CHAPTER 16

FOREST FOOD RESOURCES IN THE TROPICAL MOUNTAINS OF THE MIXTEC HIGHLANDS, MEXICO

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INTRODUCTION

Studying the use of forest resources among agricultural societies has been seen as unimportant, and thus often omitted. Mexico is a centre of agricultural origin, and agriculture became more and more important relative to gathering, hunting and fishing. However, these activities did not disappear and are still practised in many regions of Mexico, including the Mixteca, where agriculture has been known for 5 000 years. MacNeish (1967) showed how these different activities evolved together throughout the prehispanic period in the Tehuacan Valley, north of the Mixteca. The first evidence of cultivation is older in Tehuacan Valley (MacNeish, 1967) and Oaxaca valley (Flannery, 1986) than in the Mixteca. Recent data suggest that agriculture came to the Mixteca from these areas (Spores, 1984).

The Mixteca is a mountainous region located in southern central Mexico. It covers the western half of Oaxaca State and fringes on the states of Puebla and Guerrero. Its climate is semi-dry in the northern part and subhumid in the ocean-facing southern part. Temperature varies according to altitude. The dry season runs from October to April, the rainy season from May to September. This study was carried out in San Pedro Yosotato, a village in Tlaxiaco district (Oaxaca State) facing the Pacific Ocean, with altitudes ranging from 800 to 2 500 m producing diversity in climate and vegetation (Figure 16.1). The Mixteca is populated by Mestizos and Indians. Most Indians (280 000 people) speak the Mixtec language and two-thirds speak Spanish as well. In the study village, Mixtec is being abandoned in favour of Spanish. The main economic production of the region is staple agriculture, which does not cover local needs. Only some humid or irrigated areas produce commercial crops, such as coffee, which is grown in the study area, where it has become more important that the staple crops.

The inhabitants of San Pedro Yosotato cultivate, at different altitudes, several species and/or varieties of maize, beans, and squash as staples. Rain watered lands are harvested between September and December and the few irrigated plots in June and July. The daily diet is usually composed of maize tortillas, a dish of boiled beans, and chili pepper (raw or in chilli sauce). The local peasants also grow fruit trees (they eat the fruit between meals) and other plants used as vegetables or spices. They occasionally eat the animals they raise (poultry, pigs, goats and sheep) especially for festivals, which often take place in the dry season. By selling coffee, harvested from November to February, they can now buy meat, eggs, cheese, sweet bread, rice, pasta, ingredients for festive dishes (nuts, almonds, special spices, etc.), bottled drinks and plants from higher (potatoes) or lower (chili peppers) areas, as well as corn and beans that they do not produce in sufficient quantities themselves. But the coffee money lasts only until May or June, so that trading is reduced during the rainy season when the roads become almost impassable. At the same time, stocks of maize and beans are diminishing; deprivation is worst in August and September (called "hunger months") when people have to rely on wild foods. Fishing is very limited in this area since the river is quite shallow. Presently, hunting is rare, although it is the source of a number of animal species in the diet. Insect collecting is notable – and typical of Indian regions (Sahagun, 1975; Ramos-Elorduy, 1982; 1993, this volume). Gathering plants is very important, a large variety of greens are often consumed. The last three activities occur in several different areas of the environment, but this study is restricted to forest food resources. Their collection, preparation and place in the local diet is reviewed.

THE USE OF FOREST FOOD RESOURCES

In the Mixtec highlands, the forest is called *yuku* or *ku'u* in Mixtec and *monte* in local Spanish. These terms refer to what is out of human control: wild spaces, plants and animals. The word *yuku* also means "mountain". The forest is often destined to be cleared for cultivation, but after a year or two the cultivated areas return to the wild. The Mixtec peasants fear the forest, considering it the home of the supernatural and the door to the other world. The forest is in rapid regression; in the study village, it only covers 150 out of 1 850 ha, with some extra pockets intermingled with the coffee fields. The structure of the coffee fields is quite similar to that of the forest, as Toledo *et al.* (1985) emphasized. Thus, a large proportion of the hunting and gathering activities take place there. Nevertheless, the forest is still part of the agro-ecosystem. Forests provide firewood and timber, ornamental plants, and animal and plant products used as food and for medicine. Some useful trees of the pioneer vegetation are left intact in fields and around houses. The wild cohabits with the domesticated.

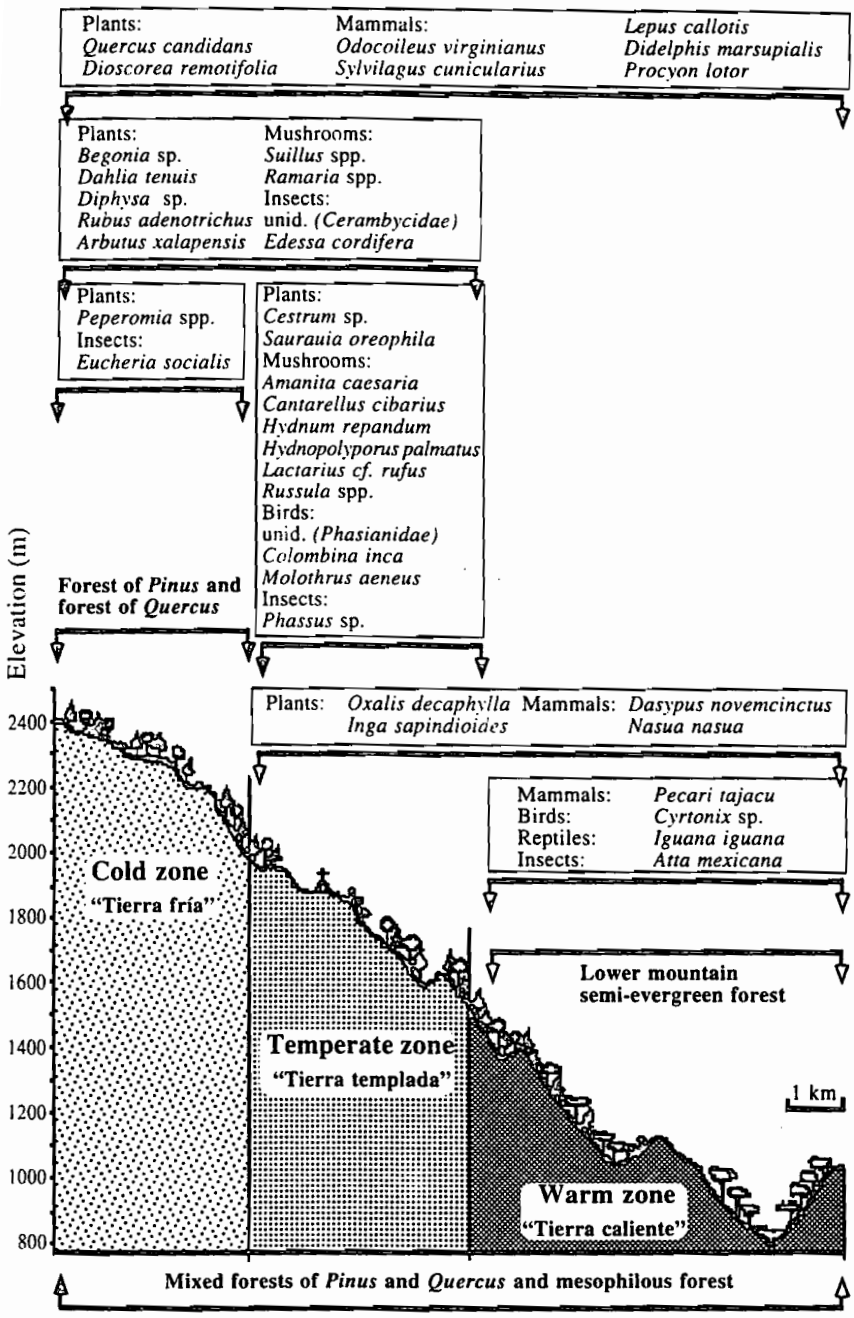

Figure 16.1 Wild plants and animals exploited in different types of forest along the altitudinal gradient. Plant and insect specimens were identified by biologists of the Universidad Nacional Autónoma de México. The mammals are named according to Leopold (1977) and Hall (1981)

Animal resources

In the village we studied, out of a total of 39 species of edible wild animals exploited in different areas of the environment, 18 species are mentioned from the different types of forests along the altitudinal gradient (Figure 16.1); that is 8 mammals, 4 birds, one reptile, and 5 insect species (plus the honey from one wasp and three bees).

As wild fauna is diminishing, hunted animals are less and less important in the diet. A few decades ago, game consumption still had some importance, but it varied between families, as it does today, depending on how much the men liked to hunt. At least, at that time, hunters used to find enough game so as to sell extra portions in the village. They used to hunt with traps, a technique which seems to have belonged to the peasant, since in prehispanic times, Mixtec nobles used to hunt with darts, spears and clubs (Dahlgren, 1966). Today, trapping is disappearing, peasants hunt with rifles, occasionally with pistols. At the end of prehispanic times, hunting was reserved for nobles. According to Spanish sources, peasants could only hunt "vermin", or they were invited to nobles' banquets for religious festivals. Nowadays, only deer is occasionally consumed in community festivals. Most hunted animals are roasted first, then hung over the hearth for several days (smoked), then boiled and eventually cooked in a thick peppered sauce (*mole*), or added to maize cooked with lime (*pozole*), or to a steamed dough of maize wrapped in leaves (*tamale*). Domestic animals are boiled immediately. Some animals are cooked directly in an underground oven.

Insects can be collected more easily than game, but only in small quantities and over short periods of time, mainly in the dry season. They are considered as appetizers. They are mainly grilled, then sometimes ground and mixed with chili sauce. The insect *Edessa cordifera* is also eaten alive and ants sometimes fill up maize dough (*tamales*).

Plant resources

Out of 71 wild plants, only 16 are gathered in the forest, and some of these species are also found in gardens and fields, especially heliophilous trees which have not been felled (*Inga sapindioides, Saurauia oreophila, Cestrum* sp.). Gathering activities are much more frequent in cultivated field, fallow, and along paths. They usually take place while people are walking or working in the fields. Individuals only go out of their way to get mushrooms. Plants gathered from the forest (in fact close to paths, since so much of the forest has been cleared) have a minor importance in the diet. They are used when nothing else is available, or collected only

by children. Parts used from the forest plants are flowers (one species), fruit (four species), tubers (four species), seeds (two species), greens (young leaves and shoots, six species). This category includes lots of weeds, often eaten boiled, while others from the undergrowth are eaten raw. Dishes made from boiled tubers, flowers, or greens can be added to, or substituted for the daily dish of boiled beans. Raw greens are used to flavour them. Acorns used to be mixed with the tortilla dough in times of emergency, but only old people remember this.

Like most Mexican Indians (Escalante, 1982; Gispert *et al.*, 1984; Guzman, 1977; Mapes *et al.*, 1981), Mixtecs enjoy eating mushrooms. Of the 22 species of mushrooms consumed in San Pedro Yosotato, most grow in the forest, mainly under leaves (12 species), sometimes on tree trunks (four species); some grow in meadows (one species), or on sheep excreta (three species). Mushrooms rarely grow on low lands because evaporation is too strong. They usually come out in the rainy season, with the exception of the "Lent mushroom" (*hongo de cuaresma*) that appears in Lent (March-April). They cover some of the food shortages of the rainy season. They are much liked and sought after. Their collection takes on a providential aspect, which makes them more precious still. Mushrooms are thought of as meat ("es pura carne") which they replace when it is lacking. They are often grilled, boiled, or served in *mole* sauce, *tamale* or with some kind of maize pancake (*empanadas*). The "tortilla mushroom" (*hongo de tortilla*) is consumed in times of emergency boiled, ground and mixed with tortilla dough. It is sometimes also simply cooked like this for its taste.

CONCLUSION

Wild forest resources have a minor, but significant, importance in the daily diet of Mixtec Indians. The forest has totally disappeared from the severely eroded landscape of the northern Mixteca. In the southern area, where this study took place, it covers only small disturbed areas. The plants cited here are often pioneer or heliophilous species, sometimes even weeds. The diversity of useful plants and animal species from the forest is notable, nonetheless.

These foods are a help in times of emergency, at a psychological level, as well as by the variety they give to the diet. Most of the wild plants are eaten by children between meals or used, more and more rarely, during lean periods.

The most important foods are the mushrooms, eaten as the main dish when food stocks are at their lowest, and, in one case, adding bulk to tortilla dough; people like them so much they go out of their way to find them.

People do the same with hunting, but much more rarely, and with more variation between families. Today, game is rarely consumed. Insects are consumed much more frequently, although in very small quantities. They enrich the diet (Ramos-Elorduy, 1993, this volume), especially in the relatively abundant dry season .

The forest is conceived of as a cold, humid place, in continuity with the other world, the source of fertility, the mythical origin of cultivated plants, where animals and plants reproduce themselves without human intervention (supposedly, maize was brought to humans by the ant, beans by the "tramp bird" (*saa su'u* in Mixtec). The forest alternates with cultivated areas it is opposed to, in the same way as, according to local beliefs, the rainy season alternates with the dry season, and life alternates with death. Thus, the forest is necessary to the natural balance.

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