

Estimating multiple forest attributes simultaneously using Landsat imagery, inventory plot data, and the k-Nearest Neighbors method

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Abstract. The k-Nearest Neighbors method is a non-parametric technique that has been used with satellite image data to predict a wide range of forest attributes. One of its potentially most advantageous features is that it is multivariate in nature; i.e., it permits simultaneous estimation of all attributes available in the reference data. The study focuses on investigating the bias and precision of areal estimates of forest area, volume, basal area, and trees per unit area. In the particular, the focus is on bridging the gap between large scale strategic forest inventories and stand-level management inventories.