

CROCODILE SPECIALIST GROUP

NEWSLETTER

Volume 9 No. 4 ■ October 1990 - December 1990



IUCN - World Conservation Union ■ Species Survival Commission

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VOLUME 9 Number 4
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IUCN--The World Conservation Union
Species Survival Commission

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COVER PHOTO:

Makin' Gators, *Alligator mississippiensis*
mating in Lake Okeechobee, Florida, USA.
H. Messel photo.

PATRONS

The following Patrons of the CSG have contributed more than U.S. \$200.00 during the past 12 months and are listed by size of donation, largest first. The funds donated have been deposited with University of Florida Foundation, Inc., and are used to support the CSG program:

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Harry Freeman, Hartleys Creek Crocodile Farm, Queensland, Australia.
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EDITORIAL

BACKLASH AGAINST SUSTAINABLE USE.
There appears to be a disturbing growth of opposition to the concept of sustainable use (SU) as a conservation tool. Even though SU is embraced by the World Conservation Strategy written by IUCN, and endorsed by WWF and UNEP, some elements in the conservation community, particularly those with a USA and European powerbase and animal rights orientation, are becoming vocal opponents of programs in which wild animals are killed for use. At CITES in 1989 these groups prevented any compromise allowing sustainable use of elephants in those countries where management programs were effectively conserving elephant populations. More recently, at the General Assembly of IUCN in Perth, Australia, a fierce debate ensued over whether IUCN should include the word 'use' (and more importantly the concept of sustainable use) in its Mission Statement. A resolution endorsing sustainable use was approved by the General Assembly only after days of tortuous, and sometimes obstructive, debate by animal rightists.

The opposition to sustainable use conservation and management programs sometimes comes from surprising sources and the CSG clearly has to become active in educating the groups who should be our allies in promoting SU for conservation. A recent article in *WILDLIFE CONSERVATION*, Magazine of the New York Zoological Society, exhorted readers not to buy any reptile skin and urged readers to "...avoid buying any crocodile products...." Such ill-founded sentiments clearly undermine the CSG's crocodile conservation strategy and we

need to be proactive in countering this view. In response, Prof. Messel, Chairman of the CSG, has submitted a lengthy letter to *WILDLIFE CONSERVATION* rebutting in great detail these erroneous concepts and making a forcible case for sustainable use for some species of crocodilians. The Group has expressed many times that SU is not the only conservation method for crocs, and is not appropriate for some species. But for several species, and in many developing countries, sustainable use is the key to preserving wild populations. We need to get this message more widely recognized. Prof. Messel's letter has already been endorsed by the CSG Steering Committee and by crocodile farming and trade groups in Australia and Japan. The letter is expected to appear in May and in the interim interested readers can obtain an advance copy from the CSG Gainesville office. --
Editors.

STEERING COMMITTEE

CROCODILE SPECIALIST GROUP STEERING
COMMITTEE MEETING 27 NOVEMBER 1990
PERTH, WESTERN AUSTRALIA

Present: H. Messel, N. Ishii, R. Luxmoore, K. van Jaarsveldt, B. Vernon, G. Webb, P. Ross; J. Berney (CITES observer); S. Edwards (IUCN Observer); J. Bache, J. Cox, J. Genolagani, J. Hannon, R. Jenkins, V. Onions, Widodo Ramono (CSG members); H. Butler, P. Munton, M. Rabb (observers).

Professor Messel opened the meeting at 09.05 AM and recognized Mr. N. Ishii as the delegate of absent Vice Chairman for trade, Mr. T. Yamanaka. Prof. Messel noted that it was not unusual for the Steering Committee to convene without all its members.

Matters arising from previous meetings.
Cooperation with FAO. Dr. Gil Child of FAO responded to our earlier letter saying he is aware of and sympathetic to the need for improved cooperation with CSG but that FAO is constrained by its own operating procedures and the instructions of its member countries and cannot always consult with CSG. It was hoped

that FAO would recognize the value of consulting with the CSG.

Relationship with CITES Secretariat. Advisory committees on *Caiman*, Nile Crocodiles and *C. porosus* were proposed at the previous Steering Committee meeting. A letter constituting these advisory committees would be sent by Dr. O. Menghi to the CSG Chairman by 15 December 1990. J. Berney noted that the *Caiman* committee was the most urgently needed. He further noted that the occasional lack of consultation between CSG and CITES was the responsibility of both parties, for example, CITES was not advised of a recent initiative between G. Hemley of TRAFFIC USA and Dr. J. Hutton for technical assistance in Africa. There was agreement that both CITES and CSG should continue to strive for full notification and coordination of each other's activities with crocodiles.

11th Working Meeting of the CSG. P. Ross reported that an exchange of letters, faxes and telephone calls had failed to elicit confirmation that the Proexpo Bank in Colombia would support the next Working Meeting. Enquiries had been initiated on behalf of the CSG by member R. Haller in Kenya to investigate the possibility of holding the meeting in East Africa. Mr. Haller had reported that he might solicit an invitation from the Kenyan Government, financial support was thought to be unlikely. Kevin van Jaarsveldt offered on behalf of the Crocodile Farmers Association of Zimbabwe to host the meeting at Victoria Falls. After discussion it was decided to decline the Colombian invitation and to inform Mr. Haller that the CSG would plan a meeting for late July or August 1992 in Zimbabwe. The Chairman expressed thanks to Mr. Haller for making enquiries about the meeting in Kenya on our behalf.

Five working days of meetings with Steering Committee meetings before and after were recommended. The format of presentations would be tightened up along the lines described in minutes of the last meeting and a balance maintained between reports on science, trade and status. Prof. Messel drew the Group's attention to the new terms of reference of all SSC specialist groups requiring them to report regularly on the status of species. It was proposed that each regional Vice Chairman

would be responsible for coordinating the status reports from their region.

Workshop on Caiman. Prof. Messel reported that he had successfully solicited an offer of support from the Japanese Leather Industries Association for a workshop on *Caiman* in South America. Initially \$80,000 had been offered by sources in Japan and Singapore although there is now some uncertainty whether this funding will be available. A planning meeting was held in Sydney, Australia, on 8 November 1990 between Dr. O. Menghi, Ginette Hemley, Juan Villalba and Prof. Messel. A general agreement on the venue, timing and format of the meeting had been obtained focussing on bringing together the senior government and management authority figures from all the South and Central American countries concerned. A small scientific advisory contingent and representatives of trading and consumer nations would also participate. It is proposed to hold the workshop in Rio de Janeiro, Brazil, sometime in mid-1991. The CITES Secretariat will set up the meeting, and exact details of dates and other arrangements will be forthcoming once the funding is confirmed. A draft list of participants was reviewed and suggestions made that representatives from trade in Spain and regional TRAFFIC offices should be included.

Resolutions approved at the last CSG Meeting. Dr. Robert (Hank) Jenkins asked whether the resolutions on crocodilian trade and marking issues (CSG NEWSLETTER vol. 9, April - June 1990 pp. 11-12) had been presented at the SSC meeting and was informed that publication of the resolutions in the CSG NEWSLETTER constituted the public presentation of them. Hank reported that the resolutions had been considered by the Animals Committee of CITES at their recent meeting in Darwin. The Animals Committee had combined the two resolutions, endorsed them in principle, and passed them on to the CITES Secretariat for further consideration and eventual presentation at the next meeting of the Parties in 1992. A clause proposing the extension of marking requirements to all products manufactured from crocodilian skins had been included in draft resolution prepared by the USA but was deleted and referred to a working group. Prof. Messel expressed satisfaction on behalf of the CSG Steering Committee that the resolutions generated by

CSG were in fact working their way through the system and would eventually have some beneficial influence on CITES trade issues.

SSC Steering Committee. Prof. Messel reported that the SSC Steering Committee had finalized the procedures, structure and terms of reference for SSC Specialist Groups for the coming 1991-93 triennium. The structure approved was fundamentally that described in CSG NEWSLETTER 1990 April-June and July-September issues. Members of Specialist Groups will receive a member's guide with their letter of appointment that will fully describe these new procedures.

IUCN's new initiative on Sustainable Use of Wildlife was described and discussed. Initially great concern had been expressed by many Specialist Group members that this new structure in IUCN would divert support away from Specialist Groups and cut them out of the consultation on issues and projects. Responding to these concerns the SSC Steering Committee had reviewed the initiative and proposed a structure that would allay these concerns. Prof. Messel reported that a Task Force would be formed within SSC with strong representation and participation of SSC Specialist Group chairmen to ensure that the new initiative would enhance and support Specialist Group activities rather than diminish them.

Dr. Stephen Edwards agreed with Prof. Messel's description and made a brief statement describing his perception of the work of the Task Force. The underlying driving force for the initiative was the urgent need to develop sustainable use programs for conservation in poorer countries. The CSG was a pioneer in this development but there was also a strong counter pressure from some elements of the conservation community to prevent sustainable use programs in spite of the IUCN commitment to this policy. Dr. Edwards stressed that the sustainable use issue needed participation of elements in IUCN in addition to the biological expertise of the Specialist Groups and that the new Task Force was designed to coordinate and support integrated sustainable wildlife use projects. Dr. Edwards expressed his expectation that Task Force on Sustainable Use would become an instrument to assist SSC and its Specialist Groups by providing access to international funding and cited as an example the

recent development of a program in Nicaragua with funding from NORAD (that involves crocodile use but about which CSG had not been consulted). In discussion the CSG members expressed the conviction that if the new initiative recognized and utilized the expertise of the Specialist Groups, that mutually beneficial activities in conservation could be generated.

Triennial Report. Prof. Messel reported that a Triennial Report for 1988-90 had been prepared and submitted to SSC and briefly summarized at the SSC meeting on 25 November 1990. The report will appear in the SSC newsletter SPECIES.

Finances: The CSG Executive Officer presented a report on the financial activities and status of the group since the last meeting.

Financial management of the 10th Working Meeting of the CSG in April was done for the CSG by the American Alligator Farmers Association, co-sponsors of the meeting. Accounts of the Meeting were presented showing revenues of \$37,232 and expenses of \$28,646.05 resulting in a net revenue of \$8,929 that had been placed into the CSG general accounts. This revenue would support other activities associated with the meeting, such as producing the PROCEEDINGS. In response to a question about an expense reimbursement of \$26,469.81 to F. Wayne King, it was explained that Prof. King had paid many of the major expenses for the meeting from his personal funds and credit card and was therefore reimbursed these expenses. A detailed account of all transactions, receipts and checks was attached to the accounts.

In the CSG's general account, held with the University of Florida Foundation, a balance of \$14,877.94 was reported at the last Steering Committee meeting. This balance reflected expenses incurred prior to the 10th Meeting that were reimbursed to our account by the American Alligator Farmers Association bringing the balance to \$22,593.96 at 22 April. Between then and 15 November, income of \$36,369 and expenses of \$47,788.87 were reported leaving a current balance at 15 November 1990 of \$11,174.09. Again a detailed record of transactions was presented for scrutiny.

The Chairman thanked the Executive Officer and Dr. King for a clear and complete accounting and emphasized that the CSG finances must be transparently clear and correct.

However, he expressed great concern that funds were spent faster than they were being generated. The new SSC guidelines will require Specialist Groups to make quarterly statements of income and expense to SSC and provides for an annual audit of funds held.

The Executive Officer presented a planning budget for expenses in the period 1 July 1990 to 30 June 1991 as requested at the last meeting. Total expenses for the CSG in this period were estimated to be \$64,660 with major items being salary for the executive officer (54%), publications (28%), Action Plan and other projects (13%), and travel (6%). These estimates were presented for planning and fundraising purposes and were based on the assumption that activities and costs would be more or less as presently experienced. This estimate did not include amounts for several expenses such as mail, telephone and office costs that the Group receives gratis from several supporting institutions.

This is the first time the CSG has been able to estimate what its operations actually cost but it is a serious underestimate of the real costs of operation. Members of the Steering Committee with commercial experience suggested that a figure in the region of \$100,000 per year was more realistic to plan for and that this was a surprisingly low amount considering the numerous and diverse activities undertaken.

The need for fundraising based on the planning budget was discussed at length. An appeal to current patrons accompanied by the Triennial Report and THE PROCEEDINGS OF THE 10TH WORKING MEETING had been sent out but the total contributions from current Patrons is only about \$50,000 per year. Many mechanisms by which the CSG could raise operating funds were discussed. It is clear that most funds will come from commercial sources and it was desirable to have donations channelled through the various associations of commercial interests in crocodiles to avoid any taint of special influence of individuals. The various associations of farmers, traders, tanners and manufacturers were also in the best position to appreciate and publicize the very real benefits that they obtain from the CSG's operations in the form of conservation of the wild resource on which they rely, technical assistance, and stabilization of legal trade. Mechanisms to raise and disburse funds from the associations to the CSG were discussed including direct donations, levies on

members, 'taxes' on skins produced or traded, selling skin tags and licensing product logos. Considerable problems were envisaged with endorsement from CSG to particular nations or producers as the IUCN does not allow endorsement that implies IUCN support. No clear conclusion was reached except that a variety of methods could be considered and adapted to the needs of each association and that the initiative to develop support for CSG lay with the associations.

CSG needs to enhance its presentation to potential donors to adequately inform them about the professionalism, activity, stability and effectiveness of the Group. The development of a certificate acknowledging support from Patrons was discussed and it was agreed that certificates would express that the donor concerned supported the aims, conservation philosophy and activities of the CSG, rather than the CSG expressing any endorsement of programs, institutions or companies. Kevin van Jaarsveldt, Brian Vernon, Noboru Ishii and John Bache were asked to draft a statement for consideration by the Chairman.

After the meeting, the following draft wording for CSG support of national management policies was placed before the Chairman for consideration:

Upon written representation by the appropriate official management authorities, the CSG will consider supporting the authorization by the authority for the issue of tags incorporating a CSG logo with wording approved by the CSG.

Publications:

Crocodile Action Plan. The Action Plan draft has been completed by John Thorbjarnarson incorporating reviews and comments received at the 10th Working Meeting. The draft has been reviewed internally and is now in its 'nearly final' form. The preparation of maps and assembly of photographs is underway and discussions with SSC on the process for producing and printing it have been held. The CSG Chairman said that he would now take the draft for a final review and then pass it to SSC for approval and production.

Proceedings of the 10th Working Meeting, Gainesville 1990. The PROCEEDINGS are printed

and sample copies were presented. Sale of the PROCEEDINGS at \$25.00 for the 2 volume set (includes postage) will enable CSG to recoup about 85% of the costs incurred in production. Mary Rabb of the Chicago Zoo kindly offered to advertise the PROCEEDINGS through her library distribution network and it was suggested that a notice should also be put in SPECIES, the SSC newsletter.

Model Crocodile Management Plan. A progress report from Dennis David was presented. Funding is being sought to assist further development of the Model Program document and progress on the draft is continuing.

Directory of Crocodile Farmers. Richard Luxmoore reported that he has now assembled the data on active crocodile farms worldwide although there were some remaining gaps including Louisiana, Mexico and Malaysia from which he had still received no response. He expressed concern that it was not always possible for him to verify the accuracy and status of each farm and cited as an example that his information on the farms in Singapore was different from the CITES registration information. In response Jaques Berney discussed his recent visit to Singapore and suggested there was substantial agreement between reported and actual farm status and that Singapore was undergoing a period of 're-adjustment' to bring its farms into compliance with CITES following the withdrawal of their reservation on *C. porosus*. Prof. Messel expressed the view that Singapore had embarked on a new era of active cooperation and his confidence that the situation there would continue to improve. In response to Richard's concerns about verification it was suggested that he indicate in the text which information was verified.

Farming Manual. Jon Hutton had reported to the Chairman that the manual was complete except for one chapter that Mark Ferguson was writing and this was expected imminently. The manual would then go to press and distribution.

Spanish Language Manual. No change in status of this project was reported.

CITES. Jaques Berney reported on current events at CITES. No replacement for the

outgoing Secretary General, Eugene LaPointe, has been appointed yet. No timetable for the resolution of this issue can be estimated but in the meantime the Secretariat will continue to work closely with the CSG and no changes in CITES policy are expected in this interim period. Other staff changes within the Secretariat are being contemplated, particularly in the area of staffing for special projects, that are of special interest to the CSG.

Voluntary declaration of vested interests. The Chairman of the CSG presented his proposal that members of the Steering Committee might wish to voluntarily inform him, confidentially, of commercial activities they have pertaining to crocodiles. The intent of this suggestion was that it would allow the Chairman to protect the CSG, and individuals within it, from accusations of bias. From time to time concern was raised that individuals commenting or advising in the CSG have special interests and their advice was not without prejudice. Voluntary, confidential disclosure of any such interests would assist the Chairman to allay such concerns and enhance the credibility of the CSG.

Activities and regional reports. Written reports had been received from Vice Chairmen for Africa, South America, North America, Europe and Commercial Trade. These were briefly reviewed and are summarized here.

Africa. [From a written report submitted by Dr. Jon Hutton, Vice Chairman for Africa.] Jon visited Guyana to advise on caiman management for CITES, and went to the Paris Leather Fair with Brian Vernon and Kevin van Jaarsveldt. Brian Vernon and Ginette Hemley made visits to Zimbabwe and WWF-USA has made a small grant to allow Dr. Hutton to offer advice to the east and central African countries included in his previous CITES consultancy.

The efficiency of the Africa office has been materially improved by the secretarial assistance donated two days a week by the Zimbabwe Crocodile Farmers Association. Reports from countries in the region follow:

Ethiopia has a CITES quota to export 2500 *C. niloticus* hatchlings. The farm at Arba Minch handles 2000-3000 animals from any cohort, but the wild population is supporting additional hatchling harvests for export. The hatchlings

were put up for tender in September and initially a London based company sought them for removal to Zimbabwe. However, this deal seems to have fallen through and at present the hatchlings are destined for Thailand. Concern has been expressed by NGO's due to the problems of movement of exotic species. [Recent correspondence indicates that in response to this concern and the recent CSG resolution on exotic species (see below), this transfer of exotic species may not proceed.-- Eds]. It is becoming unlikely that Ethiopia will be successful with a ranching proposal at the next CITES meeting if hatchling exports are included.

Somalia was visited by Dr. B.C. Choudhury on behalf of FAO to advise on management of Nile crocodiles for the Somali quota of 5500 skins.

Kenya. The Vice Chairman visited Dr. R. Leakey, Director of Wildlife Management, who requested CSG help with a workshop to be arranged in the future. There is considerable interest in farming in Kenya but most proponents have little idea of the amount (or even type) of food crocodiles require. Dr. Chris Foggin from Zimbabwe recently visited Mambo Village farm in Mombasa to assist with a severe veterinary problem there.

Uganda. The new National Geographic Society documentary film "Here be Dragons" by Marl Deeble and Vikki Stone has amazing footage of Nile crocs filmed at Kabalega (formerly Murchison Falls) National Park. The film makers have become keen 'crocos' and have collected census and other data in their film work on the Gumeti river in the Serengeti in Tanzania. The film has promoted great interest in croc ranching in Uganda. Uganda is not a CITES member but no doubt ranching will take place eventually. As an ardent promoter of conservation through sustainable use even I feel sad that this thriving wild population will be commercialized.

Sudan requested a special quota of 5000 at the last CITES meeting for use in 1990 to clear stocks of crocodile skins. Now the stocks have increased to 12,000 skins and Dr. Hutton expressed concern about what future requests will be forthcoming to deal with this large stockpile.

Tanzania has a new Director of Wildlife and is working steadily toward good crocodile management. The reduced quota of 1000 per year is allocated only to businesses that invest in ranching. Two Tanzanians have started ranching with the backing of a French tanner and Zimbabwean expertise. Ian Games is currently surveying wild populations supported by funds from Europe organized by Dietrich Jelden. A ranching proposal is expected well before the 330 day CITES deadline and things generally look good for crocs.

Zambia Things are not good in Zambia. There are consistent reports of wild skins being exported from a ranch and some ranches are suffering very high mortality, apparently from starvation. Recommendations of the CSG that a self regulating crocodile farmers association be formed are not yet, or likely to be, implemented. Complaints have been made to the CITES Secretariat by WWF-USA and the USA government may ask for a CITES mission to visit Zambia under the terms of resolution Conf. 6.22. A proposal could be presented for the return of Zambia's crocodiles to Appendix I, which would close the crocodile industry there.

Malawi submitted a successful ranching proposal to CITES in Lausanne but problems remain with the division of responsibility for crocodiles between the Department of Wildlife and the Department of Fisheries that results in conflicting and inefficient management. The ranch at Dwanga controlled by Wildlife continues to operate well but a new ranch run by Fisheries is reported to be doing poorly.

Mozambique has two well-established ranches on the islands of Bazaruto and Bengweula using eggs collected on the mainland, and two new ranches are likely to start this year. Interestingly Bazaruto, 40km offshore, has a unique population of crocs occupying a series of tiny freshwater lakes at the foothills of a dune system. It seems inevitable that this stock will be polluted by mainland farm stock and it would be valuable to collect tissue samples before this occurs.

Botswana. Responsibility for crocodile management is not clearly defined since Dr. Simbotwe returned to Zambia but the Botswana Government is reported to have prohibited the

export of live animals, most of which went to South Africa.

Zimbabwe adopted a policy of unlimited egg collection outside protected areas in 1987. Since then over 10,000 wild eggs have been collected each year by ranchers and an additional 15,000 eggs produced from captive breeding. The wild egg collection program is used to monitor the number of laying females, which appears to be constant or increasing slightly.

Increased tourism on Lake Kariba and the Zambesi River has resulted in increasing human-crocodile conflicts. Last year a canoeist lost an arm and an angler was killed. In general however, conflicts have decreased from 20 fatalities in 1986 to just 2 in 1989. This is largely due to an efficient problem animal control program that removes problem crocodiles to breeding enclosures.

South Africa has some of the most efficient crocodile farms in Africa but there is a problem with the fragmentation of the industry into different groups and Associations. Most farms are supported by captive breeding with stock obtained originally from Botswana, Zimbabwe or Mozambique. There is some scope for ranching in Natal and a proposal is being considered for the next CITES meeting. South Africa produces relatively few hides, relying on tourism and internal trade in live animals.

Mauritius has one well established farm based on stock obtained from Madagascar some years ago. The emphasis is on tourism but a modest number of skins should be produced soon.

Namibia had at least one crocodile farm but the stock has now been moved to South Africa.

Madagascar. Olivier Behra, deputy Vice Chairman for Africa, is still in Madagascar for FAO and is doing an excellent job of establishing a management and ranching system. Funding was eventually found to allow him to continue operations over the breeding season and help with egg collection and incubation.

Following this report the Steering Committee held discussions on the situation regarding exports of crocodiles from Zambia following concerns expressed by the Vice Chairman for Trade Monitoring, Ginette Hemley, in a letter to

H. Messel. Advisement to CITES of this issue had apparently gone astray, but after listening to the discussion Jaques Berney undertook to follow up at CITES. The possibility was expressed that if crocodile management in Zambia is really not adequate that those populations should be moved back to Appendix I at the next conference of the parties to CITES.

Kevin van Jaarsveldt drew attention to Jon Hutton's report that large numbers of small crocodiles were being exported from Mozambique using tags provided for a ranching quota in apparent violation of CITES. Jaques Berney reported that Mozambique was intending to export 1000 breeding crocodiles. Doubts were expressed that this harvest was sustainable or within the management plan and Kevin and Jaques undertook to make enquiries in Mozambique to clarify the issue. Direct enquiry to representatives from Mozambique indicated that no harvest or export of adults is planned but ranched hatchlings may be exported.

Europe. [From a written report by Dietrich Jelden.] The activities on which I concentrated in 1990 were training European CITES enforcement officials, seeking funding for field projects and coordinating the European Community (EC) policy on crocodilian conservation. I attended two CITES seminars on reptile skins in Paris and Milan at the request of the CITES Secretariat. Government officials from 14 European countries, including the USSR, attended the seminars and visits to major tanneries.

Dr. Jelden was able to respond to a request from Dr. Jon Hutton, CSG Vice Chairman for Africa and coordinated financing of a Nile crocodile survey in Tanzania conducted by Ian Games in early October. Funding of 10,000 DM was obtained from a French skin trading company and a similar amount from 'Internationaler Reptilerverband' in Offenbach, Germany.

On my initiative the EC member states discussed the great illegal traffic of *Caiman* skins through South Korea, Singapore, Taiwan and Thailand and agreed on a temporary import ban into the EC of any reexported skins of *Caiman crocodilus* from those four countries. I have also forwarded for discussion in Brussels, the general marking of all crocodilian skins in trade to obtain EC support in time for the 8th meeting of CITES parties. All EC member states expressed their

support for the pending CITES resolution on marking at their last meeting in November.

Finally, I will distribute the members questionnaire to CSG correspondents in Europe by the year's end and have submitted the names of active members for nomination to the CSG for the next triennium.

South America. [From a written report submitted by Juan S. Villaba-Macias.] I was unable to attend the CSG Meeting in Perth but met with Prof. Messel in Sydney in November. In May 1990 a memorandum was sent to South American CSG members requesting nominations for membership for the next three years. Various difficulties, including a postal strike in Uruguay, have limited the response of the membership. A preliminary list of nominees has been proposed and additional nominations received in the future will be forwarded for consideration. Note: Individuals in the region who wish themselves or others to be considered for nomination should respond immediately, directly to the Vice Chairman for Latin America.

Argentina. An investigation of the status of *Caiman c. yacare* and *C. latirostris* has already begun with support from CITES and the National Directorate of Wildlife. Argentina recently seized and burnt 74,000 illegal *Caiman* skins from Paraguay. An investigation of *Caiman* ranching in the Pantanal of Brazil has been planned in conjunction with TRAFFIC in response to a recent Brazilian Government decree promoting *Caiman* ranching. As previously reported, countries in the region continue to respond to the concerns about exotic crocodilian introductions.

Uruguay. Skins of 750 *C. latirostris* from Brazil were seized.

Paraguay. Following the action of the Vice Chairman protesting irregularities in the trade, seizure and subsequent release of *Caiman* skins (CSG NEWSLETTER vol. 9 July-September 1990, p. 16) two army generals have been dismissed for involvement in illegal trade and the Minister of Agriculture has resigned.

Eastern Asia, Australasia and Oceania. Grahame Webb reported his efforts to provide a comprehensive list of nominees for CSG membership and expressed concern that some selection process was required to ensure the best

people were selected. He reported a series of contacts in recent months from entrepreneurs involved in crocodile farms in Asia. Consistent reports indicate that crocodiles were moving from Cambodia, Burma and Laos into farms in Thailand. Richard Luxmoore confirmed extensive small scale trade in crocodilians *C. porosus* and *C. siamensis* into Thailand where they were held in small holding operations for resale to larger farms. Grahame will be visiting Thailand to examine a crocodile farm there.

Western Australia. Dr. Webb reported that recent surveys confirmed that recovery rates of crocodile populations in this area were slow relative to tidal habitats in the N.T. The W.A. Government has established a crocodile farm at Wyndham and conducted surveys in the Cambridge Gulf area but no widespread survey of the Kimberly region had been done recently. He considered that high temperatures reduced nest success of *C. porosus*, and the very heavy impact of feral stock along watercourses was keeping reproductive rates of 'salties' low in some areas. The artificial impoundment of Lake Argyl was a huge new habitat for freshwater crocodiles with abundant food resources of catfish and a very large population of perhaps 30,000 *C. johnsoni* occurred there.

Northern Territory. The harvest of crocodiles last year had been successful but mortality on the farms was higher than desired. Good surveys of the wild populations showed total population recovery was continuing at predicted rates. No detrimental effect of the harvest is apparent. It has been extremely dry in N.T. this year and much of the Arafura swamp is completely dry causing some crocodiles to concentrate in areas with permanent water. It was also reported that the McKinlay river station, a significant habitat for freshwater crocodiles and site of some long term studies, had been returned to conservation status.

Queensland. No replacement for Laurie Taplin had been located. There were no urgent problems Dr. Webb was aware of, but it would be desirable to fill the position soon to ensure continuity of the survey programs there.

Hank Jenkins reported that the Australian Federal Government had approved Harry Freeman's Hartley Creek farm as a captive

breeding facility. Jaques Berney pointed out that as all Australian crocodiles were on Appendix II that this was no longer strictly necessary for CITES but Hank replied that it was still a requirement of Australian Law. Hank further reported that the Australian authorities had approved the management program in PNG and that trade to Australia in products could now be done under permit. Trade will be permitted in skins and heads but meat imports still require federal health and quarantine standards that were not yet met.

Philippines. The crocodilian situation in the Philippines has become of concern. The area remains poorly surveyed and the status of *C. mindorensis* is uncertain. The Japan - RP Crocodile Research Institute at Palawan continues to function and issues a newsletter. The number of crocodiles in the facility is small considering the huge capitalization of the facility. The large area, communications difficulties and political strife in some regions made evaluation of the status of crocodiles in the Philippines difficult. After discussion it was agreed that Dr. Webb would collect the available information, enter into dialog with the appropriate sources and report back to the Steering Committee with recommendations for action. Prof. Messel stated that the CSG could not afford to sit idly by while the Philippine crocodile disappears.

Indonesia. A report was presented on recent developments in the FAO crocodile program in Indonesia. The nesting density of *C. novaeguineae* in the Mamberano region of Irian Jaya showed a slight increase in nest density during the most recent survey, continuing a three year trend for those areas where management activities are effective. However, populations of *C. porosus* are low and continue to decline. Surveys have been conducted in Sumatra and Kalimantan with very effective participation of Indonesian counterparts trained in the project. Densities of *C. porosus* were very low but some extensive areas of undisturbed habitat were located on Sumatra which could potentially support a substantial population of crocodiles. These surveys gave indications that *Tomistoma* are not uncommon where suitable habitat remains although their numbers are low. Small numbers of *Tomistoma* are found in crocodile farms. Low water levels in the dry season

restricted access to the upstream habitats preferred by *Tomistoma* and further surveys would be useful.

The survey reported a distinctive morph of crocodile from a single river in Kalimantan. The crocodile is similar to *C. siamensis* but has distinctive characteristics of scalation, color and proportion and is alleged to interbreed with *C. porosus* in captive situations. Evaluation of the taxonomic and biological status of this form is needed and indicated the urgent need for surveys in areas where our knowledge of the crocodilian fauna remains incomplete. [Readers are referred to Ross C.A. 1990, Proc. Biol. Soc. Washington 103(4):955-961 where the resurrection of the name *Crocodylus raninus* for a freshwater crocodile from Borneo is discussed - Eds.]

Observers from Papua New Guinea and CITES reported that despite the lifting of the Singaporean reservation on *C. porosus* and the general progress in controlling trade from Indonesia, there was some evidence of continued illegal export of skins. It was concluded that strongest possible support for the continuation of the project was justified and the CSG Chairman was encouraging the continued funding of the project by the Japanese Government. Discussion with representatives from the Ministry of Forestry would help clarify the current situation and the needs for future action with regard to Indonesia's export quotas under CITES that will be discussed at the next meeting of the parties in 1992. The Australian Government has offered funds for the preparation of a ranching proposal for Indonesia. After the meeting representatives of CSG, CITES and the Indonesia Ministry of Forestry met for frank discussion of these issues.

Papua New Guinea. John Mark Genolagani reported that recent enforcement efforts had resulted in the conviction of two illegal traders and a recent seizure of a shipment of skins. Crocodile surveys have been slowed by recent financial constraints but the harvesting and ranching programs continue under careful management. Appreciation was expressed to Brian Vernon for the assistance of Mainland Holdings in funding surveys and for technical assistance from Jack Cox. Preliminary results of this year's surveys show reduced nest counts of both *C. porosus* and *C. novaeguineae* in the Sepik River system. While caution is required, these slight fluctuations of numerical indices of

crocodile abundance are within the usual year to year variation and suggest that numbers in PNG are generally stable.

North America. [From a written report submitted by Dr. Ted Joanen.] The Vice Chairman, with help from the Deputy, conducted a membership drive in the USA. About 120 letters were sent to nominees with the membership questionnaire and 55 completed responses were received. A good cross section of people from science, trade and industry, farmers and ranchers, and management and enforcement is represented and these nominations have been forwarded to the CSG Chairman for approval.

Louisiana completed its wild harvest program for 1990 in September. Approximately 25,000 tags were issued for 3.5 million acres of alligator habitat. Approximately 24,000 alligators were taken. The average size of the wild harvest catch was approximately 7 feet, similar to previous years. Statewide population surveys conducted prior to the harvest indicate a slight increase (5%) in the overall population. Market interest remains very strong. The 1990 Louisiana wild harvest average price was about \$56.00 per foot of length although several lots sold as high as \$70.00 per foot of length.

Louisiana farm expansion continues, bringing the number of farms in Louisiana to 140. Last year's production of farm raised skins (4' size class) was slightly over 70,000. The 1990 wild egg collection program permitted by the Louisiana Department of Wildlife and Fisheries yielded approximately 385,000 eggs. Egg harvest figures and hatch rates are still incomplete.

A complete revision of Louisiana farming/ranching regulations was conducted by the Rockefeller Refuge technical staff in the past year. A number of changes were made that increase the administrative efficiency of the statewide program. For example, under the new regulations maximum penalties extend to Class 7 violations which are punishable by up to one year in jail and a \$5,000 fine.

Civil penalties can also be handed down for wildlife violations that impose additional fines in the amount of the value of the animal and this penalty is paid directly to the Department of Wildlife and Fisheries. The concept of returning fines directly to management authorities to support their programs is used by several states and has proven to be an effective law enforcement tool.

Trade. [From a written report by Kevin van Jaarsveldt.] A list of 21 nominees for membership was forwarded for consideration. The Trade Group has been active in fundraising in conjunction with the CSG Chairman and Executive Officer, and a number of commitments for continued funding for the Group have been solicited. It has been suggested that a certificate recognizing significant contributions should be developed. The Trade Group has assisted Natal and Transvaal crocodile farmers in understanding their complex situation regarding trading appendices for their mixed *niloticus* populations. In consultation with Ginette Hemley, Richard Luxmoore (Trade Monitoring), and Jon Hutton (Africa) a recommendation for downlisting South African populations is being prepared for the South African Wildlife authorities for presentation to this Group and eventual consideration at CITES.

Kevin visited the Paris Leather Fair and discussed crocodilian marketing matters with many Group members present. There is concern about the increased number of small sized (20 - 29 cm width) classic skins of all species on the market. A large proportion of these small skins are alligator skins from the USA and significant reductions in the prices of these small skins were contracted during the Fair. Prices for skins under 30 cm width are lower for all species and markedly so for alligators. Skins of 30 -34 cm appear steady and skins above 35 cm width are increasing in price, with the largest skins showing the largest increase. It is evident that some farmers have recognized this problem and have begun to grow out skins to a larger size (up to 35 - 40 cm width). This response is still at an early stage and problems of hide quality and increased costs of grow out still need to be determined.

It is apparent that most tanners and manufacturers are more aware of the total crocodilian skin market now than they were 2-3 years ago. This is in large part directly due to the activities and communication developed by the CSG.

An issue that requires the attention of the Group is the position of the US Fish and Wildlife Service with respect to imports of *C. niloticus* skins. [See US Fish & Wildlife Service announcements p.20]

Trade Monitoring. Richard Luxmoore reported that a major initiative to survey the reptile trade worldwide has begun with coordination between

the TRAFFIC network and WCMC focusing on the European Trade but also considering Japan, Oceania, the USA and South America. Richard requested the support of the CSG. Prof. Messel responded that the CSG strongly supports and encourages this work as the information obtained would be immensely valuable to the Group. He encouraged all Group members to cooperate with the study and communicate information directly to their regional TRAFFIC offices. Richard asked that copies of information also be sent to TRAFFIC International.

Membership. Three hundred and twenty five nominations for membership in the CSG for the triennium 1991-93 were forwarded from the regional Vice Chairmen to the Chairman. The Chairman has approved all nominations, calling on the Vice Chairmen to exert any necessary selection to ensure that the Group's effectiveness is maintained. The criteria for Group membership follow those stated by the SSC that members must willing to commit the time and effort, and able to provide expertise to assist the conservation mission of the SSC. After a final review of correct addresses this list will be forwarded to SSC and letters of appointment sent to all nominees. Nominees will have to respond indicating their acceptance of the invitation after which members will receive final endorsement by the SSC council. All members will receive a member's guide clearly stating the terms of reference and procedures of governance of the SSC and the Specialist Groups.

Introduction of exotic species of crocodilian. At its last meeting the Steering Committee considered this issue without resolution. Since then a request was received from the Director General of IUCN to reconsider this topic and provide guidance to IUCN. A discussion paper prepared by Brian Vernon outlining the essential elements of the problem was circulated to the Steering Committee and written comments were received from 11 members. Brian opened the discussion by summarizing the responses received. Vigorous discussion followed. The central concepts that emerged were that the CSG must be primarily concerned with conservation issues but whatever policy we developed should not impede the legitimate use of ranches and international trade as a component of management and conservation of wild populations. Captive breeding is a valuable

conservation activity in some circumstances, but the probability of escape of crocodilians from any facility was high. The effect of establishing feral populations of crocodiles within the range of other species had numerous detrimental effects for conservation, and the CSG was clearly breaking new ground for IUCN and the precedent we established was important. The consequences of mixing genetic stock from different drainages within a country was addressed and it was concluded that this would be a matter for individual countries to address with local regulation. Finally the following resolution was drafted and approved for immediate distribution to the Director General of IUCN and other interested parties:

Recognizing the benefits to conservation that have resulted from the captive rearing of crocodilians;

Acknowledging that countries supporting indigenous populations of wild crocodilians should be allowed to benefit from managing this resource on a sustainable basis;

Aware of the potentially serious ecological consequences of establishing feral populations of exotic species of crocodilian, including competition with native species, impact on prey species, interbreeding with native crocodilians and introduction of diseases;

Noting that these consequences are most serious within the range of other species of crocodilian where there are habitats most likely to support successful feral populations of crocodilians;

Believing that it is not possible to guarantee indefinitely that captive crocodilians will not escape;

Concerned that feral populations, once established, are difficult or impossible to eradicate;

Recalling the IUCN position statement on the translocation of living

organisms and the particular concerns associated with aquatic species.

The Crocodile Specialist Group of the SCC/IUCN RECOMMENDS that crocodile species should not be used for commercial farming operations outside their historical range where those operations are located within the range of other native species of crocodilians.

Opposition to Sustainable Wildlife use. Several indications of organized opposition to sustainable use of crocodilians have been drawn to the Group's attention in recent months. A brochure distributed by the New York Zoological Society and reprinted in the NYZS magazine WILDLIFE CONSERVATION urged readers to eschew all wildlife products. Similar advice was contained in a Canadian customs advice to incoming travellers, which is surprising given the strong support in Canada for sustainable use. The CSG Chairman read a letter he has sent to the editor of WILDLIFE CONSERVATION Magazine detailing the extensive conservation benefits of carefully managed sustainable use programs. The letter provides a comprehensive argument in favour of sustainable use for conservation and the disservice to conservation caused by ill advised and uninformed comments against all trade. The letter was submitted as a letter to the editor or a short article for publication and if it is rejected by the magazine the CSG will offer it to SPECIES, the IUCN BULLETIN and other outlets for publication. The Steering Committee endorsed the letter and the need for CSG to actively carry the sustainable use for conservation message to the public.

Next Steering Committee Meeting. The Steering Committee will plan to meet once during 1991. The exact date remains to be determined. The first choice was to meet in Rio de Janeiro, Brazil, immediately before or after the proposed *Caiman* workshop. If the workshop fails to eventuate an alternative venue will be Jayapura, West Irian, Indonesia.

There being no further business the Chairman closed the meeting at 21.05 PM.



AREA REPORTS



AFRICA

Ivory Coast:

Dr. W.E. Waitkuwait is now living in Sbegurou near the Ghana border and working in the Bossemate National Forest. Wildlife surveys have revealed the presence of *Osteolaemus tetraspis* living in isolated waterpools in the forest. This is giving Dr. Waitkuwait the opportunity to continue his studies of *Osteolaemus* in the wild. The Abidjan National Zoo, Dr. Fanny N'Golo and Dr. Waitkuwait released three breeding crocodiles from the zoo in Comoc National Park in July. These animals were a male *C. cataphractus* of 3.4 m total length, and two *C. niloticus* of 2.9 m and 3.14 m total length respectively. -- Dr. E. Waitkuwait, GTZ Service d'administration des projets, 01 B.P. 7172, Abidjan 01, Ivory Coast.

Malawi:

DWANGA CROCODILE FARM. A huge agro-industrial complex has been developed over the past 10 years on the shores of Lake Malawi. A sugar estate, sugar refinery, and ethanol fermentation and distillation plant are now operated by Dwasco in the marshlands of the Dwanga river delta. Crocodiles occupy the drainage channels in the sugar fields and are found breeding nearby. Ranching activities began in 1984. The crocodiles hatched and grew well. It was also appreciated that the survival of crocodiles in Malawi was in jeopardy. Crocodile farming was both a useful diversification for the sugar company and would help preserve the crocodiles.

Malawi is a member of CITES and has a management authority to control hunting, farming and trading in crocodiles. The main limiting factor for production is food availability. The sugar estate has extensive water storage dams and sewage from the large labor villages is treated in numerous oxidation ponds. These

water bodies are used to raise fish, mostly a cichlid, *Oreochromis shiranus*, that are solely used by the crocodile farm. Supplemental food is available from a broiler chicken farm associated with the sugar development. Without the facilities already in place for the sugar development the ranch would probably not be a viable self sustaining project.

The ranch obtains additional benefit by using the hot water effluent from the sugar refinery. This hot water normally would be discarded back into the drainage channels but a portion is now diverted to heat the crocodile facility. The heated water allows the crocodiles to continue feeding and growth throughout the year.

The farm is currently stocked with eggs collected from the wild by 4 specially designated egg collectors and a breeding group of 60 females is being developed. Incubation success is reported to be 86%-90% and each year some 1,800 to 2,000 hatchlings are added to the farm stock. A proportion of the hatchlings are released back into the Nkota Kota Game Reserve to preserve wild stocks. Crocodiles are slaughtered at 18 to 24 months so that the farm maintains between 3,500 and 4,700 animals at a time. The Dwanga ranch markets skins to Europe and the Far East and is a profitable enterprise for Dwasco. In addition to its economic benefits the farm yields foreign exchange to Malawi from its natural resources and is also helping to preserve an endangered species through development of its commercial aspects. Extracted from *Za Alimi/ The Farmers Paper, October 1990, page 7.* -- Submitted by Floris Deodatus, C/O FAO MLW/87/010, Box 30750, Lilonge, Malawi

South Africa:

The Nile Crocodile Farmers Association (NCFA), now representing 70% of the 35 farming operations in South Africa, had its first Annual General Meeting at St. Lucia Estuary in Northern Natal from 16 - 18 August 1990. Fifty six delegates attended. The meeting was addressed by Mr. Kevin van Jaarsveldt who chaired a CITES workshop and an update on trade and market trends. Mr. Bob Kidwell gave an audio-visual presentation on "Hygiene requirements- meat trade local and international", and Dr. Graham Thurman of University of Durban, a leading expert on animal

stress related conditions gave a most interesting presentation on crocodile screening.

After some very interesting discussion on the situation of South African *C. niloticus* populations CITES appendix II listing the following resolutions were unanimously adopted:

1. That steps be taken as a matter of urgency to prepare a memorandum for submission to the next meeting of the C.S.G. with the intention of changing the designation of the status of the South African *C. niloticus* populations from Appendix I to Appendix II.
2. That the incoming committee appoint a sub committee to give effect to the above resolution.

[While we are gratified by the confidence that NCFA places in the CSG we must point out that the process of changing the CITES appendix listings is for a member party of CITES, i.e South Africa, to submit a proposal to meeting of the Parties for approval at their next meeting in April 1992. Proposals based on ranching must be submitted 330 days prior to the meeting. CSG reviews these proposals and makes recommendations to the CITES secretariat and to parties to the convention. The CSG is assisting NCFA by advising as appropriate in the preparation and review of a proposal to CITES from South Africa. Eds.]



Tony Pooley: receives honorary membership of NCFA from President, Howard Kelly. H. Kelly photo.

The weekend at St. Lucia was enjoyed by all delegates and the Natal Parks Board provided a boat trip up the estuary and a tour of the crocodile farm. Mention must be made of Tony Pooley's nomination and election as the first honorary member of the Nile Crocodile Farmers Association.

Most farmers are gearing up for the egg laying season that starts in September and with a lot of breeders coming into production this year a good crop is expected. -- Howard Kelly, *NCFPA President*, P.O. Box 245, Ramsgate, 4285, South Africa.

REVIEW OF PRICES IN SOUTH AFRICA. In September 1985, sexually mature female *Crocodylus niloticus* were selling for US \$220 and hatchlings up to three months old sold for \$20 each. As crocodile farming became more widespread the price escalated and in October 1988 sexually mature females were selling for \$1,400 each and the price per hatchling had increased to \$60. By March 1990 mature females were selling for \$5,200 each and hatchlings for \$160. As crocodile farming becomes more and more popular the demand for farm stock has exceeded the supply and 1.2 m animals, not quite ready for culling sell for at least \$240 each. The Nile crocodile populations of South Africa are on CITES Appendix I as no more than 8000 individuals remain in the wild and so broodstock availability remains a problem. Zimbabwe does not allow the export of broodstock to South Africa and few animals are imported from Botswana because of the very high prices asked. New entrants to the industry have few choices. They can import expensive adults and deal with mortality problems, purchase even more expensive captive raised adults, or buy younger animals and grow them out for future breeding. Johan Marais, *Crocodilian Study Group of Southern Africa*, P.O. Box 73, Botha's Hill, 3660, South Africa.

Zambia:

Ian Brooks, Gwembe Crocodiles Ltd., P.O. Box 630162, Choma, Zambia, reports:

Having just completed our initial development we have been allocated a quota of 1650 *C. niloticus* eggs for collection and have been given permission to establish a breeding unit of 50 crocodiles.

Zimbabwe:

The main issue to report is the long predicted flood of small alligator skins that has finally arrived and depressed prices. Alligator farmers, particularly those new in the scene, are facing a shake out but what are the effects on the Zimbabwe farmer? Crocodile Farmers Association of Zimbabwe (CFAZ) has begun Central Marketing and a system of exclusive agents to make the Nile crocodile product more exclusive and distance our product from the alligator market. This enables us to respond quickly to market requirements and focus on a market niche of larger skins, 30 - 45 cm. The CFAZ executive has increased prices for these skins by up to 20% to US\$11.00 per cm width. One effect of this new marketing structure in Zimbabwe will be that larger producers should have small animals available for sale to newer producers to grow out to the larger size. The growing out of small animals can be an attractive proposition for newer members who have difficulty obtaining hatchlings. A 1 year old with a 20 cm skin can be purchased for about \$300. If grown out for a year to 30 cm the farmer can expect over \$600 at present prices and after two years at 38 cm the crocodile is worth more than \$900. This appears economically feasible and may be where the future of the industry in Zimbabwe lies. In the meantime our message to all current producers is: Please do not even think of slaughtering animals with skins less than 30 cm. Extracted from *C.F.A.Z. News*, issue No 6: October/ November 1990. P.O. Box 2569, Harare, Zimbabwe.

ASIA

China:

CHINESE ALLIGATOR HAS OBTAINED EFFECTIVE PROTECTION IN CHINA. Ten years ago the number of wild Chinese alligators was very low, estimated to be about 500 individuals. In 1980 the Ministry of Forestry decided to establish the Anhui Research Center of Chinese Alligator Reproduction (ARCAR) in Xuancheng County, Anhui Province. After nine years of study we have developed the technique of captive reproduction of Chinese alligators and obtained a second generation of captive bred alligators. At present about 1000 young alligators are raised

each year and ARCAR has raised a total of over 3500 alligators by 1989. Studies of the Chinese alligator both in captivity and in the wild continue at the Center and have been published from time to time in the NEWSLETTER and the CSG Working Meeting PROCEEDINGS. -- Zhanh Zhengdong, ARCAR, Xuancheng Anhui Province, Peoples Republic of China.

India:

PROPOSAL FOR REHABILITATION OF THE SALT WATER CROCODILE IN CORINGA, ANDHRA PRADESH. The Godavari is a major south Indian river that has its origin in the Western Ghats and flows to the Bay of Bengal forming a major deltaic system and supporting a highly productive mangrove ecosystem called 'Coringa'. These mangroves occupy 237 sq. km. The area was once known to support the salt water crocodile, *Crocodilus porosus*, however for the past 70 years there was no report of their existence. The Andhra Pradesh State Forests and Wildlife Department have tried to re-introduce crocodiles without success due to the lack of involvement of the native people whose main occupation is fishing.

Ecological conditions in the delta are influenced by the development of a sandy bar that diminishes the marine influence in mangroves. During the rainy season (June to October) heavy flooding, particularly of the Gouthami tributary of the Godivari, causes invasion of fresh water to large areas resulting in seasonal variation of water salinity from 20-30% [?parts per thousand? Eds.] to less than 10% during the rainy season. Seventeen species of plants are found with *Avicennia*, *Sonneratia* and *Excoecaria* being dominant trees. About 4 villages exist in the area and the people are involved in traditional fishing and newly introduced prawn culture.

In 1978 the area was declared a sanctuary and three breeding adult salt water crocodiles (1 male and 2 females) were collected from Bhitarkanika, Orissa, and released. Limitations of manpower and material precluded monitoring the acclimation of these introduced crocodiles. This release created tension among local people who feared that the crocodiles were man-eaters who would also consume fish and damage nets. As a result it is considered highly likely that the crocodiles were trapped and killed by local people.

Restoration of *C. porosus* to its former range is important because this species is presently only found at Bhitarkanika and in the Andaman and Nicobar Islands and they are extinct in many former locations like Coringa. Therefore a rehabilitation program that integrates *C. porosus* with the sanctuary and the people in it is needed.

A program is envisaged with three phases:

1) Educating local people to involve them in protecting and conserving the animals.

2) Training of a task force in the techniques of managing and monitoring the rehabilitated crocodiles.

3) Release of crocodiles in small numbers and monitoring them with radio telemetry for 5 years after release.

Phase 1 will require 1 year and phase 2 & 3, 2 and 5 years. Proposals for support of such a program have been sent to the Andhra Pradesh State Forest Department and the Government of India, Ministry of Environment, Forests & Wildlife. A full account of the program with information on other flora and fauna in the Coringa mangroves is available from the author.

-- Prof. M.V. Subba Rao, Dept. of Environmental Science, Andhra University, Visakhapatnam-530 003, India.

NEWS FROM THE MADRAS CROCODILE BANK.

This was a year when we were up to our ears in eggs and hatchlings. The season started in early February, with an initial 3-4 *C. palustris* clutches a day, which later escalated to 15 - 22 clutches a day in March, Phew! We just about managed to collect and process all the eggs before putting them away for incubation. On some mornings we experienced the rare feature of collecting the eggs from the previous nights nesting while other females were still laying eggs and covering their nests 2-3 meters away, 5 or 6 of them at the same time, a few meters apart and sometimes digging up other nests and throwing out eggs in the process.

Many of our five and six year old muggers nested this year. The overall tally was 238 nests with 5307 eggs, of which 78.3% were determined to be fertile by candling. Hatch success was 78% and 25 females laid two clutches this season (Croc Bank's double clutching phenomenon). The low fertility rate was due to the animals in one of our high density pens producing 100% infertile eggs (in a way, good). Right now we have 500 captive bred *C. palustris* alone and the

Bank is bursting at the seams for want of space and funds to maintain them.

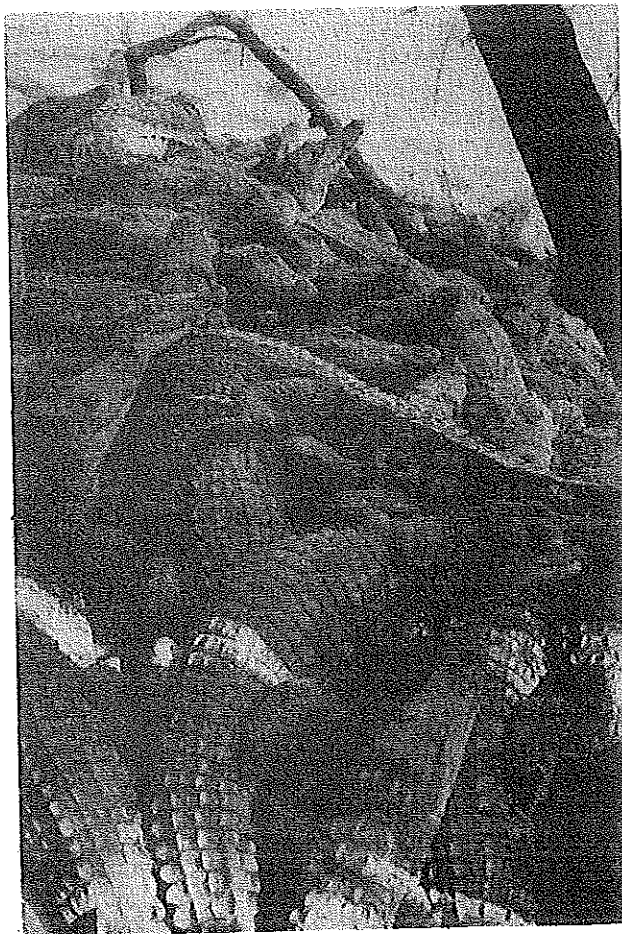
We also had seven *Caiman* nests with a total of 220 eggs and 98% hatch success. *C. porosus* and *G. gangeticus* also bred this year. The most spectacular event of the year was the nesting of two of our Morelet's crocodiles. Eggs that we incubated at high temperature have already hatched and the eggs in the lower temperature incubator will take a few more weeks. The eggs are being incubated at different temperatures to determine the sex determination pattern of this species. One of our *Tomistoma* started building a mound in late May but terminated the attempt after 6 days, she seemed to say, "Next year boys."

On the National front the whole crocodile program is at a standstill. Most State Forest Departments have stopped egg collection from the wild and restocking programs since 1987 and 1988 respectively. They now have too many animals in captivity with limited funds to maintain them and are at a loss as to what to do with the animals as wild populations are increasing and there is no more habitat for further restocking.

In early June I visited D. Basu at the Uttar Pradesh, Kukrail Gharial center, which he set up and has been handling for the last 15 years. He and his team have been collecting gharial eggs from the wild and rearing them to a meter and a half then releasing them into the wild. He now has 8-10 gharial breeding in captivity. The Center is now uncertain what to do with its stock pile of gharials and are considering releasing the adults to save costs and space, but where to release them remains a problem.

We spent a few days surveying an 8 km section of the Chambal river and saw a number of juveniles and subadults in the lower section and 5-6 adult females further up river. Two nests were located by the center's guards and we excavated a nest to determine the status of the eggs. While digging up the nest, eggs started to hatch and 31 of the 34 eggs hatched and were released. While we were digging up the nest a female gharial 3.5 to 4 m stayed in the water close to the bank, however, she did not attempt to defend the nest.

Dr. Basu and other people of the area indicate that the gharial population appears to have greatly increased as has the number of nests and we heard of occasional incidents of gharials drowning in illegal fishing nets. The issue now being debated is what is the carrying capacity of the area. The main purpose of my visit was to establish two field labs for temperature sex determination studies and studies of wild gharials and freshwater turtles that are proposed to be taken up by Dr. J.W. Lang in collaboration with the Wildlife Institute of India and the Madras Crocodile Bank early next year. The Crocodile Bank is also proposing a study of *C. porosus* in the Andaman and Nicobar Islands with an initial survey in December 1990. -- Harry Andrews, Curator, Madras Crocodile Bank, Vadanemmeli, Penur Post, Mahabalipuram Road, Madras 603 104 India.



Muggers (*Crocodylus palustris*) piled up at Madras Crocodile Bank. H. Andrews photo.

Nepal:

For the first time a captive reared gharial released into the Narayani River has nested and laid eggs. Thirty seven eggs were laid and 7 hatched successfully. The parent female gharial was hatched in June 1978 and raised at the Karara nursery for three years and then released into the Narayani River in 1981. In addition to 40 wild gharial the Narayani supports another 50 released gharials in its natural habitat. -- Dr. Tirtha M. Maskey, *Dept. of National Parks and Wildlife Conservation, P.O. Box 860, Kathmandu, Nepal.*

A survey of Marsh Mugger crocodile (*Crocodylus palustris*) in Nepal, initiated by the Department of National Parks and Wildlife Conservation (DNPWC) and FAO, has revealed the species has disappeared from many of its former haunts and is severely threatened in its remaining strongholds.

The survey was conducted by J. Bauer, T. Maskey and I. Hulbert from October 1986 to May 1988 and a total minimum population of about 100 animals was estimated.

The Mugger was found to have disappeared from densely populated Eastern Nepal despite abundant wetlands and suitable conditions. Royal Chitwan National Park now holds about 70% of the population of Muggers. Here most are found in oxbow lakes or 'tals' where the numbers are thought to be stable. Muggers also exist in small numbers in the 'tals' in two other national parks. One population is threatened by dam construction. Bishazartal in Central Nepal is the only place outside protected areas where Muggers still exist in some numbers.

Threats to the Mugger throughout Nepal include extermination for sport and because of the potential threat to children and livestock; overfishing leading to depletion of fish stocks; disturbance at basking sites during the critical winter period; destruction of habitat and reduction of water temperatures caused by dams; destruction of riverine habitat; egg collection at breeding sites; invasion of introduced Water Hyacinth (*Eichornia crassipes*); and water pollution.

Recommendations to conserve the Mugger in Nepal include education of local people in areas where crocodiles occur; creation of disturbance free zones; establishment of an egg hatchery and

an re-introduction program; and improvement and protection of riverine habitats. A full report of the survey is available from DNPWC. Reprinted from *Asia Wetlands News*, Vol 1:2, 1990.

AUSTRALIA/OCEANIA

Australia:

CROCODILE FARMERS ASSOCIATION OF AUSTRALIA. Thirty eight people attended the meeting held by Crocodile Farmers Association of Australia in Cairns, Queensland, on the 16th and 17th of August 1990. All the members at the meeting agreed that the Australian National Parks and Wildlife Service should be congratulated for producing their "Personal effects exemption permit" tag that will accompany all manufactured crocodile products sold in Australia. It was also reported at the meeting that farmers from the Northern Territory have volunteered to pay a skin tag levy of Aust. \$11 for *C. porosus* skins and A\$4 for *C. johnsoni* skins to the Conservation Commission of the Northern territory for continued research on Australian Crocodiles. -- John Hannon, *The Secretary, Crocodile Farmers Association of Australia, GPO Box 4694, Darwin, N.T. 0801, Australia.*

N.T. CLARIFIES RESEARCH POSITION. The following letter was received from Mr. Mike Reed, Office Of The Minister For Conservation, N.T. House, Mitchell Street, Darwin, N.T. 0800, Australia. The letter clarifies the Northern Territory Government position on crocodilian research:

Professor H. Messel,
Chairman, CSG
27/ 11/ 90

Dear Professor Messel:

I write to you in reference to the CSG Newsletter, Volume 9, April - June 1990, in which an extract from the CSG Steering Committee minutes was published.

The extract in question was brought to my attention by the Northern Territories Crocodile Industry Advisory Council.

Members of the Council requested that I write to you as they were concerned as to how the extract would be interpreted. I offer the following as clarification of the current situation regarding crocodile research in the Northern Territory.

The Northern Territory Government is continuing research on wild populations through survey and monitoring, as is required under both CITES and the approved crocodile management program.

Whilst funding restraints have reduced the Government's involvement in husbandry research, it is believed that this type of research is more properly the responsibility of the industry itself. Indeed the industry has taken up this type of research, with one farm in particular committed to conducting its own husbandry research.

I must emphasize that the Northern territory Government does not question the value of research. I believe, however, that we have an adequate research base upon which to continue crocodile ranching.

Yours sincerely,

Mike Reed.

The following letter was received from Mr. P. Coyne, Planning Coordinator, Australian National Parks and Wildlife Service, Darwin office, G.P.O. Box 1260, Darwin, N.T. 0801, Australia:

Professor H. Messel
Chairman, CSG
March 1990

Dear Professor Messel:

Thank you for your representation concerning the preparation of a new plan of management for Kakadu National Park. Your prompt representation is appreciated and your comments will be taken into account in developing the new plan.

You may be interested to learn that commercial fishing has been phased out of the Kakadu National park in accordance with the current plan of management.

Yours sincerely,

P. Coyne, Planning Coordinator

NORTH AMERICA

Mexico:

CROCODYLUS ACUTUS ON THE COAST OF JALISCO. In 1982, while working on the herpetofauna of the Pacific slope of Mexico in Jalisco, I reported on the presence of *C. acutus* from several coastal localities. However, it was not until 1987 that some ecologists working at the mouth of the Cuitzmala River noted a population of crocodiles there. I was invited to participate in a study of these crocodiles. During this time the land owner, an enthusiastic conservationist, began the construction of three artificial lagoons, in addition to the natural channels of the river, to increase the available water area for crocodiles and aquatic birds.

Fausto Mendez, my colleague at the Instituto de Biología, UNAM, and I began a study in 1988 of crocodile abundance along the 10 km of channels and lagoons. We counted 205 crocodiles from a boat during several nights in April 1988 and repeated the survey in April 1989, this time counting just 86. In 1988 most of the population (169 sightings, 82%) were concentrated in one of the further isolated channels, perhaps because of the disturbance associated with construction of the lagoons. We made a gross estimation of the size class composition of the population and found that approximately 60% of the sample was in the 0.3 - 1.0 m size class, about 25% in 1.01 - 2.00 m class and about 15% larger than 2 m. We observed nesting took place between May and June in 1989. Eight nests were found in 1989, all them holes dug in the sand or soil at distances of from 1.5 m to 20.0 m (average 8.5 m) from the water. Average measurements of the nests were 31.0 cm depth, 29.0 cm width and clutches ranged from 9 to 32 eggs (average 18).

Encouraged by our results in 1988 on the Cuitzmala River population, in 1989 Fausto

Mendez and I also surveyed 21 coastal lagoons, estuaries and mangrove areas along the coast of Jalisco to determine the presence of *C. acutus*. Our results show at least 11 localities support populations of crocodiles and we estimate a total close to 260 individuals, perhaps 50 of them adults. It is not a large crocodile population but larger than we expected and it looks to us good enough that the local populations will recover after adequate conservation efforts. At present we are working on the nesting ecology of *C. acutus* at the Cuitzmala River. -- Gustavo Casas-Andreu, *Instituto de Biología, Universidad Nacional Autónoma de México, Apartado Postal 70-153, 04510, México DF, México.*

United States:

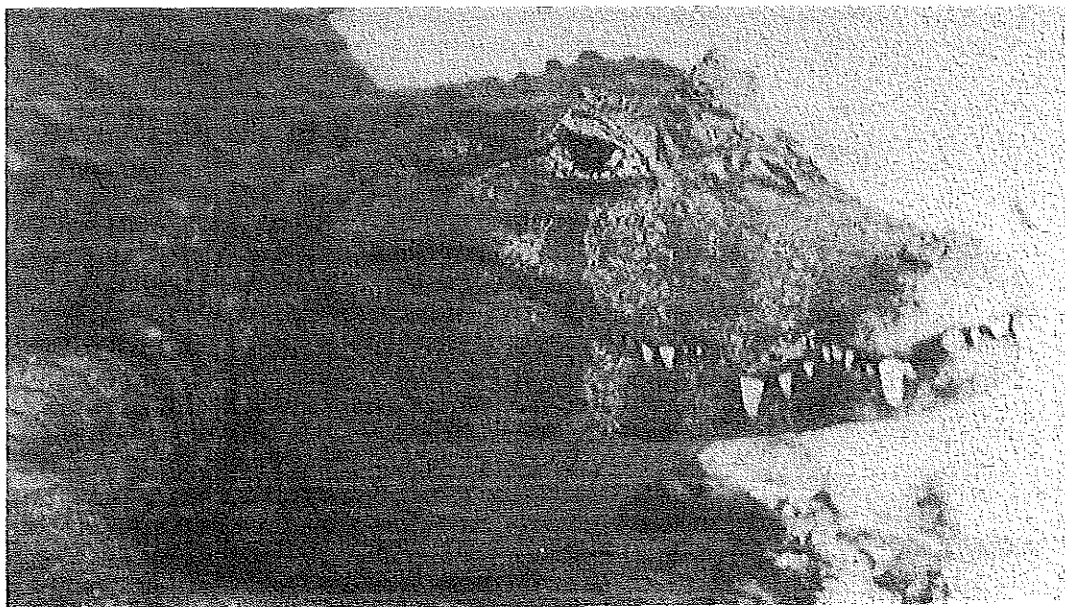
U.S. FISH & WILDLIFE SERVICE ANNOUNCEMENTS. The US/FWS has announced its 'finding' on the petition to downlist the yacare caiman (*Caiman crocodilus yacare*) submitted in 1988 by Armand S. Bennet of Colombia Impex Corporation. The Service has reviewed this petition and concluded that this particular petition did not present substantive scientific or commercial information to indicate that a downlisting is indicated.

However, the Service commented that it was aware of, and sensitive to, the need for clarification of the status of the yacare and was remaining in contact with the CSG, CITES and

regional governments on this issue. The Service therefore announced that it is reviewing the status of *C. c. yacare* and invites comments. The Service additionally invited comments on whether other subspecies of caiman, *C. c. crocodilus* and *C. c. fuscus*, should be listed under the similarity of appearance provisions of the Endangered Species Act.

The Service also announced a review of the Nile crocodile (*Crocodylus niloticus*) in Africa and seeks further comments on a proposal to remove Australian populations of the saltwater crocodile (*Crocodylus porosus*) from the U.S. Endangered Species List and allow a import of ranched specimens from Australia into the USA under special rule. Notification of these announcements has already been circulated to the appropriate Vice Chairmen and through the CSG membership. Members wishing to obtain additional details or submit comments should do so directly to the FWS at the address below.

Relevant data, comments and publications dealing with the present status and distribution, biological information and bioconservation measures (of both wild and ranched populations) are solicited for the Nile crocodile and yacare, and may be submitted until 26 February 1991 to the Chief, Office of Scientific Authority, Mailstop: Room 725, Arlington Square, U.S. Fish & Wildlife Service, Washington DC 20240 USA. From the *Federal Register*, Vol. 55, No. 188, 27 Sept. 1990 and No. 209, 29 Oct. 1990.



Caiman c. yacare at Gator Jungle, Plant City, Florida. R.S. Funk photo.

51%

FLORIDA, COOPERATIVE FISH AND WILDLIFE UNIT, activity report for Fall 1990 reports that the 1990 alligator egg study netted about 12,900 eggs and produced 6,608 hatchlings that were distributed to farmers. Pod surveys and female captures were conducted throughout. Greg Masson has manned booths for public education and the art for alligators project. -- Cooperative Fish & Wildlife Unit, 117 Newins - Ziegler Hall, University of Florida, Gainesville, FL 32611, USA.

AMERICAN ALLIGATOR FARMERS ASSOCIATION (AAFA) report some results of the 1990 Raw Alligator Hide Buyers survey conducted by the Division of Marketing, Florida Department of Agriculture and Consumer Services, in the October 1990 issue of their newsletter, GATORTALK. No one will be surprised to hear that buyers expressed a preference for hides in 35 - 60 cm belly width range although they also stated they would buy hides down to 25 cm if larger sizes were scarce. A substantial majority of buyers favoured wild skins over farm raised skins and said they would pay more for wild skins of equal size and quality to farmed skins. Scarring in the tail area was said to be the main problem with farm raised skins, however, two of 14 buyers polled said they would prefer farmed skins. From GATORTALK October 1990, AAFA, P.O. Drawer 1208, Keystone Heights, FL 32656, USA.

'SEPTEMBER DISEASE' IN FLORIDA. A seasonal high incidence of a bacterial disease has been observed in farmed alligators during August, September and October. Symptoms are variable but neurologic signs such as nervousness, abnormal posture and 'stargazing' are seen in mild cases. Severe cases show pockets of bloody fluid in the intestines and in the lungs (pulmonary congestion) and bloody exudates from the body openings. This disease is most commonly associated with the bacterium *Aeromonas hydrophilia* although other bacteria may contribute and complicate the disease. Two of three outbreaks investigated in Florida this fall were positive for *A. hydrophilia*. Unfortunately the *Aeromonas* strain involved in September disease shows a high resistance to antibiotics and special treatment is necessary to contain the infection.

Proper hatchling management including adequate space, hygiene, food and proper temperature all help to reduce disease in hatchlings and maintain growth rates. Florida farmers are also advised to use "Gatorcillin" [a combination of Oxytetracycline (Pfizer) 300ppm and Virginiamycin (Smith Kline Beckman) 80 ppm] in hatchling feed for the first 100 days as a broad spectrum antibiotic to control Hatchling Alligator Syndrome (HAS), a group of opportunistic bacterial and fungal diseases seen in stressed hatchlings. -- Extracted from *Alligator Production* by Dr. Paul Cardeilhac, GATORTALK, October 1990, AAFA, P.O. Drawer 1208, Keystone Heights, FL 32656, USA.

[Is it possible that the improper or excessive application of wide spectrum antibiotics actually leads to the development of resistant strains of *Aeromonas* and causes outbreaks of 'September disease'? -- Eds.]

GATOR JUNGLE'S CONSERVATION BREEDING CENTER. Gator Jungle of Plant City, Florida, has established an exotic crocodilian breeding center primarily for conservation of endangered species. A total of 18 new breeding enclosures have been constructed. Each enclosure has at least 2 pools to allow animals reared individually without mates to be introduced to each other prior to mating. Bruce and Michael Shwedick of Reptile World in Maryland have provided many of the crocs they have raised for the last 20 years. These animals and additional breeding loans of crocodilians from Miami Metro Zoo, St. Augustine Alligator Farm and Tampa's Busch Gardens form the breeding stock. We have successfully introduced pairs of Nile, Slender-snouted, Mugger, Siamese, Morelet's, Cuban and American crocodiles. We are currently maintaining 17 species and are still looking for mates for some unpaired individuals. -- Tracy Howell, Gator Jungle, Rt. 2, Box 884, Dover Florida 33527, USA.

Florida Game and Freshwater Fish Commission continues to focus on population dynamics and the impacts of harvests on wild populations. Current studies include the effects of a harvest of 15% of animals larger than 4 feet; use of femur sections to determine age of alligators; reproductive biology of female alligators in

Florida; variation and trends in alligator egg viability in Florida's major wetlands; and evaluation and refinement of techniques to estimate alligator abundance. A manuscript on population trends in Florida since 1974 is planned for early 1991. -- Allan "Woody" Woodward, *GFC Wildlife Research Lab, 4005 S. Main Street, Gainesville, FL 32601, USA.*

SWAMPY ACRES GATOR FARM continues to have super success with its 'Pixie Dust', a formula of vitamins and minerals that reduces stress in alligators. We can see a large reduction in scarred leather. The 10 acre breeding pond has produced 3200 fertile eggs and we have been doing some serious work with incubation conditions. We have been examining the importance of nesting material moisture by drying a sample of fresh nesting material and estimating water content. We then use this estimate of natural water content as a starting point for our incubator material and allow the material to get dryer toward hatching time. This seems to have put us in the right ball park and provided a basis for us to make small corrections in future years. -- Ken Geiger, *Swampy Acres Gator Farm, 122 Karola Dr., Sebring, FL 33870, USA*

SOUTH AMERICA

Argentina:

Alejandro Larriera writes: At present my work is carried out in an experimental breeding farm for the Broad nosed Caiman (*Caiman latirostris*). The farm belongs to the Agriculture Ministry of the Province of Santa Fe and has been working since 1984. Up to now 12 nests have been obtained, five in the last two years, indicating that the number seems to be increasing. I have available the information about the incubation period: clutch size and hatching success (in press); and publications about growth curves, growth at different temperatures, different diets and breeding possibilities (all in Spanish). I can provide free reprints and I am interested in receiving other papers in return.

I am also working on the program of monitoring and recovery of *Caiman* populations

in Argentina with the aim of management. The program was described at the 10th Working Meeting of CSG and has been initiated in the Province of Santa Fe with support of the International Institute of Agricultural Technology. A harvest from the wild is planned for next March to obtain 600 to 800 broad nosed caiman eggs for the study. -- Dr. Alejandro Larriera, *Bv. Pellegrini 3100, 3000-Santa Fe, Argentina.*



Dr. Alejandro Larriera examines a broad-snouted caiman (*Caiman latirostris*). A. Larriera photo.

CAIMAN SURVEY FOR NORTHERN ARGENTINA. Patricio Hicucci, Catalina Teixido and Tomas Waller are developing a basic survey program for *C. yacare* and *C. latirostris* in Northern Argentina. The project will be financed by the CITES Secretariat and the Chamber of Reptile Tanneries of Argentina. During the first stage we will assess the relative abundance of both species for the Chaco and Corrientes Provinces. The project includes the assessment of the size class distribution and sex ratios, and, to a lesser extent, other biological information such as the nests, eggs, survival and feeding habits. -- Tomas

Waller, Ayacucho 1477 90 B, 1111 Buenos Aires, Argentina.

Brazil:

BROAD-SNOUTED CAIMAN WORKSHOP. The first workshop on the Conservation and Management of *Caiman latirostris* took place in Piracicaba, Brazil, from 8 to 10 October 1990. The workshop was sponsored and arranged by CIZBAS/ESQALP/ University of Sao Paulo and the Brazilian Society of Zoos (SZB) and coordinated by Abel Lavoretti, Luciano M. Verdade and Maria E. B. Santiago. The Workshop passed resolutions to:

- 1) Propose a Brazilian captive population studbook coordinated by CIZBAS/ESALQ/USP and Fundacao Rio-Zoo.
- 2) Survey and census the wild population of Porto Primavera, Sao Paulo State, coordinated by Centras Eletricas de Sao Paulo and CIZBAS/ESALQ/USP; and
- 3) Publish the paper containing information on captive management discussed by the specialists during the meeting.

For further information contact: Luciano M. Verdade, CIZBAS/ESALQ/USP, CP 09, 13.400, SP, Brazil.

Bill Magnusson has just returned from WWF's Field Course in the Pantanal. Highlights were Johanni Ojasti's overview of wildlife management in Venezuela and Guilherme Mourao's comparison of management techniques in Louisiana, Florida and Brazil, based on his stay in the US after the CSG Working Meetings that was financed by WWF. Luis Pacheco described the operation to release a few *Melanosuchus* in Bolivia that cost well over \$30,000 US [See CSG NEWSLETTER 9(3):14]. However that was dwarfed by Sandra Charity's report on an operation by CESP in Sao Paulo to relocate 100 Marsh Deer which cost over \$2,000,000 US. The meeting was unanimous in considering it a shame that such huge sums cannot be obtained for saving species and habitats rather than 'saving' individuals for the TV cameras.

After the course Bill attended the Brazil / Paraguay / Bolivia congress on management of the Pantanal. Interesting presentations were

made by Eduardo Szeplake, discussing wildlife management in Venezuela and the successful ranching operations that are turning commercial this year; and by Walfrido Tomas on the EMBRAPA/CAAP program on the management of wild stocks of *C. crocodilus yacare*. Bill is now writing up the reports for WWF who financed him, Guilherme Marao, Zilca Campos, Guilherme Borges Anacleto Arruda and George Rebelo, to attend the CSG meeting in Gainesville and to visit various management programs after the meeting. -- W. E. Magnusson, Depto de Ecologia, INPA, CP 478, 69 011 Manaus, AM, Brazil.

NUISANCE JACARE IN SAO PAULO. A series of newspaper and magazine reports discuss the recent capture of jacare in the polluted streams of municipal Sao Paulo. Three *Caiman*, including one individual of 1.3 m, were recently captured in the Rio Pinheiros and Rio Tiete in the city center and seven hatchlings were found at Ibirapuera Park, a residential area. The presence of the animals was hailed as evidence that pollution in these urban drainages was being reduced, however, it was pointed out by Flavio Molina, herpetologist from the Sao Paulo Zoo, that caiman were probably very resistant to harsh environments and it was uncertain how long they could survive the pollution in these rivers. From FOLA DE S. PAULO 24 October 1990 and VEJA, 29 August 1990, -- Ana Maria Trelancia, c/o Ciela Roig, Jose Quinones 271, Lima 18, Peru.

Guyana:

Guyana has now enforced a law restricting the slaughtering of "alligators" [i.e., *Caiman*] and is checking on skins. However, this is mostly being done in the office, no checks or field studies are being carried out by the Ministry of Agriculture and Fisheries. There is a great need to develop guidelines for establishing and regulating commercial farms and expanding knowledge of endangered species. There are reports of export of endangered species [presumably including crocodiles -- Eds.] through Grenada from the Western Territories of Guyana bordering Venezuela. -- H. Singh, 170 Soesdyke, East Bank, Demerara, Guyana.

BLACK CAIMAN IN GUYANA. Guyana is reported to have one of the largest populations of black caiman (*Melanosuchus niger*) in South America according to the findings of the CITES survey begun in 1989. Dr. Stefan Gorzula, Vice President and Scientific Coordinator of Sustained Management Systems (SMS) and a consultant for CITES, said that the report, compiled by the committee aimed at "getting a general overview on the species of caiman in Guyana, the location of their habitat and the general status of their population." Four species of caiman are reported from Guyana, the spectacled caiman (known locally as 'alligator'), *Caiman crocodilus*, the black caiman, *M. niger*, and two species of dwarf caiman, *Paleosuchus palpebrosus* and *P. trigonatus*. The final report of the committee has been formally presented to CITES and the Government. The report estimated that as many as 500 black caiman could be found in Guyana, with most in the six to nine foot size range. This population has shown significant recovery since it was virtually eliminated by overhunting. The population of spectacled caiman in the coastal areas was said to be depleted but not yet in danger of extinction. Trade in skins of black caiman has been banned for a number of years to stem the threat of extinction of this species.

In another report, President of SMS, Dr. Rafael Leon, said that he is planning to invest in a multi million dollar tannery in Guyana using skins of male caiman. The venture is expected to assist development as it will provide jobs and instead of skins being exported, the finished products such as belts and handbags could be made in Guyana and exported. A site on the West bank of the Demerara river is being considered for the tannery. From the *GUYANA CHRONICLE*, July 13 and the *STABROEK NEWS* July 22 1990. -- E. Uruena, *Nested Ltd.*, 2 Croal St., Georgetown, Guyana.

Panama:

NEW RULER OF THE SUMITH, A ROYAL LIZARD. A recent article in the newspaper *JOURNAL AMERICA*, 30 October 1990, describes the crocodiles in Sumith Park with an extensive account of the biology of the animals, their endangered status and recent conservation and management activities concerning them. The crocodiles are described as "Este bellissimo animal es un verdadero espectáculo" [This beautiful animal is a true spectacle].

About a dozen *Crocodylus acutus* are resident in the saltwater Pacific entrance to the Panama Canal. A 14 footer was recently stranded at high tide in an industrial area. It was noosed and loaded into a pickup truck for transport to Gatun Lake for release. On the way it thrashed around and tore up the bed of the truck and nearly turned it over. The animal eventually fell onto a metal guard rail sustaining a fractured humerus and 12" penetrating wound to the neck. It was moved to the Center for the Propagation of Endangered Panamanian Species (CEPEPE) for treatment and will eventually be released. CEPEPE is a project of the Panama Audubon Society involved in captive propagation of endangered species in Panama, including crocodiles. -- Dr. Nathan B. Gale, *CEPEPE*, P.O. Box 973, APO Miami, FL 34002, USA.

Venezuela:

DRY YEAR AT MASAGUARAL. The combination of mushrooming crocodiles and our rampant inflation and devaluation has been outpricing our locally financed conservation efforts. Our stock, which back in 1984 amounted to one breeding pair of *C. intermedius*, now totals 16 adults (3 males, 13 females) and 87 young (after releasing 16 into the Apure river earlier this year). We have one breeding pair of *C. acutus* with 46 young, 26 captive spectacled caiman and an single *Paleosuchus palpebrosus* male.

The wild population of spectacled caiman is over 3,000 on "Masaguaral" but we had greatly reduced nesting this year following the very severe dry season with only 1,000 mm of rain instead of the usual 1,500 mm. Such reproductive failure has also occurred elsewhere in the Llanos and the impact of legal and illegal hunting may lead to a situation of no caimans, just memories. Poachers are now receiving up to 3,500 Bolivars (about \$70 US) for a 4 foot caiman. A few years ago they would only get B40, less than a dollar at today's exchange. The decline of oil prices has caused people to turn to natural resources and everything is being sacked, crocodiles, parrots, orchids. People really don't want to raise crocs, they just want the hides, perhaps we should just stuff as many as we can before we run out of stuffable ones!

John Thorbjarnarson is back at Masaguaral and will follow released crocodiles with telemetric equipment. -- Tomas Blohm, *Apartado 69, Caracas 1010-A, Venezuela.*

ZOOS



ZOO BREEDING AND SURPLUS. Information on recent breeding successes and available surplus animals as of December 1990.

Captive breeding: Allwetterzoo, Munster, Germany - 7 *Crocodylus niloticus* hatched 1990; Wilhelma Zoo, Stuttgart, 0711/5402-107, Germany - 6 *Caiman crocodilus* hatched 1990 and surplus.

Surplus: Brno Zoo, Dr. Peter Guba, Director, Brno, Czechoslovakia - 1. 0 *Crocodylus acutus*, 0. 1 *Alligator mississippiensis*, 1. 0 *Crocodylus cataphractus*; Zoo Negara, Kuala Lumpur, Malaysia - 0. 2. 18 *Osteolaemus tetraspis*, 2. 0 *Crocodylus palustris*, 1. 0 *A. mississippiensis*; Noorder Dierenpark Zoo, Emmen, Netherlands - 0. 0. 1 *Crocodylus cataphractus* (hatched 1990). - Rene Honneger, Zoo Zurich, Zurichbergstrasse 221, CH-8044 Zurich, Switzerland

FRESHIES HATCH IN MELBOURNE. Five freshwater crocodiles (*Crocodylus johnsoni*) of the 'Stone country' or Arnhem land form hatched at Melbourne Zoo, Australia, on 12 - 13 December 1989 after 108 days incubation. One hatchling had an umbilical prolapse and died after 10 days, but the remaining 4 are thriving on a diet of crickets and chopped fish. At hatching they averaged 29.5 g and 221 mm total length and by three months of age they have grown an average of 57.3 g and 128 mm SVL and 277 mm total length. This is the first reproductive success since the adults arrived in 1980. The zoo's group comprise the only captive group of this form that is reproducing. -- C. Banks, Melbourne Zoo, Melbourne, Victoria, Australia.



TRADE



The following prices (in U.S. dollars) paid to hunters, farmers or other producers were reported to the editor since the last issue of the NEWSLETTER appeared. This information is provided as a service to our readers to allow an overview of the world market for crocodilian skins and products. The CSG cannot guarantee the accuracy of the reports submitted to us and makes no endorsement or advertisement of particular sales or prices.

Alligator mississippiensis in Florida, USA:
October 1990 - wet salted belly hides from farm raised alligators, avg. width 41.8 cm = \$8.06 per cm. width; avg. width 28.3 cm = \$5.76 per cm width; wild skins avg. 8 feet = \$68.68 per foot length. November 1990 - wet salted belly hides from farm raised alligators, avg width 43 cm = \$8.00 per cm width; 31 - 40cm 1st grade = \$6.00 per cm width; 25 - 30 cm 1st grade = \$4.50 per cm width; 20 - 24 cm 1st grade = \$3.75 per cm width; . December 1990 - wet salted belly hides from farm raised alligators, avg. width 35 cm = \$6.75 per cm width;

CITES

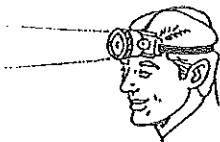


UNIVERSAL TAGGING OF CROCODILIAN SKINS. At their meeting in Darwin, Australia in

November the Animals Committee of the CITES drafted a resolution to be forwarded to CITES Secretariat for consideration by the Parties at their next meeting in April 1992. The resolution acknowledges the concerns expressed by the CSG in a resolution adopted by the Steering Committee in April 1990 (CSG NEWSLETTER Vol 9 (2) April - June) and is modeled closely on it. The resolution recommends the urgent introduction of non reuseable tags to identify all raw and processed crocodilian skins including flanks and bellies, entering international trade.

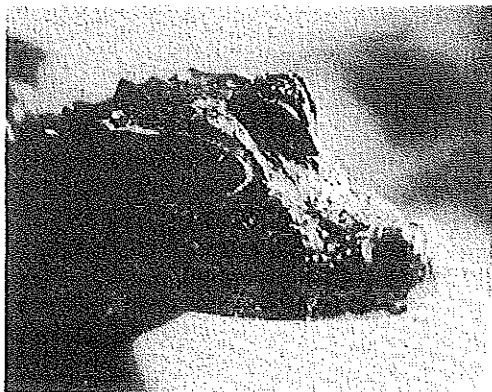
Recommendations for marking codes and characteristics are detailed and procedures are recommended for documenting tag use and integrating tag numbers into all documentation, export and re-export permits etc. The resolution further recommends that all importers, exporters, wholesalers processors and manufacturers who handle crocodilian products, should be registered or licensed wherever this is legally possible. The Animals Committee was directed to consult with the CITES Secretariat to study the possibilities of a practical uniform marking system for all parts and derivatives and report back to the Conference of the Parties. Full text of the draft resolution is available on request. -- Dr. Robert Jenkins, *Australian Nat. Parks and Wildl. Service, G.P.O. Box 636, Canberra, A.C.T. 2601, Australia*

PERSONALS



Sexy female dwarf from Canada, 2 yrs old, 30 inches; enjoys rodents, goldfish, chicken

parts; into fun and leather; seeks unrelated male from outside Canada for serious relationship and possible romantic interest. Photo enclosed, please send response to: Scott Allen, 77 Baronwood Crt, Brampton, Ontario, L6V 3H7, Canada.



Female *Osteolaemus tetraspis*, hatched in October 1988 at Metro Toronto Zoo as a result of a breeding loan from Niagara Aquarium. All available males in Canada are relatives so her owner, Scott Allen, seeks breeding possibilities with unrelated males. See above.

Tony Hakansson's, Skogsbacken 10, 17241 Sundbyberg, Sweden, reporting of the crocodile farming and conservation issues has received praise from critics in the Swedish press. Programs on Papua New Guinea and Florida are described as "radio of the highest class" and the facts about sustainable use for conservation are being effectively disseminated in Sweden.

Francis X. Mkanda from Malawi has a temporary address of Graduate School of Public Affairs, 208 Parrington Hall DC-13, University of Washington, Seattle, WA 98195, USA, where he is doing a fellowship on human/wildlife conflicts until June 1991.

Dr. Jack Frazier, Seccion de Ecologia Humana, CINVESTAV, Apto. Postal 73 "Cordamex", Merida, Yucatan, C.P. 97310, Mexico (Fax 52 99 26-05-45) is working to integrate coastal communities in the conservation of their own resources. Two key species are American and Morelet's crocodiles and plans for ranching and for releasing animals to the wild are in progress.

Frank Seebacher, 15 Clayton St. Hermit Park, Townsville, Qld 4812, Australia, is working on a Ph. D. on the thermal relations of Australian fresh water crocodiles, *Crocodylus johnsoni*, at the University of Queensland, supervised by Professor Gordon Grigg and Dr. Colin Limpus. The work involves radio telemetry of wild crocodiles in the Gulf Country of north Queensland and will describe patterns and variation of body temperature, and behavior of free ranging crocodiles and investigate strategies used to cope with temperature extremes.

Randal Berry, 1028 Melrose So., Nacogdoches, Texas 75961, USA, has left the Ellen Trout Zoo and is now at the Caldwell Zoo in Tyler, Texas. Randal is working in the reptile department and will be opening a new exhibit of Nile crocodiles in conjunction with a new east African exhibit at the zoo.

Amie Brautigam, Deputy Chairman of the SSC Trade Specialist Group and invaluable friend and advisor of the CSG, is now located in the UK at 15 Herbert St., Cambridge, CB4 1AG, United Kingdom (Fax 0223 32 77 69), and will continue to coordinate the Trade Specialist Group's research and policy.

Gregory Riese, a postgraduate student at the University of Queensland, has gained a National Company Teaching Scheme Award in association with John Bache of Crocodile Farms NT, for a research project on crocodile husbandry at Berrimah farm. The project involves husbandry methods that minimize stress and maximize growth of hatchlings. -- Gordon C. Grigg, *Dept. of Zoology, University of Queensland, Qld 4072, Australia.*

Alistair Graham, 16 Linden Crescent, Wulguru, Townsville, Qld 4811, Australia, has been inactive in crocodile research for the last 2-3 years. He left Zimbabwe in 1988 to work in the northern region of the Central African Republic and reports widespread, low density croc populations there. He returned to Australia in April 1990 and is keeping his eyes open for a croc job.

Robert Young, P.O. Box 522, Thonotosassa, FL 33592, USA, has developed a new 'up market' presentation of "Alligator Bob's gourmet alligator" meat. A registered trademark, glossy brochure, nouveau cuisine recipes, special packaging and air express shipping all appeal to a diet conscious yuppie market eager for new taste thrills.

REQUESTS



Langelet Eric, Chemin des Postes 16, 1410 Waterloo, Belgium, requests up to date information on crocodile farming, farm

management, trade, pathology and conservation, and names and addresses of institutions, farmers and researchers for the Prince Leopold Institute of Tropical Medicine, Animal Production Service, C/O Prof. Dr. Ir. J. Hardouin, Nationalestraat 1552, B-2000, Antwerp, Belgium (fax 323 216 1431), to support their research program in unconventional animal husbandry in Africa.

PUBLICATIONS

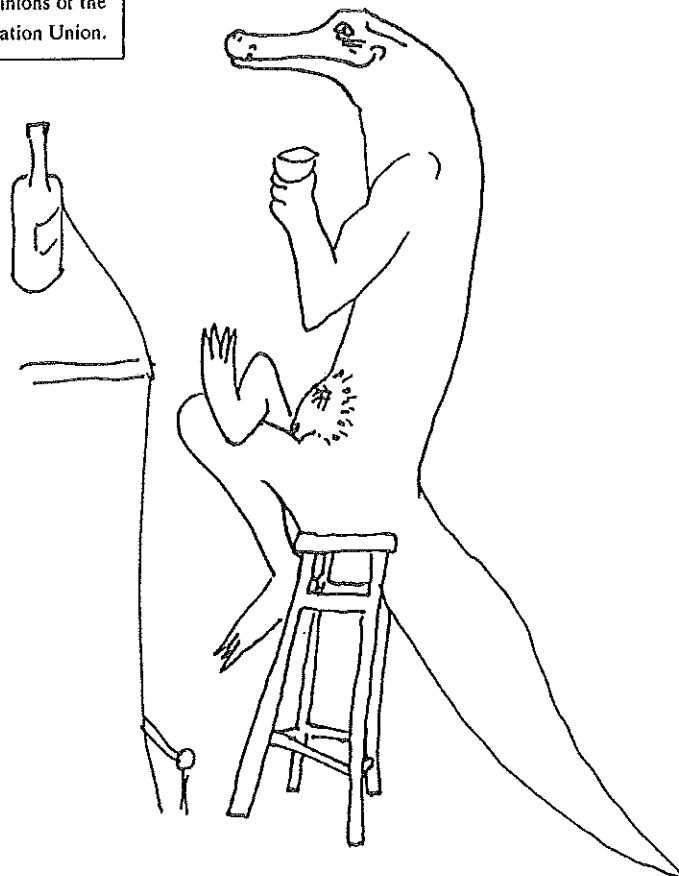


PROCEEDINGS OF THE 10TH WORKING MEETING OF THE CROCODILE SPECIALIST GROUP are selling fast but are still available. The price of \$25 US for the 2 volumes includes costs of surface mail. Orders should be sent to J.P. Ross, *Executive Officer, CSG, Florida Museum of Natural History, Gainesville, FL 32611, USA*, accompanied by full payment in US currency, check or money order payable to the Crocodile Specialist Group. Please allow 2 months for delivery.

The Biology of the Reptilia series is now published by the University of Chicago Press and has 2 volumes in production that contain extensive information on crocodilians. Volume 17, 'Sensory inputs to the brain and nervous system' (co-editor Philip Ulinski), and Volume 18, 'The hormone behavior axis', (co-editor David Crews), are of interest to crocodile researchers. -- Prof. Carl Gans, *Dept. of Biology, The University of Michigan, 2127 Kraus Natural Sciences Building, Ann Arbor MI. 48109-1048 USA.*

CROCODILE LITERATURE UPDATE. A list of current publications on crocodilia extracted from WILDLIFE REVIEW, covering the period 1988 to January 1990, was provided to the editorial office by Mr. Terry Sexton, editor of WILDLIFE REVIEW. The editors have requested an updated list covering January to December 1990 and will present this literature list in a future edition of the CSG NEWSLETTER.

EDITORIAL POLICY - The newsletter must contain interesting and timely, not outdated, information. All news on crocodilian conservation, research, management, captive propagation, trade, laws and regulations is welcome. Photographs and other graphic materials are particularly welcome. If you wonder why news from your area is not reported, it is because you have not sent it in. Whenever possible, the information will be published as submitted over the author's name and mailing address. Even if the editor has to extract information bit by bit from correspondence or other works, the revised news items will be 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 in the newsletter, please call them to the attention of the editors so 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.



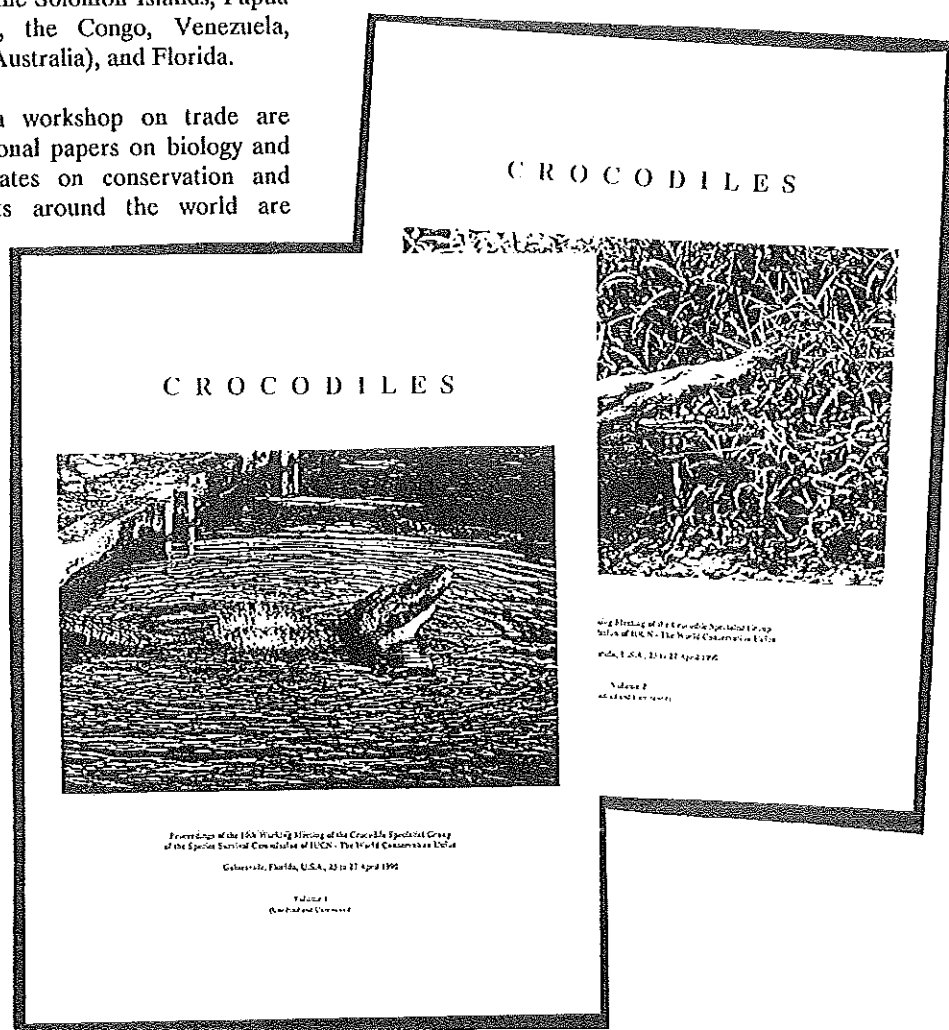
Sunset behavior of the Australian crocodile.
The Zimbabwe species is very similar and this behavior
is often seen in other crocodilians. -- T. Pooley

Proceedings of the 10th Working Meeting of the Crocodile Specialist Group.

These two attractively bound and illustrated volumes contain 70 papers covering the full range of current topics in crocodilian research, conservation status, management and husbandry. Highlights of the volume include 10 papers on field techniques, surveillance of nests, estimation of growth rates and comparisons of survey methods. Twenty one papers address husbandry including a comprehensive description of techniques for developing countries by T. Pooley and descriptions of the high technology methods used in Louisiana by Ted Joanen. Additional husbandry papers cover transport and incubation of eggs, anesthesia, diets, pelletized feed, vitamin supplements and meat yields from farmed crocodiles. Conservation and status reports are given for Honduras, the Solomon Islands, Papua New Guinea, India, the Congo, Venezuela, Northern Territory (Australia), and Florida.

The results of a workshop on trade are presented and additional papers on biology and physiology and updates on conservation and management projects around the world are given.

The price is \$25 US for the 2 volumes including costs of surface mail. Orders should be sent to J.P. Ross, *Executive Officer, CSG, Florida Museum of Natural History, Gainesville, FL 32611, USA*, accompanied by full payment in US currency, check or money order payable to the Crocodile Specialist Group. Please allow 2 months for delivery.



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