Can Coffee-Based Agroforestry System Converse Biodiversity?

Rapid Agro-Biodiversity Appraisal (RABA) in the Kalikonto sub-watershed (Malang)

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FERTILE SOIL BASED ON FARMER PERCEPTION

Black soil, contain a lot of humus like forest soil, pH > 5, high density of earthworm, easy to be cultivated, good plants growth and looks green.

The role of earthworms in soil porosity is INVISIBLE and not represented in farmer knowledge!

Effect earthworm size Pontoscolex on soil porosity. High earthworm cast production indicates fertile soil with a good soil porosity.

I saw a deer once in this area

Interviewing 3 groups of farmer (man, woman, and children) related to fauna and flora diversity and its value in their farm

RESULTS

High ecological and economical value of Animals rarely seen in agroforestry system probably due to limited food availability and/or high hunting activity.

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CONCLUSIONS

1. Generate income continuously without reducing soil fertility and low fertilizer application and other chemicals used

2. Maintaining hydrological function of watershed and protecting water spring which needed by community and by hydropower (PLTA) Selorejo

3. Home for many plant and animal species but sensitive fauna and flora to fragmentation will not survive.

4. Maintaining belowground biodiversity and its function, BUT little known by farmers due to invisible without microscopic and limited information.

Threat

1. The natural forest lost is very high 2.2% per year (or 161.2 ha/year) and the total area of annual crop a 10% per year increased (or 41.8 ha per year).

2. Less integrated Policy development at district level

3. Conflict of interest in agroforestry system. Number of fauna recognized as pest in agriculture system but they have high economic value, it may enhance hunting activity

机会

Good support from state forest company (PERHUTANI) by allowing community planting other tree species rather than timber species within “hutan lindung” (protected forest). Potential to develop Ecotourism

Farmer perspective:

Termite is PEST, and destroy wooden house construction

Not all termites are PEST

Ecological Group of Termite

Odontotermes grandiceps

Wood eating termites, potentially appear as a pest, highly found in Agathis plantation,

Hospitalitrmes hospitalis

lychen eating termite, bio-indicator of undisturbed ecosystem, NOT found in Kali Konto

Not all termites are PEST