

INTERNATIONAL UNION FOR THE CONSERVATION OF NATURE
CROCODILE SPECIALIST GROUP

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AFRICA

F. WAYNE KING

Thomas J Larson's note on burrowing by Crocodylus niloticus in Benin (newsletter no. 16) has stimulated an interesting vocalization from James Powell-

"I observed similar behaviour in C. acutus while doing field work on that species in the vicinity of San Blas, Nayarit, Mexico in 1967. The place was an artificial reservoir on a ranch. A crocodile about 5 ft (1.5 m) long had taken up residence in the reservoir and had constructed three burrows in an embankment at one end. I was able to squeeze into the largest of the three and at the time took careful measurements... I remember the burrow extended a little over twenty feet back into the embankment. It was a simple tunnel, sloping downward at an angle of (approximately) 20 degrees. There was only a very slight enlargement not a real chamber- at the end. At the time of my visit this was occupied by a large anuran-- Bufo marinus, I think. The crocodile was not in this or either of the other two dens; the landowner said that he had not seen the crocodile for some time, and was afraid that, in spite of his efforts to protect the animal on his private land, it had been shot by hide-hunters. The other two tunnels were too small for me to enter, but under examination by a powerful torchlight they seemed similar in length, angle of downward slope, and general construction to the first.

"Also in the vicinity of San Blas I observed crocodile dens excavated under the red mangrove roots and into the mud bank of a brackish estuary. These were much wider excavations than those at the reservoir, but also much shallower, extending at the most 10ft back under the mangroves. I do not know the size of the crocodile that made these dens. However, the slaughtered carcass of an 8 ft specimen was found nearby.

"The local term for a crocodile den was "cueval"-- Spanish for cave. I have photographs of all these dens, and will be glad to send reproductions to anyone seriously interested."

AUSTRALIA

Grahame Webb has written about the highly interesting discovery made in Arnhem Land. He was with a team from National Geographic.

"Using a helicopter and inflatable canoes, populations of C. johnstoni in the remote Arnhem Land Plateau were examined. To the best of our knowledge crocodiles here had never been hunted by Europeans and their only interaction with man were with tribal Aborigines some 30 years ago.

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"It was found that in the very upper reaches of the Liverpool River, C. johnstoni were stunted, maximum sizes being about 1.2 m and 3 kg. Elsewhere they are known to reach 3 m and 60 kg, with normal maturity of females about 1.5 m (8 kg), and males 2 m (25 kg).

"The possibility that the stunted crocodiles represent a genetic variant has not been ruled out, however further examination is necessary. The largest individuals caught were very dark, almost black, and were emaciated. The ovaries appeared to have corpus lutea and the testes, although small, were ovoid and not the thin strips characteristic of immature crocodiles. The gonads are currently being sectioned.

"Information on the densities of crocodiles in various habitats were collected, along with data on the limit of C. porosus penetration into the freshwater areas."

Some more notes from Grahame-

The major study on the Mary/McKinley river system has returned some 120 recaptures after a year in the wild.

During the dry season in this region feeding seems to be negligible and a minor fraction of wet season feeding. Twenty-nine nests were examined but again varanids (V. gouldii) took the majority of eggs. Mean clutch size is about 11 eggs in the McKinley river area. The introduction of a 3.4 m C. porosus into a wild population of C. johnstoni has so far yielded little obvious interaction.

On 7 October, a man in the Northern Territory was attacked and killed by a 3.4 m C. porosus while diving for lobsters. There was considerable press coverage mainly directed at how the saltwater crocodiles are going to be managed now that they are commonly being sighted in and around populated areas. The Territory Parks and Wildlife Commission is receiving approximately 1 problem crocodile report per week, though this increased after the fatal attack.

BRAZIL

Some news from Bill Magnusson (though Grahame) who is currently in Brazil.

"The work continues to go well here. I now have a fair idea of the habitat preferences of the 4 species, and have an idea of population levels. Neither species of Paleosuchus is hunted commercially though some people eat them. P. trigonatus, especially, is in little danger as it lives in small forest streams where few people go at night because of the pecaries and jaguars. Caiman are hunted regularly but there are plenty around and plenty of hatchling groups indicating successful breeding. Melanosuchus is in much lower numbers and I have seen only one over 3 metres. I have seen 40 Caiman skins and 10 Melanosuchus skins on a small trading vessel openly displayed. I think that the only way to effectively

protect Melanosuchus at the moment will be in special reserves. I have just returned from a survey of the Parque Nacional da Amazonia (Tapajos)... Melanosuchus occur there in relatively low numbers (34 encountered as opposed to 164 Caiman). Happily in a few tiny lakes they are in very high densities and there are hatchlings indicating successful breeding. As yet I don't know enough about their habitat needs to know whether their absence from the rest of the Park is due to hunting or less suitable habitat. I suspect the latter as all locals knew they occurred in the lakes and Melanosuchus is so stupid any hunter could have wiped out the lot in a night...."

BURMA

Three trainees from Burma are due to arrive in Papua New Guinea in January for training in crocodile farming and management. This is preliminary to launching a crocodile conservation and management scheme in Burma.

CHINA

Four Chinese alligators, Alligator sinensis (two male and two female, all three year olds) were sent to Samut Prakan Crocodile Farm, Thailand from the Zoological Gardens in Peking in exchange for four "local breed" crocodiles.

INDIA

Of the eight females in the mugger breeding group at the Madras Crocodile Bank, six laid two nests each, with nesting intervals of 30 to 51 days. Out of a total of 13 nests and 348 eggs only 164 hatchlings survived, making a low success ratio of 47.1%.

The Crocodile Bank has received the second instalment of a Rs.50,000 grant from the Tamil Nadu Tourist Development Corporation, and another DM 10,000 from the International Reptile Leather Union for gharial breeding and research facilities.

INDONESIA

Crocodylus siamensis, C. novaeguineae and Tomistoma schlegeli have been added to the list of protected species. John McKinnon, in Bogor, says that it is illegal to catch, kill or trade in these species without special permission from the Director of Conservation (which would not be given in most cases).

Crocodiles still occur in the Mandangan river estuary in Sulawesi which is being included in a proposed reserve extension..

John Lever is currently on an FAO consultancy in Indonesia, advising on a crocodile management programme.

PAPUA NEW GUINEA

Jerome Montague from the Boboa Crocodile Station in Lake Murray, Western Province, measured the largest C. porosus recorded so far in Papua New Guinea. He writes,

"While on an extension patrol on the Fly River at Obo in the Western Province I learned that a large Crocodylus porosus was caught in a fishing net owned by Limibeni Crocodile Farm and drowned. When I arrived on the scene the animal had been skinned and the head and tip of tail were cut off. The combined length of the tail tip, commercial skin and the part of the head not covered by the commercial skin was 6.1 m. Total length of the head-snout tip to the posterior edge of the platform was 70.2 cms. The weight of the fresh head was 48 kgs. The animal had recently eaten a young rusa deer (Cervus timorensis) whole. The commercial belly width of the croc was 1.52 m. This incident occurred on 3 September '79."

Two volunteers for the monitoring programme have arrived and will be based in Pagwe and Angoram, on the Sepik.

Jerome Montague joined the Operation Drake for a month and night surveyed the Strickland in November at low water and some of the tributaries from Devil's Race to the Herbert River (Lake Murray). On the total of about 500 river kms 801 crocodiles were counted at night. Good glowing, Jerome.

Tom Whitaker spent a month on a croc survey in the Island provinces including West New Britain and New Ireland. While earnestly explaining to villagers in New Ireland that crocodiles were harmless, he was taken to a dug-out canoe that looked as if a croc had bitten it in half. It had. The young boy rowing the boat had suddenly realized that the boat was rowing itself, in the opposite direction, and soon two teeth pierced through the wood. He managed to row ashore and jump out. The croc came after him but he managed to scramble away.

The two large commercial croc farms in Lae and Moresby have bought over some 2500 crocodiles each from government farms in Pagwe, Angoram and Lake Murray. The farm in Lae, managed by Greg Mitchell, is spectacular, and perhaps one of the best rearing stations anywhere in the world.

SOUTH AFRICA

Jan-Gerd Kuhlmann, Owner/Manager of CROCO research and Breeding Farm in Pretoria, has written at length about his crocodile farm. A few points from his letter are summarized below and Croc Group members will be sent copies of his letter on request.

Kuhlmann has been breeding C. niloticus on his farm since 1970. He says that at present there are 14 mature crocodiles producing over 700 eggs per year. Some of the young females have laid nests of up to 75 eggs. These adults are all wild caught for breeding in captivity. A large group of young crocs is also being reared.

Eggs are laid during the first half of October and are immediately transferred to a computer controlled incubator which has been designed by Kuhlmann. Perfect results are obtained: 100% hatching rate in about 80-85 days incubation, instead of the 90+ day incubation period.

Hatchlings are reared in condition-controlled nurseries, where the growth rate is about twice as fast as under normal conditions.

When the young are four years old, they are put in an acclimatization dam before they are released into game and nature reserves. Release in suitable habitat takes place at 1.5 m.

UNITED STATES

There is a tentative plan to hold the next Crocodile Group meeting in Miami, Fla. during 6-10 August 1980. This will be followed by a symposium "Reproductive Biology and Conservation of Crocodilians" organized by the Society for the Study of Amphibians and Reptiles which will be held in Milwaukee, Wis. The emphasis of the IUCN meeting will be on status and management, while the SSAR symposium will stress the reproductive biology, ecology, behaviour, etc.

PUBLICATIONS

Return of the Gator by the Dick Davids, in the winter 1979 Science Digest, reports on the spectacular comeback of the alligator in Florida and Louisiana-- though some scientists including Ted Toanen believe the species was never truly endangered. There is a reference to Ted's theory that the sex of the embryo is determined by the incubation temperature; higher temperatures seem to trigger more males.

received with thanks the first issue (vol. 1 No.1, to be exact) of Makara, the newsletter of the Central Crocodile Breeding and Management Training Institute in Hyderabad, India. Glossy cover and lots of photographs... the CSG newsletter raises its head in submission. The editor of Makara is Dr. J.B. Sale, FWO Specialist in Wildlife Management, Crocodile Breeding and Management Training Institute, 19-4-319 Lake Dale, Rajendra Nagar Road, Hyderabad 500 264.

The October/November '79 Animal Kingdom, featuring the wildlife of Sri Lanka has an article (Never a Smile for a Crocodile) on the Madras Snake Park crocodile survey on the Island.

Scalation of the American Alligator by Charles A Ross and Charles D Roberts is Special Scientific Report- Wildlife number 225 of the US Fish and Wildlife Service. On W T Neill's hunch (1971) that races of alligators are distinguishable, the Office of Endangered Species initiated studies on intraspecific variation in alligators. Ross and Roberts dealt with scalation. Scale counts were done on alligators from seven states and it was found that several scale characteristics varied between populations. No differences in scalation between sexes were noted. (Reprints are available from C.A. Ross, Fish and Wildlife Service, National Museum of Natural History, Washington DC 20560)

Social Signals of adult American Alligators by Leslie D Garrick, Jeffrey W Lang and Harold A Herzog, Bulletin of the American Museum of Natural History Vol-160, article 3, 18 social signals in alligators are classified into visual, vocal and non-vocal acoustic categories. The first paper on social signaling in crocodylians.

Thermophilic response of the American Alligator and the American Crocodile to Feeding, Jeffrey W Lang, Copeia 1979 (1), pp 48-59. The body temperatures of juvenile alligators and American crocodiles were monitored and it was found that body temperatures were raised in both species when fed as compared to when fasted. Fed alligators had higher and more stable body temperatures than fed crocodiles.

An Ecological Study of Caiman crocodilus crocodilus Inhabiting Savannah Lagoons in the Venezuelan Guayana, S.G. Gorzula, Oecologia (Berl) 35:21-34 (1978). The summary of Gorzula's paper reads- "Mark and recapture studies were carried out for three and a half years on a population of Caiman c. crocodilus inhabiting a savannah lagoon system in the Venezuelan Guayana. Sub-adult and adult caimans migrated from permanent lagoon refuges to temporary lagoons during the wet season. A distinct homing response by artificially displaced caimans was observed.

"The wet season was the most significant time of the year for both feeding and growth. It was estimated that caimans take six years to reach a size of 97 cms. Thereafter the growth rate was variable. During a dry year there was little growth, but during a wet year a large caiman could increase in length by up to 10 cms.

"During the first 18 months of life, young caimans remained near the nest site. Older caimans dispersed and competed for territories which resulted in a high incidence of damage, particularly to the tails, as a result of intra-specific fighting".

Please send crocodile reprints, articles (old and/or new) for the PNG Crocodile Project library - many thanks.

Rom Whitaker
c/o UNDP
Box 3041
Port Moresby
Papua New Guinea