Distribution of invasive plant species in different land-use systems in Sumatera, Indonesia

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Abstrak

Disturbances caused by the conversion of rain forests into agricultural systems provide an opportunity for the expansion of Invasive Plant Species (IPS). Bukit Duabelas National Park is one of the few remaining lowland forests in Jambi Province (Sumatera, Indonesia). The surrounding areas up to the national park borders have already been converted into jungle rubber agroforests as well as rubber and oil palm plantations which might lead to an increased spread of IPS into the forest. This study was aimed at compiling a list of IPS and determining their distribution and coverage of IPS in four land use systems (rain forest jungle rubber, rubber and oil palm plantations). Spatial distribution patterns were investigated by creating a horizontal vegetation profile diagram for the permanent plots of the EFForTS project (Ecological and Socioeconomic Functions of Tropical Lowland Rainforest Transformation Systems, http://www.uni-goettingen.de/crc990). The dominance of IPS was determined using Important Value Index. A total of forty IPS were identified across the four land-use systems. The numbers of IPS were the highest in oil palm (28 species) and rubber plantations (27 species), and the lowest in jungle rubber (10 species). IPS were absent in the lowland rain forest. The diversity of IPS was influenced by environmental factors, especially canopy openness. IPS with the highest ground coverage were Dicranopteris linearis and Clidemia hirta. Both of them were found in all three land-use systems outside the rain forest when the forest canopy opens due to illegal logging or other human disturbances. Therefore, reforestation of disturbed areas is recommended to prevent the spread of IPS.