CRC 990
Ecological and Socioeconomic Functions of Tropical Lowland Rainforest Transformation Systems Sumatra, Indonesia

B 04

Contribution of deadwood to soil carbon stock in lowland rainforest transformation systems on Jambi, Sumatra

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INTRODUCTION

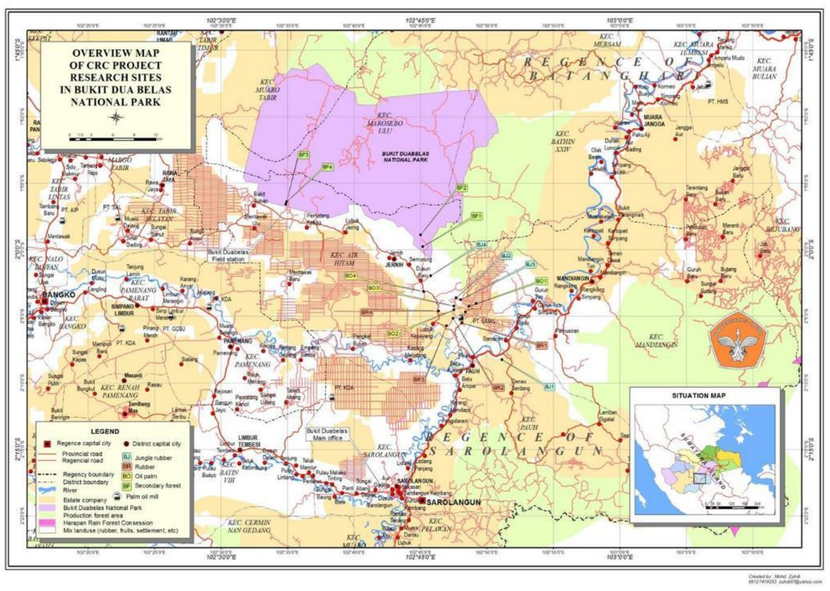
Dead woods in the ecosystem have an important role since they still contain carbon. While they decompose, carbon from dead woods contribute to the soil carbon. In Jambi, there are different types of lowland rainforest transformation system, namely jungle rubber. Natural forest has a higher vegetation diversity and abundance than those transformation system. It was assumed that it also show a high diversity and abundance of dead woods. Thus, it is important to analyze the contribution of carbon from dead woods to soil carbon stock in lowland rainforest transformation systems on Jambi, Sumatra. The research was conducted in the di Hutan Harapan, Muara Bulian Regency and Bukit Duabelas National Park, Sarolangun Regency. We recorded the carbon organic of fallen dead woods and standing dead trees and related the carbon organic content with the decay classes to determine the decomposition rate. The results of this study can contribute to the general assessment of transformation systems ecological functions.

METHOD

Standing dead trees and fallen dead woods were recorded and collected from permanent plots. The dbh were measured on standing dead trees with dbh at least 10 cm and the height was measured by using vertex. Fallen dead woods were measured at least 1 m in lenght with 10 cm mid-point diameter. Deadwoods density estimated by using Pilodyn meter. Deadwoods were analysed carbon organic content. After dead woods samples were determined visually by decay classes, samples were analyzed carbon organic and lignin content.

STUDY SITES

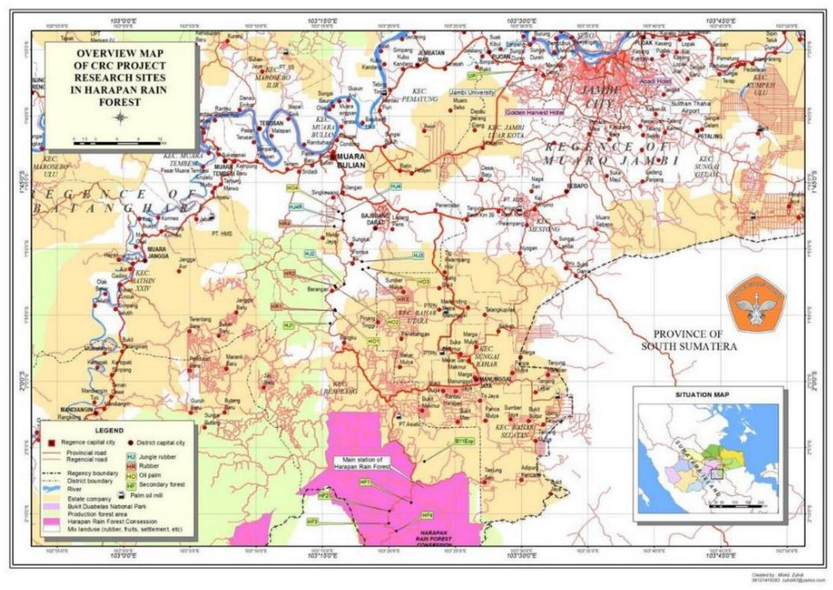
Dead woods were collected from 16 plots of 2500 m^2 (50 m x 50 m), i.e.: 8 plots in forest and 8 plots in jungle rubber.



BF: Forest (Bukit Duabelas)
BJ: Jungle rubber (Bukit Duabelas)

HF: Forest (Harapan)
HJ: Jungle rubber (Harapan)

Each plot replicate four times



RESULTS

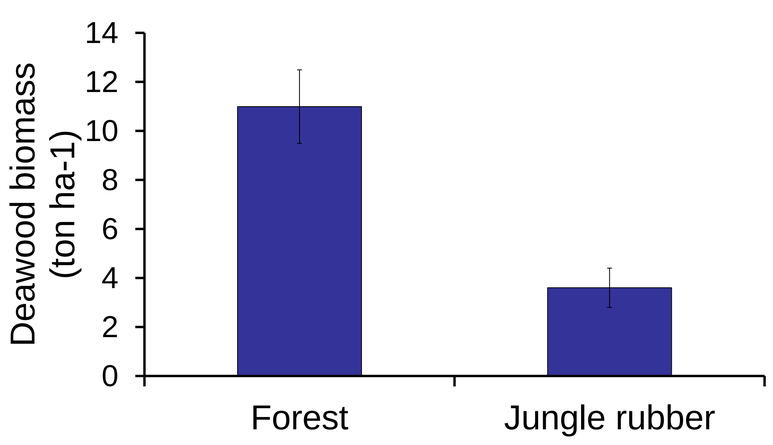


Fig. 1 Deadwood biomass in forest and jungle rubber

Fallen and standing deadwood

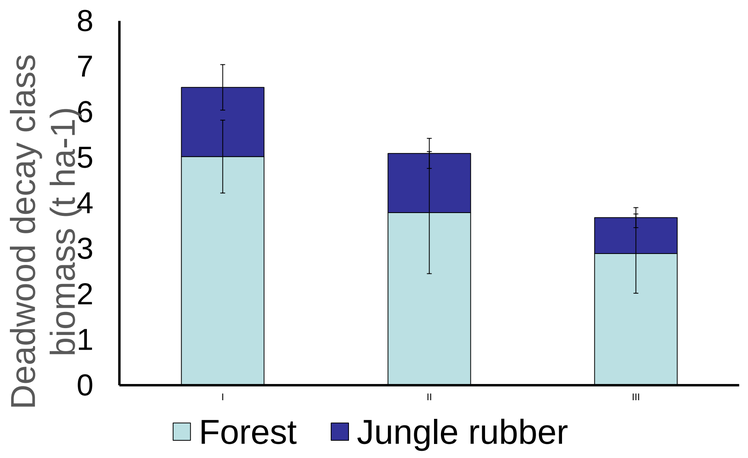


Fig. 2. Deadwood decay class biomass in forest and jungle rubber

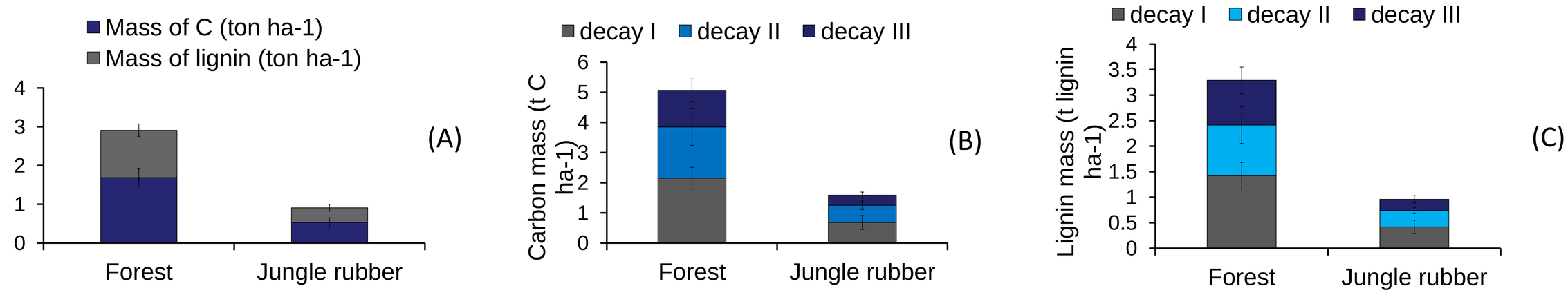


Fig. 3. (A) Mass of carbon and lignin in deadwood biomass, (B) Carbon mass in deadwood decay class, (C) Lignin mass in deadwood decay class

CONCLUSIONS

Biomass of fallen deadwood higher than that of standing deadwood. Biomass of deadwood decay class in forest higher than that of in jungle rubber. Mass of carbon, lignin in deadwood biomass and decay class in forest higher than that of in jungle rubber .

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