

It's dog eat dog on the canine social ladder

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The study focussed on a group of wild dogs living on the outskirts of Rome.
Credit: Simona Cafazzo

Climbing the social ladder is a ruff business for dogs, new research shows.

Top dogs in a pack are known to assert their dominance, but scientists studied a group of free-roaming mongrels and found high levels of [aggression](#) in the middle of the dominance hierarchy.

Most theories predict more aggression higher up the ladder. However, the researchers say the difficulty of working out the pecking order in the crowded middle leads to aggression.

The research was carried out by the University of Exeter (UK) and by the Veterinary Service of the Local Health Unit Rome 3 (Italy).

"Our results reveal the unavoidable costs of climbing a dominance hierarchy," said Dr. Matthew Silk, of the Environment and Sustainability Institute on the University of Exeter's Penryn Campus in Cornwall.

"In the middle of the hierarchy—where it's harder to predict which animal should be dominant—we see lots of aggression."

Professor Robbie McDonald said: "Fighting over food and mates uses energy and time and can lead to injuries, so hierarchies play an important role because animals know their place without needing to fight."



The study focussed on a group of wild dogs living on the outskirts of Rome.
Credit: Simona Cafazzo

The year-long study examined a pack of 27 mongrel dogs that roamed freely in the suburbs of Rome.

The dogs did not live with humans, although they relied on humans for food.

Their hierarchy was based on age and sex, with adults dominant over younger dogs and males dominant over females of the same age group.

"Although fights within a social group of free-roaming dogs are usually characterised by low-intensity aggression, the middle of the hierarchy is occupied by young males of similar size and age, among whom nothing is definitive and for whom the challenge is to gain rank," said Dr. Simona Cafazzo, of the University of Veterinary Medicine, Vienna.

"Our results confirm that these [dogs](#) have an age-graded [dominance hierarchy](#) similar to that of wolves," added Dr. Eugenia Natoli, of the Veterinary Service of the Local Health Unit Rome 3.

Dominant behaviour included a stiff, upright body, holding the head and tail high and laying a paw on another dog's back.

Submissive behaviour included avoiding eye contact, holding the head and ears low and lying down with the chest and stomach exposed.

The paper, published in the journal *Proceedings of the Royal Society B*, is entitled: "Elevated aggression is associated with uncertainty in a network of dog [dominance](#) interactions."

More information: Elevated aggression is associated with uncertainty in a network of dog dominance interactions, *Proceedings of the Royal Society B*, [rspb.royalsocietypublishing.org1098/rspb.2019.0536](https://rspb.royalsocietypublishing.org/doi/10.1098/rspb.2019.0536)

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