

# Characterizing Forest Composition of the Allegheny Mountains Using Extensive Forest Inventory Data

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Abstract: There is a general lack of information that describes forest composition at the landscape level, e.g. for entire physiographic provinces. Studies in the ecological literature usually are local in scope and combining data from such studies is questionable due to different design methodology. The USDA Forest Service conducts extensive forest inventories, but the data are typically reported according to political boundaries (counties), have limited ecological scope, and include collapsed forest cover classifications. The Northeastern Forest Experiment Station, Forest Inventory and Analysis (NE-FIA) project is developing a system that addresses these limitations by using extensive forest inventory data in a new way. A prototype of the system is being tested on forests of the Allegheny Mountains of Pennsylvania, Maryland, and West Virginia. The approach combines Geographic Information Systems (GIS) and Relational Database Management Systems (RDMS) technology. The GIS serves three purposes: 1)compiles spatial information for all land uses, 2)extracts NE-FIA data for the study region, and 3)produces maps displaying study results. As the system develops further, the GIS will prove to be a valuable tool for quantifying more complex topological relationships. The RDMS stores extensive inventory data for individual trees and plots measured by NE-FIA on forest land. Once extracted, the inventory data are used to characterize forest composition. For example, a variety of importance values and diversity measures can be computed and then used to describe the region's forests in terms of major association, slope, aspect, terrain position, drainage class, disturbance history, and other variables. This poster depicts initial results of using the prototype for the Allegheny Mountains.

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