

Influence of Soil Physico-chemical Properties on the Distribution of Woody Tree/Shrub Species in South-Southern Nigeria

A.I. Iwara¹, B.S. Gani², G.N. Njar³ and T.N. Deekor⁴

1. Department of Geography, University of Ibadan, Ibadan, Nigeria

2. Department of Agricultural Economics, University of Ibadan, Ibadan, Nigeria

3. Department of Geography and Regional Planning, University of Calabar, Calabar, Nigeria

4. Department of Geography and Environmental Management, University of Port Harcourt, Nigeria

KEYWORDS Soil Properties. Species Distribution. Species Density. Tree/Shrub Species. Dominance. Relative Frequency

ABSTRACT Variations in soil physical and chemical properties influence the speciation and distribution pattern of flora in a given environment. Plants species like animals and humans alike are attracted to locations where conditions are favourable to them. The differences in the distribution and abundance of plant species in any environment are therefore indications of the variation in biophysical components of the environment such as soil, water, topography among others. The present study examined the influence of soil properties on the distribution of woody tree/shrub species. Quadrat method was employed to collect soil and vegetation data from fifteen randomly selected plots of 20 m x 20 m. Vegetation result showed that *Elaeis guineensis*, *Anthocleista vogelii*, *Alstonia boneii*, *Baphia nitida*, *Dialium guineensis*, *Pycnanthus angolensis*, *Havea brasiliensis*, *Pentacleithra macrophylla*, *Musanga cecropioides* and *Anthonata mycrophylla* were the most dominant tree/shrub species in the area. The result of step-wise multiple regression analysis ($P < 0.05$) identified the combination of Silt + CEC + BS, Av. P + silt, CEC + OC and silt + CEC as well as individual soil properties of Av. P, TN, silt and CEC as soil variables that influenced the distributional pattern of tree/shrub species in the area. It was concluded that the spatial distribution and densities of tree/shrub species in area was due to the variation in the levels of essential soil nutrients within their range of tolerance.