CROCODILE SPECIALIST GROUP

NEWSLETTER

VOLUME 22 No. 3 ● JULY 2003 – SEPTEMBER 2003

IUCN - World Conservation Union ● Species Survival Commission

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IUCN−The World Conservation Union
Species Survival Commission

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COVER PHOTO. Field assistant Oscar Gómez shows student Nilda Pedraza how to interpret the tail scutes cuts code that identifies the location of this *Caiman yacare* hatchling's nest. This is one of many educational activities of the"Week of the Yacaré" project in Chaco Province, Argentina. See story on pages 12-13. W. Prado photo.

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IMPORTANT!! DATE CHANGE!

17TH CSG WORKING MEETING IN DARWIN, AUSTRALIA

24 – 29 May 2004

24 May: Steering Committee meeting
25-28 May: CSG meeting
29 May: Field trip

Registration & full info. at web-site:
http://wmi.com.au/csg17/news.html

Editorial

CONSOLIDATION IN THE CROCODILIAN SKIN INDUSTRY. CSG commissioned an economic study, released last year (International Trade in Crocodilian Skins: Review and analysis of the trade and industry dynamics for market-based conservation by James MacGregor, 2002, see also Proceedings of the 16th Meeting). One of the predictions made by our consultant economist was that the crocodilian skin industry would experience increased consolidation and vertical integration. That is, that the production, processing, manufacture, and retailing of products would fall increasingly into the hands of a few large companies. We expected, and some reports suggested, that this would occur as large producers purchased more production capacity, processing and manufacturing facilities and marketed products directly. This has occurred on a small scale in USA, Mexico, and been proposed for incipient production in Brazil and China.

It is now clear that the process has been underway for some time and in a manner that we did not anticipate. Major international corporations in the fashion industry have been acquiring control of a significant proportion of the crocodilian tanning capacity in Europe. Over a decade ago the Gordon Choisy tannery was purchased by Luis Vitton and subsequently sold to Hermes. Hermes also acquired an interest in T.C.I.M., although control remains with the Roggwiller family. Thus Hermes has significant interests in the French tanning sector, and through T.C.I.M.'s US subsidiary become a significant purchaser of alligator, as well as their traditional large volume of *niloticus* and *porosus* skins. In Italy, Gucci Group has recently acquired control of the very large Carravelle tannery and is reported to be constructing a large new tannery. Carravelle/Gucci has been a large purchaser of alligator in recent years. Of course

there continue to be major tanneries outside Europe—e.g., large tanneries in Singapore and in Japan. There are also numerous small tanneries which exert important market balance, either by buying large proportions of some national production or by handling smaller lots of specialty skins. Watch straps, cowboy boots, belts wallets and even shoes continue to absorb significant quantities of smaller and sometimes lower quality skins. Skins continue to be purchased and traded through numerous traders and intermediaries so that the presence of the new players is not clearly visible on the ground. However, the pattern of increasing control from the top by the big fashion houses is a new phenomenon in the crocodilian industry. This follows the trends in many other fashion, food, and beverage industries where the influence of retailers has increased in recent years. These companies are huge conglomerates with interests in fashion, luxury goods, cosmetics, foods and wines, and jewelry with annual profits exceeding $500 million annually. Crocodilian products are a small part of their activity.

The consequences of this change will probably affect both the production end of the industry and CSG's conservation interests. For producers, competition between buyers should ensure price levels. In this regard, the continuing function of smaller tanneries and independent traders is an important stabilizing factor. The participation of major corporations with international reputations and globally traded stock prices to maintain should be a factor in further discouraging illegal trade. These company's real stock in trade is "image" and they cannot afford to be associated with scandal.

For CSG, this restructuring presents a new challenge in maintaining the links between commercial use and conservation. A large part of our success to date results from engaging the tannery sector in our concept of sustainable use and legal trade. We remain deeply appreciative of the efforts of our tannery patrons, both in supporting CSG and in effectively adhering to trade controls such as universal skin tagging. However, if some of this vital sector is now controlled by large corporations, then we need to ensure that the decision makers in those corporations are aware of their role and responsibility in crocodilian conservation. CSG will need to reach out and contact these new players and invite them to work with us. — Perran Ross, *Editor*.

Regional Reports

Africa

Botswana

OKAVANGO CROCODILE RESEARCH PROJECT PROGRESS REPORT, JANUARY 2002 – JUNE 2003. The Okavango Delta, in the midst of the Kalahari sands, is Africa's largest and most beautiful oasis. The Okavango River originates in the highlands of Angola and flows inland, never to reach the sea. The delta, the largest RAMSAR site in Africa, provides a breeding place for many rare birds and hosts unique and diverse aquatic and semi-aquatic fauna and flora. As a keystone species, the Okavango Nile crocodiles help maintain an intricate balance within this fragile ecosystem and therefore are essential to the conservation of biodiversity in the delta.

The problem is that due to increasing human activities and the associated pollution and water abstraction, essential habitat is being lost and fish stocks are declining. Also, despite the Okavango Nile crocodile being a keystone species, no management plan exists for it, nor has any research or monitoring been conducted on this population for well over a decade.

The mission of this research project is to study the ecology and physiology of the Nile crocodile in order to contribute to the conservation and sustained development of the Okavango system. It is a unique opportunity for African scientists to contribute towards the conservation of an internationally renowned wildlife area and the program will also provide excellent scope for capacity building, including the training of Botswanan and South African students.

This is a high profile project which addresses a number of environmental issues of critical importance. The project proposal was submitted to the Office of the President via the Kalahari

Conservation Society and was accepted in March 2001. The project commenced in January 2002.

This project will contribute to an understanding of the ecology and physiology of the Nile crocodile, allowing the population to be managed successfully in a way that is beneficial to all. With the data collected in this study, a concise conservation strategy and management plan will be implemented. The possibility of a sustainable utilization program will be investigated and the potential of crocodiles as a tourist attraction will be developed.

Results from this study will allow us to:

- Identify priority areas for the application of specific conservation measures
- Develop strategies for the management of crocodiles in populated areas
- Identify and investigate problems of crocodile management
- Monitor current and potential threatening processes
- Determine possible harvesting strategies

Due to the multi-disciplinary nature of this project, an integrated approach is required. Specific objectives of the project are to:

- Determine, through systematic sampling of the various Okavango biomes, the distribution, status, and abundance of *C. niloticus* in the Okavango system.
- Compile a database on movements, home range, and dispersal patterns of the various size classes of crocodiles
- Study various aspects of the reproductive biology of the Nile crocodile and to determine the health status of the breeding population
- Study diet and feeding habits and to determine field metabolic rates of juvenile and sub-adult crocodiles
- Investigate the gene flow and mating strategies
- Determine the extent of the crocodile/human conflict in the region
- Provide information on crocodilian parasites
- Build capacity by developing local expertise and by providing a unique opportunity for collaboration between African scientists
- Provide scientific expertise and detailed biological information to assist crocodile farmers in Botswana and other parts of southern Africa
- Highlight conservation implications of the study and to provide management recommendations to the Department of Wildlife and National Parks (DWNP), Botswana.

This is the first scientific and monitoring program on Okavango Nile crocodiles in over 14 years. The history of hide hunters and crocodile farmers in the Okavango has shown that the population is sensitive to exploitation. Only a comprehensive study such as this one will support the population's future viability and conservation. Detailed biological information from this study will also assist crocodile framers in Botswana and elsewhere to improve sustainable farming techniques. The increased economic value of crocodiles from farming will in turn result in more effective crocodile conservation in the Okavango Delta.

The project is currently well underway. The research team was located at Shakawe Fishing Lodge from January to December 2002. In January 2003, due to the high number of recaptures in the sample size, we moved downstream and are currently based at Sepopa Swamp Stop. At the end of July 2003 we will be setting up a base camp approximately 24 kms downstream from Sepopa Swamp Stop on property belonging to Willy Phillips of Seronga. We will operate a number of fly camps, both upstream and downstream, from this particular base camp.

Three full time students and one part time student currently form the core of the research team. Sven Bourquin, a PhD student, is studying the population ecology of the crocodile throughout the Okavango system. Kevin Wallace, an MSc student, is studying ontogenous shifts in diet and field metabolic rates of crocodiles and Audrey Detoeuf-Boulade is studying the reproductive cycle of the Nile crocodile. An MSc student from the University of Jena in Germany, Carsten Menghdel, is using ultrasound techniques to study gut flexibility related to different feeding regimes. — Dr. Alison J. Leslie, *Dept. of Conservation Ecology, University of Stellenbosch, Private Bag X1, Matieland, 7600, South Africa <aleslie@sun.ac.za>*.

Burkina Faso

THE SACRED CROCODILES OF BAZOULÉ. Near the village of Bazoulé is a pond with 100 Nile crocodiles. These crocodiles, said to be sacred to the people of Bazoulé, are regarded as manifestations of their ancestors. According to this special pact, the relationship between the people and the crocodiles is based on reciprocity and mutual respect. The crocodiles do not attack humans, and the people of the village take care of the crocodiles by providing them with food and water. In April 1996, for example, during a severe drought affecting the crocodiles, the village chief commissioned four water-filled trucks to refill the pond!

As a Master's student of anthropology, I conducted my thesis research in Bazoulé. My study focuses on images of crocodiles in the local cosmology and several changes that are impacting Bazoulé culture, such as the growing influence of Christianity and Islam and the infiltration of capitalistic forces into the local economy. An ideal place for tourists, the village is profiting from the presence of non-man-eating crocodiles. In 1999, a development project was started, involving the employment of local people as guides to show tourists the gentleness of the crocodiles. The profits generated from the guide program support the development of the village, including the installation of an electric water pump. Because one pipe empties into the pond, the project also supports the conservation of the crocodiles.

I was fascinated by the fact that these crocodiles do not attack humans. When the people of Bazoulé explained that this is due to their special "pact," I posed the hypothesis that when man and animal share living space, they get used to one another, especially when man is providing food and water. However, the village chief responded that the crocodiles are their ancestors—"and, like family, we live peacefully together."

Unfortunately, the non-man-eating crocodiles do attack humans. A boy was attacked because he stepped on a crocodile's tail or foot. He now has only a small scar, but the crocodile was slaughtered. This event, and others involving the crocodiles, are incorporated in a model of explanations that is based on mixture of religion, science, and common knowledge.

In my thesis, I hope to provide a clear explanation of this model, and to explain the different ways the people of Bazoulé cope with neighboring predators. Anthropologists can contribute to the debate on global environmental issues by studying human interactions with animals, plants, and other elements of their environment. An anthropology of crocodiles will focus on the relationship of cultural concepts with socio-economic and political concepts, and their impact on the ideas and behavior of people in a particular context. It is important to take into consideration the ecological and biological factors that influence the image of crocodiles. Therefore, I am very interested in the experiences and ideas of others regarding non-man-eating Nile crocodiles.

Because I am still in the process of writing my thesis, I cannot yet share any conclusions. However, the point that Nathalie Kpera (CSG News, vol. 22, no. 1) made regarding the crocodiles of Benin's water reserves is also relevant in the case of the Bazoulé crocodiles: that ethnic group, religious role of crocodiles, and traditional methods of conservation are important factors to consider in the management of crocodiles. — Hilde Toonen, *Master's student of Cultural Anthropology, University of Amsterdam, Netherlands <hilde.toonen@student.uva.nl>*.

In the eye of a tourist camera, Vincent Kaboré, a guide of Bazoulé, offers a chicken to a crocodile. H. Toonen photo.

Congo & Gabon

CROCODILE SURVEYS. Over a five-week period we visited the Wildlife Conservation Society (WCS) programs in northern Congo (Kabo-Pokola and Likouala-Lac Tele areas) and coastal Gabon (Iguela region). Our objective was to appraise the potential for a research program that would investigate the ecology and natural history of central Africa's three crocodile species and the impact of the bushmeat trade on crocodile populations. In swamp forest habitats of both countries, there is a significant harvest of dwarf crocodiles (*Osteolaemus tetraspis*), for local consumption as well as for sale and subsequent transport to regional or national population centers. Of the three species of African crocodiles, the dwarf crocodile is by far the most heavily hunted because its size and non-aggressive nature facilitates capture and transport to markets. Dwarf crocodiles are either bound and transported to markets live or, in the case of Gabon (where outboard motors and ice are more readily available), killed and quickly transported to markets where they can be stored on ice for much longer periods. The other two African crocodiles, the Nile (*Crocodylus niloticus*) and slender-snouted (*C. cataphractus*), seem to be hunted less frequently today than they were in the past. They supplied the demand for crocodile skins until the market collapsed in the 1980s, but are still available in bushmeat markets (especially in Gabon). Very little is known about the ecology of any of the three species of central African crocodiles.

John Thorbjarnarson with field team and an adult male dwarf crocodile in the Likouala region of northern Congo. J. Thorbjarnarson photo.

The Kabo and Pokola logging concessions cover approximately 760,000 ha of upland forest just to the south of the Nouabale-Ndoki National Park in northern Congo. The Nile crocodile historically was present in this area but today appears to be very rare. We conducted a nocturnal survey of a 28.7-km section of the Sangha River between Mombongo and Kabo without seeing any crocodiles. The absence of crocodiles from this part of the Sangha was confirmed by local residents, who indicated they could be found further downstream, approximately 40 km below the town of Pokola. The slender-snouted crocodile was reported to be found in the *bai* marsh habitats and in open sections of smaller rivers. On 20 May we observed three slender-snouted crocodiles (juveniles and subadults) along an earthen dike road crossing the Ndoki River, next to the Ndoki 2 logging camp. All three were in relatively fast-moving water where the stream passed through culverts under the road.

Dwarf crocodiles are found in swampy sections of forest, including low-lying forests adjacent to streams and *bais*. We were able to observe only one dwarf crocodile in the Kabo area, an adult in a small stream near WCS's Bonyo research camp. A WCS employee stationed at Bonyo camp indicated that while not many crocodiles are seen in the area, some dwarf crocodiles have been found in the forest and small streams and slender- snouted crocodiles can be seen in the four local *bais*.

Market studies conducted in this region by WCS and others suggest that crocodiles are not an important component of the bushmeat trade in most parts of the Kabo region, with two exceptions. Crocodiles appear to be hunted widely in the Terre des Kaboungas region, in the easternmost section of concession, where the

upland forest projects like a peninsula into an area of extensive swamp forest. The second region where hunting of dwarf crocodiles appears widespread is on the Sangha River, downstream from Pokola, in the area around Pikounda.

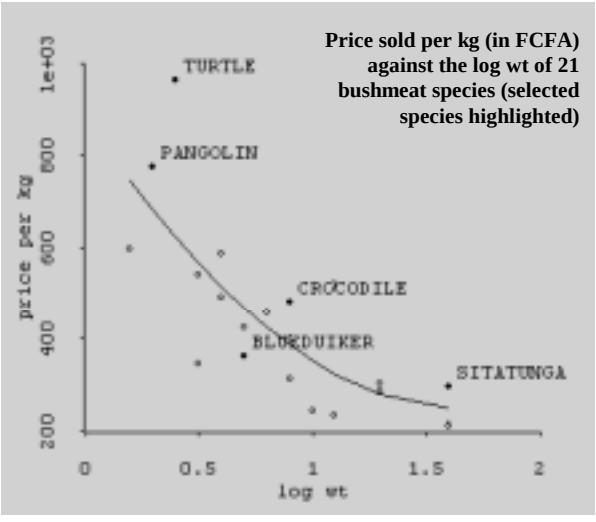
Likouala Region (Lac Tele Community Reserve). The Lac Tele Community Reserve (LTCR) is a markedly different landscape from the Kabo-Pokola logging concessions, dominated by vast sections of swamp forest mixed with a range of other habitats including seasonally flooded forest and savannas, as well as some upland forest. Because swamp forest is difficult to access and contains few commercially valuable trees, the area is of little interest to logging companies and largely remains intact. The reserve is Congo's sole Ramsar site (declared in 1998). In the swamp forest itself, faunal composition is different from upland forests, with most vertebrates being either arboreal or aquatic. Previous studies of bushmeat originating from areas of swamp forest suggest that crocodiles and primates are the principal target species.

Overall, we found that the Likouala aux Herbes had a low density of Nile crocodiles in areas downstream from Epena (we observed them between the villages of Edzema and Djeke), and dwarf crocodiles were widespread, but at low densities, in both seasonally inundated and swamp forest. We were able to collect some information on the ecology and past and present hunting of both these species. The slender-snouted crocodile was also reported to be in the area, particularly in small forested rivers, but none were seen. Based on limited data and interviews, in the Likouala region the crocodile reproductive period occurs somewhat later than in the Kabo/Pokola area with dwarf crocodiles laying eggs in March and hatchlings emerging in June. We discovered two dwarf crocodile nests during our surveys in the swamp forests surrounding the Likouala aux Herbs River—one, found on 29 May, appeared as though its eggs (13 total) would hatch soon; the other, found on 1 June, had recently hatched. The major rainy season in the Likouala region begins around the latter part of June.

We spent several days visiting bushmeat markets in the regional capital of Impfondo, situated on Ubangui River, which forms the boundary between Congo and the Democratic Republic of Congo (DRC). Impfondo is connected to Epena by a paved road (ca. 70 km) and has an active commercial trade in dwarf crocodiles. During 2.5 days at Impfondo's Bakanzi market we saw (and measured) 22 dwarf crocodiles—all adults. The sex ratio appears to be male-biased (15 males: 7 females). During our visit (dry season), most of the crocodiles were reported to be transported across the Ubangui from forests in the neighboring DRC. During the dry season, swamp forests remain difficult to access on foot and are non-navigable by boat as they are reported to be during the high water season when hunters can enter in small pirogues. Extensive wet season hunting of dwarf crocodiles was reported from the upper reaches of the Likouala, particularly in the town of Mokengi. People we interviewed agreed that many more crocodiles could be found in the market during the wet season.

Our visit in Gabon focused on collecting preliminary information on the status, distribution and ecology of the three species of crocodiles in the coastal wetland ecosystems in and around the Iguela (Ngove) Lagoon, and investigating the nature of the bushmeat trade in crocodiles. We are able to conduct nocturnal surveys in a variety of wetlands, and were impressed with the diversity of habitats and the overall high density of all three species.

Nile crocodiles, because they nest in sandy soils, were restricted primarily to the northwestern sector of the Iguela Lagoon (adjacent to an extensive network of paleobeaches), and the many small coast wetlands that form behind the uninhabited beach of the Petit Loango NP. In these areas Nile crocodiles were widespread, but usually at relatively low densities. In the mid-1980s



Price sold per kg (in FCFA) against the log wt of 21 bushmeat species (selected species highlighted)

Olivier Behra (1987) found no Nile crocodiles in his surveys of the Sette Cama region and Fernan Vaz lagoon and reported organized and widespread commercial hunting up to a few years prior. The observation of many Nile crocodiles (but few adults) during our surveys, conducted nearly 20 years after Behra's, suggests that this species is in the process of making a slow recovery. In some of the coastal lagoons we found Nile crocodiles present in brackish waters (up to 17 ppt). Tracks suggest that crocodile move overland between lagoons and will enter the ocean as well.

The African slender-snouted crocodile appears to be locally common in medium-sized rivers both in areas of forest (Mpivie River, Rembo Eshira) as well as areas where rivers are bordered by marsh (Rembo Ngove). Dwarf crocodiles are common in the Iguela area and are found principally in the extensive swamp forests that borders the Iguela Lagoon and some of its tributary rivers (Rembo Rabi). Dwarf crocodiles may also enter cool forest rivers (water temperature <25˚ C) at night, and were also observed at night along the margins of the Iguela Lagoon where it was bordered by swamp forest. In the latter case they appear to spend the day in burrows or buried in mud in the swamp forest and then forage along the lagoon edge at night.

Hunting crocodiles for bushmeat is relatively uncommon in the Iguela lagoon region, if only as a result of the very low human population density. However, there appears to be significant hunting in some areas adjacent the park, particularly around the southern edge of the Nkomi Lagoon and the Rembo Nkomi (A. Downer, pers. comm.), where larger villages are situated. Crocodiles in these areas are taken for local consumption, or sold in markets in Omboue or Port Gentil. Unlike Congo, where crocodiles are kept alive until butchered in the markets, crocodiles enter the Omboue and Port Gentil markets dead and are kept on ice, which, unlike in Congo, is readily available in Gabon. Our preliminary observations also suggest that while dwarf crocodiles comprise the majority of crocodile bushmeat in Gabon, slender-snouted crocodiles are more commonly seen in markets than in Congo. Over a one-day period we saw 15 dwarf crocodiles and four slender-snouted crocodiles in the Marche La Ville, the largest of four markets in Port Gentil reported to sell crocodiles. The sale of meat from the larger slender-snouted crocodile may also be result of the availability of ice, as it allows large crocodiles to be transported to markets dead then butchered and sold over a period of several days, a process that would be difficult in Congo. — John Thorbjarnarson & Mitch Eaton, *Wildlife Conservation Society, c/o WCS Mesoamerican & Caribbean Program, 4424 NW 13th St., A-2, Gainesville, FL 32609 USA <jthorbjarnarson@wcs.org>.*

LARGE NILE CROCODILE (*C. NILOTICUS*) captured and killed at the beachfront in Point Noire, a coastal town in Republic of Congo (Brazzaville) on 5 July 2003. The specimen was reported at about 5 m in length and 450 kg, indicating that large Nile crocs still occur in the region. — *Submitted by* Charles Erard *<Charles.Erard@ThePenrodCompany.com>.*

Zambia

ZAWA TO CONDUCT CROC CENSUS. In February, the Zambia Wildlife Authority (ZAWA) stated that it would conduct a census of crocodiles in Luapula and Southern Provinces before carrying out a cropping exercise. ZAWA director for research, planning, and information, George Kampamba, said that after the crocodiles had been counted, the authority would be in a

position to prescribe an annual animal hunting quota for safari hunting. Kampamba was responding to concerns about the crocodiles that were raised by the Luapula Province Permanent Secretary.

According to Kampamba, ZAWA had contacted an organization in North America as well as individuals, asking for support in carrying out the crocodile census. He emphasized that efforts to conduct the census were seriously constrained by a lack of financial resources and the absence of key partners, such as safari companies. It will cost a total of $US 4,800 or K24 million to count the crocodiles, at a rate of $US 4.00 per km^2 of the water body (Luapula Province has approximately 120 km^2 of water).

Kampamba appealed to the Zambian government to help raise the needed funds for the program. He emphasized the fact that before commercial utilization of the crocodiles, a scientific estimation of their population is required under CITES terms. "Safari hunting will create jobs for local people and will have other multiplier effects on the economy in the affected provinces and the country as a whole," he added.

Chifunabuli member of parliament, Kennedy Sakeni, also requested that crocodiles be cropped in order to save human lives. His complaint—that reptiles in the Samfya District had been terrorizing the local people and livestock—was a follow-up on Chief Mwansakombe's appeal to local government to do something about the crocodiles. Mwansakombe said that the Kwanga traditional ceremony, which involves paddling on water, was cancelled because of the fear of crocodiles. — *From* Sunday Times, *Zambia. Submitted by* Johan Jordaan, *Zongwe Farming Enterprises, Private Bag W465, Lusaka, Zambia <zongwe18@bushmail.net>*.

Eastern Asia

Singapore

FOUR CROCODILES IN SIX WEEKS STUMPS EXPERTS IN SINGAPORE. Four crocodiles have been caught around the island of Singapore in the last six weeks. The sudden appearance of the reptiles has baffled the Agri-Food and Veterinary Authority (AVA), the zoo, and a crocodile farmer.

The senior assistant curator at the zoo's Zoology Department, Francis Lim, said there are three possible explanations for the crocodiles' appearance: (1) they had been kept illegally as pets and escaped; (2) they swam ashore from a neighboring country; or (3) their natural habitat on the island—mangrove swamps—had been destroyed.

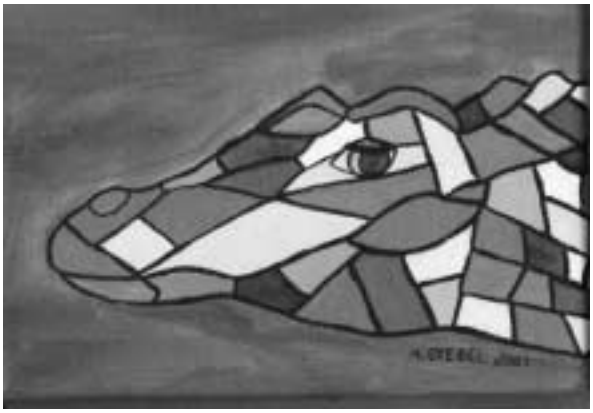
"They'll hang out where there's water, like reservoirs, canals and near the sea,," said Lim, 48. Robin Lee of Long Kuan Hung Crocodile Farm added: "There's really no reason they are appearing now, and no exact way of telling where they came from, although the ones caught here are able to float across the ocean for long distances." Lee, 28, manages the largest of three crocodile farms in Singapore, where about 8,500 reptiles are bred for their leather and meat. Lye Fong Keng, head of AVA's Wildlife Regulatory Branch, said Singapore does have its own wild crocodiles, which are sometimes spotted—and caught—in rivers, reservoirs, and mangroves. But she added that these native crocodiles are rare. It is also hard to determine if the creatures that have been captured came from the wild, or were kept illegally as pets before being released or abandoned.

When asked about the origin of the 2-m-long crocodile caught last Saturday in Woodlands Town Garden, Lim said it could have come from the Johor Straits. He said the reptile most likely would have traveled to the swampy area in the park via a canal that was connected to Sungei Mandai Kechil, leading out to sea. The reptile was captured by three men and handed over to the Jurong Crocodile and Reptile Paradise. Just a month earlier, a small crocodile was caught behind a block of flats in Choa Chu Kang. It was the third baby reptile caught last month, with the first two nabbed less than a week before by the police. One was caught around the Standard Chartered Bank Building near the Singapore River, while the other was captured in a Jalan Teck Whye canal. — The Straits Times (Sept. 22, '03), *reprinted by editor* Allen Salzberg, *of HerpDigest, in Sept. 28, '03 (Vol. 4, no. 4) issue. Submitted by* F. Wayne King, *Florida Museum of Natural History, Gainesville, FL 32611 USA <kaiman@flmnh.ufl.edu>*.

Tomistoma Task Force

FUND-RAISING UPDATE & ART AUCTION. The *Tomistoma* Task Force continues to build its structure and has mobilized to raise funds for *Tomistoma* conservation. Current funding priorities are thought to be the need for additional information from Kalimantan and general support for regional conservation. An appeal has been sent to zoos and other interested institutions worldwide and individual TTF members are also raising funds at numerous public functions. Initial responses have been generous. The Riverbanks Zoo and Garden Conservation Support Fund have donated $1,500. Ralf Sommerlad has raised 450EU from European herp sources and also donated $563 of revenues from Photosales. Bruce Shwedick has raised over $500 and Adam Britton donated a speaking fee. Total received to date is $3,350 and a special *Tomistoma* Task Force fund has been opened in the CSG accounts. The TTF web-site at http://www.tomistoma.org/pa/ announces other opportunities.

Special TTF fund-raising activity—a sealed bid art auction! Forget all that cheap stuff you see on Ebay! Or those Picasso paintings that you can't figure out... The CSG's *Tomistoma* Trust Fund has the real deal. We are auctioning some original artwork by German artist Mrs. Monika Stebel. The paintings are unique and original, featuring *Melanosuchus niger* in amazingly colorful interpretations! Size of each painting is 18 x 24 cm. We have set the reserve at $150 for each painting, and all proceeds will go directly to the TTF. It isn't often that you see crocodilians featured in paintings, so this is really a great chance to own an original croc portrait. Perfect for art-lovers and croc-lovers alike! These would be ideal for an office, zoo, or conservation center. Just contact Perran or any of the TTF members with your bid; the time limit is until the next CSG Newsletter rolls off the press. The TTF would like to thank Mrs. Stebel not only for some fantastic paintings, but also for donating them to the TTF—thus making a welcome and significant contribution to the Fund. — *Editors.*



Western Asia

Iran

PROLONGED DROUGHT RESULTS IN FEW CROCODILES. A continuing four-year drought in Iran has created conditions too harsh for the country's mugger crocodile population to withstand. The lack of rain has drastically reduced water levels in the Kajou, Sarbaz, and Bahukalat Rivers, affecting prime mugger habitat in the southeastern part of the country. Many ponds along these rivers dried up completely, and the remaining ponds have very little water. With the scarcity of food and water, many crocodiles appear notably thin and dehydrated, with weights as low as 3 kg for a 1-m-long mugger. Reproductive activities are affected by the lack of food and water, as well: egg quality and the survival rate of the hatchlings is greatly reduced. Local people in the area need the pond water too, further reducing the supply and creating potentially competitive situations between crocs and humans.

Muggers that are strong enough to migrate have moved to the Pishin Dam reservoir, the area's largest remaining water source. However, the reservoir too has suffered from the drought and is now little more than a small lake. The aggregation of crocodiles in this small body of water is likely to have negative ecological

ramifications, disrupting the food chain and creating an unnaturally competitive situation amongst the crocs.

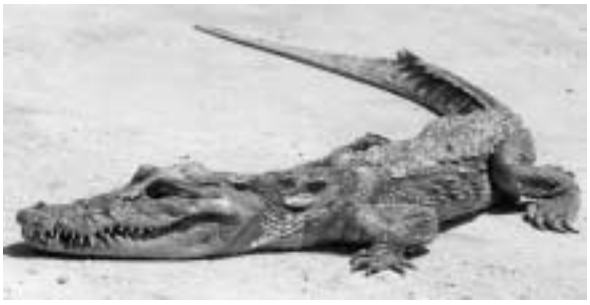
While Iran's Department of Environment (DOE), the agency responsible for crocodile conservation, does not have a specific management plan to address the problems, it has made several attempts to ameliorate the situation. DOE officials put food in a few of the ponds, but because the ponds are scattered, far from one another, most muggers have not benefited from the food. The agency also enlarged several of the ponds to create a larger storage area for future rain—an ineffective means of addressing the immediate need, however, because the real problem is a lack of water, not the lack of a storage area for it.

The mortality rate of the muggers during the four-year drought has not been determined, due to a lack of equipment and the vast size of the area. Numerous reports of dead crocodiles have been recorded, however: five dead muggers were observed in one pond, for example, and in another one was found dead in its burrow.

A recent study, in which 15 mugger crocodiles were captured and measured during the past year, reveals the poor nutritional status of the crocodiles due to the drought (Table 1).

Table 1. Length & weight of mugger crocs caught in southeastern Iran.

No.	Total length (cm)	Tail length (cm)	Weight (kg)
1	250	120	45
2	230	116	45
3	192	95	26
4	190	97	23
5	184	96	23
6	181	92	19
7	181	90	17
8	176	90	14
9	172	85	19
10	155	69	15
11	150	74	9
12	141	75	10
13	127	63	5
14	115	56	5
15	110	46	3



A dehydrated, malnourished *C. palustris* in drought-stricken southeastern Iran. A. Mobaraki photo.

On a positive note, there are a few ponds in southeastern Iran that have plenty of water and are home to a healthy, well-fed population of muggers. Located in front of the Pishin Dam, near the town of Rask, these ponds are fed year-round by underground water sources.

It is possible, too, that mugger crocodile habitat exists in another part of southeastern Iran that has not yet been studied: the area that borders Pakistan, especially the Nahang River and its associated ponds. There are some unconfirmed reports on the movements of crocodiles in this area, between Iran and Pakistan; however, the area is generally unknown due to safety concerns. An investigation of this area, done in conjunction with Pakistani experts, would be worthwhile. — Asghar Mobaraki, *Dept. of Environment, PO Box 5181-15875, Tehran, Iran <amobaraki@hotmail.com>*.

[Note: In late September, BBC News reported that a 12-year old Iranian boy was killed in a rare attack by a mugger crocodile. He was swimming in a river with friends in a conservation reserve in the southeastern part of the country, newspapers report. The Iranian short-muzzle crocodile, known by local people as the Gando, grows up to 15 feet (5 m) in length and has a reputation for timidity. Local officials expressed surprise over the attack. It is "a very rare and shocking incident, since we feed the crocodiles with fish, chickens, and even baby goats," said the director of the local environmental office. "The animal must have been agitated by the swimmers," he told the Quds newspaper. About 250 crocodiles are thought to live in Iran's province of Sistan-Baluchestan, near the Pakistani border. — *From* BBC News, on-line: *http://news.bbc.co.uk/2/hi/middle_east/3145262.stm*]

Latin America & Caribbean

Argentina

CAIMAN RANCHING IN THE PROVINCE OF FORMOSA, ARGENTINA. With the objective of implementing a conservation and management program based on ranching, we initiated a study of the caiman population in the province of Formosa. The survey was conducted in November 2002, in the center-southeast region of this province. While our main focus was on *Caiman latirostris* (yacaré overo), we also noted the presence of the widely abundant population of *Caiman yacare* (black yacaré).

The yacaré overo (*C. latirostris*) and black yacaré (*C. yacare*) in Argentina can be differentiated easily based on their cranial and nuchal structures, among other features. The two species are sympatric in a large part of their distribution in Argentina, but due to their more southern and western dispersion, *C. latirostris* appears allopatric in a wider area.

There is a differential in the commercial use of these species: because of the high level of osteoderm ossification in the black yacaré, the yacaré overo is the more economically valuable and therefore more procured of the two species. In 1997, the *C. latirostris* population in Argentina was transferred from Appendix I to II of CITES under certain conditions—for example, if the animals come from a ranching program that has been appropriately authorized. This transfer was achieved in large part due to the excellent studies and population recovery work conducted by Project Yacaré, which began in the early 1990s in the province of Santa Fe.

To obtain an update of the status of the caiman population in the province of Formosa, we conducted diurnal and nocturnal surveys in many representative habitats in Formosa. The relative densities found were between 40 and 66 caimans per km. From these data, it is assumed that the province of Formosa possesses adequate caiman populations to initiate the proposed program.

The ranching program involves the harvest and artificial incubation of eggs from both *C. latirostris* and *C. yacare,* followed by the raising of the young caimans. The hatchlings are kept in pools specially adapted for fast growth in a short period of time. Data obtained during the first year of harvest are presented in Table 1.

Table 1. Data obtained during first year of harvest, in Formosa Province, Argentina.

Species	# of nests	# of eggs	# of hatchlings	Hatch success rate
Caiman latirostris	183	5,791	5,027	86.81%
Caiman yacare	79	2,771	2,376	85.75%

A latter stage of the program features the return, to the ecosystem of origin, of an equivalent or larger proportion of caimans than that which would have survived under natural conditions. The surplus is to allow for the commercially and environmentally sustainable production of caiman leather and meat, such that biodiversity and the managed species will not be affected. To fulfill this objective, 30% of the animals born as part of the ranching program will be liberated at the end of 2003.

This project, called "Caimanes de Formosa," is directed by Dr. Alejandro Larriera. It was presented in 2002 during the 16th Working Meeting of the CSG in Gainesville, Florida, and an update on the first two years will be presented in 2004, at the CSG meeting in Darwin.

In light of the monitoring data and harvest results gathered thus far, we conclude that ranching—with a repopulation component—is the most appropriate management technique for sustainable use of caimans in the Formosa province of Argentina. — Pablo Siroski, *Proyecto Yacaré-Yacarés Santefesinos, Argentina <latirostris@arnet.com.ar>.*

YACARÉ CONSERVATION AND EDUCATION IN THE CHACO PROVINCE. In 1996, the Yacaré Conservation and Sustainable Use Project was implemented in the province of Chaco, in northeastern Argentina. The project is sponsored by an agreement between Fundación Vida Silvestre Argentina and Eduardo Boló Bolaño, the owner of El Cachapé Wildlife Refuge.

The main objective of the project is to develop an experimental model for the sustainable use of *Caiman latirostris* and *Caiman yacare* in the region. In addition to promoting the captive breeding and ecological research components of the project, I have attempted to incorporate a strong educational component.

Ideally the project will serve as a source of information for local people, so that they may learn about the natural history of the Argentinian caiman and the conservation of the wetlands these creatures inhabit.

In 2000, I designed an Internet site in Spanish for schoolchildren (www.yacare.net) to help teach them basic concepts about the biology, ecology and conservation of Argentinian caimans. Later that year, the project sponsored a series of classroom activities for primary school children in Chaco (recorded at www.chicos.net). Both activities arose because educational materials about yacarés—in Spanish, and at a level appropriate to schoolchildren—was nonexistent in this region.

Although the main threat to caiman populations in northeastern Argentina is habitat loss and fragmentation, conflicts between local residents and yacarés are one of the causes of caiman mortality in this area. Due to my belief that "people cannot preserve what they don't understand," I have reinforced the educational aspects of my research projects in the region.

A more recent activity is my collaboration with local school teachers in the development of the "Semana del Yacaré" ("Week of the Yacaré") Project. Every month for an entire week, the students participate in special activities, which begin with a class focusing on the biology, ecology and conservation of caimans and their habitat. Next, the students visit El Cachapé Wildlife Refuge and actively participate in the tasks related to yacaré ranching. This involves direct contact with the animals: handling, weighing, and measuring them, as well as collecting and measuring eggs from nests in the wild. The students also helped create a web-site (www.semanadelyacare.com.ar), where they describe their experiences.

Student Alberto Insaurralde measures the snout-vent length of a *Caiman yacare* hatchling born in El Cachapé Wildlife Refuge, Argentina. W. Prado photo.

Recently, the Week of the Yacaré Project was approved by the Chaco Province Ministry of Education and has been incorporated in the regular school programs. The hope is that this project will, over time, foster a change in the attitudes of local people, many of whom see yacarés as ugly and harmful animals, and that it will help them recognize the potential these reptiles have as a legitimate sustainable resource. **—** Walter S. Prado, *Yacaré Conservation and Sustainable Use in the Chaco Project, El Cachapé Wildlife Refuge, Chaco Province, Argentina <walterprado@yacare.net>*

Colombia

REPORT ON CSG MISSION TO COLOMBIA, 23-27 SEPTEMBER 2003. On 23-27 September, Alvaro Velasco, CSG Deputy Vice Chairman for Latin America and the Caribbean, traveled to Cartagena and Bogotá, Colombia, to participate in meetings with government, commercial, and CSG contacts in Colombia. Objectives of the meetings were to assist in the development of a draft conservation plan for *Crocodylus acutus* in Colombia and advance plans for the CSG mission to Colombia in January 2004. The visit was undertaken with the approval of the CSG chairman at an expense of $US 808 to CSG.

In Cartagena, Alvaro met with Miguel Rodríguez, CSG Steering Committee, producer Francisco Mogollón Exopieles de Caribe, Sergio Medrano (technical advisor to Biodiversa), and Juan Carlos Ucros (Azoocol). He also met with Eduardo Espinoza of Biodiversa and participated in the workshop on the draft national program for the conservation of *C. acutus.*

C. acutus plan workshop. Participants included representatives of the Colombian Ministry of the Environment, Autonomas Regional Corporations for Environmental Regulation, producer associations and farm owners, zoos, and researchers. The workshop began with presentations about crocodile conservation in Colombia, results of a national survey, IUCN classification

criteria, and the CSG vision of sustainable use and conservation. The consultant who prepared the draft plan presented it: an initiative of three farms (two registered with CITES and the other in the process of registration) and represents the support of the farms to the regional authorities for conservation of *C. acutus.* The meeting objective was to produce a final document that would allow regional authorities to implement recovery plans for the species.

The producer organizations agreed on the need for a national program, but because they had not had time to read and analyze the proposal, it was not possible to reach consensus on a final document. It was decided to allow another week for interested parties to submit comments to the Ministry, with copies to Alvaro, and to meet again on 7 October in Bogotá. CSG was again invited to attend; producer organizations offered to cover the necessary expenses to avoid obstacles that would impede CSG's inputs clarifying the proposal.

Meeting with Ministry of the Environment regarding proposed CSG mission. Alvaro and Miguel met in Bogotá with Fabián Navarrete and Francisco Gutiérrez, the Ministry staff members in charge of the February 2004 meeting. Many points were covered and objectives were clarified, based upon communications in which CSG assistance was offered to advance crocodilian conservation in Colombia. The participation of CSG was confirmed, as well as the need to expand representation from Colombian regional authorities, scientific institutions, and industrial, commercial, and independent representatives. CSG can promote its mission for conservation and sustainable use, with emphasis on the current developments in Colombia concerning species on CITES Appendices I and II. A communication structure between the Ministry, Miguel, and Alvaro was established in order to proceed with details, under Professor Messel's approval.

The tentative agenda was revised, and once a consensus has been reached by all interested parties, a final version of the agenda officially will be presented to CSG. It was proposed that over the seven day period (26 Jan. - 1 Feb.), CSG could observe meetings with the CITES management and scientific authorities and various regional authorities, as well as visit current conservation programs and farms, meet with producer associations, inspect customs procedures and tag manufacturing facilities, and discuss a system of criteria and indicators that will permit the establishment or evaluation of the sustainability of production by farming, ranching, and direct harvest. In a final point, the Ministry expressed its desire that the CSG, after careful evaluation of the system, would eventually support it and assist with its implementation. There is no indication of any disagreement among the participants on these general points.

During the process of revising the Colombian crocodilian program, the authorities indicated their hope that CSG would assist with the development of instruments to evaluate the conservation value of farms. They are also hopeful that CSG will work with producers, to understand how they can be included in the national conservation plans for the various crocodilian species. There was also some conversation about the copies of e-mail communications within CSG that had been forwarded out of context and raised concerns within the Ministry. However, everyone was clear that the matter had been resolved and needed no further discussion.

Meetings with producer organizations. The goal of these meetings was to clarify the objectives of the January mission. Producer associations expressed their full agreement, and a CSG rep. said that CSG is willing to help the Colombian government in the review of national crocodilian conservation and management plans.

Closing meeting with Miguel. It was agreed that any misunderstandings about the mission were resolved during the meetings with the regional authorities. It was also agreed that the next strategy in the organization of the January mission should be designed directly by the regional authorities, within the framework of technical support that CSG can provide in the future processes of crocodilian conservation in Colombia. Finally, it was decided that the themes that CSG should focus on most during the mission are (1) Criteria and Indicators System for the sustainability of farms, currently being developed by the government, and (2) the development and implementation of a mechanism for promoting the in-situ conservation of Appendix II species through the use of farms. — Alvaro Velasco, *CSG Deputy Vice Chairman for Latin America & the Caribbean, Apdo. Aereo 66597, Caracas 1010, Venezuela* <*velascoalvaro@tutopia.com*> & Miguel Rodríguez, *CSG Steering Committee member, Colombia.*

Ecuador

CAIMAN RESEARCH TRAINING COURSE. The Wildlife Conservation Society is undertaking a landscape-level conservation program in Yasuni National Park, Ecuador, that focuses to a large degree on specific landscape species, including the black caiman. As a first step towards developing a WCS black caiman program in Yasuní, I coordinated a training course in research and monitoring techniques for caiman in Yasuni in August 2002. Course participants were from WCS Yasuni monitoring staff, three Ecuadorian Universities, the Ministry of Environment, and the Quechua Indian community of Añangu. The course was divided into a 1.5-day classroom session at the Mission Hotel in Coca that provided some theoretical background, and a 7-day practical program that was divided between two sites along the Napo River: (1) Añangococha and surrounding habitats, and (2) Limoncocha. The classroom session provided an introduction to crocodilians, conservation and management themes, and techniques for census and monitoring, capture and marking of individuals, and study of nesting biology. During the second day, Henry Evans gave a presentation on the status of the black caiman ranching program.

Participants in a training course held in Yasuni National Park, Ecuador, weigh a *Paleosuchus trigonatus*. J. Thorbjarnarson photo.

Initial field training was carried out in Añangococha, a small blackwater lake situated near the south shore of the Napo River. The Quechua community of Añangu is developing the lake as an ecotourism site in conjunction with a tour group (Tropical Nature), and expects to be operational in 2003. A palm-thatched structure had been built and will serve as a kitchen, dining hall and central meeting point for tour groups.

Course participants were divided into three groups of ca. five people each and canoe surveys were conducted of (1) the Añangococha, (2) a 10 km stretch of the Napo River, and (3) a 5.5 km long stream that drained Añangococha into the Napo River. The first night all groups did counts in the lake and on subsequent nights rotated surveys of the three areas.

In addition to counts, caiman (mainly juveniles) were captured to demonstrate capture, marking, and standard measurements. The last night in Añangu, a larger black caiman (3.75 m TL) was noosed, providing the group with some experience in handling adult caiman.

After finishing work in Añangu, the course moved upriver to Limoncocha, based out of the SEK University research station. Two nights of counts (one night including captures) were carried out using boats with outboard motors.

In both lakes we found good numbers of black caiman (14/km in Añangu; 5-8/km in Limoncocha). There was a low density of *C. crocodilus* in Añangu, but we saw none in Limon Cocha. *Paleosuchus trigonatus* was seen in small numbers on the banks of the Napo.

Following the course, one of the students, Francisco Villamarin from the Universidad Católica, has continued work on black caiman for a master's degree. In addition to continued surveys, he has initiated studies on black caiman nesting biology and found two nests in Añangu and four more around Limoncocha—including one with a very aggressive female, which led to some moments of consternation for the field team as they climbed trees to escape. — John Thorbjarnarson, *Wildlife Conservation Society, 4424 NW 13th St., A-2, Gainesville, FL 32609 USA <jthorbjarnarson@wcs.org>*.

Paraguay

YACARE MANAGEMENT COLLAPSES IN PARAGUAY. At the CSG workshop held in October 2002, representatives from the CITES Management and Scientific Authority of Paraguay presented an amplified report on their proposed *Caiman yacare* management program. They proposed a sensible system modeled upon the successful caiman harvest in Venezuela. Private landowners would be permitted to take yacaré on their lands after a survey had established minimum numbers and a quota of a fixed percentage of larger specimens determined. Size limits, skin tags, centralized inspection and verification, and careful control of the flow of skins into tanneries and subsequently permitted for export were envisioned.

We therefore were surprised and disappointed to receive reports beginning late last year that the implementation of the yacaré harvest bore no relation to this plan. The harvest degenerated into an unregulated free-for-all where arbitrary quotas assigned to tanneries were filled without regard to size, quantity, or wasteage by freelance hunters. There was no inspection, no tagging, no verification, and quotas were issued without regard to survey data. Surveys were reported to be superficial or even false and export permits were issued without consideration of total numbers harvested.

This breakdown in structure was coincident with a change in personnel in the Ministry responsible and mirrored similar chaos in the regulation of numerous other wildlife species including parrots, anacondas, and reptiles for the pet trade. Reports of the situation were made in an atmosphere of accusation and political bias that made it difficult for external observers to establish exactly what was happening and why.

Prompted by information from CSG members in the region, as well as concerns expressed by some importing countries, CSG began to circulate information and express its concern. Following discussions at CITES Standing Committee in April, CITES designated an inspection mission to evaluate the situation. Acting independently, the European Union took action in May to unilaterally suspend wildlife imports from Paraguay.

The CITES inspection mission visited Paraguay 16-19 September led by the CITES Secretary General, Senior Enforcement Officer, and Legal and Trade Policy Officer accompanied by a representative of the European Union. The mission met with high-level political, technical, and administrative officials and thoroughly investigated the situation. Following these discussions, the government of Paraguay adopted and agreed to implement a series of actions including: a voluntary moratorium on trade of CITES species; reorganization of the CITES Management and Scientific Authorities, including separating their functions, providing a clear mandate and powers, and taking measures to ensure continuity of staffing; development of legislation; the conduct of surveys by independent entities such as the CSG to establish non-detriment findings; and the establishment of management plans for the main species in trade. In addition, the Paraguayan authorities will expedite criminal investigations into recent events, conduct an internal investigation of CITES procedures, and adopt provisions to ensure that persons convicted of CITES infringements do not receive permits. The CITES secretariat will help Paraguay address these provisions, review monthly reports, and advise when trade would be in accordance with the convention.

This constitutes a firm and demanding agenda for the reform of Paraguay's wildlife management structure. Initially, the draft report was met with confusion and dismay in Paraguay among both commercial interests and junior personnel responsible for its implementation. However, as the broad scope of the agreement has become evident, and as the great need of Paraguay for assistance to meet its strict requirements has become clear, various groups and individuals have begun to communicate with CITES and CSG, seeking help. We anticipate that there will be quite a long period of planning advisement and restructuring before the necessary reforms are complete. The agreement represents an opportunity to get Paraguay back on the right track regarding wildlife exploitation and export. CSG members participated extensively in directing the original management plan, exposing the problem and advising the CITES mission. We expect CSG, which is explicitly named in the report, will have a major role to play in helping Paraguay rebuild its caiman management program. – Editors, *from correspondence.*

Uruguay

CERROS AZULES: A CAIMAN BREEDING FARM DEDICATED TO CONSERVATION AND EDUCATION. The idea for the Criadero Caimanes "Cerros Azules" arose 10 years ago, when I realized that caimans in our country were in danger of extinction. We asked government authorities for a license to run a pilot project, which successfully showed that the farm could meet the objectives of protecting Uruguay's caiman. With a focus mainly on the conservation of the species *Caiman latirostris*, the project involves the care of caiman eggs, care of the hatchlings, and eventual release of the juveniles once they are strong enough to survive on their own. We release them in their natural habitat, in protected areas in northern Uruguay.

First-day issue postage stamp featuring *Caiman latirostris*, in honor of Uruguay's sole crocodile breeding farm, "Cerros Azules." F. Buzó photo.

The Criadero Cerros Azules is a small family company, named for the small town in which it originated. In Uruguay, it is the sole crocodile breeding farm, so we are attempting to establish ties with with other regional organizations with similar objectives, primarily in Argentina and southern Brazil. The farm's budget is very small; supported only by tourism and a few sponsors, we have many financial obstacles to overcome. Our government cannot help us financially, but shows support in other ways: President Batlle calls me often, because he is very interested—even was present at the inauguration to officially approve the farm—and the governor of the State of Maldonado has helped us many times. Federal postal authorities issued a special "Cerros Azules" stamp in our honor (see above) and some other items. In spite of all the problems we face, we are enthusiastic about this project because the caimans are healthy and growing well, and the visitors (mainly families and schoolchildren) leave the farm with a strong commitment to the project.

C. latirostris in Uruguay are in serious danger of extinction, for many reasons—many of which are unknown. However, a definite factor in caiman mortality is fear and misinformation about these creatures. Many people believe that they eat cows and sheep, but what usually happens is that the cattle thieves use the caiman as scapegoats.

As we believe that the only way of saving caimans in Uruguay is sensitizing people about the importance of ecosystem preservation, we teach visitors about the importance of caimans to their environments. Education is another key component of our project. Many school children visit us in Cerros Azules, allowing us to explain to them the importance of caimans in the ecosystem. In October and November of this year, we will release the animals in areas conducive to their survival. This "caiman liberation" will be done with students and scientists present, and will be well-publicized. In this way our farm gives people the opportunity to participate in all of our activities, and to "feel part of" the project.

The Cerros Azules farm is also conducting research. One study is examining the differences in the external morphology of male and female caimans, to see if it is possible to sex the animals through observation. We think that the males may have some visible features that the females do not have; however, we are still investigating this and cannot yet make any conclusions. In another study, we using anemometers in an attempt to determine the influence of wind on caiman behavior. — Rdor. Fernández "Alvaro" Buzó, *Criadero Caimanes "Cerros Azules," Ruta 9, Maldonado, Uruguay <yacares@adinet.com.uy>*.

Venezuela

ADAPTATION OF CAPTIVE-RAISED *CAIMAN CROCODILUS* TO ITS NATURAL HABITAT. The results of a study conducted in 1992-93, in the State of Apure, Venezuela, were recently published. The study was an evaluation of the adaptation to the natural environment of spectacled caiman or "babas," as *C. crocodilus* is known in Venezuela, that were raised in captivity and released into the wild.

Prior to the dry season, in Nov.-Dec. 1992, 676 caiman were released, and at the start of the rainy season (April-July 1993), 496 individuals were freed. Both groups were released in water bodies of El Cedral ranch, in the State of Apure. The recapture of 210 of these individuals, between 26 and 523 days after their release, was used to calculate changes in relative fatness, growth rates in their natural habitat, and prevalence of injuries. As a control group, researchers used 115 wild caimans captured in the study area.

Analyses with a relative fatness index showed that both wild and captive-raised caimans lost weight and grew at a very low rate during the dry season, as compared to the growth rate of individuals released at the beginning of the rainy season. Nine out of 78 (11.5%) caimans released with complete tails (16 or more rows in the single-crested caudal whorl) lost part of them—presumably due to inter- and intra-specific interaction—between three and 17 months after their release. This percentage is lower than the one found in wild caimans of similar sizes, for which 22.8% had lost part of their tail.

The results of the study indicate a high adaptability to the natural environment of caimans raised in captivity, and support this procedure as a strategy for the recovery of overexploited or locally extinct populations. — Andrés E. Seijas, Hilda Cuevas L., & Nestor González, *Universidad Nacional Experimental de los Llanos Occidentales Ezequiel Zamora (UNELLEZ), Vice-rectorado de Producción Agrícola, antiguo Convento de San Francisco, carrera 3, Guanare, Portuguesa, Venezuela <aeseijas@cantv.net>*.

North America

USA

TWO MORE BLIND ALLIGATORS FOUND ON MISSISSIPPI COAST—BOTH WITH A SIMILAR DISTURBING TRAIT. Two more blind alligators, both reported in early July as "nuisance" alligators by local residents, have been recovered in Ocean Springs, Mississippi. The discovery brings the number of blind gators trapped between Ocean Springs and Mobile Bay in the last year to 54. Speculation by researchers and trappers regarding the affliction ranges from parasites and disease to an increased exposure to saltwater and possible chemical contamination. But so far, little is known.

Trapper and river guide Lynn McCoy, who trapped all four of the blind Mississippi gators—two of them off the Ocean Springs beach, the other two from in-town—said he is concerned that whatever is to blame may have been responsible for the dozen or more pelican deaths that occurred in that area in January. "When everything's happening in one area, you've got to check out what's happening in that area," he said. Although toxicology reports are still pending with US Fish and Wildlife, Missy Dubuisson, vice president of the nonprofit group, Wildlife Care and Rescue Center, strongly feels that the incidents are in no way connected.

McCoy trapped the four blind alligators in Ocean Springs in the past two months. But the most recent pair, trapped just before the July 4 weekend, share an unusual trait: both have a small cavity eaten away through the flesh and bone between their eyes. "That's just not right for it to be in the same spot in two skulls," McCoy said. McCoy said he is holding one specimen, whose left eye is completely eaten away and whose right is badly damaged, for study at the University of Alabama.

Blind alligators aren't just a risk to themselves. McCoy said the disoriented or injured animals are more likely to show up in areas inhabited by people, leading to a greater chance of confrontation. — Greg Harman, *The Sun Herald, Biloxi, Mississippi. Submitted by* Grahame Webb, *Director of Wildlife Management International, PO Box 521, Sanderson, NT 0812, Australia 0678 <gwebb@wmi.com.au>*.

MYSTERY CROCODILES ELICIT MANY THEORIES, FEW ANSWERS. When five American crocodiles appeared on local beaches in 2001, everything about them was a mystery. Where did they come from? The Everglades? Cuba? Or were they dumped by their owners into the ocean?

More than a year later, almost everything about them remains a mystery. "In the little circle of people who do research, everybody's got an opinion," said David Hitzig, director of the Busch Wildlife Sanctuary in Jupiter.

One thing is known. Thanks to DNA testing, scientists determined that the crocs were not American crocodiles, as they originally thought they might be. Fewer than 1,000 American crocodiles, an endangered species, live in the Florida Everglades and several locations in the Caribbean and Latin America.

DNA testing showed the refugee crocs to be cross-breeds of the Cuban crocodile and the American crocodile. Both species live in Cuba, and sometimes interbreed.

So sure were scientists that DNA tests would show them to be American crocs that they had already tagged them for research and discussed locations for releasing them. But it was not to be. Those hybrid genes pretty much ended any discussions about releasing the crocs in the Everglades. "We don't want them to intermix. We don't want any hanky-panky," Hitzig said. "It's not in the best interests of the wild population to pollute the gene pool."

Nor was it practical to ship them back to Cuba. So, because of their unknown origins and their mixed heritage, the crocodiles will live out their days in captivity. Three are living at the Busch Wildlife Sanctuary. Another, hit by a boat in northern Broward County, went to Miami Metrozoo. The fifth died two days after it was rescued.

When the crocs showed up on the Palm Beach County beaches in December 2001, they were near death. They had spent some time being tossed around in the surf at Jupiter and Boca Raton beaches. "They were skinny, their corneas were scratched, underneath their eyeballs was sand and crushed shells," Hitzig said. They had water in their lungs. When the first one died, he expected the others to follow soon. They lay listless, unmoving.

These days, the crocs are thriving in a new environment. When they lie still, they are languorous, not listless. Basking in the sun, safe and well-fed, they have grown plump and healthy-looking, by reptilian standards anyway, with bumpy skin like gray-green retreads. At the moment when their sun-heated bodies hit just the right temperature, their narrow jaws snap open as if on a hinge, a heat dissipation mechanism similar to the panting of a dog. They do a crocodile form of tai chi, moving their legs off the ground in slow motion.

Their fenced enclosure includes a shallow pool, a pebbled basking area, and a tree. About once every three weeks, they eat chicken, quail, and mice, mimicking the diet of crocs in the wild.

By and large, they live in harmony. The female dominates the habitat but shows no romantic interest in either of the two males, though they all see to be of mating age, indicated by their length of about six feet. They are quite the attraction for sanctuary visitors, many of whom have never laid eyes on a crocodile at such close range.

American crocodiles have not lived in the wild in Palm Beach County for 50 years. Their North American territory has shrunk to the southern part of the Everglades, where fewer than 1,000 roam the mangrove estuaries. So when the mystery crocs washed up on the beach, naturalists were astounded. Some hoped it was a sign that crocs were reclaiming their northernmost territory, long ago ceded to humans. That led to the migration theory. Over a span of nine months awhile back, a female American crocodile successfully relocated from Naples to Miami, said University of Florida naturalist Mike Cherkiss. As for the unprecedented mystery crocodiles of Palm Beach County, Cherkiss said, "It doesn't mean it hasn't happened before. We just haven't seen it. Anything is possible."

However, not one of the five crocs was tagged in any way, as one would expect because biologists have tagged about 4,000 in the Everglades over the years. "Wouldn't you have thought that at least one of them would be marked?" the Busch Wildlife Sanctuary's Hitzig said. "But not one of the five was marked."

Hitzig's theory, which he concedes is a long-shot, is that a fierce October storm in the Caribbean carried the crocs north from Cuba. Gooseneck barnacles growing on their hides suggested they had been at sea at least six weeks.

Paul Moler, a wildlife biologist for the Florida Fish and Wildlife Conservation Commission in Gainesville, says the number of crocodiles that arrived, and the fact that their

arrival was unprecedented, more likely suggests an illegal dumping by a pet owner, possibly when the crocs outgrew their value as novelty pets. They might have been dumped off a ship illegally bringing them to Florida. "I might buy that (the storm theory) if there were one, but I don't buy five," Moler said. "Crocodiles don't travel in groups."

Like the other animals at Busch—all orphans, injured or rescued—the crocodiles have become "ambassadors," as the sanctuary staff likes to call them. Because they cannot go home, they stay behind as living reminders of the fragility and determination of living creatures. "They survived for 165 million years, and we brought them to the brink of extinction in the 1960s," Hitzig said. "It's the least we can do." — Lona O'Connor, *Palm Beach Post, West Palm Beach, FL, USA <lona_oconnor@pbpost.com>*.

Trade

CROCS TO FETCH K10M ($US 2.8 MILLION). Export revenues from the Mainland Holdings-owned crocodile farm near Lae will reach more than K10m ($US 2.8 million) per year by 2005. This will be three times higher than the 2002 earnings, chief executive officer Paul Stobbs said recently. The bold prediction follows an investment of K8.9m ($US 2.5 million) in the farm, aimed to further raise the quality of crocodile skin exported to Japanese and European buyers.

The improvements to farming methods and technology, which Stobbs described as the first of its kind in the world, recently were demonstrated to major Japanese buyer Yoichi Takehara, of Tokyo-based Horiuchi Trading Company Limited. Takehara, his wife Toshi, and two friends traveled to Papua New Guinea to spend a day in Madang, visiting his buying agent before traveling to Lae to visit the crocodile farm. This was Takehara's second visit to the crocodile farm, first visiting the farm in October 1995. Takehara said he was happy with the improvements, which would further increase the quality of crocodile skin. When he first visited in 1995, the farm was producing crocodile skin at 40 percent first grade. This has now been improved to 50 percent and is nearing the 80 percent maximum first grade achievement. This means that 75 or 80 percent of the crocodile skin exported from the farm is of the highest quality (first grade). First grade crocodile skin is used to produce quality and expensive ladies bags, while the lower grades are turned into men's and women's shoes, belts and other products. Takehara took samples of products made from PNG's own crocodile skin, including a ladies bag, and a pair each of men's and women's shoes, which he planned to present to the National Museum when he visited Port Moresby. "I want the people of PNG to know that their crocodile skin can be turned into quality products. The better the quality of the skin, the more money you will get," he said. "The products that we will present to the Museum are just samples of the kind of quality products that come from your own crocodile skin."

Mainland Holdings CEO Stobbs stressed that the company is looking to further improvements to meet international requirements, and may invest more money on the facilities in the next few years. "We will be looking at better utilization of PNG resources and are working with resource owners to ensure that the environment and habitat of the crocodiles are protected," Stobbs said. He said while the company has its own breeders, it also buys crocodile eggs and mature animals from villagers who catch them in the wild.

"But we only buy eggs where we are assured that the habitat is protected," he said. Stobbs said that while the volume of exports to Japan and Europe will remain at the same levels, the difference would be in the higher quality of crocodile skin, resulting in increased export earnings. Takehara's company, Horiuchi Trading, buys up to 30,000 ton of crocodile skin from PNG each year. More than 60 percent of these come from the crocodile farm near Lae, while the rest are from crocodile hunters mainly in the Sepik and Western provinces. PNG Post-Courier Online, *August 2003 <www.postcourier.com.pg> Submitted by* Philip M. Hall, *Environmental Specialist III, Camp Blanding Training Site, Route 1, Box 465, Bldg. 4540, Starke, FL 32091-9703 USA <phil.hall@fl.ngb.army.mil>*.

HOT SALES, BUT OUT OF WHOSE HIDE? FASHION BOOM ISN'T AIDING LOUISIANA GATOR TRAPPERS. September 2003, Larose, LA: The supple, tiled skin of alligators, never really out of fashion, is all the rage this fall, featured in Prada's Manhattan showroom, Chanel's full-page magazine ads and Polo Ralph Lauren's new top-drawer Purple Label collection of men's accessories. But the off-the-wall price tags and slick fashion shoots hide grim news for Louisiana's 1,800-odd licensed alligator trappers: prices for wild gators have sunk to a 25-year low. "I don't know who's getting the money, but I can tell you who's not getting it," said Errol Falgout, 56, a retired oil field worker.

That disconnect—between alligator buzz on Madison Avenue and alligator bust in the bayou—has led some trappers to suspect that they are getting skinned along with their alligators. On the one hand, retailers and fashionistas—who tend to blur the distinction between alligators and their overseas cousins, crocodiles—are gushing over the marvels of reptile hides, even those that are rank imitations. This season, "it's all about croc," said Carolyn Angel, assistant accessories editor of Harper's Bazaar. "Hermès has croc. Fendi has croc. Gucci has croc." On the other hand, the price for freshly killed alligators in the swamps of southern Louisiana has been undercut by global recession, drought, parasites, SARS and the unintended consequences of the state's 20-year-old alligator rescue program.

Louisiana produces more alligator hides than all other states combined. Yet from a high of about $60 a foot in 1990, prices for Louisiana's wild alligator hides have sunk this season to $8 to $12 a foot. A trapper who forks over more than half his take to landowners and suppliers, may net $40 or less for a 7-foot alligator—hat might yield a $7,800 weekender bag at T. Anthony Ltd., a quality leather-goods shop in Manhattan.

"It's all extremely tightly regulated," said wildlife biologist Ruth Elsey, who runs the alligator program for the state's Department of Wildlife and Fisheries. "It has generated a huge, multimillion-dollar industry for the skins and the meat."

The program was wildly successful. Today some two million wild alligators live in southern Louisiana. Tens of thousands more are raised by licensed alligator farmers, who return a portion to the swamps to replenish the wild population, and harvest some 200,000 smaller hides a year to make wallets, watchbands and the like. In all, including the 33,000 wild gators caught by trappers each year, Louisiana alligators are a $30 million industry.

All that success has produced meager benefits for trappers. One reason is that the wild alligators they hunt, animals that can grow up to 12 feet, are used mainly for larger luxury items—hand bags, totes, even golf bags, furniture and luggage. Demand for those pieces has dipped somewhat, reflecting Asia's sagging economies, the terrorist attacks of Sept. 11, 2001, the outbreak of SARS this spring and the war in Iraq. "The big trophy items—business cases, handbags—it's definitely off by 75 percent," said Michael Root, president of T. Anthony.

Retailers, tanners and middlemen say that quality-control problems are to blame for tumbling prices. Drought, coastal erosion and advancing salt water in Louisiana have squeezed more alligators into less territory, making them more prone to parasites and to scratching, scarring brawls among themselves.

Alligator farmers are required to release as much as 17 percent of their year-old gators to the wild, and may choose those with damaged or hides. So even as they replenish the wild alligator supply, farmers may be diminishing the quality of the stock.

"We know what normal wild alligators are supposed to look like, and today the harvest comes in substandard," said Chris Plott, president of American Tanning and Leather in Griffin, GA, one of two domestic tanneries that handle alligator skin. "There's still a very strong demand for good quality. The problem is there doesn't seem to be any."

State officials insist that farm-born alligators (whose tails are notched for easy identification) account for just ten percent of the gators trapped in the wild. But they are otherwise at a loss to explain why hide prices have slumped.

Some veteran alligator traders believe that a cartel of buyers and middlemen, not market forces or shoddy quality, is to blame for driving down prices paid at the roadside points of sale frequented by trappers. "The trappers are simply not paid a fair price for what they have," said Don Ashley, who runs an alligator marketing firm and also inspects and grades thousands of hides each season for a trappers' cooperative.

Whatever the cause, or causes, for the rock-bottom hide prices in Louisiana, it has had no

discernible effect on retail prices for alligator-skin products at the big-name stores and boutiques where they are sold. Whatever the situation in the swamps, alligator retains its consumer cachet.

Some trappers are grumbling about the price they're paid. But in southern Louisiana, many trappers figure prices will come back up eventually. And since the trapping season lasts just 30 days, few people rely on alligator hides for a big share of their income anyway.

Falgout says he spends little time trying to figure out the market forces at work for wild alligator skin. In any event, he makes a good living off year-old farmed alligators, which yield a more reliably unblemished skin—and fetch a consistently high price—for watchbands and other small-sized accessories. **—** Lee Hockstader & Karin Brulliard, *Washington Post staff writers. From page A01 of Sept. 17, 2003 issue. Submitted by* Philip M. Hall, *Environmental Specialist III, Camp Blanding Training Site, Route 1, Box 465, Bldg. 4540, Starke, FL 32091-9703 USA <phil.hall@fl.ngb.army.mil>*.

Publications

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ECOTOXICOLOGY OF CROCODILIANS, BY KYM ROUSSE CAMPBELL. This is a paper published in the first issue of this new journal—Vol.1(1):45-163; Feb. 2003 (118 pp). The author can be reached at: kcampbell@cadmusgroup.com.

[Thanks to Barry W. Baker, US National Fish & Wildlife Forensics Laboratory <barry_baker@fws.gov> for the information on the new journal, and to Chris Banks <cbanks@zoo.org.au> for letting us know about the croc-related paper published in the first issue. *— Editors.*]

FREE CONSERVATION HANDBOOK FOR DEVELOPING COUNTRIES! Sutherland, William J. 2000. The Conservation Handbook: Research, Management and Policy. 278 pp, b/w photos, illus, figs, tabs. Blackwell Science. Order Code: #101322W Paperback.

Textbooks on the principles of conservation biology abound, but how does one put this theoretical knowledge into practice? The aim of The Conservation Handbook is to provide clear guidance on the implementation of conservation techniques. The wide range of methods described include those for ecological research, monitoring, planning, education, habitat management, and combining conservation with development. 18 case studies illustrate how the methods have been applied.

The book is being sent free to practicing conservationists outside Western Europe, North America, Australia, New Zealand, and Japan who are otherwise unlikely to obtain a copy. These copies are provided at cost price by Blackwell Scientific, the publisher, and paid for with the author's royalties. Each book sold means another one will be donated. Administration and distribution of gratis copies is handled free of charge by NHBS. The Christensen Fund has generously made a grant to cover the cost of postage. NHBS welcomes names of people who live in the area outlined above and would benefit from this book. Please use our online Gratis Request Form (see link below) to send your name and address, the name of the suggested recipient, their address, and a sentence or two explaining why they should be sent this book.
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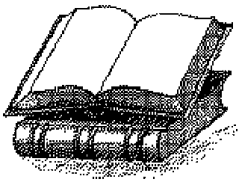
Reviews



HUCHZERMEYER, F.W. 2003. CROCODILES: BIOLOGY, HUSBANDRY AND DISEASES. CABI Publishing, Cambridge Mass. i-x + 337 p. Ilust. ISBN 0-85199-656-6. Order from www.cabi-publishing.org.

Fritz Huchzermeyer's long-awaited book on crocodile husbandry is out, and was worth waiting for. The result of many years of experience treating crocodiles in South African farms, coupled with Fritz's lifetime work with poultry and ostrich husbandry, this book brings together a vast body of literature and personal experience. The book is hardbound in a handy 18 x 25 cm size on excellent paper that will stand frequent consultation and years on the laboratory bench where it will be an invaluable aid to diagnosis and treatment. Seven chapters cover an introduction to crocodilians, clinical and examination procedures, crocodile farming, diseases of eggs and hatchlings, transmissible diseases, non-transmissible diseases and a final chapter on diseases of the organs and other miscellaneous conditions. Written throughout in a crisp and personable style, the book has an excellent index and is profusely illustrated with black and white photos. The text is also enhanced by the author's simple but clarifying line drawings.

In the introduction Fritz presents his overarching thesis that crocodile disease, or its converse, successful and healthy crocodile maintenance, is a holistic exercise requiring understanding of the animals anatomy and physiology, natural behavior, history, conditions, nutrition and, finally, pathogens. While much of the content is based on his clinical experience with African Nile and dwarf crocodiles, this is placed in a context of exhaustive literature review of other crocodilian species and the reference section of over 800 citations is a useful resource by itself.

The introductory chapters provide extensive descriptions of crocodilian anatomy, physiology, biochemistry, behavior and basic veterinary techniques. Some of this material is the author's own new and understated contribution (for example, that a looped trachea is a distinctive feature of the genus *Crocodylus*) or presents works from regional and obscure sources not readily available in current literature search processes. His account of crocodile farming from a veterinary perspective will be useful introduction to the important generalities of the topic, enriched by accounts of South African practices. The discussions of the importance of reducing stress and fear in captive crocodilians, and careful attention to animal welfare and humane considerations are crucial and sometimes overlooked topics.

The richest and most detailed sections are the chapters on various classes of disease that will be an invaluable reference for the vet and clinician as well as the crocodile farmer in diagnosing sick crocodiles. The combination of clear descriptions, impeccable literature citation, and illustrations, place a large body of previously scattered material into a coherent and useful ready reference. The numerous tables throughout the text present detailed technical and numerical information on parameters such as blood values, age-length weight relationships and long lists of pathogens, treatments and dosages.

Some of the illustrations would have been enhanced with more arrows or indicators to help the unfamiliar reader identify exactly what structures are referred to. This is particularly so of the color plates which are also rather small. Some very recent published material on anesthetics has been overlooked and I would have found just one well labeled diagram of the internal layout and organs valuable (the single source of such a diagram, Chiasson 1962, being long out of print). But these are minor quibbles in a generally excellent volume. This book was written, in the author's words, "for veterinarians, scientists, wildlife officials, students and crocodile farmers," to which I would add zookeepers and amateur crocodilian keepers, all of whom will find it a valuable cover-to-cover read and then an enduring useful reference. This book was written independently of another recent volume of crocodilian anatomy, Crocodiles: Inside Out by Richardson, Webb and Manolis (see review by K. Vliet, below). The two together form a companion set that at last gives us a comprehensive overview and clinical detail of crocodilian structure, disease and healthy maintenance. — Perran Ross, *editor.*

RICHARDSON, K.C., G.J.W. WEBB AND S.C. MANOLIS. 2002. CROCODILES: INSIDE OUT. A GUIDE TO CROCODILIANS AND THEIR FUNCTIONAL MORPHOLOGY. Surrey Beatty & Sons, Chipping Norton, Australia. ISBN 0 949324 90 6. 180 p.

This long-awaited volume provides a general overview of the anatomy and functional morphology of crocodilians. The book focuses strongly on the anatomy of the saltwater crocodile and, secondarily, on that of the Australian freshwater croc but incorporates information on other species of crocodilians sporadically throughout the book. Chapters vary somewhat in the relative amount of detail provided on individual organ systems.

The book begins with a brief introduction to crocodilian taxonomy and the diversity of living species. It then proceeds to a suggested protocol for the dissection of crocodiles and a general review of the musculature and visceral anatomy. This chapter easily leads the reader through the basic body plan of crocodilians, leaving more detailed descriptions of individual organ systems to the chapters that follow. The next chapter details the anatomy of the integument, including an interesting discussion on the changes in the relative contribution of epidermal and dermal elements in development. There is an overview of the skeletal system, including numerous radiographs of skeletal anatomy. This chapter is followed by a summary of the major head, axial and appendicular musculature.

Great strides have been achieved in the last few years in understanding the complex dynamics of the crocodilian cardiac cycle. The chapter on cardiovascular anatomy includes an up-to-date synthesis of this information in association with the anatomy of the heart, as well as patterns of distribution of the major vessels in the body, including the lymphatic system. The coverage of the nervous system and senses provides an excellent summary of the anatomy and capabilities of the sensory systems.

The greatest contribution of this volume is that of microanatomy, a histology chapter written by Ken Richardson and Shane R. Raidal. This chapter includes numerous color micrographs of histological sections of all major tissues and a brief description of the anatomy of each. It provides the first systematic coverage of crocodilian histology of which I am aware.

Even those well familiar with crocodilian anatomy will find the book's three appendices of great value. These include tables of the origins, insertions and actions of muscles (Appendix 1); origin, termination and distribution of elements of the vascular system (Appendix 2); and specific distributions and actions of the nervous system (Appendix 3).

Although never explicitly stated, the book is essentially a primer on the anatomy of the saltwater crocodile. Fundamental differences in anatomy of other species are frequently not mentioned. The book is adequately illustrated with drawings and many color photographs. The book also includes a glossary.

Separate boxed discussions are included throughout. These add interesting sidebars on behavior, physiology, and ecology of crocodilians as well as provide more practical perspectives related to anatomy and function. The book includes a section on further readings that includes a wealth of references, mostly from the last 25 years. This book will be a welcome addition to the library of anyone with an interest in crocodilians. — Kent A. Vliet, *Dept. of Zoology, University of Florida, Gainesville, FL, USA <kent.vliet@zoo.ufl.edu>*.

**** REMINDER! ****

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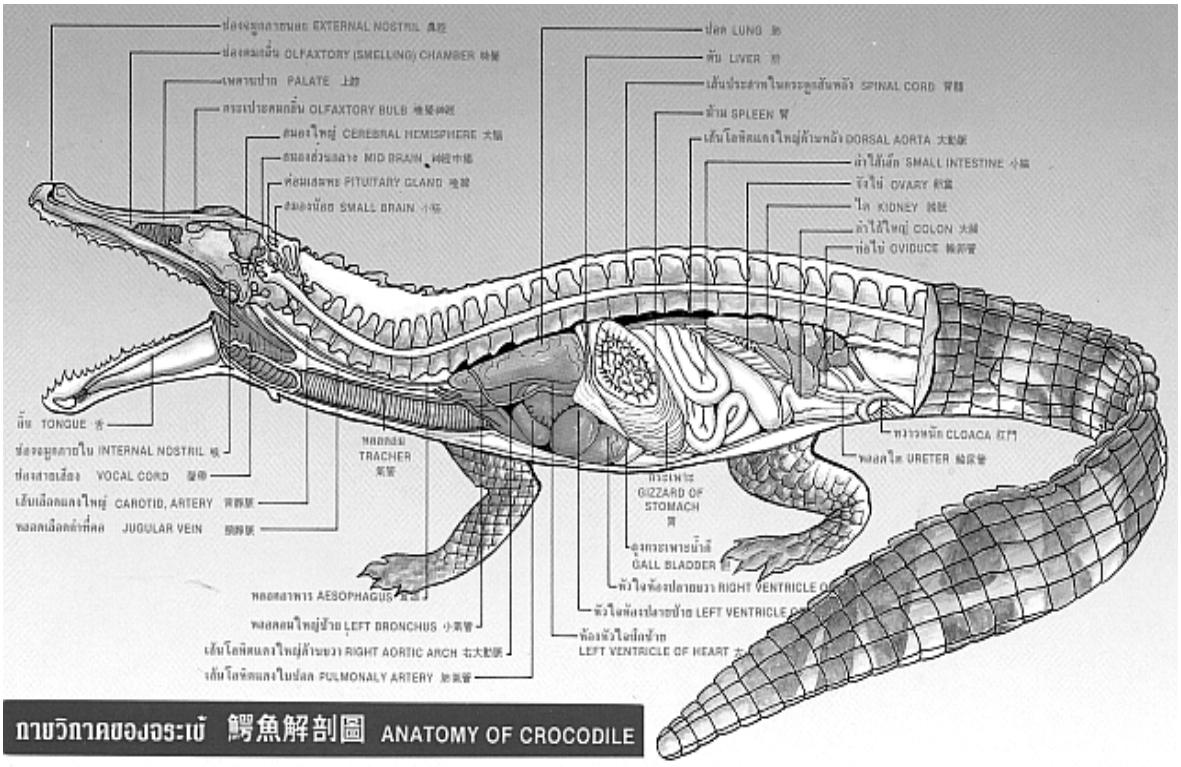
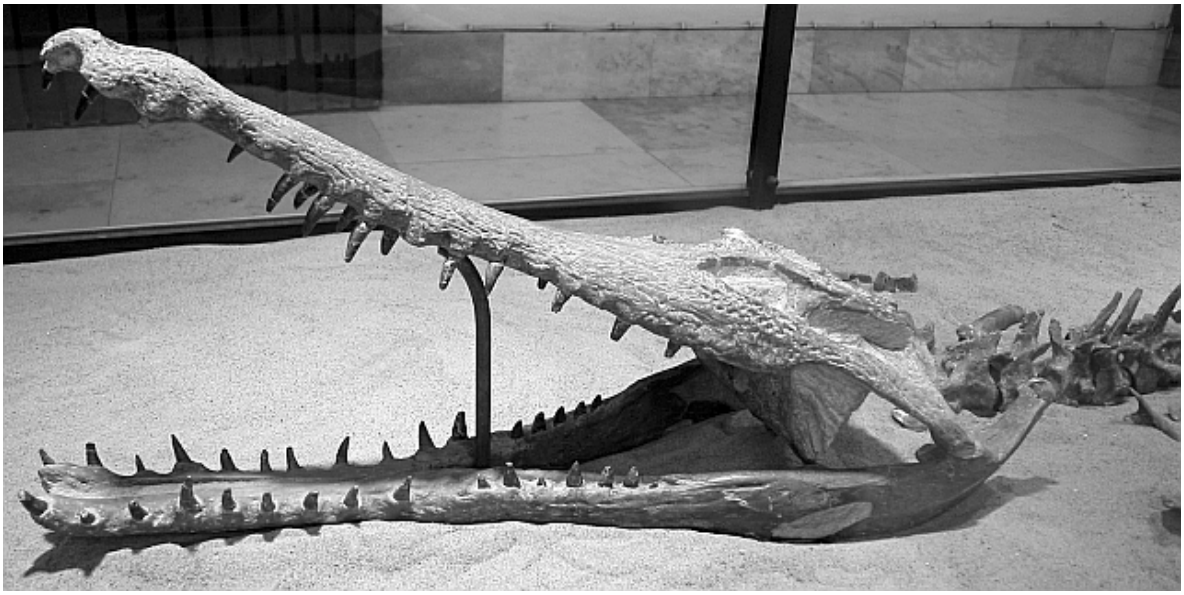


Illustrated anatomy of a crocodile: a postcard from the Samutprakarn Crocodile Farm in Thailand.

Science & Research



This is the type skull of *Dollosuchus dixoni*, a very early relative of *Tomistoma* from the Eocene of Belgium. Roughly 50 million years old, it belongs to the Institut Royale des Sciences Naturelles de Belgique in Brussels, but has been on display at a museum in Ghent for awhile. The photo was taken in early August, as part of the effort to figure out what's going on with the slender-snouted crocs.
— Christopher A. Brochu, *Dept. of Geoscience, University of Iowa, Iowa City, IA 52242 USA <cbrochu@blue.weeg.uiowa.edu>*.

Meetings

IMPORTANT!! DATE CHANGE!

17TH CSG WORKING MEETING IN DARWIN, AUSTRALIA

24 – 29 May 2004

24 May: Steering Committee mtg.

25-28 May: CSG meeting

29 May: Field trip

Registration & full info. at web-site:

http://wmi.com.au/csg17/news.html

IUCN ASIA REGIONAL CONSERVATION FORUM

9-13 December 2003

Colombo, Sri Lanka

Romulus Whitaker, CSG Vice Chairman for Western Asia, will attend this forum for CSG.

The agenda will include an opening session that provides a brief overview of progress on some of the major projects of the network and Secretariat (Red List updates, SIS, etc.) and short presentations from Specialist Groups (SGs) highlighting successes and lessons learned. Following the SG presentations, there will be a discussion session and closing remarks, including a look ahead to the next few years. SSC cannot provide any financial support for attendance, but does promise very interesting sessions and an opportunity to meet fellow SSC members in the region, to share ideas and concerns. For more information, please contact Carolina of the SSC: ssc_iucn.@ec.gc.ca

ICZ 2004: 19TH INTERNATIONAL CONGRESS OF ZOOLOGY

23-27 August 2004

Beijing, China

Organized by the China Zoological Society, Institute of Zoology, Chinese Academy of Sciences, China Wildlife Conservation Association, and the China International Conference Center for Science and Technology, this congress will include an opening ceremony, plenary session, symposium sessions, contributed paper sessions, and poster sessions. A special symposium, "Conservation Biology of Crocodilians" (Special Symposium S5.5), is being convened by Dr. Wu Xiao-Bing (China) <wuxb@mail.ahnu.edu.cn> and Perran Ross (CSG) <prosscsg@flmnh.ufl.edu>. The focus of the symposium is on critically endangered crocodilians in Asia and elsewhere and general principles for crocodilian conservation. Persons expecting to attend the meeting and wishing to participate in this symposium should contact both of the convenors by e-mail indicating their interest and a potential topic.

For detailed and updated information about ICZ 2004, please visit the ICZ 2004 website at: http://www.icz.ioz.ac.cn.
To register on-line, visit: http://www.congress.com.cn/icz/register.htm

6TH INTERNATIONAL WILDLIFE RANCHING SYMPOSIUM

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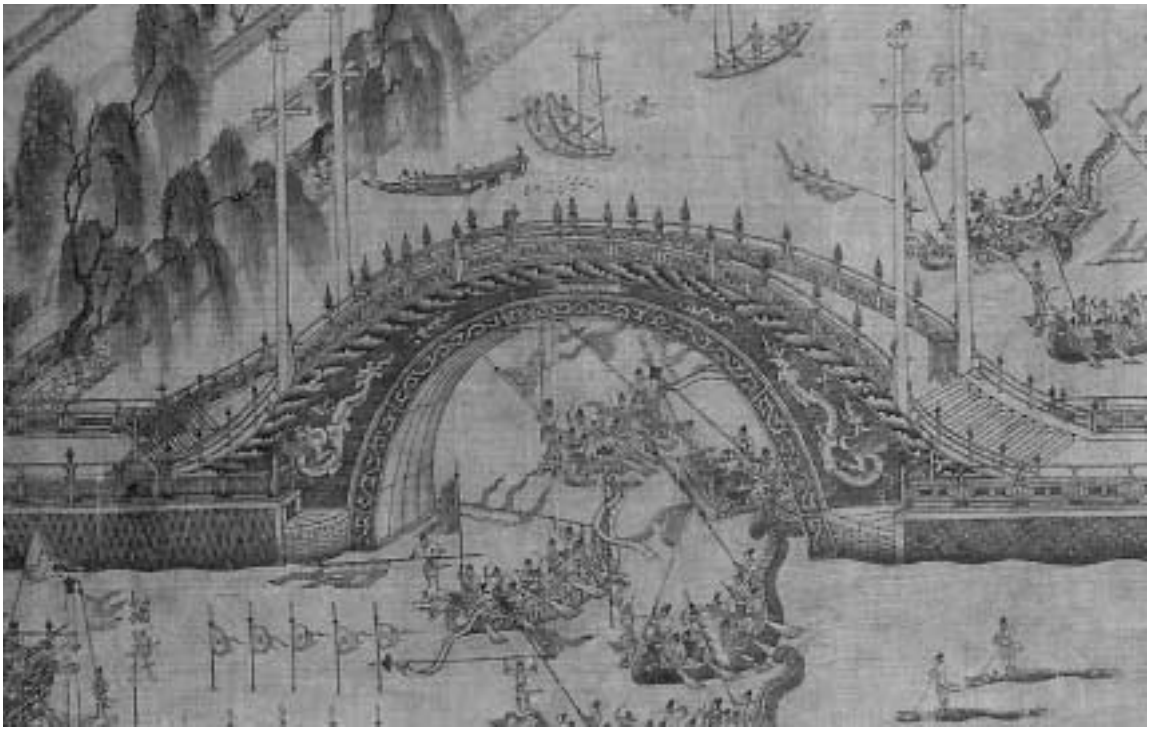
Personals

CONGRATULATIONS to Walter Prado and his wife on the birth of their first daughter, Zoe, on 8 May of this year. Walter writes: "As you can see in the photo, it seems that she has inherited 'some genes' from her dad. Of course, she loved her first toy: a stuffed yacaré." — Walter S. Prado, *Yacaré Conservation and Sustainable Use in the Chaco Project, El Cachapé Wildlife Refuge, Chaco Province, Argentina* <*walterprado@yacare.net*>

Yoshio Kaneko spotted this statue at Tamagawa Josui Park in Suginami-ku, Tokyo, Japan. Children enjoy climbing on and playing around the smiling little croc. Y. Kaneko photo.

Biologists in Cambodia weigh a *C. siamensis* hatchling. Now that the SARS epidemic seems to be over, what better way to use all those masks? — Boyd Simpson *photo. Submitted by* Jenny Daltry, *Flora & Fauna International, c/o ASEAN Regional Centre for Biodiversity Conservation, PO Box 35015, Univ. of the Philippines, Los Baños, Laguna 4031, Philippines* <*JDaltry@aol.com*>.

Eddy Even wrote to inform us that the Emmen Zoo, in the Netherlands, bred *C. cataphractus* and obtained 32 eggs. Unfortunately, only one egg hatched, of 10 that were incubated (see photo at right). It was observed that some of the eggs contained dead embryos in different stages of development, and other eggs seemed to be unfertilized. In 1998, the last time the zoo bred *C. cataphractus*, they obtained 11 hatchlings from 16 incubated eggs (from a clutch of 33 eggs). Eddy also reports that he will soon be preparing a draft of the European Studbook for *C. cataphractus* for the EAZA. He recently moved to a new home; please note the new address: Eddy Even, Houtsnip 23, 7827 KG Emmen, Netherlands <even0013@planet.nl>.



This unusual Chinese battle scene appears to show two people riding crocodiles, in the lower right corner. The significance of this is unknown. View the original color image at: www.chinese-art.com/Traditional/Magazine/800/Fu_Dongguang/02.jpg — *Submitted by* Suzanne E. Hammond, *Portland, OR* <*moreach@netzero.net*>.

Female *A. mississippiensis*, 174.5 cm long, caught by Dr. Herb Dessauer on 27 March 2003 at Par Pond, Savannah River Site, Georgia. From l to r: Dr. Jay Cole (Curator of Herpetology, American Museum of Natural History), Dr. Travis Glenn, and Dr. Herb Dessauer. C. Hagen photo.

THE FEATHER OF TRUTH

Sobek, croc god of Lower Nile,
Holding his ankh, symbol of eternity
In his right paw (or webby foot –whatever -
His fingery, dapple-spill front flipper),
Sports on his upright back at forty-five
degrees
The Feather of Truth. A truth to tell,
as you tell dreams,
To All-Seeing Sun.

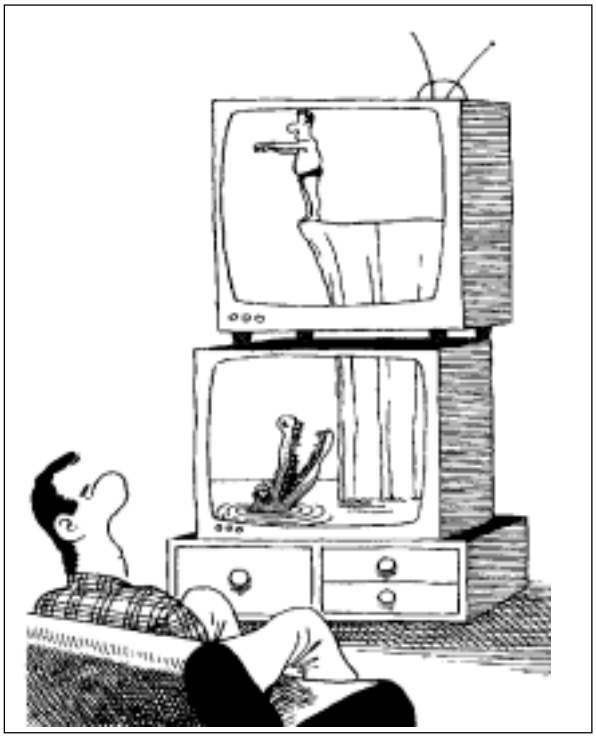
No crocodile tears for him. Under
The amber eye of Sobek
Failure to speak the truth, my lad, is death.

Dormant, alone in a self-dug, darkened den-
- Like that twelfth candle at the wake
Your ancestors kept unlit for Judas
(who no doubt came,
As you will come, on Sobek in his dreams) -
Deprived of sight, when the burrow's
micro-climate dims,
Alligators fall to tonic trance
And cannot move.

— Ruth Padel

"HIDEOUS BLOT UPON CREATION??" 19th century writer Reginald Maugham had no trouble expressing his feelings toward reptiles (including crocodiles!) as he wrote about his travels through Africa:

"We now come to what I think is impossible to refrain from regarding as the loathsome, abhorrent, and repulsive among the inhabitants of Africa those revolting forms which nature would seem to have created in some regrettable moment of bondless indictiveness, for the express purpose of surrounding the beautiful and useful members of the animal creation with the ever-present risk of a ghastly death by constriction, venom or drowning. Were there traceable in this incomprehensible dispensation any beneficial or intelligible purpose, the horrible mission of the reptiles might be understood. But there in none whatsoever...one fails hopelessly to comprehend their inclusion in the scheme of nature. Take for example that hideous blot upon the creation, the crocodile." — Reginald Maugham, *19th century African traveler and author of "Wild Game in Zambesia."* [Thanks to Ken Dodd <ken_dodd@usgs.gov> for sharing this interesting quote with co-workers at the US Geological Survey in Gainesville, Florida (one of whom is on the CSG News editorial staff!) — *Editors*]



Requests

NATURAL PLANT REPELLENTS FOR CROCODILES? Alejandro Soto, from Costa Rica, would like to know if anyone has information regarding natural plant repellents for crocodiles. He has heard that yellow groundsell (*Packera* sp., Asteraceae) is reputed to repel crocodiles in Africa. Any information on crocodile repellents can be sent to the editors and copied to Alejandro at <oasotob@yahoo.com>.

Correction

ERRATUM IN PROCEEDINGS OF 16TH CSG WORKING MEETING, OCT. 2002. Paulino Ponce-Campos wrote to inform us that he inadvertently submitted for publication the wrong version (an earlier draft) of the paper that appears on pages 153-156 of the Proceedings. The correct, updated version of the paper—"New Findings in Crocodilian Biology-Physiology" by Ponce-Campos, P., V. Lance, and S.S.M. Huerta-Ortega—can be obtained as a .pdf file by contacting Paulino at: <poncecp@hotmail.com>. The citation of the information is the same as that in the Proceedings.

Paulino assumes full responsibility for this mistake and expresses his sincerest apologies.

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

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