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## Demographic Structure and Population Biology of *Albizia amara* and *Terminalia brownii* as the Dominant Tree Species in Elsareef Reserved Forest, Kordofan Region, Sudan

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### Abstract

The present study was conducted in Elsareef reserved forest, Kordofan region, Sudan during 2009–2011. We investigated the demographic characteristics of *Albizia amara* and *Terminalia brownii* as the dominant tree species in the forest. We also investigated the effect of illegal logging as the main threat to the species structure and population density. Data was collected from inventory work where systematic sampling method was adopted. A number of 40 sample plots (400 m<sup>2</sup>) along line transects were placed. Tree species, growth form, and vitality were recorded in addition to diameter at breast height (DBH) (cm) and heights (m). The regeneration life stages, vitality, grazing and browsing damage were recorded too. Data was analysed using SPSS 18.0 and Microsoft Excel Office. Tree numbers, density, proportions, dominance and other parameters were calculated. The diameter class distribution of *Albizia amara* was enhanced but the diameter class distribution of *Terminalia brownii* was fluctuated. The causes of regeneration mortality were: competition, drought, frequent wind storms and grazing, while termites damage earlier stages of seedling and sapling. *Albizia amara* recorded the highest proportion of stem (52 %) followed by *Terminalia brownii* (29 %). However, *Terminalia brownii* scored the highest proportion of basal area (42.2 %) followed by *Albizia amara* (31.5 %) and *Sclerocarya birrea* (21.0 %). The effect of recurrent wind storms and illegal logging on the species population was not significant. The falling of trees by wind storms provided a large opportunity for collection of dry and dead trees by people, but in contrast it increased the opportunity of people for illegal logging. The study came up with recommendations which might help conserving and enhancing diversity of the species which reproduce the dynamic of the forest.

**Keywords:** Demographic structure, disturbance, Elsareef reserved forest, forest structure, regeneration, sustainable forest management