The effect of fallow period length on the abundance and diversity of usable plant assemblages in shifting cultivation system (swidden agriculture) in northern Laos

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INTRODUCTION

Many tropical countries still practice shifting cultivation, or swiddening, as a form of subsistence agriculture. This practice usually occurs in mixed-deciduous and evergreen-montane forests (Schmidt-Vogt 1998) and involves clearing portions of the forest through controlled burning. The ashes are left in place to enhance soil fertility, and the land is traditionally cultivated for a short number of years before being abandoned and left for recolonization by local vegetation. It is usually agreed that longer fallow periods allow for more extensive revegetation of the fields and result in greater biomass for ash fertilization during the next field cycle (e.g. Ruthenberg 1980), although there is still some ambiguity (Mertz 2002). Fallow periods not only help the soil regain its fertility, but have other advantages as well, such as preventing soil erosion (Ziegler et al. 2009), facilitating weed control (Delang and Li 2013), and serving as refuges for wild animals (Rerkasem et al. 2009). In addition, the plants that grow in the fields that were left fallow (hereafter, “fallow”) can be exploited as a source of food, fuel, medicine, and construction or crafting materials (Anderson 1993 in Rerkasem et al. 2009, Delang 2007).

However, because swiddening is a very land-intensive form of farming, government entities in most tropical countries place restrictions on fallow lengths, in the name of economic development or nature conservation (Padóch et al. 2007). Previous research...