



Plant Traits on Wet and Rewetted Peatlands in Central Kalimantan: A Preliminary Study

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INTRODUCTION

Plant traits are defined as any phenological, morphological, physiological, reproductive or behavioral characteristics of a species that can be quantified by measured at individual level [1,2]. Trees thriving in peat swamp forest need special adaptations (e.g. Aerenchyma) in their roots to allow oxygen uptake and movement in the largely anaerobic soil conditions [3].

Many species have 'breathing' loops in their woody roots that come above the water surface and connect to finer roots via internal air channels. These enable them to do respiration. Not all tree species are forming this root structure, however.

After the fire disaster in 2015, the government of Indonesia has taken serious action in order to restore peatland degradation. Three approaches of rewetted, revegetate, and revitalization of the community, has been used as a national program in the peatland restoration. Despite of success stories of peatland restoration in Indonesia, two of four constraints to effective tropical peatland management are: (1) Lack of scientific understanding of peatland and vegetation response; (2) Lack of attractive land use options for smallholders for communities living on peatland [4].

OBJECTIVES

This study aimed to:

- (1) Assess the functional traits and their indicators on economical viable species that can have tolerance for high water tables in intact and rewetted, and rewetted & replanted peatland.
- (2) Succession on peatland restoration (Rewetted, Rewetted & Replanted).

FIELD OBSERVATION



Fig 3. Peatland restoration in 3 study sites in Central Kalimantan. (A-B). Sebangau NP, (C-D) Misik Kameloh, (E-F) RePeat Tumbang Nusa.



Fig 1. Vegetation in the Sebangau national park, Central Kalimantan

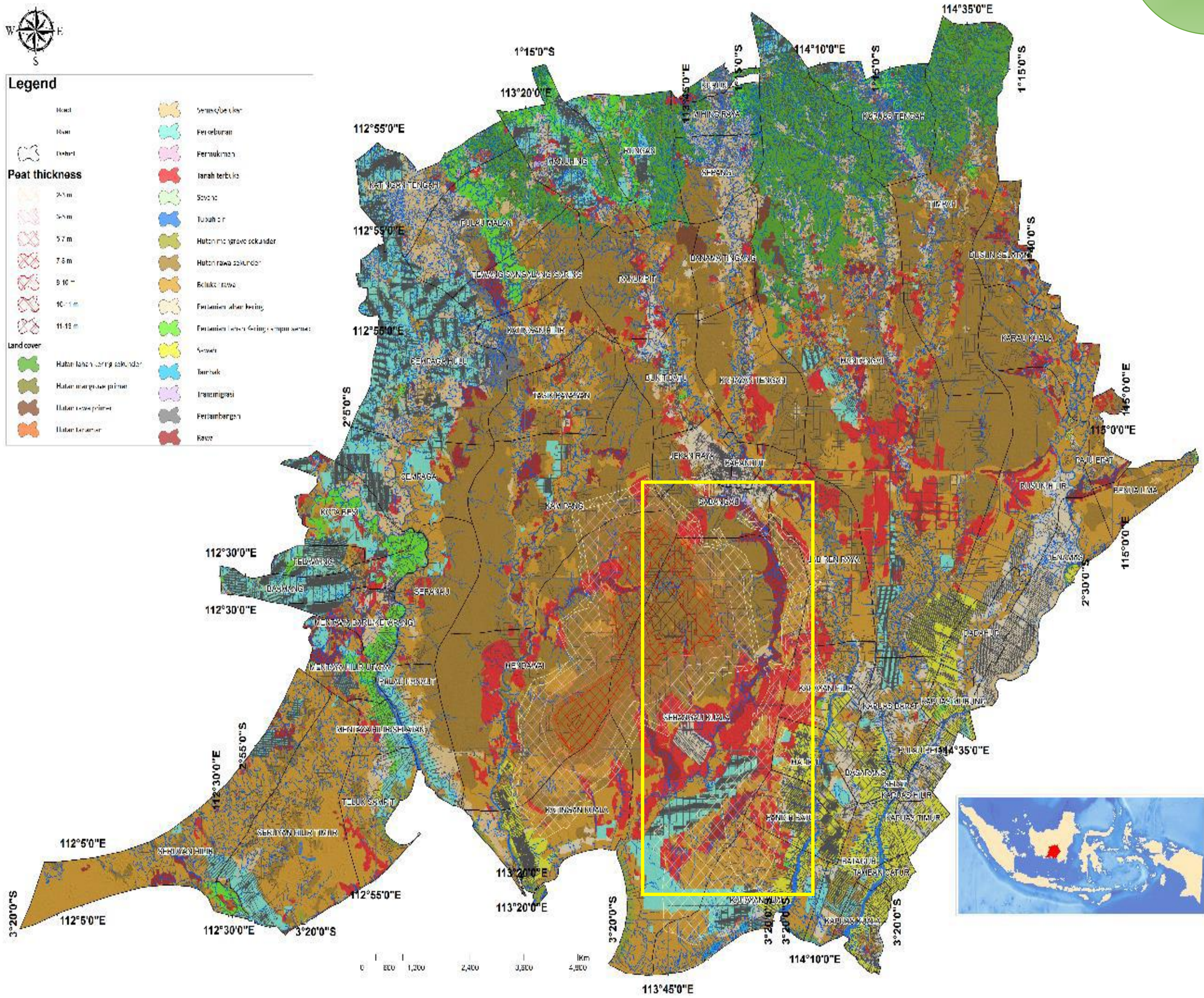


Fig 2. Study Area of Pulang Pisau district, Central Kalimantan, Indonesia

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STUDY SITES

Pulang Pisau district, Central Kalimantan. Peatland hydrological unit (PHU) of Sebangau-Kahayan river.

1. Sebangau National Park → Rewetted, Rewetted & Replanted.
2. Kameloh → Rewetted.
3. Repeat area of KHDTK Tumbang Nusa → Rewetted, Rewetted & Replanted.

Sampling Design

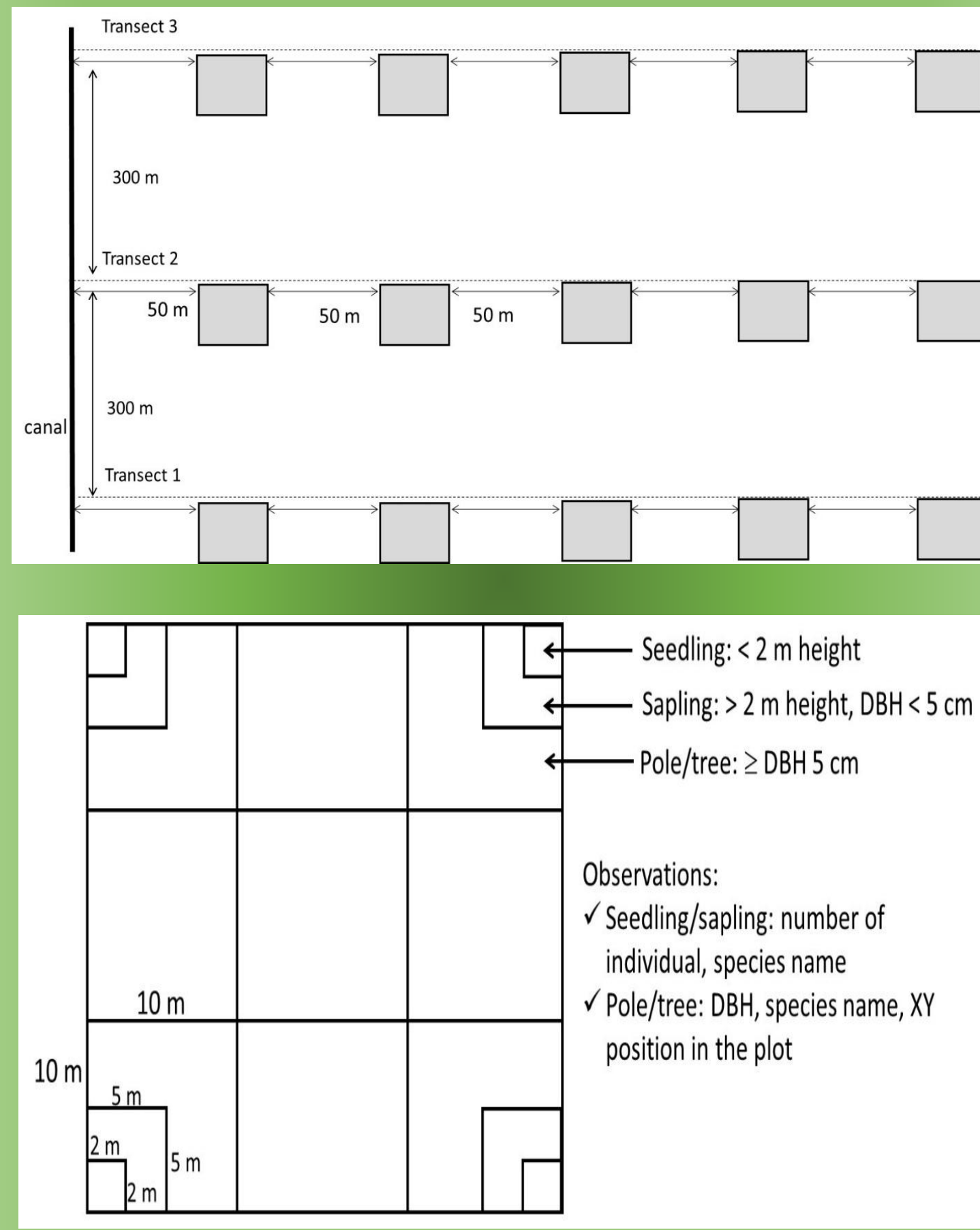


Table 1. Plants at seedling stage and understory in the three sites

Site	Typology (age)	No. Species	Species (most frequent)	Planted species
Sebangau NP	Rewetted+Replanted (13 yr)	48	<i>Shorea balangeran</i> , <i>Syzygium zeylanicum</i>	<i>S. balangeran</i> , <i>Dyera polyphylla</i>
	Rewetted	49	<i>Sandoricum beccarianum</i> , <i>Elaeocarpus</i> sp.	-
Kameloh	Rewetted	12	<i>Stenochlaena palustris</i>	-
	Rewetted+Replanted (2 yr)	4	<i>Diplazium esculantum</i>	<i>Paraserianthes falcataria</i>
Repeat – Tb. Nusa	Rewetted	9	<i>Stenochlaena palustris</i>	-
	Rewetted+Replanted (2 yr)	7	<i>Diplazium esculantum</i>	<i>S. balangeran</i>



Fig. 4. Variation of aerenchyma in the peatswamp forests. A. *Combretocarpus rotundatus*. B. *Dyera polyphylla*, C. *Syzygium* sp. D. *Madhuca* sp.

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