Highland Maya and their influence on biodiversity

Chiapas owes much of its biodiversity to its somewhat unique geographical position, but it is also a region that has experienced continuous human settlement and exploitation of its environments for thousands of years. There is increasing evidence that some (but certainly not all) human populations actually increase biodiversity through a sophisticated local environmental knowledge that leads to maintenance of certain types of habitats. In the Highlands, the Tzeltal and Tzotzil Maya, numbering approximately 800,000, have developed an elaborate knowledge system and modes of interacting with the biophysical environment. Their landscape today is very much a human landscape, with a patchy mosaic of different ecological zones that, in most cases, are human determined (Figure 2). In fact, the Maya utilize the entire landscape in one form or another.

These environmental relationships are readily exemplified by the Mayan use of medicinal plants. The Highland Maya have an intimate understanding of the distribution of medicinal plants throughout different microenvironments and utilize several hundred species in primary health care. This is an area of research that presents a variety of opportunities for conservation, sustainable development, and healthcare.

Indigenous health care and biodiversity conservation

There is virtually no medicinal plant cultivation among the Highland Maya despite their vast wealth of medicinal plant knowledge, making them perhaps unique in
Cultivation of medicinal plant species

1. Cultivation of medicinal plant species

básico project has three main objectives:

(a) research (Berlin and Berlin). The cuadro básico has been identified based on previous

(b) observation in developing countries.

(c) problem has widespread implications for traditional peoples like the Highland Maya who are almost completely reliant on traditional plant medicine for their primary health care. According to the World Health Organization, this situation is found among approximately 80% of the population in developing countries.

(d) core group of medicinal plants known as the cuadro básico (basic medical kit) has been identified based on previous research (Berlin and Berlin). The cuadro básico project has three main objectives:

(e) 1. Cultivation of medicinal plant species that meet local health needs.

(f) 2. Cultivation of medicinal plant species that are potentially endangered.

(g) 3. Cultivation of medicinal plants for local economic development.

(h) The initial phase of the project involved identification of appropriate species for inclusion in gardens and identification of communities and individuals with whom to collaborate (Figure 3). The highest priorities for inclusion of species were based on the following criteria: species for which there is great local demand and low local availability, species that have shown bioactivity in laboratory analyses, species for which there is strong consensus regarding efficacy, and species for which a potential market exists for dried material. Species were then prioritized based on their distribution within different ecological zones and the relative demand for plants based on actual household usage. Medicinal plant gardens have been established in 5 communities so far, and this number is expected to grow rapidly during the next few years.

(i) Management by the Maya, both intentional and unintentional, has also been investigated along with cultural factors mediating such management (Figure 4). Based on an understanding of the specific ecological relationships of these plants, recommendations are now being made for improved management in light of increased population density and environmental degradation throughout the Highlands. It should be pointed out that none of the most important medicinal plant species face imminent threats of local extirpation. However, taking a proactive stance toward medicinal plant conservation ensures that these plants are not only maintained in their natural habitats but are also readily available in home gardens. This project also sets the stage for more intensive cultivation if a sufficient market can be developed. The market for herbal medicines and other natural botanical products is growing rapidly worldwide. The sustainable production of these plants for local, national, and international markets could be an additional source of income for indigenous families.

(j) The Highlands of Chiapas provide an excellent opportunity to test the utility of a general model for managing, harvesting, and producing medicinal species recognized in traditional herbal medicine. Such a model would have the potential for broad applicability worldwide, particularly in developing countries where indigenous populations are heavily dependent on wild collected herbs for their primary healthcare. An ethnobiological perspective can create a crucial link between conserving both biological and cultural diversity, demonstrating that cultural and environmental preservation can be mutually supportive goals. Most importantly, it can contribute solutions to the pressing social and environmental problems of this region.

FURTHER READING


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