

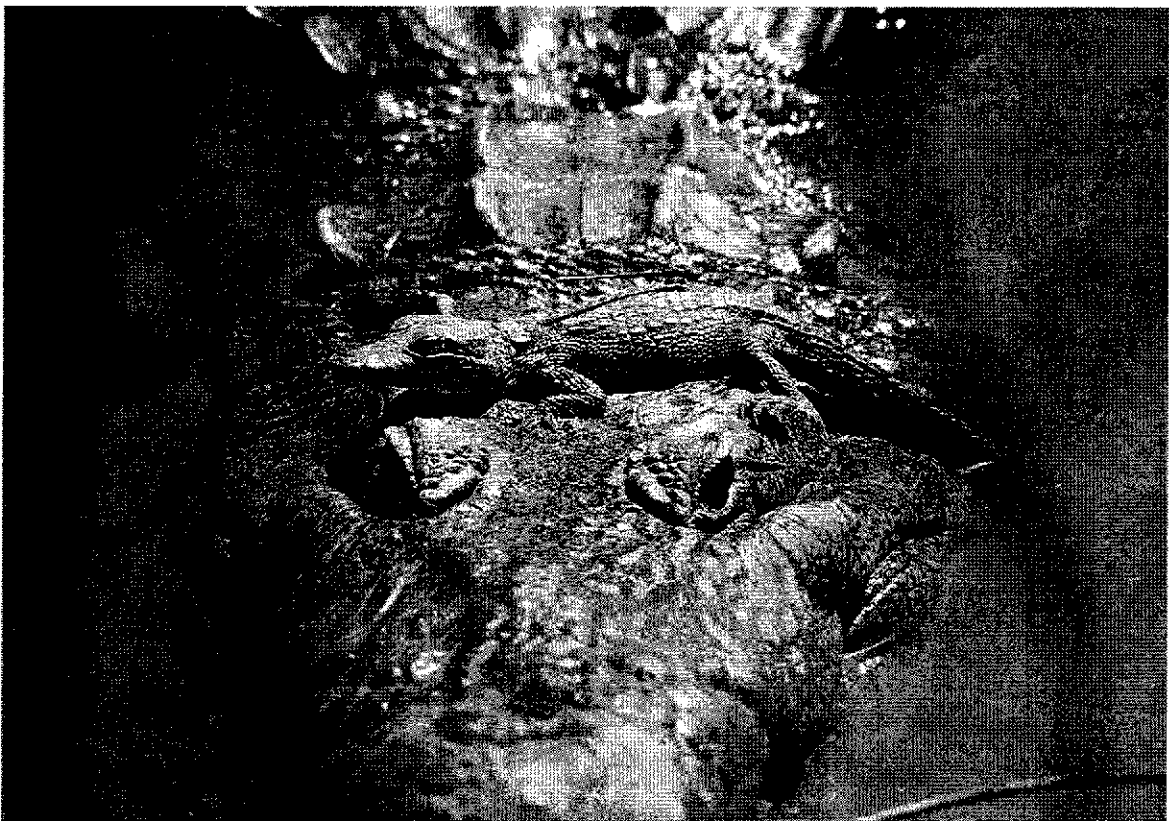
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CROCODILE SPECIALIST GROUP

NEWSLETTER

VOLUME 17 No. 2 ■ APRIL 1998 - JUNE 1998



IUCN - World Conservation Union ■ Species Survival Commission

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IUCN--The World Conservation Union
Species Survival Commission

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COVER PHOTO: *Crocodylus moreletii*, adult male known as 'Cavernario' at Miguel Alvarez del Toro Zoo, Chiapas, Mexico; with 2 month hatchling. A. Tono Ramirez Velazquez photo.

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

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EDITORIAL

NEWSLETTER DELAY. This Newsletter is published and distributed more than a month later than usual. While it would normally have been produced during late May and distributed in mid-June, I decided it would be more useful to delay publication to allow inclusion of reports from the

Brisbane, Singapore and Steering Committee meetings. This expectation has been more than met and the majority of this issue is material from these recent meetings.

Readers may have noticed small changes in formatting and improved clarity of covers and photographs in recent Newsletters. This is because we have improved our publication technique to take advantage of modern desktop publishing capacity. No more scissors, messy glue and sticky tape (much to this editor's delight)!. The Newsletter is produced directly onto the computer in MSWord 7.0, and in many cases material received electronically or on disc is simply reformatted. The file is then 'printed to disc' and the resultant <Newsletter.prn> file sent directly to the printer with the photographs. The printer scans in the photos and fits them to size then prints directly from the computer disc.

Many readers are already familiar with the Web version of the Newsletter which appears on the web at <http://www.flmnh.ufl.edu/natsci/herpetology/crocs.htm> shortly after distribution of the hard copy. The Web Newsletter is available to a worldwide electronically connected audience and currently receives more than 1,000 hits a month. We are very proud to announce the new publication on the web of a Spanish version of the Newsletter. Our Spanish speaking colleagues have requested full translation for some time and now Carlos Pina from Argentina is providing translation and web formatting which we will post as it becomes available. The first Spanish Newsletter on the web is Volume 17 (1).

We continue to upgrade Newsletter production to optimize both speed of production, presentation and convenience. We are currently working on creating a template for the Newsletter format in ADOBE Pagemaker which will further simplify and standardize formats, allow us to directly input photos from the scanner and have the Newsletter produced even more quickly than before. This also saves us money in both production time (= costs) and printing charges. The next Newsletter Vol 17 (3) will be produced from existing materials on the usual schedule and distributed by mid October. Remember, we rely on you our readers to provide most of the material we use. Send in your news, short articles and photos to – editors, CSG Newsletter, *Florida Museum of Natural History, Box 117800, University of Florida, Gainesville, FL 32601 US, E-Mail* prosscsg@flmnh.ufl.edu

VIEWS and OPINIONS

The report in the last Newsletter concerning the article in Scientific American prompted many responses, most supportive of our editorial position while expressing some concern that CSG not respond on a personal or acrimonious level but seek a positive way forward on the issue. The following letter is one CSG member's attempt to articulate her concerns and feelings [Eds.].

"When I was young, I hoped to make my life's work caring for animals. I had strong empathy with them all - sparrows, squirrels and snakes alike; it has been that way for me since early childhood. I know my story is not unique. It was the typical beginning of a conservationist. At age 18, I obtained employment at a zoo. I was trained in the zoo field, and several years after I targeted crocodilians as my particular passion, I was introduced to the concept of conservation biology. It was a hard lesson for me to swallow that conservation worked at the species and not the specimen level. No sooner had I painfully adopted this concept, than I was introduced to the concept of "sustainable utilization" programs in crocs. Once again, a problem for me. I studied the literature, and reluctantly became convinced. I never doubted the integrity of the literature.

The article "The Caiman Trade" in the March '98 issue of Scientific American reminded me of a part of myself I often leave behind. I commend its authors for the obvious passion with which it was written. I am aware that the article is now a topic of controversy on many levels, that I do not care to engage in. However, it has brought me to deep reflection and prompted me to do some research of my own.

I am reminded that most, if not all, persons dedicated to crocodile conservation would prefer to see crocodiles preserved through some other means besides killing some of them if it were at all feasible. It is up to those who dislike/disapprove of this exploitation to come up with other solutions to deal with the ever-present problems of habitat loss, poaching, negative public perception and pollution.

However controversial, "The Caiman Trade" has brought to light a very important fact that should not be ignored: Dynamic steps must be taken in South America (and worldwide) to ensure that regulatory mechanisms for the crocodilian

skin trade are in place, minimizing illegal trade. Perhaps as the dust settles, crocodile conservation could now be well served by channeling the energies stirred by this article toward this improvement to the programs already in place. It can do nothing but add integrity to the reputation of the commercial skin trade, at the same time moving sustainable utilization programs closer to their conservation goals." -- Colette Hairston Adams, Member, AZA Crocodile Advisory Group, Gladys Porter Zoo, TX, USA.

MEETINGS



14th WORKING MEETING OF THE CSG. About 140 CSG members convened in Singapore between 14 and 17 July for our biennial worldwide meeting. The facilities and arrangements of the meeting hosts, Singapore Reptile Skin Trade Association, were impeccable and participants were quickly made to feel comfortable among Singapore skyscrapers. The meeting was opened by Dr. Ngiam Tong Tau, Director, Primary Production Department, Ministry of National Development, after opening welcoming comments by Mr. Koh Choon Heong representing the hosts and Professor Messel, Chairman of the CSG.

The working part of the meeting got underway immediately with a series of presentations on recent work on *Tomistoma* in Sarawak, Sumatra and Kalimantan, followed by vigorous discussion by participants, setting the tone for all the sessions (and incidentally finally reassuring the program committee that the new format of fewer speeches and more discussion was going to work!). In the Afternoon, colleagues from China, Wan Ziming and Wang Xioming, presented results and

information on the rapidly developing situation there and Gerry Ortega of the Crocodile Farming Institute gave a comprehensive description of the many advances made with the captive population of the Philippine crocodile.

That evening all participants were treated to a stupendous welcome reception and cocktails—in reality a marvelous and seemingly never ending feast of local foods and delicacies and ample libations. The session next morning was only slightly delayed, a testimony to the stamina and long practice of CSG members at social indulgence.

The meeting continued in high gear all day with a session detailing the newly recognized problem of sub-lethal levels of pollution affecting reproductive hormones in alligators. A broad introduction to the problem (Lehr Brisbin), a comprehensive explanation of the interaction of normal temperature dependent sex and pollutants (D. Crews) and a historical account of the development, analysis and current outcome of pollution affecting alligators in Lake Apoka, Florida, (Ken Rice) were presented. Lest participants think this was an isolated incident, the recent similar phenomena observed in Lake Griffin, Florida, were described (Don Ashley for Paul Cardheilac, and Perran Ross) and in discussion the possibility that such effects might be widespread in both wild and captive situations was presented.

That afternoon a series of presentations on world trade detailed the current depressed state of the crocodile skin market and led to a discussion of more active measures CSG might take to promote the conservation value of crocodilian use.

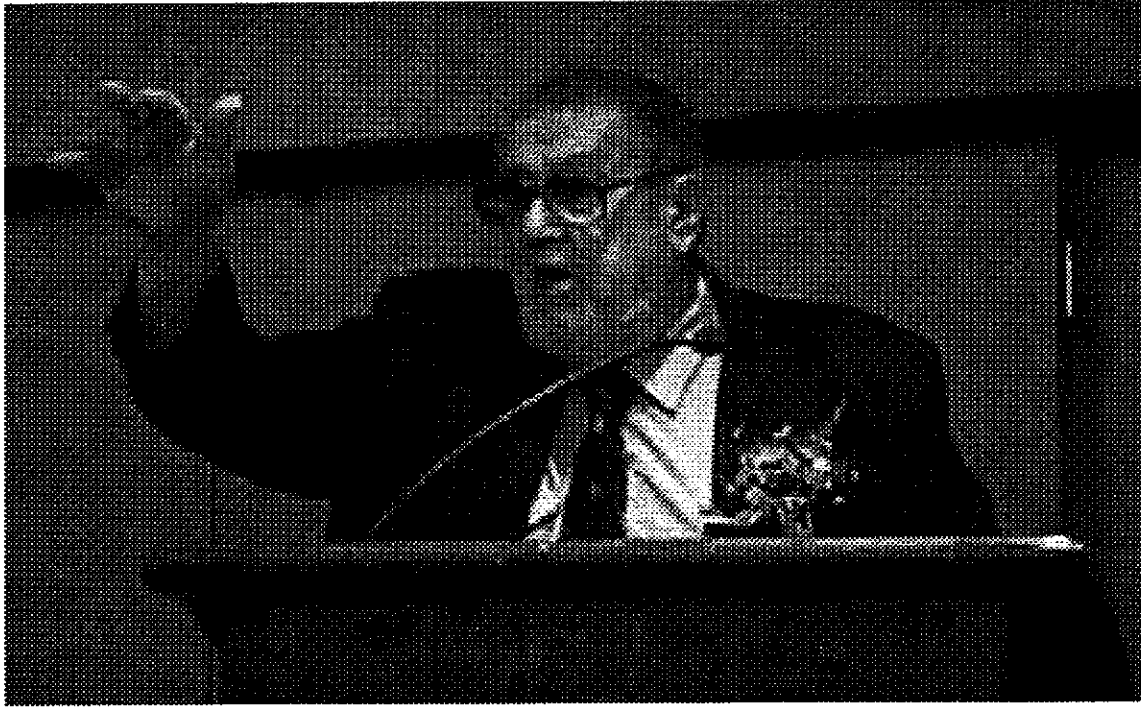
The combination of in-depth papers and extensive discussion continued the following day with sessions evaluating reintroduction as a conservation tool and more presentations on the situation of SE Asian crocodiles. Quite striking contrasts between results of reintroductions obtained in different situations and by different workers (Ruth Elsey, Bob Chabreck, Richard Ferguson and Alvaro Velasco) were reported. Therefore each particular situation should be analyzed rigorously. An introduction to general principles of reintroduction programs by Pritpal Soorae of the IUCN Reintroduction Specialist Group provided a valuable framework for discussion. New information from Cambodia (Nao Thuok) and Vietnam (Sung Cao) and an update on the situation in Thailand (P. Ratanakorn) further broadened our understanding

of the need for conservation action in the region to harness the energy of developing commercial interests to ensure conservation of wild crocodilians.

In a special session, participants used the IUCN criteria to re-assess the status of SE Asian species. New information available on *Tomistoma* as a result of the activities promoted by declaring this species our first priority in 1992 were evaluated and the meeting concluded that the correct status for *Tomistoma* was Endangered. The current evaluations of crocodilians in the Asian area were confirmed. *Alligator sinensis*, *Crocodylus siamensis* and *C. mindorensis* remain Critically Endangered, and *C. porosus*, *C. johnsoni* and *C. novaeguineae* remain Low Risk of Extinction. However, it was noted that *C. porosus* may be Endangered in many parts of its range, but is secure in Australia, PNG and Indonesia. This led to a detailed discussion of the applicability of the criteria to long-lived species like crocodilians. A letter detailing the valuable results of this discussion was drafted to David Brackett, Chairman of SSC to assist in the evaluation of the criteria. (see page 15 below).

On the final day of the meeting Val Lance chaired a session on physiological basis of reproduction in captivity and gave a comprehensive review of 20-years research. Additional contributions on the recent mycoplasma disease outbreak in St. Augustine Alligator Farm (Kent Vliet) and research on captive husbandry in Queensland (Bernie Davis) rounded out this useful practical session and again prompted extensive discussion. After a brief closure and expression of thanks to the organizers, participants went on field trips to the Heng Long tannery and Long Kuan Hung Crocodile Farm where again they received the generous hospitality of our Singapore hosts.

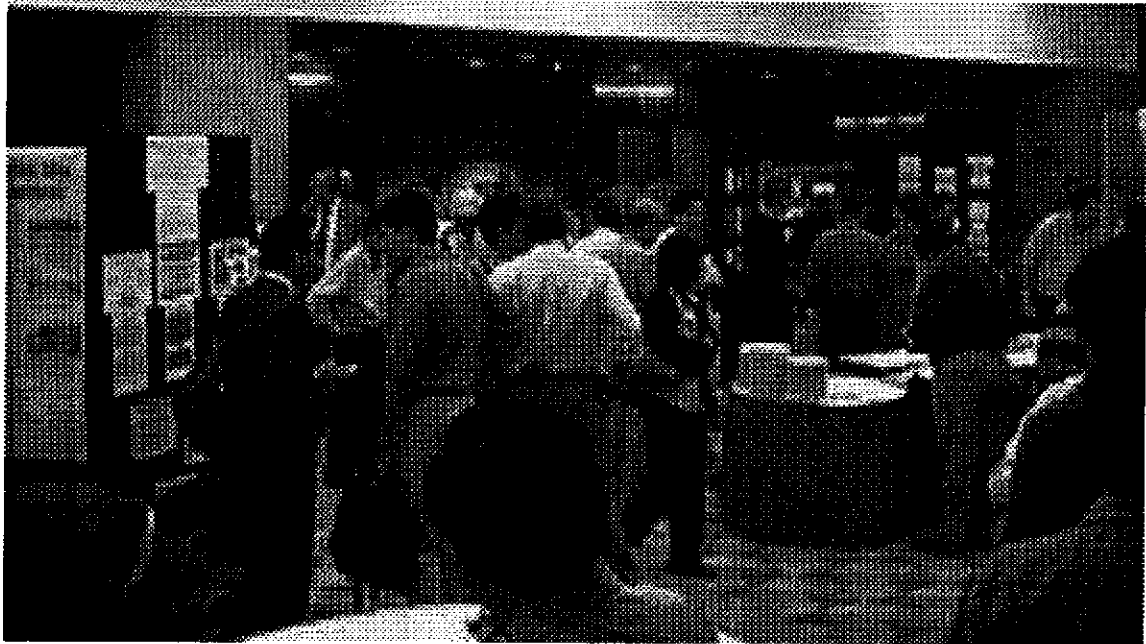
This account does not do justice to the extremely amenable and friendly atmosphere of the meeting, the productive discussions, the old friends met and new friends made and the general strengthening of the CSG network which results from our Working Meetings. Again, we express our thanks to our hosts, the Singapore Reptile Skin Trade Association, and the organizing company, Foreword Communications, very ably led by Mr. Gerald Ong and Wedad Sunny. — Perran Ross, *Executive Officer*.



Professor Harry Messel, Chairman of the Crocodile Specialist Group, emphasizes a point in his opening address. F. W. King photo.



Mr. C. H. Koh, representing Singapore Reptile Skin Tanners Association, hosts of the 14th Working Meeting. F. W. King photo



General view of the meeting and poster session, 14th Working Meeting, Singapore, July 1998



Coffee break, 14th Working Meeting, Singapore, July 1998, identifiable in the photo (l – r) Dietrich Jelden (back) Alvaro Velasco (back), Val Lance (back), Jeff Miller (front center), Ruth Elsey, Alejandro Larriera and Sam Seashole.

CONFERENCE ON CROCODYLIAN BIOLOGY AND EVOLUTION. About 75 participants from Australia and around the world gathered at the University of Queensland, July 8-10, for a stimulating series of presentations and exchange of views on crocodylian biology. The meeting was organized by Professor Gordon Grigg, ably assisted by Frank Seebacher, Craig Franklin and a large group of UQ Zoology graduate students and staff. The meeting began with a fascinating presentation by Eberhart (Dino) Frey explaining his synthesis of crocodylian structure based on the concept that the spine, dorsal armor and associated muscles and tendons form a dynamic I-beam with a hydraulic core. This structure, common to all crocodylians, provides a rigid yet elastic frame on which they base unique solutions to the problems of locomotion in both water and on land. These findings clarify the structural adaptations of crocodylians and dinosaurs in response to large size and amphibious habits. Dino's observations combined an analysis of fossil forms with the detailed anatomy and video analysis of movement in extant species to provide a convincing and heuristic new view of what constitutes a crocodylian and how it works.

A series of sessions followed, picking up on genetic and morphological analyses of crocodylian systematics, thermoregulation, osmoregulation, behavior and reproductive physiology. Some high points were Frank Seebacher and Gordon Grigg's report of effective behavioral thermoregulation of a 5m *C. porosus* in which they confirm the long held conjecture that large crocs can maintain high stable body temperatures. Helga Sneddon demonstrated prenatal learning in crocodiles for the first time, showing that croc eggs exposed to esoteric flavor compounds (strawberry flavor) significantly choose strawberry flavored food after hatching. Apart from the intrinsic scientific interest and obvious application of this work to husbandry, Helga's talk provided a basis for nearly every following speaker to comment humorously upon the importance of strawberries in their crocodylian research (e.g. "These large crocodiles are captured by attracting them with strawberries," G. Grigg!). A number of presentations on genetics, paleobiology and morphology addressed again the question of the correct position of *Tomistoma schlegelii* in the Crocodylidae or Gavialidae, and while no clear resolution emerged, the debate progressed with vigor and some insights into the conflicting data available.

The meeting was conducted on the beautiful and serene grounds of the University of Queensland and included a full schedule of relaxed and enjoyable social events. Gordon and his crew managed to keep everybody socially occupied and fully fed for three days in addition to the scientific program. A Proceedings of the meeting is in preparation and will be published by Surrey Beatty Press. This should become a valuable resource to crocodylian biologists, demonstrating the continuing progress of detailed scientific work and improved understanding of crocodylian biology across many fields. - Perran Ross, Executive Officer.

INDIAN MEETING POSTPONED. Due to unavoidable circumstances beyond the conveners control, the Regional Meeting for the Western Asian Region, previously announced for 2-4 July 1998, has been postponed. They hope to reconvene the meeting later this year and an announcement will be made in the Newsletter. -- Romaine Andrews, Madras Crocodile Bank, Post Bag 4, Mammalapuram, TN, India.

STEERING COMMITTEE

STEERING COMMITTEE OF THE CROCODYLE SPECIALIST GROUP, 13 July 1998, Singapore. Participants: Prof. Messel, P. Ross, D. Jelden, W. King, J. Hutton, G. Webb, R. Jenkins, P. Stobbs, K. Koh, P. Ratanakorn, C.H. Giam, A. Velasco, R. Elsey, V. Lance, J. Thorbjarnarson, I.L. Brisbin, K. van Jaarsveldt, Y. Takehara, D. Ashley, A. Larriera

Regional Reports and issues - CSG Vice Chairmen

North America. Live exports from USA. Ruth Elsey advised the meeting that the USA is prohibiting commercial exports of live alligators, except small numbers for research and exhibit purposes.

Caiman trade. Don Ashley reported that following concerns raised by the Scientific American article, that a small group had formed to examine the issue of crocodylian trade in Latin America. Ted Joanen has communicated with Peter Brazaitis and

Alejandro Larriera requesting more information on current information. A report from Alejandro outlining the current situation was displayed.

Europe. Dietrich Jelden reported on activities in Europe including review of CITES proposals, review visit to Indonesia and disposal of confiscated skins in Belgium (summary attached). Dietrich briefly described the very successful promotional activity held at the Offenbach leather fair and favorable press coverage for crocodilian sustainable use that resulted. Discussion followed on additional trade promotion activities by other CSG members (Don Ashley- American alligators, CFAZ- Nile crocodile). Don reported his successful discussions with WWF UK leading to the removal of deceptive airport displays in the UK. The possibility of substituting positive pro-use displays was discussed but caution was expressed and the meeting decided to appoint Dietrich, Don and Kevin as a working group to develop a strategy on the issue.

Technical guide for captive crocs. Dietrich reported contacts from the German Herpetological Society exploring the production of a manual of crocodile husbandry for use by amateur keepers and zoos. It is possible that the Herp Soc. might provide funds for this activity. After discussion the Executive Officer was instructed to investigate the current materials available from American Zoo and Aquarium Association and CSG input to a husbandry booklet.

This provided background for Parntep Ratanakorn and Fritz Huchzermeyer to report on discussions held among CSG Veterinary members and a request that CSG create a subgrouping (Vice Chairmanship) for Crocodilian Vets. After discussion it was agreed to constitute this group informally and report back to the next meeting to consider formal establishment. Fritz and Parntep agreed to coordinate with the Executive Officer to identify and communicate with CSG members with veterinary interests.

Latin America. Alejandro presented a short report on activities in Latin America (summary attached). Two items received extensive discussion.

Ecuador. A request was received from the CITES Secretariat for a recommendation on a request from Ecuador to export live *M. niger* for zoological exhibit. Recently, information

requested by CSG from Ecuador was received indicating that about 50 hatchlings up to 40 cm length were collected annually between 1995 and 1997 and that the current ranch stock is 109 individuals of which 29 are over 100 cm length. The annotation to the Ecuador App. II listing requiring review of the program by CSG to change the quota was recalled. Reports indicate the ranch is suffering routine problems of husbandry and care and has not yet achieved stable commercial production. The Ecuadorean CITES Management Authority continues to be barely functional in crocodilian management. There is no indication that the Ecuadorean ranching program has achieved the operational or regulatory standards required for CITES compliance. The Steering Committee was sympathetic to the ranchowners need to generate income, but very reluctant to provide approval which was not based on objective achievements of the program and which could serve as a precedent, undermining CSG credibility and opening us to justified criticism. The meeting agreed that survey data obtained prior to downlisting indicated substantial populations of *M. niger* and that removal of a small number from the wild was of little conservation concern. It was noted that Ecuador could conduct such an export even if the species was on Appendix I by issuing a permit. The ranch owner is strongly advised to improve interactions with local communities to improve egg and hatchling collection. Experiences by the Mamiraua *M. niger* project in Brazil provide valuable experience in Black caiman nesting ecology and the ranch owner is advised to interact with that project and learn from them. After extensive discussion the meeting agreed to recommend 'no objection' to export of up to 30 ranches black caiman for exhibit purposes for 1998-1999 as a one time experimental quota. Ecuador is strongly recommended to export these animals under special permit and to individually mark each animal (the ranch owner has already proposed marking and obtained technical marking advice). The Steering Committee emphasized that this recommendation does NOT constitute the 'CSG review' required under the CITES Appendix annotation. Alejandro, Alvaro and John T. were asked to draft the response with technical details reflecting this decision (see page 14).

Caribbean and Central American Region. Alvaro Velasco reported that he had sent an inquiry to every CSG member in this region (Mexico-Panama) and received only three replies. While

each reply favored a regional structure, Alvaro recommended that interest seemed insufficient to justify creation of a new regional division for Caribbean and Central America. He agreed to continue developing contacts, and an approach through official CITES Management Authorities and a site visit by Perran and Alvaro was suggested.

Following the coffee break, the newly published Crocodile Action Plan, Second edition 1998, was presented. Professor Messel formally presented a copy to Uthen Youngprapakorn with his thanks for the extensive financial support for its production from the Youngprapakorn family. Copies will be provided to registrants at the 14th Meeting and sent to every CSG member. The chairman regretted the long delay in production after the original draft was prepared in 1995 and urged members to be timely and focussed when they insisted on additional reviews and changes of such documents.

Africa. John Hutton apologized for misplacing the written report provided by his Deputy Vice Chair Olivier Behra (see page 16). John reported that many of the small ranching programs created during the 1980's and approved under CITES ranching provisions were failing, and in many cases were not operational. This included ranches in Botswana, Mozambique, Malawi, Uganda and Ethiopia. Combinations of economic stress, technical inadequacy and political instability have caused many farms to close. This raises the important question of what are the consequences to conservation programs when the market bases on which they rely are removed. After discussion, the meeting agreed that a formal examination of this problem would be useful. John proposed that CSG prepare a problem outline of this issue and that this be transmitted to academic and university sources to try and interest a Ph.D. project on the topic. John was requested to coordinate with the Executive Officer and several potential academic centers of appropriate interest were identified.

Sudan survey. Dietrich presented correspondence and a draft proposal which has been approved for funding by the CITES Standing Committee for a crocodile survey in Sudan. The background and previous CSG activities in Sudan were outlined. Implementation of this project seems unlikely until political turmoil in the region settles. However, Dietrich was asked to draft a

response to CITES and Sudan offering technical assistance from CSG to implement the project. Rich Ferguson agreed to assist as a consultant. An appeal was also made to collect tissue samples from Sudan, and from other populations of Nile crocodile for DNA analysis as these were needed for resolution of some systematic and evolutionary problems in crocodiles.

John and Kevin van Jaarsveldt reported on recent developments in Zimbabwe. The new management policy approved in June 1997 was being implemented. However, new government personnel in the Wildlife Dept. were examining the philosophical and conceptual basis of crocodile use and a period of continuing examination and policy evolution is anticipated. Farmers are disquieted by the tenuous nature of their access to crocodile eggs on state and community lands and are increasingly generating production from captive breeding, which now constitutes more than 50% of annual production.

A response was received from the CITES Secretariat concerning allegations brought our attention regarding illegal trade between Tanzania and Kenya. We were advised that Kenya Wildlife Service had found no irregularities.

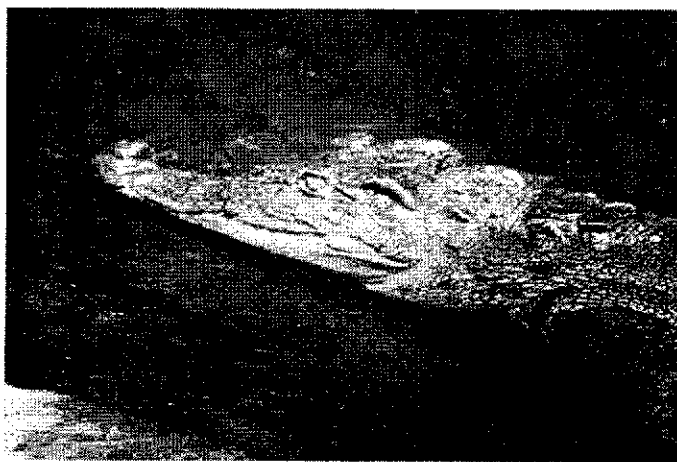
John announced that he has been assigned to a position in the UK for the next two years and felt that he should step down as African Regional Vice Chairman. A number of potential replacements were suggested and the Chairman took under advisement appointing a replacement after asking John to continue to serve CSG as a Deputy Vice Chairman for Europe to assist Dietrich Jelden.

West Asia. The Executive Officer reported on the development of a Regional Action Plan following the regional meeting in Gwalior in June 1997. Then Mr. Mukerjee, Director of the Wildlife Institute of India (WII) and CSG member, B. C. Chaudhury, were introduced and gave a short account of the current developments in India. Colleagues in India have initiated contact with government personnel in Bangladesh, Bhutan, Myanmar and Sri Lanka, some of whom have received training at WII. The Government of India has responded to some of the recommendations of the Regional Action Plan by providing funds for continued monitoring of wild and introduced populations and the application of non-consumptive use (ecotourism) to crocodile conservation, particularly in the Chambal River. Cooperative monitoring of dispersal and survival of released gharials in conjunction with Nepal was

underway. Overall, this is the most encouraging news from the region for some years, and the regional CSG members and WII were congratulated for their efforts.

East Asia, Oceania and Australia. Grahame Webb reported that crocodile management in Australia was stable and in good shape. In the Northern Territory the crocodile monitoring program will be conducted directly by the Conservation Commission. A trial program of harvesting wild croc skins in aboriginal communities is underway and currently resolving complex cultural issues involving totemic constraints on crocodile use in traditional communities. In Queensland, there is an increasing level of activity concerning wild crocodiles and a number of initiatives concerning problem crocodile management in eastern Queensland. Grahame expressed concern that he was contacted by a student in genetics at the University of Queensland working on a project supported by the CSG through the Executive Officer without advice being obtained from the Regional Vice Chairman. The Exec. Officer agreed that full consultation with regional vice chairs was always necessary when CSG endorsement of a project was involved.

In Papua New Guinea, the annual nest surveys have been conducted and preliminary results suggest nesting indices are depressed, probably by aberrant weather due to 'El Nino'. Similar effects are reported from crocodile populations around the world. The financial crisis in Asia has caused a temporary reduction in logging in the Sepik, delaying habitat loss in this area.



C. siamensis, St. Augustine Alligator Farm, USA. R. Sommerlad photo.

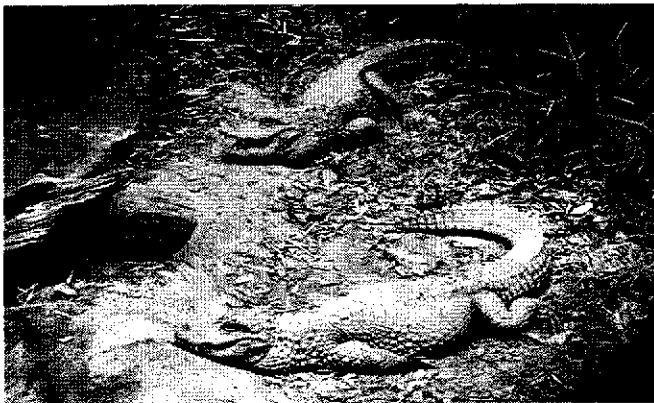
In Indonesia, the recent financial and political turmoil has completely obscured any crocodile management efforts. Paul Stobbs reported that a PNG government delegation visited Irian Jaya and received a distorted account of crocodile management there and incorrectly concluded that the PNG program was not adequate. The need for constant communication to government is obvious.

Grahame summarized the status of crocodile farming and activities in Sarawak, Malaysia (including last years survey of Tasek Bera Reserve), Thailand and Myanmar. Development of crocodile farming continues, with current stocks high and trade sluggish due to poor demand and prices. John Thorbjarnarson advised that his organization, Wildlife Conservation Society, was initiating a large program in Myanmar and surveys of freshwater turtles and crocodiles would be included in general wildlife survey efforts.

Cambodia. The situation in Cambodia received detailed discussion with information from Hank Jenkins and Nao Thuok of the Cambodia Fisheries Department. Cambodia has over 400 crocodile farms holding *C. siamensis* but only about 18 of these have more than 100 stock, the majority being very small household operations. Following its accession to CITES last year, Cambodia is now requesting registration of 6 larger farms to allow legal export of crocodiles. Current stocks of small animals are inflated with annual production around 15,000 hatchlings as the previous illegal trade in hatchlings to Thailand has been inactive. The recent designation of a Management and Scientific Authority for Cambodia opens the way for submission of the registration request, which should be routinely passed to CSG for comment. Discussion centered around the desirability of associating a component of conservation of wild crocodiles to the commercial farming activities. Nao Thuok reported that Cambodian Crocodile Farmers Association was willing to underwrite field studies and conservation. The meeting recommended to Nao that his registration proposal be accompanied by whatever information is available on distribution of wild crocodiles. Nao confirmed that additional large scale removal from the wild was not anticipated. Uthen Youngprapakorn then offered to provide financial support to the

Cambodian surveys, and Uthen, Mr. Thuok and Grahame Webb were asked to coordinate this support.

Vietnam. Hank Jenkins displayed a report on crocodile farming in Vietnam. The situation is similar to Cambodia, while less developed. Crocodiles have been held in captivity for decades and there is current interest in farming. Wildlife based industries are an integral part of current Vietnamese economic development. The Sustainable Use Specialist Group has received funds from NORAD to undertake wildlife surveys and develop SU wildlife use. There is also a survey of Vietnamese vertebrates underway by the Royal Ontario Museum. Hank indicated that the reported export of Cuban crocodiles to Vietnam in 1997 could not be verified in Vietnam, raising the interesting question of where these animals have ended up? Uthen Youngprapakorn reported that he had been approached by Vietnamese farmers to purchase their stock as they were concerned that current Vietnam government efforts to establish controls might lead to their confiscation.



Chinese alligator at St. Augustine Alligator Farm, USA. R. Sommerlad photo.

China. Professor Messel expressed the CSG's deep concern over the Chinese alligator. John Thorbjarnarson recounted results of his visit in 1997, which indicated continuing alarming decline of the wild population. The Wildlife Conservation Society has initiated coordinated conservation activities with the Chinese government, Anhui Forestry Bureau and East China Normal University. Mr. Wan Ziming of the Chinese CITES Management Authority confirmed that the wild population was thought to number no more than 400 and appealed for the CSG to support China's conservation efforts. After discussion it was agreed that a comprehensive

conservation program addressing broad landscape issues similar to the Panda conservation program was needed. Further discussion deferred until after presentations to be given at the 14th CSG Working Meeting. Howard Kelly of South Africa briefly explained his ongoing program to export live Nile crocodiles to China and proposed that some linkage to Chinese alligator conservation might be associated with commercial crocodile farming in China.

Science. Val Lance briefly summarized results from the Crocodile Biology and Evolution Conference held in Brisbane, Australia, July 7-10. A focus of concern was that studies of crocodilian systematics based on DNA analysis were based on a very narrow set of zoo specimens of uncertain origin and artifacts may be generated as a result. The anomaly between availability of hundreds of thousands of specimens of most species and the difficult availability of those specimens to scientists was noted. It has been proposed that CSG might serve a role by facilitating the exchange of specimens between those who have them and those who want them. A proposal was accepted to list in the Newsletter current genetic studies underway on crocodilians. Lehr Brisbin urged that genetic results on crocodilians (gene sequences) be made freely available by listing in standard genetic resource data bases.

Bris announced the impending completion of the SSAR Catalog of American Amphibians and Reptile accounts of new world crocodilians and appealed for authors to tackle the remaining accounts for *Caiman crocodilus* and *C. caiman latirostris*.

Trade. Kevin van Jaarsveldt presented CSG with a donation of \$1,100 Singapore dollars on behalf of the victorious French World Cup soccer team. Kevin briefly reported on the very low level of the crocodilian trade world wide and Don Ashley demonstrated the most recent International Alligator and Crocodile Trade Study report (IACTS). Detailed discussion was deferred to the 14th Working Meeting Session. The meeting then adjourned for lunch and reconvened at 2.15 pm.

A New CSG Policy on Movement of Live Crocodilians to Establish Commercial Production of 'exotics' (Doc. CSG policy

statement 1990) Professor Messel summarized the extensive detailed consideration of this complex topic 1990 - 1997. Hank Jenkins noted that the topic was partially covered by CITES Conference Decision 10.76 on Alien Invasive Species, which established a process within CITES to address the biological consequences of exotic transfers. The whole matter was being considered further by the Animals Committee and might eventually have to be resolved at the next CITES COP. Howard Kelly expanded on his justification of his proposed export of live Nile crocodiles to China. He noted the extremely large investments of funds (over 6 million US dollars) in this project and suggested again that the conservation consequences were not negative and might be turned to positive effect on Chinese alligator conservation.

The meeting noted that concern on this issue appears to derive primarily from producers in exporting countries. The Chairman then terminated the debate citing the great difficulty of resolving the matter within the CSG and recommending that CSG continue to monitor and support the activities of CITES and other entities following our existing policy which does not recommend the transfer of exotic species into the range of other crocodylian species for commercial purposes.

CITES Animals Committee,

Modifications to Universal Tagging, Doc. Revised CITES Resolution 9.22. Hank Jenkins summarized the small modifications made at the Animals Committee meeting in Caracas which further clarify and simplify tagging requirements.

Consolidated Ranching Resolution Doc. AC 14.3. Hank summarized the continuing process of consolidation and simplification of the ranching resolutions which are underway in the CITES Animals Committee. The intention is to combine and generalize existing ranching provisions, retaining where possible the sense of the crocodylian specific resolutions, but making them generic and applicable to all species.

Bred in Captivity Doc. Res. Conf 10.16. Hank described the extensive modifications made to the captive breeding definitions and registration process at the Caracas Animals Committee meeting. A small anomaly of wording in section b) C) 2 a & b has made the application of F2 requirements and the alternative use of a less stringent requirement ambiguous. As this might

be detrimental to the registration of crocodylian captive breeding, CSG recommended that the chairman of Animals Committee take this under advisement for correction as the document continues to be modified in Animals Committee.

Madagascar. No additional information was available on Madagascar and the subject was tabled to a future meeting.

Tanzania. Recent correspondence and a request for technical assistance from Tanzania were presented. After discussion, the Executive Officer was requested to continue dialogue with Tanzania and to remind them of the need for a correctly prepared Appendix II downlisting under Conf. Res 9.24 as the solution to their need for wild harvests. John Hutton noted that this might be achieved under the current activities of the SADAC wildlife technical coordination office in Malawi which should be copied on this correspondence by the Executive Officer.

New proposals for CITES Listings

Mexico. A draft proposal in Spanish to downlist Mexico's population of *C. moreletii* under Conf. Res 9.24 to allow ranching of four specified subpopulations has been received for review. Alejandro, Alvaro and Perran each reported that the proposal still lacks quantitative information about crocodile populations, survey results, nesting densities, etc., although data are thought to be available for the four areas proposed. After discussion, Alejandro and Alvaro agreed to respond directly to the Mexican CITES authority to advise them of revisions required.

Cuba, *C. acutus* ranching. Information was reported that Cuba has expressed the intention of preparing this proposal, but no document is yet available for review.

Cambodia farm registration. Mr. Nao Thuok of the Cambodia Fisheries Department provided details of Cambodia's crocodile farming industry and desire to register 6 farms with CITES. While a preliminary framework for regulatory activities was in place with a new decree, there were no data on current wild populations. Professor Messel expressed sympathy for the Cambodian program, but noted the CSG's concern about conservation of wild crocodiles. In response Hank Jenkins announced that funds were already committed for a survey of wild crocodiles and Nao Thuok

announced that the Cambodian Crocodile Farmers Association was willing to create a trust fund for crocodile conservation and to provide up 3% of ranched stock for release to the wild. Uthen Youngprapakorn noted the long history of crocodile trade between Cambodia and Thailand and offered additional funding to ensure that conservation efforts could be developed. After confirming that no large scale removal of additional animals from the wild was needed, the CSG encouraged Cambodia to submit their request to the CITES Secretariat along with preliminary wild status information which CSG would review when requested to do so by the Secretariat. The regional Vice Chairman was asked to coordinate with Uthen and Mr. Thuok to advise on the needs in this direction.

Financial report. The year to date financial report was presented by the Executive Officer. Revenues of \$38,071 and expenses of \$40,904 were reported leaving a current balance of \$23,278.52. This is the third consecutive quarter in which expenses exceeded revenues and the CSG cash balance is steadily eroding. The current balance would support minimal activities to years end, but continued operation in 1999 will require additional funds. The Executive Officer explained that this situation had been achieved despite subsidizing his salary with a separate contract for \$9,000 to do other work in the second quarter. Prospects for raising funds from current patrons who have not made donations this year are estimated to be potentially around \$26,000 but the recent financial collapse in Asia and global depressed crocodile skin markets make fund raising for the immediate future uncertain. Vigorous and creative discussion followed with several options for restructuring CSG and obtaining stable funding proposed. Among these were restructuring the Executive Officer's duties and time commitment and tendering out for independent contract some activities such as Newsletter production. It is clear that under present circumstances the CSG will need to be nimble and flexible to maintain operations. The Steering Committee undertook to continue discussions and seek funds.

Other business

Next Meeting of the CSG. It was proposed to approach the Cuban crocodile management authorities and inquire if they would consider

hosting the next Working Meeting. There was widespread support for this proposal. Gainesville Florida, USA, and South Africa were proposed as fall back alternatives should Cuba decline. A date in early 2000 to precede the next CITES meeting in sufficient time to allow review of CITES proposals was suggested and this will be clarified once the CITES meeting dates are known.

Universal tagging. Hank Jenkins reopened this issue with an inquiry about whether CSG should assist the Secretariat and CITES Parties by developing simple software for tracking crocodilian exports. The meeting decided this could only be done if it were adequately funded from outside sources.

A letter received from CSG member, Bruce Shwedick, proposing activities in west Africa and advising of a proposal to hold a regional meeting in Cote de Ivoire in 1999 was discussed. Noting the sparse contact CSG has in west Africa, this initiative was applauded and a recommendation was made to coordinate this idea with the IUCN Sustainable Use Specialist Group which is active in the region. The Executive Officer was instructed to advance this idea and provide Bruce with written support for his fundraising activities on this project.

There being no further business, the Chairman thanked participants and closed the meeting at 4.56 pm setting a new record for timely CSG meetings!

Following the meeting, the Chairman invited Dr. Richard Ferguson, currently advisor to the Crocodile Farmers Association of Zimbabwe, to take on the position of CSG Vice Chairman for Africa to replace John Hutton. Richard completed his Ph.D. studying the ecology of Nile crocodiles released from farms in Lake Kariba and has experience in several other African countries. John Hutton was invited to become Deputy Vice Chairman for Europe to assist Dietrich Jelden and ensure we do not loose his valuable advice during his sojourn at Cambridge UK. -- P. Ross,
Executive (



Letters from the Steering Committee Meeting

Mr. Kamil Ibrahim Abdel Rahim,
Director of Wildlife,
Ministry of Interior, Khartoum, Sudan
Ref: Sudan Crocodile Survey

Dear Mr. Abdel Rahim:

Referring to the letters of 9 June 1998 that you received from my Deputy Chairman, Dr. D. Jelden, I would like to inform you of the discussions held at the Steering Committee of the Crocodile Specialist Group at their meeting 13 July 1998 in Singapore.

We considered your request for the CSG to assist Sudan in the proposed crocodile survey. In general, the CSG is still very positive about your project, which we understand has been approved by the 29th meeting of the CITES Standing Committee in 1993. However, we seek some clarification of several questions about the proposal.

The proposal mentions a stockpile of skins kept in Sudan since 1991. I am wondering if this is a different stockpile than the one which was inventoried by Dr. Jelden in 1992 and subsequently exported to Egypt? If your proposal refers to the exported stockpile, I am curious about what has happened to the funds which your department acquired from this sale and suggest that these funds could be used to partially support your survey. Any additional funds necessary can be sought through the CITES Secretariat.

Regarding technical assistance, Mr. Richard Fergusson, a CSG member who already agreed to help your department in the past, has again expressed his willingness to come to Sudan as soon as you are prepared to begin the survey. You should contact Mr. Fergusson directly at the following address:

14 Lisburn Rd, Workington
P.O. Box HG 11, Highlands
Harare, Zimbabwe
Tel. 263 4 755341, fax 263 4 754818
E-mail cfaz@pci.co.zw

Concerning the results of the survey when they become available, I am seeking your clarification whether the Sudan intends to submit a proposal to downlist its population of the Nile crocodile from Appendix I to Appendix II of CITES at the next

Conference of the Parties. If this is your intention, I would greatly appreciate that you liaise with the CSG, providing a copy of your draft downlisting proposal as soon as possible in order that we might provide our advice and guidance. I look forward to your reply.

Yours sincerely,

Professor H. Messel
Chairman Crocodile Specialist Group
cc. J. Kundaeli, CITES Secretariat

17 July 1998

Mr. John Kundaeli,
CITES Secretariat, Geneva, Switzerland

Re: Ecuador- request to export live *Melanosuchus niger* for exhibit and educational display.

Dear John:

Your request for our input on the proposed export of live *Melanosuchus* from the Ecuadorean ranching program received extensive discussion at our Steering Committee on 13 July 1998 in Singapore. I attach for your information, the draft minutes of the meeting concerning this discussion and we offer the following response:

1. This letter and our discussion do not constitute a "review" of the Ecuadorean ranching program as required under the annotation to the Appendix II listing of *M. niger* in Ecuador. We have not received sufficient information to evaluate the program or Ecuador's CITES regulatory capacity and so this response is in the nature of special advice to Ecuador and the Secretariat regarding their developing program.

2. We note that if *M. niger* in Ecuador was listed on Appendix I, it would be quite valid for Ecuador to issue an Appendix I export permit for wild specimens for non-commercial exhibit purposes and that there are numerous examples of Appendix I specimens being exported for display in this way.

3. We recall the field survey information provided in Ecuador's downlisting proposal indicating *M. niger* occurred in moderate densities in many locations in Ecuador and that a substantial wild population is thought to exist. We have been informed by the ranch that a very small number of individuals were removed from the wild to the ranch since 1995 (approximately 150),

which is of little impact or concern from a conservation perspective.

4. It is evident from the information on current stocks at the ranch provided to us by the owners that the ranch has not yet achieved commercial levels of production.

5. We are acutely aware that any ill considered or poorly supported actions regarding the *Melanosuchus niger* ranching program could generate criticism of CSG, the CITES Secretariat and the Ecuadorean program, and could endanger the orderly development of sustainable use of this species in Ecuador and elsewhere. It is therefore imperative that any decision that Ecuador and the Secretariat makes be conservative, demonstrate precautionary principles and be biologically justified.

Based on these factors we recommend that the Secretariat advise Ecuador to allow the export of a limited number of live *Melanosuchus niger* from the ranch under the following conditions:

- No more than 30 individuals total from current ranch stock.

- This special live export quota should be valid for one year (e.g. July 1998- June 1999) after which it should be re-evaluated and adjusted as necessary.

- Each live animal exported should be marked in a manner consistent with normal zoological exhibit practice to ensure that it can be readily identified as from the Ecuadorean program (we understand that the ranch owner is already preparing for this need).

Additionally, we would urge the ranch operators to improve their capacity to obtain young hatchlings for ranch stock. To achieve this, we recommend that the Ecuadoreans visit the program in Mamiraua, Brazil, which has extensive experience and is successfully locating many *Melanosuchus* nests. We also encourage increased use of the skills of local communities and indigenous inhabitants of Ecuador's Amazon region to locate nests and hatchlings. Involving local communities is an integral part of sustainable use and conservation and will be a key element in the ultimate success of this ranching program.

We believe this advice is consistent with CITES resolutions and practice and a sensible and cautious approach to the programs needs. Best wishes.

Yours sincerely,
James Perran Ross, Executive Officer CSG

cc. H. Messel, A. Larriera, A. Velasco, B. Ortiz van Halle, P. Evans

David Brackett, Chairman SSC

Dear David:

The Crocodile Specialist Group held its 14th Working Meeting in Singapore, July 14-17, and once again the IUCN listing criteria, which we understand are currently under review, were on our agenda. In an organized working session involving about 60 CSG members we looked again at the criteria and attempted to revise our listings of Asian crocodylians. We drew the following conclusions that we hope will be of some utility to SSC in the criteria review process:

- 1) There is utility to the criteria despite the difficulties in using them to derive the categories that realistically express the probability of a species going extinct on a global scale.

- 2) Crocodylians are a group in which both the decline and recovery of many populations has been well documented, as well as the decline to local extinction of a few species in some countries. This gives us an objective basis to judge current trends based on concrete experience. Crocodylians are long lived, slow maturing organisms for which we have a reasonable understanding of the links between population indices, threatening processes and the real risk of extinction. From this perspective it was clear to us that:

- a) Current trends in populations, whether distribution and abundance are increasing, decreasing or stable, are the single most important index of risk of extinction, particularly when information on absolute population size is also available.

- b) Regardless of generation time, a shorter period of a decade is a realistic time frame for assessing current trends. The CSG uses a variety of different population indices to make determinations with reasonable confidence in this time frame.

- c) The use of a time period of three generations, which can exceed 100 years in crocodylians, is so distant from the current trend that it has little utility in assessing current extinction risk. Such a long time period confounds analyses because it can obscure distant declines and more recent recoveries. It also fails to allow the significance of changes in habitat availability to be assessed from the viewpoint of global extinction. For example, there are many

examples where habitats have been greatly reduced in 100 years, but where the remainder continues to be more than adequate to sustain the species indefinitely. The use of three generations is also not a realistic time frame to assess the results of conservation actions implemented today. It is too long and uncertain to be the basis of effective interpretation of past trends or implementation of current actions.

d) We found that it is important that the determinations (Endangered, Vulnerable etc.) reached by methodically applying the criteria be checked against a narrative description of 'risk of extinction' and the real situation for the species concerned. Where the known status of the species is not consistent with the category derived, it indicates: 1. The key was misinterpreted or used wrongly; or, 2. The structure of the key is such that it does not adequately reflect risk of extinction for that group. We discussed the analogy of using a dichotomous key to identify an organism to species. If after following the key you conclude that you are holding a green tree frog, but the organism in hand is brown, warty, and has the definitive characteristics of a toad, it is obviously it is not the organism (category) reached via the key (criteria). This is important information and it happens commonly when developing keys. Either the key is wrong or it has ambiguities in it that need correcting. In any final analysis, you do need a description or illustration of the frog to make sure you reach the right answer, and to ensure the key is steadily improved. We found that thoughtless application of the IUCN criteria, without any consideration of whether the final "risk of extinction" is consistent with some narrative description, can lead to evaluations of extinction risk that are simply not justifiable. The real goal is to evaluate the risk of extinction, not just to apply the key wherever it may lead.

e) We find that the risk of global extinction needs to be separated from global population decline. For example, the saltwater crocodile (*Crocodylus porosus*) has no measurable risk of extinction on the global level due to extensive habitat and secure status in Australia, PNG and Irian Jaya. However, populations throughout the remainder of the range are greatly depleted and fragmented. Our interpretation of the criteria and our subjective views agree that this species is in the 'Low Risk' category - others could argue it meets the criteria of 'Critically Endangered'.

f) We recommend that all determinations of 'Endangered' and 'Critically Endangered' be

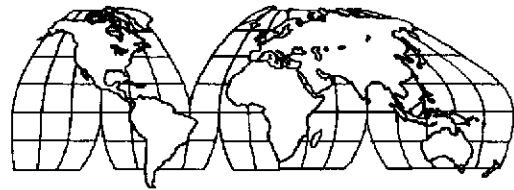
accompanied by a descriptive paragraph that identifies the factors likely to cause extinction within a specified time frame. Such an identification moves the evaluation from a retroactive and depressing evaluation of past trends to a proactive identification of conservation actions needed.

We hope these comments will assist the SSC as you evaluate and revise the criteria to be more effective in evaluating global risk of extinction.

With best regards:

Professor H. Messel Chairman CSG

AREA REPORTS



Africa

Madagascar

REPORT OF THE DEPUTY VICE CHAIRMAN. The following report submitted to the Steering Committee is presented here. Department of Water and Forests in Madagascar has taken action to slow down the illegal killing of crocodiles by setting up an agreement with crocodile farmers for them to provide 5% of their ranched production for local markets. Crocodile hunting is still officially suspended. It has been decided not to allow the skins of crocodiles killed as nuisance animals in the Bessalampy area to enter trade. The destruction of these skins is thought to remove much of the incentive for complaints about 'problem' animals.

The Sahoana river where Ian Games and Ramandison described a very interesting crocodile population last year is going to be included in a protected area under the RAMSAR convention. Discussions are currently underway between national institutions, UNESCO, the Peregrine Fund, Jersey Wildlife Preservation Trust and WWF to determine what conservation and management plan for the area will be effective.

On the crocodile farming front, all the farms are expected to collect eggs this year (last year one

farm was still collecting hatchlings). There will also be a follow up to the egg collection in the Bessalampy area as in former years. At present, the current recorded stocks held in Madagascar ranches are Reptel, 250 breeders, 6,000 ranched animals and 3,000 farmed (captive bred) animals; Socorobe farm, 615 individuals; Croco Ranch II, 3,000 individuals. – Olivier Behra, (note new address) 1 Rue Rainitovo, Antananarivo 101 Madagascar Tel. 261 32 070 0207, fax 261 20 226 3906, E-mail<univers.tropical@simicro.mg>

Europe

ACTIVITY REPORT OF VICE CHAIRMAN FOR EUROPE
Major activities during the last year as CSG Vice-Chairman for the European region concentrated on the following topics:

CITES issues: - several crocodylian proposals to be submitted to the 10. Conference of the Parties of CITES, in particular the one of Tanzania, were commented and reviewed.

Advice and technical assistance had been provided to Belgium to find ways to dispose of a large stockpile of seized caiman skins within the European Community. The Belgium government intends to use the funds for in-situ crocodylian conservation projects dependent on the advice provided by the CSG.

Together with the Chairman and the Vice-Chairman for Trade Monitoring of the CSG, the 3rd. Mission of the CSG Review Committee for Indonesia was conducted. The entire final report had been submitted to the CSG Steering Committee during its meeting at the Harare CITES conference in June last year.

Together with the CSG Vice Chairman for North America, Ted Joanen as well as the Deputy Vice Chairman for Trade, Don Ashley and with the outstanding support of the 'Internationaler Reptileleder Verband - IRV' in particular Mr. Klaus Diehl and Mrs. Figge a press conference was held in October 1997 at the Offenbach Leather Fair ('31. Modeforum Offenbach') to promote the sustainable use of crocodylian leather products.

The response in the press had been excellent. In particular, one comprehensive article published in the economic section of the major German daily newspaper, 'FRANKFURTER ALLGEMEINE ZEITUNG', was very good and highlighted the great conservation success within the order of the crocodylians, largely due to successful sustainable

use programs in various countries around the world and the close collaboration of the CSG with the leather industry.

With this experience, it is strongly recommended that similar press promotion actions being taken at other more important reptile trade leather fairs, for instance those in Hong-Kong, Paris or in Milan. The CSG should try to set up through the CSG Vice Chairman for Trade, and with the industry associations, a coordinated program on how its involvement at such fairs could be done. -- Dietrich Jelden, Deputy Chairman and Vice Chairman, Europe.

EAST ASIA, OCEANIA and AUSTRALIA.

Australia

STUDY OF THE POPULATION GENETICS, MOLECULAR SYSTEMATICS AND BIOGEOGRAPHY OF CROCODYLIANS IN THE ASIAN REGION. The management and conservation initiatives of the Crocodile Specialist Group have enjoyed enviable success in reversing the endangerment of many of the world's crocodylians. However, to guarantee the ongoing success of these programs and to ensure the future persistence of wild crocodylian populations, research into many aspects of crocodylian biology is needed.

An issue of concern to the CSG is the taxonomic uncertainty surrounding the freshwater crocodiles in the Asian region. A recent study by Hall (1989) indicated that *Crocodylus novaeguineae* inhabiting the Gulf of Papua are morphologically distinct from those in northern PNG and may constitute a distinct, unrecognised taxon. Considerable morphological variation has also been found to occur between *C. siamensis* from Borneo and the southeast Asian mainland. In fact, patterns of gene flow and the extent of population structuring within all Asian crocodylians, including the broadly distributed estuarine crocodile, *C. porosus*, and the freshwater false gharial *Tomistoma schlegelii*, are poorly understood. This lack of understanding extends to the phylogenetic affinities among the recognized species in the region (*C. johnsoni*, *C. mindorensis*, *C. novaeguineae*, *C. siamensis*, *C. palustris* and *C. porosus*), to the extent that a possible new species of crocodile, *C. raninus* from

Borneo, has recently been proposed (Ross 1990). Clarification of the relationships within and between all of these forms has important implications for conservation, particularly in light of the endangered status of several of the species in the region (*C. mindorensis*, *C. siamensis*) and because several other Asian species, including *C. novaeguineae* and *C. porosus*, support substantial industries.

A molecular study of the relationships among crocodiles in the Asian region is being undertaken by Jacob Gratten, Assoc. Prof. Craig Moritz, Prof. Gordon Grigg and Dr. Nancy FitzSimmons at the University of Queensland in Brisbane, Australia. The project will employ highly variable molecular markers, including microsatellites and sequence analysis of rapidly evolving segments of the mitochondrial genome, to determine levels of genetic variation within and among species. Population structure and patterns of gene flow within species will be assessed, with the aim of identifying historically and demographically isolated populations of significance to conservation. The variation observed within species will be compared to that among species, and other forms, to resolve the phylogenetic relationships within the southeast Asian species-complex, clarify the taxonomic status of newly described forms and examine the historical biogeography of *Crocodylus* in the Asian region. A significant additional aim will be to assess morphological variation within and among species for the purpose of examining morphological evolution in the group, and clarifying a somewhat confused literature.

This letter serves to request assistance from CSG members for tissue specimens to support this research. To date we have a number of *C. porosus* and northern form *C. novaeguineae* from PNG in hand, and have received kind offers of assistance from contacts in India (*C. porosus*, *C. palustris*), Sri Lanka (*C. porosus*) and Indonesia (*C. siamensis*, *Tomistoma*). Ideally we hope to collect about twenty (20) samples from multiple populations of each species, although ANY specimens that could be provided would be of great assistance. Wherever possible we would also like to collect detailed morphometric data from the animals sampled for genetic analysis. This project can only proceed with the generosity and support of CSG members. We trust that you will consider this request to be an important opportunity to assist crocodile conservation efforts in the Asian region. If you can help, please contact -- Jacob

Gratten, Department of Zoology, University of Queensland, St. Lucia, Brisbane Q4072, Australia
Phone: 61 73 365 2493, Fax: 61 73 365 1655
Email: Jgratten@zoology.uq.edu.au

WEST ASIA

India

FIRST WESTERN ASIA REGIONAL CONFERENCE UPDATE. The First Western Asia Regional Conference of the IUCN/SSC Crocodile Specialist Group was held on 5-7 June 1997, at Jiwaji University, Gwalior, Madhya Pradesh. The main focus of the meeting was to consolidate the crocodilian conservation efforts over the last two decades, assess the present status of crocodilians within the region, raise the issue of reconstitution of the Technical Committee on Crocodile Conservation Project (TCCCP), and to develop an Action Plan for their future conservation and survival. A preliminary Draft Action Plan discussed and formulated at the meeting, was circulated to the various State/Central Wildlife Departments, meeting participants, members of the regional group, and the Chairman, Vice Chairman and Executive Officer of the IUCN/SSC Crocodile Specialist Group for their review and comments. Subsequently, a second Draft Action Plan incorporating the initial reviews/comments was formulated and circulated, to be presented for finalization at the 14th Working Meeting of the CSG in Singapore. Upon finalization, the Action Plan will be presented to the Ministry of Environment and Forests, Government of India, by Shri. S. K. Mukherjee, Director, Wildlife Institute of India, who has offered to liaise with the Ministry on behalf of the Group, for reconstitution of the TCCCP.

The proceedings of the meeting, delayed due to unforeseen reasons, is being compiled and will be circulated on completion, prior to the next meeting of the group. The People's Trust for Endangered Species, has sanctioned partial funding in support of hosting the second meeting of the group. The meeting dates and modalities will be finalized as soon as the balance funding required to conduct the meeting is acquired.

Wildlife Resource Utilization. In a significant move, the Rajasthan State Forest Department has submitted a proposal to the Government of India for wildlife farming, through captive breeding, to

include several species of large herbivores and birds (The Hindu dated 15.6.98). The proposed program aims at restocking populations of herbivores in various sanctuaries of the State to ensure the survival of carnivores like leopards, wolves, jackals, hyenas and tigers. The program includes captive breeding, farming for meat, byproducts, wasteland development, tourism and eco-development to benefit of local people, to reduce poaching of wild species. This is an important step in wildlife management and conservation in India, which is hoped will set the precedence for sustained utilization of other species, such as the mugger crocodile, in other states in India.

Crocodile Surveys and Restocking. An Action Plan and proposal have been prepared and submitted by the undersigned to the Andaman and Nicobar Islands Forest Department, for release of captive bred stock in areas where their survival can be assured and closely monitored. The Department has initiated a survey in the Nicobar Group of Islands, where a captive breeding program has been proposed for restocking populations. During the past several months, the undersigned has been surveying several remote and unsurveyed areas in the Andaman Islands. A report and manuscript is under preparation.

The Vice Chairman and the undersigned held meetings with the Tamil Nadu State Forest Department Chief Conservator of Forests & Chief Wildlife Warden, Mr. R. P. S. Katwal and Wildlife Warden, Ms. Mita Banerjee to discuss further crocodile releases and survey plans in state of Tamil Nadu, and a proposal was submitted. -- Harry V. Andrews, *Deputy Vice Chairman*, Post Bag No. 4, Mamallapuram 603 104 TN, India. E-mail <sthiru@giasmd01.vsnl.net.in> (address "Re: Madras Croc Bank")

LATIN AMERICA

REPORT OF THE VICE CHAIRMAN FOR LATIN AMERICA. This report is expanded from the information presented at the Steering Committee summarizing developments in a number of Latin American countries. The Vice Chairman (A. Larriera) and Deputy Vice Chairman (A. Velasco) have been active in contacting people throughout the region and the membership for the region has been updated and revised to include currently active workers.

Last November a CSG team visited the northern part of Peru to advise on conservation of *C. acutus* there (Newsletter 16 (4):8-9). Since that report, the El Nino phenomenon has flooded all the facilities of the coastal farms and most of the animals have been released to the surrounding mangrove areas. As a result more crocodiles are visible in the coastal mangroves. Crocodiles have also been carried down to the coast from the population occurring upstream in the Tumbes River. Currently PRONATURALEZA is planning a workshop for the development of crocodile conservation plans.

In Paraguay, CSG member Lucy Aquino reports that the experimental program for *Caiman yacare* harvest has encountered problems due to confusion about the distribution of the quota among different tanners. For the time being she is recommending that the harvest program be suspended until additional information can be obtained and an agreement between the tanners enforced.

In Argentina, the ranching program for *Caiman latirostris* in Santa Fe Province continues to develop with the initiation of commercial production. About half of this year's hatchlings were distributed for commercial raising and are expected to reach a marketable size by August 1999 when they will be offered for export.

In Brazil, Luciano Verdade confirms other reports suggesting that the large scale production of caiman skins by captive breeding is being scaled back and numerous producers are withdrawing from the trade. However, a number of initiatives are underway to develop ranching programs for caimans based on the large natural resources and habitat available in some parts of the country. Two ranching projects in the Pantanal at Cuiaba and Cacere are completing construction and a large project with *C. crocodilus* is underway close to Manaus. In the Mamiraua reserve in Amazonas, a program to bring the existing harvest of *Melanosouchus niger* into a sustainable scheme of local use of meat is under experimental development. In the southern States of Sao Paulo, Minas Gerais and Goias several operations are investigating farming of *C. latirostris* using breeding stock obtained from the experimental program at the University of Sao Paulo.

Crocodile conservation in Costa Rica has reached a crucial phase with the death of a young fisherman in the mouth of the Tarcoles River by a crocodile earlier this year. The Tarcoles River supports the largest population of *C. acutus* in

Costa Rica and this latest fatality has caused an outcry against crocodiles. Conservation interests within Costa Rica have mobilized to direct this anger into some positive channels and a long letter to the national authorities from Juan Bolanos Montero provides a framework for further discussion of this inflammatory local issue.

Additional topics of concern were the export quota of live *Melanosuchus* for Ecuador, response to the Scientific American article on the Caiman trade and a re-organization to form a CSG region for Central America. These are discussed above under the Steering Committee minutes. – Alejandro Larriera, *Vice Chairman for Latin America*, Bv. Pellegrini 3100, Santa Fe 3000, Argentina. New E-mail <yacare@santafe.com.ar>

received a copy of the new Action Plan. CSG members who were not at the meeting will receive a copy in the mail. Additional copies will be available for purchase and several hundred copies have been distributed through the IUCN network to libraries, IUCN member organizations, other specialist groups and interested agencies. – Eds.

SPANISH NEWSLETTER ON THE WEB. We are pleased to announce for the first time the complete Newsletter in Spanish. Translation and formatting for the web has been provided by Mr. Carlos Pina of Santa Fe, Argentina (Thanks Carlos- well done!). Vol 17 (1) en Espanol can be accessed at: <http://www.flmnh.ufl.edu/natsci/herpetology/crocs.htm>

Publications



NEW ACTION PLAN. Crocodiles, Status Survey and Conservation Action Plan, second edition 1998 was officially released at the opening of the 14th Working Meeting in Singapore 14 July 1998. This completely revised edition of the Croc Action plan is the culmination of extensive work by numerous CSG members who participated in its preparation. The second edition has a completely rewritten introduction, including a discussion of crocodylian biology and conservation, new explanation of sustainable use of crocodylians and a detailed priority listing of conservation actions (some of which are already underway). This Action Plan is the first to include the evaluation of conservation status of crocodylians under the new IUCN criteria, but already these evaluations (prepared in 1996) are out of date given new information now available.

The new Action Plan was simultaneously released on the World Wide Web on our web page at <<http://www.flmnh.ufl.edu/natsci/herpetology/crocs.htm>>. It is our intention to regularly update the web version which will become the definitive up-to-date Crocodile Action Plan which can be printed to hard copy whenever needed. Each registered participant of the Singapore meeting

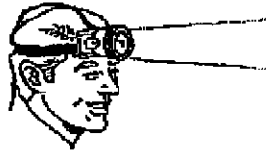
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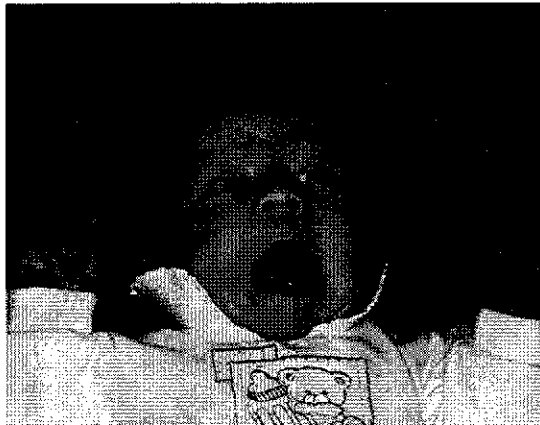
BROKEN BONES. I am a first-year paleontology graduate student at the University of Pennsylvania, and am beginning my dissertation research which involves a comparative histological investigation of bone fracture repair in extant and fossil animals. The study seeks to compare patterns of healing in modern reptiles, birds, and mammals, with those "snapshots" of fracture repair preserved in the fossil record of various dinosaur taxa.

I am therefore very interested in examining partially and fully healed bone fractures in crocodylians. Specifically, I am in search of skeletal material from injured animals that subsequently died of natural causes or needed to be euthanized, especially in instances where case histories of the animals' conditions would be available. Any help, information, or possible other contacts you can provide will be greatly appreciated. – Allison R. Tumarkin, *University of Pennsylvania, Dept. of Geology, 240 S. 33rd St. Philadelphia, PA 19104-6316*

PERSONALS



team of crocodylian specialists. Warm congratulations to Alba and Alejandro from all the CSG – Alejandro Larriera and Alba Imhof, E-mail <yacare@santafe.com.ar>



ANOTHER POTENTIAL CROCODYLIAN SPECIALIST. Bruna Brandao Da Silveira was born 29 May 1998 2,800g. to Ronis Da Silveira and wife Barbara. Bruna was conceived during a study of black and common caiman during the dry season last year at Mamiraua Sustainable Development Reserve and was with the caimans throughout her gestation period. She was born two weeks early as Ronis was just finishing his first maps of black caiman home range.

Bruna and Barbara will return to Mamiraua in August to finish Ronis' field season before they return to Manaus, Barbara to complete an Agronomy course and Ronis to write up his PhD thesis with Bill Magnusson. – Ronis and Barbara Brandao Da Silveira, Cx. Postal 38, 69470-000 Tefe, AM Brazil, E-mail <qgmamira@cnpq.br>
John Thorbjarnarson, Wildlife Conservation Society, 185th Street and Southern Blvd. Bronx NY 10460, USA, went directly from the Singapore CSG meeting to China accompanied by Chinese

colleagues, eager to initiate studies of the Chinese alligator with them. Unfortunately we regret to report that on his first day in China, John was in a vehicle which collided head on with a speeding Chinese police car. John received a broken femur and arm and was evacuated to Hong Kong where he was stabilized and returned home to New York, where he is recovering satisfactorily and already fretting about missed field work. Our Chinese colleagues in the car received minor injuries but are thought to be OK. Chinese alligator studies will be delayed during John's recovery although some initial activity will be started by his Chinese colleagues. We offer John our best wishes for a quick recovery.



Crocodylus novaeguineae, St. Augustine Alligator Farm, USA.
R. Sommerlad photo

[Editors note. We are grateful to Ralph Sommerlad Rodelheimer Landsrasse 42, 60487 Frankfurt, Germany. who has provided a large series of very good quality photos for use in the Newsletter. – Eds.]

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

Steering Committee of the Crocodile Specialist Group

Chairman: Professor Harry Messel, School of Physics, University of Sydney, Australia.

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