Multivariate analysis of herbaceous and canopy cover on Long Island Central Pine Barrens

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The Central Pine Barrens Region on Long Island, New York depends on frequent fire treatments to maintain a healthy ecosystem and for the past 75-100 years there has been aggressive fire suppression due to stigma surrounding forest fires. Using plant species survey data from previous studies done at Brookhaven National Lab (BNL)along with BNL's records of fire occurrence, both wildfire and prescribed, the percentage of ground covered by each plant species at each plot was calculated. I was able to then conduct a Nonmetric Multidimensional Scaling (NMDS) ordination and a Permutational Multivariate Analysis Of Variance (PERMANOVA) using a statistical computing and graphics software called R-Studio; to determine if there is a statistical difference in both the herbaceous and woody species ground cover in different frequencies of fire treatments. The fire treatments considered are: frequent fires (more than 1), once burned, and control plots (no burn). These findings can determine which fire treatments have the greatest impact on growth and canopy cover for the different forest types on Long Island, which include pitch pine forests, coastal oak forests, and different mixes of the two. This can help inform forest management decisions throughout the Long Island pine barrens.

During my time at BNL I have gained experience conducting field work and data collection and helped increase my proficiency in data analysis.