
The Formation of a Captive Squirrel Monkey Group

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Squirrel monkeys (*Saimiri spp.*) have always been a common sight in zoos, but this seems to have changed in the past few years. Breeding is often poor, and zoos have discovered that this genus is not as easy to keep as has always been assumed. Several zoos have shown an interest in establishing new squirrel monkey groups, and a good start can have a positive effect on future results. Therefore, it is important to understand the social behaviour of this species.

THE SOCIAL BEHAVIOUR OF SQUIRREL MONKEYS

Although squirrel monkeys are among the most popular laboratory and zoo animals, relatively little is known about their social behaviour in the wild. There have been some field studies (Baldwin, 1985; Baldwin and Baldwin, 1971; Boinski, 1987a, 1987b; Boinski and Mitchell, 1994), which have shown that the social behaviour of *Saimiri oerstedii* of Central America differs significantly from that of *S. boliviensis* and *S. sciureus* of South America. As only the latter two species are currently kept in captivity, I will focus on their social behaviour. In addition to the information available from field studies, a considerable amount of data on the squirrel monkey's social behaviour has been collected in the semi-natural environment of Monkey Jungle in Miami (Baldwin and Baldwin, 1981; DuMond, 1969; DuMond and Hutchinson, 1967).

Group size in the wild varies significantly in different geographic areas. The most common size is from 20 to 40 animals; however, groups exceeding 200 animals have been reported, though it is not clear whether such large groups consist of a single unit, or are in fact composed of several smaller groups traveling together during periods when food is abundant.

Group composition has only been determined from a few feral groups of about 20 animals. These groups included about three adult males and at least twice as many adult females. The adult females function as the core of a *Saimiri* group, and all other group members are attracted to them. There are clear sub-groups of adult females, juvenile females, adult males and juvenile males. Within the group, the males are sexually segregated (although this is less pronounced in *S. sciureus* than in *S. boliviensis*), tending to live at the periphery of the group, except during the mating season, when they are spermatogenic and more socially active. Outside the breeding season, the females can react very aggressively towards approaching males. *Saimiri* groups are matrilinear. Young males leave their natal group in small troops of three to five animals at the age of three years. Adult males stay in a breeding group for two or three seasons (Mitchell *et al.*, 1991), until other males take over the group.



Squirrel monkey mother and infant at Apenheul Primate Park. (Photo: Jan Vermeer)

FORMATION OF A CAPTIVE HETEROSEXUAL *SAIMIRI* GROUP

As squirrel monkeys are matrilinear, it is important that all females of a new group are related to each other, that is, that they come from the same natal group. The introduction of unfamiliar females to a small group with several adult females can result in much aggression with severe injuries. Sometimes such unfamiliar females are tolerated by other group members, but they will hardly ever become fully a part of the group, and there can be stress for long periods.

The minimum number of breeding females in a group should be five to seven. Smaller groups tend to have less reproductive success, probably because the onset of the reproductive cycle is stimulated by social behaviour between adult females (Mendoza and Mason, 1991). The presence of several reproducing females will also enhance the development of social behaviour of the infants, as they can interact with peers.

A maximum of two adult males should be added to these females. Additional adult males will not be accepted by the others in the group. Two adult males may tolerate each other, but preferably these two should be related animals, e.g. brothers. Castration does not seem to be successful as a means of controlling aggression (Salzen, 1984).

Experiences in several European zoos have shown that female squirrel monkeys stop breeding if the same adult males are in a group for more than four years (Vermeer, 1996). Therefore, and also to prevent inbreeding, adult males must be replaced every four years by other, unrelated adult males. These new males will not accept the presence of other males older than two years, which therefore have to be removed from the group.

As *Saimiri* groups tend to form sub-groups, inside quarters should consist of at least two cages, but preferably more, all connected with each other.

FORMATION OF A CAPTIVE ALL-MALE *SAIMIRI* GROUP

As in social groups of squirrel monkeys females outnumber males, there is a surplus of males in captivity. This problem can be relatively easily solved by the formation of all-male groups. Groups of up to ten males can be formed without many problems. Preferably, these males should come from the same natal group, where they were used to living together in one of the sub-groups.

Most zoos prefer breeding groups, but an all-male group of squirrel monkeys can be very attractive for the public, and females may be difficult to obtain, as they are rarely surplus in zoos.

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