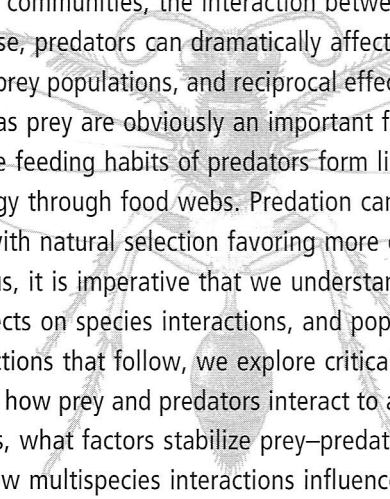


7

Prey and predator interactions



In Chapter 4 we learned how plants and herbivores can influence each other's abundance, distribution and evolution. Here we consider another important inter trophic level relationship that can have widespread ecological and evolutionary effects on biological communities, the interaction between prey and their predators. In an ecological sense, predators can dramatically affect the abundance and distribution of their prey populations, and reciprocal effects of prey on their predators are also inevitable, as prey are obviously an important food source for predators. Likewise, the diverse feeding habits of predators form linkages that are responsible for the flow of energy through food webs. Predation can also be a powerful evolutionary force with natural selection favoring more effective predators and less vulnerable prey. Thus, it is imperative that we understand the process of predation and its complex effects on species interactions, and population and community dynamics. In the sections that follow, we explore critical elements of prey–predator interactions, namely how prey and predators interact to affect each other's long-term population dynamics, what factors stabilize prey–predator interactions and promote their persistence, how multispecies interactions influence the role of predation in complex food webs, the contribution of behavior to a predator's total impact on prey populations, and how predators and prey have reciprocally influenced each other's evolution.

