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ABSTRACT

The modern Maya lowlands are covered by a variety of vegetation types, ranging from freshwater swamps, through high "quasi rainforest," to open grasslands, each with its own exploitable potential and effect upon subsistence.

Limiting factors such as pests, leaching, and competition would have decreased the potential harvests of prehistoric Mayan agriculture. Several ecologically sound methods, including increased crop diversity, mulching, and quarantine measures, reduce the impact of these limiting factors.

Modern Maya agriculture is practiced at such low levels that it evades some limits to its potential productivity. Hypothesized prehistoric systems, such as intensive milpa, ramon cultivation, raised fields, and artificial rain forest, must have reached equilibrium with their biotic, climatic and edaphic environments. Using ethnographic and crop productivity data, with certain assumptions, quantified systems models of prehistoric agriculture have been derived.

An ecologically compatible combination of intensive milpa, artificial rain forest, ridged fields, and marsh cultivation theoretically will support over 400 people per square kilometer of upland in the Peten. These data are within the limits of archaeological demographic estimates ranging from 40 to 900 people/km².

Principal components analyses of pollen from edaphic and successional gradients serve as modern analogs for statistical comparison with two cores taken in the lake district of central Peten, Guatemala. Results indicate that agricultural activity, not climatic change, caused changes in the prehistoric vegetation.

The Maya Classic landscape was an agriculture-dominated regime, with little untouched natural vegetation. Orchards, artificial rain forest and woodlots, although not supported by pollen evidence, may have covered much of the lowlands.

The Maya collapse was followed by a general depopulation of the Peten. The Peten-Itza recolonization of the lake district, and the modern population influx appear as two minor agricultural episodes in a largely arboreal Postclassic landscape.