

Biodiversity of Regenerating Woody Species in Abandoned Plantations of Different Ages

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Abstract

Abandoned plantations of *Pinus caribaea*, *Tectona grandis*, *Eucalyptus cleoziana* and *Eucalyptus camadulensis* with their adjacent natural vegetation were studied in twenty, 2500m² sample plots laid in three Local Government Areas of Kaduna State. Floristic enumeration for all woody species above 50cm (0.5m) high was carried out within each plot. The species composition of the study plots showed that sixty five plant species, spread in twenty five families and fifty genera were identified while two species could not be identified. *Isobertina doka* had the highest stem density of 1219 per hectare while *Piliostigma thonningii* had the highest frequency distribution. The family *Caesalpinoideae* had the highest number of species. The height, Basal Area and Girth of the undergrowth species of the plantation were higher than those from the regrowth vegetation. Shannon Weiner's indexes of diversity revealed that diversity index for the regrowth (2.646 and 2.640 in plots 12 and 13) vegetation were higher than those from exotic plantation plots. Canonical Correspondence Analysis (CCA) revealed that Age and Management were important factors that influence plant species distribution in the study plots. In conclusion, the practice of mono-culture plantation of exotic plant species has the capacity to reduce plant species diversity, but this diversity can recover when these plantations are abandoned. We recommend that ecological restoration practices can be applied to facilitate rapid recovery of plant species in abandoned exotic plantations.