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The diversity of native tree species from Bung Jagoi community forests, Bau, Sarawak and their potential for reforestation

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ABSTRACT

The study focuses on the diversity of native species from which can be selected potential species in Bung Jagoi community forests for reforestation. Multi-aged regeneration survey using nested plot design was carried out on four types of forest in Bung Jagoi community forests. The findings indicate that the intact and undisturbed primary forests are more diverse and hold a number of species with higher importance value than the disturbed forests. Bung Jagoi community forests also have abundant potential native species for reforestation.

KEYWORDS

Diversity; dominance; climate; deforestation; regeneration; conservation

Introduction

Tropical forest is endangered by deforestation. In all, 139.1 million hectares (Mha) tropical areas worldwide were deforested from 2000 to 2010 [1]. From the total deforested areas, Borneo Island has lost the largest forested areas up until 2010 [2]. Sarawak, located in Borneo Island itself, has also experienced critical deforestation since the 1990s [3]. A total of 0.84 Mha of forest have been lost from the end of the decade till 2016 [3,4].

Forests provide important environmental services, including maintaining biodiversity, and preventing global warming. The water cycle has been disrupted as a result of deforestation [5]. Barlow et al. [6] have shown that forest disturbances in the Brazilian Amazon have contributed to a great biodiversity loss. This has very negative effects especially on the species with high conservation and functional value.

Deforestation is also a major contributor to greenhouse gas (GHG) emissions, which indirectly leads to climate change and global warming [7], with associated extreme weather conditions, such as reduction of precipitation rate, long-term drought, and forest fire [8]. The tropical land-use and land cover change resulting from reforestation have been simulated to be able to increase the surface temperature up to 2°C. The changes can modify the land surface characteristics, such as surface albedo, surface coarseness, soil moisture content, and heat storage [9].

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