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Wolf personalities, ecosystem impacts, and the possibility of wolf cultures

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Abstract: 250 words

Animal personalities can modulate ecosystems, but the impact of individual predator personalities is largely unexamined. To assess how predator personalities can alter ecosystems, we examined wolf predation of beaver, which are a consummate wetland engineer. We compared wolf kill rates (beavers killed per day) and wolf ambushing rates (ambushing attempts per day) from wolves in the same social groups, same age or age class, operating under identical or similar habita conditions. This approach

reduces the effect of certain confounding parameters (e.g., prey density, environmental conditions) and allows an assessment of the role of wolf predation personality. We found substantial variation in pack member kill rates and ambushing rates, with some wolves exhibiting kill rates and ambushing rates that were 229% and 263% higher than other pack members. This wolf-beaver-wetland dynamic provides an example of how predator personalities, manifested through differences in kill rates of ecosystem engineers, can alter ecosystem services. Hence a fraction of wolves in a population with strong 'beaver-hunting' personalities can be disproportionately responsible (relative to the entire wolf population) for the outsized ecological effects that result from preying upon beaver. This finding raises the possibility of wolf cultures because wolf personalities favor the development of consistent, intraspecific differences in behavior between groups or populations that are a consequence (at least partially) of social learning and are not directly caused by environmental or genetic differences. We exam what wolf cultures might look like and their potential importance for conservation and management.