White-footed mice play an important role in the ecosystem. White-footed mice help spread various kinds of fungi by eating the sporing bodies and excreting spores. Forest trees’ ability to take up nutrients is enhanced by the mycorrhizal associations formed by these fungi. The abundance of vegetation, and how it varies across a landscape, may be decisive to habitat use by small mammal populations. This study addressed the relative importance of vegetation types and their abundance/heights to small mammal population density. During summer, we collected data on mouse populations and vegetation structure at 16 experimental sampling plots. We hypothesized that mice density would be higher in areas where the vegetation is taller than 35 centimeters. We collect data at 16 locations over an 8 week period in the pine barrens forest of BNL. We concluded that there is a significant linear relationship between vegetation heights and mice density at sites with vegetation taller than 35cm. There was no linear significant relationship between mice density and vegetation heights less than 35cm.

Methods
Study Area: Brookhaven National Laboratory, Long Island, New York
Study Period: June 12, 2017 to August 4, 2017
Small Mammal Surveys:
At each of the 16 sites we established an 8x8 grid of Sherman traps spaced 5 meters apart, 64 traps per grid. Traps were baited with a peanut butter/oat mixture. Animals were trapped at each site over four consecutive nights during alternate alternate weeks for a total of 9 days (or 512 trap nights/site, 8,192 total trap nights). Traps were checked each morning, captured animals were weighed, sexed, and marked with individual ear tags. All attached ticks were removed and preserved.

Vegetation Measurements:
A 35 meter linear transect was placed down the middle of each grid. Vegetation heights were measured at every 5 meters, 8 measurements were taken along each transect.

Analysis:
Program DENSITY Version 5.0 was used to predict the size of white-footed mice population within the surrounding hectare using the spatially explicit capture-recapture data collected (Efford 2012).

Discussion
• Mice optimum habitat is dense shrub-land
• At sites with vegetation higher than 35cm, more mice were captured over the one week span of trapping at that site.
• As the vegetation height decreased to below 35cm, mouse populations plummeted.
• Low vegetation heights are subject to change overtime due to growth.
• Population size in areas of low vegetation will change subsequently to vegetation growth and mice reproduction.
• Contrarily, mouse populations may increase in areas with vegetation higher than 35cm due to vegetation fragmentation.
• Predation affects low population of mice in areas lacking dense vegetation.

References