

[Keynote Address]

Cosmovision and Co-evolution of Bio-cultural Systems and Crop Diversity in Agrarian Landscapes: Consolidating an Alternative Paradigm for Agriculture and Conservation

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Abstract: The paper discusses examples where crop domestication is an on-going process taking place in agricultural systems that maintain high levels of biodiversity. These systems are characterised by social and ecosystem interactions that are embedded in unique cultures and cosmologies; they guide and imbue the domestication process and the management of agrarian landscapes with a range of spiritual, cultural, economic and regulatory values. The crop domestication process typically occurs within mosaic landscapes including both wild and cultivated components. Thus we consider the presence and extent of wild areas as anthropogenic as they support and enrich the cultivated areas, as they in turn buffer and protect the wild landscape.

The paper reviews three approaches to bio-cultural agrarian landscapes beginning with early transdisciplinary research concerned with social change, governance, and food production, exemplified by Audrey Richards, *Land Labour, and Diet in Northern Rhodesia* (1939), Max Gluckman, *The Economy of the Central Barotse Plain* (1941), and Pierre de Schlippe, *Shifting Cultivation in Africa, The Zande system of agriculture* (1956). Second, it covers more recent research on the unique and specialised agroecological knowledge of indigenous cultures known as ethnoscience that places agriculture within a traditional society's cosmovision of the natural world. We note the work of Harold Conklin, *Hamunoo Agriculture* (1957) and the *Ethnographic Atlas of Ifugao* (1980) and Prof. Sadao Sakamoto's work that linked culture to the evolution crop gene pools in rice and tropical root crops. The third element of biocultural research reflects the concern with poverty and marginalisation of rural communities. Agricultural development often ignored the resources that communities developed for their livelihoods and the rules for managing them, (e.g. local crops such as quinoa, fonio, ensete, gourds, roots and tubers, gathered foods, and the use of local crop varieties). *In situ* conservation and documentation seek to maintain crop land races and related resources and knowledge in traditional farming systems. However such systems are under threat due to cultural and demographic change, marginalisation and poverty. The paper presents methods to address the bases and underlying threats to farming communities in areas rich in biodiversity, and ways to support the cultural innovation and ecological adaptation that typifies the more resilient and intact biocultural landscapes.

Research and support for co-evolutionary processes focuses on mosaic landscapes that bring together spiritual, biological and productive components. Such landscapes provide the basis for continuing crop domestication, ecological adaptation and cultural innovation. The paper presents cases from Cuban agriculture in neo-tropical forest reserves, Sahelian horticultural gardens, East African crop domestication and intensification of biodiversity to cope with climate change, and the revival of traditional fruit orchards at the cultivated and wild interface in Central Asia. The development of indicators that can be applied across landscapes and cultures will allow us to synthesise and understand the factors that underpin the resilience and resurgence of bio-cultural landscapes; and used to identify a range of strategies and options that promote community well-being and cohesion for future generations in these areas.

Keywords: biocultural landscapes; crop domestication; marginalisation; local crops; mosaic landscapes; biodiversity; agriculture, rural communities; resilience, innovation