

Jambi – Sumatra Sentinel Landscape

Mean annual rainfall: 2100-3000 mm

Trees link to ecosystem services?

Dynamics of forest, tree-cover and other vegetation in the landscape affect ecosystem functions and entails variations on the services including provision and regulation roles

Consequences on aboveground carbon stock

I ree and vegetation cover dynamics throughout the entire landscape brought about dynamics on aboveground carbon stock.



Decrease of carbon stock implies emission and it was highest in 2005-2010, due to vast forest clearings

Throughout the three time series, carbon sequestration kept increasing, despite the low amount, implying re-planting and/or recovery of tree cover



2010

Rubber is a major farming system that produces commercially valuable product as well as provides ecosystem benefits. How does rubber agroforest perform compared to forest and monoculture rubber?



Similarities of trees between rubber agroforest system and forest reaches 75-80% Several forest-tree species are found also in Rubber agroforest systems: Shorea→Shorea pachyphylla, Scorodocarpus, Koompassia, Parashorea malaanonan, Litsea, Lithocarpus, Elaeocarpus, Dyera, Diospyros, Palaquium, Ficus

Bird species found in rubber agroforest: frugivore (30%), granivore, nectarivore, piscivore, insectivore and raptor Bird species found in monoculture rubber plantations mostly granivore and insectivore \rightarrow there is no nectarivore found

Endangered bird species with global biodiversity importance found in Rubber agroforest systems: •Aceros corrugatus •*Zosterops palpebrosus* •Anthracoceros albirostris •Ichtyophaga humilis



Hydrological performance in the upper area of Jambi was evaluated in Batang Merangin catchment area and the result shows that variation of forest and trees in the area affect various functions.



The largest contribution for discharge is from surface flow which is shown by the positive correlation between total discharge fraction and surface flow fraction.

In line with the dynamics of tree-cover changes in the landscape, buffering function decreased slightly over twenty years (1989-2009)

How do people perceive multiple functions and services of trees-on-farm





Within the catchment, baseflow in the upper catchment shows to be higher than in the lower catchment; this correlates with forest-tree cover across the catchment, which is higher in the upper subcatchment area

2009

2004

- Within the rubber-based systems, rubber agroforest provides multiple functions, aside from the latex as the main livelihood source.
- Compared to forest, rubber agroforest can fulfil 80% of the services.
- Monoculture rubber serves only as income source without other benefits

Contacts: Subekti Rahayu (s.rahayu@cgiar.org), Ni'matul Khasanah (n.khasanah@cgiar.org), Muhammad Thoha Zulkarnain (m.zulkarnain@cgiar.org), Lisa Tanika (l.tanika@cgiar.org), Atiek Widayati (a.widayati@cgiar.org)





Climate and Land Use Alliance Cultivating solutions for people and the planet

chweizerische Eidgenossenschaft Confédération suisse Confederazione Svizzera Confederaziun svizra

> Swiss Agency for Development and Cooperation SDC

ICRAF Indonesia

Jl. CIFOR, Situ Gede, Sindang Barang, Bogor 16115 PO Box 161, Bogor 16001, Indonesia Tel: +62 251 8625415; fax: +62 251 8625416 email: icraf-indonesia@cgiar.org http://worldagroforestry.org/regions/southeast asia/indonesia

Photos courtesy of: Asep Ayat