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Differential effects of structural complexity on predator foraging behavior

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The choice of predator foraging mode has important consequences for ecological communities. Foraging mode designations are often made on the basis of predator activity, yet activity can be affected by various environmental stimuli independent of changes in foraging mode. Structural complexity can reduce predator activity by either interfering with predator vision and mobility or as part of a foraging mode shift. We examined the effects of simulated aquatic vegetation on multiple behaviors of 2 aquatic insect predators to distinguish between these 2 possible outcomes. Larvae of the diving water beetle (*Dytiscus* spp.) shifted from an active predator in treatments without structure to a sit-and-pursue (SAP) predator in treatments containing structure, as indicated by a decrease in activity and prey encounter rates and an increase in probability of capture. This trade-off between encounter rates and probability of capture resulted in an equal number of prey captures among the treatments. Dragonfly nymphs (*Anax junius*) remained SAP predators in both treatments, although interference from the simulated vegetation significantly reduced activity. Structure also slightly decreased the number of aeshnid prey captures. Physiological attributes of the predators, such as mode of respiration and method of prey detection, seemed to influence foraging behavior. This study emphasizes the benefits of measuring multiple predator behaviors when classifying predators to particular foraging modes.
Key words: activity, *Anax junius*, artificial vegetation, behavioral plasticity, dytiscid larvae, tadpole. *[Behav Ecol 20:313–317 (2009)]*