

Mountain gorilla mamas sidestep having inbred offspring

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The dominant silverback, Cantsbee, rests with adult females and offspring. Cantsbee has been dominant since 1995 and genetic studies have revealed that he has sired over 20 offspring. Credit: MPI f. Evolutionary Anthropology/ M. M. Robbins

Some mountain gorilla females linger into adulthood in the group into which they were born. In the process they also remain in the company of their father, who is often their group's dominant male. To curb inbreeding, though, they appear to tactically avoid mating with their fathers. This strategy works so well that the chances of alpha gorilla males siring the offspring of their own daughters are effectively zero, according to Linda Vigilant of the Max Planck Institute for Anthropology in Germany. The findings are published in Springer's journal *Behavioral Ecology and Sociobiology*.

The tenure of the dominant male in a group often exceeds the time it takes for his daughters to sexually mature. Therefore three out of every five female gorillas tend to move to other groups to find a mate. Among the gorillas at Karisoke Research Center in Rwanda that Vigilant's team investigated, half of the young females did so. The rest stayed in their original groups where in addition to their [fathers](#), one or more [subordinate males](#) were potential mates.

To clearly establish the paternity of 97 mountain gorillas, Vigilant's group did genetic tests on fecal samples collected since 1999. These included 79 gorillas born into four of the [mountain gorilla](#) groups monitored since 1967 by Dian Fossey Gorilla Fund researchers. They found that on average seven out of every ten [offspring](#) (72 percent) in a group with more than one male present are sired by the dominant male. However, they never found him to be the father of one of his daughter's offspring. "The probability of a dominant male siring his daughter's offspring is effectively zero, while on average he has almost two-to-one odds of siring any other offspring," says Vigilant.

However, members of multimale groups are unable to sidestep all forms of inbreeding. The study shows that the parents of 9 of the 79 offspring were related as at least half-brothers and half-sisters of one another. This is consistent with recent studies showing little genetic variation among

mountain gorillas, as well as signs of recent inbreeding.

Despite being much smaller than adult [males](#), female gorillas actively make mate choices and initiate a large proportion of copulations. The finding that more than one subordinate male can father offspring in a given group may suggest that different females have different preferences.



Silverback male gorilla rests with adult female and offspring. Credit: MPI f. Evolutionary Anthropology/ M. M. Robbins

The question is how the fathers and daughters know to give each other the cold shoulder. Vigilant's team found that the [daughters](#) of [dominant](#)

[males](#) reproduce with subordinate males that are substantially younger than their fathers. They might therefore be using relative age as a cue to avoid mating with their fathers. Vigilant believes that the long periods immature offspring spend in the company of the dominant male might also help them recognize their fathers, and further notes that dominant males appear to prefer mating with older females who are experienced mothers.

More information: "Reproductive competition and inbreeding avoidance in a primate species with habitual female dispersal."

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