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2021

Species in Vernal Pools: ANOVA

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Species diversity in vernal pools ANOVA exercise

Vernal pools are very important breeding areas for freshwater aquatic vertebrates and invertebrates in the spring. Vernal pools are temporary repositories of fresh water, that will have dried up by early summer. However, they are very important locations of fresh water, food resources and concealment in early spring. They host a wide variety of species, and are crucial breeding ground resources. Some species depend entirely on vernal pools for their life cycles, even though vernal pools may cycle annually between completely dry and wet habitats. In our lab, we have sampled vernal pool invertebrates for several years, and documented species such as tadpole shrimp, copepods, Ostracods, Daphnia, Hydra, Nematodes, Rotifers, and others. A great help in this effort has been the [Guide to NH vernal pools](#), the [Field guide to the animals of vernal pools](#), as well as aquatic invertebrate field guides.

We questioned whether different pools would have different species diversities (measured as the total number of species counted, in different samples. All sampling was conducted in early spring. The data are below.

Pool 1: 3, 1, 6, 7, 9, 13, 10, 12, 11, 12, 5

Pool 2: 5, 3, 8, 8, 6, 9, 6, 9, 7, 9,

Pool 3: 3, 6, 5, 7, 8, 9, 8, 6, 9, 8

Pool 4: 3, 5, 8, 3, 7, 5, 4, 6, 4, 5

Differences in numbers of species could be attributed to temperature of the water, shape and/or size of the pool, or other structural features of the pool. Conduct an analysis of variance of this data, and if warranted, a Tukey Kramer test. Examine a boxplot (or the plot of the Tukey Kramer results) to give you some intuition of what might be going on. Explain why the anova found what it did, making arguments about variability within the different pools.