

Chinese Alligator (*Alligator sinensis*) (Fauvel, 1879) (Reptilia: Alligatoridae): Captive Breeding as Well as its Rehabilitation

Ashraful Kabir

Department of Biology, Cantonment Public College, Saidpur Cantonment—5311, Nilphamari, Bangladesh.

***Corresponding Author:** Ashraful Kabir, Department of Biology, Cantonment Public College, Saidpur Cantonment—5311, Nilphamari, Bangladesh.

Abstract

Captive breeding could be the best option to increase the number of Chinese Alligator (*Alligator sinensis*). To visit Beijing Zoo of China (Plate 1), and after getting information on its availability, this urgency came to write this scientific composition. Adequate data on this alligator enhanced to make a review on its captive breeding and rehabilitation for their sustenance in wild. The number of Chinese Alligators were increased from 1985 to 1994 (from 735 to 740 individuals). At present their number has been slightly increased (114 plus) than the year 2005 (Table 1).

Keywords: Chinese Alligator, breeding biology, captive breeding, rehabilitation, decrease, conservation

1. INTRODUCTION

Historically, Chinese Alligator is known as muddy dragon. This is an endemic rare species in China and also one of the most threatened animals among 23 species in the world (Zhu *et al.*, 2010). Globally, this is a critically endangered animal as well. In wild, it showed 50 years longevity but in captivity it prolongs up to 70 years. The Chinese Alligator is a relatively small with a maximum length of approximately 2 meters (Brazaitis, 1973). Marco Polo was the first person outside of China to write about this alligator while visiting in this country late 1200s (John and Xiaoming, 2010).

People hunt this critter for meat and skin and its gall bladder is used for medicinal purpose (Albert-Auguste, 1879). Unlike the American Alligator (*Alligator mississippiensis*), the Chinese Alligator (*Alligator sinensis*) is fully armored (Tony, 2012), according to a report of Smithsonian's Zoo, its belly is scaled. This alligator is appeared to restricted in south eastern Anhui Province of China. It spends a large portion of the year hibernating in sub-terranean burrows (Huang, 1982; Huang and Watanabe, 1986). The burrows can be complex with above and below-ground pools, and numerous air holes (Chen *et al.*, 1985). It usually begins to emerge from their dens to bask in May. Warm temperatures in the month of June, it begins to make nocturnal sorties (Jiang, 2010). Alligator and crocodile are evolved from different ways. To protect their young, crocodiles and alligators keep their babies in mouth but they do not eat them. Skin of crocodile is soft and very sensitive. Alligators can go through 3000 teeth over in their lifetime. Alligator and crocodile are a group of the loudest reptiles in the world. The objective of this study is to focus the present status of Chinese Alligator and to enhance captive breeding for rehabilitation.

2. CLASSIFICATION

Phylum:	Chordata
Subphylum:	Vertebrata
Class:	Reptilia
Subclass:	Squamata
Order:	Crocodylia
Suborder:	Lacertilia

Family: Alligatoridae
Genus: *Alligator*
Species: *sinensis*
Scientific name: *A. sinensis*(Fauvel, 1879)



Plate 1. Chinese Alligator (*Alligator sinensis*) in Beijing Zoo

Table 1. Number of Chinese Alligators especially in Anhui Province of China

Surveyed year	Individuals
1980s	300
1985, 1987	735
1994	667-740
1997	400
2002	≥130
1999, 2002, 2003, 2005	20, 22, 23, 32
2005	92-114
2003 and present	Increased slightly

Source: Watanabe, 1982; Jiang, 2010; Thorbjarnarson, 2002; Wu *et al.*, 2008; Ding *et al.*, 2004

3. BREEDING BIOLOGY

Nesting occurs from early July to late August (Huang, 1982), with 10-40 eggs laid in mound nest (Chen *et al.*, 1985). Its incubation period lasts up to 70 days and sexes are determined by temperature. Due to the low wild population, high inbreeding is a major concern threatening their chances for long-term survival (Shangchen *et al.*, 2023). Its captive breeding was started from 1970s (John and Xiaoming, 2010). Anhui Research Center for Chinese Alligator Reproduction (ARCCAR) and Changxing Nature Reserve and Breeding Center for Chinese Alligators (CNRBRCCA) are responsible to maintain research projects on this reptile. The wild population has declined sharply (Zhu *et al.*, 2010). Proper molecular markers to alligators need to be assured before wild releasing for avoiding the most unrelated individuals in a particular locality (Zhu *et al.*, 2010). Co-dominant molecular markers have wild-ranging application in the field of genetics and population studies (Goldstein and Schlotterer, 1999). In some cases, there are remnant population with little or no breeding record (Jiang *et al.*, 2006; Wu *et al.*, 2008).

4. CAUSES OF DECREASING

Habitat Loss: Urbanization causes habitat loss for alligators at all. In order to supply food for people, agricultural areas are expanded, so not only alligators but also other animals are facing threatened in the wild.

Hunting: Alligators' meat is eaten in many countries, so these animals have been hunting.

Accidental Entanglement: At the time of fishing, alligators are caught by the fishermen and they got injured.

Feral Pigs: Feral pigs are natural predator to eat the eggs of crocodile or alligator.

Pollution and Climate Change: The climate is changing globally due to pollution and unethical activities by the people, and its effects are prone to decrease of alligators.

Man-Eater: Sometimes, wrongly, crocodile and alligator are considered man-eaters. For this believe, people kill them.

5. CONCLUSION

For the conservation of this alligator, awareness is the core step. Natural breeding will be required to establish sanctuaries. Proper supervision needs to implement in breeding sites. Since, alligator meat is eaten in many countries and their skin is used in making personal belongings but we should discourage all of these for increasing their number. In all markets, we have huge alternatives of alligators' meat. Additionally, research projects on alligator conservation could motivate people on its ecological importance.

REFERENCES

- [1] Albert-Auguste, F. 1879. Alligators in China: Their History, Description & Identification. Celestial Empire Office. Retrieved on February 16, 2019.
- [2] Brazaitis, P. 1973. The identification of living crocodiles. *Zoologica* 58(3-4): 59-101.
- [3] Chen, B.H., Hua, Z.H., Li, B.H. 1985. Chinese Alligator. Anhui Science and Technology Publishing House: Hefei (in Chinese).
- [4] Ding, Y., Wang, X., Thorbjarnarson, J., Wu, J., Wang, Z., Wu, W., Gu, C., Nie, J. 2004. Movement patterns of released captive-reared Chinese alligators (*Alligator sinensis*). Pp. 109 in *Crocodiles. Proceedings of the 17th Working Meeting of the IUCN-SSC Crocodile Specialist Group*. IUCN: Gland.
- [5] Goldstein, D.B. and Schlotterer, C. 1999. *Microsatellites: Evolution and Applications*. Oxford University Press, Oxford.
- [6] Huang, C. 1982. The ecology of the Chinese alligator and changes in its geographical distribution. Pp. 54-62 in *Crocodiles. Proceedings of the 5th Working Meeting of the IUCN-SSC Crocodile Specialist Group*. IUCN: Gland.
- [7] Huang, Z.J. and Watanabe, M.E. 1986. Nest excavation and hatching behaviours of Chinese Alligator and American Alligator. *Acta Herpetology* 5(1): 5-9. (In Chinese).
- [8] Jiang, H.X. 2010. Chinese Alligator *Alligator sinensis*. Pp. 5-9 in *Crocodiles. Status Survey and Conservation Action Plan. Third Edition*, ed., by Manolis, S.C. and Stevenson, C. Crocodile Specialist Group: Darwin.
- [9] Jiang, H.X., Chu, G.Z., Ruan, X.D., Wu, X.B., Shi, K., Zhu, J., Wang, Z. 2006. Implementation of Chinese Action Plan for Conservation and Reintroduction of Chinese Alligator. Pp. 322-332 in *Crocodiles. Proceedings of the 18th Working Meeting of the IUCN-SSC Crocodile Specialist Group*. IUCN: Gland.
- [10] John, T. and Xiaoming, W. 2010. *The Chinese Alligator: Ecology, Behavior, Conservation, and Culture*. John Hopkins University Press.
- [11] Shangchen, Y., Tianming, L., Yi, Z. *et al.* 2023. Genomic investigation of the Chinese Alligator reveals wild-extinct genetic diversity and genomic consequences of their continuous decline. *Molecular Ecology Resources* 23(1): 294-311.
- [12] Thorbjarnarson, J., Wang, X., Ming, S., He, L., Ding, Y., McMurphy, S.T. 2002. Wild populations of the Chinese alligator approach extinction. *Biological Conservation* 103: 93-102.
- [13] Tony, P. 2012. San Diego Zoo gets two Chinese alligators in preservation effort. *Los Angeles Times*. Retrieved on 31 October, 2024.
- [14] Watanabe, M. 1982. The Chinese alligator: is farming the last hope? *Oryx* 17: 176-181.
- [15] Wu, X.B., Gu, C.M., Zhu, J.L., Wang, C.L., Jiang, H.X., Shao, M., Meng, W.Z. 2008. Integrated Research

of Anhui National Nature Resource for Chinese Alligator. Anhui Industry Publishing House: Hefei (in Chinese).

- [16] Zhu, H., Wu, X., Shao, M., Wang, C., Zhu, J. 2010. Selection of the captive-bred Chinese Alligators (*Alligator sinensis*) for wild releasing based on microsatellite loci analysis. Journal of Applied Animal Research 38: 85-87.

Citation: Ashraful Kabir. Chinese Alligator (*Alligator sinensis*) (Fauvel, 1879) (Reptilia: Alligatoridae): Captive Breeding as Well as its Rehabilitation. International Journal of Research Studies in Zoology. 2024; 8(2):5-8. DOI: <https://doi.org/10.20431/2454-941X.0802002>.

Copyright: © 2024 Authors. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.