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NEWSLETTER NO. 12

CROCODILE SPECIALIST GROUP, I.U.C.N. SURVIVAL SERVICE COMMISSION

Editor's Comment:

At the 1976 meeting of the Group in Maningrida, Australia, Tony Pooley requested to be relieved as editor of the Newsletter and I was asked to take up the job. I'm happy to do so and intend to try to produce an issue approximately every three months. The delay between the Maningrida meeting and this first issue is regrettable and I will see to it that such a delay does not occur again, given enough crocodile news. In order to produce a newsletter, news is necessary and everyone's participation will be a help. Events, biological or legal, of potential interest to crocodile biologists, publications, and so forth should be sent to Wayne King for compilation. If copying facilities are available a copy can be sent directly to me and this fact noted on Wayne's copy to save him the time and expense of making an unnecessary copy for me. If everyone will think "Newsletter" we can generate a flow of information both timely and valuable for all concerned.

Regional News:

U.S.A.

The current status of the American alligator has recently been reviewed by the Fish and Wildlife Service and a proposal to reclassify the 'gator as threatened instead of endangered in the areas of southeastern South Carolina, coastal Georgia, Florida, southern Louisiana (except where already removed completely from the Endangered Species List - Calcasieu, Cameron, and Vermillion Parishes) and northeastern coastal Texas is being considered. Some official action is expected in the near future.

Meanwhile, in the open parishes of Louisiana where hunting is permitted, a September-October (30 day) harvest yielded 4389 hides from approximately one million acres of marsh. The state estimates 115,000 'gators in that one area. The hides ranged in size from 4'-13' and brought an average price of \$116.00, or \$16.55 per foot. Alligator farmers were also allowed to crop during this season and provided an additional 360 hides. Total revenue from the season was \$539,672.00. The Fouke Company of South Carolina purchased the lot.

While perhaps too early to make firm conclusions, it should be noted that no major increase in movements of illegal hides have been documented in association with the Louisiana harvest. Rumors of anticipatory poaching

in Florida and elsewhere abound of course, but these are often coupled with reports that poachers are having a difficult time moving their hides.

The Chinese alligator is now also getting some attention in Louisiana. In cooperation with the New York Zoological Society and U.S. National Zoo, the Louisiana Game and Fish Commission is attempting to establish a breeding nucleus of Chinese alligators in pens at its Rockefeller Refuge. Four (2 males, 2 females) animals were introduced into the area in March, 1976. One male has since died, but the others have dug burrows and appear to be taking to their new quarters. No new information on the status of the wild populations of this species is available and a recent attempt by the National Geographic Society to visit China to review the situation there has been refused. Mr. Wang Jen-Chuan of the Bureau of Foreign Affairs notified Richard Gore on July 26, 1976 that such a visit could not be arranged because no one in China was currently studying alligators and arrangements for a survey trip could not be made.

The Florida population of the American crocodile has been placed on the list of Endangered Species, critical habitat for it has been determined (essentially south Florida from southern Biscayne Bay, Key Largo, and Florida Bay west to Flamingo), and a recovery team has been appointed. The team, consisting of myself as team leader, Tommy Hines of the Florida Game and Fresh Water Fish Commission, Rich Klukas and Jim Kushlan of the National Park Service, and John Ogden of the National Audubon Society, has met twice now to formulate a draft Recovery Plan. At the most recent meeting John Ogden agreed to prepare the narrative section for the plan while the step-down version was being drafted and the team recommended that immediate steps be taken to deal with problems outside the Everglades National Park on Key Largo and to initiate a program to enhance population recruitment for the population in the park in Florida Bay for the 1977 breeding season.

The Atlanta Zoo has initiated its second attempt to reintroduce Morelet's crocodiles into protected areas in Mexico with the collaboration of Dr. Villa-Ramirez. Thirty-six captive hatched and raised one-two year old crocodiles were shipped to Dr. Villa-Ramirez in October, 1976. The plans are to release them in "tropical Mexico", but no more details on the project or the survivorship of the released crocodiles are currently available.

Studies of nesting and parental care in Morelet's crocodile are continuing at the Atlanta Zoo in conjunction with their captive rearing program. Howard Hunt of the Atlanta Zoo has been extraordinarily successful and has amassed some very interesting data. He has a paper on aggression of adults toward older juveniles in press in Herpetologica and is now doing comparative studies with alligators in the wild in Georgia. The

hatching and parental care of Morelet's crocodile was recently photographed at the zoo.

Elsewhere in Latin America, the "Second Seminar on Chiquires and Babas" was held in Maracay, Venequela on 1-4 December, 1976. We have not received word of just what transpired on the Baba (Caiman crocodilus) yet, but will include it in the next Newsletter if anything comes available. Venezuelan crocodilians are now receiving considerable scientific attention with Dr. James Dixon and students from Texas A. & M. University continuing their studies of Caiman. Dr. Jeffery Lang of the University of Minnesota is reportedly about to begin work in Venezuela also and we hope to have additional details on his program for the next Newsletter.

The Dominican Republic has recently increased protection for crocodiles and other species in Lago Enriquillo and interest appears high for protection and conservation of the crocodiles. Lago Enriquillo crocodiles are currently receiving attention from Dr. Jim Dixon and students and from Dr. Les Garrick of the New York Zoological Society. The lake supports an impressive number of large crocodiles but there is concern that few young survive.

The crocodile populations of Honduras are finally receiving some badly needed attention from the Honduran Department of Renewable Natural Resources. Duke Klein, a wildlife biologist for the department, is now undertaking field surveys directed toward the eventual development of crocodilian management programs for the country. Honduras has long been one of the least known areas in Central America and this new interest is most welcome!

A disturbing note from Cuba! Dr. Luis Varona reports (Miscel. Zool., No. 5, September, 1976) that Caiman crocodilus may now be established on the Isle of Pines, Cuba. Nine captive Caiman were released in the Cienega de Lanier in 1959 and three have since been captured there; a 36" (90mm) male in 1971 and two others in 1973. The size of the male from 1971 might indicate that breeding is occurring. If the habitat is still suitable for supporting crocodilians it seems unfortunate that an introduced species should be the inhabitant - reintroduction of the native C. rhombifer would seem to be the greatest use of the habitat.

Crocodylians appear to be holding their own in Surinam. Nicole Duplaix-Hall reports that both Caiman and Paleosuchus trigonatus can be easily observed in many of the interior rivers. The animals can be approached closely and she has some excellent photographs of Paleosuchus in the rapids of the Taniemama Creek at the Anoejmara Falls.

Bolivia: Jim Lovisek has begun studies of Caiman c. yacare and has already captured and marked over 130 individuals. He will be concentrating on nesting ecology of this species and may also soon initiate a captive breeding effort for Melanosuchus niger. He reports that the official hide export records show 124,114 C. c. crocodilus hides and 4580 Melanosuchus hides were exported from Bolivia in 1976.

Papua New Guinea

Papua New Guinea was visited by a team from the Crocodile Specialist Group immediately before the group's meeting in Maningrida, Australia. Dr. Fredrico Medem and Tony Pooley, accompanied by Howard Campbell who hitch-hiked along on the tour, visited the PNG crocodile facilities in Port Moresby the Lake Murray area and various areas along the Sepik River. The PNG husbandry program was reviewed in depth and recommendations for technical modifications and additional population studies were presented to Mr. Stephen Tago, Ministry for Environment and Conservation.

The full PNG program now appears to be moving into full swing and U.N. volunteers have been requested to bolster the field efforts throughout the country. Mr. Charles A. Ross, ex-of the National Fish and Wildlife Laboratory, has been selected already and will be in PNG by the time this Newsletter is mailed. Additional staff have been added in PNG also and Judy Herington is now beginning studies of crocodile acoustic behavior and studies of the social hierarchy of both salt water and fresh water crocodiles are planned for the immediate future.

Mr. John Lever, who replaced Max Downes as the head of the crocodile management program in Papua New Guinea, has been appointed to the Group in Max's place.

Little has been received from Africa for the Newsletter. The Director's Report for the Uganda National Parks, Second Quarter 1975, did note that

Kabalega Falls National Park has had some successful crocodile nesting. "Most" female crocodiles were reported to have had young which resulted in an "infestation" of young in the rocks near the falls.

Attempts to breed Osteolaemus tetraspis in South Africa have been thwarted by a lack of females, a generally acknowledged necessary ingredient in any propagation program. This problem was partially alleviated in August, '76 when Tony Pooley received an adult female from Prof. H. Mendelsohn of the Univ. Tel-Aviv, Israel. Tony's three males, donated by the New York Zool. Soc., now have some critical help in their worthy cause. Tony is anxious to locate another two females and anyone who can help should contact him directly.

Meanwhile, in the Zoo Negara, Malaysia, the breeding trio (2M, 1F) of this species already are having some success. Originally donated from Swiss and German zoos with René Honegger's help, this trio has obviously acclimated to Malaysia's climate and the female built a nest in June which produced five young from six eggs. One hatchling later died with an unabsorbed yolk sac and the remaining four young were last reported to be doing well on a diet of meat, grasshoppers and dragon flies.

James H. Powell, Jr., recently undertook crocodile surveys in parts of Gabon and Cameroon (July-August, 1976) in cooperation with Dr. Clarence Abercrombie. They conducted day and/or night surveys in two areas in Gabon, the Cape Esteras area and the Ogooué River. Few crocodiles were seen, only C. cataphractus in the Ogooué River.

The Cross River in Cameroon was also investigated, primarily by interview as the rains prevented actual field surveys. Both C. niloticus and C. cataphractus are reported from the area, but Osteolaemus was not distinguished. No systematic commercial hide hunting was reported, although crocodiles are eaten and their hides used. Both species were reported to be more common in the more remote areas.

Jim summarized his survey by noting that no effective legal protection for crocodiles was evident but that sparse human populations and ineffective hunting techniques may work to the crocodile's advantage. He feels that C. cataphractus may be "holding its own" in remote areas in Gabon and perhaps in Cameroon.

In Australia the Maningrida Crocodile Research facility under Prof. Harry Messel continues its energetic programs. Crocodile habitats (C. porosus) are being characterized along the north coast and feeding

habits, movements, growth rates, morphometrics, population demography, and variety of other activities are underway. A specific effort to develop a standardized census technique is underway in the Blyth River. Environmental factors influencing consecutive spot-light counts at night are being analyzed with hope that a correction factor(s) can be determined to permit evaluation of the data from less intense surveys. The effort going into the Maningrida programs is truly amazing and defies description in a newsletter of this scope; anyone anxious for more detail will have to contact Prof. Messel directly!

Dr. Graham Webb of Messel's lab. continues to pursue his intense interest in the human uses of crocodiles in addition to his studies of crocodile physiology. In addition to the use of crocodile leather, Graham has added a parameter to our knowledge of the use of live crocodiles. He has located a reference (Men Only, Vol. 40, No. 8) to croco-philias, a sexual aberration reported from New Guinea and also attributed to Cleopatra. Dr. Webb is now attempting to determine if jealousy is a psychological component of man's tendency to exterminate crocodilians.

Elsewhere in Australia, Col Limpus of the Australian National Parks and Wildlife Service, has initiated a study of nesting and ecology of C. Johnsoni in Queensland. He has already tagged a number of young animals and hopes to continue the study for at least several more years. We look forward to more information on this project for future newsletters.

Much of interest has been received from India, too much, in fact, to permit detail and reporting here.

Dr. R. Faust, Director of the Frankfurt Zoo, recently offered to send his lone adult male Gharial to Rom Whitaker's Madras Crocodile Bank for breeding purposes. Due to the Indian government's interest in keeping crocodile breeding under government auspices, Rom declined the loan and suggested that the animal go instead to Dr. Bustard's crocodile breeding project in Orissa where the chances of successful breeding would be higher. At this writing we have not heard of the ultimate fate of the Gharial.

The Mugger crocodile survey being undertaken by the Madras Snake Park Trust has located a number of populations in Tamil Nadu (12), Kerala (4), Karnataka (7), Andhra Pradesh (6) and Maharashtra (6) where C. palustris still occurs. The status of the species was considered poor in India in their April, '75 report, with possibly only a few thousand remaining. As of that report the park had one adult male, two adult females, ten sub-adults, and fifteen juveniles and breeding efforts and studies of

behavior were underway. In 1976 one of the park's female muggers laid 23 eggs which produced 22 young.

Dr. Bustard's FAO/UNDP crocodile project appears to be achieving some successes. Forty-two Gharial hatchlings from 1975 are being reared and a breeding enclosure with a 30' deep pond has been constructed at Nandankanan Biological Park near Cuttack. Twenty-eight hatchling C. porosus are being raised at the Bhitari Kanika Sanctuary. A Gharial egg collection program in Nepal was organized in 1976 but the number of eggs found is unknown to us at this time. Dr. Romulus Whitaker, who cooperated with the project, notes that no nests were apparently laid along the Karnali River, possibly due to disturbance from studies of a proposed dam. Seven Gharial were observed along the river, the last major tributary of the Ganga to lack a dam. Whitaker notes that the UN sponsored feasibility study of the Karnali Dam allocated only \$5,000 of \$2,500,000 for ecological study of the dam's impacts!

A rare word has come out of Burma to the effect that since the Karen insurgents have been removed from the Irrawaddy Delta, crocodile hunting has resumed. A buy center for crocodiles has been set up in Bogale and both hides and living young crocodiles are being traded. A report in a local newspaper stated that no less than 19 teams are capturing crocodiles in Bogale township. This certainly appears as a development the group should investigate further, particularly as to which species and what numbers are being taken.

International Crocodylian Society

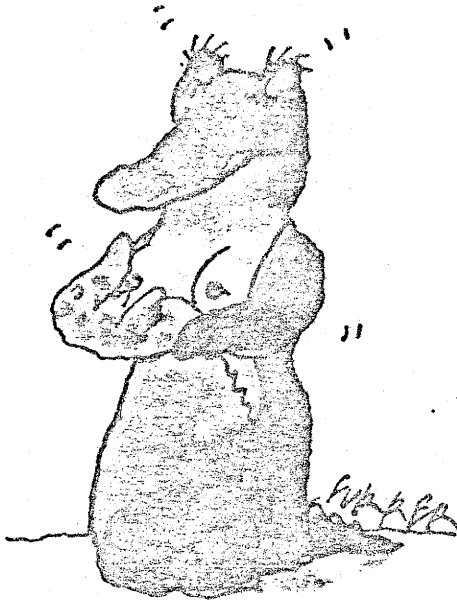
Mr. E. Ross Allen, Vice President, has recently written that he no longer can afford the time to devote to the ICS. He is looking for someone to assume the responsibility for the function of this group. This appears to be an area where our group might contribute. If anyone has specific ideas as to how the group might contribute to this worthwhile cause they should write to Dr. F. Wayne King. Copies of the legal documents of the ICS can be obtained from me or from Mr. Allen directly (ICS, 3701 Bayshore Rd., Sarasota, Florida 33580, U.S.A.).

Publications

Several publications of pertinence have been published recently. The Newsletter cannot serve as a bibliographic reference source, but we will attempt to note significant and interesting publications as we receive them.

- Barbour, John. 1976. Poachers at work. Internat. Wildlf.,
6(5):4-9.
- Anon. 1976. Elephants and other land giants. Wild, Wild World
of Animals, Time-Life films. pp. 116-119 (interpret with
care, the figure captions do not clearly indicate that the
female is assisting, not eating, the hatchling!)
- Downes, M.C. 1976. The literature of crocodilian form and
function. Wildlife Branch, D.A.S.F., Konedobu, Papua
New Guinea.
- Pooley, A.C. and G. Gans. 1976. The Nile crocodile. Scientific
American, 234(4):114-124.

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PARENTAL CARE IN CROCODILES - A MAJOR NEW INTERPRETATION!

At one of those late night seminars during the Third Working Meeting of the Crocodile Specialist Group in Maningrida, members Pooley, Campbell, Medem, and Lever were relating their observations of parental care in various species of crocodilians to Bill Magnuson so that he might correctly interpret the time-lapse photographs he is getting on C. porosus parental activity at the nest site. The discussions were so productive that Rene Honegger asked well-known Swiss artist, Jurg Furrer, to illustrate the official minutes of the seminar. The first plate appears above.