CROCODILE SPECIALIST GROUP NEWSLETTER

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IUCN - World Conservation Union • Species Survival Commission

CROCODILE

SPECIALIST

GROUP

NEWSLETTER

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IUCN - The World Conservation Union
Species Survival Commission

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COVER PHOTO. Postage stamp issued in 1894 in the British Territory of North Borneo (later to become Sabah). Depicting a Saltwater Crocodile *(Crocodylus porosus*), the stamp was also valid for use in the nearby Labuan Island. *Photo G.Webb.*

The CSG NEWSLETTER is produced and distributed by the Crocodile Specialist Group of the Species Survival Commission, IUCN – The World Conservation Union. CSG NEWSLETTER provides information on the conservation, status, news and current events concerning crocodilians, and on the activities of the CSG. The NEWSLETTER is distributed to CSG members and, upon request, to other interested individuals and organizations. All subscribers are asked to contribute news and other materials. A voluntary contribution (suggested $US40 per year) is requested from subscribers to defray expenses of producing the NEWSLETTER.

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Editorial

As most CSG members are aware, long-term CSG members Tony Pooley and Roland Coulson died in late 2004 (see pages 23-35). Tony studied Nile Crocodiles in Natal, South Africa, and was one of the first to become familiar with the parental care exhibited by nesting female Nile Crocodiles to their young. His MSc supervisor was none other than Hugh Cott, who was in turn one of the original pioneers in research on crocodilian natural history and the first CSG Chairman. Roland Coulson contributed significantly over many years to our understanding of crocodilian physiology and biochemistry, and the book "Alligator Metabolism: Studies on Chemical Reactions *In Vivo*" (co-authored with Tom Hernandez, 1983) has stood the test of time. Tony and Roland will be sadly missed by all.

Our thoughts also go out to all of those people who were affected by the devastating Tsunami that struck Asia at the end of 2004. I urge members to help in any way they can.

At the IUCN World Conservation Congress (WCC) in Thailand (November 2004), Professor Harry Messel formally stood down as CSG Chairman and my tenure as the new CSG Chair began. Professor Messel's award of the Sir Peter Scott Medal for his contribution to conservation - presented to him by the SSC Chair David Brackett at the 17th CSG meeting in Darwin (May 2004) [see CSG Newsletter 23(2)] - was announced formally. The SSC also announced that Professor Messel had made a donation to the SSC to establish a new award ("Harry Messel Conservation Leadership Award"), to recognise excellence and dedication within the SSC. An independent SSC evaluation committee awarded this to Perran Ross for his work with both crocodilians and sea turtles (see page 6). Both deserve our sincere congratulations for excelling in what often seems to be a rather thankless task! But maintaining this standard of excellence is our challenge for the future - we must continue to be an active and pragmatic specialist group within the SSC.

Since November I have been working closely on administrative issues with the two Deputy Chairs of the CSG, Dietrich Jelden and Alejandro Larriera. On 1 January, Tom Dacey took up the position of CSG Executive Officer, which will relieve the workload on myself and WMI staff. Tom brings to the position a great deal of enthusiasm along with decades of administrative experience. He is now the primary contact person for CSG inquiries.

Restructuring CSG positions and appointing a new Steering Committee over the Christmas/New Year holiday period was fraught with communication difficulties, but good progress was made. The regional structure of the CSG will be retained and strengthened, with Regional Chairs (rather than Vice Chairs), and a goal of having regional CSG issues addressed largely by regional CSG members. Thematic Vice Chairs will be retained, and expanded. Within the next month we hope that the "new look" Steering Committee will be finalised and that we can get on with the core business of the CSG.

The Chair of the SSC also changed at the IUCN WCC, with Dave Brackett standing down and Holly Dublin taking over. Those who attended CITES COP13 will know Holly from the excellent job she did chairing Committee I. Others will know her from her long and skilled involvement as Chair of the African Elephant Specialist Group. From discussions with Holly at the Congress, I know that she wants to see increased interaction and collaboration between Specialist Groups, and between Specialist Groups and other entities and programs within the SSC and IUCN. She also wants to see the Specialist Groups with clearer terms of reference, which are perhaps long overdue.

Despite our restructure being incomplete, we have a number of new initiatives underway. The role of protected areas in crocodilian conservation is clearly critical to the conservation of some species on a global scale (eg *Alligator sinensis*, *Crocodylus siamensis*, *C. intermedius*) and many species in parts of their range - at the national level. I am appointing a Vice Chair for Protected Areas, who can begin to collect and collate our combined wisdom and experience. I do not want to see a false dichotomy established between protection versus sustainable use, because both can and do go together in many countries. But we need to be in a stronger position to offer expert advice.

I have also established a Vice Chair position for Zoos and

Public Education. Zoos are at the frontline of enthusing the public about the value of conserving wildlife in general, and we need to work more closely with them. We have a considerable number of zoo representatives within the CSG, but no real umbrella under which they can all work.

The conservation and management of crocodilians within Cambodia was discussed in depth at the 16th meeting of the CSG (Gainesville, 2002) and again at the 17th meeting (Darwin, 2004). The CSG has now been invited by the Government of Cambodia to carry out a "review with recommendations", and this will take place in late February 2005. The review will be done in partnership with TRAFFIC, and Dietrich Jelden will lead the review team.

A regional CSG meeting for Latin America and the Caribbean has been organised to take place in Santa Fe, Argentina, in May 2005 (see page 26). This should afford an excellent opportunity for CSG members to both discuss problems and identify priorities in the region. Plans for the 18th Working Meeting of the CSG in France (June 2006) are advancing rapidly. The location should afford many African members a more cost-effective means of attending a meeting, and will hopefully allow Europe-based crocodile industries to interact more with the CSG.

As everyone is aware, CSG membership is a 3-year term, which terminated at the IUCN WCC. Renewal applications should become available shortly. I am hoping that we can have some terms of reference for members by this time, because although participation in the CSG is voluntary, members need to know what is expected of them. All in all, I believe that we are making good progress.

Best wishes,

Grahame Webb

CITES COP13

The 13th Conference of the Parties to CITES was held in Bangkok, Thailand, 2-14 October 2004. The CSG was well-represented at COP13, and Grahame Webb (Chairman-elect at the time) took the opportunity to convene a small meeting of members to discuss issues/ proposals to be debated at COP13. In addition, specific issues involving crocodilians were discussed with various delegations (eg Cambodia, Madagascar, Mozambique, Bolivia, Paraguay, Namibia, Zambia, Colombia) and the CITES Secretariat. Three "crocodile" proposals were submitted to COP13:

1. Namibia: Transfer of the *C. niloticus* population from Appendix I to Appendix II. The population in Namibia has increased significantly since 1977, and crocodiles are now a serious problem for people (since 2000, 35 people have been taken by crocodiles in Namibia). Sport hunting and problem crocodile removal is around 10 individuals per year and the proposed future commercial use, for trophy hunting, in accordance with small quotas (including problem animals) is conservative. The goal of deriving a mechanism that returns benefits to local communities is positive.

   The Namibian delegation addressed concerns about the "shared" nature of the population and submitted the results of recent spotlight and aerial surveys as an information document [see CSG Newsletter 23(3)]. The proposal was adopted unanimously.

2. Zambia: Maintenance of the *C. niloticus* population on Appendix II, subject to an annual export quota of 548 animals (including trophy hunting and problem animal control). There is a human safety problem with crocodiles in Zambia, with 24 people killed in the last 2.5 years and community attitudes becoming decidedly negative. The CSG had raised concerns on the extent of the proposed harvest of 548 animals per year, which is not a threat to the survival of the wild population as a whole (it is about 4% of the estimated number of crocodiles within protected areas surveyed), but if the wild harvest targets adults, and is in addition to collections for ranching, it may not be sustainable in the long-term.

   A reduction in the proposed quota was considered to be a more precautionary approach. The Zambian delegation took on board the CSG's concerns, withdrew its proposal and indicated to the Parties that it would voluntarily reduce the harvest to 300 individuals. It also indicated its desire to work closely with the CSG with regard to surveys and management to ensure sustainability of the harvest.

   The Zambian proposal highlighted an area within CITES that needs attention. Countries that downlisted their populations on the basis of quotas need only inform the CITES Secretariat of proposed increases in the quota - the Secretariat's role is not to assess the quotas, but to notify the Parties. Zambia could simply have informed the CITES Secretariat of its intended quota, and not submitted a proposal to the Conference of Parties. For example, Mozambique increased its export quota to 900 in early 2004 through this process.

3. Cuba: Transfer of *C. acutus* from Appendix I to Appendix II. One of the most conservative proposals submitted to CITES (an Appendix-II listing under Resolution Conf. 11.16, which restricts use to ranched specimens, is highly conservative), the proposal was unanimously adopted by the Parties. The ranching program has been operating for many years, it is well tested, and ranched animals are now breeding in

captivity. The ranching proposed by Cuba is strictly managed relative to many successful crocodilian ranching programs, and sustainability and non-detriment are not issues of concern. Conservation benefits will accrue in various ways, including 10% of funds being allocated to a National Environment Fund for conservation.

Other issues of particular relevance to the CSG at COP13 included:

- Two documents on synergy between CITES and CBD (Convention on Biodiversity) were submitted at COP13 (by the European Union and Namibia respectively). It was considered important for CITES to adopt the CBD guidelines and definition of sustainable use (the Namibian document), rather than start afresh with development of its own definition - which could take years to complete. The Namibian document gained a large majority of the vote, with only Australia, New Zealand, USA, Chile and Israel opposing its adoption. The EU's document was also adopted, after some amendments were made.

- The USA proposed an amendment of Resolution Conf. 12.3 on permits and certificates to restrict use of the source code "R" to ranched specimens originating from operations approved in accordance with Resolution Conf. 11.16 (ranching). This document did not present a good solution to the problem, and the USA withdrew the document.

- Three documents on personal effects were submitted [by China (countries need to contact the Secretariat if they require permits to be issued, otherwise exemption considered to apply), Australia (seahorses) and the EU (dead coral, clamshell) respectively]. Questions have been raised as to whether the exemption for crocodile products refers to any product or just leather products. In addition, whether the exemption should apply to a certain number of products (regardless of what they are, crocodiles or other species), or to numbers of specific items, have been raised by the USA. Nonetheless, all three documents were adopted, with some slight amendments.

Charlie Manolis, *PO Box 530, Sanderson, NT 0813, Australia <cmanolis@wmi.com.au>*.

IUCN World Congress

From 15 to 25 November the World Conservation Union (IUCN) convened the 3rd World Conservation Congress in Bangkok, Thailand, bringing together over 7000 people representing IUCN's very broad membership of institutions, organizations and Governments. For the first few days of the Congress, IUCN Commissions held their own meetings and forums. The Species Survival Commission sessions allowed about 200 representatives of Specialist Groups to present summaries of their current work and hear about SSC's work.

High points of the SSC current program included significant progress in the development of the Species Information System (SIS), SSC/IUCN's integrated databasing project to make extensive species data from the specialist groups widely available in multiple user formats. A pilot of the SIS was presented, and significant support from NASA and Oracle Corporation was announced. NASA has entered into an agreement with IUCN to integrate SIS with its global satellite mapping system and Oracle has pledged $3 million to support the development of the next phase of the system.

Another high point was the release of the 2004 Red List and associated Red List Assessment which analyzes trends in extinction risk for over 35,000 species evaluated by specialist groups. This included a global assessment of all the world's amphibian, cycad and conifer species and a significant proportion of birds and mammals. The trends in extinction risk are gloomy, with an increasing proportion of organisms evaluated appearing in the higher risk categories. The current decline in amphibians is particularly dramatic, with 122 species recently extinct and over a third of the 5743 species endangered. The IUCN Red List remains the authoritative source for global species extinction risk and the increasing breadth of coverage, evaluating all the species of several groups is facilitating more comprehensive analysis and appreciation of the current extinction crisis.

Other significant events at SSC included the announcement of several conservation awards, and presentations by many specialist groups on their recent work and challenges. It is evident that many specialist groups are developing highly sophisticated and effective structures and tools and the Crocodile Specialist Group cannot afford to rest on its laurels if it wants to maintain a lead position in SSC and IUCN. A noteworthy emergent theme for both the SSC and IUCN components of the Congress was the broad integration of sustainable use issues into discussions of species conservation and human livelihood issues. A special Conservation Forum convened by CSG member Jon Hutton (now Chair of the Sustainable Use Specialist Group) examined several aspects of the SU paradigm and the recent developments within the Convention of Biological Diversity, where a new formulation of sustainable use termed the 'Addis Abbaba Principles' has more clearly defined the discussion of this important topic. (see http://www.biodiv.org/programmes/socio-eco/use/addis-principles.asp). CSG needs to ensure that crocodilian use remains current as the concept and practice of sustainable use continues to develop.

At the main IUCN Congress following the SSC meetings, Dr. Holly Dublin was elected by the vote of IUCN members as the new Chair of the SSC to replace David Brackett, who stepped down at the end of his second term. Holly brings more than 30 years experience in SSC and a deep familiarity with specialist group functions to the task. She has been leading the African Elephant Specialist Group through an extremely difficult and complex situation for many years, and we look forward to her vigorous leadership of SSC. At present she is evaluating the SSC advisory council, and reviewing terms of reference for both Specialist Group Chairs and members, preparatory to renewing all chairs and members in 2005.

In another significant move, IUCN members affirmed a new policy that more closely integrates the independent activities of volunteer specialist groups with the central program and global strategy of IUCN and its staff. Working with SSC staff, many specialist group chairs and members have already presented recommendations guidance and input to SSC strategic overview and workplan. The next triennium will see an even closer integration between our work and the central IUCN strategy, although exactly how this will be achieved remains under discussion.

More details of the meeting can be seen at the SSC web page (http://www.iucn.org/themes/ssc).

Perran Ross, *Department of Wildlife Ecology and Conservation, University of Florida, Gainesville, FL 32611, USA <rossp@wec.ufl.edu>*.

Harry Messel Conservation Leadership Award

A new award within SSC has been established with a gift from Professor Harry Messel. Called the "Harry Messel Conservation Leadership Award", the honor recognizes significant contributions to SSC's mission and to specialist groups. The award consists of a plaque and $US1000 given to one 'junior' SSC member (under 35 years age) and one 'senior' SSC member (over 35) each year. Nominations and selections for the award are handled directly by the SSC Chair. For the first 'senior' Harry Messel Award, David Brackett nominated and selected Dr. Perran Ross for his long-term services to SSC as a member of Marine Turtle Specialist Group (MTSG) for 28 years, as the Executive Officer of Crocodile Specialist Group for the last 14 years, and most recently for his special efforts in mediating the change of leadership in the MTSG. He was also cited for his long-term cooperation and assistance to the SSC staff at many levels. The 'junior' Harry Messel award was given to Dr. Patricia Medici for her efforts in establishing and operating the very successful Tapir Specialist Group.

Sustainable Use Policy and Practice Features Strongly at World Conservation Congress in Bangkok

By adopting the CBD Addis Ababa Principles and Guidelines on Sustainable Use of Biodiversity at its 3rd World Conservation Congress 17-25th November in Bangkok, IUCN-The World Conservation Union - has firmly committed itself to their implementation. This will be done throughout IUCN's own institutions as well as in close collaboration with the CBD Secretariat and other key partners.

"These Principles represent the state of the art globally on sustainable use of biodiversity", commented Robert Hepworth, Acting Executive Secretary of the Convention on Migratory Species (CMS) in introducing two workshops, which illustrated the Principles and discussed their development and related tools for implementation.

Consumptive use of wild living resources is an imperative for many of the world's poorest people, yet with the global population burgeoning, these resources are threatened by overuse, which jeopardises both human livelihoods and biodiversity. Practical guidelines on how to increase the likelihood of use being sustainable are clearly needed. After an intense and lengthy participatory process, the AAPG - based on IUCN's Amman Policy Statement on Sustainable Use of Wild Living Resources - were finally adopted by the Parties to the CBD in February 2004.

In the first of this pair of workshops, which were organised by SUSG and CIC, the AAPG were introduced in an easily accessible format, followed by illustrations of the Principles in action in existing case studies. These examples demonstrated the practical relevance of the AAPG and highlighted the importance of considering diverse factors - from markets to governance - when striving for sustainable use of a resource.

Of the 14 Principles, not all are equally applicable or relevant to every situation. An innovative technical study has been initiated to quantify the factors affecting sustainability of use, which will assist resource managers and policy makers to identify the specific AAPG pertinent to their particular situation. IUCN is urged to help develop such tools to assist with the implementation of the AAPG.

One key point to emerge from the second workshop was the need to ensure that tools for indicators and monitoring of sustainable use in practice must be kept simple and user-friendly for the benefit of local managers. Another was the extent to which the Principles are already seen as

relevant to a wide range of activities. Commenting on this, David Morgan, Chief Scientific Officer of the CITES Secretariat said: "The recent CITES Conference of the Parties in Bangkok agreed to incorporate the Addis Ababa Principles and Guidelines into its work, not least in training and capacity building programmes, and it is significant that the proposal came from a developing country, namely Namibia."

It was generally agreed that the workshop presentations and discussions were of high quality. We hope that a summary version will be available for wider circulation by the end of the year.

In addition to the workshop on the Addis Principles already mentioned, European SUSG members organised a successful workshop on the ecosystem approach to fisheries and took part in another on high seas fishing, including the issues of by-catch and seamounts.

A well-attended roundtable discussion to assist in the development of a world-class symposium in 2006 on recreational hunting focused primarily on issues of scope. There was general agreement that a state-of-the-art book, which would result from such a symposium, would fill an important gap.

ESUSG and the CMS Secretariat (in partnership with CIC, FFI and UZS) arranged an informal meeting on conservation of the critically endangered saiga antelope. This brought together, probably for the first time in a meeting specifically on saiga, delegates from the four main range states (Russian Federation, Kazakhstan, Uzbekistan and Turkmenistan) and China, which previously imported saiga horn legally. The meeting evidenced a strong desire for collaboration. Chinese colleagues announced measures to strengthen internal controls for stocks of legal saiga horn and tougher enforcement on illegal imports of horns. (For more detail see separate notice.)

SUSG members were substantially involved in the drafting promotion and successful adoption of the motions on the following topics (in addition to the AAPG already mentioned):

- Cherishing volunteers (ie more recognition of expert contribution)
- Stakeholder participation in fisheries management
- Precautionary Principle
- Conservation of the Saiga Antelope (*tartarica* and *mongolica*)

SUSG members were to be found in many NGO and several Government delegations, and they worked together to ensure that delegates were fully informed on the issues contained in workshops as well as key motions that impacted on sustainable use. SUSG Members contributed vigorously to the debate on the following motions, which contained important language relevant to the sustainable use of living wild resources:

- Ratification and implementation of the revised African Convention
- Management of large terrestrial herbivores in southern Africa
- Humane trapping standards
- Application of the IUCN Sustainable Use Policy to sustainable consumptive use of wildlife and recreational hunting in southern Africa
- Conservation and sustainable use of seals
- Endorsement of the Earth Charter
- Protection of seamounts from destructive fishing practices

Summing up on the treatment of sustainable use issues during the workshops and decision-making part of the meeting, Jon Hutton (SUSG Chair) said "it was extremely gratifying to see so many SUSG members attending" and he was especially grateful to the ESUSG for its enthusiastic contribution the Group's organisation and cohesion. He was impressed by the IUCN membership's clearly evolving appreciation of the importance of sustainable use and was particularly happy to see that the concerns of the Inuit with respect to the sustainable harvesting of seals had finally been recognised by the international community.

AAPG: Addis Ababa Principles and Guidelines
CBD: Convention on Biological Diversity
CIC: International Council for Game and Wildlife Conservation
FFI: Fauna and Flora International
UZS: Uzbekistan Zoological Society

IUCN Press Release, *Bangkok, 25th November 2004*

Regional Reports

Latin America & Caribbean

Mexico

Report of the Workshop for Revision of the Status of the Wild Populations of *Crocodylus moreletii* in Mexico and Evaluation of the Relevancy of Proposing their Reclassification under the US Endangered Species Act (Mexico City, 1-2 December 2004)

The Workshop was organized by the National Commission

for the Knowledge and Use of Biodiversity (CONABIO), the CITES Scientific Authority of Mexico, with the goals of revising all the scientific and technical information that it possesses, towards development of an application to change of listing of *C. moreletii* in Mexico under the US Endangered Species Act (ESA).

Nineteen people attended, representing the following institutions: CONABIO (CITES Scientific Authority), General Directorate of Wildlife (DGVS), Secretary of Environment and Natural Resources (SEMARNAT), National Institute of Ecology (INE), Autonomous National University of Mexico (UNAM), Zoological Regional Miguel Álvarez del Toro (ZOOMAT), Crocodiles of Mexico (COCOMEX), Advisory Technical Subcommittee for the Conservation, Management and Sustainable Use of the Crocodylia in Mexico (COMACRON), TRAFFIC North America in Mexico, Directorate of United Projects for the Conservation, researchers and independent consultants.

The agenda of the workshop was:

Day 1 (1 December 2004)

- Introduction and presentation of workshop goals: Hesiquio Benitez, CONABIO.
- Presentation on what is the US Endangered Species Act: Jorge Alvarez, CONABIO.
- Historical situation of *Crocodylus moreletii* in Mexico: Paola Mosig, CONABIO.
- Captive breeding and export data situation: Leonel Urban, General Directorate of Wildlife.
- Why reclassify *Crocodylus moreletii* from the point of view of the producers: Francisco León, COCOMEX.
- Results of investigations on the status of the population of *Crocodylus moreletii* in Mexico, data 2002-2004: Jerónimo Domínguez, Investigator and Zoological Regional Miguel Alvarez del Toro.
- Revision of the IUCN approaches of the species situation with base to the results of the studies of the last years: Paloma Carton, National Institute of Ecology.
- Revision of the approaches for evaluation of risk extinction Method of the wild species in Mexico (MER) and the species situation with base to the results of the last year studies: Paloma Carton, National Institute of Ecology and Xochitl Aguilar National Autonomous University of Mexico.

Day 2 (2 December 2004)

- Evaluation of the approaches that should be included in the application of reclassify the species in ESA.
- Evaluation of the information obtained in the field studies for the years 2002-2004.
- Complementary Action**.**

General comments

- It was determined from field information that the species is maintained within its historical range, and some individuals are reported in areas where the species had not been reported previously.
- Results of population surveys (density and size structure, indicate that the *C. moreletii* population is in a good state, with an increasing population trend.
- They were discussions as to how the results of the population census should be presented in an application for reclassification.
- Lines of research to continue over the next years were defined, with continuation of surveys of the natural populations in the most important areas and studies will be carried out on the population's reproductive capacity in the wild to define management strategies via ranching, which will involve existing captive breeding facilities.
- End dates were defined for work to be carried out, and the proposal will be a communicated to the CSG for its final evaluation before being presented as an application to reclassify the species, in February 2005.
- Research projects that were designed will be presented to funding institutions to obtaining funds for their implementation.

Reporte del Taller para Revisión del Estado de las Poblaciones Silvestres de *Crocodylus moreletii* en México y Evaluación de la Pertinencia de Proponer su Recategorización en el Acta de Especies en Peligro de los EUA, México D.F. (1-2 de diciembre de 2004)

El Taller fue organizado por Comisión Nacional para el Conocimiento y Uso de la Biodiversidad (CONABIO), Autoridad Científica CITES de México, a los fines de revisar toda la información científica y técnica que se posee, de manera de elaborar una propuesta de solicitud para el cambio de categoría en la Acta de especies en peligro (ESA) de USA, para la especie *Crocodylus moreletii* en México.

Asistieron 19 personas representando las siguientes instituciones: CONABIO Autoridad Científica CITES, Dirección General de Vida Silvestre (DGVS), Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT), Instituto Nacional de Ecología (INE), Universidad Nacional Autónoma de México (UNAM), Zoológico Regional Miguel Álvarez del Toro (ZOOMAT), Cocodrilos de México (COCOMEX), Subcomité Técnico Consultivo para la Conservación, Manejo y Aprovechamiento Sustentable de los Crocodylia en México (COMACRON), TRAFFIC Norte América en México, Dirección de Proyectos Unidos para la Conservación, investigadores y consultores independientes.

La agenda del taller fue la siguiente:

Primer día (1 de diciembre de 2004)

- Introducción y presentación de objetivos del taller. Hesiquio Benitez CONABIO.
- Presentación de que es la Acta de especies en peligro de USA. Jorge Alvarez CONABIO.
- Reseña histórica del *Crocodylus moreletii* en México. Paola Mosig CONABIO.
- Situación de la cría en cautiverio y datos de exportación. Leonel Urbano Dirección General de Vida Silvestre.
- Porque reclasificar al *Crocodylus moreletii* desde el punto de vista de los criaderos. Francisco León Cocodrilos de México.
- Resultados de las investigaciones sobre el status de la población de *Crocodylus moreletii* en México, datos 2002-2004. Jerónimo Domínguez Investigador y Zoológico Regional Miguel Alvarez del Toro.
- Revisión de los criterios de la IUCN y la situación de la especie con base a los resultados de los estudios de los últimos años. Paloma Carton, Instituto Nacional de Ecología.
- Revisión de los criterios del Método de evaluación de riesgo de extinción de las especies silvestres en México (MER) y la situación de la especie con base a los resultados de los estudios de los últimos años. Paloma Carton Instituto Nacional de Ecología y Xochitl Aguilar Universidad Autónoma Nacional de México.

Segundo día (2 de diciembre de 2004)

- Evaluación de los criterios que deben estar incluidos en la solicitud de reclasificación de la especie en la ESA.
- Evaluación de la información obtenida en los estudios de campo entre los años 2002-2004.
- Acciones complementarias a tomar.

Comentarios generales

- Se determinó que la información recabada en el campo sobre presencia de la especie en su área histórica se mantiene presente, además de encontrarse individuos en zonas donde no había sido reportada la especie.
- Los resultados de los censos poblacionales en densidad y estructura de tamaños, muestran que la población de *C. moreletii* se encuentran en buen estado y con una tendencia a aumentar.
- Se realizaron orientaciones a como deben ser presentados los resultados de los censos de la población de la especie en la solicitud de reclasificación.
- Se definieron las líneas de investigación a seguir en los próximos años, donde se continuará con el monitoreo de las poblaciones naturales en aquellas áreas mas importantes, se realizaran estudios sobre la capacidad reproductiva de la población en vida silvestre para definir estrategias de manejo vía ranching, donde se involucren a los criaderos existentes.
- Se definieron las fechas topes de los trabajos a elaborar, y la propuesta será enviada al CSG para su evaluación final antes de ser presentada la solicitud de reclasificación de la especie en febrero del 2005.
- Los proyectos de investigación que se diseñen serán presentados ante instituciones financistas de manera de obtener los fondos para su ejecución.

AN INFREQUENT OBSERVATION OF FEEDING HABITS IN MORELET'S CROCODILE *CROCODYLUS MORELETII* IN CHIAPAS, MEXICO. On January 2003 we went to the Naha and Metzabok Protected Area in the Lacandona Tropical rainforest in northeast Chiapas. The idea was to start some nocturnal monthly surveys on Morelet´s crocodile *Crocodylus moreletii*. In a daylight visit to Amarilla Lagoon, a 1.5 hectares round lagoon located at 800 m above sea level, we saw a dead animal floating by the side and being moved by a big crocodile. We took a cayuco (a local type of canoe) and went to see more closely.

The dead animal was a juvenile brocket deer *Mazama americana.* When we came close to the crocodile, it let go of the prey and swam away. The deer was inspected on the lagoon shore - it had two round wounds in one ear and some others in the right shoulder and thorax, with a lung perforation. The age of the deer was probably less than one-year-old, and from the locations of the wounds we supposed that the crocodile attacked the deer when it came down to the lagoon to drink.

Some authors indicate this species could prey on large mammals like white tail deer, but in this area the largest artiodactyls are peccaries (collared and white lipped) and brocket deer. Finally, the deer was left in the lagoon for the crocodile.

Figure 1. Young brocket deer *Mazama americana* captured for food by a Morelet's crocodile in "Amarilla Lagoon", Lacandonia, Chiapas, Mexico. Photo: Luis Sigler.

We thank Guadalupe Cruz Guillen and Lacandonian guard Antonio "Rambo" for their help during this event.

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HIGHEST NESTING RECORD FOR MORELET'S CROCODILE, *CROCODYLUS MORELETII,* IN CHIAPAS, MEXICO. In 2003 we continued Morelet´s Crocodile surveys in several States of the Mexican Republic. In July we went to the Naha and Metzabok Protected Area in the Lacandona Tropical rainforest in northeast Chiapas. The coauthor of this paper was doing his Bachelor's thesis with local surveys in the Naha and Amarilla (Yellow) lagoons. He was informed by local reserve guards about an uncommon accumulation of vegetation, soil and branches, which they supposed was made by a jaguar *Panthera onca*. Because of his knowledge of Morelet´s Crocodile nesting habits, Edgar Sarmiento presumed it was a typical nest of this reptile.

The nest was located in the highest point between the Naha and Amarilla Lagoons, where crocodiles have been seen for several years ago by local lacandonians. The area is surrounded by tropical rainforest in transition with Mesophile Pine Oak forest at 800 m. The place selected by the nesting female at 890 m was an area deforested for cropping purposes, which of course let sunlight get inside the forest cover.

The measurements of the nest were: height 80 cm, circumference 440 cm and egg chamber depth 40 cm. The distance from the nest to the lagoon selected for the female to take care of her hatchlings was 120 m, with a 30° inclination.

Photograph 1. Nest of Morelet's crocodile *Crocodylus moreletii* at 890 m above sea level, near Amarilla (Yellow) Lagoon at Naha, Naha and Metzabok Protected Area, Chiapas, Mexico. Photo: Luis Sigler.

When we inspected the egg chamber we found mummified, well-formed crocodiles inside eight eggs and some infertile eggs. Decomposition suggested that they were not from the year when the nest was detected, and we think the rest of the clutch was success, and that hatchlings were carried by the mother to the lagoon. We think the hatchlings hatched in July or August 2002. It is not known whether all hatchlings survived the trip to the lagoon because of the distance and the inclination.

No hatchlings were sighted during night surveys of Amarilla Lagoon in 2003, only two big adults than could be the parents and two other juveniles (about 1.4 m). Cannibalism is a factor to consider in Amarilla Lagoon because the area is about 1.5 hectares and this place has source of fresh water, other than through rain.

Photograph 2. Close-up of the same nest in which skulls of mummified embryos can be seen. Photo: Luis Sigler.

We want to thank Miguel, a Lacandonian guard, for his notification about this nest.

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Venezuela

A *CROCODYLUS ACUTUS* ON THE VENEZUELAN COAST. For the first time in many years an American crocodile (*Crocodylus acutus*) arrived on the beaches of the central coast, Vargas State, Venezuela. The crocodile, a male of 2.80 m total length and 101 kg bodyweight (Photo 1), was found on Coconuts Beach by local fishermen, and rescued by firemen of the Vargas State who called Victor Trejo, Ricardo Babarro and Carlos Ascanio of the National Office of Biological Diversity (ONDB) of the Ministry of the Environment and Natural Resources, who transported it to the hospital at the Caricuao Zoo. Here, it received medical care from the Veterinarian Gustavo Sánchez of the ONDB.

The crocodile had a shotgun wound in the head that resulted in the loss of the right eye, which was operated on by the veterinarian Carlos Arechedera and Sánchez, who tended the wounds and removed the remains of pellets. However, the crocodile died a few days later, and the autopsy revealed acute gastritis and a hardened liver. Objects removed from

the stomach are shown in Photo 2.

Photograph 1. *Crocodylus acutus* found on central coast of Vargas State.

Photograph 2. Objects removed from the stomach of the *C. acutus.*

The appearance of this crocodile created some attention, as this area has not reported the presence of the species in over 50 years. It may have originated in the east of the country, based on the direction of the tides on the Venezuelan coasts.

Eastern Asia, Australia and Oceania

Malaysia

USE OF CAVES BY *TOMISTOMA SCHLEGELII* IN SARAWAK, MALAYSIA. Bukit Sarang (2° 44' N, 113° 3') is a small precipitous limestone hill, about 70-90 m high and approximately 1 km long (Wilford 1964), located in the interior of the Tatau District, Bintulu Division, Sarawak (Malaysia). The hill is home to thousands of black-nest swiflets (*Collocalia maxima*) which construct their nests on the walls of numerous caverns within it. Local Punan Ba people officially established their rights to harvest the valuable nests since the early 20th century. Security practiced by the longhouse people to protect this traditional resource inadvertently promoted the conservation of a substantial area around the caves, and a minimum of disturbance by logging or other types of development. The hill is also located within a large (>500,000 ha) pulp concession managed by the Grand Perfect (GP) company, and is one of two areas under current GP management in which *T. schlegelii* are known to occur.

From 2001-2003, one of us (LCK) worked at Bukit Sarang to develop a sustainable harvest programme for the edible birds' nests of the Black-Nest Swiftlet (*C. maxima*), and during this interval many sightings and tracks of *T. schlegelii* were reported. These observations, by both workers and visitors, originated not only from surrounding rivers and streams, but remarkably, from underground caves within the limestone hill itself. As part of corporate environmental management activities within the GP concession, the GP Conservation Officer (RBS) visited Bukit Sarang with LCK in March, and in May 2004 with a group from the Sarawak Forestry Corporation and M. Bezuijen of the IUCN Tomistoma Task Force, in order to observe the *T. schlegelii*, but without success (Bezuijen 2004). On 8 August, the Bukit Sarang Station Manager (Mr. Su) reported that workers had found a set of conspicuous tracks in "Lubang Kanarut", a small cave at the southern edge of the Bukit Sarang outcrop (Fig. 1). The animal's tracks were indistinct, but the impression of the ventral tail scutes was clearly visible (Fig. 2).

According to local workers who have been resident at Bukit Sarang for several years, *T. schlegelii* enter the caves primarily during the dry season (July-August), when water levels are low.

This also appears to correspond to the nesting season for the species, based on nest records from captive females at the Jong Crocodile Farm in Kuching (Sarawak). This appears to be the first documented record of *T. schlegelii* visiting caves, which seems unusual given the sun-bathing habit of most crocodilian species. The Bukit Sarang caves maintain a relatively constant temperature and humidity year round, but possibly below the preferred temperature (approx. 31°C) of the only other confirmed species of crocodile in Sarawak, the Saltwater Crocodile (*Crocodylus porosus*).

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crocodile in Sarawak, the Saltwater Crocodile (*Crocodylus porosus*).

Figure 1. Aerial view of Bukat Sarang.

Figure 2. Tomistoma track in cave.

About half a dozen night surveys have been done along the Mayeng Sarang River in search of *T. schlegelii*, but so far without success (although two spotlight surveys along this river from 5-6 May revealed one crocodile "eyeshine", but no animals were seen. Despite this, *T. schlegelii* are periodically seen by the station manager and workers along rivers and streams during daylight hours. Tracks have been photographed since (by Mr. Su), during the third week of September, along both the Mayeng River and in the Kanarut Cave. Mr. Su reports the Kanarut animal to be about 1.5 m long.

The area around Bukit Sarang has been identified by the Sarawak Government for future designation as a Totally Protected Area, on the basis of ecological values identified by GP, including the presence of *T. schlegelii* and nesting colonies of swiftlets. This "Bukit Sarang Conservation Area" will be approximately 14,000 ha, and will be an important site for *T. schlegelii* conservation within Sarawak.

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We are most grateful for the dedication of Mr. Su, cave manager at Bukit Sarang, who spared no effort to assist us in finding evidence of Tomistoma, or opportunities to see them. We also appreciate assistance by GP and Bukit Sarang staff and workers in organizing and assisting in the surveys.

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RE-ESTABLISHMENT OF *CROCODYLUS SIAMENIS* IN CAT TIEN NATIONAL PARK, VIETNAM. Cat Tien National Park (CTNP), located in the south of Vietnam, is home to many unique species of animals. These include 68 confirmed mammal species, 320 confirmed bird species, and 66 confirmed reptile species. This high biodiversity can be attributed to the abundant resources and stability of the tropical environment as well as the variety of habitats. Because the Park straddles two biogeographic zones - the forests of the Annamite Range in the hilly north and the forests of the Mekong complex in the lowland south - variations in topography, hydrology, and vegetation types support a range of habitats that sustain a diversity of flora and fauna. However, the uniqueness of many species is because of their rarity.

Rarity is a common feature of a sizeable proportion of the animal species at CTNP. Twenty-six percent of the Park's mammal species, 5% of bird species, and 12% of the reptile species are red listed by the IUCN (Hilton-Taylor 2000). Limited geographic ranges, although a compounding factor in the rarity of some species, do not account for the rarity of most red listed species because of the wide ranges of many mammals, birds, and reptiles. A history of habitat loss and hunting has caused the decline of the majority of animals, eliminating the presence of many from most areas of their former ranges and elevating the conservation status of remaining populations.

Since the incursion of the Cat Tien National Park Conservation Project (CTNP-CP) in 1998 new activities have been initiated to enhance protection and reduce human

pressures on the habitats and species of CTNP. For many conservation activities the results benefit a range of species (eg grassland management, improved patrol techniques for forest guards, conservation education, etc.). However, the CTNP-CP also initiated a small number of species-specific activities. Focal species were selected because of interventions required to prevent the decline of critical populations, the need for expand information on very rare species, and limited resources restricting species-specific activities to conservation priorities.

At CTNP species-specific activities are focussed on the Vietnamese subspecies of the Javan Rhinoceros (*Rhinoceros sondaicus annamiticus*), Siamese Crocodile (*Crocodylus siamensis*), rare Phasianidae species (pheasants and partridges), and Gaur (*Bos gaurus*). Activities for these species include research and management with ongoing work to assess the status of their populations. To improve the conservation of these species Park management needs to base informed decisions on the current status of populations.

Evaluating the status of these species has been the combined effort of different researchers in many surveys over several years. This report aims to collate the existing information, assess and summarise the current status and conservation requirements for Javan Rhino, Siamese Crocodile, Phasianidae, and Gaur in CTNP.

Justification

The Siamese Crocodile Re-establishment Programme at Cat Tien National Park is the first attempt to re-establish this species in a former habitat within its historical range. The historical range of Siamese Crocodile covered most of the mainland of Southeast Asia and may have also included Borneo. Hunting and habitat loss have eliminated this species from most of its former range with remaining populations restricted to several sites in Cambodia and Laos, and a few sites in Vietnam and Thailand (Ross 1998). Although there are many individuals raised in crocodile farms the species is severely restricted in the wild and red-listed as Critically Endangered (Hilton-Taylor 2000).

The IUCN-SSC Crocodile Specialist Group have outlined priority projects required to conserve Siamese Crocodiles, of which "Protection of crocodile populations in Vietnam" (involving habitat protection and captive breeding) is of high priority (Ross 1998). Platt (1999) suggested potential sites in Vietnam to re-establish Siamese Crocodiles including CTNP. CTNP once had a population of Siamese Crocodiles in the Bau Sau Wetland Complex (BSWC) but a history of hunting drove the species to local extinction (Bembrick and Cannon 1999). One of the key requirements for a re-establishment programme is if the original causes of the decline has been removed, and with improved protection of the BSWC since 1998 a re-establishment programme for Siamese Crocodile was initiated by the CTNP-CP (Polet *et al*. 1999, 2002).

Re-establishment

The Siamese Crocodile Re-establishment Programme has released individuals donated by local crocodile farms into Bau Sau (Crocodile Lake) with the aim to establish a secure breeding population. However, not all farmed crocodiles

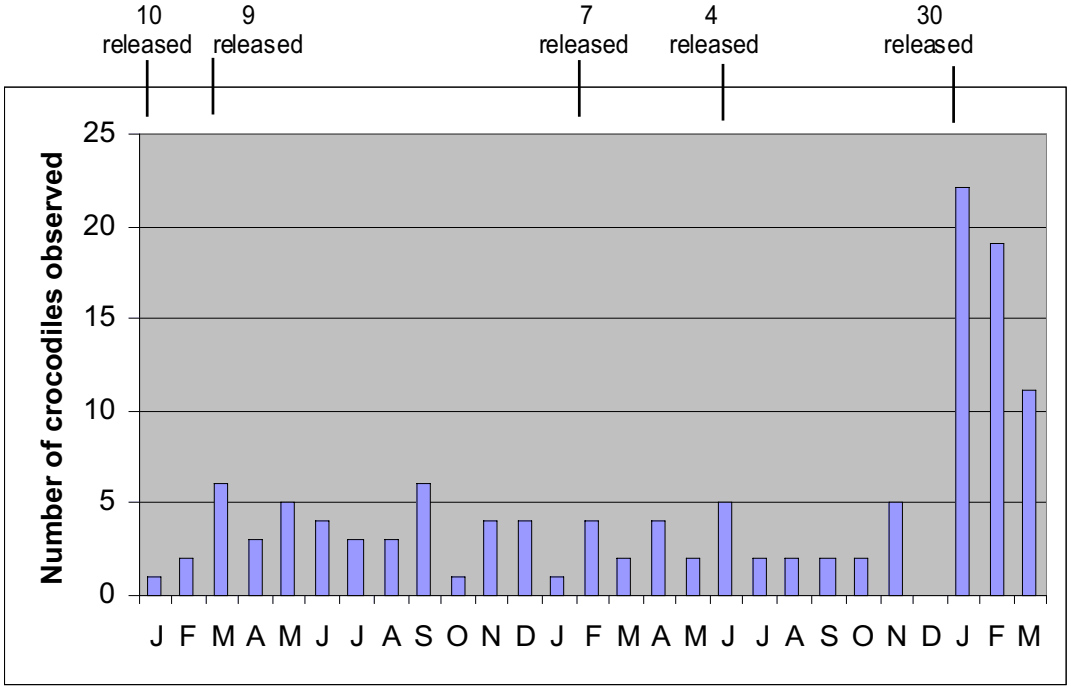

Figure 1. The result of monthly spot-light counts of Siamese Crocodiles at Bau Sau, from 2002-2004, Cat Tien National Park, Vietnam. (There was no survey for December 2003).

are pure *C. siamensis* so all crocodiles in the programme are DNA-tested with hybrids excluded from releases. The first release of individuals was in December 2001 (10 crocodiles), with successive releases in March 2002 (9), February 2003 (7), June 2003 (4), and March 2004 (30) - a total of 60 individuals. The programme involves a range of partners: CTNP are the host and release site; two private farms (Hoa Ca Crocodile Farm and Cu Chi Crocodile Conservation and Development Farm) which have donated crocodiles; WWF-CTNP Conservation Project which provides financial support and technical advice based on contacts with the IUCN-SSC Crocodile Specialist Group; University of Canberra and University of Queensland which have conducted DNA tests; Saigon Zoo which provided technical support; and, the Government of Vietnam which provided additional financial support. As an essential part of any re-establishment programme is ongoing monitoring to gauge the success (or failure) of the programme, monitoring of the released population was carried out at Bau Sau.

Research and Monitoring

The released population of Siamese Crocodiles is monitored by monthly spotlight surveys. On the new moon of every month, a team of two staff (an observer and a boat driver) circumnavigate the lake of Bau Sau in a canoe using a spotlight to count the eyeshines of crocodiles. Although not all individuals are observed using this method, spotlight surveying that follows a specific format is an established method to derive a population index. Monthly spotlight surveys have been carried out at Bau Sau since January 2002 and a detailed description of the survey methods and results has been presented in previous reports (Murphy 2002; Murphy and Dang Cong Viet 2002; Murphy *et al*. 2004).

Status

The results of monthly spotlight counts have shown an increase in the index of crocodile density in months of releases, followed by a relatively stable population within the survey area (Fig. 1). Monthly spotlight counts on Bau Sau (Crocodile Lake) in the first year observed 5-32% of the released population, which is comparable to other spotlight studies with a known population size where 9-19% of the population was observed (Woodward *et al*. 1996). Because there are few other waterbodies during the dry season it is assumed that during this time most of the surviving crocodiles will be in Bau Sau. Spotlight counts after the final release, and during the dry season, counted 19 and 11 individuals (February and March 2004 respectively) (Murphy *et al*. 2004). As counts observe a proportion of the total population there are probably other individuals within the survey area, especially in the larger lobe of crocodiles where the presence rushes and grasses restrict visibility. Other released crocodiles may have dispersed to other areas of the wetland outside of the survey area or have been killed.

There is potential crocodile mortality from other crocodiles if space is limited and newly released, and smaller animals, enter established territories. But the greatest source of mortality is poaching as there have been at least 15 confirmed crocodiles killed by the residents of Dak Lua. Crocodiles move out from Bau Sau into the rest of the wetland complex with the rising water level during the monsoon and further away from the protection of the guard station at Bau Sau, so it is not known how many other individuals have been killed. It is possible that crocodiles could leave the wetland during the height of the monsoon, when the wetland connects with the Dak Lua Stream that drains in to the Dong Nai River, but it is unlikely as the species prefers slower moving waters (Smith 1931; Daltry *et al*. 2003). The main reason why any crocodiles would move in to the Dong Nai River would be young animals requiring new habitat if all potential territories are already dominated by other crocodiles.

As an appropriate sex ratio has been released (2 females: 1 male), and there are available nest sites and abundant food resources in Bau Sau, there is good potential for the population to breed. The first crocodiles to be released in December 2001 will be of breeding age by 2004. As the first breeding attempt is sometimes not successful it may not be until the dry season of 2005 that there is a chance of successful breeding.

The Siamese Crocodile Re-establishment Programme has been successful in establishing a small population of Siamese Crocodile in Bau Sau but it is seriously threatened by poaching. As there is good potential for the crocodiles to breed their continued presence will be dependant on CTNP removing the threats to the population.

Threats

The greatest threat to the future of the population is poaching, which was the original cause of the local extinction of Siamese Crocodiles in the area. The 15 confirmed crocodiles killed (probably more), or a quarter of the released population, is a very worrying sign of the amount of poaching in the area. It is a clear indicator that the levels of protection in the area are inadequate. The forest guard station at Bau Sau is situated right on the lake's shore with views of the area, therefore poaching of crocodiles will most likely happen elsewhere in the wetland when the rising water level during the monsoon season allows crocodiles to move out of Bau Sau Lake. Historically it has been the residents of Dak Lua who specifically hunted crocodiles and again specific residents of this village are responsible for the crocodiles killed since their release. Most poaching is apparently carried out by a small number of repeat offenders who are known to the Forest Protection Department.

A potential cause of mortality is crocodiles drowning in the set-nets of fishermen. Illegal fishermen in the wetland often use set nets that are left and sometimes forgotten. If a crocodile gets tangled they roll to free themselves which only further entangles them in a net causing them to drown.

Although the Bau Sau Wetland Complex is protected within the boundary of CTNP its future could be seriously impacted by the construction of dams upstream on the Dong Nai River. There are three dams planned along the Dong Nai River within the region of CTNP: Dong Nai dams 3, 4 and 8. Dong Nai 3 and 4 would be located upriver from CTNP and will flood a very rare intact riverine forest block. These dams may also cause a reduction in peak discharge of the Dong Nai River. Peak discharges cause a reverse flow in the Dak Lua stream, thus feeding water into the Bau Sau Wetland Complex within Cat Tien National Park. A reduction in peak discharge in the Dong Nai River therefore may lead to a reduction in the size of this important wetland, with implications for the habitat quality and available area for crocodiles. This is now a serious threat as the Vietnam Electrical Authority has recently approved the feasibility plans for Dong Nai 3 and 4.

Conservation Requirements

To prevent Siamese Crocodiles from a second local extinction the management of CTNP needs to address the threats of poaching, drowning from fishing nets and the impacts of planned dams.

The threat of poaching is serious and to reduce it will require improved patrolling by forest guards, pressure on the known hunters and traders, and support from local authorities. With a high number of crocodiles already poached the forest guard patrols in the Bau Sau Wetland Complex need to be improved. As there are only a few individuals who are poachers and traders, and there names are known by the Forest Protection Department (FPD), these individuals need to be regularly visited by the FPD and local community leaders. Conservation education is also a useful tool to inform people about the impact of their actions and needs to be focused on the known hunters and schools of Dak Lua. Another lack of deterrent for poachers is a low level of understanding in the Vietnamese judicial system about the impacts of hunting animals resulting in small punishments for convicted poachers who then return to hunt. During legal cases for poaching Park management needs to inform local law enforcers and officials about violations and the existing laws in Vietnam.

The prevention of poaching needs strong support from Dak Lua commune and residents. To help achieve this it would be useful to have a meeting in Dak Lua with representatives from the commune, Park, FPD, police, and known violators. This would give a forum to inform about the importance of the crocodile population and the threats, and seek strong support from the commune and police to prevent poachers and enforce prosecutions.

Currently staff of Bau Sau forest guard station remove abandoned fishing nets from the wetland and this needs to be maintained. It has been suggested to negotiate with the residents of Dak Lua to allow line-fishing but not electro- or net fishing in the wetlands. However, staff of the Forest Protection Department of CTNP said that as it is not economically viable to fish with a line, poachers would still continue to use nets and electro-fishing, and additionally official rules cannot allow any harvest of species with in the boundary of a national park.

Addressing the threat of planned dams is more difficult as it is on a large scale and involves large amounts of development pressure. However, at a minimum the management of CTNP needs to submit an environmental impact assessment for the potential impact on CTNP to the Vietnam Electrical Authority, Government of Vietnam, and Ministry of Agriculture and Rural Development, and continue to lobby these bodies. Currently the Park is also nominating the Bau Sau Wetland Complex as a RAMSAR site (wetlands of international importance), and if accepted will bring more recognition to the importance of conserving the site.

Cat Tien National Park has been the first site where Siamese Crocodiles have been re-established within their former range. This programme has involved a range of partners and has successfully achieved a small population in Bau Sau. However, this population is seriously threatened by high levels of poaching and may become extinct again within a few years without improved protection.

Conclusions

Although Siamese Crocodile have also a single population within the Park they have greater potential for long-term survival, with a good breeding potential and adequate habitat, if they are adequately protected. But current levels of protection are inadequate and a high level of poaching seriously threatens the population's future. Their re-establishment at CTNP has been the first for the species. Hunting was the original source of their local extinction, and will be the cause of their second extinction unless protection is improved. It may never be possible to prevent every crocodile-kill, but with an adequate level of protection any occasional hunting incidents could be potentially balanced by crocodiles breeding in areas of higher protection. Strong leadership from the Forest Protection Department and increased patrolling is required to improve protection to an adequate level.

Cat Tien National Park has had one of the best reputations in Vietnam for its level of forest protection. But patrol data has suggested a recent decrease in the number of patrolling hours spent by forest guards (Gert Polet, pers. comm.).

Additionally other field researchers in 2004 regularly encountered snares, hunter trails, and violators in the forest (Ben Hayes, pers. comm.; Marina Kenyon, pers. comm.). The good work of the Forest Protection Department has been a major reason for the continued presence of some of the Park's rare and endemic species and any decrease in this level of protection will have serious implications for the future of the remaining populations. Park management has to take this information seriously and regularly assess the performance of the Forest Protection Department.

Cat Tien National Park has a unique biodiversity that is illustrated by the presence of Javan Rhino, Siamese Crocodile, rare Phasianidae, and Gaur who have disappeared from most of their ranges. These species are not only important nationally, with few (or no) other populations elsewhere in Vietnam, but also internationally as Javan Rhino, Siamese Crocodile, and Orange-necked Partridge are endemic to the region and highly endangered. Ongoing protection and management, and research to support management decisions, is crucial to conserve their populations. To ensure that these species are part of the future of Cat Tien National Park, strong Park management will be essential in implementing their conservation requirements.

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Africa

Botswana

A new study has begun within the existing Okavango Crocodile Project. The purpose is to determine the health status of the Nile Crocodile population in the Okavango Delta, Botswana. Despite extensive knowledge of diseases in farmed Nile Crocodiles, very little is known about health and diseases of this species in the wild. It is intended that this study will provide detailed biological information that will assist crocodile farmers in southern Africa, as well as having conservation implications through management recommendations made to the Department of Wildlife and National Parks.

Objectives:

1. Haematology and blood biochemistry: determine normal values in wild Nile Crocodiles.
2. Study disease prevalence and epidemiology. Better understanding of disease epidemiology will be used to develop more successful on-farm disease control strategies.
3. Parasitology: investigate the occurrence of certain parasitic diseases.
4. Gut flora: establish the normal gut flora of *C. niloticus*, with the view to producing a probiotic for use in farmed hatchlings.
5. Toxicology: determine the degree of accumulation of metals and pesticides in Okavango crocodiles, and assess the endocrine disrupting effect of organochlorine accumulation in this population. This will provide essential baseline data against which future monitoring studies can compare.

Any comments and suggestions regarding this study are welcome.

Colin Lovely, *Okavango Crocodile Project, <colinlovely@absamail.co.za>*. Project leader: Allison Leslie, *Department of Conservation Ecology, University of Stellenbosch, Private Bag X1, Matieland 7599, South Africa, <aleslie@sun.ac.za>*.

North America

United States of America

American Alligator Production - 2003: Reports from alligator production states indicated that 367,753 *Alligator mississippiensis* skins were produced in the United States during 2003. An estimated 458,933 eggs were either collected from wild nests or produced on alligator farms in 2003. These figures represent reports from the alligator production States and are still considered provisional (Table 1). It is important to note that these figures do not correspond with international trade figures reported by the World Conservation Monitoring Centre because of the domestic use of a certain proportion of alligator skins. Also, farm skin production includes alligators produced from both wild and captive-propagated eggs.

The number of eggs produced may not correspond proportionally with farm skin production because of trade in eggs among States. For example, a significant number of wild eggs produced in Florida are transferred to farms in Georgia.

We would like to thank our colleagues, Amos Cooper, Greg Waters, Walt Rhodes, Stan Stewart and Ricky Flynt for contributing to this report.

A.R. "Woody" Woodward, *Florida Fish and Wildlife Conservation Commission*; and, Ruth M. Elsey, *Louisiana Department of Wildlife and Fisheries*.

Table 1. Provisional *Alligator mississippiensis* production data from the USA, in 2003.

State	Wild Skins				Total	Eggs Produced			Source
	No.	Av. Size (cm belly)	No.	Av. Size (cm belly)	Skins	Wild	Captive	Total	
Louisiana	33,568	41	270,481	19	304,049	356,634	15,718	372,352	Ruth Elsey
Florida	11,716	43	22,627	32	34,343	49,041	21,786	70,827	Allan Woodward
Texas	1553		12,701	25	14,254	15,280	474	15,754	Amos Cooper
Georgia	525		14,000		14,525	0		0	Greg Waters
South Carolina	287		0		287	0		0	Walt Rhodes
Alabama	150		0		150	0		0	Stan Stewart
Mississippi	145	47	0		145	0		0	Ricky Flynt
Arkansas									No report
Total	47,944		319,809		367,753	420,955	37,978	458,933	

Task Force Updates

Siamese Crocodile Working Group Meeting, 24-28 May 2004

A summary of the Siamese Crocodile Working Group's meeting at the CSG Working Meeting in Darwin, Australia, 24-28 May 2004, was not included in the Proceedings, and is provided here.

Participants

Chheang Dany, Program Manager, Community Wildlife Rangers Project, and Head of Biodiversity Unit, Wildlife Protection Office, Cambodia.
Jenny Daltry, Country Director, Fauna & Flora International: Cambodia Programme
Heng Sovannara, Project Officer, Department of Fisheries, and Wildlife Conservation Society, Cambodia.
Dietrich Jelden, Head of CITES Management Authority, Germany
Alvin Lopez, Wetland Ecologist, Mekong Wetlands Biodiversity Conservation and Sustainable Use Programme, IUCN
Akira Matsuda, Director, AIBAS Research & Initiatives, Japan. matsuda@aibas.com
Nao Thuok, Director, Department of Fisheries, MAFF, Cambodia.
Chantone Photitay, Living Aquatic Resources Research Center (LARReC), Ministry of Agriculture and Forestry, Lao PDR
Widodo Ramono, Director of Biodiversity Conservation, Ministry of Forestry, Indonesia
Nhek Ratanapich, National Coordinator, Cambodian Crocodile Conservation Programme (CCCP), and Deputy Director, Wildlife Protection Office, Forestry Administration, MAFF, Cambodia
Sam Han, National Field Coordinator, CCCP, Wildlife Protection Office, Forestry Administration, MAFF, Cambodia,
Boyd Simpson, Crocodile Project Officer, CCCP, Fauna & Flora International: Cambodia Programme.
Colin Stevenson Crocodile Encounters, Australia
Sun Sambath, Deputy Head, Cambodian Crocodile Association.
Suon Phalla, Senior Officer CITES Management Authority, Cambodia, MAFF.
John Thorbjarnarson, Wildlife Conservation Society
Grahame Webb, CSG Vice-Chairman for Eastern Asia, Australia and Oceania
Tomme Young, Senior Legal Officer, 1UCN Environmental Law Centre

Objectives

The Darwin CSG meetings were used as an opportunity to bring together the CSG Siamese Crocodile Working Group (SCWG) to discuss the current status of this critically endangered species, and discuss the development of a species conservation and action plan within the context of the Mekong Wetlands Biodiversity Program (MWBP). Each of the represented countries was asked to provide an overview of the current status of Siamese crocodiles in the country, current conservation measures, and key problems.

Country Summaries

1. Cambodia (Nao Thouk)

   Only around 200 individuals (mature and immature) have been confirmed in recent surveys by the Government of Cambodia and international NGOs, and these are very scattered in remote, marginal areas. There are still more areas left to survey where remnant groups may be found, but it is unlikely that any more large populations will be found.

   Crocodiles have been kept in captivity in Cambodia for more than 1000 years, originally in temple ponds for religious purposes. Today, there are more than 900 crocodile farms and holding pens in Cambodia, of which only 10-20 are thought to contain more than 100 crocodiles. Most are very small operations that buy and raise hatchlings from the larger farms or other sources. There has been some hybridization with Cuban and estuarine crocodiles within the farms. Only six are registered with CITES. John Thorbjarnarson interjected that under CITES 11.14, breeding is expected to take place in the registered farms: CITES had not take into account the system of holding facilities and exports through registered farms, which also takes place in Vietnam.

   Crocodiles have been protected in Cambodia since 1945 (except 1975-1979), and cannot be kept or transported without a permit from the Provincial or National Department of Fisheries. Nao Thouk observed that it is proving very difficult to regulate the internal and external trade, however, and registration and book keeping are only just beginning. There is strong evidence of ongoing collection of wild crocodiles for selling to farms or middlemen, with at least 61 crocodiles taken from the southwest and east between 2001 and 2004. With rare exceptions, all of the crocodiles are exported live, especially to new farms in China.

   Collection for crocodile farms and trade is the primary threat to the wild stocks, but a further problem is loss of habitat. For example, one third of the flooded forest around the Tonle Sap Great Lake has been destroyed by encroachment and fire. Many Cambodian people are afraid of crocodiles (despite there being no recorded

attack by a Siamese crocodile), but some rural communities regard them as sacred and believe that harming them will bring bad luck.

Jenny Daltry added that there is growing interest within Cambodia to save the Siamese crocodile, and some significant initiatives underway (eg nationwide surveys, ranger training, and a community-based sanctuary established for the largest colony). Many international conservation organizations are keen to contribute, in addition to WCS and FFI, but there needs to be clearer guidance and better inter-agency cooperation.

Chheang Dany said that the Wildlife Protection Office have formally recommended listing the Siamese crocodile as a Category 1 Protected Species in Cambodia, which would impose much higher penalties for keeping wild crocodiles or disturbing their habitat (5-10 year in prison and a fine up to $US20,000). The legislation has not been passed yet, however, owing to disagreements over which agency or agencies are responsible for wild crocodiles.

Suon Phalla noted that there is still a lot of confusion in Cambodia about its obligations to CITES (Cambodia joined CITES in 1997). The CITES Management Authority did not issue any permits in 2003, and was surprised to learn that the Scientific Authority gave permission to export live crocodiles to China and Vietnam. He reiterated that the poorly-regulated growth of the crocodile farming industry in Cambodia is a serious concern for this species: only 507 farms were recorded a couple of years ago, but now there are more than 900. It is important for NGOs to help make CITES work in Cambodia, otherwise this country will not be successful in conserving the Siamese crocodile. New CITES enabling legislation has been drafted that goes into detail on how crocodile farming and trade could be regulated, but this has not been enacted yet.

2. Indonesia (Widodo Ramono)

The Siamese crocodile is not well known in Indonesia, but may still occur in Kalimantan. When three large crocodile farms were registered in Kalimantan, Siamese crocodiles may have been confused with estuarine crocodiles and even Tomistoma (the Indonesian name for crocodile, buaya, applies to all species). Initially, it was thought that all of the crocodiles in the farms were porosus, but Jack Cox and others found they contained 30-50 *C. siamensis*. The farms have reported that the latter are not as easy to breed as *C. porosus*.

Kalimantan's wetlands cover 10 million hectares, and there are some significant protected areas, such as Tanjung Putting and Gunung Palung. There has however been extensive habitat destruction and fragmentation. In 1997 and 1998, five million hectares in East Kalimantan burned. Generally, Indonesians are not very aware of the Siamese crocodile. All wild crocodiles are protected by law in Indonesia, but captive bred or ranched individuals are classed as a 'game animal'. Indonesia does not allow export of captive-bred *C. siamensis* or Tomistoma, only *C. porosus* and *C. novaeguineae*.

Dietrich Jelsen added that there is still confusion over the taxonomy and distribution of Indonesia's freshwater crocodiles, which include *C. siamensis*, *C. novaguineae* and perhaps *C. raninus*. The CSG has recommended to Indonesia not to trade until this has been resolved.

3. Lao PDR (John Thorbjarnarson and Chantone Photitay)

In February and September 2003, Chantone Photitay and John Thorbjarnarson visited sites in Attapeu and Savannakhet Provinces in southern Lao PDR to collate information on the status of wild crocodiles and develop plans for a national conservation effort to be coordinated through LARReC. Based on recent reports and sign found at the Bung Khe site in Attapeu, a small population of crocodile remains in the remote headwaters of the Xe Kong River system. However there appears to be a larger breeding group of crocodiles in the lower Xe Champhon River system and associated wetlands. A very small group also remains in the Xiabouli district in northwestern Savannakhet, close to the Mekong River, where evidence of a nest from 2002 was found. In most areas in this region of Lao PDR crocodiles are considered to be sacred animals and a community-based program that focuses on management of wetlands will likely be the most productive approach to crocodile conservation.

4. Thailand (John Thorbjarnarson)

Few Siamese crocodiles are confirmed or reported from Thailand, all in protected areas: Kaeng Krachan NP (one individual found with camera trap by WCS), Pang Sida NP (one individual known, but plans to reintroduce more), Thaplan NP (rangers report seeing tracks and scats), Ang Lue Nai WS (bordering Cambodia's Cardamom Mountains: one found in 1994), Yad Dom WS (crocodile killed here in 2002) and Phu Kieo WS. There needs to be a coordinated management plan, and probably reintroductions to conserve this species in the wild.

Thailand has a number of major crocodile farms and a booming industry in skins and meat. There has been an increased demand for crocodile meat, following health scares concerning other domestic animals, such as Bovine Spongiform Encephalitis ('Mad Cow'), Bird Flu and Foot and Mouth. Many skins and live animals are currently being exported to China.

5. Vietnam (John Thorbjarnarson)

   A summary of crocodile status was sent by Gert Polet. Approximately 60 captive Siamese crocodiles have been released into Cat Tien National Park in southern Vietnam, as part of a reintroduction effort. Monitoring efforts are continuing. At least 15 of these have been killed by local residents.

Mekong Wetland Biodiversity Program

This $30-million project is focused on the four countries of the lower Mekong basin (Vietnam, Laos, Thailand and Cambodia) with funding from the GEF-UNDP, the Netherlands Government, IUCN and the Mekong River Commission. See www.mekongwetlands.org for more details. The program kindly sponsored Chantone Photitay, Nao Thouk and Heng Sovannara to participate in the CSG meeting.

Alvin Lopez, the wetland ecologist from MWBP, gave a presentation about this program and the opportunities it offers to Siamese crocodile conservation. One component of the project is to develop and implement species conservation action plans (SCAPs) for four 'flagship species': the Sarus crane, the Irrawaddy dolphin, the Mekong giant catfish, and the Siamese crocodile. Siamese crocodiles were chosen because they are representative of wider biodiversity taxa, they are indicators of the health of the ecosystem; they have transboundary distributions; and they provide a mechanism for enhancing regional collaboration for conservation and management of biodiversity and ecosystems. The institutional setup of the MWBP provides an opportunity for the development and implementation of a Species Conservation Action Plan for the Siamese crocodile in the Mekong region.

Because only one of the range countries (Cambodia) was well represented in Darwin, it was not possible to develop even a draft of the action plan at this meeting. The first step should be meetings or workshops within each country with all the relevant stakeholders, to identify the needs and priorities.

Internal Meeting of the Cambodian Delegation

Primary emphasis on next steps focused on Cambodia, which had ample representation in Darwin, and is the country with the largest remaining groups of wild crocodiles, as well as being a regional center of crocodile trade.

Chaired by Dr. Dietrich Jelden, the meeting touched on the importance of Cambodia consolidating its crocodile conservation efforts and complying with CITES requirements. Cambodia is currently included in the CITES National Legislation Project as having no implementing legislation. Dr. Jelden emphasized the urgent need for Cambodia to show willingness to improve its CITES enabling legislation, improve its implementation and improve internal cooperation.

It was recommended that next steps in Cambodia should include the organization of two workshops:

1. A 'CITES Capacity Building Workshop', or regional trade meeting, in 2005, under the aegis of the CITES Secretariat, to bring together representatives from Cambodia, Thailand, Laos, Vietnam and China to address regional issues and problems related to the trade in crocodiles. A key challenge is to ensure that captive-bred crocodiles are properly registered and monitored at all steps in the chain, and readily distinguished from the wild crocodiles, which must not be traded.

2. A national workshop, under the auspices of the Cambodian government with support from the MWBP, to identify threats to the long-term conservation of Siamese crocodiles in Cambodia and to develop and initiate a national species conservation action plan.

Human-Crocodile Conflicts

Introduction

The problem is essentially quite simple. Resolving it may be difficult and time consuming.

Eight species of crocodilians around the world are large predators capable of attacking humans and their livestock. If they were terrestrial and furry they would be treated with the same awe/respect/fear that we afford lions and tigers. But they are aquatic so we seldom see or hear them, so we tend to ignore them.

Humans and their livestock need regular access to water. In the "third world" that often means collecting it in a bucket or drinking directly from the local stream, river, lake, swamp or dam. When in or near such water sources humans become potential prey of a competent and opportunistic predator.

Human populations are increasing and expanding so more people are exposed to the risk of attack by crocodilians in more places. The populations of many crocodilian species have recovered since uncontrolled hunting ended, so their numbers and distribution are also stable or increasing.

The problem is difficult to manage because in most cases we lack information on the crocodile populations and on the incidence of attacks, particularly those that do not result in human death. Human-crocodile conflict is also interrelated to aspects of poverty, rural development, education, community based decisions on wildlife management, economic and social impacts and

compensation.

The Human-Crocodile Conflict Working Group (HCCWG) was established at the 16th Working Meeting and at the 17th Working Meeting agreed on a series of products. The generic guidelines for management of HCC and the database of crocodile attacks are now both "work in progress". The fact sheet and work on education and media coverage have yet to be tackled.

Rich Fergusson, *Chairman, CSG Human-Crocodile Conflict Working Group.*

PRELIMINARY ANALYSIS OF DATA IN THE AFRICAN HUMAN-CROCODILE CONFLICT DATABASE. A total of 120 records were examined, comprising 98 records of attacks on humans. These originate mainly from Kenya and Nambia, with additional material from published media reports from five other African countries. The data spans the period 1994 to 2004, but the majority of records are from 2000-2004.

Mortality and injury

In 62 cases (63%), death occurred immediately or later as a result of injuries sustained in the attack. Human victims survived with injuries of varying severity, from lacerations to amputation, in a further 36 cases (37%).

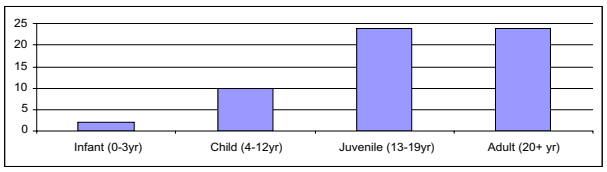
Sex of victims

The sex of the victims was not always discernable from the base data (19 of 98 cases). Of the remaining 79 cases where sex was known, 41% were attacks directed at females and 59% were directed at males.

Although this deviates from the expected result i.e. that males and females would be attacked with equal frequency, it is unlikely that there is any significance in this finding as it probably represents a sampling error.

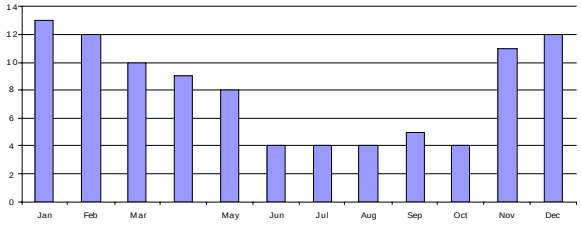
Age of victims

The age of victims was not always recorded (38 of 98 cases). Of the known-age victims, the youngest was 2 years old and the oldest was 58 years old. The majority of attacks were on juveniles (13-19 years old) and adults (20+ years old).

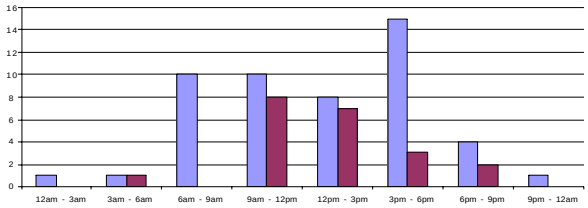


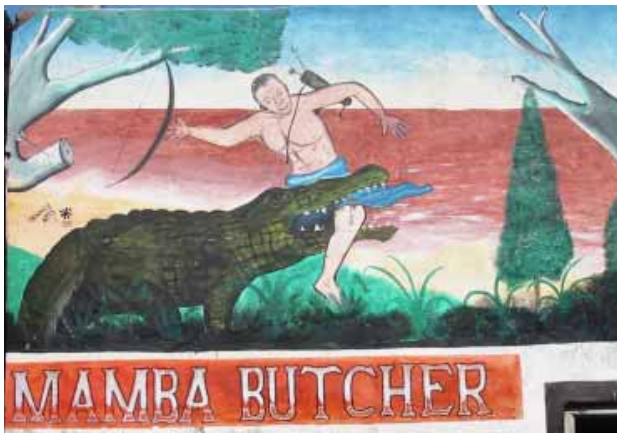
Temporal patterns - annual and daily

Attacks on humans have occurred in significant temporal patterns, on both annual and daily scales. Fewer attacks occur during periods that are generally cooler and drier (around mid-year). Most attacks (78%) occurred in November-May.



Attacks were mostly (86%) restricted to daylight hours (6 am-6 pm), reflecting human activity patterns and the opportunistic nature of crocodiles. Within the daily cycle, the two peaks of attacks on humans (light bars) are apparently related to daily human tasks that expose people to risk of attack. The attacks on livestock (dark bars) are more restricted as all livestock is enclosed during hours of darkness.





Artwork on a butchery beside the Tana River, Kenya. "Mamba" is the Swahili word for crocodile.

Rich Fergusson, *Chairman, CSG Human-Crocodile Conflict Working Group.*

Table 2. Activities of people (62 attacks, 64 people) at the time of attack by wild Saltwater Crocodiles in northern Australia, 1971-2004.

Activity	Non-fatal			Fatal		
	Day	Night	Unknown	Day	Night	Unknown
Water						
In shallow water (hunting, fishing, wading)	12	2	-	2	1	1
In water (skin-diving, spear-fishing)	4	-	-	-	-	-
In water (swimming)	6	3	-	5	6	-
At waters' edge	5	1	-	-	-	-
Subtotal (N= 48; 81.4%)	27	6	-	7	7	1
Boats/Canoes						
Leaning out of airboat into water	1	-	-	-	-	-
Getting into boat	1	-	-	-	-	-
Boat	2	-	1	-	-	-
Canoe	1	-	-	-	-	-
Subtotal (N= 6; 10.2%)	5	-	1	-	-	-
Land						
Asleep in tent	-	2	-	-	-	-
Asleep on beach	-	1	-	-	-	-
Asleep near water	-	1	-	-	-	-
Near crocodile nest	1	-	-	-	-	-
Subtotal (N= 5; 8.5%)	1	4	-	-	-	-
Unknown activity (N= 3)	-	-	2	-	-	1
Total	33	10	3	7	7	2
(%)	(76.7)	(23.3)		(50.0)	(50.0)	

ANALYSIS OF DATA IN THE AUSTRALIAN CROCODILE ATTACK DATABASE. Detailed information on Saltwater Crocodile (*Crocodylus porosus*) attacks in Australia has been recorded since 1971, when the species was protected in the Northern Territory.

There have been 62 unprovoked attacks, involving 64 people, by Saltwater Crocodiles in the wild since 1971 [attacks on researchers (1), farmers (1) and wildlife rangers (2) injured in the course of work with wild crocodiles were excluded]. Most attacks have occurred in the Northern Territory (N= 39; 63%), followed by Queensland (N= 15; 24%) and Western Australia (N= 8; 13%). Seventeen (27.4%) of the attacks resulted in human fatalities.

There has been a somewhat stable trend with regard to fatal attacks over the 34-year period (mean= 0.5 fatal attacks per year), but increasing numbers of non-fatal attacks (from 0.1/year in 1971-80 to 3.3/year in 2001-04) (see Table 1).

The majority of attacks (81%) have involved people in the water (eg swimming, wading, spearfishing) or at the waters' edge (Table 2). Two attacks have involved crocodiles walking into a tent and grabbing sleeping occupants, and two attacks were directed at people sleeping near the water.

Table 1. Mean number of Saltwater Crocodile attacks per year in Australia, grouped in 10-year periods (1971-2000), with the exception of 2001-2004 (4 years).

Period	Fatal	Non-Fatal	Total
1971-1980	0.4	0.1	0.5
1981-1990	0.8	1.2	2.0
1991-2000	0.3	1.9	2.2
2001-2004	0.5	3.3	3.8

With the exception of two fatal attacks, all attacks have involved locals or people familiar with crocodiles and the areas where the attacks occurred. Most attacks are considered to be the result of crocodiles seeking food; three attacks probably involved females defending their nest/territory.

Attacks have occurred in all months of the year, but have been more frequent during the warmest months of the year (September-May) (Fig. 1); 5.7 attacks per month (September-May) versus 3.7 attacks per month (June-August). The low number of attacks in January (N= 1; see Fig. 1) may reflect the peak of the wet season, when access to fishing and camping areas, and "crocodile habitat"

Table 3. Mean, minimum and maximum estimated/known total lengths (TL) and sex of Saltwater Crocodiles involved in attacks in northern Australia, 1971-2004. N= sample sizes on which means are based.

	N	Mean TL (m)	Min. TL (m)	Max. TL (m)	------ Sex ------ M	F	?
Fatal	14	4.3	2.7	5.1	12	1	1
Non-fatal	32	3.0	1.7	5.0	9	1	22
All	46	3.4	1.7	5.1	21	2	23

generally, is difficult. The monthly trend for attacks is the reverse of that for visitation (eg tourists) to northern Australia, where peak visitation occurs in June-August, and tails off during the warmer/hotter times of the year.

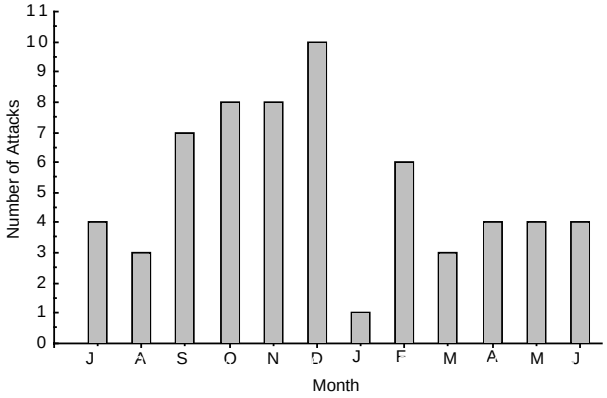


Figure 1. Month in which *C. porosus* attacks have occurred, 1971-2004.

Fatal attacks have generally involved large, male *C. porosus* (Table 3). Where large (>4.3 m TL) animals have been involved in non-fatal attacks, the victims have only escaped because of assistance from other people.

Seventy-five percent of attack victims were males, with an average age of 31.8 years. The mean age of female attack victims is 29.9 years.

The information in this article was extracted from a submitted manuscript: Caldicott, D.G.E., Croser, D., Manolis, C., Webb, G. and Britton, A. (2005). Crocodile Attack in Australia. An Analysis of Its Incidence, and Review of the Pathology and Management of Crocodilian Attacks in General.

Gharial Task Force

The Gharial Task Force, formed at the 17th CSG meeting in Darwin, has been actively involved in soliciting members, both regional and international, and we are working on establishing an official document which describes the mission statement, objectives, member protocols, etc. A website (www.gavialis.org) should be up sometime in January 2005.

Regional members to date are Harry Andrews and B.C. Choudhury. Harry is working with D. Basu of the Uttar Pradesh Forest Department to coordinate gharial surveys on the Chambal. B.C. updated us on his activities in Orissa, where he has persuaded the State to revive the gharial reintroduction program with relation to the Mahanadi River system. Rao (2004) recently reported that the Madhya Pradesh Forest Department has revived their reintroduction program. An issue pointed out to us by B.C. is the GTF acronym, which is synonymous with that of the Global Tiger Forum, so we've "re-christened" this task force to the TFG (Task Force Gharial).

On the international scene, both Rene Hedegaard (Europe) and Bruce Schwedick (United States) have begun publicizing the plight of the gharial, an important first step in our efforts. Our latest international member, Luc Fougeirol, reported on his involvement with gharial conservation in Nepal, which includes monitoring of released individuals and production of educational materials on the gharial. The situation in Nepal is worrying, and we hope to shortly involve this country in the TFG.

All in all, this is an interesting and exciting beginning to the TFG. The involvement of the Regional CSG members is very encouraging, and is necessary as we would know virtually nothing without the input of gharial field workers. The concept of species specific working groups is somewhat novel, but as demonstrated by the success of our sister group, the Tomistoma Task Force, there is much to be gained by paying attention to conservation and awareness at the species level. We'll be in touch.

Literature

Rao, R.J. (2004). Revival of gharial breeding program in the National Chambal Sanctuary, Morena, Madhya Pradesh, India. CSG Newsletter 23(3): 6.

Nikhil Whitaker, *Chairman, Task Force Gharial, Madras Crocodile Bank/Centre for Herpetology, P.O.Box 4, Mamallapuram, Tamil Nadu 603104, South India. <kachuga21@hotmail.com>.*

Obituaries

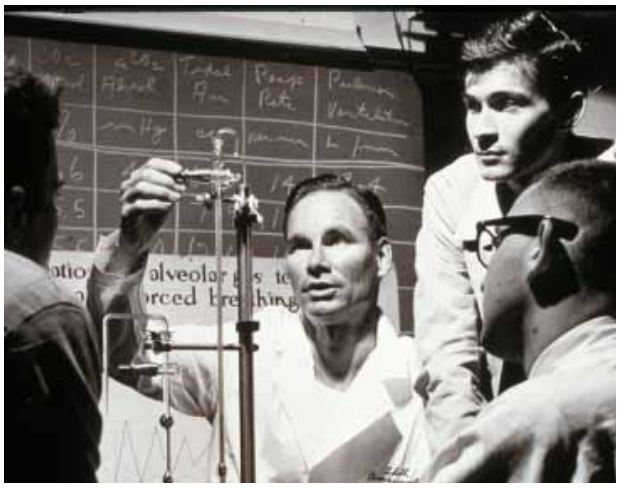
Roland Coulson (1915-2004)

The Crocodile Specialist Group lost a dear friend on November 5, 2004. Dr. Roland A. Coulson passed away quietly in his sleep after a brief illness. He had been well (and still riding his bicycle 10-12 miles a day) until he was diagnosed with an aggressive form of inoperable pancreatic cancer about six weeks before his death. His

long time colleague Dr. Jack Herbert reported that Dr. Coulson was characteristically cheerful until the end, and "says he has had a long, enjoyable run" and was ready to go.

Dr. Coulson was born in a sod house on 20 December 1915 in Rolla, Kansas, USA. He earned a Bachelor's degree in chemistry at the University of Wichita in 1937, and a Masters degree in endocrinology at Louisiana State University. In 1941 he joined the Royal Air ForceVolunteer Reserve, and was posted to the UK. First trained as an airman, he was later assigned to conduct nutrition research at the Lister Institute of Preventative Medicine, University of London. He studied stress-induced health problems of bomber crews, and earned his PhD on his wartime research at the University of London in 1944. He was awarded the British Defence medal for his three years of service.

After the war, Dr. Coulson joined the Department of Biochemistry at Louisiana State University School of Medicine in New Orleans, Louisiana. In 1948, he began studies on alligator biochemistry with Dr. Tom Hernandez, a friend from graduate school. Dr. Coulson's first graduate student was Dr. Herb Dessauer (whose later students include Dr. Lou Densmore, well known to the CSG).



Dozens of publications resulted from years of collaboration between Drs. Coulson, Hernandez, Dessauer, and later Dr. Jack Herbert. As of 1989, Dr. Coulson had published some 90 full papers, 4 books and 78 abstracts. Most crocodilian researchers are familiar with the first book on alligator biochemistry published in 1964 entitled "Biochemistry of the Alligator, a Study of Metabolism in Slow Motion" by Drs. Coulson and Hernandez. They followed this up with a second volume in 1983, "Alligator Metabolism: Studies on Chemical Reactions *In Vivo*".

Dr. Dessauer wrote a comprehensive biography on Dr. Coulson that was published in American Zoologist (Vol. 29: 823-829) as part of a special issue resulting from a symposium Dr. Val Lance organized entitled "Biology of the Crocodilia". This was part of the December 1989 meeting of the American Society of Zoologists, which was attended by many CSG members who participated in the two-day crocodilian symposium held in New Orleans. Dr. Dessauer described Dr. Coulson as "somewhat of an eccentric, a wonderful storyteller, and a warehouse of information on virtually any subject". I could not agree more; and I suspect the countless other students whose careers were influenced by Dr. Coulson would also agree. He welcomed everyone into his lab, and hosted dozens of visiting scientists to bunk at the rustic laboratory site in New Orleans (converted old military barracks) or in his home with his wife "Miss Nancy", who passed away several years ago. One was always offered coffee (served in 250 ml beakers) at the lab and invited to stay for lunch.

Dr. Coulson's sense of humor was legendary; he never took himself too seriously and had several witty letters sent to high levels of the administration at the medical school when cumbersome paperwork went beyond the point of reason. He wrote Val Lance a letter in 1990 and ended with "I average over 10 miles a day on a bicycle, every mile of it uphill, and curiously, against the wind". About ten years ago Ted Joanen and I took Dr. Coulson out in the field to collect alligator eggs. He so enjoyed the trip on an airboat in the marsh that he said if he died that day, he would die happy; and that we shouldn't worry about his body since he was biodegradable and could be left in the marsh.

Dr. Coulson is survived by his son Tom "Curly" Coulson, his daughter Carol Melissa Mitchell and one grandchild (Curly's daughter). Curly followed in his father's footsteps and conducted alligator research throughout his career alongside his father.

Our condolences go out to Dr. Coulson's family and colleagues…. he will be missed.

Tony Charles (Mashesha) Pooley (1938-2004)

Tony was born at Amanimtoti, Kwa-Zulu Natal, South Afica, in 1938. From a young age he developed an interest in natural history and was encouraged in this by his parents. He regarded school as some sort of necessary evil, preferring to run wild, collecting anything from insects to bird eggs. Among his companions in this collecting was a number of Zulu youngsters from whom he learned and became proficient in Zulu language and customs.

On leaving school Tony had several jobs prior to achieving his ambition of joining the Natal Parks Board in 1957, at the tender age of 19. Tony became interested in crocodiles when the game guards presented him with some eggs and asked him to identify which bird had laid them. After much laughter they told him that they were crocodile eggs. Reviewing the literature available to him, he found that there seemed to be little known about crocodiles,

particularly nesting and incubation. He obtained permission to study them and to set up holding pens, initially in the Mkuzi Game Reserve and later in the Ndumu Game Reserve on the northern borders of Natal. An interpretation Centre covering crocodiles was also established here. In 1970 Tony submitted a proposal for the Centre to be moved to a site more accessible to the public, suggesting Central Natal. This was accepted, and the St Lucia Crocodile Centre was established in 1974, near the St Lucia Estuary.

Over the years Tony produced a number of papers on the crocodiles in Lake St Lucia, as well as on crocodile behaviour, which culminated in his book "Discoveries of a Crocodile Man" in 1982. In the same year he also submitted his thesis on "The Ecology of the Nile Crocodile *Crocodylus niloticus* in Zululand" in partial fulfillment for the degree of Master of Science in the Department of Zoology of the University of Natal in Pietermaritzburg.

In 1971 Tony was asked to attend the inaugural meeting of the Crocodile Specialist Group, of which he became a founder member. With crocodile populations being decimated world-wide, crocodile farming came into its own in the 1970s and 1980s and Tony visited many countries giving advice on breeding and raising crocodiles. These include Australia, Italy, Lesotho, Mozambique, Papua New Guinea, USA, Zambia and Zimbabwe. He left the Parks Board in 1984 to enter the world of commerce. After a number of years he decided to branch out on his own. With his wife Elsa they set up "Pooley Wildlife Productions". He appeared in a number of TV documentaries on crocodiles and wrote scripts for others. He brought out a book "Mashesha - the Making of a Game Ranger" in 1992. At the time of his death he was working on a third book covering crocodile attacks, in which he hoped to exhonerate the crocodile as the villain of the piece.

Tony will be missed in the Crocodile World, not only for his advice on crocodiles but also for his many stories, some of which were suitably embellished depending on his audience.

HAMBA KAHLE - KESHL (GO WELL - OLD MAN)

David Blake

Requests

To the members of the Crocodile Specialist Group, my name is Ewan Wolff and I am a doctoral student at Montana State University in Bozeman, MT. I am currently writing my dissertation on the subject of mandibular pathology in the Archosauria. My work includes many modern and ancient taxa and part of its goal is to improve the overall understanding of alligatorine and crocodilian mandibular, dental and maxillary pathology. I am hoping that the identification of trends from examination of wild and captive specimens will make a contribution to zoological and wildlife medicine, as I gather that information in this area is currently limited. I would like to request of the members any case reports, images of histology, gross pathology or radiographs, recollections of cases, references or reprints that they may have with the promise of full acknowledgment of their contribution in my dissertation work. I would also welcome any interest in correspondence on this subject. Thank you for your time.

Ewan Wolff, *Paleopathology Working Group, Department of Earth Sciences, Traphagen Hall, Montana State University, Bozeman, MT 59715, USA, <wolff@montana.edu>*.

A limited number of the detailed reference book "Alligator Metabolism: Studies on Chemical Reactions *In Vivo*" (1983) by R.A. Coulson and T. Hernandez (hardcover, 182 pages) are available upon request from Ruth M. Elsey at Rockefeller Refuge. This was published as a special issue of Comparative Biochemistry and Physiology, Volume 74. The eight chapters are entitled: natural history, metabolic rate, anaerobic glycolysis, digestion-growth-protein synthesis, carbohydrate metabolism, amino acid metabolism, respiration and acid-base balance and kidney. The volume is referenced and indexed and would make an excellent addition to any crocodilian researcher's library. Please contact Ruth Elsey at <relsey@wlf.louisiana.gov> if you would like a copy (while supplies last).

Meeting Announcements

FIRST ANNOUNCEMENT

"REGIONAL MEETING OF THE IUCN-SSC CROCODILE SPECIALIST GROUP, LATIN AMERICA AND CARIBBEAN REGION", 17-20 MAY 2005.

Location: Santa Fe, Argentina

Hosted by: Crocodile Specialist Group, Proyecto Yacaré and Ministerio de la Producción de Santa Fe

Supported by:Caimanes de Formosa, Yacarés Santafesinos, Universidad Nacional de Litoral

Theme: The meeting will be organized with different sessions, on: Crocodilian Natural History; Biology, Physiology, Pathology and Genetics; Husbandry; Management Programs; and, Conservation Programs.

Three workshops are planned, on different days, during the meeting:

1. Indicators of sustainability in crocodilian management programs.
2. Management of *Caiman yacare* within its area of distribution.
3. Review of the Downlisting Process in ESA and CITES.

Preliminary Information:

Since 1990, Proyecto Yacaré has been oriented towards *Caiman latirostris* conservation and management; it is based in Santa Fe City, 480 km north of Buenos Aires. Both cities are connected by air (one hour trip) and road (in comfortable buses, six hour trip).

Registration fee is $US100, which covers meeting materials, Proceedings of the Meeting (on CD, in PDF format), T-shirt, welcome dinner and farewell dinner.

Hotel accommodation in the city is from $US60 (Holliday Inn, 5-star). There are many 3-4 star hotels between $US18 and $US35 per night (based on double room). There are good hotels and hostels from $US6 to $US10, and possibilities to host students for $US2 a day per person.

Please confirm your interest in participating in the Regional Meeting, and whether you plan to present a paper. People that do not respond will not receive additional information in the next CIRCULARS. In the near future we will inform about transportation, hotels and deadlines for papers.

Contacts:
<yacare@arnet.com.ar> or <cidcarlos@infoaire.com.ar>

PRIMER ANUNCIO

"REUNIÓN REGIONAL DEL GRUPO DE ESPECIALISTAS EN COCODRILOS DE IUCN-SSC, REGION DE AMERICA LATINA Y DEL CARIBE", 17 AL 20 DE MAYO DE 2005.

Localidad: Santa Fe, Argentina

Organizan: Grupo de Especialistas en Cocodrilos, Proyecto Yacaré, Ministerio de la Producción de Santa Fe

Auspician: Caimanes de Formosa, Yacarés Santafesinos, Universidad Nacional de Litoral

Temática: En función de los trabajos presentados, la reunión se organizará en sesiones sobre: Historia Natural de los Crocodylia; Biología, Fisiología, Patologías y Genética; Normas de Manejo en Cautiverio; Programas de Manejo en la Naturaleza; y, Proyectos de Conservación.

Se están organizando además tres talleres específicos sobre:
1. Indicadores de sustentabilidad de los programas de manejo de cocodrilos.
2. El manejo de *Caiman yacare* en su rango de distribución.
3. Revisión de los procesos de downlisting en ESA y CITES.

Información Preliminar: La ciudad de Santa Fe es la sede del Proyecto Yacaré, orientado a la conservación y el manejo de *Caiman latirostris* desde 1990. Se encuentra localizada a 480 km al norte de Buenos Aires, y conectada a ésta por varios vuelos diarios, y conexiones de buses confortables que cubren el trayecto en unas seis horas.

El valor de la inscripción se ha fijado en $US100, e incluye los materiales de la reunión, un CD con las memorias de la Reunión en formato PDF, camiseta (T-shirt), cena y cóctel de bienvenida y cena de clausura.

La hotelería de Santa Fe resulta hoy muy económica para los extranjeros, con hoteles de cinco estrellas como el Holliday Inn a una tarifa de $US60 la habitación doble. Hoteles de tres y cuatro estrellas con tarifas de entre $US18 y $US35 por la habitación doble. Asimismo, existen también buenos hoteles por $US6 a $US10, y posibilidades de alojar a estudiantes en hospedajes por $US2 por día y por persona.

Por favor, confirmar a la brevedad el interés preliminar en participar y/o presentar trabajos. En la siguiente circular se proveerá a los interesados más información sobre transportes, alojamiento y fechas límite para presentación de trabajos.

Contactos:
<yacare@arnet.com.ar> o <cidcarlos@infoaire.com.ar>

Steering Committee of the Crocodile Specialist Group

Chairman: Professor Grahame Webb, P.O. Box 530, Sanderson, NT 0813, Australia

For further information on the CSG and its programs, on crocodile conservation, biology, management, farming, ranching, or trade, contact the Executive Office (csg@wmi.com.au) or Regional Chairs.

Deputy Chairmen: Dr. Dietrich Jelden, Bundesamt für Naturschutz, Konstantin Str. 110, D-53179 Bonn, Federal Republic of Germany, Tel: (49) 228 849 1453, E-mail: <JeldenD@bfn.de>. Alejandro Larriera, Pje. Pvdo. 4455, Centeno 950, Santa Fe, Argentina, Tel: (543) 42 4531539, Fax: (543) 42 558955, E-mail: <yacare@arnet.com.ar>.

Executive Officer: Tom Dacey, P.O. Box 98, Clifton Beach, QLD 4871, Australia, Tel/Fax: (61) 7 40553060, Cell: (61) 419704073, E-mail: <csg@wmi.com.au>.

Treasurer: Dr. Perran Ross, Department of Wildlife Ecology and Conservation, P.O. Box 110430, University of Florida, Gainesville, FL 32611, USA, Tel: (1) 352 392 7137, E-mail: <rossp@wec.ufl.edu>.

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Regional Chairman, East and Southeast Asia: Dr. Jenny Daltry, FFI Cambodia Programme, P.O Box 1380, Phnom Penh, Cambodia BKK 1, Tel: 855 23 294934, Fax: 855 23 211142, E-mail: <jennydaltry@everyday.com.kh>.

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Regional Chairman, West Asia: B.C. Choudhury, P.O. Box 18 Chandrabani, Dehra Dun, Uttaranchal, India, <bcc@wii.gov.in>.

Regional Chairman, Latin America and the Caribbean: Alvaro Velasco, Apartado Postal 66597, Caracas, Venezuela, Tel: (58) 414 254 6054, E-mail: <velascoalvaro@tutopia.com>.

Regional Chairman, Europe: Dr. Jon Hutton, Fauna & Flora International, Africa Programme, Great Eastern House, Tenison Rd., Cambridge CB1 2DT, U,. Tel: (44) 1223 571000, Fax: (44) 1223 461481, E-mail: <jon.hutton@fauna-flora.org>.

Regional Chairmen, North America: Dr. Ruth Elsey, Louisiana Wildlife and Fisheries Department, 5476 Grand Chenier Way, Grand Chenier, LA 70643, USA, Tel: (1) 337 5382165, Fax: (1) 337 4912595, E-mail: <relsey@wlf.louisiana.gov>; Allan Woodward, Florida Fish and Wildlife Conservation Commission, 4005 S. Main Street, Gainesville, FL 32601, USA, Tel: (1) 352 9552230, Fax: (1) 352 3765359, E-mail: <allan.woodward@fwc.state.fl.us>.

Vice Chairman for CITES: Hank Jenkins, P.O. Box 390, Belconnen, ACT 2616, Australia, Tel: (61) 2 62583428, Fax: (61) 2 62598757, E-mail: <hank.jenkins@consol.net.au>.

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Vice Chairman, Industry: Don Ashley, Belfast Dr., Tallahassee, FL 32317, USA, Tel: (1) 850 893 6869, E-mail: <Jdalligator@aol.com>.

Vice Chairman, Trade Monitoring: John Caldwell <john.caldwell@unep-wcmc.org>.

Vice Chairman, Veterinary Science: Dr. Fritz Huchzermeyer, P.O. Box 12499, Onderstepoort 0110, South Africa, Tel/Fax: (27) 12 808 3462, E-mail: <crocvet@mweb.co.za>.

Vice Chairman, Zoos and Education: Kent Vliet, University of Florida, Gainesville, FL 32611, USA, Tel: (1) 352 3928130, Fax: (1) 352 3924738, Email: <kent.vliet@zoo.ufl.edu>.

Honorary Steering Committee Members: Prof. Harry Messel (Australia), Ted Joanen (USA), Romulus Whitaker (India), Phil Wilkinson (USA), Prof. F. Wayne King (USA).

Note: Only Regional Chairs, Thematic Vice Chairs and Honorary Steering Committee members are shown here. Regional Vice Chairs, Thematic Deputy Vice Chairs and Task Force Chairs are not listed at this time.