RESEARCH ARTICLE

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Inter-group relationships influence territorial defence in mountain gorillas

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- 1. Background, what is known
- 2. Gap, unknown, problem
- 3. Research aim, question, hypothesis
- 4. Approach, study system, methods
- 5. Key results, important stats/numbers
- 6. Conclusion, answer the question, fill the gap
- 7. Broader implications, meaning, recommendation

Abstract

1. Many species show territoriality, in which territory owners have exclusive or priority use of a region. In humans, tolerance of others within our space also depends greatly on our social relationships with them. This has been hypothesized as one potential driver of the evolution of long-term, inter-group relationships, through enabling shared access of resources and easing disputes over space.
2. However, extremely little is known about the importance of social relationships between neighbouring groups in non-humans for how space is used and shared.
3. Using 16 years of data on the simultaneous movement and interaction patterns of 17 mountain gorilla groups, we investigated how the occurrence of aggressive and affiliative behaviour during inter-group encounters was influenced by both their social and spatial context.
4. We found evidence of territorial defence, with rates of aggression increasing towards the centre of home ranges. Groups which had previously split from each other showed higher levels of affiliation during encounters with each other and experienced lower levels of aggression when within the other's peripheral home range. However, encounters within core areas of the home range consistently elicited higher aggression, regardless of the groups' history. Our findings indicate that not only are the social relationships between groups retained after they split from one another but also that these relationships enable groups to access certain areas with a reduced risk of aggression.
5. This suggests that reduced aggression when accessing areas within neighbours' home ranges may be an advantage for the maintenance of inter-group relationships and a potential driver in the evolution of long-term, post-dispersal relationships and complex multi-level societies.

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ORIGINAL ARTICLE

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Arboreal monkeys facilitate foraging of terrestrial frugivores

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Abstract

Terrestrial animals feed on fruit dropped by arboreal frugivores in tropical forests around the world, but it remains unknown whether the resulting spatial associations of these animals are coincidental or intentionally maintained. On Barro Colorado Island, Panama, we used a combination of acoustic playback experiments, remote camera monitoring, and GPS tracking to quantify the frequency of such interactions, determine who initiates and maintains spatial associations, and test whether terrestrial animals adopt a strategy of acoustic eavesdropping to locate fruit patches created by foraging primates. Indeed, 90% of fruits collected in fruit fall traps had tooth marks of arboreal frugivores, and terrestrial frugivores visited fruit trees sooner following visits by GPS-collared monkeys. While our play back experiments were insufficient to support the hypothesis that terrestrial frugivores use auditory cues to locate food dropped by arboreal primates, analyses of movement paths of capuchin monkeys (*Cebus capucinus*), spider monkeys (*Ateles geoffroyi*), and coatis (*Nasua narica*) reveal that observed patterns of interspecific attraction are not merely a byproduct of mutual attraction to shared resources. Coatis were significantly more likely to initiate close encounters with arboreal primates than *vice versa* and maintained these associations by spending significantly longer periods at fruiting trees when collared primates were present. Our results demonstrate that terrestrial frugivores are attracted to arboreal primates, likely because they increase local resource availability. Primates are often among the first species in a habitat to be extirpated by hunting; our results suggest that their loss may have unanticipated consequences for the frugivore community.

Abstract in Spanish is available with online material.

KEYWORDS

attraction, camera trapping, eavesdropping, GPS tracking, interspecific associations, Panama, tropical forest