

Remarks on the feeding habits of the Yellow-bellied mud turtle *Pelusios castanoides interguularis* Bour 1983 on La Digue Island, Seychelles

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Abstract: Feeding habits of *Pelusios castanoides interguularis* Bour, 1983 on La Digue island was observed from November 26th until December 3rd, 2016 at the end of the dry period. During these observations, several turtles were found in search of food in shallow water areas (< 5 cm water depth) at both the Mare Soupape and the Grand Anse river area. In addition, at the Grand Anse river one specimen was found leaving the water completely in order to use terrestrial vegetation as a food source. During this time period, food limitations within the entire water body forced the turtles to approach even terrestrial areas and moved activity pattern towards sundown.

Introduction

Despite overall population declines of the yellow-bellied mud turtle *Pelusios castanoides interguularis* Bour, 1983 on various granite islands of the Seychelles, La Digue supports a well established population (Gerlach 2000, 2008, Gerlach & Canning 2001, Pawlowski & Rose 2014). The majority of turtles can be found on the western side of the island, however, another smaller subpopulation is located at the Grand Anse river at the east side of La Digue (Pawlowski 2010). Similar to other islands, even on La Digue freshwater habitats face seasonal fluctuations of water levels leading to both partial and complete drying of the water bodies by the end of the dry period (Pawlowski 2013). Based on these fluctuations, *Pelusios castanoides interguularis* have to adapt their activity and feeding patterns as both water and food may become limited. Previous observations revealed that general activity of the mud turtles is usually high during morning hours and in the later afternoon (Pawlowski 2010). Feeding was observed at various times during the past years, whilst turtles remain either in water depths allowing the turtles to swim actively and to escape into deeper water areas quite easily if necessary. Although it is also known that *Pelusios castanoides interguularis* cross terrestrial barriers in order to seek alternative larger water bodies, recent investigations revealed that turtles also approach river bank areas (mud and terrestrial) in search of food. This data are presented within this article.



Fig. 1. Location at the Mare Soupape.



Fig. 2. Location at the Grand Anse river.

Observation period

Previous observation times revealed that the transition period between the end of the dry period and the beginning of the rainy season (i.e. November to December) provides a good opportunity for investigating freshwater turtles on La Digue using non-invasive methods (see Pawlowski 2010, Pawlowski & Krämer 2006, 2009, Pawlowski & Rose 2014). Thus, known habitats at Grand Anse river and Mare Soupape were observed from November 26th until December 3rd, 2016 (Fig. 1, 2). At that time water levels in all rivers and tributaries were rather low (see also Pawlowski 2013). Observation time ranged from about 9:00 a.m. to about 7:00 p.m. during the various days, with focus on the morning and afternoon hours.

Feeding observations

First observation on feeding activity was made at the Grand Anse river on November 27th, 2016 at about 15 h local time (Table 1). One adult turtle was found in search of food in shallow water with an estimated water depth of less than 5 cm (Fig. 3). As no vegetation was present in the area near the mud turtle, the focus for food was predominantly based on aquatic invertebrates. Nevertheless, another adult *Pelusios castanoides intergularis* was found close to the shore of the river bank gathering vegetation growing along the river stretch. In fact, the turtle left the water several times in order to bite off pieces of the vegetation, which were then taken to the water in order to be eaten completely (Fig. 4a-d). After about 30 min of observation feeding of this latter turtle was completed as no more vegetation was eaten, and the turtle left this place for deeper water areas.



Fig. 3. *Pelusios castanoides intergularis* in search of food in shallow water at the Grand Anse river.

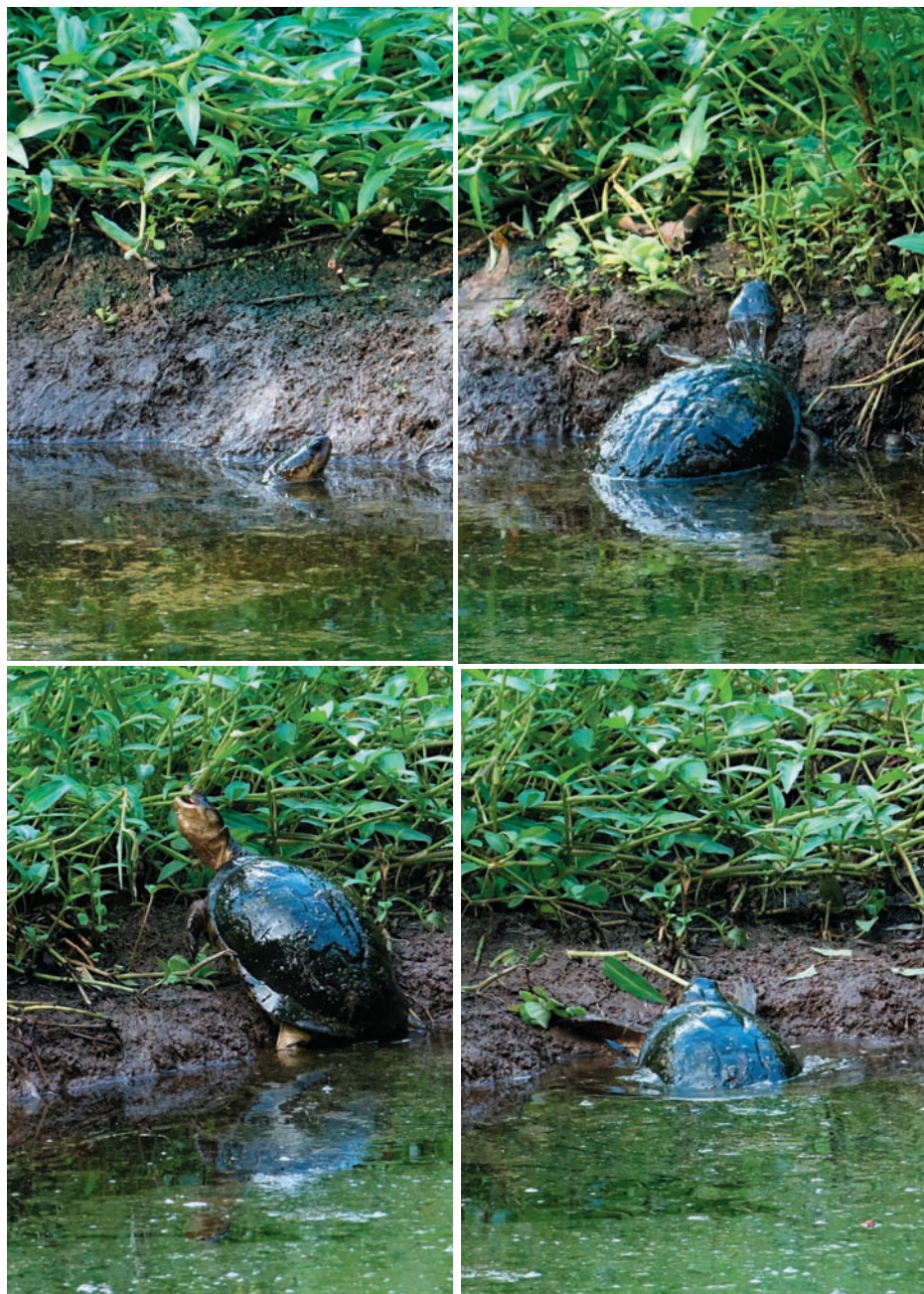


Fig. 4. *Pelusios castanoides interguularis* feeding on terrestrial plants: a) approaching river bank; b) leaving river; c) biting off the terrestrial plant d) return into the river with the food.

Additional observations of feeding *Pelusios castanoides intergularis* were made at one of the tributaries of the Mare Soupape (located within the Flycatcher Special Reserve) during several days. Several turtles were found in search of food either during the morning hours until about 10:30 a.m. or during the afternoon hours starting from about 3:30 p.m. Again, turtles were approaching very shallow water (< 5 cm depth) in order to find food (Fig. 5a-b).

On November 29th, another freshwater turtle was found in a tributary of the Mare Soupape in search of food during sun-down (from about 6:15 - 6:45 p.m.) (Fig. 6). This latter species may be attributed to *Pelusios castanoides intergularis* due to yellowish coloured head and legs; however, provided a dark coloured carapace, which is normally typical for *Pelusios subniger subniger* (formerly known as *Pelusios subniger parietalis* Bour, 1983) living on the same island.



Fig. 5. *Pelusios castanoides intergularis* in shallow water at the Mare Soupape:
a) search for food; b) observing the site for potential predators.

Discussion and conclusion

La Digue provides a good place for the observation of *Pelusios castanoides intergularis* on the Seychelles islands. During previous years, turtles were generally found in deeper water areas with water depth clearly exceeding shell height. Nevertheless, it is also known that especially during the dry period *Pelusios castanoides intergularis* move on to land terrain in search of new water bodies or for aestivation purposes (see also Pawlowski 2010, Pawlowski & Rose 2014). As is typical for aquatic turtles, food can only be swallowed in water and thus turtles were previously found active and eating in the deep water areas only (Pawlowski & Krämer 2008). The recent observations of turtles searching for food in shallow water may have been due to food limitations in the river area by the end of the dry period. Additional observation at the Grand Anse river, where a turtle was observed eating terrestrial plants supports this assumption. The failure to find large amounts of invertebrates in both the Mare Soupape and Grand Anse river at various times further indicates the need to leave the water body in search for food (Pawlowski, personal observations). *Pelusios castanoides intergularis* is known to be omnivorous and to feed on fruits and plant shoots (Hill & Currie 2007, Gerlach 2007) including green vegetation, as shown by this recent observation. Along with the option to aestivate in sediments and soil during the dry period, this turtle is very much adapted to the local climate conditions, which is also crucial for its survival on such a small island.



Fig. 6. *Pelusios castanoides intergularis* in search of food in shallow water at sun-down.

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