



## Living Together Capuchin and squirrel monkeys

### Living Together – why do the monkeys choose to associate?

Capuchin and squirrel monkeys spend much time together in the South American forests where they coexist. On average they spend about half their time together but this can vary from associating for just a few hours to spending several days together. Both species take an active role in maintaining their association suggesting that both species must benefit. There is extensive intermingling of the groups especially during foraging, and both species may improve their insect foraging efficiency as more insects are disturbed when in association making them easier to find and capture. The squirrel monkeys may also benefit by gaining otherwise inaccessible plant food exposed by the capuchin monkeys' destructive foraging habits.

Both species have a wide variety of potential predators. By associating, the monkeys are also less likely to be preyed upon, as more eyes and ears lead to greater predator detection and avoidance. Individuals respond to alarm calls of the other species as well as their own, by taking cover from potential predators, running away, or sometimes the capuchins will mob the predators – the adult males will break branches and drop them on the predator (and sometimes they treat humans as predators!). The larger capuchins are sometime aggressive to the squirrel monkeys, chasing them out of fruiting trees. No affiliation, such as play or grooming, has been observed in the wild between the different species, and the groups sleep separately.

### Similarities and differences between the species

	Capuchin monkeys	Squirrel monkeys
Weight	Males grow bigger than females (1.4-3.4kg female, 1.3-4.8kg males). Their brains are large for their body weight.	Males and females are similar in weight (0.65-1.25kg female, 0.55-1.2kg males). Their brains are the expected size for a primate of their weight.
Life span	40 years	21 years
Group sizes and composition	6-30 with an average of around 17 individuals. Adult females greater or equal in number to adult males. One dominant male.	Variable – 30-70. Adult females always greater in number than adult males.
Mating system and infant rearing	The dominant male guards the female from subordinate males during the last few days of her fertile period. After mating, capuchins display a reverse mount, with the female mounting the male, clasping him around the waist and riding on his lower back. Carrying and looking after offspring that are not your own (allomothering) is common.	These monkeys are promiscuous, with multiple mount matings. Females provide all the direct parental care, and young females often allomother infants from about 2-8 weeks.
Grooming	Capuchins frequently groom each other.	Squirrel monkeys very rarely groom each other.
Tail	Tail is prehensile (adapted for grasping) and can be used to hold onto branches, and support weight.	Tail used to balance, but not to grasp.
Leap distance	1-3m (occasionally greater).	Regularly up to 5m, and capable of 7m during an 8-13m "fall"! The arms are stretched forward, the legs extended; they land on all fours.



	Capuchin monkeys	Squirrel monkeys
Diet	Eclectic! They try to eat almost anything remotely edible! – but mostly fruit and insects (occasionally new branch growth, buds, flowers; invertebrates, frogs, nestling squirrels, bats, monkeys, eggs). Palm use is extensive.	Fruit (especially figs), insects, occasional tree frogs, snails and crabs.
Foraging	Active and destructive – they pull, bite, and smash – often in palms, vine tangles, and dead leaves. They strip bark which is why it difficult to have live trees in enclosures in captivity.	Spend much time insect foraging on leaves – they uncurl leaves, break twigs, closely investigate foliage, and pounce and grab food with quick agile movements.
Resting positions	Sprawl with all four limbs dangling below branches in hot weather.	Sprawl with all four limbs dangling below branches in hot weather.
Sleeping	Often sit with back rounded and head lowered to near the feet, with the tail curled around lower body. Sometimes they also lie on their sides. May huddle in groups of 2-4.	Huddled over, tail curled over shoulder, often in groups.
Sleeping sites	Large tall emergent trees, with many horizontal branches. Forks near end of branches, and palms. Will return to used sites.	On top of branches. Will repeatedly select the same trees over time.
Tool use	In the wild, some capuchins use tools, such as rocks to crack open hard nuts. They may also use flail branches or drop objects on intruders. In captivity they are proficient at using tools, for example as rakes to extend reach, or to poke out otherwise inaccessible food.	Squirrel monkeys are not known to use tools.
Predators	Capuchin and squirrel monkeys share the same wide range of predators: birds of prey such as harpy eagles and hawks; cats such as jaguar, ocelot and puma; a stoat-like animal called a tayra; venomous and constricting snakes, as well as caiman and crocodile!	
Sensory Communication	Both capuchin and squirrel monkeys use a wide range of visual expressions and vocalizations. They also use olfactory communication, and scent mark by rubbing their external genital areas on branches.	
Colour vision	The colour vision of the monkeys takes many forms. All the males are dichromatic (colloquially colour blind), whilst some females are dichromatic and others are trichromatic, having vision similar to a “normal” human. How the monkeys see the world affects how they interact with it.	
Urine washing	Both species perform urine washing, when they deposit a small quantity of urine onto the palm of a hand and then rub it on the sole of the opposite foot. It is thought to have multiple functions including hygiene, thermoregulation and response to irritation from biting ectoparasites (such as ticks and botfly).	
Fur-rubbing	Capuchins, and to a lesser extent squirrel monkeys, perform fur-rubbing, when an individual rubs pungent and sometimes irritating plant or animal materials (such as millipedes) on to their fur. They often drool whilst anointing themselves, in a rather frantic manner! The function is not well understood but it may reduce ectoparasites and infection.	

### Further reading

- Baldwin, J.D. and Baldwin J.I. (1981) The squirrel monkeys, genus *Saimiri*. Ecology and Behavior of Neotropical Primates, Vol. 1. A. F. Coimbra-Filho and R. A. Mittermeier (Eds). Rio de Janeiro: Academia Brasileira de Ciencias. Pgs: 277-330.
- Fragaszy, D.M., Visalberghi, E. and Fedigan, L.M. (2004) The Complete Capuchin: The Biology of the Genus Cebus. Cambridge, Cambridge University Press.
- Leonardi, R., Buchanan-Smith, H.M., Dufour, V., MacDonald C. and Whiten, A. (2010) Living Together: Behavior and welfare in single and mixed species groups of capuchin (*Cebus apella*) and squirrel monkeys (*Saimiri sciureus*). American Journal of Primatology 72, 33-47.
- Terborgh, J. (1983) Five New World Primates: A Study in Comparative Ecology. Princeton, New Jersey: Princeton University Press.

Hannah M. Buchanan-Smith  
University of Stirling, 2012