A GIS Sampling Assistant Program for Forest Inventory Point/Plot Schemes

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Accurate forest inventory must include unbiased and precise measurement of a number of sampling points. The theoretical basis of sampling has been exhaustively studied and forest measurement techniques have a firm statistical basis. However, it is often the case that field difficulties result in abandonment of a rigorous application of all the assumptions of the statistical theory. In a field setting it is generally difficult to select truly random sample points. This paper outlines an ARC-GIS8.x tool that allows selection of completely random points in any chosen area, random points placed within grid squares to cover an area, or systematic grids of points from a random starting position. Tools are also available to perform stratified random sampling with number of points in the strata weighted by area of the strata. Outputs of the program are plot centers or fixed area plots. Plots are output as a separate shapefile (overlays) containing square or round polygons of selected sizes that are centered on the points. The attribute tables for the point and plot feature layer has a point ID number, x-coordinate, y-coordinate of the center point, map units, projection, land class code, and land class description. These attributes can then be utilized as waypoints in order to navigate to all sample points with a GPS device.

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