

# Competition between females leads to infanticide in some primates

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This is a mustached tamarin (*Saguinus mystax*) in the Peruvian forest. Credit: Laurence Culot

An international team of scientists, with Spanish participation, has shed light on cannibalism and infanticide carried out by primates, documenting these acts for the first time in the moustached tamarin (*Saguinus mystax*). The mothers, which cannot raise their infants without help from male group members, commit infanticide in order to prevent the subsequent death of their offspring if they are stressed and in competition with other females.

"Infanticide is an extreme behaviour, and in most species is used by males to eliminate competitors and make [females](#) become sexually receptive more quickly", Yvan Lledo-Ferrer, one of the authors of this

study and a researcher in the Psychobiology Department at the Autonomous University of Madrid (UAM) and at the German Primate Centre, tells SINC.

However, in callitrix [primates](#) (the primate family that *Saguinus mystax* belongs to), it is the females that perpetrate infanticide. "[Genetic analysis](#) enabled us to show that the mothers themselves take the lives of their own offspring", says Lledo-Ferrer.

The study, which has been published in the journal *Primates*, observed three different groups of moustached [tamarins](#) in the Peruvian forest from 1999 to 2008 in order to determine how help from male members of the group and the absence of competition between females helped to ensure the survival of infants.

The results show that 75% of infants survive when at least three males are helping, but only 41.7% survive if the group has one or two male helpers. With regard to competition with other females, 80% of infants die at less than three months of age if there are two gestating females in the group. This figure falls to 20% if there is only one reproductive female.

### Unexpected observations

The scientists were surprised when four infants died within the space of a year and the [autopsies](#) carried out did not reveal any pathology that would have compromised their survival. In only one of the unexpectedly observed deaths did the mother kill her own offspring. The rest died "without any help".

"Normally, if infants fall to the forest floor from a height, the group keeps picking it up until the infant no longer has the strength to hold on to its carrier's back. At that point they abandon it on the ground.

However, in one of these cases the mother killed her own offspring without it having followed the normal pattern of falling to the ground", the expert explains.

The researchers say that reproductive dominance is not well established in cases where infanticide takes place, and there is competition between females to occupy the dominant position. "This competition leads to high levels of prenatal stress, which can affect the foetus and therefore the viability of the offspring and the mother's milk production", the Spanish scientist points out.

Mothers kill infants that have poor prospects for survival due to the social make-up of the group (low number of helpers and the presence of another gestating female). In the cases observed, "the mother consumed her offspring's brain, thereby obtaining a high-quality supplementary source of nutrients, which somewhat offsets those invested during gestation", says Lledo-Ferrer.

One of the explanations for these acts is that the callithrix are a very unusual kind of primate. They have a cooperative baby care system, in which all the members of the group participate, and raising [infants](#) is an "extremely" costly activity – the whole group must work together in order to for it to be successful.

In this family of primates, only one female can successfully reproduce in each group, while the rest inhibit their ovulation. They have a six-month gestation period.

**More information:** Culot, Laurence; Lledo-Ferrer, Yvan; Hoelscher, Oda; Muñoz Lazo, Fernando J. J.; Huynen, Marie-Claude; Heymann, Eckhard W. "Reproductive failure, possible maternal infanticide, and cannibalism in wild moustached tamarins, *Saguinus mystax*" *Primates* 52(2): 179-186, april 2011.

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