Cebus apella (Tufted Capuchin)

Family: Cebidae (Capuchin and Squirrel Monkeys)
Order: Primates (Lemurs, Monkeys and Apes)
Class: Mammalia (Mammals)

Fig. 1. Tufted capuchin, *Cebus apella.*

[http://pin.primate.wisc.edu/factsheets/entry/tufted_capuchin, downloaded 8 November 2012]

TRAITS. The tufted capuchin is distinguished from other primates due to the characteristic colour of its head; that is dark sideburns with a black to dark auburn cap. On top of the ears tufts of dark hair are present on either side of the cap. The back of the capuchin can show a colour from yellow up to red-brown but is darker at the middle of the back as compared to its shoulders which are brighter in colour. Its tail, limbs and hands are darker than the rest of their fur while the colour ranges from brown to pink (Groves 2001). Even though adult males are darker as compared to females, there is a considerable variation in face colour amongst group members (Emmons and Freer 1997). Locomotion is generally on four limbs (quadrupeds) and whilst roaming, its prehensile tail is curved downwards and is not used. Foraging activities and feeding are the key functions of the tail. It also serves as an anchor while descending (Youlatos 1999). The tail aids in assisting with directional changes, controlling risky movements and primarily stabilizing them in a seated position whilst feeding. Generally tufted capuchins have a

head-body length of 13-22 inches, tail length of 15-22 inches and weighs between 4.2-11 lbs where the males are larger and heavier than the females.

ECOLOGY. In the neotropics, the genus *Cebus* can occupy almost every type of forest. Tufted capuchins are capable of adapting to several diverse habitats including a wide variety of wooded habitats (Mittermeier and van Roosmalen 1981). Tufted capuchins can be found in habitats such as mora forest, wallaba forest, and swamp forest, both high and low rain forest and others. Home size can reach 8-9 km^2 and this can vary depending on the habitat. Tufted capuchins can co-exist with other primates in an area. Common examples are spider monkeys (*Ateles* sp.), howler monkeys (*Aloucatta* sp.) and squirrel monkeys (*Saimiri* sp.). They are not native to Trinidad and Tobago but have been introduced to the Chaguaramas peninsula of Trinidad.

FORAGING BEHAVIOUR. Tufted capuchins can be regarded as omnivores; that is they consume both plants and animals. Food eaten varies with the habitat as well as the seasons. Its diet consists of insects, fruits, leaves, nuts, small mammals (e.g. mouse opossum) and they prey on frogs, birds and lizards. When food is in short supply during the dry season the capuchin relies on nuts as its easily available but forages for insects if there is a lack of fruit resources. However, in the wet season other foods are available and they rest more and travel less as there is an abundance of food (Terborgh and Janson 1983). Tufted capuchins have the ability to use tools to open difficult fruits. This is done by using pieces of branches or smashing them on hard surfaces. The major activity maintained by the tufted capuchin on a daily basis is feeding. It divides its day into 12% relaxing, 21% moving and 66% feeding; however the daily activities vary with the seasons (Terborgh and Janson 1983).

SOCIAL ORGANIZATION. Tufted capuchins are tree-dwelling (arboreal) and active during the day (diurnal). They are social animals and lives in groups of 5-15 members including a dominant, or alpha, male. The most important members of the group are the females and sometimes their lifespan is spent in the same group. The group leader, the alpha male, is the prime protector of the group from predators and primates from other groups. The dominant male leads the attack and drives them away if another group steps into his domain. Higher-ranking monkeys have the first preference during social foraging to gain good quality food sources while the lower-ranking monkeys are last. This lower-ranking group comprises of young ones, newborns and a few females. Young monkeys from earlier alpha males are treated with much belligerence, but they are fairly complaisant with their own offspring. Females do not avoid higher-ranked females as compared to the lower-ranked males who avoid their superiors. Social grooming is common within the group.

REPRODUCTION. The tufted capuchin mating system is ‘polygamous with promiscuity’; that is a multi-male/multi-female system. Under certain circumstances only the alpha male monkey will mate, but usually most males mate with most females (Carosi et al. 2005). Persuasion by the alpha male and female choice of mate by the active female is a major aspect of the mating systems in capuchins (Welker et al. 1990). Female behaviour is the only indication of heat, as there are no visible physical changes. This

period is known as estrus and can last from 1-8 days. During estrus the female tufted capuchin behaviour changes as they become excited and their vocals change to a whistle-like sound. The active female during the first few days of estrus follows the male and continuously seduces him. This seduction can be in the form of friendly postures, smirking and touching and fleeing (Janson 1984). At first the alpha male is distant and lacks interest but after some time he is responsive and coitus can occur up to once per day. Status of the males determines the female's attraction towards them; that is when they are ranked as the alpha male seduction would immediately begin as opposed to when they were low-ranked they were ignored. Females would stop persuading and mating with the alpha males and begin mating with the lower-ranked towards the end of estrus (Janson 1984). Female seduction postures can take place in 2 ways:

- Facing the male, smirking at him and spreading of her thighs
- Looking back over her shoulder while facing away from him

After this 'posture tease', coitus would occur and can last for 4 minutes. A sperm-plug is formed which aids in increasing their chances of producing offspring for the male capuchin after coitus. Births of young ones occur from October to January, while gestation lasts from 150-160 days. One offspring to one female is usually produced.

PARENTAL CARE. Tufted capuchin has an average weight of 210 g at birth. For the first 3 months of life, the newborn clings to its mother's back. At 6 months of age, the young capuchin can take care of itself and has started consuming solid foods. However, they need their mother present in threatening situations as well as for milk. At this time they begin to bond with the alpha male. Facial coloration lightens above the eyebrows and a change in pelage color becomes more distinct between the shoulders and the rest of the body at 9 months (Escobar-Pàramo 1989). Social play is seen after 14 weeks between the infant with other infants, young ones and in particular the adults. At 15 months of age, independent foraging is seen.

ANTIPREDATOR BEHAVIOUR. The harpy eagle (*Harpia harpyja*) is a major threat to the capuchins in South America; their main predator. Other potential predators include hawks, snakes and jaguars. At night capuchins sleep in tall trees that increase their chances of security, comfort levels and for communication purposes. Tree leaves need to be big enough to accommodate more than one individual as capuchins sleep alongside each other even though they would sleep alone. The taller the tree the more protection they have against terrestrial predators and most importantly they must be comfortable. The sleeping site of the capuchin is usually located closest to where the last foraging activity occurred. It can change often but they also reuse the sites.

COMMUNICATION. Capuchins are an acute and inquisitive species of primates. They communicate with one another through a diversity of vocals and facial expressions. These vocals are directed to specific purposes and divided into 4 categories:

- Contacting the group either through "mik" or "ik"
- When separated the use of "fueh"
- Ending aggressive encounters
- In the presence of danger either "e-c-k-g", "i-tsch-g-k" and "ik-a"

As soon as the alarm calls is heard, the assembly immediately retreat. Olfactory communication is seen through urine washing and chest rubbing in the tufted capuchin. This can be a display of scent-marking behaviour. Washing their hands and feet in urine as well as cover their fur with the urine scent is a common attribute of the capuchins. Due to the distinct odor from urine-washing; capuchins can differentiate between members of other groups and others of their own species (Ueno 1991; 1994). A gland is present on the chest of the male which aids in scent-marking. Male reunion display is common amongst the tufted capuchins when they have been separated. This is seen as they approach one another, embrace and produce sounds (Matheson et al. 1996; Phillips et al. 2005). An angled head tilt from side to side is another display to attain the attention of others and the display of the male's genitals to the female (Weigel 1979).

REFERENCES

Carosi M, Linn GS, Visalberghi E. 2005. The sexual behavior and breeding system of tufted capuchin monkeys (*Cebus apella*). Adv Stud Behav 35:105-49. accessed 08th November, 2012.

Emmons LH, Freer F. 1997. Neotropical rainforest mammals: a field guide, second edition. Chicago: U Chicago Pr. 307 p. accessed 08th November, 2012.

Escobar-Páramo P. 1989. The development of the wild black-capped capuchin (*Cebus apella*) in La Macarena, Colombia. Field Studies of New World Monkeys, La Macarena, Colombia, Vol. 2:45-56. accessed 08th November, 2012.

Groves C. 2001. Primate taxonomy. Washington DC: Smithsonian Inst Pr. 350 p. accessed 08th November, 2012.

Janson CH. 1984. The mating system as a determinant of social evolution in capuchin monkeys (*Cebus*). In: Else JG, Lee PC, editors. Primate ecology and conservation. Cambridge: Cambridge U Pr. p 169-79. accessed 08th November, 2012.

Matheson MD, Johnson JS, Feuerstein J. 1996. Male reunion displays in tufted capuchin monkeys (*Cebus apella*). Am J Primatol 40(2):183-8. accessed 08th Novenber, 2012.

Mittermeier RA, van Roosmalen MGM. 1981. Preliminary observations on habitat utilization and diet in eight Surinam monkeys. Folia Primatol 36:1-39. accessed 08th November, 2012.

Phillips KA, Goodchild LMS. 2005. Reunion displays in captive male brown capuchins (*Cebus apella*). Primates 46(2):121-5. accessed 08th November, 2012.

Terborgh J, Janson CH. 1983. The ecology of primates in southeastern Peru. Nat Geogr Soc Res Rep 15:655-62. accessed 08th November, 2012.

Ueno Y. 1994. Responses to urine odor in the tufted capuchin (*Cebus apella*). J Ethol 12(2):81-7. accessed 08th November, 2012.

Ueno Y. 1991. Urine-washing in tufted capuchin (*Cebus apella*): discrimination between groups by urine-odor. In: Ehara A, Kimura T, Takenaka O, Iwamoto M, editors. Primatology Today. Amsterdam: Elsevier Sci Pub. p 297-300. accessed 08th November, 2012.

Weigel RM. 1979. The facial expressions of the brown capuchin monkey (*Cebus apella*). Behaviour 68:250-76. accessed 08th November, 2012.

Welker C, Hoehmann H, Schaefer-Witt C. 1990. Significance of kin relations and individual preferences in the social behaviour of *Cebus apella*. Folia Primatol 54(3-4):166-70. accessed 08th November, 2012.

Youlatos D. 1999. Tail-use in capuchin monkeys. Neotropical Primates 7(1):16-20. accessed 08th November, 2012.

Author: Jeanine Williams
Posted online: 2012

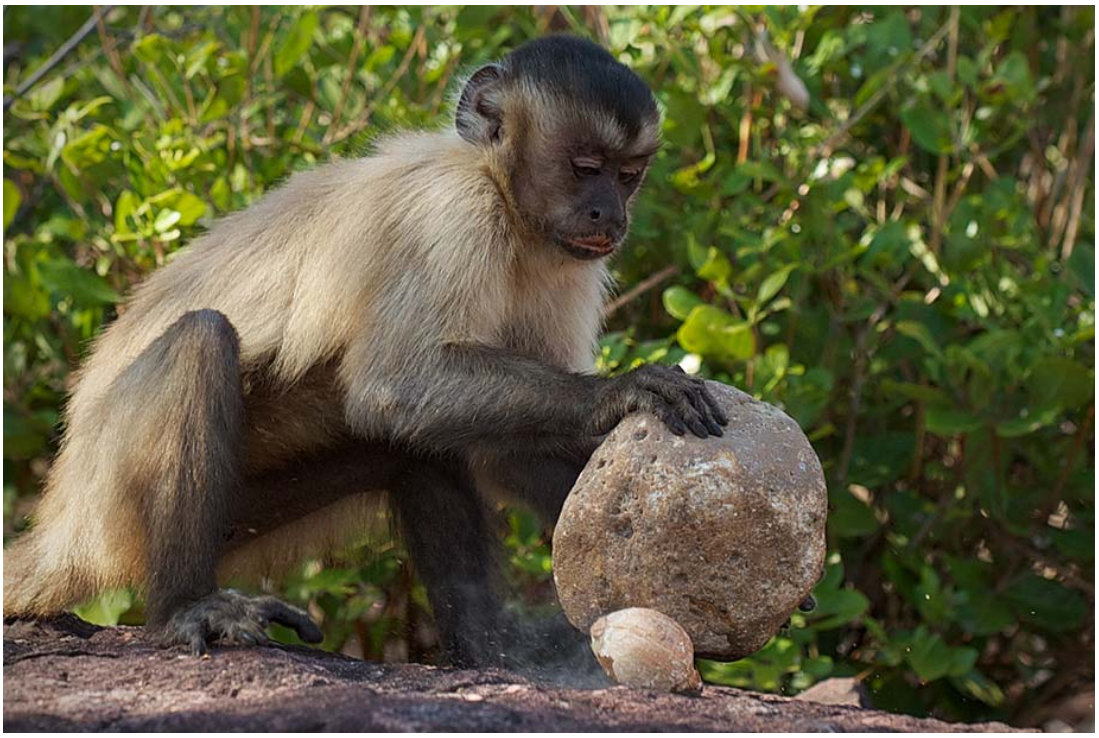

Fig. 2. Tufted capuchin using a tool (rock) to open difficult foods.

[http://www.monkeyland.co.za/index.php?comp=article&category=2&limit=5&limitstart=5, downloaded 8 November 2012]

Fig. 3. Food sharing between an adult capuchin and a young one.

[http://en.wikipedia.org/wiki/Tufted_capuchin, downloaded 8 November 2012]

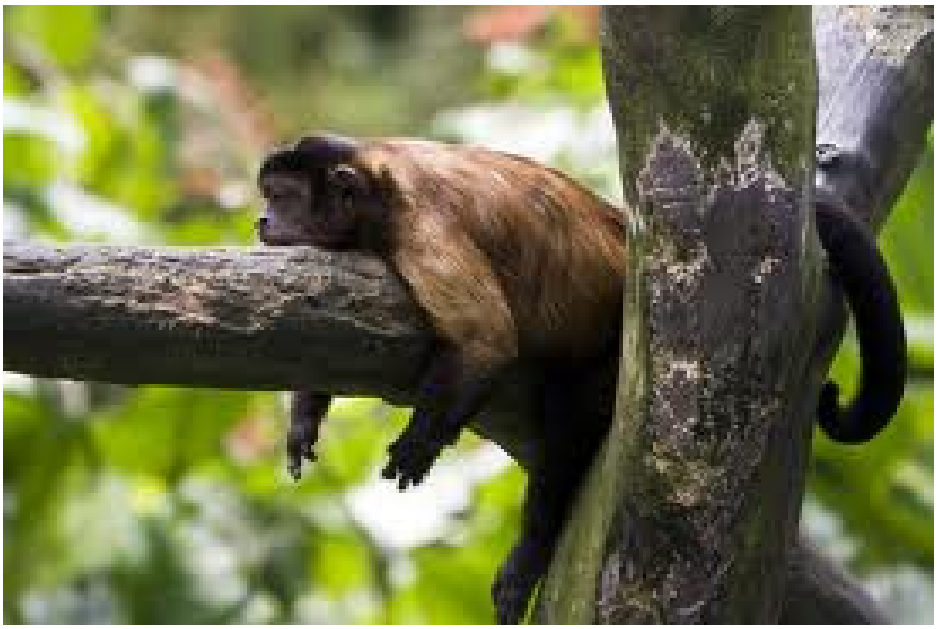

Fig. 4. Tufted capuchin resting on a tree branch.

[http://artshotz.com/image.php?id=5271, downloaded 8 November 2012]