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## Wild Tree Species Diversity and Analysis of their Cultural Importance Value: Using a Community-based Protected Area in Northwestern Ghana

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### Abstract

Use of wild tree species by smallholder farmers for various purposes is crucially important for their daily livelihoods. However, the growing demand for these natural resources could lead to their overexploitation and environmental change. The aims of this study were to i) document wild tree species, uses and analyse their cultural importance, ii) investigate socio-demographic variables of smallholder farmers influencing their traditional knowledge on wild tree species and uses, and iii) examine smallholder farmers' perceptions about the establishment of the Wechiau Community-based Hippo Sanctuary (WCHS). 135 smallholder farmers were interviewed in nine villages belonging to the Waala and Birfor ethnic groups in the WCHS. The primary data were subjected to rigorous statistical analysis e.g. using Cognitive Salience index reflecting cultural importance and univariate analysis. Given the results of this study, the WCHS is enriched with 43 ethnoecologically important wild tree species belonging to 22 families and 41 genera. Also, eight topmost wild tree species in descending order of cultural importance included *Vitellaria paradoxa*, *Burkea africana*, *Diospyros mespiliformis*, *Bombax costatum*, *Parkia biglobosa*, *Pterocarpus erinaceus*, *Terminalia avicennioides* and *Acacia gourmaensis*. The family cultural importance for Fabaceae and Sapotaceae is predominantly high as reflected in the frequency and ranking of citations of wild tree species under these families by local informants. The 43 wild tree species cited by local informants were categorised into nine different uses including food (9 species), forage (30), firewood (40), medicine (6), construction (9), soil improvement (3), social use (2), gardening (5) and fiber/ropes (2). Among these use categories, firewood, forage, food and construction topped the list as the most culturally important to the smallholder farmers. The traditional knowledge on varied wild tree species and their uses was significantly affected by age of smallholder farmers ( $p < 0.05$ ), but not ethnicity and other socio-demographic factors. This study thus suggests the need for community-based conservation measures for sustainable management of natural resources for rural livelihood improvement in the tropics and sub-tropics.

**Keywords:** Community-based conservation: Cultural importance: Ecotourism: Hippo sanctuary: Smallholder farmers: Wild tree species