

Mazama americana (Red Brocket Deer)

Family: Cervidae (Deer)

Order: Artiodactyla (Even-toed Ungulates)

Class: Mammalia (Mammals)



Fig. 1. Red brocket deer (male), *Mazama americana*.

[<http://www.heathwood.org/simpson/quicklinks/animalsoftherainforest/redbrocket.htm>,
downloaded 21 October 2012]

TRAITS. The red brocket is a species of deer that has a characteristic small to medium size. They are the largest of their genus (brocket deer) and their morphology consists of an arched back, stout body, relatively short tails and average sized ears (Huffman, 2004). They have elongated faces and their legs are slender, providing agility. The males can reach to a shoulder height of 30 inches and weigh between 60-75 pounds. However, there have been some records where the weight is found to be up to 140 pounds in males in Suriname (Trolle & Emmons, 2004). Their body length ranges from 41-57 inches. The females are approximately the same size as the males. Their bodies are covered in a reddish brown fur with the underside of the coat, inclusive of the inner thighs and underside of the tail, being white (Trolle & Emmons, 2004). The head and neck are a grey brown colour and legs (near the joints) are darker, having a shade of brown-black. This brown black pigmentation on the fur also occurs at the back of the neck as well as the dorsal line. Fawns are typically light brown in colour with white spots (Fig. 5), and

lack the dark brown pigmentation. Only the adult males have antlers (Fig. 1), which are spikes that grow from a short swollen pedicel and reach to approximately 4-5 inches for its maximum length (Nowak, 1999). Occasionally there are older males that grow one or many brow tines (branches of antlers). The females have 4 mammae (teats).

ECOLOGY. Red brocket deer can be found in Central and South America inclusive of Trinidad. They live in dense vegetation in mountains, rainforests and plantations where they can easily hide in the vegetation to escape potential predators (Jansa, 1999). They prefer moist conditions. They can be found in pairs or solitary (Whitehead, 1972). They are usually diurnal and spend the majority of their waking hours foraging in the areas where they live.

SOCIAL ORGANIZATION. In Trinidad, due to being hunted, red brocket deer tend to be nocturnal so that they are not easily seen during the day. They are usually found living in solitude or in mating pairs. These mating pairs tend to live monogamous lives, however those males that remain single show polygamous characteristics by mating with other females. They can be seen in groups of 4 but this is only seen when there is an increase in the population (Black-Decima, 2000). They are also found to be territorial (Chebez and Johnson, 1984). Communication between these animals is done via scent marking where this action is done to indicate the territory. These markings are done by rubbing their foreheads, urinating on, thrashing and defecating on or around trees or nearby bushes. These markings are also placed in a strategic manner based on the gender of the deer. Males (buck) mark within and outside of their core areas while the females (doe) mark only within the main area. A study carried out on brown brocket deer (a related species) suggests that the brocket deer were mostly solitary with 74% of 1105 sightings being when the deer was alone. 22% were seen in mating pairs and 3% for those found in groups of threes. Adult bucks were seen to occupy large non-overlapping home ranges with 1-2% overlap between home ranges. This overlap is minute due to the competition between bucks during mating periods. Does, on the other hand, have a larger overlapping home range with an average of 20% in core areas and 43% overall. Once offspring are produced, the home range of the offspring and mother are found to have a 90% overlap with separate core areas. There are also cases where a male's territory will overlap the home ranges of other females giving rise to polygamous relations. Red brocket deer also exhibit aggressive behaviour, whereby the deer displays threat and fight mechanisms that include antler to antler contact, jumping and striking with the forelegs. This is done in establishing a dominant male.

ACTIVITY. It is recorded that very little is known of this deer due to its shy nature. Based on the literature, the red brocket deer can be both nocturnal and diurnal, however, nocturnal activity predominates due to them having the advantage of being out of sight from predators and hunters at night. They can be seen at dawn or dusk where they are found foraging in bushes. With the onset of morning, the red brocket can be seen returning to their home range. Being a terrestrial animal, it occasionally enters the water to flee from predators, or hides in the thick vegetation of its surroundings. They can be seen alone or in mating pairs and rarely in larger groups.

FORAGING BEHAVIOUR. Much of the waking hours of the red brocket deer are spent on foraging. They can be found foraging under flowering or fruiting plants or trees. Their diets is mainly comprised of grass, tender green roots, fruits and seeds and have been thought to damage much of the edible flora that they live in (Nowak, 1999). They have also been seen consuming

fungi in the wet season. Research done by Gayot et al., (2004) suggests that the deer relies on fruits during the fruiting seasons in French Guiana and then switch to an all fibre diet from the months of June to September which is their dry season. They have a complex stomach that allows them to digest plant material via the use of symbiotic bacteria. How this is accomplished is via regurgitation (cud) and re-chewing the food in order to obtain the full nutritional value that the grasses have (Giacalone & Willis, 1997). For this reason, the red brocket deer is usually seen chewing for the majority of the day.

COMMUNICATION. Olfactory communication: Scent marking is one of the main behavioural communication patterns that have proven to be essential for the red brocket deer. Indicating ones territory, these scent marks are comprised of rubbing the forehead on the bark of a tree, thrashing, urinating and defecating according to Black-Decima (2000). Urination is done by bending the hind legs into the squatting position with the fore legs extended. The tail becomes straightened making the underside of the tail visible. Defecation is done by assuming the same position that was done for urinating however the squatting legs are bent to a lesser degree. Thrashing is done by bucks that have antlers, which are in contact with a branch, upon which lateral movement of the head is done. Forehead rubbing is exactly as the name sounds, the forehead is rubbed on the tree followed by scraping the tree with its incisors. All these actions are shown in Fig. 2. Olfactory communication is mostly done to establish territory boundaries. Vocal signals are rarely carried out due to the shy nature, but more than likely there is the use of vocal communication in times of distress.

SEXUAL BEHAVIOUR. The red brocket deer has been found to have a gestation period of 200-225 days, breeding an average of once per year. Does attain sexual maturity after they have passed 13 months and stags attain maturity at 12 months (Jansa, 1999). In most cases there is the production of only one offspring at a time but in some situation there may be 2. Monogamy does occur in mated pairs, however, single male deer will exhibit polygamy (polygyny) where he mates with nearby females. In such situations, there is competition for females whereby fighting with horns and biting are done in order to establish a dominant male who is ultimately the one chosen to mate with the female. Red brocket deer do not have a fixed mating season and it can occur anytime (Fig. 4). Upon the birth of a fawn, the doe caters to the needs of the fawn until the weaning period is reached which is at 6 months. Even in the mated pair situations, paternal care is not carried out (Huffman, 2004) and the fawn is taken care of by the doe alone.

JUVENILE BEHAVIOUR. New borns suckle their mother milk until the weaning period. During the weaning stage, the young stays with the mother and obtains all food from the mother foraging as it makes its transition from milk to a different nutrient source. The young are hid in thick vegetation to conceal them from predators while the mother forages. When the fawn is able to walk and move about without the aid of the mother, the fawn learns the foraging strategies from the mother and is able to get its own source of food while accompanying the mother.

ANTIPREDATOR BEHAVIOUR. In Trinidad, the red brocket deer is preyed upon by ocelots, large birds and by natives for their meat. Due to the size of their body and their agility, they have the ability to escape from their predators (Whitehead, 1972). Also being knowledgeable of their surroundings, when a predator is spotted, they will hide in thick vegetation. Being approached by a predator would give rise to the red brocket deer running away to safer grounds. It has also been

seen that upon sensing danger, they remain still. Red brocket deer are also known to swim away from predators when there are bodies of water nearby.

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Author: Radha Orissa Singh

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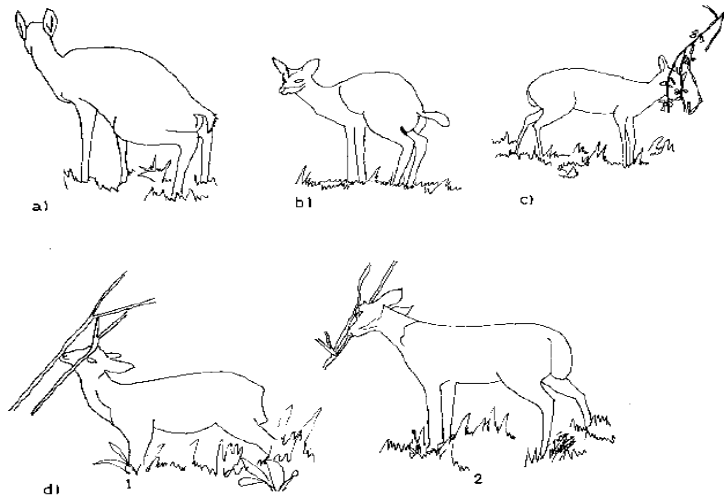


Fig. 2. Red brocket deer marking its territory via scent marking: a) urination, b) defecation, c) thrashing, d1) rubbing forehead, d2) scraping bark of the tree.

[Fig. 2 of Black-Decima, 2000]



Fig. 3. Red brocket deer feeding on leaves.

[[http://www.masterfile.com/stock-photography/image/848-02857516/Red-Brocket-Deer-\(Mazama-americana\)-eating-leaves-Cerrado-Ecosystem-Brazil](http://www.masterfile.com/stock-photography/image/848-02857516/Red-Brocket-Deer-(Mazama-americana)-eating-leaves-Cerrado-Ecosystem-Brazil)], downloaded 21 October 2012]



Fig. 4. Red brocket deer copulating.

[<http://images.sciencesource.com/preview/2D8755.html>], downloaded 21 October 2012]



Fig. 5. Juvenile red brocket deer.

[<http://www.flickr.com/photos/gladysporterzoo/page4/>], downloaded 21 October 2012]