Ecological study on site selection for shifting cultivation by the Iban of Sarawak, Malaysia. A case study in the Mujong River area

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Ecological study on site selection for shifting cultivation by the Iban of Sarawak, Malaysia. A case study in the Mujong River area

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ABSTRACT Site selection methods for shifting cultivation of the Iban were studied at five longhouses in the Mujong River area of Sarawak, Malaysia with special reference to their knowledge of secondary vegetation. Shifting cultivation practices in the area were more intense than reported in previous studies and were conducted with one-time cropping of upland rice followed by about a 2−10 year fallow period. In all, 42 sites of secondary forests were selected for the vegetation survey. They were classified into 25 suitable sites and 17 unsuitable sites for shifting cultivation by landowners, based on their perception through knowledge of vegetation. Interviews of farmers were also conducted to discover and assess indicator plants from plants encountered during the vegetation survey. In the first stage of decision-making for site selection, old secondary forests, especially with difficult access, were excluded. Secondly, the farmers took into consideration the composition and growth of secondary vegetation and, to a lesser extent, other environmental factors. During the early fallow period, less than about three years, some species such as Lalang (Imperata cylindrica) and Kemunting (Melastoma polyanthum) dominated. The farmers perceived such sites as unsuitable for shifting cultivation. Left fallow for several years (more than three years), tree species replaced small plants, e.g., grasses, ferns and shrubs, through vegetation succession. Farmers perceived the presence of many tree species as indicating fertile land, but some of them occurred more frequently or with higher density at unsuitable sites than at suitable sites. Nevertheless, tree size as measured by stem diameter at breast height was greater at suitable sites than at unsuitable sites, indicating that the farmers comprehensively grasp the growth condition of these plants for land fertility evaluation and site selection. Judging from the rice yield survey, the Iban farmers’ site selection was appropriate for achieving sufficient rice production for their subsistence.

Key words: indigenous knowledge, indicator plants, site selection, shifting cultivation, Sarawak, Iban

INTRODUCTION

Shifting cultivation has remained a common agricultural practice in tropical upland regions. However, it occasionally causes environmental deterioration because of inappropriate land management and the occurrence of natural disasters such as a prolonged drought (Kiyono & Hastaniah, 2000). Various agencies have examined many programs to develop sustainable agricultural methods with the intention of improving the economic status of local farmers and to conserve and manage forests appropriately. In this context, the importance of indigenous knowledge has recently received considerable attention (UNCED, 1992). It is now widely accepted that the indigenous knowledge of traditional shifting cultivators is applicable to forest conservation and management strategies on a community basis in collaboration with governmental or other outside programs (e.g. Eghenter et al. 2003).

Upland regions of Borneo Island have been inhabited by various ethnic groups (MacKinnon et al. 1997). These groups practice shifting cultivation to plant upland rice as their staple food. They possess profound knowledge of environments and agricultural practices because they use primary and secondary forests not only for farming but also for producing timber and