

## Morphology and Growth Assessment of Sri Lankan Fresh Water Turtles and Tortoise Kept in Captivity

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### Abstract

Sri Lanka is rich in biodiversity of testudines by having fresh water turtles: *Melanochelys trijuga parkeri*, *Melanochelys trijuga thermalis*, *Lissemys punctata punctata* and land tortoise: *Geochelone elegans*. According to the 1999 list of threatened species of Sri Lanka published by IUCN, *Melanochelys trijuga thermalis*, *Lissemys punctata punctata* and *Geochelone elegans* species are considered to be nationally threatened and *Melanochelys trijuga parkeri* categorized as an endemic species in the IUCN 2002 global red list. Given this situation the management and conservation of tortoises in Sri Lanka must be supported by strong research programmes since limited studies have been directed their attention related to these subjects. Therefore, the aim of this study was to provide more information related to morphological characteristics and growth rate of Sri Lankan fresh water turtles and tortoise under captive conditions.

A total of 56 healthy adult tortoises, *Melanochelys trijuga parkeri*(n=05), *Melanochelys trijuga thermalis*(n=25), *Lissemys punctata punctata* (n=12) and *Geochelone elegans* (n=14) were selected for the study. They were raised in Tortoise holding facility at the Department of Livestock and Avian Sciences, Faculty of Livestock and Avian Sciences, Wayamba University. Landscape of this facility was resembled to natural environment. Shell morphometrics were observed and measured using flexible tape ruler. Weight was recorded for 96 weeks with 12 weeks interval using a top loading balance.

Morphological observations of *Melanochelys trijuga thermalis* and *Melanochelys trijuga parkeri* were common scutation in its carapace and plastron. Carapacial scutation was with single nuchal, five vertibrals, four pairs of costals and twelve pairs of marginals. *Geochelone elegans* had the same pattern but in carapace no nuchal was observed but there was a supracaudal. Plastron of *Melanochelys trijuga thermalis*, *Melanochelys trijuga parkeri* and *Geochelone elegans* had the

same pattern in gular, humeral, pectoral, abdominal, femoral and anal were paired. *Lissemys punctata punctata* had soft fleshy carapace and plastron. According to allometric observations increased body weight was associated with increased carapace length, carapace width, carapace height, plastron length and plastron width.

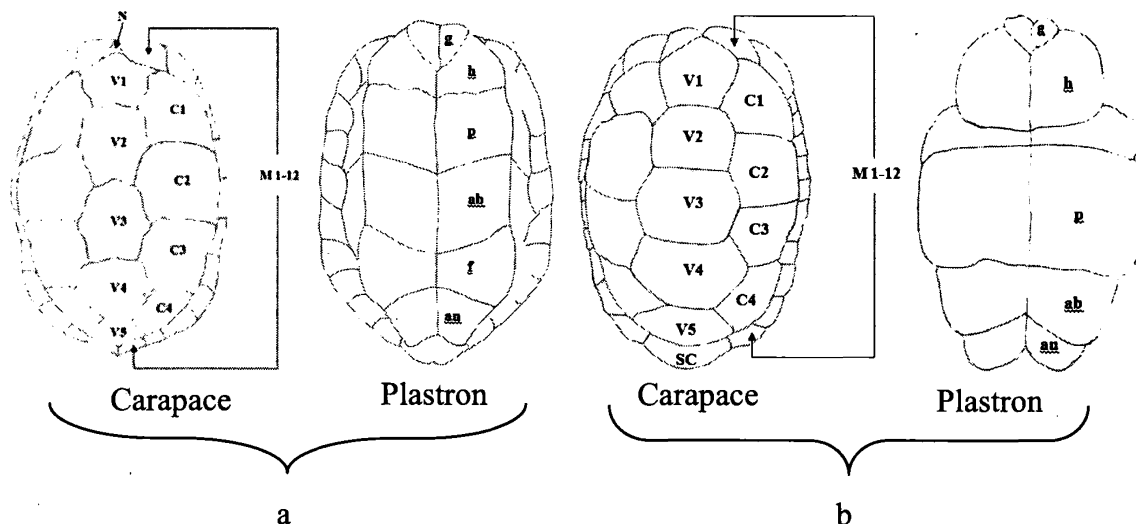


Figure 1.a. Pattern of scutes on carapace and plastron of *Melanochelys trijuga parkeri* and *Melanochelys trijuga thermalis*: Carapace, (N) Nucal (1), (V) Vertebrales (1-5), (C) Costals (1-4, both sides), (M) Marginal (1-12, both sides): Plastron, (g) gular, (h) humeral, (p) pectoral, (ab) abdominal, (f) femoral and (an) anal (all paired) and b: *Geochelone elegans*: Carapace, (V) Vertebrales (1-5), (C) Costals (1-4, both sides), (M) Marginal (1-12, both sides) and (SC) Supracaudal : Plastron (g) gular, (h) humeral, (p) pectoral, (ab) abdominal, (f) femoral and (an) anal (all paired)

The growth rate of males *Melanochelys trijuga parkeri* reported an average growth rate of  $11.78 \pm 1.37$ g per month. Males and females of *Melanochelys trijuga thermalis* had average growth rates of  $12.5 \pm 0.53$ g and  $13.11 \pm 0.41$ g per month, respectively. *Geochelone elegans* males and females had average growth rates of  $13.5 \pm 3.35$ g and  $9.74 \pm 1.09$ g per month, respectively. *Lissemys punctata punctata* showed reduction in their average body weight in  $16.7 \pm 2.72$ g per month, suggesting this species is not dynamic in terms of adapting to a new environment.

**Key words:** Fresh water Turtles; Tortoise; Morphology; Growth