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Issue 37

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DRAGON IN DANGER

The Chinese alligator is a beautiful species of crocodylian, but this reptile is now in extreme danger of extinction, Colin Stevenson investigates



Imagine a cool morning mist across the waters of a marsh. A scaly back and broad head appears above the water's surface and in the cold, breath looks like smoke exhaled from the nostrils. The head is raised upward and a deep coughing call resounds over the marsh.

Is it any wonder that this animal, the Chinese alligator, is entwined with the mythical Chinese Dragon? Even Marco Polo wrote of a huge serpent emerging from burrows at night, adding further to the legends that have grown around the T'o - a local name for the alligator and one that describes the sound they make.

The Year of the Dragon is considered prosperous, with the dragon symbolising courage and good fortune. This year is a 'Golden Dragon' year in China, occurring only every 60 years. It is therefore ironic and distressing to learn that the real dragon, the Chinese alligator (*Alligator sinensis*), is nearly extinct in the wild. A report by the Wildlife Conservation Society from the Bronx Zoo estimates numbers at between 130 and 150 animals.



SMALL

By crocodylian standards, the Chinese alligator is small, growing to around 2m and weighing up to 40kg. By comparison, a large American alligator will reach twice that length and weigh many times more.

The hatchling alligators are black, with vivid crossbands of white or yellow along their body and tail, the American alligators have a larger number of these bands. Adult Chinese alligators are grey, with lighter, indistinct banding on the body and tail.

The head of the Chinese alligator is more robust than its American cousin, and the snout is slightly upturned. The eyelids have bony plates (a rarity in American alligators) and the belly, or ventral scales contain osteoderms, making the skin unmarketable to the leather trade.

Whilst the Chinese and American alligator are the only two living members of the Alligator genus, the more extensive ossification of the Chinese alligator is similar to both the South American caimans and the dwarf crocodile of West Africa.

HABITS

The teeth of the Chinese alligator are adapted for crushing, and their diet consists largely of snails, crustaceans and other aquatic invertebrates. They will also take fish, young birds and small mammals when available.

The habitat of *Alligator sinensis* was historically the marshlands and extensive lakes of the middle and lower Yangtze River, from Shanghai to Jianling City. Today, it is

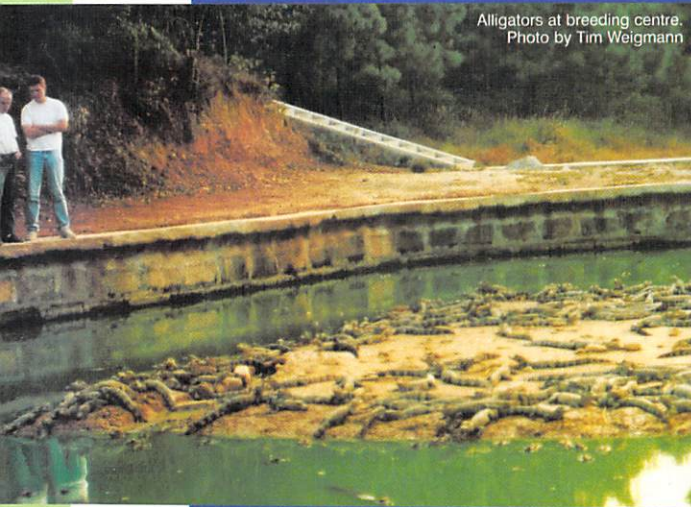
Below left: Adult Chinese alligator. Below right: Wetlands, containing 10 alligators – one of only 13 sites with alligators present. Photos by John Thorbjarnarson



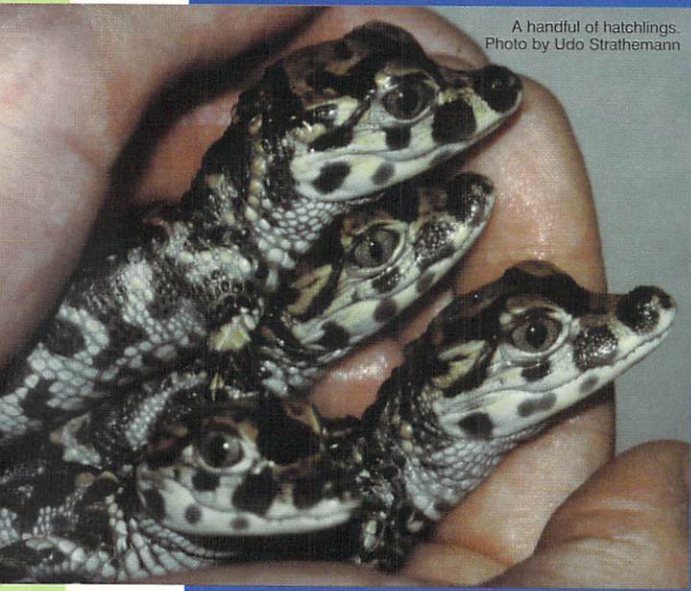
REPRODUCTION

In March or April, the alligators begin to emerge from the dens to bask and begin courting in May or June. Courtship is initiated by bellowing, touching snouts, and gently brushing against each other. About one month after copulation, the female will scrape together a mound-shaped nest of vegetation about 3ft wide and 1ft high.

Within this nest, she will lay 10-40 eggs, covering them again with vegetation. The eggs will take around 70 days to incubate and the hatchlings will signal their readiness by calling from within the egg. The female will then open the nest and often helps the young to the water by carrying them in her mouth. The hatchlings, about 21cm long and weighing 30g, may remain with the female for as long as the first two years of its life. In captivity, Chinese alligators have lived for over 60 years.



Alligators at breeding centre. Photo by Tim Weigmann



A handful of hatchlings. Photo by Udo Strathemann

found only in marginal habitats, mainly in small ponds experiencing cold winters. Alligators have therefore adapted by constructing complex den systems protecting them from extremes of temperature.

DENS

The dens, or burrows, may extend as far as 25m from their opening above the water line in banks of ponds etc. Most entrances are south-facing, as this is cooler in summer and warmer in winter. Construction of new burrows begins around September, coinciding with the hatching period and is followed in October by the winter hibernation period. The temperature outside may be as low as 2°C, but the burrows remain fairly constant at 10°C. When the temperature reaches highs of 35°C in summer, the dens are a comfortable 22-23°C.

Digging deep into the soil with the snout and four limbs, the alligators construct the burrow by pushing back and forth with the head and neck. By pressing against the sides of the burrow, the walls become smooth and compacted.

Male and female dens differ in size and complexity, with males usually having smaller dens, with only two chambers. These chambers will be used for turning around, with a sleeping chamber for the hibernation period and often an underground pool, when a tunnel extends beneath ground water.

Female Chinese alligators have complex den systems, sometime containing as many as 20 chambers and these are the mansions of the crocodylian world! Since the females will often have the young alligators with her in the den for the first few years of their life, they will dig side tunnels for themselves, adding to the complexity of the main burrow.

In areas more prone to flooding, the alligator dens also have air holes excavated to the surface soil. These holes provide not only ventilation, but also allow the alligators to float to the surface at times of flooding.

STATUS

Unique to China, *Alligator sinensis* is the most endangered species of crocodylian. Whilst not suffering the unregulated slaughter most crocodylians did earlier this century, it now faces the almost total loss of its natural habitat.

It is restricted to only a few ponds within the National Chinese Alligator Reserve in Anhui Province, but this is a reserve in name only. The ponds where alligators persist are used by locals for fishing, buffalo wallows and agricultural land extending right up to the water's edge. The alligator population is therefore small and fragmented and may be functionally extinct already.

The entire region is under intense human population pressure and has suffered in recent history with swamps being drained, rivers dammed and silted, chemical run-off and almost complete conversion to agriculture.

Alligators need land areas to bask, nest and build their dens in order to survive the harsh winters, but this land is no longer readily available to them. In 1998, no nests were found in the wild – for the first time in the history of the Chinese alligator. Four were found in 1999 and this situation is becoming very distressing.

Alligators take young ducks raised for food, and their burrows destroy the water-controls of the rice fields – they are simply not tolerated by local people. Children will often disturb them and alligators have been killed when caught moving overland to find better habitat.

“A report by the Wildlife Conservation Society estimates numbers at between 130 and 150 animals”



The future looks uncertain for the wild populations and if nothing is done now, estimates are that it will be extinct in the wild within the next 10 or 20 years.

CAPTIVE POPULATION IN CHINA

Whilst very little effort has gone into conserving wetland habitats for the alligator and the many other species suffering in China, the Chinese authorities have been very successful at setting up a captive breeding facility for them.

The Anhui Research Centre for Chinese Alligator Reproduction (ARCCAR) was started in 1979 and has contributed almost all of the current knowledge of the species. It currently holds around 5,000 captive-bred alligators, yet despite this large captive population, without adequate habitat, no reintroductions can be made - so the wild populations continue to decline.

Current plans by Chinese and international authorities call for the creation of new habitat for the Chinese alligator. Ideally, a number of sites can be secured that will allow viable populations to remain undisturbed. Education of local people, habitat modification, land purchases, and ecotourism are all also part of the plans.

ZOOS

The Bronx Zoo in New York holds the International studbook for the Chinese alligator and has successfully bred them since the early 1980s. They also co-ordinate fieldwork and carry out surveys of alligators and their habitat, working with the Crocodile Specialist Group of the IUCN.

London Zoo maintains the studbook for Chinese alligators in European zoos and has a breeding program established for the animal - recreating the alligator's natural habitat and weather conditions.

The European Endangered Species Program for Chinese alligators is also an initiative of London Zoo. This program co-ordinates interested European zoos that wish to acquire Chinese alligators for display or breeding purposes. The aim of this program is to ensure endangered species do not become extinct. Investigations into captive husbandry techniques, conservation awareness and education and links with veterinary and university institutions are all part of the EESP.

The efforts made by zoos to captive-breed Chinese



alligators not only allows studies of these animals to be made which are difficult in the field, but they also provide a known gene-pool for future controlled reintroductions to boost wild populations.

The Chinese alligator is an animal without a home. It has been pushed as far as any animal can before something has to give. It is the aim of many groups - the CSG, Bronx Zoo and WCS, London Zoo, and many conservation organisations - to make sure that this amazing creature survives in the wild and does not become a zoo curiosity. **end**

HOW YOU CAN HELP

The Crocodile Specialist Group (CSG) has set up a Chinese Alligator Fund and donations made to this fund go directly to Chinese alligator programs within China.

Details of this fund can be found on the Internet at www.crocodilian.com. **Or you can contact the CSG direct at Dr. J. P. Ross, Executive Officer CSG, Florida Museum of Natural History, Gainesville, Florida, 32611 USA Fax: +1 352 392 9367. You can also sponsor a Chinese alligator at London Zoo, call 0207 586 6177 for more information.**

