

Letter

Ecological correlates of the spatial co-occurrence of sympatric mammalian carnivores worldwide

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Abstract

The composition of local mammalian carnivore communities has far-reaching effects on terrestrial ecosystems worldwide. To better understand how carnivore communities are structured, we analysed camera trap data for 108 087 trap days across 12 countries spanning five continents. We estimate local probabilities of co-occurrence among 768 species pairs from the order Carnivora and evaluate how shared ecological traits correlate with probabilities of co-occurrence. Within individual study areas, species pairs co-occurred more frequently than expected at random. Co-occurrence probabilities were greatest for species pairs that shared ecological traits including similar body size, temporal activity pattern and diet. However, co-occurrence decreased as compared to other species pairs when the pair included a large-bodied carnivore. Our results suggest that a combination of shared traits and top-down regulation by large carnivores shape local carnivore communities globally.

Supporting Information

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Cover Caption: Fowler's toad (*Anaxyrus fowleri*), an ectotherm tested for acclimation abilities

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