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A MULTISCALE STUDY OF VASCULAR PLANTS IN A NORTH CAROLINA PIEDMONT FOREST

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Abstract. We present a data set collected in 1989 of vascular plant occurrences in overlapping grids of nested plots in the Oosting Natural Area of the Duke Forest, Orange County, North Carolina, USA. The purpose of these data is to allow the study of vascular plant biodiversity at multiple spatial scales, in terms of both grain and extent. There are eight distinct plot sizes (grains), with size four times that of the next smallest, from 0.015625 m² to 256 m². Larger grains are possible by aggregating adjacent plots. Extents (linear distances between plots) range from 1 m to 362 m. In addition, trees were mapped over the entire 256 m × 256 m study site in 1990, and again in 1998 to assess the effects of Hurricane Fran in September 1996. Tree species, diameters, and damage descriptors (1998 only) were also recorded. Soils were gathered from the entire grid in 1990 and analyzed for nutrients, pH, and organic matter. These data have already been used to assess scale dependence of plant diversity, to evaluate new methods for the study of spatial scale, and to study the importance of spatial scale on the interpretation of hurricane damage to forests. They are presented as a case study for future scale research.

Key words: distance decay; hurricane; North Carolina; soil nutrients; spatial scale; species–area relationships; tree mapping; vascular plants.