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Distribution of the Black-Breasted Leaf Turtle (*Geoemyda spengleri*) on Hainan Island, China

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ABSTRACT.—*Geoemyda spengleri* (Geoemydidae) occurs in low numbers in remote regions of Hainan Island, China, where it is threatened by commercial trade. Four specimens were recorded on a recent field survey.

The current distributional records of the black-breasted leaf turtle (*Geoemyda spengleri*) in China are restricted to Hunan, Guangxi, and Guangdong provinces (Sichuan Institute of Biology, 1976). The Hunan record is often excluded

(e.g., Tian and Jiang, 1986; Ernst and Barbour, 1989). Yao and Liu (1995) reported a record of *G. spengleri* in Anhui Province, but this may be based upon an introduced specimen (Zhao, 1997). Some literature may not list Hainan separately from Guangdong because Hainan was declared a separate province only in 1988. Nevertheless, earlier literature that specialized on Hainan Island did not mention *Geoemyda spengleri* (Schmidt, 1927; Gressitt, 1940). Li (1958) noted 11 species of freshwater turtles on Hainan Island, but did not list *G. spengleri*.

The earliest reports of *G. spengleri* occurring on Hainan are Zhao (1986) and Tian and Jiang (1986). There are voucher specimens of *G. spengleri* in the Chengdu Institute of Biology, collected at Shuiman Town, Wuzhishan area, and Dali town, Diaoluoshan area, on Hainan Island, but authoritative works (Iverson, 1992; Zhang et al., 1998) exclude *G. spengleri* from the turtle fauna of Hainan Province. In a recent work on the turtles of Hainan Island, de Bruin and Artner (1999) reported finding no evidence of the occurrence of *G. spengleri* and doubted its presence there. Yet, given its known occurrence in northern Vietnam and southern China, the presence of *G. spengleri* on Hainan could be expected.

An important aspect of understanding the distribution of turtles in China is that the presence of a specimen does not verify the existence of a wild population. Multiple examples of erroneous or introduced turtle localities are known (e.g., see Parham and Li, 1999; Fong et al., 2002) because turtles have been moved around China for hundreds of years. Zhao (1998) noted that *G. spengleri* had been imported to Chinese markets from neighboring countries. It is hard or impossible to determine whether turtles are imported or local when found in markets.

With this in mind, in August 2002, I conducted surveys in several remote villages in Qiongzong County, Hainan Island, to resolve whether *G. spengleri* occurs there natu-

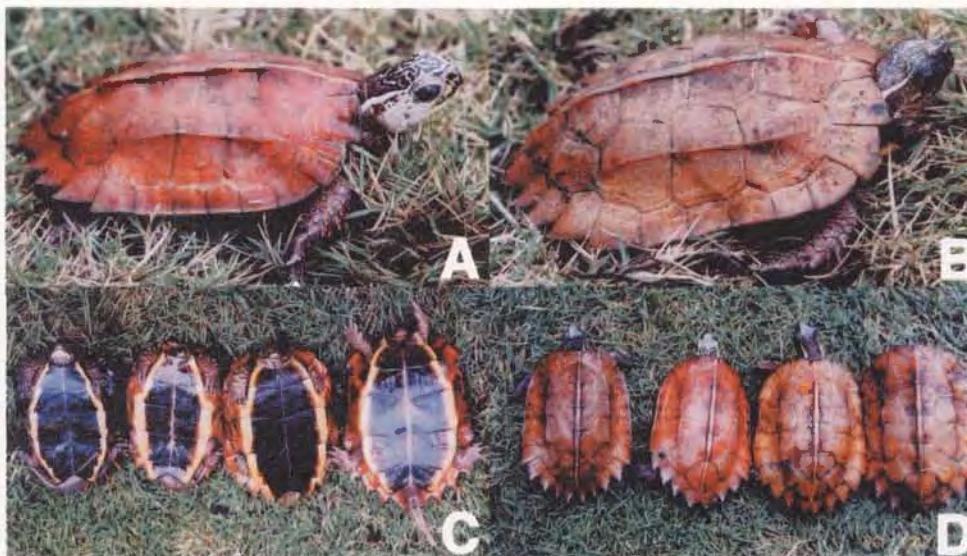


Figure 1. Wild-caught *Geoemyda spengleri* from Hainan Island. **A.** Male from Nanmao; **B.** Female from Xinxiang; **C** and **D.** Ventral and dorsal views of all 4 specimens, from left to right, from Yingen, Nanmao, Xinxiang, and Xiangtu.



Figure 2. Map of Hainan Island, southern China, showing detail of the central highland area surveyed. Localities mentioned in the text are: 1 = Yinggen, 2 = Nanmao, 3 = Xinxiang, 4 = Xiangtu.

rally. I was able to find four specimens of *G. spengleri* on Hainan Island (Fig. 1). The circumstances surrounding the collection of these specimens are important for verifying their natural occurrence in Hainan Province and are detailed below.

Local people informed me that *G. spengleri* (or “lizhi turtle”) occurred locally near a notorious wildlife purchasing station near Yinggen, the capital of Qiongzong County (Fig. 2). A specimen of *G. spengleri* was indeed available for sale there (though described as rare) for 20 Yuan (\$2.50 US) with the additional information that the species could also be found at Zhongping Town, 30 km east of Yinggen.

However, at Xinxiang village, Zhongping Town, only one or two Miao people stated the species existed locally, and only one specimen of *G. spengleri* was available for sale.

In Nanmao (18°59'550"N, 110°07'110"E, elevation 180 m), a remote mountain village ca. 10 km east of Xinxiang (Fig. 2), I observed 3 *Pyxidea mouhotii*, 1 *Cuora galbinifrons*, and 1 *G. spengleri*. The *Pyxidea* were available for sale for 160 Yuan (\$20 US), the *Cuora* for 300 Yuan per kg (\$37.50 US), and the *G. spengleri* for 100 Yuan (\$12.50 US). Apparently many people hunt turtle in the Xinxiang and Nanmao areas and up to 100 traps are active at any given time. There is a lot of effort, but if one is lucky enough to catch a *Cuora trifasciata*, it is profitable. All turtles are captured in an effort to catch *C. trifasciata*, but no information regarding quantities collected was forthcoming.

In order to further confirm the status of *G. spengleri* on Hainan, I surveyed an even more remote village. I was told there must be *G. spengleri* in Xiangtu village, a Miao minority village with many people hunting turtles and selling several *Cuora trifasciata* in recent months. There I found a fourth *G. spengleri*, caught one month previously in the nearby mountains (Fig. 3). The species was very cheap locally, for sale at only 10–20 Yuan (\$1.25–2.50 US) per individual.

The biggest threat that *G. spengleri* faces is the international pet market, especially in western countries. Petzold (1984) remarked that the beauty of *G. spengleri* has won it an almost legendary fame and it is today sought after by many turtle hobbyists. According to Buskirk (1993), *G.*

spengleri is among the most popular species of Southeast Asian turtles in both U.S. and European vivaria.

By all accounts, *G. spengleri* is now very rarely seen in the wild and is considered endangered in China (classified as State Major Protected Wildlife grade 2 in 1988; Zhao, 1998). Populations in China are believed to be in drastic decline (Lau and Shi, 2000). Yet *G. spengleri* was not CITES-listed in 2000. It may also not be listed in the next CITES list due to a lack of relevant trade, survey, and research data (Rhodin, 2002). However, the lack of manpower and means for *in situ* conservation and survey efforts in Asia will not be changed in the near future. Thus, species like *G. spengleri* may be left off conservation lists for some time to come. Meanwhile, we may lose some opportunities to rescue them. In order to afford these animals better protection, we should list all Asian turtles on the CITES appendices, and all Chinese turtles on the National Major Protected Animal list (Shi, 2000).

We do not have time to wait for surveys and research for each Asian turtle species, and the inevitable delays as we decide which, when, and how to implement conservation measures. Turtles are precious because of their long history of academic, cultural, and medicinal value, and are too vulnerable because of their long maturation time, low reproductive rate, timid and slow behavior, and lack of aggression. We must adopt drastic measures for drastic situations and special actions for such special animals.



Figure 3. Xiangtu village, Qiongzong County, Hainan, near mountainous habitat of *Geoemyda spengleri*.

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Occurrence of Diamondback Terrapins, *Malaclemys terrapin*, on Bermuda: Native or Introduced?

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ABSTRACT.— A breeding population of the American diamondback terrapin, *Malaclemys terrapin*, occurs on the oceanic island of Bermuda; most of the population lives in two brackish lakes surrounded by mangrove vegetation. The question of whether the species reached Bermuda from the USA naturally or by deliberate or inadvertent introduction is considered.

The emydid diamondback terrapin, *Malaclemys terrapin*, is widely distributed in estuaries and salt marshes on the east coast of the USA from Texas to Massachusetts. During the past decade it has been discovered that there is a breeding population of *M. terrapin* on the isolated island of Bermuda (32°18'N, 64°46'W), some 960 km from the US coast (Fig. 1). The recent colonization of many bodies of water in Bermuda by released pet specimens of the American red-eared slider (*Trachemys scripta elegans*) has resulted in closer scrutiny of Bermudian pools, so greater knowledge of the distribution of diamondback terrapins on Bermuda is now available. This paper presents preliminary distributional information, and also considers the question of whether diamondback terrapins have reached Bermuda by natural means or by human intervention.

The currently accepted native Bermudian herpetofauna is limited to the endemic skink, *Eumeces longirostris* (the