

## *Alouatta macconnellii* (Red Howler Monkey)

Family: Atelidae (Howler and Spider Monkeys)

Order: Primates (Lemurs, Monkeys and Apes)

Class: Mammalia (Mammals)



**Fig. 1.** Guyanan red howler monkey, *Alouatta macconnellii*.

[<http://www.rockjumperbirding.com/tourinfo/guyana-birds-wildlife-2016?crumb=View+Tours;View%20Tours>, downloaded 10 May 2016]

**TRAITS.** The red howler monkey is a large primate with a deep reddish-brown coat (Fig. 1), which varies in shade due to age (Gron, 2007; Normile, 2001). It has a long, prehensile tail of 49-75 cm (Fig. 2), which is hairless on the underneath end, used for maintaining balance while grasping branches during feeding and locomotion (Normile, 2001; Youlatos, 1993; 1996). They are sexually dimorphic in size, where females weigh up to 6.3 kg and males up to 7.5 kg, with adult males having a larger hyoid bone in the neck and a bigger, muscular head than females (Gomez-Posado et al., 2007; Defler, 1981). In both sexes, the hyoid bone helps intensify the howling calls, making them the loudest sounding New World animal (Normile, 2001). [This account was prepared on the Venezuelan red howler, *Alouatta seniculus*. This widespread species has now been divided, with *Alouatta macconnellii* used for populations in Trinidad,

eastern Venezuela, Guyana, Suriname, and Brazil (IUCN, 2016; Wikipedia, 2016). Where the species differ in significant ways, the account has been revised and the specific name *A. macconnellii* is used.]

**ECOLOGY.** Red howler monkeys have a wide distribution throughout northwest South America from Bolivia, Peru, Ecuador, Colombia and Venezuela to Trinidad and Tobago, occurring at a density of 34-55 individuals per square kilometer (Gomez-Posado et al., 2007). They inhabit the top canopy of a variety of habitats such as secondary, lowland and montane forest reaching 2400-3200 m in the Columbian Andes (Gomez-Posado et al., 2007).

**SOCIAL ORGANIZATION.** They are social creatures occurring in large groups of 3-10 individuals (Braza et al., 1981, Normile, 2001). Each group has a hierarchy consisting of a single dominant adult male, with sometimes 1-2 subadult males, and the rest being females and their infants (Gomez-Posado et al., 2007). They are mostly passive; displaying rare aggressive behavior (Crockett & Pope, 1988). When aggressive interactions do occur, it is usually between the same sexes (Crockett & Pope, 1988). Mature migrant males attack the dominant male of a group for his territory and females, with frontal combat resulting in wounds or loss of fingers and tails, and even death (Crockett & Pope, 1988). Mature adult females injure and force unrelated immature females to migrate from their birth group (Crockett & Pope, 1988). A solitary migrant female desiring access into a group displays submissive behavior and persistently follows the group for several days and even months, only to be continuously chased and bitten by the residing group's females (Crockett & Pope, 1988).

**ACTIVITY.** Red howlers are diurnal and arboreal; they both travel and forage during the day and sleep at night, mostly in treetops 15-20 m high (Braza et al., 1981). They are mostly sedentary, spending over 15 hours each day resting in reclined and seated positions, with feeding and locomotion both peaking at daybreak and sundown (Braza et al., 1981; Gron, 2007; Normile, 2001). Howlers travel a daily average of 500-600 m, using the same routes frequently (Gomez-Posado et al., 2007). This differs with habitat type, with groups travelling the same distances daily in a regular pattern in unaltered habitats, but in an uneven and random pattern in altered habitats, due to food sources being more highly dispersed throughout the home range (Gomez-Posado et al., 2007). They move slowly, cautiously and deliberately using quadrupedal locomotion; walking along and climbing above tree branches in different directions on all fours (Braza et al., 1981). They travel frequently using suspensory locomotion such as bridging mostly in the high canopy; using all limbs including the prehensile tail to grasp and pull branches (Youlatos, 1993; 1996). To cross tree gaps, most howlers stop and reach for a branch support by extending a forelimb, before making an incomplete leap towards its new support, while still maintaining a firm grip with its tail and feet on the initial branch before release (Fig. 3) (Youlatos, 1993). To descend trees, they walk down quadrupedally facing the ground, controlling the descent with the tail (Gron, 2007). They are sometimes terrestrial; travelling over ground on foot and can swim across open water 200 m wide (Gron, 2007).

**FORAGING BEHAVIOUR.** During feeding, these animals would sometimes hang in inverted positions, using their tails to help suspend them upside down from a tree branch (Sussman, 2003). They consume a folivorous diet; chewing mostly on young leaves throughout the year (Gomez-Posado et al., 2007). When available they also feed on ripe fruits and flowers, and on termite nests made of soil by either directly placing their mouths over the nest or using their hands to shred the outer walls before putting it into their mouths (Normile, 2001; Julliot &

Sabatier, 1993). Usually many individuals from a group would feed on the same nest together, or one after another (Julliot & Sabatier, 1993). The group travels long distances just to feed on termites, usually exploiting the same nest on numerous occasions, even until there is nothing left (Julliot & Sabatier, 1993). They would obtain water from licking leaf surfaces after rainfall or come to the ground to drink from puddles and streams (Sussman, 2003). Different habitat types influence foraging patterns (Gomez-Posado et al., 2007). In plantation and secondary forest habitats, the few, dispersed, large trees present are used as corridors and resting sites between feeding locations during the day, but as sleeping trees at night. Groups would intensively exploit the widely dispersed Moraceae, *Cecropia* and *Ficus* feeding trees in this habitat for several days, until depletion, before travelling randomly throughout their home range trying to locate new food sources (Gomez-Posado et al., 2007). In mature forest habitats groups would feed on several of the abundant feeding trees daily without depleting the food sources, while travelling their complete home range in 3-4 days (Gomez-Posado et al., 2007).

**COMMUNICATION.** At dawn, mostly males would use loud, booming vocal communication such as howling (Fig. 4) to alert other groups of their exact location and distance to avoid physical fights (Normile, 2001). These howls are answered by either other groups or solitary males within audible range, allowing them to maintain a safe distance (Normile, 2001). At dusk, if different groups occupy sleeping trees close to and within view of each other, each group would face the other and howl, shake tree branches and make sprinting movements along horizontal branches (Braza et al., 1981). On rainy days groups would howl before and during rainfall, sitting in a crouched position until it stops raining (Normile, 2001). Individuals of a group also utilize olfactory communication to mark their territory using smells produced from group defecation, where each member defecates together at heights of 10-15 m, allowing their feces to gather at the same spot on the ground below their sleeping sites, and then rub their anal areas on tree branches. Adult males also rub their beard and muzzle on specific spots on tree branches, while licking and producing salivary secretions to leave their scent (Braza et al., 1981).

**SEXUAL BEHAVIOUR.** Red howler monkeys are polygynous; usually one or two males mate with numerous females in the group, with each female producing one offspring at a time (Crockett & Pope, 1988). Females attempt to seduce males to mate with them by moving their tongues in a rhythmic motion, but if males do not react in the same manner females then try seducing other males (Normile, 2001). During invasions, adult and subadult males perform infanticide; attacking and killing infants unrelated to them, with females unsuccessfully trying to defend their offspring (Crockett & Pope, 1988; Agoramoorthy & Rudran, 1995). An invading male would approach an infant, whose mother would produce a deep scream with mouth fully open and try to chase the male. However the male would grab the infant, bite either the face or belly and drop its dead body, with the mother then rescuing the infant and licking its wounds (Agoramoorthy & Rudran, 1995). Sometimes both mother and other females from a group would pursue the male after he grabs the infant, but would not attempt pursuit if the infant dies; they instead watch the male finish the attack (Agoramoorthy & Rudran, 1995). However if the infant gets injured and still survives, it is often rejected by its mother. In 1992 Agoramoorthy and Rudran observed a mother abandoning her infant after it lost its left eye in a failed infanticide attempt. A childless female from another group adopted the infant, but because she was not lactating she could not nurse the infant, which then eventually died (Agoramoorthy & Rudran, 1995). After a female loses an infant she becomes sexually receptive within 7 days and mates

with several males, including the infanticidal and dominant male to confuse the paternity of her future offspring and prevent further infanticides (Agoramoorthy & Rudran, 1995).

**JUVENILE BEHAVIOUR.** A mother would carry her newborn infant wrapped around her belly until it is 30 days old, after which it clings to its mother's back (Fig. 5) for a little over a year, using its limbs and prehensile tail to maintain a secure hold (Normile, 2001). When this occurs, the mother provides no additional help in carrying her infant. Infants are treated in a gentle manner by other childless adult females in the group, which would touch the infants with their hands and faces, even allowing them to climb upon them. Adult males only display this same behavior to offspring they have fathered (Normile, 2001).

**ANTIPREDATOR BEHAVIOUR.** Red howler monkeys avoid predators such as the harpy eagle, jaguars and caimans, by inhabiting trees above 12 m, switching daily feeding habits, and changing the location of diurnal resting trees (Crockett and Pope, 1988; Peetz et al., 1992; Braza et al., 1981). At night-time they sleep once in the same tree clustered in groups, avoiding leafless trees which provide no camouflage (Peetz et al., 1992). However, they do fall prey when they travel on the ground through treeless and flooded areas, or unfamiliar territory caused by human disturbance (Crockett and Pope, 1988).

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**Fig. 2.** A red howler monkey with its long, prehensile tail grasping a branch.  
[[http://en.wikipedia.org/wiki/File:Purus\\_Red\\_Howler\\_Monkey.jpg](http://en.wikipedia.org/wiki/File:Purus_Red_Howler_Monkey.jpg), downloaded 11 Nov 2012]



**Fig. 3.** A red howler monkey leaping from a high tree branch.  
[[http://robertofabbri.smugmug.com/keyword/peru/1179809624\\_hrXLD#!i=1179809624&k=hrXLD](http://robertofabbri.smugmug.com/keyword/peru/1179809624_hrXLD#!i=1179809624&k=hrXLD),  
downloaded 11 Nov 2012]



**Fig. 4.** Red howler monkeys performing howling vocal displays.

[<http://www.arkive.org/colombian-red-howler-monkey/alouatta-seneculus/image-G80543.html>,  
downloaded 11 Nov 2012]



**Fig. 5.** A female carrying an infant on her back.

[<http://www.dpreview.com/galleries/9681093703/photos/393080/red-howler-monkey-peru>,  
downloaded 11 Nov 2012]

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