

The rainforest's most loyal couples: No evidence for extra-pair paternity in coppery titi monkeys

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Definitely family: Coppery titi monkeys (*Plecturocebus cupreus*) in the Amazon rainforest. Credit: Katrin Heer

Since methods for genetic paternity analyses were introduced, it has

been clear that many pair-living animal species, including humans, do not take partnership fidelity that seriously. In most species, there is some proportion of offspring not sired by their social father. Coppery titi monkeys living in the Amazon lowland rainforest seem to be an exception. Scientists from the German Primate Center (DPZ)—Leibniz Institute for Primate Research in Göttingen could not find evidence for extra-pair paternity in their study population in Peru. Mate choice seems to be so successful that a potential genetic advantage does not outweigh the social costs of infidelity. The study is published in *Scientific Reports*.

Offspring resulting from extra-pair copulations but raised by the [social partner](#) are surprisingly common in pair-living species. Various reasons are discussed for this behavior. For instance, [mate choice](#) is often limited and sometimes it only turns out later that the chosen partner is not the genetically best one. In order to ensure the best possible genes for your own children, you may use the genes of a neighbor or a floating male without giving up the security of your own territory and the caring social father.

Coppery titi [monkeys](#) live in small family-groups, consisting of male, female and offspring, who defend a territory. Usually, a single infant is born per year, that leaves the group when it reaches sexual maturity or shortly after and searches a partner, with whom it occupies an own territory. The pair partners maintain a [strong relationship](#), spend day and night in close proximity and groom each other. Fourteen groups of coppery titi monkeys were studied at the field station of the German Primate Center Estación Biológica Quebrada Blanco and its surroundings in northeastern Peru. Forty-one individuals could be genotyped using fecal samples from which DNA was extracted and sequenced at the Genetics Laboratory of the German Primate Center in Göttingen.

None of the 18 offspring examined were sired by a father other than the

social father, i.e., genetic monogamy could be confirmed. In addition, it turned out that the adult animals showed a high genetic diversity and that the mating partners were on average unrelated. "Extra-pair breeding would therefore not have provided a genetic advantage for the animals studied, so that they presumably rather avoided the risks of infidelity," says Sofya Dolotovskaya, who studied the animals and their behavior for 14 months of field research as a doctoral student of the German Primate Center.

"In an undisturbed ecosystem, as at our field station, young coppery titi monkeys obviously migrate far enough from their natal group to find a suitable partner without incurring the risk of inbreeding," Eckhard W. Heymann, scientist at the German Primate Center and head of the field station in Peru, concludes from the study. "Further studies must show whether genetic monogamy also prevails in other populations of coppery titi monkeys, especially in fragmented habitats."

More information: Dolotovskaya S, Roos C, Heymann EW (2020): Genetic monogamy and mate choice in a pair-living primate. *Scientific Reports*, doi.org/10.1038/s41598-020-77132-9

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