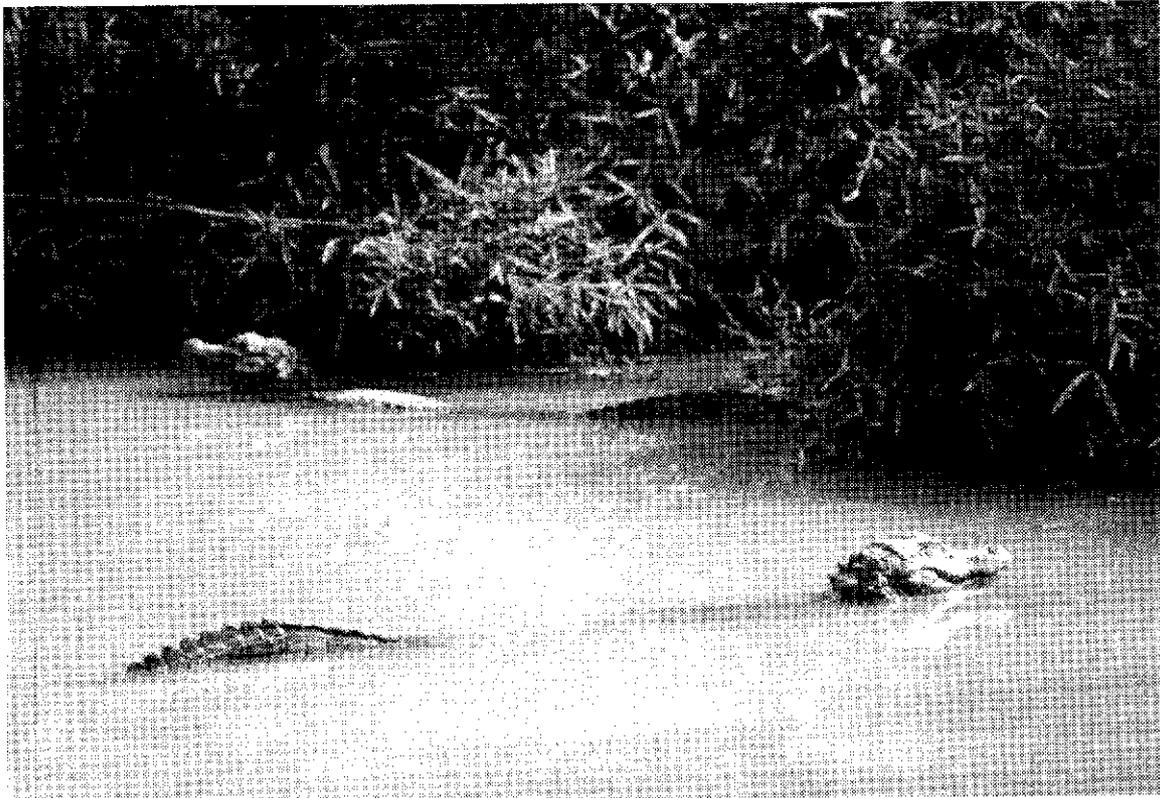


CROCODILE SPECIALIST GROUP

NEWSLETTER

VOLUME 18 No. 4 ■ OCTOBER 1999 – JANUARY 2000



IUCN - World Conservation Union ■ Species Survival Commission

CROCODILE

SPECIALIST

GROUP

NEWSLETTER

VOLUME 18 Number 4
OCTOBER 1999 - JANUARY 2000

IUCN--The World Conservation Union
Species Survival Commission

Prof. Harry Messel, Chairman
IUCN Crocodile Specialist Group
School of Physics
University of Sydney
Australia

EDITORIAL OFFICE:

Prof. F. Wayne King, Deputy Chairman
Dr. James Perran Ross, Executive Officer
Florida Museum of Natural History
Gainesville, Florida 32611, USA

COVER PHOTO. A new report indicates that the Chinese alligator is approaching extinction in the wild (see pages 12 -15). Captives at Anhui Research Center for Chinese Alligator Reproduction and other locations will preserve the species but urgent conservation action in the wild is needed. T. Wiegman 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 crocodylians, 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 prosscsg@flmnh.ufl.edu

PATRONS

We gratefully express our thanks to the following patrons who have donated or pledged financial support to the CSG conservation activities and program for 1999.

Big Bull Crocs! (\$25,000 or more annually or in aggregate donations)

Japan, JLIA- Japan Leather & Leather Goods Industries Association, CITES Promotion Committee & All Japan Reptile Skin and Leather Association, Tokyo, Japan.
Mainland Holdings Ltd., Lae, Papua New Guinea.

Friends (\$3,000 - \$25,000)

Heng Long Leather Co. Pte. Ltd., Singapore.
Reptilartenschutz, Offenbach am Main, Germany.
Singapore Reptile Skin Trade Association, Singapore.
Crocodile Farmers Association of Zimbabwe.
Roggwiler Tannery of Louisiana and TCIM, France.
Japan Bekko Association, Tokyo, Japan.

Supporters. (\$1,000 - \$3,000/yr)

World Wildlife Fund / USA, Washington, DC, USA.
Walter Herd, Offenbach (Main), Germany.
Dr. I. Lehr Brisbin, Savannah River Ecology Laboratory, Aiken, SC, USA.
Enrico Chiesa, Itahide S.R.L., Milan, Italy.
S. & J. Puglia, Alligator Adventure at Barefoot Landing, Myrtle Beach, SC, USA.

Chicago Zoological Society, Brookfield, IL, USA.

Wayne Sgrera, Vermilion Farms, LA, USA.

Warren Entsch, Janamba Croc Farm, Australia.

Keith Cook and Alicia Darbonne, Australian Crocodile Traders Pty. Ltd., Cairns, Australia.

John Hannon, Australian Crocodile Exporters Pty. Ltd., and Lagoon Crocodile Farm Pty. Ltd., Darwin, Australia.

Phil Steel, Crystal River Alligator Farm, FL, USA.

A. Handoko, PT Binatankar Perdana, Indonesia.
American Alligator Council, Tallahassee, FL, USA.

Somkiat Wannawatanapong, Wabin Crocodile Farm and United Leather Product Co. Ltd. Thailand.

Newport Aquarium, Kentucky, USA.

Contributors. (\$500 - \$1000)

Peter Freeman, Hartley's Creek Crocodile Farm, Queensland, Australia.

Paul H. Slade, Nell and Hermon Slade Trust, Mona Vale, Australia.

Terry Cullen, Cullen Vivarium, Milwaukee, WI, USA.

Mauri USA, Inc., New York, NY, USA.

Antonio Quero Alba, Eurosuchus SA, Malaga, Spain.

Mike Husby, Savannah Leather, Cairns, Australia.

George Saputra, C.V. Alona Jaya, Indonesia.

Alian Ruswan, Medan, Sumatra, Indonesia.

Manuel Muñiz, Cocodrilos de Chiapas, Mexico.

Dave Durland, Durland-Larson Sales Inc., Dallas, TX, USA.

Claybrook Farms, Christmas, FL, USA.

Netherlands Foundation for International Nature Conservation, Leiden, Netherlands.

Howard Kelly, Ramsgate, South Africa.

National Geographic Society TV, Washington DC, USA.

Z. Casey, Pelts and Skins, Kenner, LA, USA.

F. Mazzotti, Belle Glade, FL, USA.

J. Caraguel, Cartagena, Colombia.

Ferrini Italia Inc. Dallas, TX, USA.



EDITORIAL

THIS NEWSLETTER WAS DELAYED TO ALLOW INCLUSION OF ALL THE RESULTS OF THE CSG 15TH WORKING MEETING. THE NEXT NEWSLETTER, VOL. 19 (1), WILL BE DISTRIBUTED ON SCHEDULE IN MARCH WITH THE SUBSCRIPTION RENEWAL AND REQUEST FOR DONATIONS FOR THIS YEAR. --
Editors.

EDITORIAL CORRECTION. In the editorial of the last issue (Newsletter Vol 18, No. 3), I quoted from a letter from Mr. Julian Bakker of Latin America Environmental Society of Holland/Colombia as an example of dishonest Animal Rights statements and attempts to smear the farm industry. Mr. Bakker has contacted me explaining that his organization is not an dishonest Animals Rights organization and he has quite correctly made clear that the Editorial statements were erroneous and an out of context quote from a letter sent to a member of the CSG in which Mr. Bakker merely requested information about the humane killing of crocodilians.

It is clear from the subsequent correspondence between Mr. Bakker and I, that in fact his organization shares substantial interest with the CSG in ensuring that treatment of crocodilians on farms is humane. The information on the CSG policy on humane killing of crocodilians has been forwarded to Latin America Environmental Society and we hope to work cooperatively on matters of common concern in the future. -- James Perran Ross,
Editor.

MEETING

15TH CSG WORKING MEETING IN CUBA. One hundred and sixty nine registered delegates from 30 countries gathered in Varadero, Cuba for what several have described as one of the most pleasant and exciting Working Meetings they have attended.

The Cuban Organizing Committee, comprising representatives of the host ministries, Ministry of Science, Technology and Environment, Ministry of Agriculture and Ministry of Industrial Fisheries, provided outstanding services and facilities for the

meeting. The meeting room was first class, with international quality simultaneous translation and excellent technical assistance and projection equipment. In this setting we heard a series of presentations laying forth developments in

smaller animals first proposed by Professor Messel. Other presentations further detailed the effectiveness of well regulated harvest in maintaining crocodilian populations. That afternoon an extended series of presentations



CSG Steering Committee in session, Professor Messel, CSG Chairman, makes a point with arm outstretched. Vigorous discussion and rapid responses move CSG's conservation agenda forward.

crocodilian research and management in Cuba and throughout the world.

The meeting opened with a welcome from Commandante of the Revolution, Guillermo Garcia, head of the Flora and Fauna Unit and a prominent supporter of conservation in Cuba. The first session featured results from Cuba's extensive crocodilian research efforts including a re-examination of population estimates of Cuban crocodile in the Zapata swamp by Toby Ramos, Cuba's senior crocodilian researcher. A session on crocodilian veterinary treatment organized by Fritz Hucherzermayer brought new understanding of crocodilian disease to the meeting and also included a paper by Lisa Davis using DNA analysis to show for the first time the multiple paternity of alligator clutches.

The Tuesday morning session was opened with a special paper dedicated to Professor Harry Messel, Chairman of the CSG, and retrospectively analyzing 27 years of population data from the Northern Territory, Australia, a study begun by Professor Messel. These data substantially confirm the model of crocodilian population dynamics and the great negative influence of large adults on recruitment of

provided information on the American crocodile (*C. acutus*) in virtually every country of its wide range. A later meeting of the CSG *C. acutus* network developed additional strategies for research and conservation of this species.

Wednesday broke new ground for CSG and for SSC. For the first time we invited speakers from other specialist groups to share with us their experience of sustainable use of large reptiles. After a stimulating introductory presentation by Grahame Webb presentations were made Nick Mrosovsky and Rene Marquez on sea turtles, Rick Hudson on snakes and iguanas, Lee Fitzgerald on Tegu lizards and Vicente Benovides on the Cuban *Cyclura*. Elvira Carillo described the current Cuban program for sustainable use of hawksbill turtles. No clear consensus emerged and many cautions and qualifications were expressed, however, all the presentations demonstrated levels of exploitation of large reptiles that appear not to depress populations. The various methods and approaches by which this is possible provided important material for further development of the sustainable use concept in reptiles.

A forum and panel discussion on trade focused primarily on presentation and discussion of the report of the CSG task force on Market Driven Conservation of crocodilians. This task force was formed at the 14th Working Meeting in Singapore and presented the results of two years activities developing an information base and draft policy for CSG to approach this complex issue. The general conclusions of the report were that the issue is complex and will require additional full time professionally expert work to complete. A draft proposal to the Organization for Economic Cooperation and Development (OECD) for this work was discussed. New and greatly improved information on skin trade statistics was presented and a continuing effort to improve these statistics in cooperation with the CITES Secretariat and WCMC is underway. A detailed series of recommendations and a draft CSG policy were presented for review and approval.

On Thursday the morning session discussed the conflicts that arise between people and crocodiles when conservation programs lead to increased crocodile populations. Examples of the many problems and some of the organized systems for solutions were presented along with much valuable discussion. Programs such as the nuisance alligator program in Florida, USA, and the crocodile control program, in Darwin, Australia, combine crocodile removal with public relations and sound biology to satisfy both the public and conservationists. In discussion, the conflict between emotional and scientific approaches was evident and the meeting concluded that additional discussion, examination of case studies and the development of CSG guidelines would assist countries experiencing crocodile problems to develop nationally appropriate solutions.

The final session of the meeting presented a series of general papers on conservation and biology. Outstanding among these were the presentation on alligator thermoregulation in the field by Stanley Howarter, and the very distressing information on the decline of the Chinese alligator by John Thorbjarnarson. Details of this problem and the CSG response are discussed in the Steering Committee minutes below.

The 15th Meeting continued the CSG tradition for outstanding social interactions as well as scientific value. The three official socials, welcome cocktails with an amazing sea food

buffet, the Wednesday barbecue social and the closing dinner, once again thinned the ranks and reddened the eyes of participants in the following morning sessions. Cuban hospitality, Cuban music, Cuban dancing and abundant Cuban rum kept participants hard at work. Some mysteries remain. Why one member of the Steering Committee (who can remain nameless) presented himself at his hotel reception desk, naked, having locked himself out of his room at 4.00 am is one them. No doubt there are other stories best left untold.

The meeting will be memorable, for the fun, for the excellent presentations, for the fine facility and organization, not the least for the serious advances in biology, sustainable use, market driven conservation and the alert to the current emergency with the Chinese alligator. The participants return home with new understanding of crocodilian conservation issues, new tasks and new challenges. The CSG Chairman wishes to particularly thank all the participants and our Cuban hosts. The Japanese Bekko Association, St . Augustine Alligator Farm, Japanese Ivory Association, Alligator Adventures, and Sriracha Crocodile Farm all provided financial support to the meeting organizers. Roberto Soberon deserves special mention for his outstanding efforts coordinating the Cuban committee. The official support of the three host Ministries and of Comandante Garcia is also greatly appreciated. Crocodile conservation in Cuba is in good hands. -- James Perran Ross, *Executive Officer, CSG*.

POPULATION AND HABITAT VIABILITY ANALYSIS OF THE CUBAN CROCODILE. Immediately following the 15th Working Meeting (January 21-25) about 25 CSG members and a dozen Cuban colleagues traveled together to Isla de Juventud to observe the 'Crocodile Festival' and to conduct a PHVA workshop to evaluate conservation needs of the Cuban crocodile *C. rhombifer*.

Under the guidance and leadership of Ulie Seal, Chairman of the Conservation Breeding Specialist Group, the PHVA divided participants into three working groups to address habitat issues, crocodile population issues and population modeling. Following a standard procedure of brainstorming, problem definition, solution proposals and action project descriptions, each group developed a series of specific recommendations. At regular intervals the three groups exchanged reports on progress

to maintain coordination. An early result of the exercise was the recognition of the very different perspectives held by Cuban and non-Cuban participants. While the non-Cubans all wanted to discuss issues of population growth, genetic diversity, impacts on habitat and effects of illegal harvest, our Cuban colleagues were universally preoccupied with the problems of obtaining adequate resources to conduct field research and how to promote understanding and action within the Cuban organizational structure. In discussion, these two perspectives were brought together resulting in a series of recommendations that address the issues of biology and conservation but do so via the mechanism of promoting action within the Cuban agencies with jurisdiction.

approximated the actual population, the effects of different rates of hybridization and hunting were evaluated. It became clear that with the current population size and previous history, hybridization cannot detrimentally affect population persistence, however, detailed genetic studies are needed to assess the degree to which F2 and higher backcrosses have allowed introgression of genes from one species to the other.

The analysis of additional mortality from illegal hunting was shown to be unimportant at present levels for the large Zapata swamp population. Current control measures that restrict illegal hunting should therefore be maintained. On the smaller reintroduced population on the Isla de Juventud, present



Opening session of the PHVA. l. to r. John Thorbjarnarson, Harold Nugent, Terry Cullen, Fritz Huchzermayer, Akira matsuda, Marcelle Gianelloni, Ulie Seal (additional Cuba and international participants outside frame. R. Godshalk photo.

Common preoccupations of all participants were whether hybridization in the wild with *C. acutus* and illegal hunting would compromise population recovery and persistence. The modeling process using VORTEX software, was useful for addressing both these issues. Inputs to the vortex model were modified to reflect current information after which the model produced population growth trajectories and size class structures similar to those observed in recent field work by Cuban researchers led by Toby Ramos. Reassured that the model then

illegal hunting pressure is sufficient to prevent recruitment or population expansion and will lead eventually to population extinction, although this will not become evident for about 40 years. However, the model suggested that reducing illegal hunting to about half the current rate will allow population growth, providing a realistic management goal.

Local wildlife wardens at the meeting explained that people are primarily hunting (illegally) for feral pigs and deer. Crocodiles are only killed opportunistically and as a by catch, although the meat is retained for local

consumption. Skins are discarded and there is no illegal trade. Enforcement is limited by resources and social factors. The similarities to African poaching problems suggested that a response modeled on African experiences, involving community management and local incentives might be applicable.

Recommendations addressing all these issues were drafted and after review and revision by participants, will appear in the final workshop report. -- Perran Ross.

MEETING OF THE ACUTUS REGIONAL NET (ARN) IN CUBA. During the 15th International CSG meeting in Varadero, Cuba, an ARN meeting was held and the following aspects discussed:

Dr. John Thorbjarnarson (Wildlife Conservation Society) proposed to carry out a Workshop of GIS design for this species, in order to establish regional strategies for its conservation. A GIS is an information management tool that will help to identify regional problems, to establish a conservation policy and to raise funds. Recently, the WCS

Thorbjarnarson gave some details about the workshop, and asked for some possible places, among the distribution area of this species, where the workshop could be held. The workshop will be during the first semester of the year 2001, and could be regarded as a CSG Regional Meeting.

In relation to the review of the *Crocodylus acutus* section of the CSG Action Plan, 2nd edition 1998, Andreas Schubert, from Dominican Republic, pointed out that the conservation project of this species population in Lago Enriquillo is a high priority.

Finally, the necessity to have an ARN website, that will help the net to be considered as a thematic group was discussed. Ana Maria Trelancia, from Peru, will lead this project. -ARN coordinators Alfredo Arteaga, Alvaro Velasco (Venezuela), Ana María Trelancia (Perú), Luis Sigler (Mexico) y Roberto Soberon (Cuba).

ISLE OF PINES CROCODILE WEEK FESTIVAL. The Cuban Crocodile Festival is a new event designed by the Cuban National Crocodile Program (Flora y Fauna), in conjunction with the



Childrens theatrical troupe, Crocodile Festival, Isla de Juventud. Swamp animals, a frog, a dove a butterfly and a Cuba crocodile are featured. R. Godshalk photo

carried out a workshop of GIS for "jaguar" (*Panthera onca*) in Mexico, and the WCS is interested in continuing this type of initiative. Dr.

Jardin Zoologico de la Habana and the Louisville Zoo (USA). Its purpose is to help raise public awareness about the reintroduction of Cuban

crocodiles (*Crocodylus rhombifer*) in the Lanier Swamp on Isla de la Juventud, and profile the animal's role in the balance of nature. A major emphasis is to promote the Cuban crocodile as a strong patriotic symbol unique to Cuba's natural heritage. The Festival is held in communities adjacent to the reintroduced crocodile population because of the potential for human\crocodile interaction, and the necessity of minimizing conflicts by creating a conservation ethic. Cuba's educational infrastructure greatly facilitates this necessary component of a successful reintroduction project.

The Festival is aimed at primary school children in the communities, with the active participation of local teachers, political figures and professionals from the Cayo Potrero crocodile farm. The Festival has become an important

Steering Committee

15-16 JANUARY 2000, VARADERO, CUBA. The meeting opened 2.00 p.m. attended by 21 Committee members; H. Messel, P. Ross, O. Menghi, S. Broad, V. Lance, D. Ashley, F. Huchzermayer, J. Thorbjarnarson, G. Webb, H. Jenkins, J. Hutton, R. Ferguson, K. van Jaarsveldt, M. Rodriguez, P. Stobbs, A. Woodward, A. Larriera, A. Velasco, W. King, C. H. Koh, and 21 observers: S. Mainka, E. Fernandez, T. Dacey, N. Shimaoka, N. Ishii, M. Muniz, B. Figueroa, L. Sigler, M. Lopez, A. Alba, P. Guemene, A. Britton, J.J. Perez, A. Matsuda, R. Soberon, R. Riena, Z. Campos, F. Buitrago, R. de Sola, G. Villaroel, N. Mrosovsky.



School children, teachers, CSG members, staff of the Cuban crocodile re-introduction project, local political leaders and residents, building community conservation, Isla de la Juventud, Cuba. R. Godshalk photo.

focus for these communities. After months of training and practice, local school children provided a display of coordinated marching, music, dancing and theatrical skits promoting friendship, conservation of wetland animals and plants, and of course the Cuban crocodile. --
Marcelle Gianelloni & William McMahan --
Louisville Zoo, 1100 Trevilian Way, Louisville KY 40233, USA.

Financial Report. P. Ross. Revenue of \$78,038 and expenses of \$54,240 were reported for 1999. A cash flow crisis in early 1999 caused by a deficit in donations was avoided by reducing expenses. A special appeal for donations has stabilized the current balance. A request was made by S. Broad and P. Stobbs for standard accounting in 'accrual' format to clarify financial obligations.

ANÁLISE CONJUNTURAL DA ECOLOGIA E MANEJO DOS CROCODILIANOS BRASILEIROS: PROPOSTA PARA O DESENVOLVIMENTO DE SISTEMAS INTEGRADOS DE CONSERVAÇÃO E MANEJO

Taxa	Geographic distribution ¹	CITES Status ¹	Conservation problem	Current management	Proposed management	contact institutions ³
<i>Caiman crocodilus</i>	MA, MT, GO, TO, PA, AM, AP, RR, AC, RO	Appendix II	Poaching (meat)	Ranching (AM)	Harvesting Ranching	INPA (AM), SCM (AM)
<i>Caiman latirostris</i>	RS, SC, PR, SP, RJ, MG, ES, MS, GO, BA, SE, AL, PE, PB	Appendix I	Habitat loss	Farming (RS, SC, SP, MG)	Farming, Ranching (AL?)	USP, UNESP-RC (SP) FUNDAÇÃO ZOOBOTÂNICA (RS)
<i>Caiman yacare</i>	MS, MT	Appendix II		Ranching	Harvesting	EMBRAPA (MS), COOCRIJAPAN (MT)
<i>Melanosuchus niger</i>	MA, MT, GO, TO, PA, AM, AP, RR, AC, RO	Appendix I (IUCN Red List Vulnerable)	Poaching (meat)		Farming (PA?) Ranching (AM) Harvesting (AM)	INPA (AM), SCM (AM)
<i>Paleosuchus palpebrosus</i>	RS(?), SC(?), PR, SP, RJ, MG, ES(?), MS, GO, MA, TO, PA, AM, AP, RR, AC, RO	Appendix II		Subsistence hunting	Subsistence hunting	INPA (AM)
<i>Paleosuchus trigonatus</i>	SP(?), MS(?), MT, GO, MA, TO, PA, AM, AP, RR, AC, RO	Appendix II		Subsistence hunting	Subsistence hunting	INPA (AM),

Luciano M. Verdade, Laboratório de Ecologia Animal / ESALQ / USP, Caixa Postal 09 Piracicaba SP 13418-900 BRASIL. E-mail: lmv@carpa.ciaagri.usp.br; Maria Teresa Q. Melo, Fundação Zoobotânica do Rio Grande do Sul, Museu de Ciências Naturais, Av. Salvador França, 1427 Porto Alegre RS 90690-000 BRASIL. E-mail: tereca@plug-in.com.br; Ronis da Silveira, Sociedade Civil Mamirauá & Coordenação de Pesquisas em Ecologia / INPA, Caixa Postal 478 Manaus AM 69011-970 BRASIL. E-mail: ronis@inpa.gov.br; Zilca Campos & Guilherme Mourão CPAP / EMBRAPA, Rua 21 de Setembro, 1880 Corumbá MS 79300-900 BRASIL. E-mail: zilca@cpap.embrapa.br, gui@cpap.embrapa.br.

¹Brazilian States: AC (Acre), AL (Alagoas), AM (Amazonas), AP (Amapá), BA (Bahia), CE (Ceará), DF (Distrito Federal), ES (Espírito Santo), GO (Goiás), MA (Maranhão), MG (Minas Gerais), MS (Mato Grosso do Sul), PA (Pará), (MT) Mato Grosso, PE (Pernambuco), PB (Paraíba), PI (Piauí), PR (Paraná), RJ (Rio de Janeiro), RN (Rio Grande do Norte), RS (Rio Grande do Sul), SC (Santa Catarina), SE (Sergipe), SP (São Paulo), RO (Rondônia), RR (Roraima), TO (Tocantins).

² CITES: Convention on International Trade of Endangered Species.

³ Institutions: INPA: Instituto Nacional de Pesquisa da Amazônia, Cx. Postal 478, 69011-970, Manaus, AM, Brazil;

SCM: Sociedade Civil Mamirauá, Cx. Postal 38, 69470-000, Tefé, AM, Brazil; USP: Laboratório de Ecologia Animal / ESALQ / USP, Cx.P. 09, Piracicaba, SP, 13418-900, Brasil. UNESP-RC: Depto de Zoologia / UNESP - Rio Claro, Cx. P. 199, Rio Claro, SP, 13506-900, Brasil FUNDAÇÃO ZOOBOTÂNICA: Fundação Zoobotânica do Rio Grande do Sul, Museu de Ciências Naturais, Av. Salvador França, 1427, Porto Alegre, RS, 90690-000 Brasil; EMBRAPA: Centro de Pesquisa Agropecuária do Pantanal / EMBRAPA, R. 21 de Setembro, 1880, Cx. Postal 109, 79320-900, Corumbá, MS; COOCRIJAPAN: Cooperativa dos Criadores de Jacaré-do-Pantanal, Distrito Industrial de Cáceres Q.Ind.2/1, Cx. P. 131, Cáceres, MT 78200-000

Distribution of donations by region and the possibility of raising funds for projects were discussed. A revised budget estimate for 2000 was distributed indicating anticipated expenses of \$90,864 and donations required in 2000 of \$70,712.

SSC Red List Criteria Revisions. The recent revision process for the IUCN Red List Criteria was summarized. There was general dissatisfaction with revisions that make the Red Listing process more complex and bureaucratic without addressing the real problem. Many difficulties result from the requirement for one-size-fits-all and replacement of dialogue on status with a rigid formulaic approach. Suggestions made by the Committee were:

Separate criteria for rare and common species (Stobbs).

Separate criteria for different kinds of organisms (Ross).

Need for 'reality check' of criteria conclusions (Webb).

Sue Mainka of IUCN defended the process as transparent, quantitative and objective, noting the proposed review of controversial listings and establishment of 'Red List Authority' within SG's. Concerns were expressed about IUCN credibility if the process is not clear. No conclusion or actions were proposed.

Veterinary Group. Fritz Huchzermayer reviewed activities coordinating veterinary interests in CSG with the goal of facilitating exchange of ideas. Some practical difficulties were experienced keeping in contact with all the CSG vets but some exchange has occurred, resulting in a rich veterinary session at the 15th Meeting. Fritz was congratulated on efforts to date, and when responding positively to a request from the Chairman to continue his efforts, was encouraged to do so. In additional comments the Steering Committee recommended integration of wildlife aspects and interaction with other veterinary interests in SSC such as the Veterinary SG and Conservation Breeding SG.

Adam Britton reported on his web page at <http://crocodilian.com/crocfaq.htm> that contains crocodilian husbandry information coordinated with Fritz.

Meso-American Organization. The item was deferred and continued the following day. Alvaro Velasco introduced Fabio Buitrago of

Nicaragua who described the formation and activities of AMICRO, a new grouping of crocodilian investigators in Central America. Fabio was congratulated by Professor Messel and strongly encouraged to continue activities in conjunction with CSG. Prof. Messel proposed that when AMICRO felt confidently organized he would invite an AMICRO Representative to join the Steering Committee.

Panama - Obdulio Menghi described recent contact with the Panamanian government which wished to conduct caiman surveys. A proposal for a survey in the Darien was recently reviewed by the CSG Executive Officer.

Latin American Report. Alejandro presented a report prepared by Brazilian CSG members summarizing crocodilian status in Brazil (see page 8). He also presented Volume 2 of Conservation and Management of Caimans and Crocodiles of Latin America, with 13 new papers from the region that is in press and expected mid 2000 (see page 23).

Recent meetings and contacts with Peru and Paraguay were reported in the last Newsletter. New contacts with field researchers in Uruguay were reported. Current status of the Argentina ranching program was detailed. The project produced its first skins in 1999 and is continuing activity and success. The initial production of 400 - 2000 skins in 1999-2001 will be used domestically. A brochure on sustainable use/conservation aspects of the program for attachment to products was presented. A new ranching program in the state of Chaco has been approved and is underway. Representatives of this program are attending the CSG meeting. Obdulio Menghi noted that the 'qualification rules' for accepting new ranching programs in Argentina were first articulated in the CITES App II down listing for Argentina. They are now codified as a ministerial resolution to allow national implementation and requiring review by the CSG and approval by the CITES Standing Committee to add additional programs.

Proposal for Sustainable Use of black caiman in Mamiarua Biosphere Reserve, Brazil. John Thorbjarnarson described the project to allow legal and controlled use of black caiman in the reserve by 'caboclo' local communities. Project planning continues and CSG members reviewed

the proposal prepared by Ronis da Silveira but implementation will require change in Brazilian wildlife protection laws. CSG will continue to monitor, advise and support.

Current problems in Venezuela caiman harvest program. Alvaro Velasco and Roldan de Sola described the current cycle of economic events leading to reduced harvest of caiman in Venezuela. Low prices, low demand and increasing government taxes makes harvesting caiman skins unprofitable and so landowner applicants to the harvest program are greatly reduced. As a result only 10,000 skins were harvested in 1999. The caiman resource remains abundant with a potential sustainable annual harvest estimated at 80,000 skins. Reduced license revenues are affecting the management program.

Jon Hutton drew attention to a linguistic confusion between 'quota' and 'harvest' that confused overseas authorities. The estimate of the potential sustainable harvest of caiman from Venezuela remains 60,000 - 80,000/ year but the actual harvest, driven by demand for hunting licenses, is only 10,000 and there is no imposed 'quota'.

Summary of crocodile conservation issues and progress in Africa since the 14th CSG meeting.
Reported by Richard Ferguson

Egypt. The request to CSG for assistance with surveying the *C. niloticus* population of Aswan dam arose about 2 years ago - help was offered but there has been no further communication. Reports from fisheries scientists from Zimbabwe who have been in the area in the last 2 years indicate that the population density is probably similar to that found in Lake Kariba, Zimbabwe. It is apparently a highly productive lake with large fish populations and there are increasing reports of conflict between crocodiles and fishermen.

Sudan. Despite the interest by the Sudanese government in a national crocodile survey reported at the Singapore meeting there has been no response to the letter from the Chairman of CSG or to 3 letters sent by the VC (Africa). Presumably this is because the bulk of the crocodile population is in the south. Richard will continue to make contact with the Wildlife authorities - next attempt at COP11 in Nairobi. At the same time it may be possible to get an

unofficial (i.e. not IUCN or CSG) visit to the south, possibly using the missionary network in existence there.

Ethiopia. We are aware of no new wild surveys. The government farm at Arba Minch is still operating despite having been flooded for several months. Some large skins are now being harvested but their aim is apparently to close the farm down.

Kenya - D. Haller, Executive Officer of newly formed Crocodile Producers Association of Kenya, reported that the Kenya Wildlife Service is still relatively active regarding wild crocodile populations and problem crocodiles. The wild population is increasing in many areas with consequent conflict problems because human populations are also expanding. The major problem area is Lake Turkana, where the shoreline has been divided up into fishing concessions and there has apparently been a deliberate effort to reduce the population from the levels known in the past. It is not clear if the skins of these animals have been entering trade. There are 4 farms remaining and there has been considerable success recently (through a cash incentive) in promoting local custodianship and collection of eggs for the farms, particularly along the Tana river.

Uganda. Some surveys (aerial and spotlight) were carried out with CSG assistance in 1998 but these were beset by logistic problems. These showed that significant populations remain in protected areas and probably in some swamps. A workshop to discuss crocodile management in captivity and in the wild was held in September 1999. This was attended by representatives from the farm, Uganda Wildlife Authority, Makerere University, and other wildlife bodies, with tutors from U.K. The conclusions of the workshop included the need for a survey of the wild population, attending to problem crocodile areas, establishment of a captive breeding stock, defining areas suitable for reintroduction of crocodiles and recommendations regarding health, veterinary management and humane slaughter of the farmed animals.

Rwanda. The Vice Chairman was approached in early 1999 about the prospects for farming crocodiles. He provided basic information and nothing heard since. This group intended to get their adult stock from Uganda.

Tanzania. Another aerial survey of the wild population in protected areas has just been completed, showing a stable population in most

areas. Some training and experience in spotlight surveying was also provided to staff of the Wildlife Division. A small area on the lower Rufiji river was surveyed and WD staff were detailed to carry out a survey of Nyumba ya Munga in northern Tanzania, an area in which they have major human / crocodile problems. A single spotlight survey was carried out on the Wami river in late 1999 by the GTZ project in Sadaani Reserve. There are also reports of human / crocodile problems along this river. The density ranged up to 20 animals of all sizes per km, concentrated in the section above the tidal estuary and downstream of human habitation. The CITES proposal from Tanzania is discussed in detail below.

Mozambique is becoming more active following political stability but information is fragmentary. Crocodile populations in the lower Zambezi and in lake Korabassa are thought to be extensive. A total of 350 'problem' animals were removed and their skins exported in 1999 but some had small sizes (20 cm belly width) suggesting this harvest is poorly controlled. Reports of transfer of eggs and hatchlings from lake Korabassa to South African and Zimbabwe farms persist.

In South Africa the small wild populations remain well protected. Live exports of Nile crocodiles to China by one operator have apparently been suspended due to high mortality. Information from other southern African countries remains poor.

Several new information sources for West Africa were reported. In Cameroon and Gabon, Chris Wild of San Diego Zoo is collecting information. An Italian group has made recent reports from Nigeria and Bruce Shwedick and Ekke Waitkuwait recently renewed activities in Cote de Ivoire. These reports all suggest that despite intense pressure from human occupation and the bush meat trade, *Osteoleamus tetraspis*, remains widespread and in many places, common. In contrast, populations of *C. cataphractus* and Nile crocodile are fragmented and small.

Current issues in Madagascar. John Hutton reported on a recent inspection visit to assist evaluation of problem farms by CSG members Hutton, Jelden and Jenkins. In December 1999 a proposal was made in the Madagascar Parliamentary Committee to remove protected status of *C. niloticus*, apparently in response to

increased reports of human-crocodile conflicts. The Management Authority (Eaux et Forets) is reluctant. The CITES Animals Committee has responded discouraging removal of protected status. The Management Authority has proposed an alternative request to increase 'nuisance' quota from 200 to 500 hides. This request was seen by the committee as yet another example of the problem of human-crocodile conflicts being manipulated politically to promote increased wild harvests without adequate regulation, and serious misgivings were expressed. After extensive discussion, a working group (Hutton, Jelden, Ferguson, Webb, Velasco) was asked to draft guidelines for wild harvest. The working group later returned the following draft for adoption by the Steering Committee.

BRIEF REPORT FROM A WORKING GROUP TO ADVISE ON THE APPROPRIATE CSG RESPONSE TO PRESSURES FOR NEW HARVEST PROGRAMS BASED ON THE HUNTING OF WILD CROCODILES.

The working group quickly compiled a list of problems which historically have accompanied the harvesting of juveniles, subadult and adult crocodiles directly from the wild. These may broadly be divided into **biological, institutional** and **economic** problems.

Biological

- Direct off-take from the wild is less precautionary than the collection of eggs / hatchlings for ranching.
- Hard to set biologically meaningful off-take quotas.
- Sustainability can be achieved without a knowledge of absolute numbers through adaptive management, provided appropriate monitoring systems are designed and adhered to.

Institutional

- Sophisticated systems of control exist in many countries (e.g. USA) but these can never realistically be applied in much of the rest of the world.
- It is commonly the case that, even where monitoring takes place, there is no feedback to the off-take quota.
- While monitoring is fundamental to success, experience has shown that monitoring programs often quickly deteriorate for a range of reasons.

- Where taxes are derived according to the size / value of harvested skins, details of the harvest may be distorted or misrepresented.
- In many developing countries, crocodiles are not seen as a conservation priority, or there may be no mechanism to reinvest funds from the harvest and trade back into management.
- Crocodile/human problems are often highest where crocodile densities are lowest, and commercial hunting does not always solve nuisance crocodile problems.

Economic / Commercial

- Where offtake quotas cannot be achieved in designated areas, it has been known for poaching to take place in protected populations.
- Where wild harvests and ranches / captive breeding co-exist, it is not unusual to see wild skins laundered through the farms.
- It is not uncommon for hunters to accumulate skins only to be told that these are not the size required by the buyer. When combined with inefficient harvesting techniques the number of animals killed may greatly exceed the "quota".
- There is often a high degree of wastage due to inappropriate preservation techniques.

The group recognised that this list can and should be expanded to demonstrate that the CSG appreciates the issues and difficulties involved.

Despite the many problems, the working group recognized that there are many cases where direct harvesting from the wild will be the most appropriate strategy, and that it is likely the next decade will see a rapid evolution of management programs in this direction.

Accordingly the group considered the essential elements for achieving sustainability. It was quickly recognized that habitat, density, sex ratio and country / locality related differences vary enormously, even within any particular species, and therefore the group suggests that the CSG will find it unproductive to focus at too-fine-a-level of resolution. Instead, the group suggests that the CSG should focus on a few simple but fundamental factors which will require tailoring for each situation, as follows:

- Offtake from the wild should be conservative unless comprehensive population data are available.
- There should be an effective ongoing monitoring system with quality control.

- There must be built-in mechanisms to reduce or stop harvesting based on monitoring results or other changed circumstances.

It is strongly recommended that the CSG increase its proficiency and capacity in the area of monitoring, possibly by organizing conceptual and training seminars on this subject (amongst other things) with a view to providing candidate programs with functional monitoring together with the necessary quality control. It is suggested that as various programs for wild harvesting are put forward, the CSG adopt a position as follows:

1. That the CSG insist on adherence to the three points above.
2. That the CSG offer technical cooperation for monitoring and its quality control.
3. That if any particular Party doesn't wish to involve the CSG (through its Chair) in the monitoring and feedback process, and if the Parties to CITES accept proposals on this basis, then FINE. But - the CSG cannot support programs under these conditions, and indeed may oppose them. Furthermore the CSG will scrutinize Article IV non-detriment findings within CITES, actively opposing harvest programs if data presented or other available information indicates that harvests are unlikely to be sustainable.

Finally, the group suggests that the CSG should find the means to examine as a case study the many harvesting programs that already exist amongst crocodilians in order to identify those factors which have contributed to success or failure.

Hank Jenkins reported that Animals Committee advice to Madagascar will be that removal of protected status is inappropriate and it would be better to address need for problem control by wild harvest. The following letter was drafted to support the Animals Committee advice.

Madame Fleurette, Director Generale
 Direction Generale des Eaux et Forêts
 Ministère des Eaux et Forêts
 BP243, 101 Antananarivo
 MADAGASCAR

Dear Madame Fleurette:

The Steering Committee of the IUCN/SSC Crocodile Specialist Group was held in Varadero, Cuba, on 15-16 January 2000 immediately prior to the 15th Working Meeting of the Group.

At this meeting, Hank Jenkins reported on discussions with the Ministry of Eaux et Forêts concerning the management and sustainable use of *Crocodylus niloticus* during his recent visit to Madagascar in December 1999. The issues raised by Hank were also reported in correspondence from the Vice-Chair for Africa of the Crocodile Specialist Group. The Steering Committee was advised that there is some political pressure from within the General Assembly of Madagascar to remove legislative protection on crocodiles. This move, we understand, is in direct response to increasing conflict between people and crocodiles that is resulting in unacceptable injury and loss of property, including in some cases, loss of human lives. The IUCN Crocodile Specialist Group is gravely concerned that such an action by the Government of Madagascar would have a profoundly negative affect on the conservation of crocodiles in Madagascar and applauds your efforts to resist such a move in favour of other less drastic management measures.

The management regime for *Crocodylus niloticus* in Madagascar that was accepted by the 10th meeting of the Conference of the Parties enables the CITES Management Authority of Madagascar to authorize the removal each year of a maximum of 200 "nuisance" crocodiles. The removal of "nuisance" crocodiles is a common management strategy employed by many countries that possess a wild crocodile resource. This provides the necessary flexibility to respond to individual cases of crocodile/human interaction or to apply practical management of specific areas in the interests of public safety.

In principle, the Crocodile Specialist Group supports the need for practical management of a species such as *C. niloticus*. In situations where there are increasing interactions between crocodiles and the general public, the most appropriate response by governments is to modify the management program by increasing the number of "nuisance" animals able to be legally removed from the wild population. In this regard, the Crocodile Specialist Group was advised that the Government of Madagascar has advised the CITES Secretariat that the number of

"nuisance" crocodiles able to be killed in 2000 under the management program has been increased to 500 animals.

If the skins of the additional crocodiles killed as "nuisance" animals are to be exported, this will effectively mean that the annual export quota of *C. niloticus* for Madagascar that was approved by the 10th meeting of the Conference of the Parties will be similarly increased. In order to allay any concerns that the additional animals are not simply a means of providing additional skins for export, but represent a need for the Management Authority to respond to increasing incidents of interaction between crocodiles and humans, detailed information on the following should be provided to the CITES Secretariat in support of the increase:

- i) frequency, nature and geographic extent of interactions, and
- ii) abundance of crocodiles in the areas of conflict.

The IUCN/SSC Crocodile Specialist Group encourages the Government of Madagascar to continue developing its crocodile management program to ensure that the wild resource is conserved and used on a sustainable basis. To this end the Group remains available to offer, as requested, technical assistance and advice to the Ministère des Eaux et Forêts

Yours sincerely

Professor Harry Messel, Chair IUCN/SSC Crocodile Specialist Group

cc. Malan Lindeque, CITES Secretariat

S.E. Asia report. G. Webb presented a summary report from Papua New Guinea, Australia, Cambodia, Burma, Laos, and Sri Lanka, indicating little new information or change in status.

Queensland, Australia developments in crocodile management Tom Dacey. Plans to hold a CSG Regional Meeting in Queensland to promote crocodile management there have not progressed since discussions by the Chairman with Queensland interests in late 1998. The Qld. Dept. of Environment has undergone restructuring that has delayed redrafting of the Qld. Crocodile management Plan. Some field surveys have been completed and a successful 'trial management zone' (a euphemism for a crocodile exclusion zone) has been implemented

in an area of high human crocodile conflict. However a reluctance to kill the removed crocodiles has resulted in a bottle neck with the available capacity of commercial farms to accept removed crocodiles exceeded. A CSG meeting would help address these issues and continued contacts with Queensland farmers and government will be pursued.

China - crisis situation of Chinese alligator: John Thorbjarnarson. New field work during 1999 revealed serious deterioration of the wild population.

SUMMARY REPORT ON CHINESE ALLIGATOR.
John Thorbjarnarson, Wildlife Conservation Society

While there is a large captive population, the Chinese alligator is on the verge of becoming extinct in the wild as a result of the virtually complete loss of natural low-elevation wetlands along the lower Changjiang valley. The current situation for these wild populations can be summarized as follows:

1. Alligators are only known from a small region in southeastern Anhui province, a tiny fraction of its former distribution.

2. While an alligator reserve of 433 km² has been declared, it only contains 13 officially designated sites that total 41 ha.

3. None of these sites offers what can be termed natural habitat, but consist of small ponds that are located either within or adjacent to villages, are completely surrounded by rice fields, or are biologically marginal oligotropic water bodies set in low hills.

4. While considered to be alligator refuges administered by the Anhui Province Forest Department, the ponds remain under the control of the local villages which use them for a variety of activities (crop irrigation, buffalo wallows, fish farms, duck rearing).

5. Alligators are only present at 10 of the 13 designated sites, and the total population of alligators at these sites is estimated to be 60, with the largest groups being 10-11 animals and a maximum of one adult female.

6. Reproduction is only taking place at two of the designated sites, but these eggs are routinely collected and the hatchlings retained in the Anhui alligator breeding center.

7. Alligators are still found in a small number of areas outside the designated sites, including one area where nesting is still taking place, but

the situation in these areas is even worse than at the designated sites.

8. The total population of wild Chinese alligators is estimated to be 130-150 and is declining at an annual rate of 4-6%.

The present Chinese conservation program is based on the legal protection of alligators and captive breeding. A successful breeding program has been developed by the Anhui Forestry Bureau, and in excess of 5,000 alligators are currently maintained at its center in the town of Xuancheng. However, while the number of alligators in captive breeding centers in China has boomed, the wild population has continued its steady slide towards extinction. The existing National Chinese Alligator Reserve is inadequate to ensure the long-term survival of alligators at any of the 13 designated sites. The future of wild alligators will hinge on efforts to rehabilitate habitat to create reserves where viable alligator populations can be established by releasing captive-bred individuals. A draft management plan for alligators, which places considerable emphasis on alligators re-introductions, has been developed by the Chinese government. We urge that this plan be refined, incorporating IUCN guidelines for re-introductions, and be undertaken as part of a larger program to conserve wetlands in the lower Changjiang valley.

Intense concern was expressed by the Steering Committee and many actions were examined to address this emergency situation.

- Continue ecological/habitat studies with local Chinese colleagues.
- Identify sites for potential re-introduction.
- Recognize and implement the existing draft national alligator conservation plan presented to the 14th CSG Working Meeting in 1998.
- Develop value added and sustainable use incentives for protection of the remaining habitats and populations.
- Remove the remaining wild population to captivity in the expectation of later re-introduction (following California Condor, blackfooted ferret and Arabian Oryx models).
- Purchase and protect remaining habitat or new habitat for reintroduction.

- Initiate contacts and discussions at the local and provincial level to discuss locally acceptable options.
- Alert other Specialist Groups and cooperating organizations.
- Work with other conservation organizations already active in China, e.g. WCS, WWF, TRAFFIC.
- Contact a wider suite of wetland and biodiversity interests, e.g. Ramsar, Biodiversity Convention.
- Develop global response from conservation interests similar to Panda and Tiger programs.
- Develop large scale funding through donor organizations such as WWF, GTZ.
- Pursue through CITES Standing Committee to UNEP/UN.
- Initiate highest level diplomatic and political contacts (possibly through IUCN and national diplomatic channels) to contact Chinese national authorities.

From this wide suite of options several important factors emerged. The large captive population of Chinese alligators in China provides some insurance and a time buffer to develop well considered and effective action. While loss of the remaining wild remnant and its highly disturbed habitat would be a setback, the species is unlikely to become extinct if protected habitat and reintroduction measures can be initiated long term. There was a need to approach the problem with great sensitivity to Chinese cultural perspectives and a global public outcry might be counterproductive at this stage.

The problem involves two different lines of approach:

How to best develop Chinese and international support and funding for the necessary action?

What the eventual conservation strategy might be?

While these two questions must be developed simultaneously, the conservation strategy must be developed with funding and Chinese inputs at every level and therefore the immediate need was to activate Chinese and international support. After extensive discussion through the CSG Working meeting the Steering Committee approved the following three pronged approach:

The immediate goal is to hold a meeting with senior Chinese government officials at the Nairobi CITES COP in April from which

additional discussion could be developed. To achieve this the Chairman will write to David Brackett Chairman of SSC (attached) alerting him to the situation and requesting his help to pass a letter over the signature of the IUCN Director General to the Chinese Forestry Commission (draft letter attached). These letters were discussed with the Chinese representative of CITES Management Authority present at the CSG Working Meeting. At the same time, CSG Steering Committee members with direct contact in China at the local and ministerial levels would quietly prepare the ground for the acceptance of the DG-IUCN letter. CSG would also continue to support and advise the existing cooperative program between Wildlife Conservation Society, Anhui Forestry Dept. and East China Normal University, working directly on the problem in Anhui province to develop the biological basis for effective conservation. The following letters were approved to initiate this action.

David Brackett, Chairman SSC
Re. Critical situation of the Chinese Alligator

Dear David:

At the Crocodile Specialist Group Steering Committee Meeting, 15-16 January 2000 we received disturbing new information from China indicating that the conservation status of the Chinese alligator has deteriorated and the species is in imminent danger of extinction in the wild. The CSG assigned an IUCN Red List category of Critically Endangered to this species in 1996 based upon its extremely restricted distribution and small population size. The efforts in China to expand captive breeding of the species were encouraged and the protection of the remaining wild population identified as a priority. Information collected in 1999 by a group of researchers from the Anhui (China) Forest Department, East China Normal University and the Wildlife Conservation Society (US) indicate that the area of occupancy and numbers of the wild population appear to have declined since CSG members last evaluated its status in the field in 1991. A summary report of the current dismal situation is attached. This situation is critical and current efforts to prevent further decline are clearly inadequate.

We are aware of the complexity of conducting conservation efforts in China and also the need for great sensitivity in raising the alarm about this situation. We do not want to alienate

the Chinese authorities who must eventually resolve the situation. We need a combination of funding and both short term and long term efforts developed in close consultation with the Chinese authorities. We need your help to develop the necessary levels of concern in China that we hope can lead to a coordinated effort to prevent the loss of this species. The moment is singularly appropriate as the Chinese Year of the Dragon Commences in February 2000. We feel that all conservation interests and the Chinese would be appalled if the last symbolic wild dragons in China disappear during the Year of the Dragon.

Our immediate goal is to convene an informal meeting with Chinese representatives at the 11 COP of CITES in Nairobi. We will also continue to advise the ongoing project conducted by Wildlife Conservation Society and also pursue some leads through direct contact that our members have with Chinese colleagues. Can I ask you to coordinate with me on a direct approach to the appropriate Chinese authorities to begin this process. I have attached a draft letter that we have developed in conjunction with Sue Mainka that we would like you to pass to the Director General of IUCN to assist this process. Can we also ask for your advice and assistance on any other avenues we should pursue. Best wishes.

Sincerely,
Professor Harry Messel, Chairman CSG

Draft letter for transmittal through Director General IUCN to Chinese Forestry Ministry.

Wang Zhibao
Minister of Forestry
Beijing, China

Dear Minister Wang:

The SSC/IUCN Crocodile Specialist Group (CSG) has recognized that the Chinese alligator is the most critically endangered crocodylian worldwide. Despite the success of Chinese efforts to prevent the killing of alligators and to breed them in captivity, wild alligators face a variety of problems as a result of widespread habitat loss. Today the species has been reduced to a tiny fraction of its former distribution, where it lives in small, artificial ponds in the midst of an agricultural landscape. While the CSG has for some time known that the species faced an uncertain future, recent information presented at

the 15th meeting of the CGS held in Cuba from 17-20 January, indicates that the situation is even more critical than previously believed. While a large captive population exists the species appears to be facing certain extinction in the wild unless significant actions are taken soon.

A 1999 survey conducted by the Anhui Province Forestry Department, the East China Normal University, and the Wildlife Conservation Society (US) covered virtually all the known sites where alligators are believed to remain, and estimated the total number of alligators in the wild to be less than 150, and declining at an annual rate of 5%. A National Chinese Alligator Reserve has been established with 13 sites in Anhui Province. However, in reality these areas provide very limited habitat protection and are incapable of supporting viable populations. Today, the largest known groups have only 10 individuals, and a maximum of one adult female.

Nevertheless, there is some cause for hope. A draft management plan has been drawn up by representatives of the Anhui Forestry Department and the CITES Management Authority of China. This plan addresses the need to protect wild populations of Chinese alligators and would include the establishment of new alligator populations using alligators from the Anhui captive breeding center. Chinese alligators have relatively small habitat requirements and it would not be necessary to establish large reserves to support viable populations. However, given the state of wetlands degradation in the lower Chang Jiang valley any efforts to maintain viable alligator populations may, of necessity, involve restoring wetlands systems from areas currently in agricultural production. We realize that efforts to protect and restore wetlands habitat can be costly, and that the Chinese government may require assistance in this matter. In this matter the IUCN is committed to work with the Chinese authorities to seek funding alternatives.

Time is of the essence and decisive actions are needed to avoid this looming conservation disaster. This is a particularly auspicious time, as China enters the year of the Dragon, to save what is a living symbol of the Chinese dragon and the Chinese culture. We hope that you can address this urgent matter, and to this end the IUCN/SSC Crocodile Specialist Group would be happy to work with you towards seeking viable solutions in consultations with the relevant government authorities in the PRC. To further discussions,

we would like to suggest the possibility of following up on this matter with the Chinese delegation at the 11th CITES COP in Nairobi in April.

Sincerely,
Director General IUCN

West Asia. Rom Whitaker submitted a copy of the special issue journal 'Envis' recently produced by Wildlife Institute of India. The volume contains updated reports from several Indian CSG members on current crocodilian status and is a useful source for this information. Unfortunately, a feature article by Dr. R. Bustard at the beginning of the volume makes a strong statement against use of crocodilians in India that appears to be unaware of recent developments.

Although active in early developments in crocodile conservation in India and Australia, Dr. Bustard has not been associated with crocodilian affairs for nearly two decades and the article reflects this out of date approach. The Steering Committee thought it important that Indian crocodile conservation interests should be made aware of this and the following letter was drafted.

Mr. S. K. Mukherjee
Wildlife Institute of India and Editor, Envis

Dear Mr. Mukherjee:

At the Crocodile Specialist Group Steering Committee Meeting, 15-16 January 2000 we received a copy of ENVIS, Vol 2., No. 1, June 1999, featuring Indian Crocodilians. This is a marvelous source of current information from Indian authorities and CSG members and very useful update of the Crocodile Strategy produced at the Indian Regional Meeting in Gwalior in 1998. We congratulate you on producing this valuable work.

We have a concern about the article authored by Dr. R. Bustard in which quite strong views opposing any consideration of sustainable use of crocodilians in India are expressed. We of course respect Dr. Bustard's right to express his own opinions. We are also aware of the high regard Dr. Bustard is held among our Indian colleagues due to his early efforts in crocodilian conservation in India 2-3 decades ago. However, we do feel obliged to point out that much has changed both in India and throughout the world over the last two decades of crocodilian

conservation. Therefore the views expressed by Dr. Bustard are not in consonance with the general view of most active crocodilian experts today, either within India or elsewhere.

At the CSG Regional Meeting in Gwalior in 1998 this sensitive topic received careful discussion and the formula developed at that meeting by Indian crocodilian biologists reflects a balance of Indian perspectives and the needs to find economic support for crocodilian conservation. The CSG fully supports your policy of very cautious evaluation of both consumptive and non-consumptive sustainable use of crocodilians in India. This perspective is also reflected in several of the papers in the ENVIS volume by currently active Indian researchers. We are therefore confident that the rather outdated views expressed in one article are not generally representative of the current thinking in India on this topic. We continue to support with great enthusiasm the efforts of our Indian CSG members to develop nationally appropriate methods to conserve crocodilians in India and we are grateful for the sympathetic consideration of their views by your office.

We look forward to continued cooperative interaction. Best wishes.

H. Messel, Chairman CSG

North America. Allan Woodward reported on recent production levels in USA. Total new hatchling production was estimated from egg collection data, captive breeding estimates, and incubation success rates reported for Louisiana and Florida (the two major producers) with a small adjustment made for additional producer states. Approximate live hatchling production was estimated as 360,000 in 1997, 285,000 in 1998 and 325,000 in 1999. About 15% of these are returned to the wild and approximately 75% can be expected to reach markets as skins. In addition, approximately 44,000 wild alligator skins (average length 7 feet) were produced in the US in 1999. Alligator skin prices are demonstrating a very small increase. Don Ashley reported that a Louisiana delegation was working with the US Management Authority to streamline permitting and tagging requirements and redesign the current alligator tag that was damaging skins during tanning. US was also developing a request to CITES to facilitate temporary import and re-export of skins used as trade samples.

Expansion of this proposal to include skin pieces and products was recommended by CSG. Some progress in improving accuracy of airport displays in US and Europe was reported. In response to a question, the Executive Officer reported no additional information on new *Caiman yacare* regulations that were alleged by US Fish and Wildlife Service to be drafted and approved but delayed since mid-1998 in the signature approval process.

Following the meeting a short report was received from Ruth Elsey on significant changes in Louisiana's alligator management program.

Close monitoring and extensive research tracking of alligators released to the wild showed good survival after release, with thousands being recaptured as adults in annual harvests. Louisiana Dept. of Fisheries and Wildlife staff are now developing protocols to require a lower percentage of hatched alligators to be released.

The Louisiana Alligator Marketing Cooperative was formed in 1998. This is a group of landowners working with trappers and processors to improve the quality and value of wild Louisiana alligators. This group handled approximately 7,000 wild skins in 1998 and 8,250 in 1999.

A resolution in the 1999 State Legislature established a seven member Alligator Task Force to examine issues in the industry. After several meetings reviewed data by staff biologists and administrators, the Task Force concluded that the return rate of ranched alligators to the wild should be reduced from 17% to 14%; a CITES tag fee of \$4.00 should be maintained to fund the alligator program; and support should continue for marketing and promotional efforts in cooperation with the Louisiana Fur and Alligator Council.

An experimental 'bonus tag' program was used in the September 1999 wild harvest. Trappers were issued with 10% more tags than their land would usually qualify for. The bonus tags were to be used on smaller alligators (4'- 5', i.e. up to 180 cm TL) as these occur in higher numbers than the normally targeted 6'-7' (183-213 cm) TL class. Drought conditions in 1998 led to low egg collection, but excellent water levels in 1999 led to one of the highest nesting years on record.

Rockefeller Refuge staff hosted a representative from US Fish and Wildlife Service in September 1999 to review problems with current CITES tag use. Emphasis was again

placed on the need for bar codes on CITES tags and Department staff traveled to Washington DC in October to follow up on these issues.

Science. Val Lance announced plans for a DNA workshop at San Diego Zoo in 2001 and briefly summarized current DNA work in the US. Dietrich Jelden reported that Mr. Mark Auliya of Bonn Museum, Germany, was starting a DNA examination of relationships of SE Asian crocodiles. Integration and communication between new DNA researchers and the existing well developed network of cooperating DNA researchers was recommended.

Roberto Soberon of Cuba presented a short description of development and plans for the research station at Monte Cabaniguan in eastern Cuba and their desire to establish this station as a research center for *C. acutus*. Several potential sources of funding support for this were suggested, through SSC to IUCN and WWF, direct to the Spanish and Canadian Government and to the European Community. The Chairman then thanked Roberto for his efforts organizing the CSG 15th working Meeting in Cuba.

Working Group on Market Driven Conservation.

Dietrich Jelden briefly summarized the extensive report produced by this task force that was distributed electronically and by mail to CSG Vice Chairs. Concrete outputs of the Task Force to date were a draft CSG policy on promotion of trade (see page 21 below), a series of action recommendations in the report and a proposal for an analysis of the crocodilian trade by the Organization for Economic Coordination and Development (OECD) in Paris. Additional ideas discussed by the Committee included the need to address the economic disincentives created by stricter domestic measures restricting import of personal effects. The Executive Officer was directed to begin the process of developing a proposal on this issue for transmittal through CITES Animals Committee for the next cycle of CITES resolutions in 2002. Overall, the Task Force considered that the activities required for coherent attention to this issue were more complex and time consuming than previously thought and would require full time qualified professional assistance. The potential of obtaining help from IUCN Economists was proposed. After discussion, Steering Committee members were invited to forward comments,

changes and objections to Dietrich by 31 January, after which the report would be taken as accepted and approved.

One item of intense scrutiny by the Task Force was accuracy of trade data. Don Ashley described his recent activities with WCMC to carefully review and correct CITES crocodilian trade statistics. Numerous well recognized sources of error and confusion have been identified including double counting, reporting permits issued not exports, end of year and late report problems. John Caldwell of WCMC had carefully corrected these errors and produced the current IACTS Trade report (included as an annex to the Task Force report) being the most accurate to date. Steven Broad announced that TRAFFIC was starting an illegal reptile trade analysis and would coordinate to provide any croc trade reports.

In discussion of the potential for trade endorsements by CSG, the models adopted by other conservation organizations including WWF and Forest Steward Council were noted. Endorsements at a distance through an independent subsidiary are recommended. The Task Force was asked to continue its work.

CITES Issues. The draft proposal of USA to allow temporary import and re-export of trade samples was discussed. Expansion of this proposal to include small pieces and products was recommended. The prior attempts and failures to address this issue in CITES were noted. The US proposal calls on CITES to examine this issue (Doc 11.52) and the CSG endorses this move and will pursue it at the 11th COP in Nairobi in April.

Tanzania Proposal. The proposal was circulated to most Steering Committee members prior to the meeting and received extensive detailed review. Discussion centered on the effects this proposal would have on subsequent requests to initiate wild harvesting in Africa and elsewhere. The existence of several very well regulated wild harvests was noted (USA, Papua New Guinea, Venezuela) and the economic forces driving these requests recognized. After extensive discussion it was decided that CSG should assist Tanzania set up a model program that could be the precedent and model for subsequent wild harvest proposals. The

guidelines developed on this topic (see above) served as the foundation for a detailed set of recommendations to Tanzania reflected in the following letter.

Mr. E. Severre, The Director of Wildlife
Ministry of Natural Resources and Tourism
Ivory Room, Nyere Rd.
P.O. Box 1994
Dar es Salaam
United Republic of Tanzania

Dear Mr. Severre:

At the Steering Committee Meeting of the Crocodile Specialist Group held 15-16 January 2000 the CSG recognized that there is an increasing trend toward direct wild harvests for crocodiles in many parts of the world. As a result, the CSG reviewed the experiences of its members to give guidance on the conditions under which such wild harvests are most likely to be sustainable. The members of the Group were unanimously of the opinion that wild harvesting presents some problems that require such management strategies to be approached with great caution. The Group went on to develop a general policy on this important matter to give guidance as to the circumstances under which the CSG will be able to offer support to downlisting proposals of this sort.

The CSG has identified the following three considerations to be fundamental to successful harvesting from the wild and will be unable to support proposals where these matters are not fully addressed:

- Offtake from the wild should be conservative unless comprehensive population data are available.
- There should be an effective ongoing monitoring system with quality control.
- There must be built-in feedback mechanisms to reduce or stop harvesting based on monitoring results or other changed circumstances.

We also examined the proposal of Tanzania to downlist its population of *Crocodylus niloticus* to Appendix II under Resolution Conf. 9.24 with these considerations in mind. Your proposal has many positive aspects reflecting the work of your department and, we believe, some inputs from the CSG. After the very long interaction between your department and the CSG on this issue we feel that the document is now

approaching a form and substance that the Parties at COP 11 will consider favorably.

To assist your preparations and to enhance the acceptability of the proposal to the Parties, we would like to suggest several areas where clarification or expansion might be helpful. Your proposal is the first submitted for a crocodylian under Res. Conf. 9.24 and also the first wild harvest under CITES proposed in Africa. We therefore expect that the proposal will receive specially stringent scrutiny by the Parties, and possibly by organizations opposed in principle to animal use. For this reason we suggest that presenting the most stringent and precautionary proposal that incorporates our policy above will enhance the probability of approval. The following suggestions are therefore offered in this constructive sense.

REGULATIONS. The draft regulations appearing in the proposal as Appendix 6 are based upon our earlier recommendations and should form the basis of a system of control that is effective and feasible in Tanzania. These regulations should be enacted and implemented so that the proposed mechanisms can be in place to begin harvest. Aware of the continuing tragedy of human mortality by crocodiles we suggest that this should be done as a matter of urgency before the COP and certainly prior to initiation of harvest and export of wild crocodiles.

QUOTA FOR RANCH PRODUCTION. We understand from the proposal that negligible production from ranches in Tanzania has been achieved and none can be expected for at least two or three years. We suggest that Tanzania should itself recommend a self imposed zero quota for ranch products until such time as any ranches come into production. We suggest that such an action would be very reassuring to the Parties, as it would eliminate any possibility of wild harvested skins entering international markets as ranch skins in excess of the wild export quota. At such time as any ranches achieve production a quota for those skins can be instituted to match the demonstrated production.

MONITORING CROCODILE POPULATIONS. A key element in every approved wild harvest system is a program of regular monitoring to ensure that the harvest is not having detrimental effects on populations that we agree should be maintained. Monitoring is also a valuable indication of effectiveness of control programs near human habitation where the approved goal

is to reduce, or even eliminate crocodiles that threaten people. In the proposal Tanzania demonstrates its capacity to monitor crocodile populations. We therefore strongly recommend that a regular monitoring program be instituted as an integral part of the wild harvest scheme. We suggest that this should be approached in three parts:

Effective monitoring of the wild harvest noting the exact locality, size and disposition of wild animals killed. This will be valuable both to assess the effectiveness of the program and to estimate the ratio of crocodiles killed to skins exported. As some crocodiles are inevitably killed and not recovered or their skins are unsuitable for export, this ratio is an important management tool. The collection of biological data (e.g. sex) from some of the sample is also valuable.

Continuation of the current regular aerial survey program to maintain comparative data on selected population. It is probably possible to reduce the scope of aerial surveys to a selection of indicator populations to reduce the costs, but continued aerial surveys will be a vital tool for estimating future population trends.

A limited program of spotlight surveys to calibrate the aerial surveys and also provide size class data. We are advised that CSG members Ian Games and Richard Ferguson have initiated training in the survey techniques with your staff and some limited surveys have been conducted and we recommend that this valuable practice continue.

Future harvest levels should be based on the results of this monitoring.

These monitoring activities will involve expenses and we recommend that you establish a mechanism for obtaining the necessary funds directly from the revenues obtained from skin exports. Many countries impose levies or tagging fees for this purpose, often assigning between 5% and 15% of the market value of skins to a special fund to support management activities. We recommend that you institute such a system at the beginning of the program.

Finally, we suggest that the precautionary sections of Res. Conf 9.24 can be satisfied if Tanzania invites an objective external review of the program at appropriate intervals where your harvest and monitoring data can be examined by independent experts who could also provide additional technical advice to the program. The appropriate body through which such review

should be requested is the CITES Secretariat and Animals Committee. The CSG remains available to provide technical assistance at your or CITES invitation.

Adoption of these suggestions by Tanzania would further enhance the quality of the proposed program.

Sincerely,
Professor Harry Messel, Chairman CSG
cc. Malan Lindeque, CITES secretariat, Alison Rosser SSC, Robert Jenkins CITES Animals Committee.

Mexico Proposal. The proposal of Mexico to downlist its population of *C. moreletii* to App II was circulated to many Steering Committee members prior to the meeting. In addition early drafts of this proposal received extensive review and input from the Vice Chair for Latin America and other Spanish speaking members. Great dismay was expressed that the final proposal as submitted to CITES was very different from the drafts upon which we had been commenting. Regrettably, the final submitted proposal omitted information on the status of the species in Mexico or throughout its range, instead presenting detailed data and a proposal for community ranching from a single restricted area. While the meeting was sympathetic to Mexico's development of crocodilian use, it concluded that the submitted proposal failed to meet the standard for information required by a proposal under Res. Conf. 9.24. The continuation of the proposed community egg collection and ranching program and the further development of detailed information and quantitative population surveys at several locations throughout Mexico was encouraged, noting that these can continue in the absence of downlisting. The general policy reflected in the proposal was approved. Development of ranching with community involvement and regular monitoring was seen as a useful direction for the Mexican program. Mexican representatives were urged to withdraw their proposal and a letter expressing these recommendations drafted.

Director General de Vida Silvestre
(INE/SEMARNAP)

Av. Revolucion No. 1425, Col. Tlacopac
Del. Alvaros Obregon, CP 01040
Mexico DF

Dear Sir:

At the Steering Committee Meeting of the Crocodile Specialist Group held 15-16 January 2000 we examined the proposal of Mexico to downlist its population of *Crocodylus moreletii* to Appendix II under Resolution Conf. 9.24 with a limited ranching program in Sian Ka'an. Prior to the meeting the proposal was reviewed by a number of CSG members. As you are aware our recommendation to you after extensive review and discussion was that you should withdraw the proposal and revise and resubmit to a later COP.

We understand that this might be a disappointment to you and we wish to reassure you of our continuing high regard for Mexico's National Program for Crocodilian Management and Conservation and our confidence that *C. moreletii* populations are widespread and in places abundant in Mexico. Unfortunately a proposal under Conf. Res. 9.24 requires you to document the status of the species on a national basis and such information was absent from the final version of the proposal as submitted. It seems unfortunate that the final proposal was modified significantly from earlier drafts that we reviewed and commented upon. We have assisted the development of your proposal for several years and continually advised you that quantitative survey data from several locations in Mexico would be valuable to demonstrate that *C. moreletii* has a wide distribution and abundance that disqualify it from inclusion in Appendix I of the convention. The addition of the published data on the population status in the other two range states, Guatemala and Belize, would further strengthen this conclusion.

We would like to comment favorably on several aspects of your proposal. The data submitted on the status of a small population restricted to a small area of Quintana Roo demonstrate that that population could probably be the basis of a small ranching program based on egg collection. The detailed analysis of that population is also admirable. We particularly encourage you to continue the community development aspect of this program. As the production of skins for the international market will require several years to achieve, we strongly recommend that you continue your development of this project as a pilot ranching program. This

can be achieved without a downlisting and including the successful results of a program will enhance future proposals. We are also most favorably impressed with the process developing in Mexico to bring government, private and business interests together to consult on crocodylian management and conservation. We are very confident that this process will lead to a balanced and effective crocodile conservation program. We hope you will join us in viewing the present situation as an opportunity to collect additional data and strengthen your proposal so that its approval at a future CITES COP can be achieved. We certainly intend to continue our assistance at every level to your efforts.

Sincerely

Professor H. Messel, Chairman CSG

cc. CITES Secretariat

Next CSG Meeting. In the absence of an invitation to hold the 16th Working Meeting, the Chairman proposed the meeting should be held in 2002 in Florida, USA, where logistic complications and costs could be minimized. Subsequent discussion suggested that the CSG Working Meeting could also be used to promote important CSG issues and that currently China and Mexico presented such issues. However,

without an invitation the Florida location remains the current candidate. The meeting ended at 1830hrs, 16 January 2000.

A short follow-up meeting of members of the Steering Committee was held 4.30 p.m. - 5.30 p.m. 20 January, 2000, to approve draft letters and the following policy statement (pages 21-22) on market driven conservation.

EDITORIAL POLICY - The newsletter must contain interesting and timely information. All news on crocodylian conservation, research, management, captive propagation, trade, laws and regulations is 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.



Crocodylus moreletii. male at Zoomat, Chiapas, Mexico. R. Muniz photo.

LA CONSERVACIÓN Y EL MANEJO DE CAIMANES Y COCODRILOS DE AMÉRICA LATINA.
VOLUMEN 2.

CONSERVACAO E MANEJO DE JACARES E COCODILOS DA AMÉRICA LATINA. VOLUME 2.

CONSERVACION AND MANAGEMENT OF CAIMANS AND CROCODILES OF LATIN AMERICA VOLUME 2.

Coordinated by Luciano M. Verdade and Alejandro Larriera

Second volume of this series produced Luciano and Alejandro to present recent results concerning crocodilian conservation in Latin America in Spanish and Portuguese. The volume is expected to be ready by mid 2000 and can be ordered from -- Alejandro Larriera, Bv. Pellegrini 3100, (3000) Santa Fe, Argentina. Tel: (544) 262 352 Fax: (544) 255 8955. yacare@arnet.com.ar

Table of Contents:

- Abercrombie, C., C. A. Hope and L. M. Verdade. El analisis del crecimiento en cocodrilianos.
- Amavet, P., R. Markariani and P. Sirikoski. Caracterización citogenetica de *Caiman latorostris* y *Caiman yacare* (Reptilia, Alligatoridae).
- Casas-Andreu, G. Hacia la conservación y manejo Sustentable del lagarto o cocodrilo de Pantano (*Crocodylus morletti*) en México.
- Coutinho, M and Z. Campos. A utilizacao de populacoes naturais de jacare (*Caiman crocodilus yacare*) como mecanismo de conservacao do Pantanal.
- Dal' I Ava, F., M. L. Figueria y L. M. Verdade. Historico da conservacao e manejo de jacares brasileiros.
- Da Silveira, R. Conservacao e manejo do Jacare- Acu (*Melanosuchus niger*) na Amazonia brasileira.
- Donayo, P., C. Piña y A. Larriera. Período de incubación, banda de calcificación, peso de los huevos y desarrollo embrionaria de *Caiman latirostris* a tres temperaturas diferentes.
- Forstner, M. R. J., y J. M. Forstner. Aplicaciones del DNA en la conservación de los cocodrilianos.
- Melo, M.T. Q. Dieta del Caiman latirostris en el Sur de Brasil.
- Piña, C., A. Imhof, N. Frutos, M. Medina y A Larriera. Tamaono de postura y medidas de huevos de *Caiman latirostris* en las Provincias de Santa Fe y Entre Rios, Argentina.
- Rodriguez S. R., M. A. Tabet y V. Berovides A. Nidificación del cocodrilo americano (*Crocodylus acutus* Cuvier) en el Refugio de Fauna " Monte Cabaniguan", Cuba.
- Sigler, L. Conservación y manejo de *Crocodylus acutus* en México.
- Verdade, L. M. Dieta y uso de habitat en *Caiman latirostris* en la region central del Esatdo de Sao Paulo, Brasil.

IUCN/SSC CROCODILE SPECIALIST GROUP (CSG)
POLICY ON THE MARKET - DRIVEN CONSERVATION OF CROCODILIANS

Over the last 10-20 years, and particularly since Agenda 21 emerged from UNCED in 1992, there has been a dramatic shift in the relationship between conservation and trade. Initially seen as a conservation problem, trade has increasingly been co-opted as a conservation solution. The IUCN/SSC Crocodile Specialist Group (CSG) has responded positively as both a facilitator and arbiter in this process, working with elements of business to promote sustainable use, eradicating unsustainable harvests and illegal trade. It is the CSG's experience that where trade is adopted as a conservation tool, it is in no-one's interest to see illegal or unethical trade prosper. There have been no records of significant illegal trade in crocodilians for several years.

The CSG has not been shy to draw broader lessons from its experiences, pointing out inconsistencies and contradictions in contemporary conservation philosophy, practice and regulation. In many cases the CSG has anticipated or been responsible for fundamental changes, especially within CITES. For example the CSG has:

- reversed the previously held conventional wisdom that captive breeding is always better for conservation than wild harvesting.
- highlighted the fact that CITES has a shortcoming in that Appendix I contains no remedial measures. As a result conservation funding has been distorted so that economically important but relatively common species have attracted the bulk of funding at the expense of truly endangered species.
- shown that it is often inappropriate to try and mark small parts and derivatives after manufacture. It is far easier and effective for control to ensure that all major products leaving range states are marked and managed in such a way as to guarantee the legality of the vast majority of raw material on the market.
- demonstrated the value of 'split listings' as a conservation tool.
- shown that, far from always compromising the effectiveness of the convention, reservations have sometimes proved of considerable value in making progress in CITES. The flexibility adopted by CITES towards crocodilians would not have been adopted if a number of Parties had not used their reservations to develop mechanisms which were subsequently adopted by CITES.

The CSG has experienced considerable skepticism towards its work to derive conservation benefits from trade, especially from the international 'animal rights' movement. Nevertheless, mainstream conservation agencies recognize that the outcome of the CSG's activities has been overwhelmingly positive for conservation. However, the CSG continually reviews policy and at its 14th Working Meeting held in Singapore from 14-17 July 1998 several problems were discussed and the group's approach to international trade was modified to be more proactive.

Participants at the 14th Working Meeting discussed two major new challenges to crocodilian conservation. The first problem relates to a suite of the most endangered species (*A. sinensis*, *C. mindorensis* etc.) which are in immediate danger of extinction in the wild, but for which large captive populations exist. Indeed, in some cases their numbers are so high that breeding has to be prevented because there are no remaining wild habitats for reintroduction. These species present a conundrum. Their survival in the wild depends either on the purchase of land to secure or create habitat, or on securing the goodwill and tolerance of rural communities to whom wild animals are a pest. Furthermore, their maintenance in captivity is an expensive burden to conservation budgets. The successful conservation of these species depends on sustainable funding and the consumptive use of captive specimens is often an attractive option. However, because they are truly endangered, there are numerous impediments to legal international trade, not least the articles to CITES.

The second problem is that conservation programmes based on trade face a suite of problems associated with market forces. These were predicted some years ago and indicate the maturing of the CSG's crocodilian conservation strategies. In some cases, the production of crocodilian hide from conservation programmes exceeds demand which, when taken together with the down-turn in the economy of major consuming countries, has resulted in a fall in prices. As a result, many national programmes for the conservation of crocodilians are facing severe setbacks.

The CSG acknowledged that, despite all the achievements in crocodilian conservation over the last 20 years, the major problems have been monitored and confirmed but rarely have they been solved. Without adequate resources conventional approaches have commonly failed as the ultimate factors affecting crocodilian conservation are economic and socio-cultural. In view of this, the CSG has decided to respond to the challenges as follows:

a) *Working Group*. The CSG will establish a Working Group to advise the Chairman and to form a focal point for action.

b.) *Critically Endangered Species*.

i.) The CSG will define and describe the problems for presentation to the international donor and conservation community with a challenge to fund various non-consumptive options (the purchase of land, maintenance of animals in captivity, compensation/financial incentives for people living with wild crocodilians).

ii) In the event that adequate funding is not forthcoming, the CSG will challenge the international community to assist in the development and support of innovative schemes based on economic consumptive uses of the animals in captivity (such as the auction of limited numbers of animals for collections and the development of value-added products).

c) *Trade and Markets in Conservation*

i.) The CSG will encourage and facilitate research into the linkages between trade and markets in crocodilian conservation together with an evaluation of lessons learned with a view to making predictions and recommendations. Amongst the type of questions which require answering are:

- What are the conservation impacts if programmes based on sustainable use and trade suffer due to economic failure?
- How have conservation programmes based on sustainable use and trade adapted and have they been able to continue their conservation focus, or do economic/market factors grow to dominate?
- Is there a case for a special measures (such as exemptions under WTO or 'green labelling') for trade resulting from conservation action?

ii) The CSG will encourage the promotion of legal crocodilian products from CITES approved programmes giving benefits to conservation. In relation to this the CSG will also commence an active programme of support to the legal trade. This will include:

- Review of the current situation with respect to trade in crocodilians so that well supported, definitive statements can be made on the status and conservation value of trade. This may require the revision of the system of data collection related to harvesting and trade.
- Examination of market distortions and disincentives with a view to removing or attenuating these. This will include an examination of the efficiency and conservation consequences of the CITES regulations and Stricter-than-CITES domestic measures which apply to the movement of personal effects of Appendix II species from one country to another. The appropriate steps will then be taken to standardize these regulations and to promote the free movement of legally harvested and traded crocodilian products. This may require the formulation of new CITES resolutions.
- Examination, with a view to its removal, of inaccurate, misleading or otherwise negative information and advertising such as that commonly seen at air passenger terminals.
- The production of information materials which may be used by trade partners in their promotion efforts, such as displays at air passenger terminals or trade fairs.
- Evaluation of the costs and benefits of an active programme of promotion by the CSG itself as well as the form that such a programme might take and whether a workable system of 'Endorsement' can be developed.

Finally, the CSG recognises that the promotion of market mechanisms as a conservation tool will be compromised fatally by examples of illegal or unsustainable harvesting and illegal trade. The CSG will redouble its efforts to monitor production systems and trade and to prevent such abuses.

Steering Committee of the Crocodile Specialist Group

Chairman: Professor Harry Messel, School of Physics, University of Sydney, 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 E-mail <JeldenD@bfm.de >

Africa: Vice Chairman: Dr. Richard Fergusson CFAZ, P.O. Box H G 11, Highlands, Harare, Zimbabwe. Tel:(263) 473 9163 Fax: (263) 473 1719. Deputy Vice Chairman: Olivier Behra, Lot 1 BG, 24 Isoraka, Antananarivo, Madagascar. Tel: 261 20 22 29503 Fax: 261 20 22 29519. E-mail <univers.tropical@simicro.mg>

Eastern Asia, Australia and Oceania: Vice Chairman: Dr. Grahame J.W. Webb, P.O. Box 530, Sanderson, NT 0812, Australia. Tel: (618) 8 992 4500 Fax: (618) 8 947 0678. E-mail <gwebb@wmi.com.au>. Dr. Robert Jenkins, Australian National Parks & Wildlife, Australia. Mr. Paul Stobbs, Mainland Holdings, Papua New Guinea. Koh Chon Tong, Heng Long Leather Co., Singapore. Dr. Yono C. Raharjo, Research Institute Animal Production, Indonesia. Dr. Parntep Ratanakorn, Faculty of Veterinary Science, Mahidol University, Thailand. Dr. Choo Hoo Giam, Singapore.

Western Asia: Vice Chairman: Romulus Whitaker, Madras Crocodile Bank, Post Bag No. 4, Mamallapuram 603 104 Tamil Nadu, India. Fax: (91) 44 491 0910. Deputy Vice Chairman: Dr. Lala A.K. Singh, Project Tiger, Similipal Tiger Reserve, Khairi-Jashipur, Orissa, India 757091. Harry Andrews, Madras Crocodile Bank, India. E-mail <sthiru@giasmd01.vsnl.net.in>

Europe: Vice Chairman: Dr. Dietrich Jelden, Bundesamt für Naturschutz, Federal Republic of Germany. Dr. Jon Hutton, Africa Resources Trust, 219 Huntingdon Rd., Cambridge CB3 0DL, UK E-mail <hutton@artint.force9.co.uk>.

Latin America and the Caribbean: Vice Chairman: Alejandro Larriera, Bv. Pellegrini 3100, (3000) Santa Fe, Argentina. Tel: (544) 262 352 Fax: (544) 255 8955. <yacare@arnet.com.ar>, Deputy Vice Chairman: A. Velasco B. PROFAUNA, Torre Sur, Piso 6 CSB, Caracas 1010, Venezuela. Fax: (582) 484 6045. <avelasco@mamr.gov.ve>

Aida Luz Aquino, Oficina de CITES-Paraguay, Paraguay. <laquino-cites@sce.cnc.una.py>. Dr. Miguel Rodrigues M. Pizano S.A., Colombia. Dr. Obdulio Menghi, Argentina. Luciano Verdade, Depto. Zootecnia, ESALQ, University of Sao Paulo, Brazil.

North America: Vice Chairman: Ted Joanen, Route 2, Box 339-G, Lake Charles, LA 70605, USA. Tel: (1) 318 598 3236 Fax: (1) 318 598 4498. Deputy Vice Chairman: : Dr. Ruth Elsey, Louisiana Wildlife and Fisheries Commission, 5476 Grand Chenier Way, Grand Chenier, LA 70643, USA. Tel: (1) 318 538 2165 Fax: (1) 318 491 2595. Deputy Vice Chairman Alan Woodward, Florida Game & Fresh Water Fish Commission, 4005 S. Main Street, Gainesville, FL 32611, USA. Tel: (1) 352 955 2230 Fax: (1) 352 376 5359.

Science: Vice Chairman: Dr. Valentine A. Lance, San Diego Zoo, P.O. Box 551, San Diego, CA 92112, USA. Tel: (1) 619 557 3944 Fax: (1) 619 557 3959. Deputy Vice Chairman: Dr. John Thorbjarnarson, Wildlife Conservation Society, 185 Street & Southern Blvd. Bronx, NY 10460, USA. Tel: (1) 718 220 5155 Fax: (1) 718 364 4275. <Jcainman@aol.com>. Deputy Vice Chairman: Prof. I. Lehr Brisbin, Savannah River Ecology Lab, Aiken, SC 29802 USA. Tel: (1) 803 725 2475 Fax: (1) 803 725 3309.

Trade: Vice Chairman: Kevin van Jaarsveldt, P.O. Box 129, Chiredzi, Zimbabwe. Tel: (263) 31 2751 Fax: (263) 31 2928. Deputy Vice Chairman: Mr. Y. Takehara, Japan Leather & Leather Goods Industries Association, Kaminarimon, 2-4-9, Taito-Ku, Tokyo 111, Japan. Tel: (813) 3 865 0966 Fax: (813) 3 865 6446. Deputy Vice Chairman: Don Ashley, Ashley Associates, P.O. Box 13679, Tallahassee, FL 32317, USA. Tel: (1) 850 893 6869 Fax: (1) 805 893 9376.

Trade Monitoring: Vice Chairman: Stephen Broad, TRAFFIC International, 219 Huntingdon Rd Cambridge CB3 0DL UK. Tel: 44 122 327 7427 Fax: 44 122 327 7237. Lorraine Collins, CITES Secretariat, P.O. Box 456, CH-1219, La Chateleine, Geneva, Switzerland. Tel. 4122 979 9139.

Ex Officio: Mr. David Brackett, IUCN: Species Survival Commission Chairman. Bernardo Ortiz von Halle, IUCN-America del Sur, Ecuador. CITES Observer: Dr. James Armstrong, Asst. Secretary General, CITES Secretariat CH-1219, Chateleine, Geneva, Switzerland

