CROCODILE SPECIALIST GROUP

NEWSLETTER

VOLUME 16 No. 2 ■ APRIL 1997 - JUNE 1997

IUCN - World Conservation Union Species Survival Commission

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COVER PHOTO: *Tomistoma schlegelii* courtship photographed at Cypress Gardens, Florida. See article page 19. Bruce Shwedick Photo

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

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STEERING COMMITTEE

STEERING COMMITTEE MEETING,
HARARE, ZIMBABWE, TUESDAY 10 JUNE 1997.

Present: D. Jelden (chair), P. Ross (Exec. Officer), J. Hutton, O. Behra, G. Webb, R. Jenkins, A. Larriera, K. van Jaarsveldt, H.C. Koh, D. Ashley, L. Collins, L. Aquino, S. Broad, C.H. Giam, Y. Takehara, O. Menghi, M. Quero, Y. Raharajo.

CSG members: S. Ranot, E. Fernandez, C. Foot, A. Imhof, J. Villalba-Macias, M. Stambulie, C. Lippai, R. Fergusson, I. Games, G. Cortez, C. Manolis, Ramandbison.

Observers: J. Perez Ramirez, H. Benitez, G. Salinas (Mexico), V. Lichtschein, P. Amvet, C. Pina, C. von Fink, P. Donayo, P. Siroski (Argentina), J. Tindigarukayo, Y. Moyini (Uganda), L. Siege, O. Mbanwa, B. Kibunda, J. Kibere, O. Kitwara, B. Mbanao, L. Melamari, C. Mlay, J. Kayera (Tanzania), H. Zambrano, G. Andrade (Colombia), R. Owen (USA/Paraguay), 2 representatives of Madagascar, J. Berney, T. Sulivan (IUCN), J. Kundaeli (CITES).

The meeting was opened at 8.04 p.m. by Deputy Chairman of the CSG, Dr. D. Jelden, who explained that the Chairman, Professor Messel, could not be present, but sent his apologies and best wishes for a good meeting. Thanks were expressed to the government of Namibia for providing a room for the meeting. The meeting agreed to re-order the agenda to deal with priority matters pertaining to the CSG position regarding proposals at the 10th COP and other matters would be considered if time was available.

Finance. The Executive Officer presented an interim financial report. CSG began the year with a balance of $31,781.29. Revenue for the year was $19,204.77 and expenses $48,531.03 leaving a current balance at 30 May of $2,455.03. This

precarious cash position had come about due to large expenses including air travel to this meeting ($4,345.00) and the Newsletter. The cash position was expected to improve shortly with receipt of major pledged donations. The Executive Officer was urged to expedite sending out donation requests to bring in donations for the year and as always, Steering Committee members were asked to assist with identifying donors.

CSG Business. A report on the organization of the 14th Working Meeting in Singapore in 1998 was presented. The Singapore Reptile Skin Trade Association has formed a committee to organize the meeting and had met with the Executive Officer in Singapore the preceding week. Dates are confirmed as 13 - 17 July 1998. The meeting suggested that three days of formal presentations with an emphasis on workshops and discussion of broad issues was sufficient. The committee will work closely with the Executive Officer to develop a program and preliminary announcements will go out in the current Newsletter.

The draft Revised Action Plan (1995) is in final stages of revision after which production in conjunction with IUCN will proceed.

The Executive Officer reported on a Regional Meeting of CSG members in India held in Gwalior, June 5-7. Indian CSG members presented current information on their work and a draft conservation strategy for crocodiles in India was prepared. The strategy will be finalized and presented later this year with the aim of reporting preliminary results of action at the Singapore meeting in 1998. A more detailed report is given below (Pp. 1-12).

CITES Proposals. The meeting then turned its attention to proposals submitted for consideration at the current 10th COP of CITES. It was noted that these proposals had already received extensive review by CSG published in the Newsletter and had been modified in response. This meeting sought to clarify remaining uncertainties and questions and provide definitive recommendations for transmission through IUCN to the COP.

Argentina. Four issues were identified: 1) The process by which Argentina would implement the necessary tagging of skins under CITES Res. Conf. 9.22; 2) The possible impact of opening ranching and trade on *C. latirostris* on sympatric populations of *C. crocodilus yacare*; 3) The mechanisms to control extension of ranching to other provinces in Argentina and 4) the manner in which future changes to the program , including extension to other Provinces, should be handled under CITES Res. Conf. 8.22.

Alejandro Larriera responded, describing that hatchlings in the program would receive a web tag at birth which would enable tracking and inventory control within farms and of any animals subsequently released to the wild. Upon slaughter, animals would receive a CITES tag issued by the Management Authority of Argentina. A system of internal transport documents would be required to transfer tagged skins from Santa Fe to the Management Authority who verifies the tags, matches them to original web tag records and inventories and finally issues export documents, including tag numbers as required by Res. Conf. 9.22. This system was thought to make introduction of illegal wild animals into ranches or as skins into trade very difficult.

Ranching is currently restricted to Santa Fe Province and other Provinces wishing to establish ranching programs will be required to develop the same level of population status evaluation, technical expertise and regulatory control as Santa Fe. The Management Authority of Argentina would then report any additional ranching programs to the CITES Standing Committee for final approval with input from the CSG. This met the requirements of Conf. Res 8.22. Finally, as the skins of *C. c. yacare* are readily distinguished from *C. latirostris* and have much lower value, and the program does not involve wild hunting, no impact on *C. c. yacare* was anticipated, except possibly enhanced habitat protection as a result of the conservation measures undertaken for *C. latirostris*. On this basis the meeting agreed to give the proposal unqualified support.

Madagascar. Four issues regarding the Madagascar proposal were identified: 1) The level of illegal hunting; 2) exports of locally manufactured products to neighboring countries; 3) the enforcement capacity of the Madagascar authorities and 4) the accuracy and timeliness of reporting to CITES. O. Behra assisted representatives of the Madagascar Management Authority with translating their response. Noting that Madagascar has presented a proposal for downlisting under 3.15 ranching three times without success, the Madagascar authorities acknowledged that their management system was still not fully operational. However, they have

taken extensive recent steps to improve the situation which are described in the CITES report of S. Nash in late 1996. They explained that Madagascar can be divided into three regions; the west where crocodiles remain fairly abundant, the center where there is little habitat and the east where the pressure from human populations has made crocodiles scarce. The ranching program collects eggs from the western region and impact on the population there is minimal.

Recent enforcement measures have decreased illegal hunting. An ongoing project funded by CITES was developing management options following which controlled hunting would be allowed in specific areas. New controls were in place at the international airport to restrict illegal exports. Crocodile ranchers in Madagascar had proposed to provide ranched skins directly to local artisans from ranch stock to discourage additional uncontrolled wild harvest. Comments from the CITES Secretariat, TRAFFIC and WCMC established that earlier incomplete reports and anomalies within them had been resolved. Jaques Berney reported from his position as an independent consultant to the CITES Secretariat that he observed tremendous efforts in Madagascar to improve the situation. Regulations to place control on local processors and the exports of products were underway. The meeting concluded that a full evaluation of the Madagascar situation would not be available until after the completion of the current CITES technical aid project. It was recommended that CSG support the proposal with the suggestion that Madagascar endeavor to produce a comprehensive management plan for crocodiles similar to that recently developed by Indonesia. A suggestion that CSG should review the management program was not supported, however, this can always be done at Madagascar's request, and review of the program could be achieved through the CITES Animals Committee significant trade (CITES Res. Conf. 8.29) process. The meeting recommended support of the proposal with these additional recommendations.

Uganda. Three issues were identified with the Uganda proposal: 1) The nature of the proposed monitoring program; 2) the system for inspection and control of tagged skins and 3) the procedures proposed to control egg harvest and trade. Representatives of the Management Authority of Uganda responded noting that they have been successfully managing their export quota of over 4,000 crocodiles annually for several years. They explained that jurisdiction for both crocodile ranches and management of the wild population was now in the hands of a single new wildlife authority and that new statutes to control wildlife use were adopted in 1996. They explained that monitoring of released juvenile crocodiles was interrupted due to financial constraints but that inspection of skins is rigorous. They noted that previous reporting errors to the CITES Secretariat had been remedied and a new monitoring and research unit was established. Aerial surveys in 1996 suggest that crocodiles are expanding their range in Uganda, re-occupying several areas of former range. Finally, they reported that the reintroduction program was undergoing review to establish its effectiveness and may be modified.

The CITES Secretariat additionally informed us that the proposal was prepared with assistance from CITES for survey work. There was no intention to establish wild harvest except a very modest problem animal control program and that the government has restricted the establishment of any additional ranching ventures until the viability of the current program is tested and the necessary finance and technical expertise is available. The meeting recommended that CSG support this proposal.

Tanzania. Request for quotas for wild harvest under a ranching program. Dietrich Jelden clarified that this matter involved two separate issues: 1) The determination for a wild harvest quota for 1997 under the terms of the annotated downlisting accepted by the 9th COP in 1995 and 2) the determination of quotas for 1998-2000 which were the subject of a proposal by Tanzania to the current 10th COP.

Regarding the quota for 1997, consideration of this matter was dependent upon receiving a report from Tanzania regarding the distribution and management of wild harvest in 1994-95 in relation to the distribution of human-crocodile conflicts which had not been received prior to the meeting.

Dr. Ludwig Siege, who is director of the "Selous Conservation Program" which includes a community wildlife program in the Selous area funded by the German government reported that new information on this topic was available and in possession of the Tanzanian representatives who wished to share it with CSG. He further confirmed the extreme problem of human mortality due to crocodiles and the difficult political situation this had created in Tanzania. After discussion the following points were agreed:

1) The population of crocodiles in Tanzania is large and this now very well known from recent quantitative surveys reported to CITES and CSG. 2) It seems likely that this population can easily sustain harvest at the levels proposed of 1,000/year. 3) The problem of human crocodile conflict requires immediate effective action by Tanzania. 4) The development of functional crocodile ranches in Tanzania remained difficult due to lack of financial support and technical expertise. 5) Long term management of wild harvest in Tanzania under their ranching downlisting was not legal and a violation of Res. Conf. 8.22. The basic issue for the CSG was not the size of any wild quota but the effectiveness of Tanzania's management and conservation program for such a quota.

The meeting recommended that any consideration of wild quotas could only be made if Tanzania formally agreed to present a proposal for complete downlisting of its crocodile population under Res. Conf 9.24 to the next (11th) COP. The meeting further recommended that Tanzania establish effective measures to manage and control wild harvest for the current and any future quotas and that these be integrated into Tanzania's existing crocodile management plan. The representatives from Tanzania indicated their willingness to accept these conditions.

It was noted that an additional issue for CSG was the nature of CSG support for any quota and the perceptions of CSG's credibility on this issue within CITES. Tanzania is not unique in having high human mortality from crocodiles and this should not be a precedent for allowing wild hunting. The restriction of wild harvest to programs downlisted to Appendix II under Res. Conf. 9.24 was strongly recommended. It was additionally noted that approval of wild quotas would only address human-croc conflict if the animals were in fact removed from problem locations and should this not be done, continuation of the conflict problem must be judged as due to inadequate management of the quota and not an excuse for further quota increases.

The meeting closed this issue by agreeing to meet with Tanzanian Representatives the following day to examine the new data and proposed quota harvest management procedures then conclude an agreement on a recommended quota at that time.

[This meeting was held on 11 July 1997. CSG presented an outline of appropriate management activities that a wild harvest should include such as size and season limits, recording and reporting of take, and regular monitoring of effects of harvest. After discussion and examination of the new information from Tanzania, the Tanzanian delegates formally agreed to declare their intention to present a proposal to downlist their population under CITES Res. Conf. 9.24 at the next COP, to commit to the establishment of management procedures in the wild harvest and to report the results of surveys and harvest and export statistics to the Secretariat. It was made clear that the CSG's response to the downlisting proposal would be strongly influenced by the demonstrated success of Tanzania in implementing these measures in 1997-1999. On the basis of these commitments by the Tanzanian authorities, CSG agreed to support the CITES Secretariat's recommendation for approval of their current quota proposal for 1,000 wild harvested crocodiles annually 1998-2000.

The following statement in support of the proposal was prepared:

'In the IUCN analyses of proposals delegates will see that some reservations were expressed based upon the proposal as it was submitted. However, since that time we have engaged in an exchange of correspondence with Tanzania and the Secretariat, received additional new information on the distribution of problem crocodiles in Tanzania, engaged in discussions with the Tanzanian delegation, and provided them with technical advice and recommendations for management of a wild harvest quota.

'Based on these we draw the attention of the Parties to the following:

'First we congratulate Tanzania on the evident efforts they have made to comply with CITES reporting requirements agreed to at the 9th COP. We also draw attention to the extensive information presented in the technical document as an annex to their proposal in which the results of extensive surveys of crocodiles in Tanzania are presented. This information indicates clearly that crocodiles remain abundant in Tanzania. We also acknowledge the ongoing tragedy of human mortality caused by crocodiles in Tanzania and the continuing need to ensure human safety by removing large crocodiles near habitation.

'The CSG has reviewed this proposal in detail and we conclude that the proposed wild harvest of 1,000 plus 100 trophy specimens will not be detrimental to crocodile populations and appears to be consistent with Conf. Res 8.22.

'Considering the commitment made by Tanzania to present a proposal for downlisting to

App II under Conf. Res. 9.24 at the next COP and their commitment to institute management procedures to regulate and monitor the wild harvest, we suggest that these represent substantial progress toward a well designed and sustainable management program.

'We urge Tanzania to institute the proposed management procedures and to submit the down listing proposal and we support the Secretariat in recommending that the Parties approve the proposal.'

Additionally the following letter to the CITES Secretariat was drafted:

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11 June 1997

Mr. John Kundaeli
CITES Secretariat

RE: Quota for harvest of wild Nile crocodiles in Tanzania.

Dear Mr. Kundaeli:
With this letter I would like to advise you of the extensive consultation between the Tanzanian delegation and CSG at the 10th COP. We held meetings 10 and 11 June 1997 with the Tanzanian delegation and representatives of the Tanzanian wildlife department.

As you know, the annotation to the approval of a quota for wild harvest of crocodiles in Tanzania approved by the Parties at the 9th COP recommended that further quotas for wild harvest beyond 1996 should be considered contingent upon receiving a report from the Tanzanian Wildlife Management Authority to the Secretariat reporting on the management and results of the wild harvest. This report has now been submitted. In addition, considerable new information on the surveys of crocodiles in Tanzania and the robust status of the population is contained in a technical report included as annex to Tanzania's proposal to the 10th COP. We are also aware of the reports made by Tanzania to the Secretariat on the export of skins harvested under this quota in 1995 and 1996.

The CSG congratulates Tanzania for now having met the requirements of the annotation, and providing new information indicating adequate management of the harvest and export of the quota following CITES procedures. In the light of Tanzania's commitment to fully adhere to the provisions of CITES Resolution 8.22 and to present a proposal to downlist their Nile crocodile population under Conf. Res 9.24 to the next meeting of the parties, we recommend that the Secretariat accept the request of Tanzania to export 1,000 skins of wild crocodiles in 1997 in addition to 100 trophy specimens.

Yours sincerely
Professor H. Messel
Chairman Crocodile Specialist Group

Problems arising from the consolidated resolution on ranching. The CITES Secretariat has undertaken a consolidation of Resolutions which address the same topic. In combining the several resolutions addressing ranching some questions of applicability and emphasis have arisen which may not be beneficial to present or future crocodilian ranching projects. These include the continuing problem of Res. Conf. 5.16 which imposes unreasonable marking requirements on crocodilian products which are unnecessary given the universal tagging resolution. A second problem is the emphasis given to re-introduction as a component of ranching programs implying that reintroduction was mandatory. The meeting therefore recommended that if possible the consolidated resolution be referred to the CITES Animals Committee for any necessary revision, at which time the CSG can suggest wording to meet these concerns. This was subsequently accepted by the COP.

Confirmation of the registration of captive breeding farm for *C. acutus* in Honduras. The registration of the Honduras farm has been held up contingent upon the government of Honduras passing national law for CITES implementation and adequate regulations to control farm activities and exports. The Secretariat informed the meeting that these provisions had now been met and that USA and Venezuela had withdrawn their objections to the proposal. The Secretariat further explained that functional differences between Anglo-Saxon common law and Roman/Napoleonic code laws current in Latin America precluded legislation of forms identical to models familiar to many countries. Nevertheless, the forms adopted in Honduras were judged by the Secretariat to approach the necessary level for adequate CITES implementation. As approval of this proposal lies entirely with the Parties, the meeting agreed to affirm that CSG had no

remaining scientific or conservation concerns regarding it. [This was subsequently done in Committee I of COP and the Honduran registration was approved without objection after several Parties referred to the CSG recommendation in support of the proposal.]

This ended consideration of CITES COP 10 issues.

Evaluation of code of practice for Australian crocodile farms. A draft of the code of practice was sent by the Australian Government to CSG for comment and evaluation. Grahame Webb explained that the Australian government required development of such codes for all primary industries and that he had drafted the present code to be as widely flexible as possible to encompass the full range of activities with crocodiles in Australia from legal aboriginal subsistence hunting to ranching, farming and public exhibition. The Executive Officer was asked to provide copies of the draft code upon request and to coordinate a response to Australia by mid-July.

Use of funds generated by sale of confiscated crocodilian material to support conservation action. There are several situations where government agencies are seeking to sell confiscated stocks of skins and apply the funds generated to conservation via the CITES Secretariat. Current examples are Paraguay, Uruguay and Belgium. In the case of Belgium, the CITES Secretariat and the European Union was requesting CSG to provide advice on the best use of such funds. The question had circulated among Steering Committee members in Latin America who had articulated several general principles: 1) The country of seizure and the country of origin of seized material should be consulted on the use of the funds and have access to the funds; 2) funds should be channeled through transparent mechanisms to well supervised institutions to avoid any suggestion of improper use; 3) funds should be applied to conservation needs with some flexibility to have the best effect on the most urgent conservation needs and 4) the CSG should advise on the conservation priorities for the application of such funds. The Executive Officer was instructed to prepare a letter to be sent by the CSG Chairman with these points to assist the Belgian Authorities and the CITES Secretariat. It was also suggested that the matter could receive additional discussion at the CSG Regional Meeting in Mexico in August.

Dr. Obdulio Menghi 9 June 1997
CITES Secretariat
Geneva, Switzerland

RE: Disposal of confiscated materials to benefit conservation

Dear Dr. Menghi:
Further to your inquiry and our preliminary response on the question of how to best manage the application of funds raised from the sale of confiscated crocodilian materials, particularly in reference to the proposed auction of Caiman skins in Belgium. We initiated discussion among the South American members of our Steering Committee and the matter was discussed before our full Steering Committee on 10 June 1997. I can now offer the following general expansion of our earlier response.

1) We confirm in principle that we agree funds raised by the sale of crocodilian materials confiscated by competent authorities and disposed of by legal means should be applied to the conservation of crocodilians and their habitats. Substantial conservation benefits for crocodilians would result from such action.

2) We think it is imperative that such funds should be deposited in a properly administered and audited account so that the management and disposition of the funds is completely transparent. We are also mindful that great care must be taken in this process to ensure that such use of confiscated materials is not seen to be an encouragement of illegal trade.

3) We think the funds should be applied to crocodilian management programs in range states, for projects that contribute to the conservation of crocodilians and their habitats. We further suggest that the funds should be applied on a priority basis to those projects and species deemed of most urgent conservation need. In this sense, funds raised from the sale of caiman skins (relatively common and not endangered species) would not necessarily be applied to caiman management but instead might be applied to the conservation of endangered species more urgently in need of conservation action.

4) To accomplish this we suggest that consultation should occur between the Management Authorities in the country of origin of the materials (if known), the confiscating Authority and the CITES Secretariat. The CSG

would be pleased to advise this process.

5) The disposition of funds to projects should be guided by the conservation priorities presented in the CSG Revised Action Plan for Crocodile Conservation.

We suggest the application of funds derived from confiscations following the guidelines above would ensure that all the participants in the process would be protected from any suggestion of impropriety or special interest and that the funds would then be applied to the most useful purposes for the conservation of wild crocodilians. The Crocodile Specialist Group would be pleased to actively assist this process in any way that the interested Parties and the Secretariat might wish, including, if desired, the administration and disposition of such funds in consultation with them as outlined above.

I hope we can work together to accomplish this useful conservation activity.

Yours Sincerely,
Professor Harry Messel
Chairman, Crocodile Specialist Group

cc. CITES Management Authority of Belgium

CSG Review of Indonesian Management Plan. The review report was presented for information. CSG has recommended that Indonesia may re-open export of crocodile skins following the implementation of several specific management needs (see Newsletter 16 (1)).

Review of Zimbabwe crocodile management. Chris Foot of the Crocodile Farmers Association of Zimbabwe reported that following productive discussions between CFAZ and the new Zimbabwe Wildlife Authority, a new Policy and Plan for Crocodile Management in Zimbabwe had been approved. The new plan responds to recommendations made by the independent review of the program completed last year and from the CSG. The program establishes a system of zoning for crocodile use ranging from complete protection in national parks to controlled use in an adaptive management program in some state and communal lands. Responsibility for setting quotas for the wild resource, monitoring and CITES export documentation is assigned to the Department of National Parks and Wildlife Management and monitoring of selected wild crocodile populations will be instituted. The new plan seems to substantially meet all the recommendations of CSG. The meeting congratulated the Zimbabwe government and CFAZ for producing such a satisfactory result from the review process.

Guidelines for the evaluation of crocodile management programs. It was reported that the draft guidelines approved at the Argentina Steering Committee meeting were used with great success in the reviews of the Indonesian and Zimbabwe programs proving flexible and useful topics for the reviewers to consider. Continued application and refinement of these working guidelines was recommended.

Development of crocodile farming in Cambodia. Hank Jenkins reported on his recent trip to Cambodia. He confirmed previous reports that crocodile farming is widespread in Cambodia with possibly 300- 400 small scale farms for *C. siamensis* in operation based on the model of Thailand crocodile farming. Control and operation of these farms would not meet the standards of CITES Res. Conf. 8.15 on captive breeding but were still a strong incentive to Cambodia to become involved in CITES activities and develop regulatory mechanisms and conservation programs. The industry was presently expanding with many small operators establishing breeding stock of just a few animals and selling the offspring to larger farms. A detailed report with recommendations was submitted to the Cambodian government for their consideration. To facilitate the process of developing sustainable use and conservation of crocodiles in Cambodia the meeting acknowledged the need for broader contact and advice from CSG to Cambodian farmers and government. The forthcoming 14th Working Meeting in Singapore in 1998 was an opportunity to further this goal. Dr. Giam advised that through his connections with the ASEAN organization he may be able to also facilitate contact and advice. The great importance of establishing a strong linkage between the growing crocodile industry and conservation of wild crocodilians was noted. The Executive officer was asked to write to CSG member Mr. Nao Thuok in Cambodia to develop these recommendations.

CSG Information Services. Lorrain Collins and Steven Broad submitted a discussion paper on the needs for coordinated compilation and

reporting of information on crocodiles and mechanisms by which this might be achieved. Due to the lateness of the hour the meeting agreed that the Executive Officer should pursue this directly with them, circulate the discussion document and advise the Steering Committee by mail of progress.

Export of live crocodilians for commercial purposes. Don Ashley and Kevin van Jaarsveldt expressed concerns about recent increase in demands for live crocodilians which may be used to establish captive breeding operations outside the range of the species and to the detriment of regulatory and conservation goals. Don advised that the USA was currently not issuing permits for live export pending a review of their regulations and the probable imposition of a permanent ban. Kevin asked for the group to further define its position and determine if the current policy on exotic species is still adequate. The deep complexities, practical difficulties and divergent opinions on this topic which have previously been evident were clear after short debate. The meeting then asked for a small working group to convene and prepare a position statement on the situation for further consideration by the CSG. Don Ashley, Kevin van Jaarsveldt, Lucy Aquino and Olivier Behra agreed to serve on this group.
There being no further business, the meeting adjourned at 10.47 pm. -- P. Ross *raporteur*.

Following additional discussion with CFAZ the following letter was drafted.

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20 June 1997

Mr. Chris Foot
Crocodile Farmers Association of Zimbabwe
Harare, Zimbabwe

Dear Chris:
Thank you for bringing the concerns of CFAZ about exports of live crocodiles to our attention. This problem is not restricted to Zimbabwe but has become a persistent concern to crocodile producers worldwide. We discussed the matter at our Steering Committee meeting 10 June 1997 and convened a small working group to develop a position for CSG. I do not yet have their final report, but the substance of their discussion confirmed our concerns.

The establishment of large commercial groups of captive bred crocodiles outside crocodile range states is not desirable and poses several conservation problems. Foremost among these are the regulatory difficulties encountered in meeting CITES requirements for skin exports or additional spread of live animals from ex-situ facilities where the Management Authorities may not have either interest or competence in crocodile management and conservation. CSG has previously expressed its concerns about negative ecological effects of introduced crocodilians and the potentially destabilizing effects on established sustainable use programs and the conservation efforts associated with them.

We continue to believe that the most effective regulation of transfer of live crocodilians for commercial purposes should be applied by the Management Authorities in the country of origin. In our opinion, the reasons outlined above provide an adequate basis for the determination by a Management Authority that such export is detrimental to the conservation and management of national crocodile populations, providing a basis for the denial of CITES export permits. We note that the United States has recently suspended issuing permits for live alligator exports on these grounds. Your new Policy and Plan for Crocodile Management in Zimbabwe places responsibility for such a determination in the hands of the Director of National Parks and Wildlife (section 2.4 c. and g.). We would encourage the Director to take such action as necessary to control and inhibit the export of live crocodiles from Zimbabwe.

Yours sincerely,
James Perran Ross
Executive Officer CSG

CITES Reports

YACARE RANGE STATES MEETING REPORT. Representatives of Range States of *Caiman crocodilus yacare* met informally with representatives of the US Fish and Wildlife Service (USFWS) at the invitation of CSG to discuss the continuing problems caused by the US listing of *C .c. yacare* on the US Endangered Species Act and the unacceptably slow progress of the downlisting process. Lucy Aquino (Paraguay), Eliana Flores and Victor Hugo Inchausty (Bolivia), Victoria Lichtschein (Argentina) and

Fernando da Alva (Brazil) met with Marshal Jones, Marshal Howe and Susan Lieberman (USA) assisted by Obdulio Menghi (CITES Secretariat) and Bernardo Ortiz van Halle (IUCN and CSG). Jose Juan Perez Ramirez (Mexico) also attended due to the parallel situation of *Crocodylus moreletii* from Mexico's CITES registered farm.

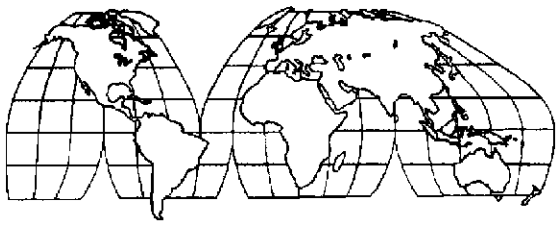
The long history of this matter and the detrimental effect on ongoing Caiman conservation caused by the US listing was reviewed. The US delegates expressed their sympathy and concern for these problems and outlined a number of procedural and logistic problems which had slowed the Service's response to the recommendation made by its own biologists in 1991-92 that the species be downlisted. Some progress has been made in drafting a downlisting proposal which is now undergoing internal review in the USFWS, although no firm schedule for completion was offered. While no immediate solution is at hand the participants agreed that the exchange of information was useful and that continued pressure would be applied to the USFWS to encourage the most rapid resolution of the problem possible. -- P. Ross, *Executive Officer, CSG.*

CROCODILES AT CITES. All the crocodile proposals before CITES were approved by Committee I and endorsed by the full CITES plenary. Early in the meeting, the request of Honduras to register a captive breeding facility for American crocodiles was approved after Honduras reported new enabling legislation for CITES implementation, thereby finally meeting the recommendations of CSG and several Parties. All three proposals for crocodile ranching were approved. These were Broad-snouted caiman in Argentina (restricted to Santa Fe Province), and Nile crocodile in Uganda and Madagascar. A request for a continuing quota of 1,000 wild harvested Nile crocodiles from Tanzania under their ranching downlisting was discussed by the Steering Committee and in meeting with Tanzanian representatives detailed information on the requirements for wild harvest management were made. This proposal prompted a short debate in Committee I, after which Tanzania publicly affirmed its intention to present a proposal to downlist its Nile crocodile population under Res. Conf. 9.24 to the next COP. Quotas of 1,000 wild harvested crocodiles and 100 trophy specimens annually until the year 2,000 were then approved. CSG will continue to work with the Tanzanian Authorities to develop their program. The decisions were achieved after extensive consultations prior to the COP between proponents, the CITES Secretariat and the Crocodile Specialist Group to resolve concerns about the proposals.

In Committee II, concerns were raised about the emphasis on re-introduction in the consolidated resolution on Ranching. This consolidated resolution was passed back to the Animals Committee for further refinement and the re-introduction issue will be addressed in that forum. A report was presented to Committee II on the very effective implementation of the universal tagging resolution for crocodilian skins (Res. Conf. 9.20). The Secretariat was directed to continue to develop a computer tracking system for skin tags, but given the budget restraints imposed for the next triennium, this seems unlikely to proceed without external funding.

CSG used the opportunity of the presence of many Parties interested in crocodilian conservation to pursue some other matters. We convened a meeting of representatives from the range states of *Caiman crocodilus yacare* (Argentina, Brazil, Bolivia, Paraguay and Uruguay) with representatives of the US Fish and Wildlife Service to discuss the continuing problem of slow progress of downlisting this species under the US Endangered Species Act. After a frank exchange of views, the US delegation reported that the process was moving slowly through its system and would continue to receive their concern and attention. An informal meeting was held with representatives of the Sri Lanka government and Wildlife department and tentative plans for a training session on crocodile conservation and survey techniques were laid. The Crocodile Farmers Association of Zimbabwe presented copies of the new Policy and Management Plan for Nile crocodiles and we discussed their current concerns about export of live crocodiles. A letter encouraging control of live exports by the National Management Authority was prepared. We also took the opportunity to meet with several of our major supporters including the Japan Leather Industries Association CITES Promotion Committee, Singapore Reptile Leather Traders, PHPA Indonesia, Thai Royal Forest Department and Fisheries Department, AZOOCOL Colombia. -- P. Ross, *Executive Officer, CSG.*

AREA REPORTS



AFRICA

Ghana

GHANA CROCODILE REPORT. During a survey for royal python, on 19 February 1997, we observed slender-snouted crocodiles (*Crocodylus cataphractus*) at the village of Danfa (05°47'N-00°10'W; 300 feet elevation). Danfa has a population of approximately 1,000 people. They are mostly Ga with some Akan and Ewe migrants. Five *C. cataphractus* were seen in the main pond next to the village from where the villagers draw their water and two more in a small pond about 1 km away. We got very close to them, but were unable to capture any specimens. The general habitat was very reminiscent of that of spectacled caimans in southern Venezuela. Those villagers do not kill crocodiles.

To the northwest of Danfa, at a town called Somanya (06°06'N-00°01'W; 250 feet elevation; 2 March 1997) we found an area where both the royal python and the crocodile are considered sacred by the Nyala-Krobos (population about 20,000). In this area neither royal pythons nor crocodiles are killed. The Paramount Chief has a gold livery stick with a chief sitting on a crocodile. We did not look for crocodiles in this area, but were told that they are common.

We did catch two dwarf crocodiles (*Osteolaemus tetrapsis*) at the Maria Montessori School in Santasi, a south eastern suburb of Kumasi (06°39'N-01°39'W; 850 feet elevation; 12 March 1997). The area was surveyed because the school had complained to the Kumasi Zoo (run by the Ghana Wildlife Department) about crocodiles and pythons inhabiting a pond across the road in front of the school. Both specimens were males (SVLs 53.5 cm and 76.5 cm). We took both crocodiles back to the school the next day for the children to see. There was almost a riot, which we have on video. William Oduro has quite a lot of information about crocodiles invading artificial ponds in northern Ghana. -- Mr. Owusu-Nsiah *Ghana Wildlife Department, Post Office M.239, Accra Ghana,* Dr William Oduro, *Institute of Renewable Natural Resources, University of Science and Technology, Kumasi, Ashanti Region, Ghana E-mail: Ustlib@ust.gn.apc.org* & Stephan Gorzula, *614 West Main St. Newburn KY 38059 USA.*

WESTERN ASIA

India

REGIONAL MEETING IN GWALIOR. Between 5 and 7 June a dozen Indian members of the CSG convened at Jiwaji University in Gwalior for a West Asia Regional Meeting. The meeting was organized by Madras Crocodile Bank Trust and Jiwaji University, School of Studies in Zoology. Harry Andrews and Sajani Chernian of Madras Crocs and Dr. R.J. Rao and his staff at Jiwaji did a marvelous job of pulling the meeting together. The meeting was sponsored with financial support from the People's Trust for Endangered Species (UK) and the Universities Grants Commission.

The meeting opened with an address from Professor R. Mathur, head of Zoology, and short presentations by Dr. Rao and Rom Whitaker. The meeting was then honored by an inaugural speech from Mr. S. K. Mukherjee, Director of the Wildlife Institute of India, in which he outlined current issues and directions for crocodile conservation and challenged the meeting to produce a comprehensive strategy. Professor R. N. Mishra, renowned head of Archeology and Ancient History and acting chancellor of Jiwaji University gave a fascinating account of the use of crocodile imagery in Indian temple architecture. He drew attention to the conflicting significance of crocodile images which at some times are presented as symbols of water and life and at others represent death and evil. The significance of this dialectic is mirrored in current crocodile conservation in India and the conflict between crocodiles as flagship species for wetlands conservation and the practical conflicts between fishermen and crocodiles.

The meeting then proceeded with technical presentations from Dr. P. Ross on the application of sustainable use to crocodile conservation and Dr. V. Lance on effects of stress on crocodile

reproduction. There followed a series of status reports on crocodiles in Orissa (*C. porosus* Sudhakar Kar), Gujarat (*C. palustris* Raju Vyas), Madhya Pradesh (*G. gangeticus* and *C. palustris*, R. J. Rao), Uttar Pradesh (*G. gangeticus and C. palustris*, D. Basu) and the Andaman islands (*C. porosus*, H. Andrews). Detailed results on surveys and conservation programs on the Chambal river were also given by S. Hussein and R. Sharma. The meeting was particularly pleased by the presence of Dhoji Kaenga from Bhutan who gave the first recent report of crocodiles from that country, including the news that gharial are still present, although rare, on the upper Brahamaputra at the Masa National Park.

From these reports it is evident that the situation of crocodiles in the wild in India is quite well known, with increasing amounts of quantitative information available. However, almost nowhere is the status of wild crocodiles reassuring and significant problems remain with the captive rearing and re-introduction programs which are now well recognized. In response to this information the group then drafted an outline of a conservation strategy, identifying ten major topics which needed expansion and definition. Among these were quantitative surveys, improved relations with State and Federal government bodies, a public relations program in support of release programs, continued monitoring of released crocodiles, identification of additional release sites and evaluation of both consumptive and non-consumptive sustainable use as a conservation mechanism. Funding requirements and the formation of a coordinating body of crocodilian experts to implement this program were also considered. This draft strategy is currently being refined and expanded and will be released for general comment and input later this year. The meeting provided an outstanding opportunity for nearly all the prominent Indian crocodile conservation interests to share information and combine their expertise to develop a framework for the next period of activity. We also had the opportunity for a brief visit to a section of the Chambal River Sanctuary where 15 wild gharial were sighted, including an adult female guarding a large group of young and several other adult size individuals. The Chambal river is one of the most important sanctuaries for crocodile conservation in India supporting one of the only self sustaining gharial populations as well as mugger, river dolphin, otters and many water birds. Ironically, the continuing activities of 'Dacoit' bandits in the area serves to discourage other activities and provides a measure of additional protection to the Reserve. Developing crocodilian conservation in India and throughout the region will have to proceed with pragmatic consideration of the regional realities of many kinds. This regional meeting provided a valuable step to developing the necessary programs.-- J. P. Ross, *Florida Museum of Natural History, Gainesville, USA*, R. J. Rao. *Jiwaji University, Gwalior* & H. Andrews, *Madras Crocodile Bank Trust, Mamallapuram, India.*

ASIA and OCEANIA

Malaysia

NEST OF A FALSE GHARIAL FROM SARAWAK. The False Gharial, *Tomistoma schlegelii*, occurs in Malaysia, Sumatra and Borneo occupying lowland freshwater swamps. In Borneo, though it has never been reported from Sabah, it has been historically relatively common in freshwater swamps and peat swamp habitats. Details of its ecology remain sketchy and little is known about its nesting habits. Despite having been successfully reared in captivity for several decades in Sarawak, no nesting attempts were ever successful (J. Jong *pers. comm.*). This report is apparently the first known description of a natural nest and guarding behavior by *T. schlegelii*.

In early August 1994 a resident of the Sungai Runjing, a tributary of the Batang Lupar river, near the town of Engkelili (1° 08'N, 111° 39'E), reported to the National Parks and Wildlife Office that a crocodile ('Baya kenyolong' the local name for *Tomistoma*) was guarding a mound of leaf debris near the edge of a wet rice plot that was being prepared for cultivation. The crocodile was said to have first been sighted on 18 July 1994 as the landowner began to clear the disused plot. Two additional *Tomistoma* were reported to be nearby, but only one remained at the site. The landowner stated that the crocodile behaved aggressively when a mound of dead leaves and sticks on the opposite bank was approached. The owner and his relatives then erected a small altar to appease the spirit of the animal, offering a scoop of cooked rice and several eggs. A pig was also slaughtered on the spot to recompense the local crocodiles for the disturbance of one of their members.

One of us (EL) visited the site on 10 August and found the animal lying mostly submerged in the stream at the edge of the farmer's plot. A crowd gathered and on the recommendation from the NPWO, the landowner erected a temporary bamboo fence to prevent further disturbance. On 16 August we both visited the site and recorded details of the nest and habitat. The stream, a sluggish tea-colored peat swamp tributary of the Batang Lupar river, was 2-3 m wide and 0.3-1 m deep and contained considerable debris including numerous brown and rotting palm fronds. The animal was resting with just the eyes and nostrils breaking the surface, approximately 1 m from the bank where the nest had been constructed. The animal's reddish brown color provided effective camouflage and spotting it from a distance was difficult. The animal was later measured and found to be almost exactly 3m length.

The crocodile remained within 3-4 m of the nest at all times and initially rushed at anyone who attempted to approach the site. Nevertheless one us crossed the stream about 10m away then approached the nest to within 2 m of the female but she offered no response except to orient in the direction of the intrusion.

The nest was constructed at the edge of a regenerating peat swamp forest under a canopy 5-6 m high and in the shade, about 1-2 m from the stream bank which was 1.0 m above the level of the water. The mound was built in the base of a tree of approximately 30-40 DBH, and the mound was approximately 0.6 m height and 1.3-1.5 m diameter and was compacted rather than loose. The low rounded nest consisted of dry leaves and woody litter (sticks and root debris) which had evidently been swept into a pile, since the surrounding area was quite clean of such debris. The shape and position of the nest at the base and under the shade of a tree is reminiscent of the nests of *Megapodius cummingi*, the mound building megapode bird of Borneo's coastal islands.

The vertical distance from the top of the nest to the nearest egg was approximately 25 cm. The temperature of the egg chamber was not recorded. There were 16 eggs, laid in a jumbled mass, roughly three layers approximately 15 cm in depth. One egg had been broken and consisted only of the shell. It is not known how the egg was damaged, since the nest had not previously been opened. The eggs were marked and then removed and placed in a styrofoam container for transport to Kuching. They were then examined by Mr. Johnson Jong, a local CSG expert, who determined that the entire clutch was apparently infertile. There is remarkable uniformity in egg size and weight. The female was captured by EL and several NPWO officers and removed on 18 August 1994 to the Forest Departments Wildlife Rehabilitation center at Semenggoh outside Kuching where the animal continues to be maintained. -- Engkamat Lading, *National Parks and Wildlife Office, Sarawak Forest Department, &* Rob Stuebing, *ITTO Unit, Wisma Sumber Alam, Kuching, Sarawak, Malaysia.*

Table 1. Dimensions and weights of ten *Tomistoma schlegelii* eggs from Engkilili nest

No.	Length mm	Diam. mm	Weight g
1	100.03	56.50	182
2	93.30	57.80	180
3	95.60	58.30	182
4	92.15	58.65	181
5	99.20	56.95	191
6	94.65	58.10	185
7	94.65	58.10	186
8	93.15	57.75	172
9	96.90	59.85	199
10	95.35	58.05	188
Mean	95.50	58.01	184.60
SD	2.56	0.91	7.21

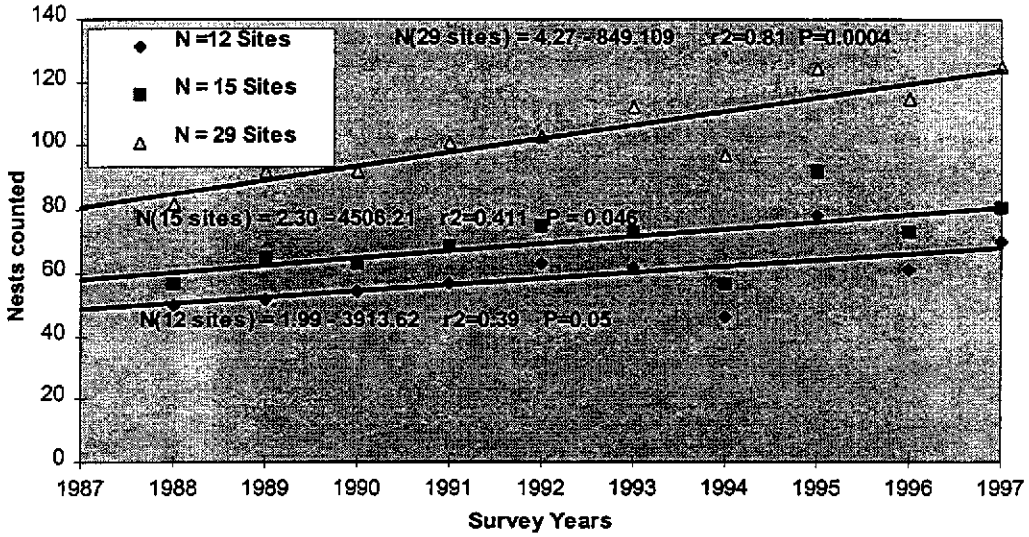
Papua New Guinea

CROCODILE PROGRAM OVERCOMES SETBACKS. In late February 1997 the Department of Environment and Conservation (DEC) suffered a major theft of computer equipment and software including species, trade and enforcement data bases and all of the crocodile survey database. Fortunately the paper records are intact and can be re-entered. The situation was alleviated in April with computer, software and printer donations from Canada Funds, Australia. In addition a laptop and digitizing equipment was donated by the Asian Conservation and Sustainable Use Group (ACSUG). The Department and the croc unit wish to express their sincere appreciation of this support to the crocodile management program in PNG. Our real work has now begun...again!... on data entries from the hard copies.

Amid the problems with the database loss, the annual March 'saltwater' crocodile helicopter surveys were organized and conducted by croc unit

staff Veari Kula, John Meru and Benny Gowep from 9-15 March in the Middle Sepik River Region. Prior to the surveys in March 1995 and the review of data analysis, a habitat weighted index based on the Wilcoxon Sign-Ranked test was used which did not clearly demonstrate population trends. In March 1995 Charlie Manolis reviewed the analysis and put forward an alternate regression model which compares nest counts from the most consistently surveyed sites since 1982. From a total of 49 nest survey sites three data groups of comparable sites were developed for the evaluation of current trends. In this year's survey there was an increase in total nest counts from the 1996. For all three data groupings the nesting trends exhibit continuing significant increase (Figure 1)

C.Porosus regression Plots for N = 12 , 15 and 29 Sites surveyed between 1988 - 1997 including the 1994 data.



In other news, John Genolagani, former head of the crocodile unit, returned in February from a year at Australian National University after completing his Masters in Environmental Management and Development. He is now heading the department's Biodiversity Assessment Unit. Godfrid Solmu, head of the croc unit, is undertaking graduate studies at Charles Stuart University, Australia, supported by a AusAID Institutional Strengthening Project to DEC. Veari Kula is currently assuming Godfrid's responsibilities as head of the unit. In late March Veari accompanied Mr. Pius Pindi, a senior executive of the DEC, to the ACSUG meeting in Tokyo. Thanks were expressed to CSG members Greg Mitchell and David Wilkins for their support to the department and special thanks again offered to ACSUG for the gift of computer equipment to enhance the technical capacity of the croc unit- *Tenkiu tru*!

In a follow up to the enforcement case reported in Newsletter 15(4), although a qualified lawyer was engaged to undertake the prosecution on behalf of the DEC, some provisions of the *Crocodile (Trade and Protection) Act* were overlooked. The Department is reviewing the case with a view to suspending the current Company Export license and apply additional charges.

Under the AusAID project a review of conservation legislation is proceeding with a focus on some of the complex issues of species management in PNG. Hank Jenkins and Frank Antram visited PNG to get into the details of current policies, legislation and procedures and how they might be improved. Attention was focused on CITES implementation and national legislation. As usual in PNG conservation, the 'guinea -pig' was the whole croc ecology-to croc economy example. A one day seminar was held for DEC staff.

The Department of Environment and Crocodile Unit would like to make special acknowledgment of the donation of computer equipment in April by the Canada Fund in Australia. This resulted from a request by the national crocodile unit to Wetlands International in Australia to assist the unit address some of its pressing data management needs. Canada Fund provided a computer, laser printer and Office 95 and MS Access software.

This equipment replaced outdated equipment and is used for the storage, retrieval and analysis of field data collected from the Sepik River Region. The Middle and Upper Sepik, where aerial nest counts have been conducted annually since 1981, is regarded as primary nesting habitat for crocodiles and data collected from these surveys is used to determine nesting trends for the breeding population and extrapolated to represent the population status of crocodiles in PNG. In addition, local communities rely heavily on the sale of crocodile skins and eggs which is estimated to account for over 40% of the skins and live animals harvested in the country. The computer equipment will be used for a database for crocodile trade data as well as monitoring data from aerial surveys and river and ground based surveys. -- Veari Kula, *acting Officer in Charge, National Crocodile Monitoring Unit, Department of Environment and Conservation, Boroko, Papua New Guinea.*

Latin America

Cuba

Workshop discussion, Monte Cabaniguan refuge, Cuba. M. Cherkis photo

FIRST INTERNATIONAL WORKSHOP ON *CROCODYLUS ACUTUS*. Sponsored by the National Unit for Flora and Fauna Conservation (Ministry of Agriculture) and the Agency for Ecotourism (ECOTUR) a workshop was held 10-16 June which brought together 24 crocodile specialists from Cuba, United States, Jamaica, Mexico, Peru and the Dominican Republic. The workshop was an activity of the recently created *C. acutus* specialist network.

The opening activity was held in the Bayamo fairground facility on 10 June, where 11 presentations on *C. acutus* were made. Among these were status reports from the various countries represented and reports on current research on population biology, ecology, management and conservation and captive breeding. On 11 June the participants transferred by sea to the new "Don Miguel Alvarez del Toro" Biological Station located in the Monte Cabaniguan refuge, where the practical phase of the workshop was held until the 15th. The refuge encloses 7,200 hectares of coastal wetlands at the edge of the Gulf of Guacanayabo in the east of Cuba. Here the participants divided into four working teams and developed a diversity of field activities. Daily visits were made to four important collective nesting areas of American crocodiles where we had the opportunity to assist with monitoring hatching and practical methods of evaluation of the productivity of natural nests, nesting ecology, marking and morphometry of hatchlings, among other topics. At night, population surveys were conducted by spotlight. The participants were able to get first hand appreciation of the very abundant population of crocodiles present in this protected area and the interesting phenomenom of collective nesting where each year more than 200 reproductive females gather at a small number of nest sites near the sea.

A very touching aspect of the workshop were presentations by vocational 'Crocodile Clubs' formed by primary and secondary students from the nearby towns of Manzanillo, Bayamo and Jobabo who also organized a drawing competition on the theme "In my Cuba we have crocodiles" which attracted 250 entries from students in Bayamo and Manzanillo.

The workshop concluded with a roundtable where the results of the combined work were analyzed and a final report prepared. Recommendations were made embracing future work for research and conservation of crocodiles

Workshop participants ponder the intricacies of crocodile traps. M. Cherkis photo

in the area; another similar workshop in the near future, and the possibility of approving the biological station 'Don Miguel Alvarez del Toro", the Monte Cabaniguan Refuge and its notable population of crocodiles for the realization of joint projects for research and implementation at the regional level on *C. acutus* in wild conditions.

The objectives of the workshop, to encourage an exchange of experiences, communication and the practice of working relations, equipment and personnel between specialists of the region interested in *C. acutus* were amply completed. -- Roberto Rodriguez Soberon, *Programa Nacional de Cocodrilos, Empressa Nacional de Proteccion de la Flora y la Fauna, Ministerio de Agricultura, Cuidad Habana, Cuba.*

THANKS. In the name of the CSG Network of Specialists on *Crocodylus acutus*, we wish to express our warm thanks to all our Cuban companions, and particularly Roberto Soberon, for the opportunity to participate in the Workshop. Roberto had the full weight of the organization of the workshop and capably completed this cyclopean task. The workshop is described in Roberto's report above. The experience in the refuge was most interesting, giving us the opportunity to visit a variety of nesting areas where we saw hatching and assisted with marking and data collection. In the five nesting areas we visited we observed the hatching of 142 natural crocodile nests during the workshop. We also conducted night spotlight counts revealing average densities of crocodiles in the order of 5/km indicating the great importance of this area for *C. acutus*. Our recommendations for future work in the area were developed at the final roundtable and among these we would like to emphasize the following:

We consider the Monte Cabaniguan refuge combines features which make it an ideal location for studying this species and recommend the creation of a Regional Center for support and training of investigators interested in the species. We recommend that the workshop be repeated within 2 years and finally we would like raise the possibility that a proposal on the feasibility of ranching *C. acutus* from this area should be prepared for consideration of CITES. We also suggest that Cuba should be considered as a venue for the next (15th) Working Meeting of the CSG. -- Ana Maria Trelancia, *Specialist Network on C. acutus, c/o L. Alcázar, Depto. Finanzas, Av. Pardo y Aliaga 696, Lima 27, Peru.*

Venezuela

CRECIMIENTO, SOBREVIVENCIAS Y USO DE HÁBITAT DE *CROCODYLUS ACUTUS* INTRODUCIDOS EN EL EMBALSE DE TACARIGUA, EDO. FALCÓN, VENEZUELA. Esta es parte de mi tesis de maestria en la Universidad Simon Bolivar con el Prof. Emilio Herrera de tutor. Este esfuerzo lo realice en el marco del Programa de Adopcion de Caimanes de FUDENA, y con el apoyo financiero de EcoNatura.

Entre Marzo de 1996 y Enero de 1997 se llevó a cabo un proyecto de investigación con la finalidad de estimar el crecimiento, sobrevivencia y uso de haábitat de Caimanes de la Costa (*Crocodylus acutus*) introducidos en el Embalse de Tacarigua, y comparar estos aspectos con lo que se determine en ejemplares de la poblacion residente. Para la captura y evaluación de los usos de hábitat se establecieron sectores de muestreo, los cuales fueron recorridos en noches sin luna, usando luz de lámparas y faros para la detección de individuos por el destello de sus ojos. Durante el día en las zonas de captura se realizó la caracterización de hábitat y se cuantificaron algunos recursos que componen la dieta. A cada

animal capturado se le medió la longitud total y del cuerpo, peso, y se inmovilizó para extraer el contenido estomacal por el método de regurgitación con agua. Se calcularon las tasas de crecimiento, condición física de cada animal, y se determinó su dieta y uso de hábitat para el momento de la captura. Los resultados constituyen indicadores de la situación actual de los caimanes introducidos y de la viabilidad de proyectos de cría en cautiverio y introducción al medio natural, los cuales forman parte de las estrategias para acelerar la recuperación de las poblaciones de esta y otras especies de cocodrilos amenazadas de extinción a nivel mundial.

Preliminarmente durante este periodo se logró la recaptura de once (11) caimanes introducidos en este embalse, de los cuales ocho (8) corresponden al grupo de 25 caimanes liberados en Abril de 1991 y tres (3) al grupo de 15 caimanes liberados en Marzo de 1992. Se recapturaron nuevamente dos caimanes, lo cual puede significar que la muestra capturada se aproxima a la fracción de caimanes introducidos que ha sobrevivido. Si esto es así, se puede estimar partiendo de la recaptura de 11 caimanes del total de 40 introducidos entre 1991 y 1992, que la sobrevivencia está cerca del 25 %, lo cual relativamente bajo si consideramos que las edades de los caimanes al introducerlos era de 2 y 3 anhos. Considerando la sobrevivencia hasta los momentos por edad de los animales introducidos, de los 25 introducidos en 1991, 21 tenían 3 años y 4 teni'an 2 años. De los primeros se han recapturado 6 (29 %) y de los segundos se recapturaron 2 (50 %). No obstante del grupo de 15 introducidos en 1992, cuya edad era 2 anhos, solo se han recapturado 3 (20 %). Se ha logrado la recaptura de solo 3 caimanes de una fracción de 35 caimanes residentes capturados y marcados entre 1991 y 1995. Con ello se podría estimar una sobrevivencia natural cercana al 10 %, muy inferior a la encontrada para animales introducidos. Adicionalmente se han capturado treinta y siete (37) caimanes de la población residente que fueron marcados con placas metálicas y recortes en las escamas, de los cuales 34 son nuevos caimanes capturados. Solo se logró recapturar 5 ejemplares lo cual demuestra que existe un factor de baja recapturabilidad de caimanes residentes. Este factor se estima está en función del tamaño del animal y del tiempo transcurrido entre capturas, lo cual será debidamente evaluado al final del estudio.

Con los datos de los caimanes recapturados, tanto introducidos como residentes se han estimado tasas de crecimiento en longitud total (LT), longitud de cuerpo (LC) y peso (P). Para la muestra de introducidos se calculó un promedio de 0,23 mm/di'a (DE = 0,11) en LT, un promedio de 0,13 mm/di'a (DE = 0,06) en LC y un promedio de 3,38 gr/di'a (DE = 2,68) en peso. Con los datos de tres caimanes residentes recapturados se estimaron estas tasas obteniéndose valores de 0,33 mm/di'a (DE = 0,08), 0,18 mm/di'a (DE = 0,04) y 4,06 gr/di'a (DE = 2,78) respectivamente. El bajo y desigual tamaño muestral no llevan a establecer comparaciones, pero observando los datos pareciera ser que caimanes residentes crecen mas rápido que los introducidos. Los altos valores de DE pueden significar diferencias en los usos de hábitats, los cuales serán analizados. En relación a las tasas de crecimiento de los caimanes introducidos capturados, pareciera confirmarse que las mismas son altas en caimanes con tamaño mas pequenho a los otros para el momento de la liberación, aunque hay un caso donde ello no es asi'. Sin embargo, la ganancia en peso aparentemente es mayor en los caimanes introducidos de mayor tamanho para el momento de la liberación. En el análisis final se espera poder realizar un estudio completo de los caimanes introducidos comparando las tendencias de los parámetros de crecimiento durante cautiverio y en vida silvestre. Para la estimación de las tasas de crecimiento de 37 caimanes residentes capturados se procurara el uso de modelos como el de Von Bertalanffy, a los fines de contar con estimadores para realizar comparaciones con el grupo introducido. No obstante, se realizarán comparaciones entre el grupo de caimanes introducidos y residente, en base a sexo e intervalos de tallas. Preliminarmente, lo encontrado no coincide con lo esperado ya que se estima que los animales de mayor tamaño deberían tener una mayor índice.

Finalmente, se encontró que la dieta de los caimanes introducidos en clase de edad subadulta, está compuesta principalmente por cangrejos rojos de agua dulce del genero *Dilocarcinus*, caracoles del genero *Pomacea* y peces, principalmente Petenia o San Pedro (*Caquetia kraussi*) y guabinas (*Hoplias* sp). En todos hay restos de vegetación, en algunos presencia de piedras y nemátodos, estos últimos asociados a la presencia de peces. -- Alfredo Arteaga, *FUDENA E-mail: 93-78060@usb.ve/fudena@conicit.ve* y Emilio Herrera *Universidad Simón Bolívar, .Caracas. Venezuela. Email: eherrera@usb.ve*

GROWTH, SURVIVAL AND HABITAT USE OF CROCODYLUS ACUTUS INTRODUCED TO THE TACARIGUA RESERVOIR. This is a preliminary report of Masters thesis results of Alfredo Arteaga, directed by Professor E. Herrera, University of Simon Bolivar. The work is part of the FUDENA re-introduction project and was supported by Econatura. Between March 1996 and January 1997 we have been heading a research project to estimate growth survival and habitat use of *C. acutus* introduced into a reservoir in Falcon Province, Venezuela, and comparing these aspects with the resident crocodile population. To evaluate habitat use and capture crocodiles we established sample sectors which were examined on moonless nights with spotlights and flashlights to detect animals by eyeshine. During the day these sectors were quantitatively evaluated for available resources and dietary components. Each animal captured was measured (total length and body length), weighed and immobilized for the extraction of stomach contents by stomach flushing. Growth rates and physical condition were calculated and diet and habitat use at the moment of capture was determined.

The results are an indication of the current situation of introduced crocodiles and the viability of projects for raising crocodiles in captivity and reintroducing them to wild which are part of the strategy to accelerate population growth for these and other endangered crocodile species worldwide.

In this preliminary study we recaptured 11 crocodiles reintroduced to the reservoir, of which 8 were from a group of 25 released in April 1991 and 3 from a group of 15 released in March 1992. We also caught 2 new crocodiles, which may indicate that the captured sample is approximately the proportion of the released animals still surviving. If this is so we estimate the survival of the 40 animals introduced in 1991 and 1992 to be about 25%, which is relatively low considering that the animals were introduced at an age of 2-3 years. Considering the survival of crocodiles compared to their age at release, of the 25 introduced in 1991, 21 were 3 years old and 4 were 2 years old. We recaptured 6 (29%) of the older animals and 2 (50%) of the younger. Of the 15 crocodiles released in 1992, which were all 2 years old, we recaptured 3 (20%). We also recaptured 3 crocodiles from a population of 35 wild residents captured and marked between 1991 and 1995. From this we estimate the survival of wild crocodiles to be around 10%, considerably less than the introduced animals. Additionally we caught 34 new wild animals which were marked with metal tags and by scute removal. Of these we only recaptured 5 during the study, suggesting that wild crocodiles have a low probability of recapture. This factor appears to be a function of both the size of the animals and the interval between captures and will be evaluated at the end of the study.

We calculated growth rates for both introduced and wild crocodiles. The small and unequal sample sizes do not allow strict comparisons, however the data suggest that the wild residents grow more rapidly than the introduced individuals. All the calculated growth rates indicate a large degree of variation responding to different habitat use and these are being analyzed. The rates of length increase in the introduced crocodiles suggest that growth was more rapid in those individuals which were smaller at the time of release, but this is not always the case. However, the gain in weight apparently is greater in those which were longer at the time of release. In the final analysis of these data we hope to present a comparison of the trends in these parameters of growth during captivity and after release into the wild.

We used the Von Bertalanffy model to calculate growth rates of the 37 wild residents captured. Our preliminary analysis suggests that the growth index found in the values of body length are less than those calculated for total length and greater than those for body weight. We are now analyzing comparisons between the introduced and resident crocodiles considering sex and length class. So far the observations do not coincide with expectations as the longer animals have a higher index of growth.

Finally we found that the diet of the introduced crocodiles of this subadult class is composed principally of red freshwater crabs (*Dilocarcinus*) snails (*Pomacea*) and fish, principally *Caquetia kraussi* and *Hoplias* sp. In all the samples we found traces of vegetation and in some we found stones and nematodes, these last associated with the presence of fish. -- *Free translation of the preceding article.*

Brazil

CAPTURE AND RECAPTURE OF AN ADULT BLACK CAIMAN IN MAMIRAUÁ. In August 1996 with John Thorbjarnarson we began capturing adult black

Male *Melanosuchus niger* 3.85 m. R. Da Silviera photo

caiman, *Melanosuchus niger*, in the Mamirauá Sustainable Development Reserve to install radio transmitters. This study is supported with funding from the European Union, the Brazilian Academy of Science, and Technology and National Council of Scientific Development (CNPQ), and is part of Ronis' Ph.D. Thesis in the National Amazonia Research Institute (INPA), under the supervision of Bill Magnusson.

On August 16, while John was supervising a turtle study in another part of the Reserve, we noosed a black caiman in the middle of Mamirauá lake. In the boat, a 4.8 m aluminium canoe with a 15 hp outboard, was my wife Barbara and Edjalma, a Caboclo assistant who has worked many years with us. The capture was at 2300 h and we spent 40 minutes tiring the animal so that we could take it back to our floating house base, which was necessary because we were at the end of the wet season and there was little dry land to work.

Twenty minutes after being captured, the caiman was visibly tired, and it was possible to immobilize it. Before closing its jaws and eyes with tape and tying its legs we covered the caiman's eyes with a cloth. Local illegal hunters also "close" the caiman eyes to permit a safe approach. However, they blind the caiman by poking out its eyes with the same wood stick used to hold the harpoon tip, and this way are able to get close enough kill it by axing the cranial table.

In our case, after immobilizing the caiman it took twenty minutes to arrive at our floating base, 1.3 km from the capture site, pulling the caiman along side our boat. However, while we dragged the black caiman it was able to support its head in the front of the boat and raise his tail almost two meters out the water. The tail came down, grazing Barbara's face, and nearly hitting the side of the boat, which would probably have overturned it. This was Barbara's first time working in the Amazon jungle at night and we were on our honey moon, married only two weeks before.

The black caiman was a male with a head 48.2 cm long, 193 cm snout-vent length, and 385 cm total length. Unfortunately, we did not have appropriate equipment to weigh it. After placing a radio-transmitter on its tail, we released the animal near the floating house, because we did not have a big boat to return the animal to the capture site, as we usuallydid.

After capture the animal stayed in a small lake near the release site, five days later it was 140 m from its capture site. Some days after the animal moved to another lake where sometime thereafter the radio fell off, probably by breaking the fine nylon line used to attach it when it got caught in some of the dense floating mats of vegetation.

Some months later, on 20 February 1997, at the end of the dry season, Ronis, Edjalma and Jorge Tapioca, another Caboclo assistant, were catching caiman in the same area. At 2300 h we noosed a big animal in the Mamirauá lake and when we dragged the animal to nearby land we realized that was the same animal recaptured. The animal was 0.55 km below the first release site and 0.78 km up from the first capture site. Ronis measured the caiman again and the measurements were basically the same, but total length was 7 cm longer. Probably this difference was not due to growth, but due to caiman body contraction. We suspected that the caiman should have been longer when measured on the flat surface of our floating base, when compared with irregular site measurements on the second occasion, but the reverse was true.

The caiman weighed 199.3 kg. The single tail scale removed during marking in the first capture was totally healed and the metallic tag placed on interdigital membrane of the back foot was in good shape. During the installation of a new transmitter the caiman batted Ronis two meters

away with its tail. This time we released the animal in the same site where it was captured.

The recapture was important because it shows that big black caiman will stay in the same area after the stress of the being captured, and that it is possible to recapture them, indicating a good probability of black caiman recaptures in mark-recapture programs. Now the black caiman has another radio transmitter that was first placed on a spectacled caiman subsequently killed by a jaguar. But this is another part of the Mamirauá caiman research. --Ronis Da Silveira & Bárbara Brandão Da Silveira. *Projeto Mamirauá, Caixa Postal 38, Tefé - AM, 69470.000, Brazil.*

NORTH AMERICA

USA

AMERICAN ALLIGATOR INDUSTRY DIRECTORY. Louisiana Department of Agriculture and Forestry has produced the fifth edition of their guide to the alligator industry. The Directory lists names and contact information for a very wide selection of individuals, companies and organizations involved in every aspect of the alligator industry including dealers and buyers of skins and a state by state listing of farmers with short comments on the interest of each. The list is reasonably up to date as of the end of 1996 and is a valuable resource for contacts in the industry. Inquiries may be directed to -- Renee Sagrera, *Louisiana Dept. of Agriculture and Forestry, Office of Marketing, PO Box 3334, Baton Rouge LA 70821-334 USA.*

MEETINGS

CROCODILIAN MANAGEMENT IN AMAZONIA WORKSHOP, THIRD INTERNATIONAL CONGRESS ON WILDLIFE MANAGEMENT IN AMAZONIA, 3-7 DECEMBER 1997, SANTA CRUZ, BOLIVIA. The Congress, jointly hosted by Museo de Historia Natural Noel Kempff Mercado and the Tropical Conservation and Development Program, University of Florida, USA, will focus attention on the studies and programs of management which have recently been applied in the Amazon region. A workshop on management of Amazonian crocodilians is planned for the Congress. Papers on application, cautions and limitations of sustainable use and several regional case studies will be presented and a moderated discussion will follow to generate a summary statement for the Congress. Inquiries and registration information can be requested from -- *Tropical Conservation and Development Program, Center for Latin American Studies, University of Florida, P.O. Box 115531, Gainesville Fl 32611 USA, Fax: 1 352 392 0085, E-mail:* tcd@tcd.ufl.edu

SYMPOSIUM ON CROCODILE ECOLOGY AND EVOLUTION. Planning for this conference is now underway. Details and updated information will soon be available at the Web site <http://www.zoology.uq.edu.au/conference.html> or from the conference organizers -- Tony Tucker Zoology Dept. Univ. Queensland Brisbane Qld 4072 Australia ttucker@zoology.uq.edu.au PH: 61-73-365-7386 FX 61-73-365-1655

FIRST ANNOUNCEMENT. 14TH WORKING MEETING OF THE CROCODILE SPECIALIST GROUP 13-16 JULY 1997, SINGAPORE. The Singapore Reptile Skin Trade Association proudly confirms the dates of the 14th Working Meeting as 13 -16 July 1998. In discussions between the hosts and the CSG Steering Committee it was agreed that the meeting should be concentrated into three days of general discussions focussed around keynote addresses on topics of general interest and concern. A fourth day will be available for local field trips and sightseeing. Discussions are also underway to investigate the possibility of field trips to Sumatra which is quite easily accessible from Singapore. Preliminary registration forms will be distributed with the Newsletter Vol 16 (3) in October. Inquiries may be directed to -- Mr. Koh Choon Heong, Organising Committee 14th CSG Working Meeting, Singapore Reptile Leather Trade Association, 50 Defu Lane 7, Singapore 539356.

ZOOS

TOMISTOMA AVAILABLE. An adult, male *Tomistoma schlegelii* is available from the

Vychodoceska Zoologicka Zahrada Ve Dvore Kralove, Czech Republic. Their FAX number (I think) is 420-437-820-554566, if anyone is interested. -- *from CROCS Digest for 22 May 1997,* Scott Pfaff, <spfaff@scsn.net>

CSG ON-LINE

MISCELLANEOUS. Christopher Brochu, Department of Geological Sciences, University of Texas at Austin, Austin, TX 78712 USA, has a new web site up for his project with the alligator at <http://mmsgi02.cc.utexas.edu/gator/intro.htm>

Ed Colijn of Wetlands International - Indonesia Programme has a new URL for The Indonesian Nature Conservation Database at <http://www.tip.nl/users/ed.colijn>

NEW CITES WEBSITE. WCMC is pleased to launch a new CITES Information Service on the WWW. What you will see at <http://www.wcmc.org.uk/CITES> is a prototype designed to show what can be achieved. For instance, you can discover what CITES-listed species occur in a country or find out when particular species were listed? Or you can access the Resolutions and Decisions from past Conferences of the Parties and many other documents. Where possible we provide this information in each of the three official languages used by CITES (English, French and Spanish). We are very grateful to the CITES Secretariat for their advice in developing this prototype, and to the Joint Nature Conservation Committee (UK) and the European Commission (DGXI) for their additional support.

Please give us feedback and the chance to cater for your needs. Just click on the word "comments" at the footer of each page and fill out the form. Alternatively contact me directly by email. -- Lorraine Collins, *Projects Officer, Wildlife Trade Monitoring Unit, World Conservation Monitoring Centre, 219 Huntingdon Road, Cambridge CB3 0DL, U.K. lorraine.colllins@wcmc.org.uk*

CSG member Charles Swaby, Black River, Jamaica

from *Singapore Air SILVER KRIS Magazine, May 1997*

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

Steering Committee of the Crocodile Specialist Group

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

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