

## Chapter 8

### Conclusions and Recommendations

Osteological comparisons between C. chitra and C. indica indicated that skull ratio characters and carapace ratio characters were different among Thai and Indian species. The magnitude of the variation displayed by these analyses supports the argument that Thai animals warrant specific status.

C. chitra is presently found in the Mae Klong and Mae Ping river systems, at Bhumiphol, Srinagarind and Vajiralongkorn Reservoirs and in the river below the dams. In this study, the new distribution range of C. chitra has been recorded to cover the area of Mae Ping river system of Northern Thailand. However, the natural population of C. chitra in both river systems is depleted and their status is certainly very rare. Moreover, live specimens of the other congener, C. burmanica Jaruthanin, 2002 or C. vandijki McCord & Pritchard, 2002, were also found in this study from the Salween river system.

The captive-breeding program of C. chitra conducted in this study has been proven to be quite successful. Mating has been observed in the experimental ponds. Females laid eggs on the artificial sandbank during February to April with up to 4 clutches/year. Clutch size varies from 40-88 eggs/clutch. The mean incubation time of eggs is  $59 \pm 3$  days. The hatching success in each clutch varies from 3 to 94 %. 297 hatchlings were obtained from two females in 2001. The 14 weeks-old hatchlings were  $91.72 \pm 5.75$  mm in carapace length and  $103.97 \pm 18.08$  g in weight with 90.64% of survival rate.

The data on the structure and composition of eggshells from a wild caught female will be useful for comparison with eggshells produced by captive females. These comparisons may help to determine whether the nutritional requirements of the captives are being met.

C. chitra is considered a top carnivore and a keystone species in its habitat. It should receive the highest priority for conservation because at present it is under the threat of extinction in the wild. Its population status in Malaysia and Indonesia is also very rare or unknown. The management programs, including the legal protection of its habitat, the maintenance of its viable population, the development of the dam water-releasing system to protect nesting sites from flooding during breeding season, breeding in captivity, rehabilitation and reintroduction as well as public awareness, education and cooperation are urgently needed. These programs, along with the intensive study of its population ecology and genetics, should be established immediately and conducted as vigorously as possible.