The purpose of this project was to create a series of sample plots on O-Hill that can be used to study and assess the ecological health of the O-Hill forest. These sample plots were requested by Professor Hank Shugart, Department of Environmental Sciences for use in potential future long-term research project.

Methodology for the number and location of sample plots was developed in collaboration with Professor Shugart and The Office of the Architect (OAU). It was determined that one sample plot is needed for each hectare of area being studied. Each sample plot is a circle with a radius of 16 meters (1/8 hectare). OAU staff analyzed the land cover in the O-Hill area and developed a study area extent, the study area was broken up into 10 smaller areas. The area of each study area was calculated in hectares to determine the appropriate number of sample plots in each area. Using ArcGIS symbology tools, sample plot centroid points were dispersed randomly across each study area. The points were then buffered by 16 meters to create the sample plot areas. The sample plot areas were examined with an aerial photograph background to determine possible locational conflicts. Several sample plot areas were moved slightly because 1) they overlapped with another sample plot area 2) a portion of the sample plot was outside the UVa property line or 3) a portion of the sample plot overlapped an existing building. Once the locations were corrected, attributes for each sample plot were created:

Samp\_ID – Unique sample plot ID based on the plot’s study area and location within the study area. The first two characters in the ID is the study area ID (A1, A4, B3, etc.), followed by a number, generally assigned starting in the Northwest of the study area and descending down to the southeast of the study area

X – The X-coordinate in State Plane Coordinate System, Virginia south, feet, NAD83.

Y – The Y-coordinate in State Plane Coordinate System, Virginia south, feet, NAD83.

Lat – The Y-coordinate in decimal degrees, NAD83.

Long – The X-coordinate in decimal degrees, NAD83.

Once all the necessary data were developed, a series of maps was created to clearly show the locations of the sample plots. In all, eleven maps were created. The first is a general overview map that shows the study area extent, the 10 study areas, and the sample plot locations. Following this, one map was created for each study area using a common scale and a 2009 aerial photo as a backdrop. These maps show the sample plot areas and label them with their unique ID and Lat/Long position.