crocodilian collection ever assembled. The exhibit is arranged zoogeographically with large natural habitat enclosures. The new enclosures will allow expansion of the breeding programs of some larger species and several specimens have already begun to show renewed interest in their mates. The new exhibits also free up more behind the scenes space which will be used to increase endangered species breeding holdings. St. Augustine will receive several dozen Chinese alligators from New York Zoological Society and a pair of Philippine crocodiles acquired from Silliman University through the Gladys Porter Zoo in Texas. -- Mark Wise, *St. Agustine Alligator Farm, P.O. Box 9005, St. Augustine, Fl 32084, USA.*

PERSONALS



Dr. Tirtha Maskey, Dept. National Parks & Wildlife Conservation, G.P.O. Box 860, Kathmandu, Nepal, has recently been appointed as Director General, National Parks and Wildlife Conservation Department, Nepal. He is eager to see crocodile conservation take off in a big way in Nepal and has already initiated interest and some proposals for surveys and field work.

Dr. R. J. Rao, School of Studies in Zoology, Jiwaji University, Gwalior 474011, India, and his wife Sarada happily inform us that their first son Vijay Teja was born in June 1992. The CSG offers our best wishes to the family. Dr. Rao is presently involved in surveys of the Ganga River for different aquatic animals, including crocodilians, and suggesting conservation action. His project is now sanctioned by the Ministry of Environment and Forests, and he will be conducting surveys along about 500 km between Rishikesh and Kanpur.

Dr. Yoshio Kaneko, Global Guardian Trust, Toranomon 3-7-5, Minato ku, Tokyo 105, Japan, has been very busy with the start up of a new environmental organization, the Global Guardian Trust, which has the moto "for the benefit of species and people". He recently attended the RAMSAR conference in Kushiro and he remains active in assisting CSG projects in the Pacific region.

Obdulio Menghi and Jaques Berney, CITES Secretariat, P.O. Box 456, CH-1219, Chatelaine, Geneva, Switzerland, have moved to the CITES Secretariat's new offices in Geneva at the address above. Telephone: 41 22 979 9139/40, Fax: 41 22 797 3417.

REQUESTS

CROCODILE DISTRESS CALLS. Mahmood Sasa, in Costa Rica, is reviewing the function of distress calls in crocodiles, looking particularly at the characterization and function of these calls. He would be grateful to hear from other members regarding published material, and different hypotheses in this field. -- Mahmood Sasa, *Instituto Clodomiro Picado, Universidad de Costa Rica, San Jose, Costa Rica.*

CORRECTIONS

GUYANAS SURVEY. In the report on Stefan Gorzula's recent survey of caimans in Guyana Newsletter 12 (1): 21 the editors failed to report that Stephan was assisted by Dr. Karen Pilgrim (Ministry of Agriculture, Guyana), Mr. Eduardo Urueña (Nested Ltd.) and Mr. Mandalal Mohamed (licensed trapper).

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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.

EDITORIAL POLICY - The newsletter must contain interesting and timely information. All news on crocodilian conservation, research, management, captive propagation, trade, laws and regulations is welcome. Photographs and other graphic materials are particularly welcome. Information is usually published, as submitted, over the author's name and mailing address. The editors also extract material from correspondence or other sources and these items are attributed to the source. The information in the newsletter should be accurate, but time constraints prevent independent verification of every item. If inaccuracies do appear, please call them to the attention of the editors so that corrections can be published in later issues. The opinions expressed herein are those of the individuals identified and, unless specifically indicated as such, are not the opinions of the CSG, the SSC, or the IUCN-World Conservation Union.

WHY ARE THERE NO PHOTOS IN THIS ISSUE? BECAUSE NONE OF YOU SENT ANY IN!!

The NEWSLETTER relies entirely upon materials submitted by readers for news, photos, opinion, literature. Send in your materials to the editorial office.

The 12th Working Meeting of the IUCN/SSC Crocodile Specialist Group

2nd to 6th May, 1994
Pattaya, Thailand.

CALL FOR PAPERS

Abstracts of papers and posters for presentation at the 12th Working Meeting, Pattaya, are invited on the following topics:

- **Conservation of crocodiles in Thailand and Southeast Asia.** Current activities, recent advances, national reports from this region.

- **Taxonomy and systematic problems of crocodiles in S.E. Asia.** Analyses of species characteristics, taxonomic variation, nomenclature. [NOTE. Descriptions of new taxa or taxonomic revisions cannot be accepted for publication in the unedited Proceedings]

- **Status and Conservation of priority species.** An update on status, recent advances and conservation action on species identified in the Action Plan as highest priority for conservation.

- **Captive Breeding and conservation of crocodilians.**
  A critical, in depth, evaluation of the conservation benefits of sustained use, harvests and closed cycle farming; case studies, theory, policy considerations.

- **The Biology of Stress and disease in captive crocodilians.** An update on current results on the interaction of stress, diet, and other factors on growth and reproductive success.

- **Monitoring and Estimation of Crocodilian populations.** An examination of techniques for monitoring and population estimation; the theoretical basis and practical background, case studies and critiques.

- **Effects of Trade and economics on crocodilian conservation.** Continuation of the dialog on the influence of economic factors on the success of sustainable use conservation programs.

- **Other topics** and **posters.**

Abstracts (including titles, addresses etc.) must fit on one typed page.
Abstracts should present the following information in the order given:

1. - The title of the presentation.
2. - The topic/session (see above) to which the abstract is submitted.
3. - The author(s) full names as they should appear.
4. - The address of <u>one</u> author to whom all correspondence can be sent.
5. - The text of the abstract, a brief summary of the material proposed for presentation.

Submit abstracts to: Dr. J.P. Ross, Executive Officer CSG, Florida Museum of Natural History, Gainesville, FL 32611, USA (Fax: 1 904 392 9367).

Abstracts must be received by 15 September 1993, they will be reviewed by the session chairperson and authors will be advised of acceptance by 15 November 1993. Where scheduling conflicts dictate it may be necessary to allocate some presentations to poster sessions or alternate sessions.

The 12th Working Meeting of the IUCN/SSC Crocodile Specialist Group

2nd to 6th May, 1994

Pattaya, Thailand.

In 1994 the 12th Working Meeting of the Crocodile Specialist Group will be held in Pattaya, Thailand. Host and organizer of the meeting is the Crocodile Management Association of Thailand.

Details and Agendas of the Meeting will be sent to you in due course, but initial arrangements have to made as soon as possible in Thailand to ensure that we can make bookings to accommodate everyone and facilitate your requests. **Please return this preliminary registration immediately to ensure that we secure the space and facilities you need.**

Participants should arrange their own international flight arrangements to Pattaya, Thailand.

A preliminary program is in preparation and will be sent to all registrants and will appear in the Newsletter. Topics that have been proposed for major sessions include : Status of endangered species, Stress in field and farm situations, Molecular genetics and systematics, Management and Sustainable use. A program combining keynote addresses on major topics, shorter working papers and poster sessions is planned. An invitation to submit papers will be issued separately.

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PRELIMINARY REGISTRATION

To receive registration materials and detailed information on bookings, accommodations, and local transport, please return this form by mail or Fax to :

Dr. Parntep Ratanakorn
Faculty of Science
Kasetart University
Bangkok, Thailand

FAX: 662 247 9236

NAME:..... TEL:.....
ADDRESS for mail:..... FAX:.....
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.....
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- How many people in your party will travel to Thailand? .....

(*) This is a preliminary registration to allow planning and booking of adequate space. Please return this form if you have the slightest possibility or intention of attending. Firm commitments to bookings and reservations will follow.

Crocodilian conservation and sustainable use issues are regarded by a wide, and sometimes sceptical, audience. The following poetic comment on Nile crocodile introductions in Brazil is reprinted from CONSERVATION BIOLOGY, Volume 7, No. 2, June 1993:page 225, with kind permission of the author and the editor.

Brazilian Crocodile Tears

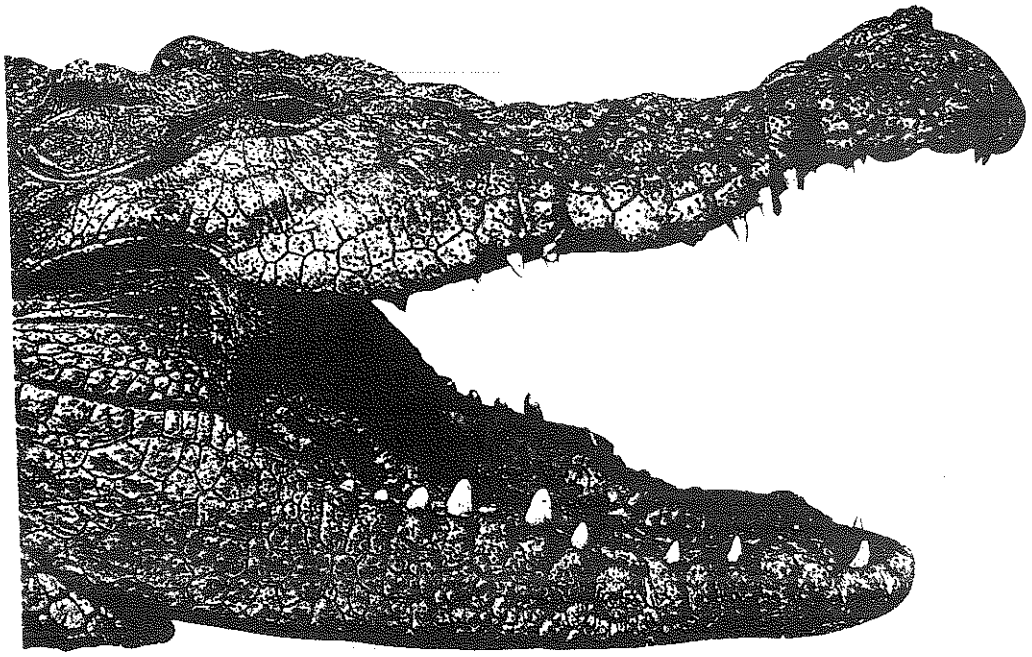
Two Nile Crocodiles
in Brazil to make handbags and shoes,
Escaped from their farm,
to swim the river miles, wild,
with very toothy smiles.

One came by,
with tears in his eyes,
and asked,
"Won't you please visit with me awhile?
It's a bountiful niche given to us,
full of food,
and very crocodilian, amazonian,
amour.

Tomorrow, I may, if I wish
nibble pacu fish,
endemic manatee,
and, maybe,
- yes, maybe,
even thee;
Who knows how far,
my family will spread,
in this tropical-green country?"

And as away he swirled,
to a slow, and sassy,
samba beat,
A thought remained behind-
Now again, we will see,
if greed's the best,
long-term management strategy.

R. Eugene Turner, *Department of Oceanography and Coastal Sciences, Louisiana State University, Baton Rouge, LA 70803, USA.*



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