Tropentag, October 7-9, 2008, Hohenheim

"Competition for Resources in a Changing World:
New Drive for Rural Development"

Dentrometrical Characterisation of a Common Plant Species (*Anogeissus leiocarpa* (DC.) Guill. & Perr.) in Pendjari Biosphere Reserve and it's Surrounding Land (Benin)

Houehanou Thierry, Kindomihou Valentin, Houinato Marcel, Brice Sinsin

Abomey Calavi University, Laboratory of Applied Ecology, Benin

Abstract

Anogeissus leiocarpa is a dominant plant species of woodlands on non-flooded soils. This species is a more used fire wood in peripheral of the Pendjari Biosphere Reserve (PBR). The present study examines the dynamic of the species' population using the size class distribution in Pendjari Biosphere Reserve comparatively to surrounding areas.

Globally, 15 and 10 plots sized 30 m × 30 m were respectively established in PBR and its landuse area. Plots were established in landuse areas'riparian forest and the Reserve'mosaic forest–savannah. Dentrometrical parameters such as diameters of individuals which dbh ≥10 (d), basal areas, heights, size classes distribution of diameters and heights, densities of individuals which dbh <10 cm and dbh≥10 cm were calculated. Both zones were compared using the t-Student test (for diameters, heights and basal areas) and the Man-Whitnay test (for densities). The size class distributions of diameters were analysed using median dbh and Skewness' coefficient. Statistical analyses were performed using Minitab 13.2.

No significant change appeared in the small size class diameters. The big diameter classes (30–60 cm) showed important numbers of individuals in the landuse areas. Moreover the landuse showed higher Median dbh (14.09 versus 11.70 cm in the reserve) with the lower Skewness coefficient (ß1=0.48 versus 0.73 in the reserve). These results highlighted a positive asymmetry distribution by size class diameter in both zones. Big diameters individuals are more important in landuse area than in Reserve. A. leiocarpa population is younger in the Reserve than in landuse area where its habitats were reduced to the riparian forests. The class "8–12 m" showed the high frequency of individuals for both zones. These differed significantly for some dendrometrical parameters such as: **(i)** individuals' diameters (d = 17.82 vs 22.39 cm) with the lower values in protected area; **(ii)** density of individuals with dbh<10 cm (respectively D1=230.30 vs 104.76 stem ha^{-1}) and; **(iii)** density of individuals with dbh ≥10 cm (respectively D2=274.74 vs 176.19 stem ha^{-1}) with higher values in protected area. Basal areas and heights were identical. Our results indicated that A. leiocarpa would be threatened in the peripheral while apparently healthy in the Reserve.

Keywords: *Anogeissus leiocarpa*, Benin, dentrometrical parameter, size class distribution

Contact Address: Kindomihou Valentin, University of Abomey-Calavi, Laboratory of Applied Ecology, 05BP325, Cotonou, Benin, e-mail: vkindomihou@yahoo.fr