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"Utilisation of diversity in land use systems:
Sustainable and organic approaches to meet human needs"

The Human Ecology of Biodiversity in Agroecosystems: Culture and Maize in Mexico

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Abstract

Biodiversity in agroecosystems is most fully understood in relation to biological factors and processes, such as adaptation, natural selection, reproduction strategies, and gene flow. Nevertheless, because these ecosystems are managed and have evolved under both natural and human [ünnatural"(Darwin 1896)] selection, they cannot be fully understood by reference of biological and physical properties alone. Among the social sciences, anthropology, geography, and economics have all contributed to understanding biodiversity in agroecosystems by studying knowledge systems, selection, and valuation of diversity within and among crop species. The social science disciplines have contributed in such areas as measuring rates of genetic erosion, estimating the value of agrobiodiversity, and designing *in situ* conservation and participatory rural development programs.

A significant but only partially met challenge is to understanding how social factors affect crop evolutionary processes such as increasing infraspecific diversity of crop species and influence their population structure. This challenge requires that we view crop evolution and the creation of agrobiodiversity as on-going rather that processes that ended with crop domestication or at some other time in the past.

After reviewing some social science contributions to understanding the status and value of agrobiodiversity, the paper discusses the role of human ecology in understanding crop evolution. In particular, it examines the relation between cultural diversity and infraspecific diversity of crops. Using data from human ecology research on maize diversity in southern Mexico, the paper discusses the impact of social and environmental factors at the micro-regional and landscape levels on the distribution of maize diversity.

Keywords: Agroecosystems, biodiversity, maize, Mexico

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