



Tropentag, October 6-8, 2009, Hamburg

“Biophysical and Socio-economic Frame Conditions  
for the Sustainable Management  
of Natural Resources”

## Assessment of Woody Species Diversity in Elain Reserved Forest, North Kordofan State- Sudan

MUNEER ELYAS SIDDIG ELTAHIR<sup>1</sup>, TARIG ELSHEIKH MAHMOUD<sup>2</sup>

<sup>1</sup>University of Khartoum, Gum Arabic Research Centre, Sudan

<sup>2</sup>University of Kordofan, Gum Arabic Research Centre, Sudan

### Abstract

The present paper was carried out in El Ain Reserved Forest and its surrounding buffer zones in North Kordofan State (Sudan) during 2008–2009. It was intended to investigate the woody species diversity in terms of richness, evenness and association in the area using relative abundance, similarity, dissimilarity and stocking density. Moreover, the study aspired to identify the prevailing species from taxonomic point of view, focusing on description and modern classification. The study merged ecological, taxonomical and socioeconomic dimensions to cover the stated objectives. Based on soil types and topography, five ecological zones were classified namely Gardud with no water catchments, Gardud with water catchments, Basement Complex, Mayaa, and Khor & Wadis. The study showed that Khor and Wadis zone is more diverse, rich in climbers and shrubs than the other zones. Association and similarity of woody species were common in all sites except in Mayaa that is dominated by one species (*Acacia nilotica*). The study identified 50 woody species belonging to 37 genera, 3 subfamilies and 20 families. The identified species are 35 trees, 13 shrubs and 2 woody climbers. Mimosoideae scored the highest frequency for genera and species. Five woody species were reported for the first time in the area. Other five species were found to be endangered. Four exotic species were recognised as well. The study reached to some recommendations which might help conserving diversity of woody species, improving forest potential and encouraging scientific research on ecosystem in the area. Accordingly, this may act as nucleus for an early warning system for detection of climate change depending on diversity of vegetation composition in the area.

**Keywords:** Climate change, diversity, evenness, richness, taxonomical dimensions, woody species