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for managing natural resources and a better life for all”

Assessing the ecological effectiveness of community forests for forest conservation in Inle Lake watershed, Myanmar

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Abstract

Community forestry is one of the most promising forest management practices for restoring degraded forests with the participation of local communities while also improving rural livelihoods. Since 1995, this practice has been introduced to Myanmar with the seventh highest deforestation rate worldwide. During 30 years of implementation, most of the research focuses only on the socio-economic aspects of Community Forests (CF), causing various constraints like limited scientific information for choosing locally adapted forest management practice. Most importantly, limited monitoring activities on forest conditions has restricted the efficiency and effectiveness of the community forestry practice. Therefore, this study aims to assess the ecological effectiveness of CFs for conserving forests in terms of species diversity and stand structure on the eastern side of Inle Lake watershed, southern Shan State, Myanmar. Vegetation surveys were conducted in a degraded forest, Maing-thout CF and surrounding natural forest in Inle Lake watershed from March to April in 2024. A total of 25 nested sample plots (20 × 20 m per plot) were laid out in each study site to collect the diameter at breast height, total height and other variables. As soil is one of the most important environmental factors influencing vegetative growth, physical and chemical soil properties were also assessed by collecting soil samples from different horizons in the study sites. Furthermore, as this CF is established mainly to reduce water scarcity, secondary information about water resources and the provision of other ecosystem services before and after the CF establishment was also collected. Diameter frequency distribution, diversity measures and other indices are applied to analyse the stand structure and species composition of community forest by comparing with those of other two study sites. Up until now, the study found that CF is likely to have greater structural composition from degraded forest and becomes more similar to the surrounding natural forests. Overall, the study will provide the assessment on the ecological effectiveness of CFs for restoring degraded forests, while improving scientific information to select appropriate silvicultural and forest management practices, aiming at sustainable forest conservation and better quality of life for indigenous communities.

Keywords: Community forests, species diversity, stand structure