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Effects of Leaf Diversity on Tannin Concentration and Water Quality

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Effects of Leaf Diversity on Tannin Concentration and Water Quality

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Most trees leaves contain chemicals called tannins, which vary by species. Tannins are used by trees as a defence mechanism against herbivory and plant pathogens. When trees shed their leaves, tannins are left in the leaves and can leach into freshwater ecosystems, where they can have adverse effects on tadpoles. This project has been conducted to look into the effects different mixtures of leaves have on tannin concentration and dissolved oxygen concentration. We hypothesize that the different leaf combinations will change the tannin concentration relative to the tannin concentrations of single leaf species. We tested this using three leaf diversity levels, including one, two, and four species. We used different combinations of species for each diversity level drawn from a species pool of 6 species to prevent bias from species composition. In the mixtures of four leaf species, we saw a reduction in oxygen concentration when compared to water with single species. This indicates that characteristics of different leaf species may interact to alter water quality.