

THIRD WORKING MEETING OF THE IUCN/SSC CROCODILE SPECIALIST
GROUP, CONVENED 5-12 APRIL 1976 AT MANINGRIDA, AUSTRALIA

A Summary Report by the Group Chairman to the Survival Service
Commission Meeting, 11-12 May 1976, Morges, Switzerland.

The Third Working Meeting of the IUCN/SSC Crocodile Specialist Group was hosted by the Crocodile Research Station operated by the University of Sydney and the Government of the Northern Territory, and was attended by 20 Group members and observers from Australia, Colombia, England, India, Papua New Guinea, South Africa, Switzerland, and the United States of America. In addition, a member of the editorial staff of National Geographic Magazine was present to gather information for an upcoming special issue on crocodilians, their ecology, conservation, and impact on human culture.

Status of Wild Populations. The first two days of the meeting were devoted to reviewing the latest information on the status of crocodiles (i.e. - all crocodilians) in the wild.

The Group noted with grave concern the continued decline in most African, Latin American, and Asian populations of crocodiles, as a result of continued hide-hunting, sale of crocodile souvenirs and trinkets, and "vermin" eradication

efforts. However, the Group is happy to report the "Recovered" status of the American alligator (Alligator mississippiensis) as a result of efforts involving several Group members. Members Chabreck, Joanen, and King led the early fight to protect the American alligator with a series of protective state and federal laws, including the U.S. Endangered Species Act. Member Campbell drafted much of the U.S. federal regulations which regulate the hunting, capture, and interstate commerce in the species today. Member Joanen is head of the federal Recovery Team (i.e. - the U.S. Fish and Wildlife Service's equivalent of a "Specialist Group") charged with directing the conservation of this species.

The Group was also pleased to note the development of a management plan for Papua New Guinea's two species of crocodile (the New Guinea crocodile, Crocodylus novaeguineae, and the estuarine crocodile, C. porosus) under the direction of Member Downes. This plan should insure the survival of these species in that nation. Unfortunately, no such management scheme exists in neighboring Irian Jaya where the same two species are declining.

On the side of negative developments, the Group learned that the President of Colombia had authorized the issuance of licenses for hunting 290,000 caimans in that country during 1976. The Crocodile Specialist Group doubts that there are that many adult caimans remaining in the wild in Colombia.

~~This unrealistically high quota, which is reminiscent of~~

International Whaling Commission quotas, is sure to stimulate killing of animals smaller than legal size and the smuggling of hides from neighboring nations.

The Group was extremely concerned over the low numbers of estuarine crocodiles remaining in Australia. University of Sydney crocodile researchers have censused the entire Northern Territories coast and rivers and found a total of approximately 3,000 estuarine crocodiles. Extrapolation of these data suggest that fewer than 5,000 estuarine crocodiles remain in the wilds of Australia. The population was destroyed by hide hunting in years past. A high proportion of juveniles in the population reflects the low numbers of commercially valuable adults that survived. The Group expressed their concern over the future of the Australian crocodiles in a letter to the Australian Council of Nature Conservation Commissioners, and congratulated the federal government on its banning the export of hides.

The Group singled out the critically endangered gharial of Bangladesh, India, Nepal, and Pakistan, and the Orinoco crocodile of Colombia and Venezuela for special attention during the coming months.

Surveys conducted by Romulus Whitaker (Madras Snake Park Trust, Guindy Deer Park, Madras 600 002 India) and his staff in India and Nepal from 1974 to 1976 indicate the gharial (Gavialis gangeticus) probably numbers fewer than 500 adults in the wild in these countries. The largest populations

exist in the Chitawan National Park, Nepal, and a 40 km stretch of the Narayani River extending from Chitawan to the Nepal/India border; and in the Satkosia Gorge Sanctuary on the Mahanadi River in India. The primary cause of the decline of this species has been hide hunting, but today's pressures include drownings of adults entangled in fishing nets, incidental killing of adults by illegal dynamite fishing, and robbing of nests for eggs.

A 1975 survey conducted by Group Member Medem covering 252,530 km² of Colombian tributaries of the Orinoco revealed a total of only 280 specimens of the Orinoco crocodile (Crocodylus intermedius) extant in the area. Even if 50% of the reptiles were missed in the survey, the Orinoco crocodile is one of the most endangered species of crocodile.

Farms. A day was spent discussing commercial crocodile farms. Crocodiles and sea turtles seem to generate more interest in commercial farms than any other species of endangered vertebrate, possibly because the market for products from these reptiles is enormous and there are no other species which can readily be substituted. This is different from the situation with endangered fur animals, such as the spotted cats. In most developed nations spotted cat furs account for less than 5% of total fur sales, so elimination of these species from the market place does not threaten the fur industry. Another reason might be that the reproductive potential of reptiles which lay clutches of 50 or more eggs suggests to the layman that a few breeding pairs will yield

many hides. In any event, each year inquiries about farming techniques are referred to the Crocodile Specialist Group by the IUCN Secretariat, by WWF, by various United Nations agencies, and by individual Group Members. The Group has devoted considerable time to answering these requests, pointing out the difficulties involved in farming crocodiles and the lack of data on many aspects of such ventures. In most instances the inquirer never acknowledges receipt of the Group's answer, and few have actually entered into farming projects. In an attempt to reduce the amount of time the Group devotes to these inquiries, it drafted a standard response which will be routinely sent to all initial inquiries for information on farming. If this stimulates a request for further information, the Group will then devote some time to a detailed and individualized reply.

There have been several unsuccessful attempts by reptile leather tanneries in Europe to construct and operate commercial hide farms in Africa and South America. A few have planned to use exotic (non-native) species of crocodiles in these ventures. Such plans ignore the potential for introduction of an exotic reptile predator into aquatic habitats where it could cause major imbalance in existing ecosystems.

In addition to the Specialist Group receiving inquiries about farming crocodiles, UNDP and FAO also receive requests from governments for assistance in developing farming programs, marketing plans, or schemes for exploiting wild populations.

They have responded to several of these requests by underwriting the expense of "experts" to advise the governments. Unfortunately, with the exception of Dr. Robert Bustard, who is presently working in India on an FAO sponsored crocodile conservation/farming program, these advisers are not expert in the field. The European reptile leather industry has complained to the Crocodile Specialist Group that one U.N. "expert" advising the government of the Sudan on tanning and marketing of hides has no knowledge of reptile leather tanning or of crocodile management. Similarly, the Group knows of one U.N. "expert" who is responsible for devising and administering a harvest/research scheme that caused the near extermination of the already endangered crocodile populations in Botswana.

What may well be the largest crocodile rearing program in the world, and one which was developed by Group Member Downes, is getting underway in Papua New Guinea (PNG). This program is part of a comprehensive conservation/exploitation scheme under which adult crocodiles are protected in the wild to insure the survival of a healthy breeding population, and eggs and young are collected from the wild and raised in captivity to supply the hide market. Eventually, there may be hundreds of individuals, villages, and companies involved in rearing crocodiles in Papua New Guinea. To date the development costs have been borne by the government of PNG, but they are seeking UNDP funding for further implementation and expansion of the program. In this one instance, UNDP contacted the Crocodile Specialist Group chairman for

assistance in evaluating the total program. The chairman was able to locate a herpetologist who visited the area and also interviewed PNG officials before submitting a detailed, and favorable, review of the program to UNDP. In addition, at the invitation of the PNG government, the Specialist Group sent Members Medem and Pooley to conduct an independent evaluation of the crocodile conservation/exploitation scheme immediately prior to the Working Meeting in Australia. Their findings were discussed at the Meeting (see attached report). It is hoped that the PNG program might serve as a pilot scheme for crocodile conservation in many developing countries. It is further hoped that UNDP and FAO will continue to consult with the Group on crocodile conservation matters.

Crocodile farming interests have claimed that hides from captive stocks will replace wild hides in the international hide market, thereby relieving pressure on the wild populations. They have even expressed the belief that a steady source of hides from farms, constant in number, size, or quality, would make them preferable to wild hides. On the other hand, conservationists have expressed fears that the sale of hides from the few extant crocodile farms might stimulate, but fail to satisfy, the international market. This might result in renewed exploitation of the dwindling wild populations in an effort to meet the increased demands of the market. In an effort to determine which of these beliefs might be nearer the truth, the Specialist Group reviewed the

impact that commercial farming of wild species has had on conservation of those species. No example could be found where farming clearly had either a beneficial or harmful effect on the wild populations. The example which the Group found came closest to being beneficial was the farming of ostriches for their plumes. However, the replacement of wild ostrich plumes with farmed plumes was possible because most European and North American "consumer" nations closed their markets to wild plumes. It is doubtful that ostrich conservation would have benefited from farming efforts without the wild plume prohibitions. Since the Convention on International Trade in Endangered Species of Wild Fauna and Flora contains prohibitions on trade in some endangered crocodilians, captive-reared hides might eventually replace wild hides if the ratifying nations cooperate and the technical problems of captive management are overcome.

Research and the Biological Basis of Crocodile Conservation.

Several days were spent reviewing the latest data on crocodile ecology and behavior. Particular attention was focused on the impact of crocodiles on their environment -- in Africa, where crocodiles have been exterminated the amount of fish caught for human consumption has decreased; in North America, the alligator increases marsh productivity by digging deep den holes that retain water and serve as refuges for other aquatic species during periods of drought; in Latin America, caimans speed up the recycling of energy by consuming large numbers of rough fish and defecating the nutrients into the

water, which in turn supports a wider variety of fish, invertebrates, and plants, and where the caimans have been removed there has been a decrease in productivity and a reported increase in schistomiasis and liver fluke infestation. These effects must be called to the attention of nations bent on exploiting or exterminating their wild crocodile populations.

During the last three years, research has revealed that crocodiles possess a complex series of social signals and a surprisingly elaborate pattern of parental care of eggs and hatchlings. These findings have been reported in scientific journals and more are in press at the present time. Some of this behavior was the subject of a Time-Life Wild, Wild World of Animals television show in the United States during 1975. The show was filmed largely at Member Pooley's crocodile research station in the St. Lucia Game Refuge in Natal.

New research techniques and equipment from the United States, Africa, and Australia were discussed and demonstrated. Of particular interest was the method of examining the stomach contents of living crocodiles which was developed by the University of Sydney's crocodile research team under the guidance of Member Messel. Its development eliminates the need to kill crocodiles in order to document what they are eating. Also of note was the solar-battery radio-telemetry units developed by University of Sydney. The unit fastens to the skull of the crocodile without the aid of surgical clamps

or sutures and recharges its batteries every time the crocodile basks in the sun.

Discussions revealed gaps in our knowledge of crocodile biology and yielded new cooperative programs to fill some of those gaps.

Trade and marketing. The Group continued its efforts to monitor the trends in hide marketing. The number of crocodile hides marketed internationally each year is estimated to be 2,000,000. A majority of these hides are produced in Latin America. Africa is the second largest producer of hides. France, Germany, and Italy are the largest consumers of hides. England, Japan and the United States also consume large numbers. New laws and regulations enacted to protect and conserve the wild crocodile populations were reviewed.

Considerable time was spent debating the placement of particular crocodiles on Appendices I and II of the Convention on International Trade in Endangered Species. Part of this discussion was prompted by the receipt of a letter from the German Reptile Leather Association in which the Group was asked to recommend the removal of some Appendix I species to Appendix II and vice versa. In return for these changes, the industry had offered to impose a voluntary ban on the use of certain size classes of hides. They also offered to contribute funds for crocodile conservation and farming research through the Frankfurt Zoological Society. The Group drafted a reply to the industry letter in which we

indicated we could not support many of their recommendations (see below and attached letter).

The Group debated the problems associated with restocking areas depleted of their wild crocodilians, and concluded that this will be impossible in many instances without public education programs and/or an economic incentive to tolerate the animals' presence. Also examined was the disposal of confiscated hides -- should they be destroyed or sold to produce revenue for conservation. The majority of the Members were of the opinion that confiscated hides should be destroyed. If hides are sold, they re-enter the trade and supply the very same buyers who were buying them as illegal hides. The only way to avoid this is to destroy the hides. A few Members reported that their governments had no legal basis for destroying hides and so were prevented from doing so, but they were allowing the hides to deteriorate through improper storage.

ACTION PROGRAMME

Rather than promulgate a program so large that it would be impossible to implement, the Group decided to concentrate on a few important and realizable goals. Primary among these were efforts to save the gharial and Orinoco crocodiles from extinction.

Gharial. The Crocodile Specialist Group requests that IUCN/WWF make representation to His Royal Highness Gyanendra, Kathmandu, Nepal, to protect the gharial population in Chitawan National Park and in the Narayani River. Since these populations are the largest remaining populations of the gharial, Nepal should be asked to accept the ULTIMATE RESPONSIBILITY for assuring its survival.

Under the guidance of FAO adviser, Robert Bustard, the government of India has established the Satkosia Gorge Sanctuary for the species. In addition, captive propagation programs are being developed under Dr. Bustard and under Romulus Whitaker of the Madras Snake Park Trust. Also, India should be encouraged to set aside a portion of the Narayani River contiguous with the gharial habitat in Nepal as a reserve.

The Crocodile Specialist Group will attempt to find an ecologist to study the gharials in the Chitawan and Narayani populations. This "scientific presence" should further insure the conservation of the species in Nepal.

Orinoco crocodile. The Crocodile Specialist requests that a letter be sent from IUCN/WWF to the President of Colombia seeking more effective protection of the Orinoco crocodile in that nation, including the establishment of suitable sanctuaries. Protection will never be effective unless adequate support (vehicles, boats, gasoline, etc.) is given to the wildlife officials responsible for enforcement. A U.S. Peace Corps worker will assist Member Medem's study of the species in Colombia this year and maintain a "scientific

presence" there.

*** Similarly, a letter should be sent to the President of Venezuela seeking the establishment of a sanctuary for the species in that nation, and the acceptance of ULTIMATE RESPONSIBILITY for the species' survival. The Group is prepared to offer technical assistance to Venezuela if it is needed.

*** The Group further requests that IUCN/SSC congratulate Dr. Pedro Trebbau, Director of the Jardin Zoologico "El Pinar" (Cota 905, El Pinar, El Paraiso, Caracas, D.E. Venezuela) for his initiation of a breeding program for the Orinoco crocodile in that institution, and encourage him not to disperse the breeding group and its offspring by giving specimens to visiting zoo directors during the upcoming IUDZG meeting in Caracas. Almost certainly some of the European zoo directors will request specimens. Dr. Ernst Lang, as IUDZG representative on the IUCN/SSC Zoo Liaison Group, might be prevailed upon to make the same requests of IUDZG and Dr. Trebbau.

** Colombian caiman. The Group requests that IUCN send a letter to the President of Colombia calling for a reexamination of his decree to permit the killing of 290,000 caiman.

Ultimate Responsibility. The Group hopes governments can be prevailed upon to accept ULTIMATE RESPONSIBILITY for the following species:

- Chinese alligator (Alligator sinensis) -- China
 Apaporis River caiman (Caiman crocodilus apaporiensis) -- Colombia
 Orinoco crocodile (Crocodylus intermedius) -- Venezuela
 Philippine crocodile (Crocodylus novaeguineae mindorensis) -- Philippines
 Cuban crocodile (Crocodylus rhombifer) -- Cuba
 Gharial (Gavialis gangeticus) -- Nepal
 False gavial (Tomistoma schlegeli) -- Malaysia or Indonesia

New Sanctuaries. It is the intention of the Group to encourage the establishment of a number of urgently needed sanctuaries for particular species or populations.

- 1) Narayani River in Nepal or India (as mentioned above) for gharial.
- 2) Orinoco River sanctuaries in Colombia and Venezuela (as mentioned above) for Orinoco crocodile.
- 3) Lago Catemaco, Mexico, for the Morelet's crocodile (Crocodylus moreleti) population there. This population exists in a growing tourist vacation area, where it could form the center

- of a natural wildlife attraction.
- 4) Lago Enriquillo, Dominican Republic, for what may be the largest single remaining American crocodile (Crocodylus acutus) population. The crocodiles in this hyper-mineralized lake haul out on the shore to bask in scenes reminiscent of past eras. It is possible to photograph 40-50 crocodiles in a single exposure. The area could become a major wildlife attraction for tourists. The major threat to the continued existence of this population also is reminiscent of past eras, they are killed and rendered for their oil.
 - 5) Black River Morass, Jamaica, for the American crocodile. This is the habitat of the largest remaining population in Jamaica, and it is scheduled to be drained for development of rice terraces.

In addition, the Group hopes to encourage all crocodile producing nations to establish new sanctuaries for these reptiles or to include the species in protection, provided by existing parks and reserves.

Washington Convention. Because of its Recovered status, the Crocodile Specialist Group suggests that the American alligator (Alligator mississippiensis) be transferred from

Appendix I to Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora. If it is appropriate, the IUCN in its role of Convention Secretariat should suggest this to the November meeting of ratifying nations.

New Specialist Group Members. The Group noted with regret that Member Max Downes was no longer directly involved with crocodile conservation but instead was producing wildlife bibliographies. The Group voted to make up for this loss with the addition of John Lever, present head of the crocodile conservation program in Papua New Guinea, to the Group.

Romulus Whitaker, founder-director of the Madras Snake Park Trust, India was also approved for membership on the Group, as was Dr. Federico Achaval of Uruguay.

Of course, official addition of these three new members, Lever, Whitaker, and Achaval, awaits the approval of the Chairman of the SSC.

Venue and Date of Next Working Meeting. The Group tentatively selected India as the site of its 1978 meeting, pending final arrangements by its Indian Members. The Group decided that each member should raise the travel funds he needs to attend the meeting.

Crocodile Conservation and the U.N. Agencies. The Crocodile Specialist Group (as noted above) is concerned that United Nations agencies needlessly and unwisely encourage

crocodile exploitation as a means of gaining foreign exchange, and is disturbed by their habit of supplying non-expert advisers on crocodile exploitation projects. These practices are resulting in the needless squandering of a valuable resource. Of the estimated 2,000,000 crocodile hides that are traded internationally each year, one-half are unusable due to rot. If the quality of field preservation could be improved, it might be possible to reduce the number of wild crocodiles killed without reducing the number of usable hides the international reptile leather industry consumes.

The Crocodile Specialist Group has learned that FAO has prepared a confidential report on the reptile leather industry, which it is using as a basis for many of its crocodile projects. The Crocodile Specialist Group has been denied access to this report, although one Member was permitted to look it over superficially, but not allowed to even copy down the correct citation.

The Crocodile Specialist Group urges the IUCN/SSC to make strong representation to FAO to obtain a copy of the reptile leather industry report for review by the Group. We also suggest IUCN seek discussions with FAO and UNDP to end their hiring of non-expert advisers on crocodile projects. The Crocodile Specialist Group is willing to assist the U.N. in locating knowledgeable individuals as was done in the case.

of the Papua New Guinea program. We are frequently told that the U.N. recognizes the scientific expertise of the IUCN on matters involving conservation. Apparently that recognition does not extend to matters involving crocodiles. We also wish to remind the SSC that on the occasion of its General Assembly the IUCN routinely praises FAO, WHO, UNDP, and UNEP for their cooperation. If that cooperation does not exist, we should reevaluate this General Assembly procedure.

Crocodile Ecologists. To increase the number of crocodile biologists available for conservation work, each Group member will attempt to attract one student to the field each year.

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Acting on the opportunity of having Crocodile Specialist Group Member Medem visit Germany on his return to Colombia from Australia, Members Honegger and King rescheduled their work and trips, and the three of them met with the German Reptile Leather Industry in Frankfurt on 3 May 1976. The three Members made it known that they were not empowered to speak for the IUCN, the SSC, or the Crocodile Specialist Group. They did set forth the Group's response to the earlier letter from the German Industry, and did present the Group's view of a number of problems resulting from overexploitation of wild crocodile populations. They also

stated they would convey the Industry's ideas and opinions to the Group and to the SSC. A few of the subjects which were covered were:

- 1) Industry acceptance of an upper size limit on hides in order to protect the wild breeding populations. The concept of an upper size limit is acceptable, but the actual limit is being discussed further.
- 2) Reducing the overall number of hides harvested below the present 2,000,000 per year, if needed. [Incidentally, the industry confirms the Group's estimate that 2,000,000 hides are traded internationally each year.] The industry is willing to accept such a measure only if forced to do so by law or the loss of the resource.
- 3) Industry data on the status of wild populations. The German reptile leather industry insisted that it had better data on the status of wild crocodile populations than did the Crocodile Specialist Group. Discussions during the meeting revealed that industry "data" pertained primarily to one population, the population in the Sudan, and even that was based on casual observations during repeated visits by a representative of the industry.

4) The functioning of the Washington Convention.

The German industry insists that France and Italy will not ratify the Convention, which means that these two countries will reap all the skins from the species on Appendix I. This will give them an unfair trade advantage over the German industry. [Since the meeting Italy has acceded to the Convention.] In addition, the industry representative expressed the belief that eliminating commerce in Appendix I species will result in increased trade in the Appendix II species, which will rapidly make them candidates for Appendix I.

5) The Reptile Leather Industry's concern over the non-expert advisers employed by FAO on crocodile exploitation and tanning projects -- this concern closely parallels that of the Specialist Group as set forth above.

PARTICIPANTS IN THE THIRD WORKING MEETING OF CROCODILE
SPECIALISTS

Dr. Howard Campbell (Member)

- National Fish and Wildlife
Laboratory
2820 E. University Ave.
Gainesville, Florida 32601
USA

telephones:

(office) 904-372-2571
(home) 904-378-8532

Dr. Robert Chabreck (Member)

- School of Forestry & Wildlife
Management
Louisiana State University
Baton Rouge, Louisiana 70803
USA

telephones:

(office) 504-388-4131
(home) 504-387-1222

Dr. Hugh B. Cott (Member)

- Denebanks, Netherbury
Bridport, Dorset
England

Dr. J.C. Daniel (Member)

- Bombay Natural History Society
Hornbill House, S.B. Singh Road
Bombay 400 023
India

telephone:

(office) 25-7277

Mr. Murray A. Elliott (Observer)

- Wildlife Section
Dept. of the Northern Territory
P.O. Box 2783
Darwin 5794
Australia

- Mr. Richard Gore (Observer) - National Geographic Society
Washington, D.C. 20036
USA
telephone:
(office) 202-857-7254
- Dr. Gordon Grigg (Observer) - Zoology Building
University of Sydney
Sydney, New South Wales 2006
Australia
- Mr. Rene E. Honegger (Member) - Zoo Zurich
CH-8044
Zurich
Switzerland
telephones:
(office) 01-32-5411
(home) 01-715-1256
- Mr. Ted Joanen (Member) - Rt. 1, Box 20-B
Grand Chenier
Louisiana 70643
USA
telephones:
(office) 318-538-3431
(home) 318-538-2021
- Dr. F. Wayne King (Chairman) - New York Zoological Society
185th St. & Southern Blvd.
Bronx, New York 10460
USA
telephones:
(office) 212-220-5155
(home) 212-220-5151
- Mr. Navu Kwapena (Observer) - P. O. Box 1067
Boroko
Papua New Guinea
telephones:
(office) 25-9594 ext. 55
(home) 25-7059

- Mr. John C. Lever (Observer and
New Member) - P.O. Box 1530
Boroko
Papua New Guinea
- telephones:
(office) 25-9599 ext. 53
(home) 25-3904
- Mr. Dave Lindner (Observer) - Wildlife Section
Dept. of the Northern Territory
P.O. Box 2783
Darwin 5794
Australia
- telephones:
(office) 84-3022
(home) 81-8162
- Mr. William Magnuson (Observer) - Zoology Building
University of Sydney
Sydney, New South Wales
Australia
- Prof. Federico Medem (Member) - Instituto Roberto Franco
Apartado aereo 2261
Villavicencio (Meta)
Colombia
- telephone:
(office & home) 2752
- Prof. Harry Messel (Member) - University of Sydney
Sydney, New South Wales 2006
Australia
- telephones:
(office) 02-692-3383
02-692-2537
(home) 02-328-7261
(Darwin) 089-81-3397

- Mr. Victor J.T. Onions (Observer) - Applied Ecology Pty. Ltd.
P.O. Box 26
Woden
A.C.T. 2606
Australia
- telephones:

(office) 062-81-0722
(home) 062-88-5725
- Mr. A.C. Pooley (Member) - Box 42
St. Lucia Estuary
3936 Zululand
South Africa
- telephones:

(office) St. Lucia Estuary 20
(home) " " " 75
- Miss Janet A. Taylor (Observer) - 19 Beale Crescent
Peakhurst 2210
New South Wales
Australia
- telephone: Sydney 53-9896
- Dr. Grahame J.W. Webb (Observer) - Environmental Physics Dept.
School of Physics
University of Sydney
Sydney, New South Wales 2006
Australia
- Dr. Michael J. Yerbury (Observer) - Environmental Physics Dept.
School of Physics
University of Sydney
Sydney, New South Wales 2006
Australia

CROCODILE SPECIALIST GROUP

NEW MEMBERS

- Dr. Federico Achaval
- Departamento de Zoologia
(Vertebrados)
Universidad de la Republica
Cerrito 73
Montevideo, Uruguay
- Mr. John C. Lever
- P.O. Box 1530
Boroko
Papua New Guinea
- Mr. Romulus Whitaker
- Madras Snake Park Trust
Guindy Deer Park
Madras 600 002
India

SUGGESTED ELEMENTS IN "ORINOCO CROCODILE" LETTER TO:

Dr. Alfonso Lopez Michelsen
Presidente de la Republica de Colombia
El Palacio
Bogota 1, D.E.
Colombia

- 1) A statement on the very low numbers of Orinoco crocodiles (Crocodylus intermedius) in relation to area of Colombian Orinoco habitat. Medem survey in 1975 revealed only 280 specimens living in 252,530 km² of Orinoco tributaries in Colombia.
- 2) The need to strictly and vigorously enforce the existing total ban on the hunting of the species and on the sale of its hides.
- 3) The need to establish sanctuaries for the species where it can be effectively protected from further hunting. Any sanctuary being established today probably will not contain Orinoco crocodiles, so it will be necessary to stock it with specimens from areas where the species is not adequately protected or from captive breeding groups.
- 4) The need to establish a breeding station for restocking depleted areas and/or new sanctuaries. Such a station could be located in the Llanos Orientales.