

Biologist discovers evidence for intentional communication in female putty-nosed monkeys

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Young female Putty-nosed monkey (*Cercopithecus nictitans*), named Mimi, rescued by CERCOPAN primate sanctuary in Nigeria (www.cercopan.org). Credit: [LaetitiaC](#)/Wikimedia Commons, [CC BY-SA](#)

Female putty-nosed monkeys deliberately use alarm calls to recruit males to defend the group. This is the conclusion reached by Claudia

Stephan, an evolutionary biologist at Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), together with colleagues from the Wildlife Conservation Society after conducting observations in the Republic of the Congo.

The females kept up their chirping calls until the male took action to defend the group against the predator. This is the first time that intentional vocalization such as this has been observed in the [animal kingdom](#). The researcher has now published her findings in the journal *Animal Behavior and Cognition*.

What makes humans unique is our ability to speak. Language does not only enable us to describe complex issues, it also allows us to express our feelings and our needs and to deliberately influence the behavior of others. "Until now, we have had no conclusive evidence that intentionality of this kind is also found in animal [vocal communication](#)," explains Dr. Claudia Stephan from the Chair of Developmental Biology at FAU.

Efforts to find the evolutionary roots of human intentionality have focused predominantly on apes. In the case of chimpanzees, for example, specific calls have been identified in various contexts, such as alarm calls, calls encouraging the group to move on or calls signaling rest time. However, it is still not clear whether the signaler deliberately intends to manipulate the behavior of the group and adjusts their communication accordingly.

Females recruit males for defense

Stephan has been investigating communication among primate groups on the African continent for 15 years now, initially in Sierra Leone and the Ivory Coast, later in the Republic of the Congo. Here, in the Nouabalé-Ndoki National Park in the northwest of the country, she made a

surprising discovery.

Female putty-nosed monkeys strategically use their alarm calls to manipulate the behavior of the sole adult male in their group and recruit him to defend the group against predators. "Putty-nosed monkeys are predominantly tree-dwelling and live in groups of approximately 5 to 25 members," the biologist explains. "The male usually remains on the periphery of the group and barely participates in social interaction." In addition to reproduction, the male is mainly responsible for protecting the group from predators. He omits alarm calls and bares his teeth to drive the predator off.

Supported by staff at the [national park](#) and the Wildlife Conservation Society, Claudia Stephan observed 13 groups living in the wild for clues as to how female putty-nosed monkeys behave when they detect a predator (in this case a researcher disguised in a leopard skin) and their male is some distance away.

"In order to prove that the females deliberately recruit the male for the purpose of defending the group, we played recordings of male alarm calls after the leopard appeared," Stephan explains. "We wanted to show that the females react directly to the male's actions to protect the group and not only to their calls."

Female putty-nosed monkeys only have one general alarm call, which consists of a chirping noise. The researchers observed that this chirping continued until the male showed the typical mobbing behavior designed to scare off predators, and only then would the females retreat with their offspring to safety. Interestingly, male alarm calls alone did not influence their behavior.

Communication linked to goal achievement

Stephan believes this is an indication that female putty-nosed monkeys are using intentional communication, as the duration and intensity of their alarm calls are linked to reaching a specific goal, i.e., to manipulate the male into defending the group. As she explains, "this is the first time that anyone has observed animals checking that their goal has been achieved and adjusting their own behavior accordingly." Although the males have a wider repertoire of vocal sounds, for example special [alarm calls](#) for various situations, females still seem to use more complex cognitive skills with just one type of call.

Further investigations are planned to demonstrate which evolutionary pathways led to the differences in sounds used for communication by [males](#) and females. The [evolutionary biologist](#) believes that male communication is also influenced by pressures relating to sexual selection. More research will be carried out into whether the good reputation of a male for being an effective protector leads to more offspring in the long term as the females prefer him as their mate.

More information: Frederic Mehon et al, Intentional Alarm Calling in Wild Female Putty-Nosed Monkeys (*Cercopithecus nictitans*), *Animal Behavior and Cognition* (2022). [DOI: 10.26451/abc.09.04.02.2022](https://doi.org/10.26451/abc.09.04.02.2022)

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