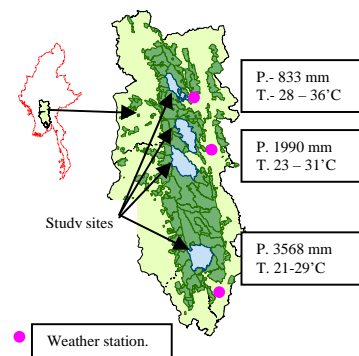


Community structure and species diversity of natural teak forests under selective logging management in different parts of Bago mountain range, Myanmar

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Tropical mixed deciduous forest (MDF) with teak (*Tectona grandis*) is widely distributed in Myanmar. Long-term commercial timber production with selective logging system has been carried out in the MDF. Natural teak forest in Bago mountain range is well known because of introduction of the scientific forest management since 1856 and occurrence of the best quality of natural teak with the largest extent in the world. At present, however, sustainable management of natural teak forest ecosystem with view from both of ecological and economic aspects is urgent issue in Myanmar because of the degradation of MDF in the country. In this context the information of floristic diversity and

community structure is a fundamental prerequisite in management plan for biodiversity conservation and proper utilization of resources. We set four study sites in Bago range along the climate gradient from the northern driest part to the southern wettest part (Fig.) to examine on the species diversity and community structure of MDF at different logging intensity. Altogether 237 circular plots of 20m radius with the systematic co-ordinate interval of 200 m in each study site were set for tree and bamboo survey. Selective logging was repeated in all of the



study sites with different intensity of harvesting based on existing stumps. Species richness including bamboo species ranged from 80 to 140 spp. per site with 213 species across all study sites. Three endangered plant species *Dalbergia oliberi*, *Dipterocarpus alatus* and *Dipterocarpus turbinatus* and several species with only one individual were encountered while a number commercial timber species including teak and *Xylia xylocarpa* were also abundant. Five different types of community were identified across the study sites by cluster analysis. Forest structure and species diversity were significantly varied with different types of community in the study sites. These floral and structural variations were attributable to the different logging intensity among the four sites. Heaviest logging intensity results in the highest species richness, highest bamboo percentage, lowest basal area, and lowest density of harvestable commercial trees particularly the stock of teak but considerable density of small size teak tree, potential resources was observed. The fact is that the status of natural forest in over exploitation area is critical for sustainability. The results suggest that modification of current management scheme should be based on these specific conditions of the forest to satisfy the needs of commercial timber production while maintaining biodiversity and ecosystem functions for long term sustainability of natural teak ecosystem.