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Assessment of Regeneration Situation in Natural and in Plantation Parts of Elsareef Reserved Forest

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Abstract

The present study was conducted in Elsareef reserved forest, Kordofan region, Sudan in 2011. We assessed the current structure of woody species regeneration and their demography in natural and plantation parts of the Elsareef reserved forest and their capability for continuity and recruitment. We also assessed the effect of silvicultural influences as well as the effects of the most recurrent natural disturbance on regeneration (population density and mortality proportion). Data was collected from inventory work where systematic sampling method was adopted. A number of 40 sample plots (400 m^2) along line transects were placed. Tree species, growth form, and vitality were recorded in addition to regeneration life stages counting and measurements. Moreover, grazing and browsing damage were recorded. Data was analysed using SPSS 18.0 and Microsoft Excel Office. Tree numbers, density, proportions, dominance and other parameters were calculated. There are 6 regeneration species in natural parts and 8 regeneration species in plantations. The total number of regeneration species in the whole forest is 10 species. Three species have grown in both parts: *Albizia amara*, *Terminalia brownii* and *Acacia senegal*. Three other species were found only in the natural part: *Boscia senegalensis*, *Acacia tortilis*, and *Acacia nilotica*. Four further species were found only in the plantation part: *Ziziphus spina-christi*, *Grewia tenax*, *Adansonia digitata* and *Tamarindus indica*. Competition, drought, frequent wind storms and grazing contributed to the highest mortality of regeneration in natural part. However, in the plantation part, the mortality of species observed referred to the soil condition adverse climate conditions. Termites caused damage at the earlier stages of seedling and sapling development. The study ended with recommendations which help the decision maker for better choice of successful silvicultural influences in the context of enhancing stability, multifunctionality and diversity of this forest.

Keywords: Demographic structure, Elsareef reserved forest, forest structure, Regeneration, sustainable forest management, seedlings mortality, silvicultural influences

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