

Effect of scavenging on predation in a food web

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Abstract

Scavenging can have important consequences for food web dynamics, for example, it may support additional consumer species and affect predation on live prey. Still, few food web models include scavenging. We develop a dynamic model that includes predators, scavengers, live prey, and a carrion pool to show ramifications of scavenging for predation in simple food webs. We explicitly model carrion biomass and scavenging behavior and investigate the effect of scavenging for predation under different assumptions. Our modeling suggests that the presence of scavengers can both increase and decrease predator kill rates and overall predation in model food webs and the impact varies (in magnitude and direction) with context. In particular, we explore the impact of the amount of dynamics allowed in the predator, scavenger, and prey populations as well as the direction and magnitude of interference competition between predators and scavengers. We provide a road map to the different outcomes and link these theoretical outcomes to evidence from different empirical studies.

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