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Amphibian oviposition site selection preferences in response to leaf litter chemical characteristics

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Leaf litter plays an important role in the forest ecosystem, such as impacting various processes and hindering erosion. While there is variability in the chemical and nutritional properties of leaf litter, the effects that these variables have on organisms within the environment is not well known. These different nutrients and compounds could play a role in the behavior of organisms, specifically animals that utilize ponds within the ecosystem, since the tree leaves leach compounds into the water they fall in. One type of these compounds are tannins, a type of organic secondary compound that has deleterious effect on tadpoles. Amphibians have complex life cycles, and one of their life stages involves laying their eggs in a body of water. Female frogs have been observed to oviposit in ponds where their offspring will have the highest chance of survival, which in turn will increase their fitness in the environment. In order to evaluate this behavioral response, we will be placing 45 wading pools at LA Tech South Campus. These pools will vary in the species of leaf litter input with fifteen different tree species treatments, replicated three times. We will be observing the water quality (conductivity, pH, dissolved oxygen) over time within each pool. We will be measuring the response of the tree frogs by counting the number of eggs laid in each pool and examining effects of the treatment by looking at the correlation between oviposition site selection and water quality, leaf chemistry, and treatment type.