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AN ASIAN  
BOX TURTLE  
ON THE BRINK  
OF EXTINCTION

# The Turtle From Nowhere

*by Torsten Blanck*

There are many charismatic endangered species, such as the tiger, that have a huge conservation fan base and millions of dollars donated annually to their protection. In spite of this, wild populations of tigers have plummeted to fewer than 3000 animals as habitat loss, and an insatiable demand for tiger parts in traditional Asian medicine has exploded in recent decades. Along with the tiger, a myriad of smaller, lesser-known Asian animals are also losing habitat or are relentlessly sought out by the pet, food or medicine trade.

Many Asian turtle species fall into this category and have little or no popular conservation support. One of these species is Zhou's Box Turtle (*Cuora zhoui*). Apparently always rare, it was able to evade science until the late 1980s when the well-known Hong Kong turtle dealer Oscar Shiu obtained the first specimens and exported many of these animals to the United States and Europe. This enigmatic species was the second to last *Cuora* species to be described, and the formal description by Zhao Er Mi was based on only three specimens purchased in 1990 in the markets of Pingxiang and Nanning in Guangxi Province, China. Shortly thereafter, more specimens were sent to Chinese zoologists and abroad, but all were purchased in the markets of relatively urban areas. Over the years many Chinese and non-Chinese expeditions have searched the two southern provinces of China surrounding the markets but found no trace of the existence of this species, and its natural range remains a complete mystery.

Some have speculated that Zhou's Box Turtle might be a hybrid of Pan's Box Turtle (*Cuora pani*) or the Southeast Asian Box Turtle (*Cuora amboinensis*) with the Yellow Pond Turtle (*Mauremys mutica*). However, recent genetic research confirms that this is not the case. Furthermore, with my friends Ting Zhou and Pipeng Li, I have undertaken extensive surveys of turtle farms in southern China and have never found any Zhou's Box Turtles, while many other hybrids were present in abundance. Genetic studies also indicate it to be closely related to the Yunnan Box Turtle (*Cuora yunnanensis*) — a recently rediscovered species that was thought to have been extinct for a century and only recently found surviving in a very tiny remote area in Yunnan Province.

Zhou's Box Turtle has been listed as Critically Endangered by the International Union for the Conservation of Nature (IUCN) since 2000. Although it still remains a CITES Appendix II listed species, some have suggested that it should be moved to CITES Appendix I. In spite of its extreme rarity, I question this proposed upgrade for two practical reasons. Upgrading without effective enforcement (as now prevails in many countries) simply advertises the extreme rarity of this species and raises the value of specimens in the illegal trade. More importantly, Appendix I listing would make it much more difficult for specimens in legal captive collections in different countries to be exchanged to promote the management of genetic diversity in captive breeding. Even the exchange of blood samples for genetic analysis by scientists would require burdensome import and export permits under Appendix I. CITES is an international trade control instrument, but is often misunderstood by many to be a "general cure" for failed conservation intentions. Also, CITES has no influence in the country of origin where internal trade problems may exist. Of course, habitat protection has not been possible since the natural range of this species remains unknown.

Between 1985 and 2012 approximately 300 specimens appeared in the animal trade with annual numbers decreasing dramatically after 2000. The last known wild-caught animal to appear in local markets since 2007 was a female purchased in Pingxiang in 2010. About 150 of the 300 total specimens found their way into US, European and Japanese collections, with the remainder being held in China. Unfortunately, the mortality rate in captivity has been high with less than 20 percent of these animals now surviving in 2013. Males, in particular, can be delicate and appear to be easily stressed by



(above) Breeding success of Zhou's Box Turtle (*Cuora zhoui*) at the International Center for Turtle Conservation at the Münster Zoo. (below) This is the last known specimen that came from the wild in 2010.



high temperatures. This may explain the high death rates in captivity and suggests that this species' natural habitat, which remains unknown, could lie in cooler tropical upland environments.

These husbandry issues aside, there has been some success in captive breeding this species. Elmar Meier of Munster Zoo in Germany was the first to breed this species in captivity in 1994, and today he maintains the largest captive population of this species. He has hatched a total of 55 offspring and remains the only person to breed this species regularly and successfully produce males.

Currently, the known worldwide number of specimens in captivity is only 108. Of these, just 47 are wild-caught founder specimens. These numbers make this species one of the rarest turtles in the world. This turtle finds itself in the unenviable position of being one of the five most endangered turtles, just behind the Yangtze Giant Softshell Turtle (*Rafetus swinhoei*), Northern River Terrapin (*Batagur baska*), Burmese Roofed Turtle (*Batagur trivittata*) and Yunnan Box Turtle (*Cuora yunnanensis*). What makes these species different from Zhou's Box Turtle is that they are all known from the wild, are comparably well studied, and some reside in several well-established assurance colonies.

During several trips through southern China from 2005 to 2011, Ting Zhou and I have searched many possible habitats without finding any trace of the species. For several years some have speculated that the Zhou's Box Turtles offered in the markets of Pingxiang might actually originate from Vietnam and not China. This town is located close to the Vietnamese border and lies directly on a well-established Sino-Vietnamese wildlife trade route. Our team has received photographs and local interviews that indicate this species may occur in Northern Vietnam's Cao Bang and Ha Giang Provinces bordering China. Further surveys to locate this species are currently in progress. If we do manage to find this species in the wild, the exact locality data will have to be carefully guarded because of the black market threat. The scenario where scientific discovery has led to near extinction has impacted

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other Critically Endangered species before, such as the Roti Island Snake-necked Turtle (*Chelodina mccordi*), the Sulawesi Forest Turtle (*Leucocephalon yuwonoi*), the Palawan Forest Turtle (*Siebenrockiella leytenensis*), and the Yellow-headed Box Turtle (*Cuora aurocapitata*). The scientific publication of their distribution has hastened collection for the illegal trade that has subsequently depleted wild populations. Scientists must be very sensitive when publishing distribution data on newly described or other Critically Endangered and highly sought after species. In the years since we discovered McCord's Box Turtle (*Cuora mccordi*) in the wild, we have kept the locality secret and, so far, have prevented traders from finding them. In spite of the obvious danger of publishing the locality, we have received criticism from some individuals from the scientific sector who speculate that we have just made up this discovery.

The drab, brownish-black shell and olive head of Zhou's Box Turtle is certainly not as attractive as other brightly colored and rare species in the illegal trade such as the Okinawa Leaf Turtle (*Geomyda japonica*) or the iconic Golden Coin Turtle (*Cuora trifasciata*). So in the past, this homely box turtle was not actively sought by collectors compared to most other *Cuora* species. Now, due to its status as one of the world's rarest animals, it is in great demand. Initially in the Pingxiang market it

was traded as just another "turtle for the cooking pot" at very low prices similar to the Yellow Pond Turtle, a rather common food species fetching about US \$15 apiece. But since modern media has spread to the most remote areas in China, prices for the box turtle have skyrocketed due to its rarity and demand from both Asian and international turtle collectors. The turtles now trade for several thousand dollars apiece.

This market dynamic is devastating. When a small, nondescript turtle is common, it is worth very little. Unfortunately, we have to wait for a species to become rare to generate any concern for it.

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Hatchling Zhou's Box Turtle at the International Center for Turtle Conservation at the Münster Zoo.

all. If the species is already extinct and we are too late, it is still important to locate its former habitat in order to learn about its habitat requirements and to be able to plan for future release projects once appropriate protected areas are established in the future. Otherwise, captive assurance colonies will fail to reach their primary and ultimate goal of repatriation of animals back into the wild. I have not given up hope that the species still survives in a remote mountainous site in northern Vietnam, especially since the rediscovery of the Yunnan Box Turtle — a species that was feared to be extinct for a century and then suddenly reappeared.

In the meantime, it is of the utmost importance to combine forces and unite the remaining wild-caught founder stock into a unified, working breeding program. Elmar Meier is working with some other breeders to loan or exchange adult founder stock to maintain a high level of genetic diversity for this species. An adult Zhou's Box Turtle female can produce up to five hatchlings a year, so with a possible breeding stock of five to six males

and 10 females, more than 30 hatchlings could be produced annually. According to Studbook studies, a founder stock of five males and 10 females would be sufficient to maintain the genetic diversity required for the survival of the species.

However, achieving the goal of a worldwide coordinated breeding effort using all known animals is not easy because various countries have different views about export and import permits for the transfer of specimens under the CITES regulatory environment. I believe it is critically important that all authorities cooperate to allow the best management of this species. Its survival depends on the formation of multiple, sustainable breeding groups in a recognized international conservation project, instead of being split up into small non-breeding groups across the planet. Such a project could provide captive-bred specimens for later release in the wild. Without such action, sustainable captive assurance colonies may not be achieved and extinction becomes a real possibility. It is our duty to prevent this from happening. 🐢