

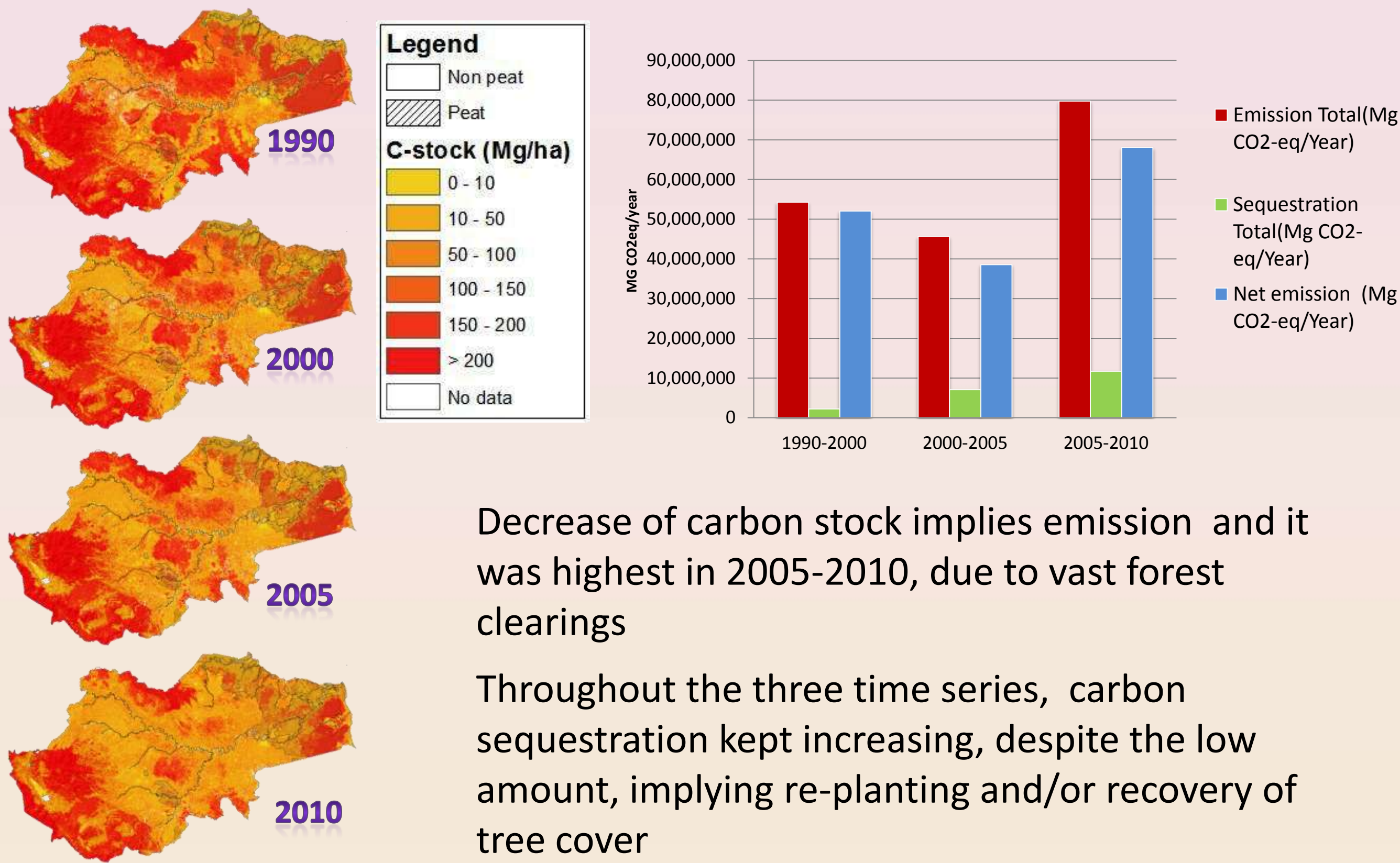


## Trees link to ecosystem services?

*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*

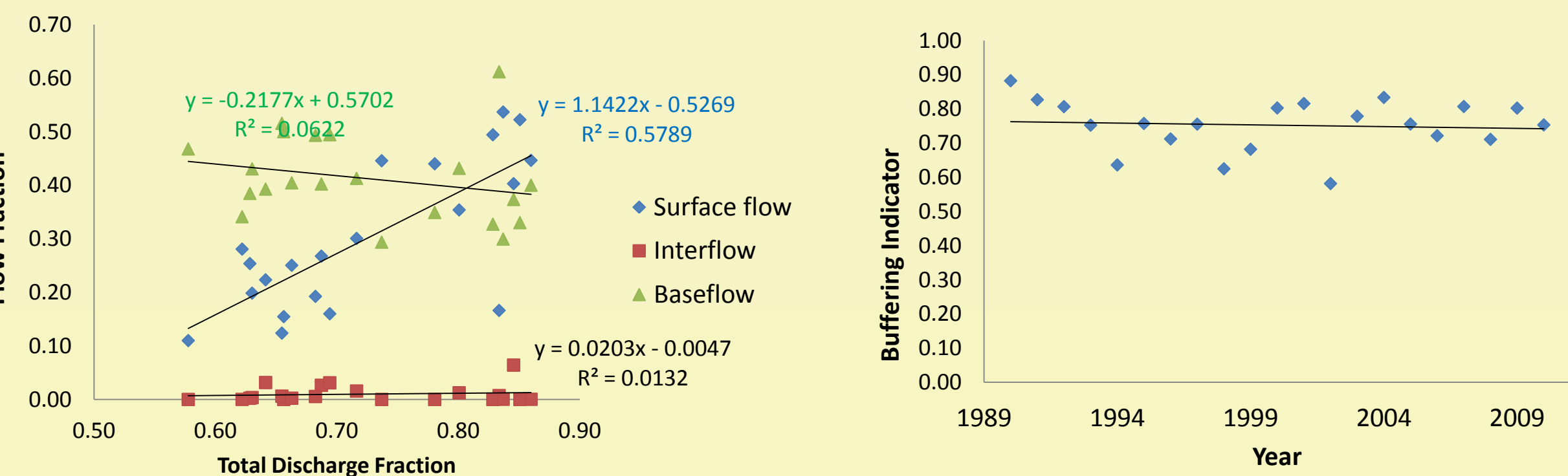
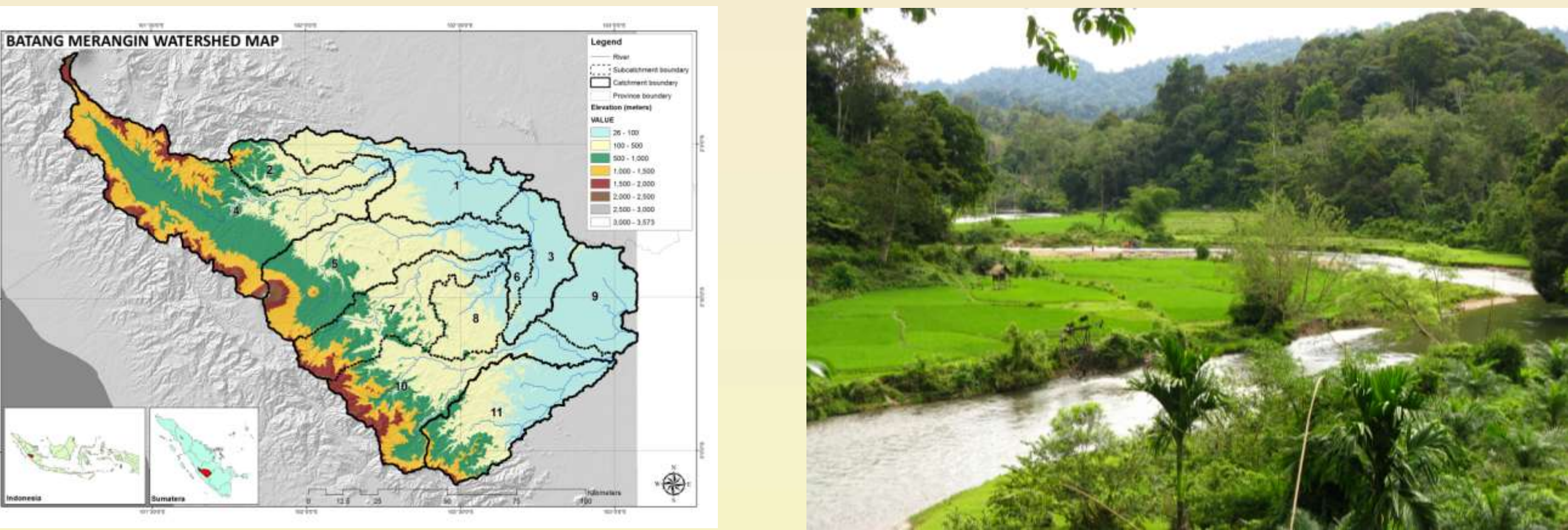
### Consequences on aboveground carbon stock

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



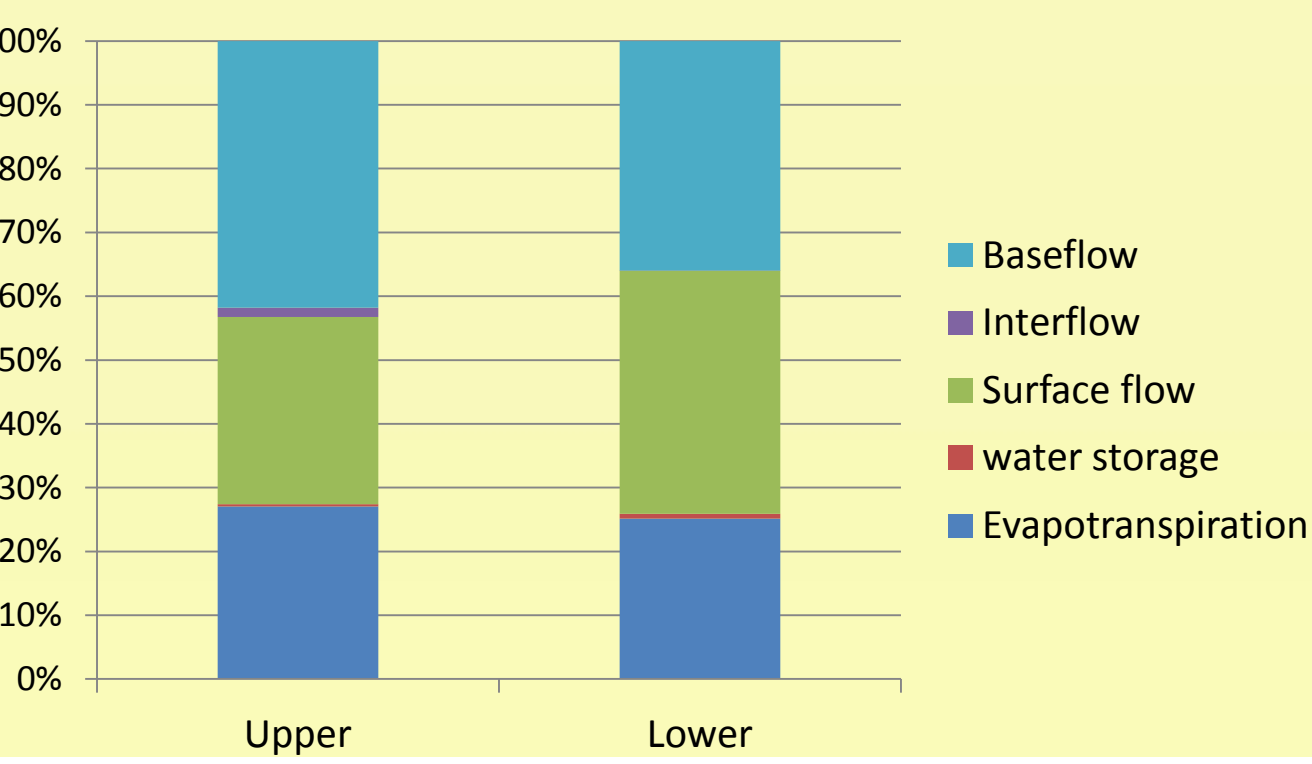
### Water balance in upper slope area of Jambi

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.



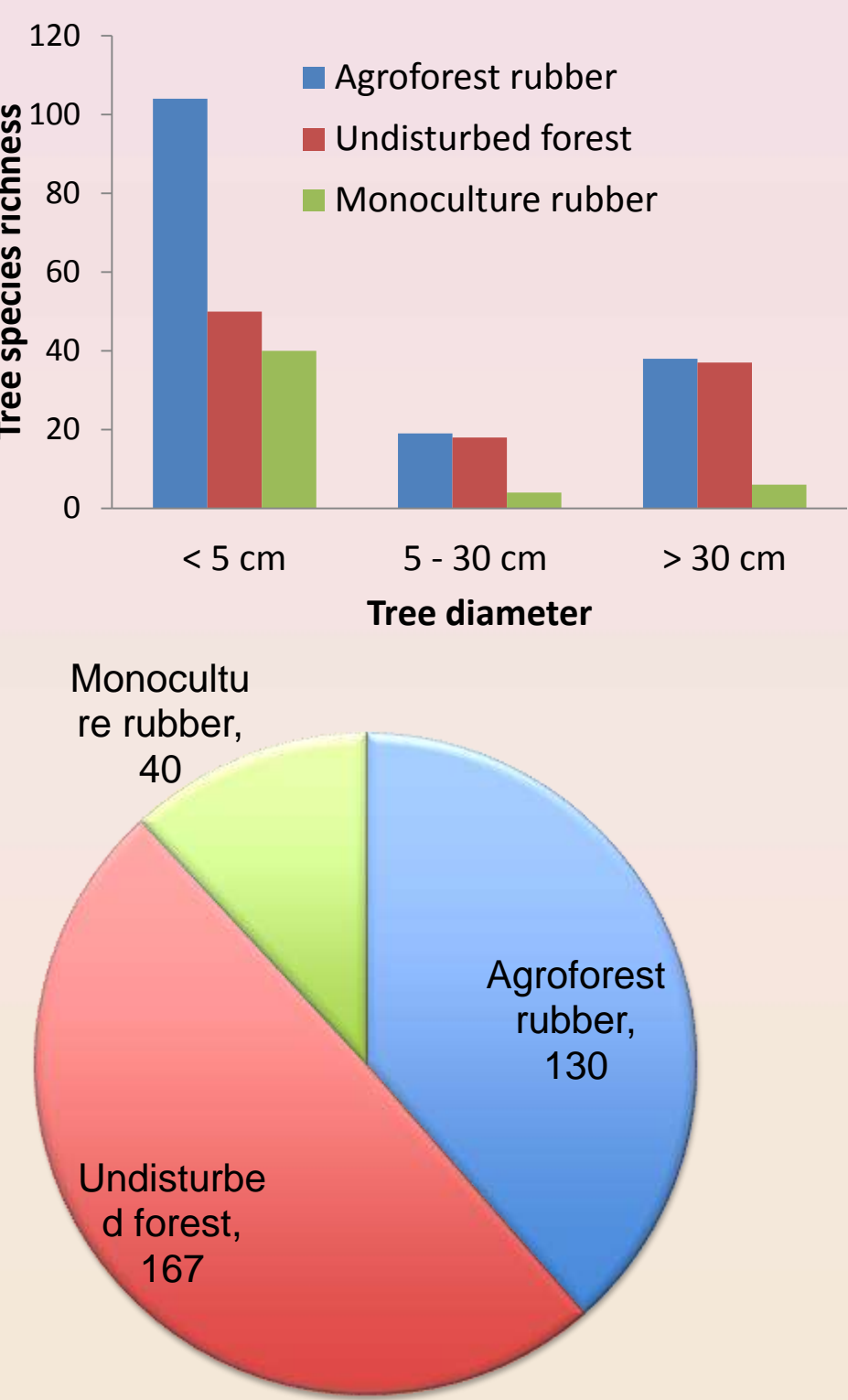
The largest contribution for discharge is from surface flow which is shown by the positive correlation between total discharge fraction and surface flow fraction.

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



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

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 → there is no nectarivore found

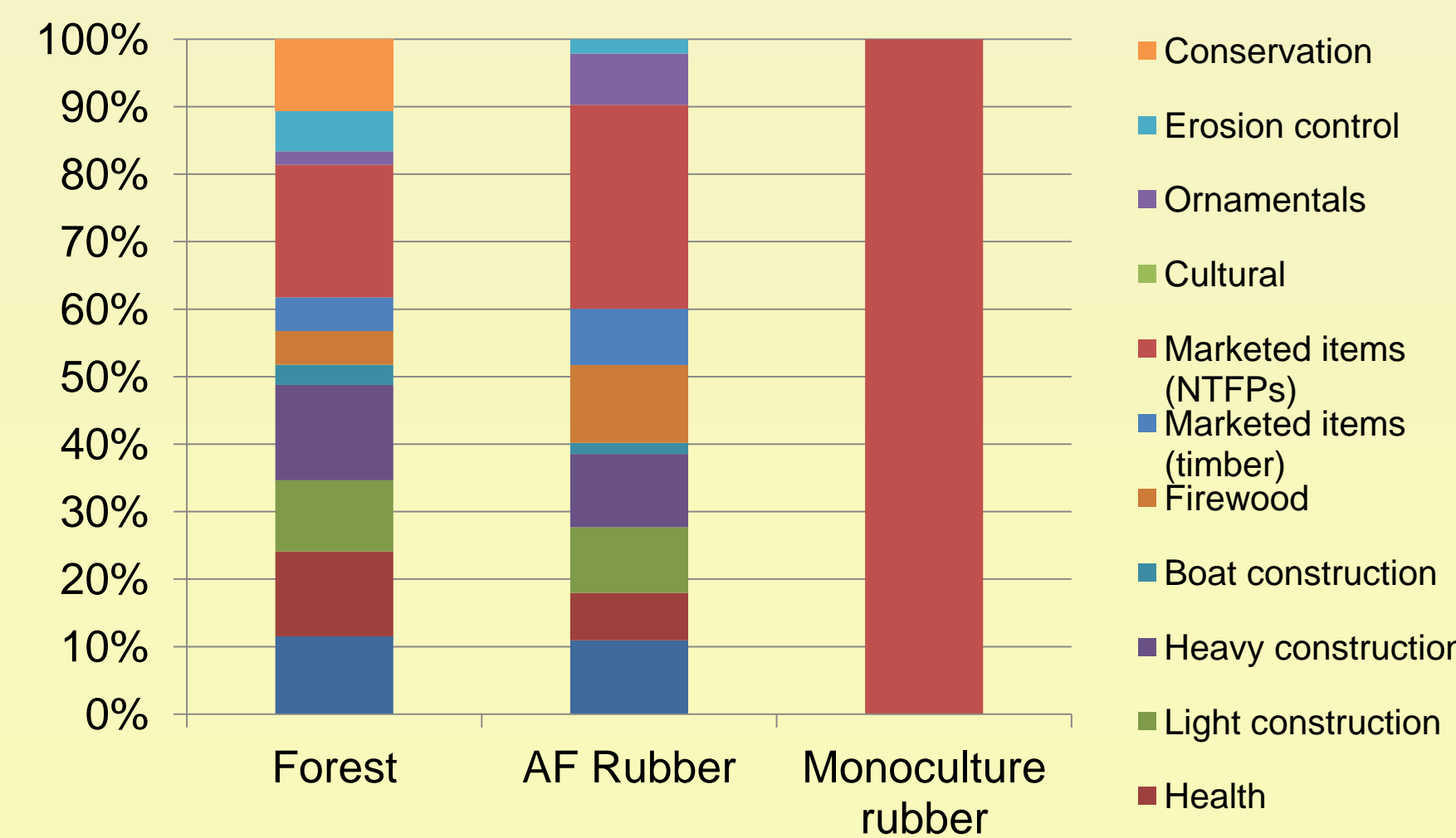
Endangered bird species with global biodiversity importance found in Rubber agroforest systems:

- *Aceros corrugatus*
- *Zosterops palpebrosus*
- *Anthracoseros albirostris*
- *Ichthyophaga humilis*



Photos courtesy of: Asep Ayat

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



- 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

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