

# Diet comparison in three tadpole species, *Rana sylvatica*, *Bufo americanus*, and *Pseudacris crucifer*, in a northern temperate climate

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## Abstract

The natural diet of northern temperate tadpoles is a largely neglected area of study. We investigated the natural diets in three anuran larvae, the wood frog (*Rana sylvatica*), the American toad (*Bufo americanus*), and the spring peeper (*Pseudacris crucifer*), from several ephemeral ponds in northern Minnesota. Previous laboratory studies suggest that these species, as well as others with similar mouthparts, are herbivorous suspension or filter feeders. Our results suggest that all three species are active grazers upon the periphyton (aufwuchs or algal material) found on aquatic vegetation and submerged substrates and detritus. The diet of these tadpoles was primarily composed of detritus: 73.3 % in *B. americanus*, 73.9 % in *R. sylvatica*, and 82.1 % in *P. crucifer*. *R. sylvatica* consumed a statistically greater proportion (by volume) of invertebrate foods than the other tadpole species, lending support to their suggested predacious feeding behavior. However, this pattern is most likely biologically insignificant, as these foods made up < 2 % of the diet. The remainder of the identifiable organic foodstuffs were counted and analyzed to find possible interspecific trends. Diatoms made up the highest proportion of these identifiable items; diatoms contain large quantities of lipids that tadpoles may utilize as an energy source. The green and blue-green algae comprised the majority of the remaining identifiable foodstuffs. These data bring into question the nutritional contribution made by detritus and periphyton to the development of tadpoles in the life history of the frog, and the trophic positioning of anuran larvae in ephemeral aquatic ecosystems.