
ABSTRACT

An ecosystem service approach to coffee production in a landscape mosaic

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Agricultural productivity, particularly in the tropics, is dependent upon largely unrecognised and undervalued natural ecosystem services such as pollination, pest control, and water and soil conservation. While the dependency of agricultural systems on these ecosystem services is increasingly recognised, there remains a widespread failure to translate scientific knowledge into effective management action.

The landscape of Kodagu is a patchy network of different land uses, from large tracts of forests to coffee agroforestry systems, to cultures like areca nut and paddy fields. Quantifying the economic contribution of the full landscape to agriculture provides the basis for integrating economic and ecological objectives and could effectively inform integrated policy and management.

The project will begin by quantifying two important ecosystem services: pollination and natural pest control. Raising awareness among coffee growers of the economic values of these ecosystem services can potentially contribute to improved quantity and quality of coffee yields while reducing dependencies on synthetic pesticides.

Specifically, we intend to determine and quantify the ecological and economic links between landscape and the productivity of coffee plantation. Our objectives are to:

- 1. Determine pollination and natural pest control services provided by different landscape elements to coffee crops.**
- 2. Identify factors that affect the quality of ecosystem service provision at the landscape level.**
- 3. Quantify the economic values derived by coffee farmers from pollination and pest control services.**
- 4. Develop a model to support decision making and for communicating locally relevant ecosystem services concepts.**

A combination of approaches will be used to address the objectives, including extensive fieldwork, economic valuation of services, integrating the ecological and economic results through modelling, and using the resultant model to communicate the outputs. We expect that this will allow farmers to capture better returns per hectare and secure access to the growing 'speciality' or organic coffee niche markets.