

# THE CHINESE TURTLE TRADE

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The phrase “Asian Turtle Crisis” (known by turtle enthusiasts as well as “global warming”) first appeared in the 1980s when it became obvious that Asian turtle species are in serious decline. Contributing factors include habitat destruction and especially heavy collection for Traditional Chinese Medicine (TCM) and food markets markets (MCCORD, 1997; MEIER, 2000; ALTHERR

and FREYER, 2000; VALENTIN, 2000; ARTNER and HOFER, 2001; and BATTKE and NEWSTEAD, 2003). Most authors agree that this crisis resulted from opening China to western business, enhancing Chinese currency and increasing Chinese industry. The consequently increasing buying power of the Chinese people has resulted in a rising demand for preferred food and medicinal ingredients. There was always turtle

consumption, but it was not until the early 1980s that the Chinese could afford to consume turtles in such great quantities.

It must be noted that China has a centuries-old tradition of consuming turtles as either food or medicine for various ailments. Many Chinese people consider turtles to have “warming” properties in accordance with the Five Elements of TCM (turtle consumption is therefore greatest during the cooler

# HISTORY AND CURRENT PERSPECTIVES IN SOUTHERN CHINA

One of 10 trucks loaded with more than 300 polystyrene boxes each filled with turtles is unloaded, a daily scene in May 2007 at the Qingping market



months of the year); aphrodisiac properties; and to be a cure for various illnesses, including cancer. Turtle consumption was originally concentrated in southeastern China (Guangdong, Yunnan, and Guangxi provinces), but the practice has since spread throughout the country.

Even in the past, turtle meat was more expensive than other protein sources, and today's rising prices are tending to make turtle consumption

a luxury of the wealthy — consuming turtles for strictly nutritional purposes is unaffordable for many Chinese today.

As one of the first chelonian-oriented western travelers in China, SCHNEE (1899) noted that *Pelodiscus sinensis*, *Chinemys (Mauremys) reevesi*, and the comparably expensive *Cuora (Pyxiclemmys) trifasciata* were offered in large quantities in the Cantonese (i.e. Guangzhou) markets.

MELL (1922, 1938) reported non-Chinese turtles and tortoises, e.g. *Manouria emys*, in the Cantonese and Shanghai markets, demonstrating that turtle import into China has a long history (this species is still found on the market today). We suspect that this history of import trade puts several locality reports into question — e.g., *Manouria impressa* from Hunan Province; *Cuora (Pyxiclemmys) yunnanensis* from Kunming, Yunnan

Province; and perhaps *Rafetus swinhoei*, believed by some to naturally occur in the Yangtze drainage of central China, but is probably restricted to Vietnam.

Local Chinese turtle traders usually claim that their turtles are from nearby, often from adjacent mountains. This was reported by MELL (1922, 1938) and is still a common practice that has led to much confusion regarding the distributions of several species.

Chinese markets provided the opportunity for western scientists to acquire and study turtles that were unfamiliar to them. As a result, confusion has arisen in modern taxonomy because most Chinese turtle species were described from market specimens and data provided by the traders.

MELL (1922, 1938) best described this problem when he argued about the collections of Reeves, Beale, and Razlag in the 1800s, giving the example of *Geoemyda spengleri*, said to be collected by Razlag from “Kwangtung and Kwangsi” (Guangdong and Guangxi), which really meant the turtle markets of Canton (Guangzhou) and Wu Chow (Wuzhou), visited by most travelers and collectors at the time. The latter market was nearly closed down in 2005 due to lack of turtle availability according to the locals. Most published distribution data are also derived from market purchases that have been later deposited with this “locality data” in the museums around the world.

Most authors following this data depict abundant market species such as *Mauremys mutica* and *Ocadia (Mauremys) sinensis* as widespread on the Chinese mainland, especially in the southeastern provinces of Guangxi and Guangdong, the center of turtle trade. However, these species are largely unknown by locals from these areas of proposed distribution, and are recently confirmed only from coastal islands, central China, and Vietnam (BLANCK and KREMSER, 2008; FONG et al., 2007). Perhaps these



Turtle butcher at the Qingping market, Guanzhou, Guangdong Province, China, preparing *Chinemys reevesi*



Crates filled with *Indotestudo elongata* (CITES II) at the Qingping Market

species had a highly complex distributional pattern, but since they are nearly extinct in the wild, and are now bred in large numbers on farms throughout southeastern China (ZHOU et al., 2008), we will probably never know for certain.

Rare and rather newly described species such as *Cuora (Cistoclemmys) mccordi* and *Cuora (Pyxiclemmys) aurocapitata* were long unknown in nature. This changed recently when scientists focused on field work rather than market work and started finding Chinese turtles in the wild like Mell did in the 1920s (MELL, 1938). Due to the extreme rarity of Chinese turtles at present, it is increasingly difficult, but still possible,

to find them in the wild. For conservation, not only captive reproduction of turtles is important. It is also important to know where captive-bred offspring might be released to effectively restore populations after the last wild Chinese or Asian turtles have vanished — e.g., into the famous Cantonese turtle jelly “gui ling gao.”

Data collected during field studies has confirmed that species such as *Cuora (C.) mccordi* were known for decades by locals of the area, and were collected by them and sold to the markets of large turtle-trading cities like Guangzhou and Wuzhou. Locals distinguished *Cuora (C.) mccordi* from the sympatric *Cuora*



*Platysternon megacephalum* at the Qingping market



*Platysternon megacephalum* at the Qingping market



Huge *Manouria emys* waiting for the soup pot

(*P.*) *trifasciata* — both were nonetheless still being sold by traders as one species, the valuable “golden coin” turtle. Similarly, *Cuora* (*Pyxiclemmys*) *pani* and *Cuora* (*P.*) *aurocapitata* were traded for decades as other species until scientists monitored the markets. Other species, i.e., *Cuora* (*Pyxiclemmys*) *zhoui* and *Cuora* (*P.*) *yunnanensis*, have so far been found only in markets.

Species such as *Chinemys* (*Mauremys*) *nigricans* were also rare in the markets in Mell’s day because they were regarded as poor quality food, and were brought in only as a by-product of *Cuora* (*P.*) *trifasciata* collection. By the 1990s this had changed due to increased general demand for turtles and the novel interest shown by western collectors in uncommon turtle species. Consequently, high prices were offered by Hong Kong dealers to market traders and eventually to villagers in remote areas, leading to a sharp increase in turtle collection and an increase in market numbers of turtle varieties that were once considered worthless by locals. *Chinemys* (*M.*) *nigricans* was offered in large numbers in the markets in the 1980s, but decreased sharply in the late 1990s, and only few can be found today. MELL (1922, 1938) noticed a similar decrease in the 1920s, but today the situation is more terminal. While some believe this species is nearly extirpated from the wild, there may still be hope. In 2005 a Chinese turtle farmer showed the senior author specimens he had captured himself in a remote area of the Luofaushan, the same area where Mell found his specimens.

History demonstrates that turtle trade has existed in China for a long time, involving large numbers of specimens and international trade along the Silk Road. From 1954 to 1983 (during the peak of the Communist era in China), free trade in wildlife was allowed only by the Chinese government (LI and LI, 1996). This decreased animal-trade numbers, giving wild turtles a few decades to regenerate their populations despite local harvest that has been going on for many centuries. Since then, species like *Cuora* (*P.*) *trifasciata* have become nearly extirpated from the wild by over-exploitation and massive habitat destruction throughout China.

By the mid 1980s, western researchers noticed and reported the huge number of turtles traded in China, and by the late 1990s most scientists who visited Chinese markets — especially the largest, oldest, and most famous Qingping (pronounced Chingping) market in Guangzhou, Guangdong Province — feared that most Asian turtle species were already becoming extinct due to this enormous demand. A sharp rise in commercial activity was seen in the late 1990s and early 2000s, when trade numbers were estimated at 10–12 million turtles annually throughout China (MCCORD, 1997; SALZBERG, 1998; ALTHERR and FREYER, 2000). At that time most turtles being sold were wild caught, and more than 5,000 specimens were estimated to be on sale for consumption in the Qingping market every day (MCCORD, 1997; VALENTIN, 2000).



Assortment of rare or unusual color varieties of turtles, e.g. *Cuora galbinifrons*, *Indotestudo elongata*, *Chelydra serpentina*, *Platysternon megacephalum*, and a huge *Heosemys grandis*

MCCORD (1997) reported 63 species offered on a given day in 1987. ARTNER and HOFER (2001) counted 38 species, BATKE and NEWSTED (2003) found 37 species, of which 11 were CITES protected at the time. LEE et al. (2004) reported 54 species. We estimated about 10,000 turtles on sale daily (peak season) in the Qingping market in the years 2005, 2006, and 2007, and about 2,000 in the summer (slow season) of 2008, with 25 to 49 species present at different times.

Based on such data, CITES listed most of these species to prohibit trade — with unclear results. The export of specimens to the West was stopped, but inside China, little attention is given to these laws.

In the 1990s and early 2000s many authors (e.g., MCCORD, 1997;

MEIER, 2000; VALENTIN, 2000; ARTNER and HOFER, 2001; and LEE et al., 2004) have reported seeing hundreds of the non-Chinese CITES I species *Morenia ocellata* in Qingping market. The same numbers were seen again in Qingping market in 2005, 2006, and 2007 (BLANCK and ZHOU, pers. obs.). Other non-Chinese CITES I species observed included *Geoclemys hamiltonii* and *Pangshura tecta*, (MEIER, 2000, using market data from 1995 by ARTNER). Enforcement of CITES or newly designated Chinese laws has not been observed. While live *Morenia ocellata* are still presently common in the markets, *Pangshura tecta* is offered only as dried plastra in the Qingping Market. *Geoclemys hamiltonii* has not been seen in Qingping since the late

1990s. This demonstrates that even species with the highest legal protection have continued to be sold in large quantities over the last two decades, and that these laws and regulations are not solving the problem.

More than a decade after the appearance of revealing reports on the turtle market situation in China — MCCORD (1997), MEIER (2000), ALTHERR and FREYER, (2000), VALENTIN (2000), ARTNER and HOFER (2001), and BATTKER and NEWSTED (2003) — and consequent fears that most Asian turtle species will go extinct in the near future, it is amazing that the markets are still open and full of turtles in 2008. Some reports seem to indicate that certain turtle species are getting rarer in the markets, but this is actually a reflection of seasonal fluctuation in availability (unrelated to the weather in China). The Vietnamese and Chinese species are generally more available in autumn. Species from Myanmar such as the highly endemic *Heosemys depressa*, which was only rediscovered in 1996 (IVERSON and MCCORD, 1997); *Manouria impressa*, and *Morenia ocellata* are being sold in larger numbers during spring. An adult specimen of one of the rarest turtles in the world, *Batagur (Kachuga) trivittata* from Myanmar, was observed at the Qingping Market in May 2007 (KUCHLING,



The Huadiwan of Yuentu Market in Guangzhou, China — the "cheapside" section of the largest turtle pet market of China

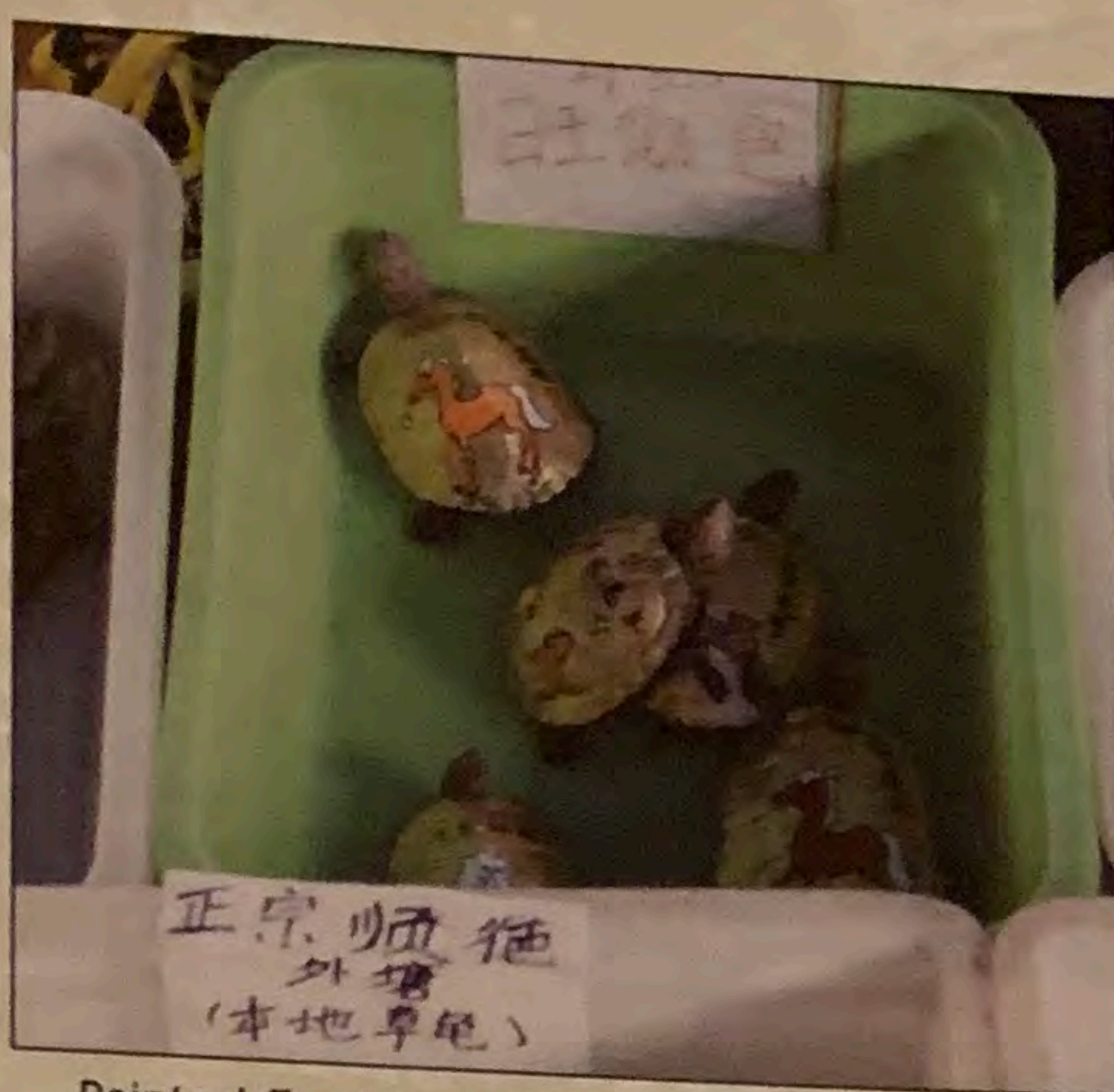
2007; BLANCK and ZHOU, pers. obs., 2007). In 2007 and especially 2008, large numbers of juvenile and semiadult *Geoemyda spengleri* and *Platysternon megacephalum* were offered in Nanning and Guangzhou markets. This might suggest that these species are being farmed, as assumed (with clearly overestimated numbers) by SHI et al. (2008) — however, the specimens in markets showed signs of wild origin, and were in poor condition compared to farm-bred specimens of other species. ZHOU et al. (2008) did not find these species on farms.

Vietnam, Laos, and Cambodia have been among the major suppliers of turtles for the Chinese markets. Turtles were also imported from Indonesia during the 1990s, but since 2004 the Indonesian turtle trade has completely disappeared.

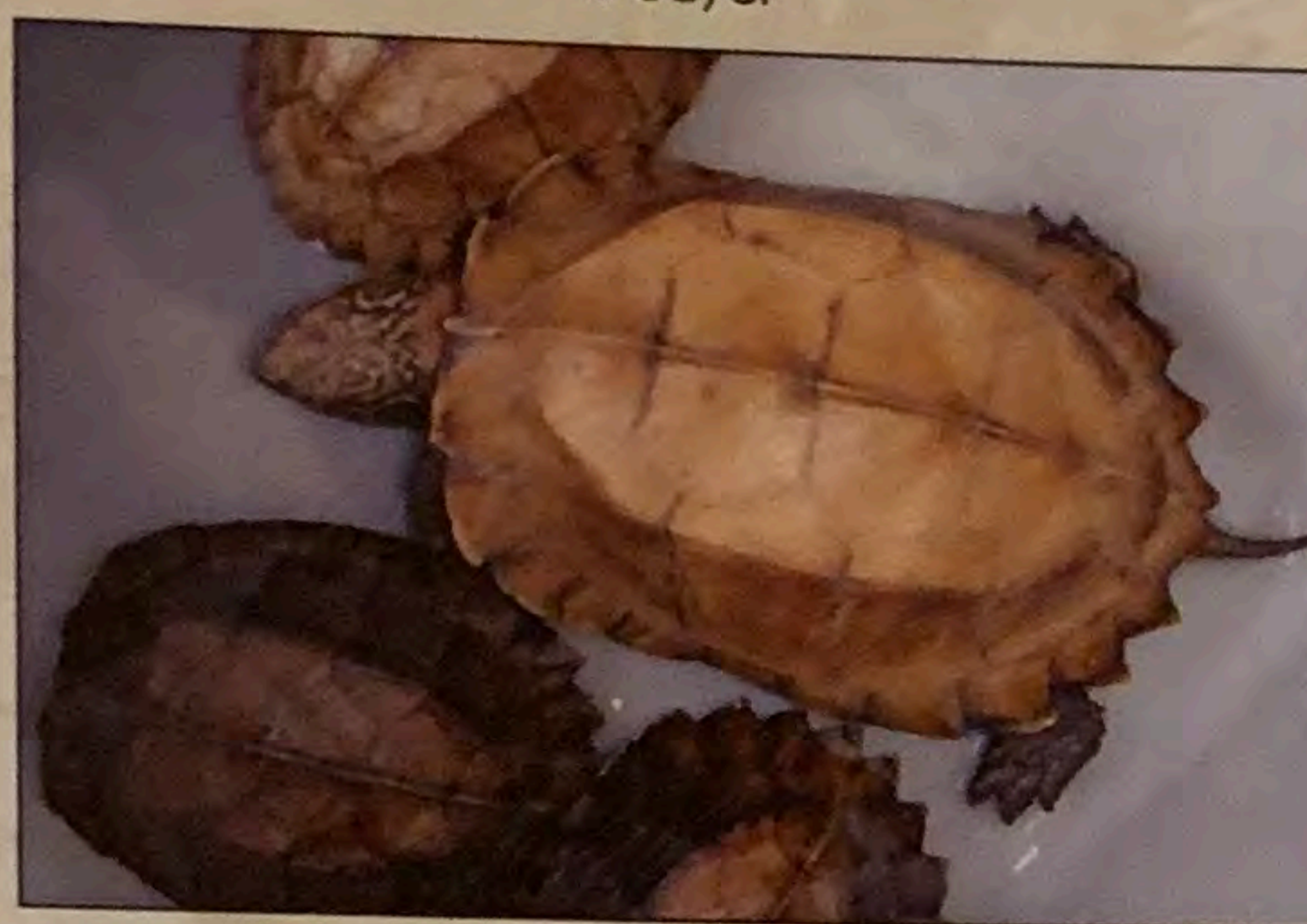
*Heosemys depressa* and *Manouria impressa* are relatively new on the market and have been sold only in small quantities over the last 10 years. These species appeared in large quantities for the first time in 2007, suggesting that traders have found good shipping and smuggling routes from Myanmar to Yunnan Province, where KUCHLING (1995) reported Myanmar specimens at the Ruili food market, western Yunnan Province, China. After nearly a century of absence from western science, the first *Heosemys depressa* specimens were found in Ruili in 1995 (IVERSON and MCCORD, 1996).

The species *Orlitia borneensis* and *Cuora amboinensis*, which were very abundant in markets in the 1990s and early 2000s (MCCORD, 1997; ARTNER and HOFER, 2001; LEE et al. 2004), have nearly disappeared from the markets since 2004, reflecting either better protection in Indonesia or a collapse of wild populations.

Because they had not been seen in markets for several years, *Cuora (C.) mccordi* and *Cuora (P.) zhoui* have been feared already extinct in the wild (BEHLER, 1997; MEIER, 2000; ALTHERR and FREYER, 2000). This is not yet the case — in



Painted *Trachemys scripta elegans* waiting for a buyer



The red headed *Cuora mouhotii*, a yet undescribed subspecies, non-existent in European collections



*Cuora trifasciata* at the Nanning-Nanling Liu turtle market — common in the 1980s and 1990s; only behind the scenes at high prices in the 2000s

2008 the senior author was offered three adult *Cuora (P.) zhoui* and several *Cuora (C.) mccordi* in the Guangzhou markets — but these species are certainly near the brink of extinction.

The Chinese animal trade decreased during the SARS (Severe Acute Respiratory Syndrome) crisis from 2002 to 2004 due to fear that people might be infected by market animals, with a Chinese Forestry Department ban on trade and consumption of wild animals from April to August 2003. Since then, only farm bred or raised birds and mammals are permitted for consumption. Unfortunately shortly after the SARS crisis passed, turtle and snake sales increased back to previous levels.

In 2007, the pet turtle area of the Qingping market in Guangzhou City closed down, but only because it has moved to a new location — the Huadiwan market in another district of the city is now where special color morphs and rare species are traded at higher prices than turtles in the food markets. There is now a pet turtle industry in China along with some collectors buying rare turtles as investments.

Fortunately up to 50 percent of the specimens offered in China's pet trade are derived from Chinese turtle farms, although these farms purchase wild caught turtles to restock their breeder losses. The wild-caught turtles are considered more valuable and are believed to have better curative properties (TCM) than captive-bred specimens, so the demand for them continues to be high.

In May 2007 several thousand turtles were on sale in the Qingping market on a given day (BLANCK and ZHOU, pers. obs.), about the same observed by McCord in 1987. About 50 percent of them are sold every day and replaced by several truckloads in the evening when it is cool enough to ship. In August 2008 it was noted by these authors that the Qingping food market appeared to have collapsed, with most of the 28 turtle stalls that had been active in 2007 shut down or selling other products. The seven remaining turtle stalls sold mostly *Trachemys scripta elegans* and other captive-bred specimens along with 30 percent wild-caught animals, e.g. *Pyxidea (Cuora) mouhotii*, *Cuora (Cistoclemmys) flavomarginata*, *Mauremys (Ocadia) japonica*, and a few *Manouria impressa*, *Platysternon megacephalum*, *Morenia ocellata*, and *Heosemys depressa*, suggesting a shortage of wild-caught turtles. The Huadiwan pet market showed no signs of shortages. We believe the Qingping Market quieted down in August due to the Olympic Games and a seasonal shortage of turtles (LEE et al., 2004). Due to lack of refrigeration, shipping live specimens in the heat of summer results

in high mortality. Also, due to the Chinese tradition (TCM) of consuming turtles for their “warming” properties during cooler months, demand for turtles is lower during the hot months. The presence of *Mauremys (O.) japonica* and *Cuora (Cistoclemmys) evelynae*, both endemic to Japanese territory, suggests possible smuggling by Chinese fishermen. In all markets visited in 2008, it was evident that *Platysternon megacephalum* has become very rare — the price has increased from US\$10 to US\$80 per 500 grams, indicating that this species is vanishing in the wild.

The Chatou market in Guangzhou City formerly sold thousands of large riverine species like *Orlitia borneensis* (VALENTIN, 2000; BATTKE and NEWSTED, 2003; LEE et al., 2004). There, in August 2008 we observed many *Pelodiscus sinensis* and *Palea steindachneri*, a giant adult *Amyda cartilaginea* male, and a few hard shelled turtles and tortoises, e.g. *Manouria impressa*, *Mauremys mutica* and *Ocadia (M.) sinensis*. For the first time *Crocodylus porosus* was seen in this market.

In Nanning City, the capital of Guangxi Province, the Nanjing Liu Wildlife market was selling large numbers of turtles in August 2008 (BLANCK and ZHOU, pers. obs.), mainly *Geoemyda spengleri*, *Palea steindachneri*, *Indotestudo elongata*, *Mauremys mutica*, and *Ocadia (M.) sinensis* — all but *Geoemyda* and *Indotestudo* were captive bred. A few captive-bred *Cuora (P.) trifasciata* were on sale behind the scenes for a price of 3,000 euros each, and a few *Manouria impressa*, *Cuora amboinensis kamaroma*, *Platysternon megacephalum*, *Cuora (Cistoclemmys) galbinifrons*, *Cuora (C.) flavomarginata*, and *Pyxidea (Cuora) mouhotii* were offered along with exotic species like *Chelydra serpentina* and *Macrolemys temmincki*. This is in contrast to the relatively few (194) turtles reported from this market by SHI et al. (2004).



The freshly unloaded turtles, in this case *Pelodiscus sinensis*, are weighed and distributed to the stores



Huge *Amyda cartilaginea* at the Chantou market — a common sight in the 1990s, virtually nonexistent in the 2000s

Kunming, the capital of Yunnan Province, has been an important market for turtles through history, along the Silk Road, and as recently as the 1990s. Mostly captive-bred turtles: e.g., *Ocadia (M.) sinensis*, *Trachemys scripta elegans*, *Chinemys (M.) reevesi*, *Pelodiscus sinensis*, and *Mauremys mutica* are sold there these days; along with a few wild-caught specimens: *Manouria impressa*, *Pyxidea (C.) mouhotii*, *Geoemyda spengleri*, *Cuora amboinensis*, *Cyclemys tcheponensis*, *Sacalia quadriocellata*, *Cuora (C.) galbinifrons*, and *Melanochelys trijuga edeniana* (BLANCK and ZHOU, pers. obs. 2005) — all of them in low numbers (less than 10 each). Some *Cuora (P.) yunnanensis* were sold at this market a few years ago, but in

general, the wild trade volume in this city is of little importance today.

Hainan Province once played an important role in the Chinese turtle trade as a port of entry for Vietnamese turtles into China, and had its own native turtle diversity — e.g., *Cuora (C.) galbinifrons*, *Pyxidea (Cuora) mouhotii*, *Cuora (P.) trifasciata*, *Ocadia (M.) sinensis*, *Mauremys mutica*, *Sacalia quadriocellata*, *Platysternon megacephalum*, *Pelodiscus sinensis*, *Palea steindachneri*, and *Pelochelys cantorii*, as reported by turtle dealers to DE BRUIN and ARTNER (2000).

While striving to save Asian turtles from extirpation, we cannot blame the local people for their longstanding traditions or for collecting turtles to sell so that they

are able to afford to put food on their tables.

It is sometimes apparently forgotten that many cultures around the world, including westerners, have consumed turtles. *Emys orbicularis* was nearly extirpated in Europe 200 years ago. The declining populations of sea turtles were a frequent source of soup until the mid 20th century. In the United States, *Chelydra serpentina*, *Macrochelys temmincki*, and *Malaclemys terrapen* are still consumed by locals to some extent. The difference in China is mainly the size of the human population — 1.3 billion people are demanding turtles and contributing to habitat destruction and pollution.

MELL (1938) noted that the Chinese use turtles not only for food and TCM — e.g., *Cuora (P.) trifasciata* for cancer; now too expensive as food — but also for religious festivities (funeral ceremonies, Buddhist traditions, etc.). He also noted that *Chinemys (M.) reevesi* was not eaten, but used as a toy or pet for “catching mosquitoes,” as an oracle, and sometimes for medicinal purposes. This species is now being consumed as food (especially boiled in soup or made into jelly for medicinal purposes), kept as pets, and released into Buddhist temple ponds or the ocean.

At present, an important goal toward saving Asian turtle species from extinction is to improve captive breeding techniques and support breeding facilities like the International Center for Turtle Conservation

(IZS) at Münster Zoo, Germany. Turtle breeders should contribute to studbooks like the European Studbook Foundation to help maintain a viable gene pool for the future. It is also important to support organizations like the Turtle Survival Alliance to create in-situ conservation projects — without viable habitat, captive offspring cannot be released into the wild. ■

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Crates full of turtles at the Qingping Market



*Cuora mouhotii*, *Indotestudo elongata*, *Cyclemys oldhami*, *Cuora bourreti*, *Cuora galbinifrons*, *Manouria impressa*, and *Heosemys annandalei*