

Effects of aquatic insect predators on zooplankton in fishless ponds

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Abstract

We removed the surface-orienting aquatic insects from a fishless pond to determine their predation effects on zooplankton behavior and size structure. A second fishless pond served as the unmanipulated reference system in this two year study. In the reference pond and the treatment pond prior to manipulation, daphnids exhibited pronounced diel vertical migrations. Following the removal of surface-orienting aquatic insects from the treatment pond, daphnid migration changed to a reverse migration strategy that was significantly different from that observed in the reference system. Average daphnid body size increased significantly following predator removal in the treatment system. Our data indicate that predation by aquatic insect predators, such as notonectids and dytiscids, may affect daphnid migration behavior in fishless systems. Vertical migration by daphnids may allow coexistence with surface-orienting insects in ponds that are deep enough to provide a spatial refuge from these predators.