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“Competing pathways for equitable food systems transformation:
Trade-offs and synergies”

Protecting the planetary life-support system : placing a value on photosynthetic biomass

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Abstract

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The loss of biodiversity and biomass signifies a reduction in our biological potential to survive, due to the fact that a large contribution to the biological quality of life is provided by its living component. It is the actions of living biomass, that generate goods and services termed Ecosystem Services that provide the outputs essential to life.

Ecosystem Services arise from the act of primary production. Here, the energy of the sun is captured for biological use through photosynthesis. The most important component of biomass is its photosynthetic component, that we are losing rapidly and need urgent attention.

All plants contain two types of biomass depending on whether they capture and store energy photosynthetic biomass, or use the captured energy work respirative biomass. In terrestrial plants, the photosynthetic biomass usually found in the leaves.

The leaves of terrestrial plants utilise the photosynthetic function to generate a series of outcomes that can be termed as the ‘Primary’ actions that power all ecosystems and is thus identified as the Primary Ecosystem Services (PES). They are identified as Oxygen generation, Carbon Sequestration and water transpiration. All these elements come into being at primary production.

The quanta or volume of each substance produced can be estimated through the growth of the leaf mass over an year or time taken for turnover of the ephemeral leafy component.

As each species has different growth patterns. Purposive Sampling of at least ten individuals of each age class from yr1-yr4 was undertaken for thirty species of tropical trees.

Keywords: Biodiversity, Biomass, Ecosystem Services, Landscape