

EVALUATION OF TREES SPECIES DIVERSITY, ABUNDANCE AND SOIL PHYSICOCHEMICAL PROPERTIES OF UKPON RIVER FOREST RESERVES, CROSS RIVER, NIGERIA.

Abstract

The current status of species diversity, composition and abundance provides guidance for their management and assessment of their ecological usefulness.— In this study, trees species diversity, abundance and soil properties of Ukpon River Forest Reserve was assessed. Line transect method was used to establish 4 sample plots of 50 x 50 m. Data on vegetation were collected using the appropriate tool and soil samples from the plot were collected with the aid of soil auger. Tree species composition, abundance and diversity indices were estimated using the appropriate formulae and soil samples analyzed following standard methods. A total of 194 individuals in 60 species belonging to 26 families were encountered in the study area. The dominant families are Leguminaceae, Moraceae, Fabaceae, Burseraceae, Apocynaceae, Calsalpinaceae and Euphorbiaceae.— The total basal area estimated for tree species was 147.615 m² with *Bombax bounpozen* having the highest of 11.09 m² and relative dominance (RDo) of 7.51% while *Piptadeniastrum africana* has the highest relative density (RD) of 7.73% and importance value index (IMI) of 15.63%. Based on their relative density, 68.34% of the trees were Rare, 18.33% Threatened or Endangered, 5% Abundant/-Occasional and 3.33% Frequent. The study had a high Shannon – Weiner index value of 3.04 and Margalef richness of 20.67 and low dominance index of 0.06. The soil properties such as cClay, oOrganic matter, pPhosphorus, cCalcium, cCation eExchangeable capacity and bBase sSaturation were high. The pH value of 5.77 shows the soils were moderately acidic. These properties have been shown to improve soil fertility status and moisture content needed for plant growth. Although the tree species diversity in the study area was high, some species appears to have been threatened while majority were rare, so sustainable conservation effort should be geared towards ensuring their continuous existence.

Keywords: Tree species, abundance, diversity indices, soil properties, Forest Reserve