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## Recent Records of Freshwater Turtles from Guangdong, China

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Guangdong is a subtropical Province in southern China. According to the literature, about 15 species of freshwater turtles (more than 50% of the nonmarine turtle species in China) have been recorded in Guangdong, including *Cuora trifasciata*, *Cuora flavomarginata*, *Cuora galbinifrons*, *Cuora mouhotii*, *Mauremys reevesii*, *Mauremys nigricans*, *Mauremys mutica*, *Mauremys sinensis*, *Geoemyda spengleri*, *Platysternon megacephalum*, *Pelodiscus sinensis*, *Palea steindachneri*, *Pelochelys cantorii*, *Sacalia quadricellata*, and *Sacalia bealei* (Zhang et al. 1998; Zhao 1998). Therefore, we think Guangdong is a hot spot of chelonian diversity in China.

Because Guangdong is a main trade nexus and is China's largest consumer of turtles (Lau et al. 1996; Lee et al. 2004; Cheung and Dudgeon 2006), some distribution records are based on turtles observed in markets rather than collected from the wild, such as *Cuora galbinifrons* and *Cuora flavomarginata* (Zhao 1997, 1998). It is very difficult or impossible to determine the geographic origin of many trade specimens, especially those obtained in urban markets. Uncritical acceptance of these records by some workers has led to inaccurate characterization of species distributions, with serious biological, conservation, legal, and regulatory implications. Additional confusion has resulted from the realization that some species of Asian turtles described during the last 2 decades were based on type specimens obtained from Hong Kong animal dealers who provided inaccurate or fabricated locality data, leaving the geographic origin of many in doubt (Parham et al. 2001; Dalton 2003). Distribution records that explicitly state how the turtles were obtained are therefore clearly important.

During the last 2 decades, exploitation of chelonians for food, as pets, and for traditional medicine has been widespread in China, including in Guangdong (Lau et al. 1996; Lee et al. 2004; Cheung and Dudgeon 2006; Gong 2007,

unpublished report). The volume of this trade has posed a serious threat to the continued viability of wild chelonian populations throughout China (Zhao 1998; Lau and Shi 2000; Gong et al. 2005, 2006a, 2006b). The turtle trade, combined with habitat destruction, has hit Guangdong's wild chelonian populations hard (Gong 2007, unpublished report). Some rare and expensive species such as *C. trifasciata* have almost disappeared in field, as well as common turtle species such as *M. reevesii* (Zhao 1998; Lau and Shi 2000; Gong et al. 2007, unpublished report). Because of limited biological investigations in the past, the distribution of freshwater turtles of Guangdong remains poorly known (Zhao 1997; Zhang et al. 1998). Knowing the status and distribution of the wild freshwater turtle populations is important to biological research and conservation of freshwater turtles in Guangdong.

Herein we here report recent distribution records of freshwater turtles from Guangdong that can be verified with voucher specimens or photographs. These records were obtained by us during field and interview surveys conducted from July 2006 to May 2008, or by other researchers in the region between 2000 and 2007. For each record, we note whether the specimen was collected in the field or obtained from hunters or residents in rural villages.

## Methods

### Study sites

Guangdong is situated between 20°09'–25°31' N and 109°45'–117°20' E. It has an area of more than 180,000 km<sup>2</sup>, more than 170,000 m<sup>2</sup> of which is land. The province reaches high elevations in the north and low elevations in the south. Mountains make up 31.7% of the total area, hilly areas 28.5%, terraced farmland 16.1%, and plains 23.7%.

At present, Guangdong is zoned into 77 counties and 18 cities. In our study, a total of 20 counties and 3 cities were



Map 1. The location of the study sites in Guangdong, China.

selected as study sites, including Boluo, Conghua, Dapu, Heping, Heyuan, Huidong, Jiaoling, Lechang, Longmen, Lianping, Lianzhou, Longchuan, Nanxiong, Pingyuan, Qingyuan, Ruyuan, Renhua, Shaoguan, Shixing, Sihui, Wengyuan, Xinfeng, and Yangshan (Map 1).

#### Interview survey

We visited local hunters or residents in rural villages, the wildlife managers of nature reserves, and local biologists to collect information on wild turtles. In Oriental popular religion and superstition, the turtle is regarded as the symbol of long life and a creature of supernatural powers. In China, people think that hard-shelled turtles are sacred and the Buddhists believe that showing mercy by releasing live turtles will be rewarded with good fortune in return. Considering the market prices of turtles, the cheaper 3 species—*Trachemys scripta elegans*, *M. sinensis*, and *M. reevesii*—from turtle farms have become the most popular species for religious release. With the help of local wildlife managers of nature reserves and biologists, we can exclude the specimens of turtles that have been released.

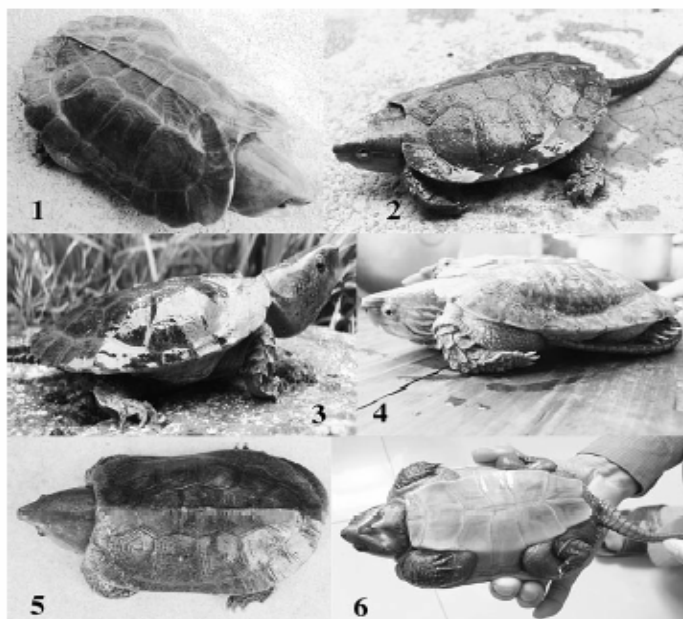
#### Field survey

One or 2 nature reserves were selected to survey freshwater turtles at each study site. According to the habitat preferred by freshwater turtles, we selected certain sampling areas to look for wild turtles. In addition, the results of biodiversity surveys conducted at Kadoorie Farm and at the Botanic Gardens are included.

### Species Accounts

#### (1) *Platysternon megacephalum* Gray, 1831

This species was commonly encountered in Guangdong. We saw 28 specimens, 25 adults and 3 juveniles, in rural villages around nature reserves. These turtles were collected from the field by local hunters or residents. Of the 28 specimens, 2 were found in Pingyuan (Longwen Nature Reserve), 2 in Dapu (Fengxi Nature Reserve), 1 in Heping (Huangshi'ao Nature Reserve), 1 in Renhua (Gaoping Na-



Figures 1–6. See text for locality details of the records. 1. *Platysternon megacephalum* from Wengyuan. 2. *Platysternon megacephalum* from Lianzhou. 3. *Platysternon megacephalum* from Pingyuan. 4. *Platysternon megacephalum* from Dapu. 5. *Platysternon megacephalum* from Longmen. 6. *Platysternon megacephalum* from Heping. (Photos by Gong Shiping.)

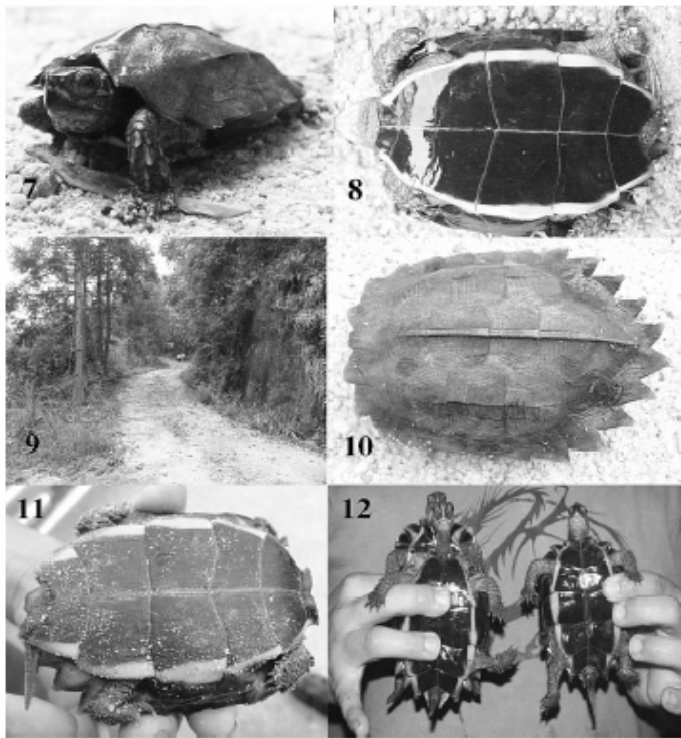
ture Reserve), 1 in Longmen (Nankunshan Nature Reserve), 1 in Conghua, 4 in Shaoguan (Luokeng Nature Reserve), 1 in Qingyuan (Tianjingshan Nature Reserve), 5 in Wengyuan (Qingyunshan Nature Reserve), 2 in Lianzhou (Tianxin Nature Reserve), and 6 in Ruyuan (Quanshui Nature Reserve). In addition, Professor Yuan Xicai (South China Institute of Endangered Animals) saw 4 specimens during 2000–2003, 2 from Huidong (Baipenzhu Nature Reserve), 1 from Ruyuan (Dadongshan Nature Reserve), and 1 from Huaiji, Zhaoqing. Figures 1–6 show some of the specimens.

#### (2) *Geoemyda spengleri* Gmelin, 1789

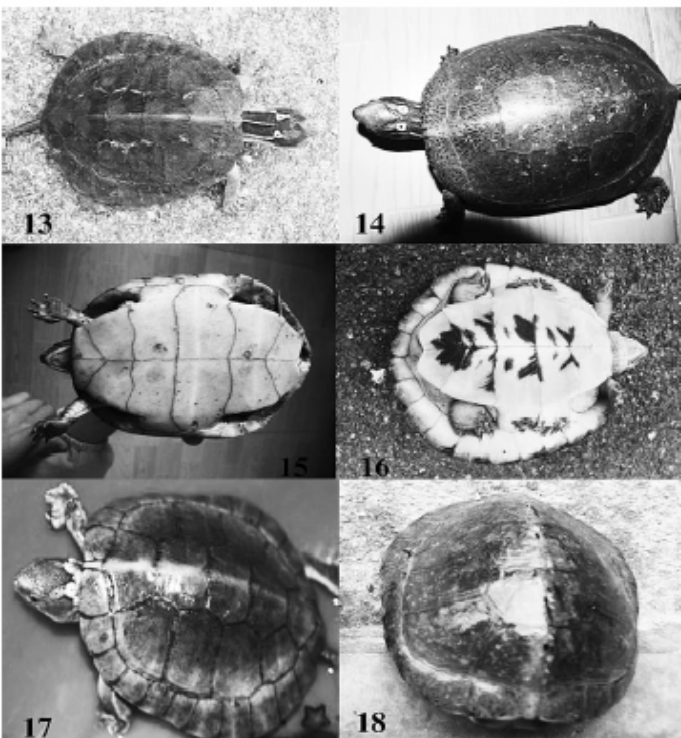
We saw 9 specimens in rural villages around nature reserves, and these turtles were collected from the field by local hunters or residents. Three were found in Longmen (Nankunshan Nature Reserve) and 6 in Qingyuan (Tianjingshan Nature Reserve). Two specimens were found during field survey, 1 in Nankunshan Nature Reserve and 1 in Tianjingshan Nature Reserve. Chan et al. (2004) collected a specimen from Sanyue Nature Reserve, Huaiji County, Zhaoqing City in 2001. Professor Li Zhenchang (South China Normal University) collected 2 specimens, an adult male and an adult female from the field of Nankunshan Nature Reserve, Longmen, in 2002. In addition, he also collected 1 specimen from Heishiding Nature Reserve, Zhaoqing, in 2003. Figures 7–12 show some of the specimens.

#### (3) *Sacalia bealei* Gray 1831

We saw 4 specimens, 3 adult females and 1 juvenile, in rural villages around nature reserves. These turtles were



Figures 7–12. See text for locality details of the records. 7 and 8. Ventral and dorsal views of the specimen, an adult female from Nankunshan Nature Reserve, Longmen. (Photos by Gong Shiping.) 9. Habitat of the field-collected specimen. 10 and 11. Ventral and dorsal views of the specimen from Tianjingshan Nature Reserve, Qingyuan. (Photos by Li Xiaoyan and Yang Changteng.) 12. Three specimens from Qingyuan. (Photo by He Bing.)



Figures 13–18. Ventral and dorsal views of the specimens from Luokeng Nankunshan Nature Reserve, Shaoguan. (Photos by Gong Shiping.) 17. *Sacalia bealei* from Tianjingshan Nature Reserve, Qingyuan. (Photo by He Bing.) 18. *Sacalia bealei* from Gaoping Nature Reserve, Renhua (Photo by Gong Shiping.)

collected from the field by local hunters or residents. Of the 4 specimens, 1 was found in Renhua (Gaoping Nature Reserve), 1 in Qingyuan (Tianjingshan Nature Reserve), and 2 in Shaoguan (Luokeng Nature Reserve). In addition, Professor Li Zhenchang collected 3 specimens, 1 specimen from Gudou Mountain of Taishan in 2000 and 2 specimens from the field in Zengcheng in 2003. Figures 13–18 show some of the specimens.

(4) *Pelochelys cantorii* Gray, 1864

We saw 4 adult females specimens in a crocodile farm in Sihui. These turtles were collected by fishermen from Suijiang River in Guangning, Zhaoqing City, in 2004. In order to protect the 4 specimens and conduct a study of captive breeding, they are fed at the crocodile farm. Figures 19–20 show one of the specimens.



Figures 19–20. Ventral and dorsal views of one of the specimens from Suijiang, Guangning, Guangdong. (Photos by Gong Shiping.)

(5) *Pelodiscus sinensis* Wiegmann, 1835

In the past this species was a common species in Guangdong. We saw 4 specimens in rural villages around nature reserves. These turtles were collected from the field by local fishers or residents. Of the 4 specimens, 3 were found in Jiaoling (Changtan Nature Reserve) and 1 in Pingyuan (Longwen Nature Reserve). Figures 21–23 show some of the specimens.



Figures 21–23. Ventral and dorsal views of the specimen from Pingyuan. 23. *Pelodiscus sinensis* from Changtan Nature Reserve, Jiaoling. (Photos by Gong Shiping.)

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