

## *Chelonoidis carbonaria* (Red-footed Tortoise)

Family: Testudinidae (Tortoises)

Order: Testudines (Turtles and Tortoises)

Class: Reptilia (Reptiles)



**Fig. 1.** Red-footed tortoise (juvenile), *Chelonoidis carbonaria*.

[<http://www.kaieteurnewsonline.com/2012/04/29/the-red-footed-tortoise-chelonoidis-carbonaria/>  
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**TRAITS.** Adult red-footed tortoise carapaces are shaped like an elongated oval with almost parallel sides. Their back is smooth and highly domed. Over the hips, exist a high point followed by a sloped region near the neck. The costal and vertebral scutes may be either dark-brown with a yellowish aureole in the center, or black. The marginals appear to be folded along the sides of the tortoise's body, flaring a little over the limbs. These exhibit a dark colour with pale aureole along the middle of the lower edge. They lack a nuchal scute and the marginals near the tail form a supracaudal. While they grow, their growth rings can be observed but as they get older, these rings may not be clearly visible. The plastron has large, thick edges and the gulars do not past the front of the carapace. The head is small with a flat top. The eyes are large and the sclera is hardly noticable around its black iris. These interesting animals have a somewhat hooked upper jaw which is jagged in middle with tiny groves on each side. The tympanum is found covered with a black scale, behind and below the eye. Small, irregular scales exist on the head, these along with the scales all over the body are coloured ranging from brick red to pale yellow. The limbs are cylindrical with four claws on the forelimbs and five on the hind, but no visible toes. The forelimbs are to some extent flattened and the front surface is covered with large scales, mostly with the same color as the head. The tail is muscular, varies in length and overall shape by gender, and lacks any sort of claw on the tip (Pritchard & Trebbau, 1984). Average adult sizes range from

30-35 cm. Hatchlings and juveniles have rounder and flatter carapaces which are pale yellow to brown in colour. Dark rings around the pale center to each scute appear because of growth and the marginal appear to be irregular. Young tortoises are more colourful than adults (Vinke, 2008). Sexual dimorphism can be seen where male tortoises are larger and exhibit more colours than the female tortoises. The tail of the female is conical and short while that of the male is muscular and long. Also, males have plastrons which are concave. The anal scutes vary in male and female tortoises.

**ECOLOGY.** Red-footed tortoises are found throughout the Caribbean; Panama, Venezuela, Trinidad and Tobago, Guyana, Suriname, Netherlands Antilles, Grenada, Barbados, St. Vincent, the Grenadines, Santa Lucia, Martinique, Dominica, Guadalupe, the Leeward Islands, the Virgin Islands, Puerto Rico and other parts of the world such as Colombia, Bolivia, Peru, Ecuador, Brazil and Paraguay (Vinke, 2008). They were probably introduced to Trinidad and Tobago and other Caribbean islands. They live in savannahs to forest-edges, forest clearings, or along waterways. They appreciate habitats with temperatures close to 30 °C. Red-footed tortoises are often found in or near transitional areas between forests (rain forests, dry forests or even temperate forests) and savannah, such as forest clearings, wood edges, or along waterways (Moskovits, 1985).

**ACTIVITY.** If the climate is too hot or too cold, or food is scarce, the tortoises may aestivate. In warmer climates they are active in the evening and the morning but not at midday. They can forage for most of the day. In low temperatures they aestivate when food becomes scarce. They may aestivate or brumate when the temperatures are low enough (Moskovits, 1985 and Paull, 1997). The tortoises are usually inactive during the day, resting during this time. If they have consumed a huge meal, they can rest for days. They forage sometimes on morning and evenings according to the climate and they sometimes aestivate during temperatures too hot or cold or because they cannot find food. They seek shelter in places where they can keep their body temperature almost constant (tight-fitting places) and they can be protected from predators. Some places may be tree falls, debris piles, burrows, hollow logs, holes, and heavy vegetation cover. On warmer days they in cooler areas. To remember where a good shelter is, the tortoises would leave scent trails (Moskovits, 1985). Several tortoises may commune at a particular shelter. They are not aggressive at feeding sites as they feed together at fruit falls, they do not protect their habitat and they sometimes follow each other or each others' trails (Moskovits, 1985).

**FORAGING BEHAVIOUR.** They usually forage in the forest (dense vegetation cover) or savannahs during the day time from approximately 1.6-2.9 acres daily, in a spider-web-like pattern around a fruit tree or even in a zig-zag pattern. They can move as fast as 109 yards/hour. These creatures are omnivorous and eat plants, fruits, grasses, small invertebrates, carrion, flowers and even fungi.

**COMMUNICATION.** They communicate via clucks made by males during courting or mating or by young tortoises that bob their heads and make the sound when foraging. Their communication channels are acoustic and their perception channels are visual. Little else is known of communication and perception in this species (Campbell and Evans, 1972).

**SEXUAL BEHAVIOUR.** Breeding sizes range from 20-25 cm when the tortoises are about five years old. The main period for courtship and reproduction is during April and May of each year during the wet season. Noises and scents attract these mature tortoises to 'courting sites' under

fruiting trees such as *Genipa* (Moskovits, 1985). When two adults are interested in mating, they begin to identify the other, noting the head and limb colour (bright red, orange, yellow or white colors on the dark skin identify the other animal as the proper species). The larger tortoise would move his head from side to side. If they are of the same sex and males, they would either retreat or fight to show dominance. The defeated tortoise would be turned onto its back or leave. Some males mount on other males and females mount on other females to display dominance. When a male and female meet, they would begin trailing. This occurs when the female begins to walk away and is followed by the male who touches her carapace or smells her cloaca, all the while making loud clucking sounds. After trailing, the male mounts the female, placing his feet on the edge of her carapace and pushes his anal scutes towards her supracaudal. He makes a barking sound during this. A non-receptive female would continue walking. A receptive female would extend her hind legs and lift her plastron. The male would then plant himself on his extended hind legs as he works to align their cloacas for insertion. After copulation, the female walks away. Nesting begins five to six weeks after mating. The female digs a nest in the soil using her hind legs. Its size is approximately 10 x 20 cm. After digging the nest, she extends her tail into the nest and lays her eggs (2-7 in a clutch and she lays several clutches close by) after which she covers it with soil before heading off to feed and rest.

**JUVENILE BEHAVIOUR.** The eggs are spherical and approximately 5.0 x 4.2 cm, weighing around 50 g. The incubation period is approximately 150 days. To open the egg, the hatchlings use something called an egg-tooth. They hang around the nest for a few days and have an average size of 3.6 x 6.3 cm. Little is known of the daily activities or diet of hatchling wild tortoises (Vinke, 2008).

**ANTIPREDATOR BEHAVIOUR.** Juvenile red-footed tortoises are vulnerable to many predators. These include mongooses, tegu lizards, falcons, opossums and ring-tailed coatis to name a few (Vinke, 2008). These predators may eat the eggs or the baby tortoises as well. Adult red-footed tortoises have only two predators; human beings and jaguars. Although their tough, hard exterior serves to protect them and deter other predators, it is apparently no match for the powerful jaws and great skill of *Panthera onca*. As a result, the tortoises may hide in burrows or shelter to acquire additional protection (Moskovits, 1985).

## REFERENCES

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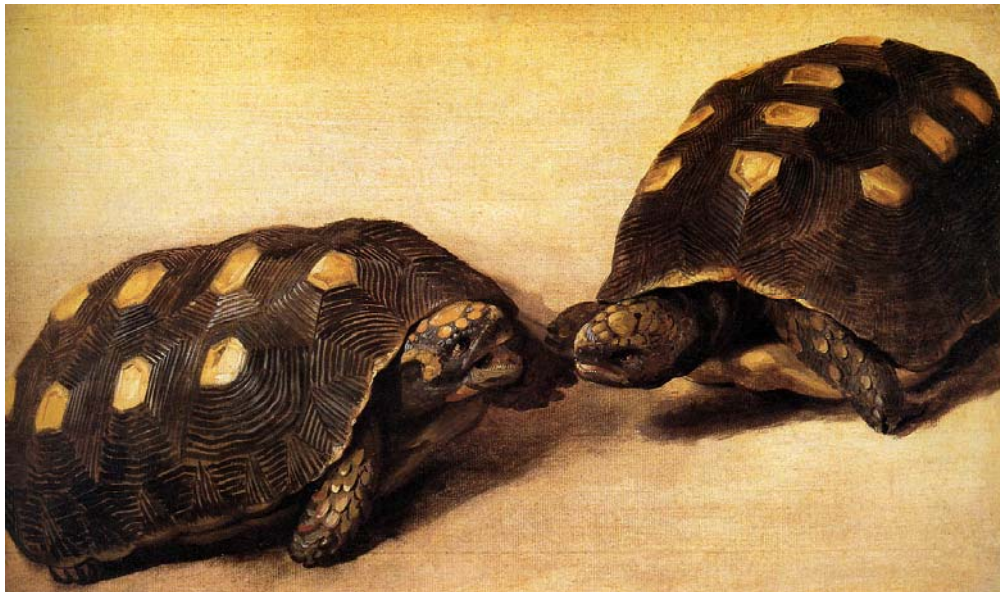
Author: Nelini H. Padarath

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**Fig. 2.** Sexual behaviour of *Chelonoidis carbonaria*.

[[http://en.wikipedia.org/wiki/File:Geochelone\\_carbonaria\\_in\\_Barbados\\_Wildlife\\_Reserve\\_21.jpg](http://en.wikipedia.org/wiki/File:Geochelone_carbonaria_in_Barbados_Wildlife_Reserve_21.jpg)  
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**Fig. 3.** Fighting between males.

[[http://upload.wikimedia.org/wikipedia/commons/a/a7/Albert\\_Eckhout\\_-\\_Jabutis.jpg](http://upload.wikimedia.org/wikipedia/commons/a/a7/Albert_Eckhout_-_Jabutis.jpg)  
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**Fig. 4.** A hatchling of *Chelonoidis carbonaria*.

[[http://1.bp.blogspot.com/\\_vnzN5K0hFz0/SiXrffd4aRI/AAAAAAAAABsc/Qr9ZsYh6MmU/s1600-h/pats+redfoot+-+4\\_blog.jpg](http://1.bp.blogspot.com/_vnzN5K0hFz0/SiXrffd4aRI/AAAAAAAAABsc/Qr9ZsYh6MmU/s1600-h/pats+redfoot+-+4_blog.jpg), downloaded 16 November 2012]

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