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Significance of Traditional Forest Management System in Biodiversity Conservation and Ecosystem Services Provision: Case Study of Osun-Osogbo Sacred Grove, Nigeria

JONATHAN C. ONYEKWELE¹, BERND STIMM², REINHARD MOSANDL², LAWAL AMADU¹,
ADEWALE O. AGBO-ADEDIRAN¹

¹*The Federal University of Technology, Dept. of Forestry and Wood Technology, Nigeria*

²*Technical University of Munich, Inst. of Silviculture, Center of Life and Food Sci. Weihenstephan, Germany*

Abstract

Many Nigerian communities have age-long traditional systems of site protection before the advent of conventional forest management in the country. Nigeria has rich indigenous traditions of nature conservation. The role of traditional forest-related knowledge and forest management systems are increasingly being recognised as important for biodiversity conservation. In addition to biodiversity conservation, traditional natural resources management has supported livelihoods for many generations through provision of ecosystem services. This study investigated and compared the biodiversity status of sacred grove, primary and degraded forests with the view of assessing the importance of traditional forest management system in biodiversity conservation and ecosystem services provision. Osun-Osogbo sacred grove, two primary and two degraded forests were involved. Eight 20 m × 40 m sample plots were systematically laid in each site. In each plot, trees with dbh ≥ 10 cm were identified and their dbh measured. Regeneration was assessed within 5 m × 5 m quadrat. Factors contributing to preservation of sacred groves and provision of ecosystem services were investigated using semi-structured questionnaire. Generally, sacred groves harboured richer biodiversity and played significant role in biodiversity conservation compared to primary and degraded forests. Osun-Osogbo sacred grove had the highest species richness (61), diversity index (3.54), regeneration richness (66 spp.) and high species evenness (0.66). The frequency of endangered tree species in sacred groves was high. Except species evenness, there were significant differences ($p \leq 0.05$) between the diversity indices of the study sites. The better biodiversity indices of Osun-Osogbo grove compared to primary and degraded forests are indications of its importance in biodiversity conservation. The preservation of Osun-Osogbo grove was secured through belief and fear of deity, preservation of culture, place of worship, etc. while factors promoting biodiversity conservation in the grove include preservation of home of deity, tree felling being abomination, etc. Some ecosystem services provided by sacred grove include: healing, protection and peace, tourism, employment provision, spiritual worship, revenue generation. However, the rules and taboos used to preserve the grove are crumbling due to modernisation, advent of Christianity and Islam. This must be addressed if sacred groves are to continue to play their important role in biodiversity conservation.

Keywords: Biodiversity conservation, ecosystem services, Nigeria, primary and degraded forest, sacred groves, traditional forest management