Mixtec plant nomenclature and classification

by

Alejandro de Ávila

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Committee in charge:

Professor Overton Brent Berlin, Chair

Professor Laura Nader

Professor Leanne Hinton

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Abstract

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Ñuu Savi ('Sacred Rain's collectivity'), the Mixtec people of southern Mexico, had created some of the most complex polities in the continent at the time of European contact. Five hundred years later, they remain cohesive, culturally distinct communities, as increasing numbers of individuals and families migrate to northern Mexico and the US for work in the agricultural and service sectors. In 2005, the Mexican Federal Government reported there were more than 446,000 speakers of **Tu'un Savi** ('Sacred Rain's word,' the Mixtec languages) five years of age and older, 322,000 of them still living in 1551 settlements within their historic homeland; an additional 100,000 to 200,000 are estimated to reside in the US.

The term Mixtec, derived from the Náhuatl **mixte:cah** ('cloud-people'), has been considered by different authors to encompass between 12 and 52 mutually unintelligible languages, in addition to numerous dialects. According to the Summer Institute of Linguistics' *Ethnologue*, it is the second most diversified group of languages in the Americas, after Zapotec. The *Instituto Nacional de Lenguas Indígenas*, however, recognizes 81 variants of Mixtec, making it the most diversified language group in Mexico following official criteria. The internal variation of Mixtec and its geographic proximity to three related groups (Cuicatec, Triqui and Amuzgo, members of the same lineage in a progressively earlier sequence of branching episodes), provide fertile ground for diachronic inquiry into various lexical and grammatical traits of these languages, which are part of the Otomanguean phylum.

The Mixtec territory can be portrayed as an intricate mosaic in its geology and vegetation. It boasts one of the richest floras in Mexico, itself one of the most diverse areas of the planet in biological terms. Furthermore, the Mixteca (the local name for the region in Spanish) is notable for a high incidence of endemic species of vascular plants and terrestrial vertebrates, which reflect long series of climatic and ecological changes in the area's natural history. It is part of a larger region of Otomanguean speech where a characteristic stone-working technology has been documented by archaeologists, in conjunction with the early development of plant domestication and agriculture. Natural complexity and cultural history thus converge to enhance the interest of the Mixtecan languages for ethnobotanical study.

This dissertation presents the results of several years of research on the names and uses of plants in Mixtec communities in the states of Oaxaca, Puebla and Guerrero. Extensive

information is provided on plant terminology, backed in part by herbarium specimens collected in the field by the author. The Mixtec languages make use of a productive system of noun markers, in some cases matched by pronominal clitics, to label various plant categories. Adscription to these groupings appears to be determined by use, edibility and symbolic significance, as much as by life form affiliations that reflect adaptive design, such as woody plants, leafy herbs, vines and grasses. Categories labeled by class terms appear consistently in all the Mixtec languages that have been documented to date. The dissertation reviews the botanical nomenclature recorded by linguists and naturalists throughout the Mixteca since the 16th century.

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1. Introduction: natural history and cultural chronology of the Mixtec region

Ñuu Savi ('Sacred Rain's collectivity'), the Mixtec people, had created some of the most refined polities in the American Continent at the time of European contact [1.]. Five hundred years later, they remain cohesive, culturally distinct communities, as increasing numbers of individuals and families migrate to northern Mexico and the United States for work in the agricultural and service sectors. In 2005, the Mexican Federal Government reported there were more than 446,000 speakers of **Tu'un Savi** ('Sacred Rain's word,' the Mixtec languages) 5 years of age and older in the country, 322,000 of them still living in 1551 settlements within their historic homeland (INALI, 2005); an additional 100,000 to 200,000 are estimated to reside outside of Mexico.

The Mixtec people have occupied historically an area of approximately 45,000 square kilometers in southern Mexico. Their territory extends for about 260 kilometers south to north, from the Pacific coast to the Balsas trough in southern Puebla State, and for approximately 175 kilometers east to west, from the Cuicatlán Canyon and the Oaxaca Valley to the mountains of eastern Guerrero State (Spores, 2007: 5). The Mixtec area, a very heterogeneous geographical unit, has been conventionally divided into three regions. The Mixteca Alta, an area that lies mostly above 1600 meters in altitude, designates the districts of Coixtlahuaca, Teposcolula, Tlaxiaco, Nochixtlán, the northern part of Putla and the westernmost portions of the Etla and Zaachila districts in the State of Oaxaca. Sustaining the densest human population, the Mixteca Alta has played a central role in regional history since the formative period.

The Mixteca Baja, where the average altitude is about 1600 meters (Ortiz Pérez *et al*.: 46), covers the district of Acatlán and the western section of the district of Tepexi in southwestern Puebla, and the districts of Huajuapan, Silacayoapan and Juxtlahuaca in Oaxaca. On grounds of linguistic affinity, the Mixtec communities in the districts of Morelos (Tlapa), Allende (Ayutla), Altamirano (San Luis Acatlán) and Abasolo (Ometepec) in eastern Guerrero have been linked to the Mixteca Baja, although their lands stretch over mountain ranges as high as those of the Mixteca Alta and reach down close to sea level on the Pacific coast. Finally, the Mixteca de la Costa, largely below 800 meters in altitude, encompasses the district of Jamiltepec, the western part of Juquila and the southern portion of Putla in Oaxaca.

The landscapes of the Mixtec territory are quite rugged and consist of a complex mosaic of geological formations dating to different periods within the morphotectonic province called the *Sierra Madre del Sur* (Ferrusquía Villafranca, 1998: 60), which extends from the Mexican Transvolcanic Belt south to the Pacific Ocean, and from the Isthmus of Tehuantepec to southwestern Jalisco. Three physiographic subprovinces are recognized within the eastern *Sierra Madre del Sur*, where the Mixtec territory is situated: the Pacific coastal plain, the Balsas trough and the Oaxaca-Puebla highlands. The latter, which constitute the most complex subprovince, are divided in turn into two zones within our region of interest: the Mixtec-Zapotec sierras and the Tehuacán-Cuicatlán rift valley. For the most part, the Pacific coastal plain is a narrow strip (approximately 20 kilometers from south to north) where rivers do not form significant alluvial depositions, since the sea currents close to the shore disperse sediments rapidly. The continental platform is equally narrow along the coast.

The Balsas trough is an east-to-west depression that forms the watershed of the Balsas river, ranging mostly between 200 and 1000 meters in altitude; in its easternmost section, occupied partly by Mixtec communities, it is composed of plateaus that surpass 1000 meters above sea level. The western portion of the Mixtec-Zapotec sierras comprises a high plateau that descends gradually north towards the Balsas trough; the remainder of the zone is formed by mountain ranges that exceed 2000 meters. The Tehuacán-Cuicatlán zone is a long and narrow rift valley, i.e., a graben that is delimited by parallel faults, in a south-southeast to north-northwest direction. The valley is part of the Papaloapan watershed, which drains into the Gulf of Mexico. Figure 1 illustrates the physiography of the Mixtec territory.

1.1 Geological history

The *Sierra Madre del Sur* boasts the most complex geology in Mexico, and its history remains largely speculative (Ferrusquía Villafranca, *idem*: 63). Ortiz Pérez *et al*. (2004) characterize the major geomorphological features which distinguish five areas within Mixtec territory (here underlined), largely coincident with Ferrusquía's subprovinces and zones. The Balsas trough to the northwest has a relatively gentle topography, with 75% of the terrain showing slopes of less than 12°. It morphology is dominated by plateaus formed by metamorphic rocks of Paleozoic age in a general pattern of stepped north-to-south blocks. Mixtec presence in this area has been largely limited to the headwaters, the lower areas of the basin being occupied historically by Tlapanec people (Kaufman, 1990: 98), and more recently by Nahuatl speakers intruding from the north.

The mountains and valleys of western Oaxaca feature an intricate relief and diverse structure, characterized by a pattern of ranges that converge towards cusps in the south, with igneous, metamorphic and sedimentary rocks of varying age. Unlike the areas of the *Sierra Madre* to the west and east, where the mountains relate to the subduction zones and the relief ascends step-wise fashion towards the interior of the continent, here the mountains form linear, parallel ranges, rotated clockwise. The south to north orientation of the Mixteca Alta ranges, in contrast to the east to west axis of the Balsas trough and the general pattern of the *Sierra Madre* from Chiapas to Jalisco, remains a puzzle. About 25% of the slopes in the area range between 6° and 12°, and 6.5% exceed 30°. The geological history of this region is particularly relevant to the cultural development of the Mixtec people since it occupies a major portion of their territory, where human settlement reached the greatest density, and where large areas of the exposed substrate are highly prone to erosion because of their peculiar mineral composition. Soil retention has been a concern for Mixtec agriculturalists throughout the region and motivated the construction of terraces since the mid to late Classic period, about 500 to 900 AD (Spores, 2007: 75-76).

The Tehuacán-Cuicatlán rift bears evidence of having been an endorheic basin which developed its current drainage into the Gulf of Mexico in the Tertiary, in the process capturing flows from the eastern escarpment of the Mixteca Alta. The faults that flank the graben bear witness of recent tectonic activity. Slopes exceeding 30° occupy 3% of the area. Approximately 70% of it lies below 1000 meters in altitude; the warm climate and the potential for irrigation allow the alluvial soils of the lower canyon to produce tropical fruits and two to three crops of maize and other annual species. Mixtec communities settled the

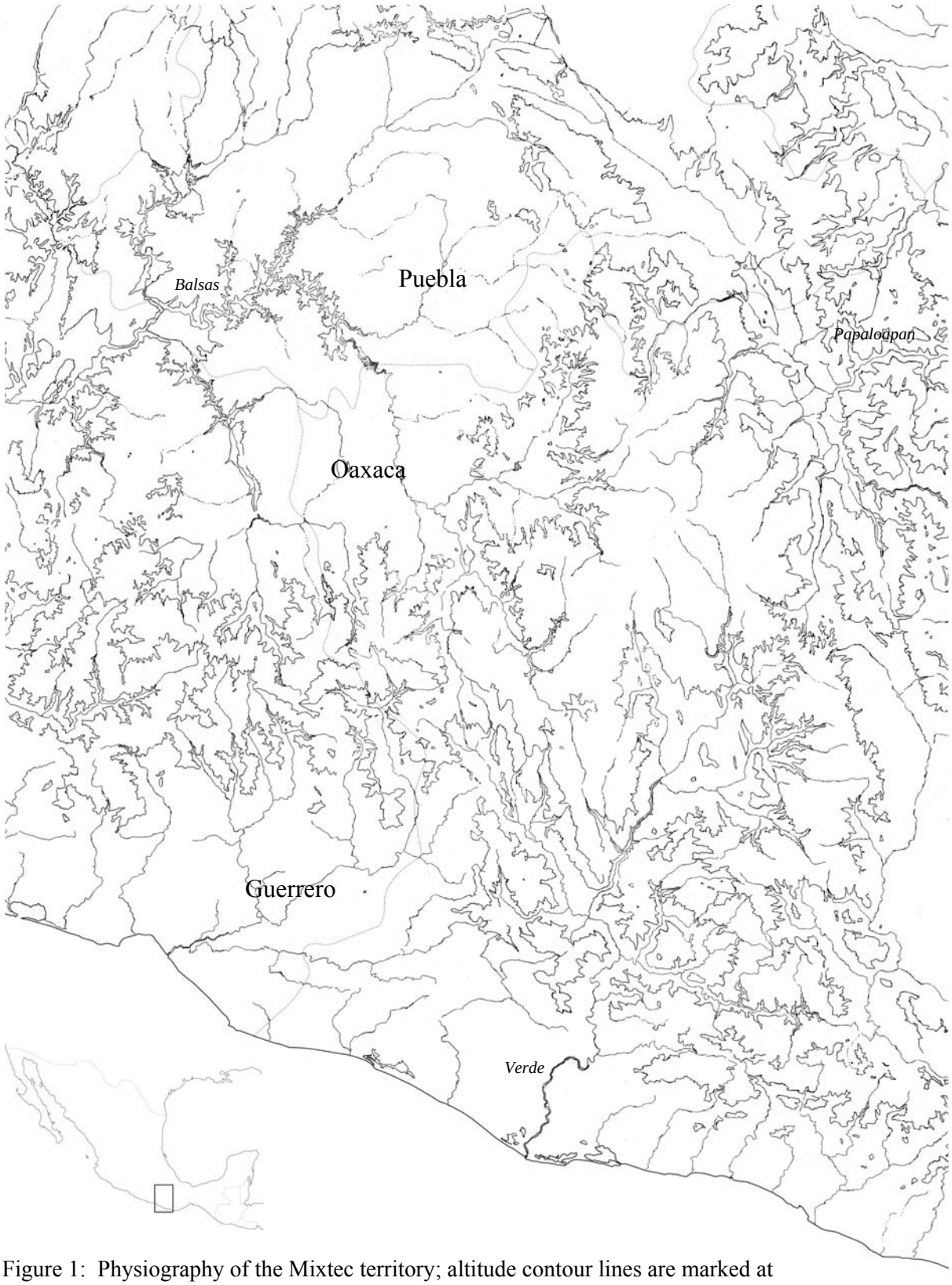


Figure 1: Physiography of the Mixtec territory; altitude contour lines are marked at 500 meter intervals; dotted lines represent state boundaries (based on INEGI, n.d.)

western slopes of the graben, and a sizable group traversed the canyon to settle in the eastern drainage, establishing a string of Mixtec outposts wedged in beween the Cuicatec and Mazatec peoples. The Cuicatlán rift has played a significant role in regional trade and the formation of polities since early times (Spencer, 1982).

Ortiz Pérez *et al*. (*op cit*: 51) distinguish the mountains and valleys of western Oaxaca from the *Sierra Madre del Sur*, proper, which they characterize as a range that runs parallel to the coast. It reaches lower altitudes than the highlands further north, as none of its summits within Mixtec territory exceed 2000 meters. It is traversed only by the Atoyac-Verde river; all other watersheds are autochthonous. Its slopes drop precipitously, with 22% of the area in the 6° to 12° range, 24% in the 12° to 18° bracket, and 29% in the 18° to 30° range. In the Mixtec region, the *Sierra Madre* contains metamorphic rocks of the Paleozoic and intrusive igneous materials of later periods. This area has been largely devoid of human occupation until recently, probably due to its extremely rugged topography. Compared to the narrow strip further east, Pacific coastal plain shows a softer relief in western Oaxaca and eastern Guerrero, with rolling hills, plains and some lagoons. It is largely covered by metamorphic rocks of the Cretaceous period and intrusive igneous materials, with some localized limestone outcroppings. The colonization of the coastal plain by Mixtec speakers appears to represent a relatively recent migration from the highlands (Josserand *et al*., 1984: 154).

Centeno García (2004) relates the mineral formations in the highlands of Oaxaca to the early geological history of the American Continent. Most of the Mixteca Baja and the western part of the Mixteca Alta are part of the tectonostratigraphic terrain called precisely the Mixtec Terrain. Tectonostratigraphic terrains are fragments of newly formed or ancient crust that breaks off from other continents and becomes attached to a different land mass. Consequently, these terrains bear witness to a geological history that is distinct from that of neighboring territories. The eastern rim of the Mixteca Alta and the Cuicatlán rift are part of a second tectonostratigraphic terrain, designated the Zapotec Terrain. This area is characterized by the presence of rocks belonging to the Oaxacan Complex, a metamorphic unit of great variation formed at great depths within the terrestrial crust, subjected to high pressures and temperatures, which has been dated at 1113 to 940 million years ago (Centeno García, *idem*: 32).

Rocks in the Oaxacan Complex, of sedimentary and igneous origin, are believed to have been deformed and metamorphized about 900 million years ago, in an event that was probably associated with the Grenville orogeny, which gave rise to the supercontinent Rodinia. The Oaxacan Complex is thought to have been part of a large continental block which has been called Oaxaquia. The tectonic evolution of the Oaxaquia block has been linked to proterozoic Gondwanan rocks of South America, which apparently accrued to the North American land mass in the late Paleozoic, during the formation of Pangea. The earliest rocks in the Mixtec terrain, on the other hand, belong to the Acatlán Complex, composed of igneous and sedimentary minerals that present varying degrees of metamorphism. Although the age of that event has not been defined with any precision, the evolution of the Acatlán Complex is considered to be a key process to understand the geological history of North America. These rocks, which appear to have been formed in a marine environment at great depth, seem to have been deformed by the collision of two continents (Centeno García, *idem*: 33).

A complex series of events have been reconstructed to explain the development of the Zapotec Terrain and the neighboring Mixtec Terrain that would gave rise to most of the Mixteca Alta and the Mixteca Baja. In the Precambrian, when all continental masses were joined in Rodinia, the Zapotec Terrain was part of northern South America and belonged to the Grenville mountain chain. In the early Paleozoic, some 530 million years ago, Laurentia (the continental mass that would become North America) was separated from the blocks that formed Gondwana, among them the South American land mass. Oaxaquia, including the Zapotec Terrain, remained on its northeastern margin and began to erode, parts of it becoming submerged by the sea. The Tiñú (a Mixtec toponym) Formation, a sedimentary deposition of Ordovician age that overlies the Oaxacan Complex in the Nochixtlán Valley in the eastern Mixteca Alta, bears abundant marine fossils of species that have been found in formations of matching antiquity in South America, but not to the north. This is the evidence indicating that the Zapotec terrain was adjacent to South America 490 million years ago.

At the same time that the Zapotec Terrain was becoming submerged, the oceanic crust began to take shape which would become deformed and pleated into the Mixtec Terrain. In the mid Paleozoic, about 370 million years ago, the margin of Laurentia collided with northern Gondwana; the marine rocks of the Mixtec Terrain appear to have become trapped in that collision and were hence deformed, emerging as large mountains (Centeno García, *idem*: 37). In the late Paleozoic, some 255 million years ago, almost all continental land masses drew together again, forming the supercontinent Pangea. It was at that time that the Oaxaquia block joined the territory that would become northern Mexico, while the Zapotec and Mixtec terrains were covered by shallow seas. During the early Mesozoic, Pangea broke apart gradually to form the Atlantic Ocean, including the Gulf of Mexico. On the Pacific side, an arch of volcanoes arose which would shape the Xolapa Terrain, which underlies the coastal plain today. At the end of the Cretaceous in the late Mesozoic, the push of the Pacific plate in the active subduction zone along the early coast caused the marine and continental rocks of earlier periods to be deformed and pleated, giving rise to mountains as part of the Laramide orogeny, which would continue into the early Cenozoic.

In the last 65 million years, two local tectonic events have shaped the landscapes of southern Mexico. Early on in the Cenozoic, the Xolapa Terrain, as well as the Chortis Block in Central America, moved southwards by means of large faults with lateral displacement. This process brought about the formation of valleys and mountains by blocks controlled by faults. As the Chortis Block migrated south, subduction began along the coast of the Pacific, originating the emergence of volcanoes toward the interior and a new system of south to north faulting. About nine million years ago, the terrestrial connection between South and North America began to build up, an event that would be completed 3.5 million years ago and would have profound consequences for the composition of the modern flora and fauna of Mexico (Halffter *et al*., 2008: 68). Biological diversity in Oaxaca and adjacent regions has been enhanced by the strategic location of the territory at the confluence of the Neotropical and Nearctic biogeographic provinces (Espinosa Organista *et al*., 2008: 57; Rzedowski, 1993: 134).

1.2 Climate

Although the geology of the Cenozoic remains poorly documented in the region, events during that period shaped the landscapes we see today, uplifting the major mountain ranges and setting the stage for great climatic and vegetational diversity. The *Sierra Madre del Sur* and the mountain ranges facing the Gulf of Mexico, both originated by major faults, cast moisture shadows that give rise to contrasting climates, from humid types on the leeward side of the mountains to arid climates in the interior. The interaction between topography and precipitation patterns is particularly marked in the Cuicatlán Canyon, which is the driest area in Mesoamerica, and also in the Balsas trough. In the absence of the tectonic shifts of the Cenozoic, the landscape of southern Mexico would be quite flat and uniform in its climate, similar to the Yucatan (Centeno García, *op cit*: 39). It would probably resemble the Peninsular Maya region in its cultural and linguistic homogeneity, as well.

The climatic zones of the Mixtec region are as varied as its geomorphology (Trejo, 2004). The type Aw (warm subhumid) climate is found in the coastal lowlands. Types BS1(h')w (warm semi-arid) and (A)C(w) (semi-warm subhumid) occur in most of the Balsas basin. BSO(h')w (warm arid) characterizes the Cuicatlán Canyon. BS1kw (temperate semi-arid) is present at mid altitudes in the northern Mixteca. C(w) (temperate subhumid) prevails over most of the Mixtec-Zapotec sierras above 2000 meters, with Cb'(w) (semi-cold subhumid) at the highest altitudes. C(m) (temperate humid) and (A)C(m) (semi-warm humid) occur at mid altitudes on the slopes facing the Pacific in the Putla, Juxtlahuaca and Metlatónoc areas. Lastly, Am (warm humid) climate is found in small areas where oceanic moisture condenses faster at the foot of the higher sierras.

Geologic events during the Cenozoic period have thus been major determinants shaping the landscapes and climates in which the cultural history of the peoples of Southern Mexico has unfolded. In the case of the Mixtecs and their neighbors, it is relevant to examine the earlier geological history of the region, as well, to shed light on the evolution of the local flora, determined partly by the distinct mineral formations and the soil types that have developed from them. The ancient history of the land is also germane to the physical and chemical limitations to indigenous agriculture that characterize the Mixteca, which have largely determined its demographic dynamics and migration patterns (Stuart & Kearney, 1981; Escárcega & Varese, 2004; Stephen, 2007). The peculiar geology of the region has rooted Mixtec communities in their unique and diverse landscapes emotionally (Geurds, 2007; López García, 2007), and has perhaps conditioned their aesthetic sense. Mixtec manufactures are considered among the most sophisticated art in Mesoamerica and have been traded widely since antiquity (Spores, 1997; de Ávila, in press, b).

1.3 Flora and vegetation

The complex geomorphological and climatic mosaic of the Mixtec territory is mirrored in its vegetation. Rzedowski (1978) and Challenger & Soberón (2008) provide an overview of the major vegetation types found in southern Mexico. Torres Colín (2004) discusses the plant communities present in the State of Oaxaca in greater detail, generating a vegetation map based on the 2000-2001 National Forestry Inventory. The Mixteca Baja was originally

covered primarily by tropical deciduous forests in the low-lying areas of the Balsas trough, with various types of *matorral* (scrubby vegetation) and some oak woodlands and oak forests at higher elevations. Intensely grazed, secondary vegetation is evident in most landscapes in the region, and areas amenable to irrigated and rain-fed agriculture were cleared long ago.

The original vegetation of large areas of the Mixteca Alta consisted of various pine-oak associations, with gallery forests dominated by Montezuma cypress (*Taxodium mucronatum* Ten.) along the streams and rivers, and fir forests at higher altitudes. Juniper woodlands and *Brahea* palm thickets occur in drier areas, especially on limestone formations. The latter type of vegetation is also found in the Mixteca Baja and the upper slopes of the Cuicatlán Canyon. The Mixteca Alta has been extensively deforested since early times, and large tracts of dense, low stature pine growth represent secondary vegetation on eroded soils. There are wide expanses of grassland in the Coixtlahuaca and Nochixtlán districts that constitute the southernmost extension of the semiarid North American *graminetum* (Rzedowski, 1978: 233), although these may also be anthropogenic in origin.

The Cuicatlán Canyon, deeply carved by the affluents of the Papaloapan river and overcast by the rain shadow of the mountains facing the Gulf of Mexico, is covered by distinctive, relatively undisturbed vegetation. Xerophytic scrub, which represents again the southern end of the distribution of an ecosystem that extends over a sizable portion of western North America, occurs in the driest sections of the rift valley. A complex assortment of tropical deciduous communities, dominated by columnar cacti, covers large areas on the lower slopes. At mid altitudes, a distinctive type of evergreen scrub is found that has been designated *Mexical* and which has elucidated the evolution of chaparral vegetation under Mediterranean climates in California, Chile, the shores of the Mediterranean Sea, South Africa and Australia (Valiente Banuet *et al*, 1998). The aridity of the canyon prevented the spread of shifting agriculture into this region, sparing most of the original plant cover. Mixtec communities occupy comparatively moist areas on the higher slopes to the west and northeast of the Cuicatec people, speakers of a Mixtecan language who developed intensive irrigation agriculture in the bottomlands.

The forests of the *Sierra Madre del Sur* along the Juquila-Putla-Juxtlahuaca-Metlatónoc transect represent the least studied component of the vegetation in Mixtec territory. Atmospheric moisture from the Pacific ocean condensing on the south facing escarpment of the Sierra allow the development of isolated patches of cloud forest, as well as humid oak and pine associations at higher altitudes, and tropical montane forest on the lower slopes. Large areas have been devoted to coffee production since the late 19th century, while others have been cleared for slash and burn *milpa* agriculture. Drier slopes harbor tropical pine woodlands and *Curatella-Byrsonima* savannas that seem to have developed after human perturbation. The Pacific coastal plain presents a mixture of tropical subdeciduous forests and *Atelea* palm groves, with tropical deciduous forests developing on substrates with rapid drainage. Mangrove swamps and aquatic vegetation occur in the coastal lagoons. Shifting agriculture has cleared extensive areas on the plains and piedmont, with commercial cattle production and some perennial cash crops such as mangos and copra depleting further land. The Mixtec coast in western Oaxaca and eastern Guerrero is among the most heavily deforested areas of the Pacific lowlands in Mexico (Salas Morales *et al*., 1991-1999).

The diverse vegetation of the Mixteca is correlated with a rich flora, noted for a high incidence of endemic species. Large areas of the region remain to be surveyed by botanists. There is no current estimate of the floral diversity of the entire Mixtec territory, but the totals that have been projected for the Mixteca Alta, the Tehuacán-Cuicatlán Valley, the Balsas basin and the State of Oaxaca can serve as a reference. 1550 species of seed plants had been reported by the early 1990s for the areas above 2000 meters in altitude in the districts of Coixtlahuaca, Teposcolula, Tlaxiaco and Nochixtlán, as well as the mountainous portions of Juxtlahuaca, Huajuapan and Etla, and the southern part of the municipality of Caltepec in Puebla (García Mendoza *et al*., 1994). 97 of these taxa, 6% of the total, were found to be narrowly endemic to the Mixteca Alta, as defined by the authors, including a monotypic genus in the iris family, while three other endemic genera barely extend into neighboring regions. Agaves, composites, salvias and stonecrops in the genera *Echeveria* and *Sedum* figure prominently among the most diverse taxa with a higher prevalence of endemism in the region. The list of species and the number of endemic taxa that have been identified have increased since that publication. Recent work at the archaeological site of Yucundaá by Teposcolula, a major landmark on the main road that traverses the Mixtec territory from north to south, in an anthropogenic landscape that continues to be disturbed heavily by nearby human settlement, led to the discovery of four new species of angiosperms, presumably endemic to the Mixteca Alta (García Mendoza & Franco, 2007; García Mendoza, 2009, personal communication).

The plant communities of the Tehuacán-Cuicatlán Valley are so distinct that the area is considered a floristic province of its own (Rzedowski, 1978), the subject of an ongoing series of monographs that are being published family by family (Medina Lemos, 2010). The editorial committee for the project has defined the region to include the eastern flank of the Mixteca Alta as well as the western escarpments of the Sierra Cuicateca and Sierra Mazateca, in addition to a large area in southern Puebla well beyond the Mixtec territory. The vascular plants that have been documented in the region surpass 2500 species, with an especially high incidence of endemism approaching 10%. The area is notable for the diversity of arborescent cacti, among other groups. More than 4400 species have been recorded in the Balsas basin to the west (Fernández Nava *et al*., 1998), but the literature does not quantify the number of endemic taxa. The Balsas drainage is the center of diversity of the genus *Bursera*, of considerable significance in Mesoamerican cultural history; over 40 species of *copales* and *cuajiotes*, local names for trees and shrubs in that group, are known from this region.

Oaxaca is acknowledged to boast the most diverse flora and fauna in Mexico (Flores & Gerez, 1994). The list of plants recorded so far in the State, backed by herbarium specimens, reaches 9347 species, including 459 mosses (García Mendoza, in press); the total number of vascular plants has been anticipated conservatively at 9000 species, above the estimates for the neighboring states of Chiapas and Veracruz (Rzedowski, 1998: 134). Table 1 presents the estimated floral diversity for various regions in Mexico and for the country as a whole. Close to 500 species of plants, excluding the major crops, have been documented to be utilized traditionally in Oaxaca, and an additional 2300 useful species are estimated to be present in the State (Caballero *et al*., 2004: 542).

region	total species	endemic species	percentage
Mixteca Alta	1550	97	6.3%
Tehuacán-Cuicatlán	2521	207	8.2%
Balsas basin	4442		
Oaxaca	8888	677	7.6%
Chiapas	8248		
Veracruz	7998	131	1.6%
MEXICO	22,351	12,740	57%

Table 1: Number of species of vascular plants recorded for the Mixteca Alta (excluding ferns and their allies), the Tehuacán-Cuicatlán Valley, the Balsas basin and the State of Oaxaca, compared to adjacent regions of Mexico. Information drawn from García Mendoza (1994, 2004 & in press), Medina Lemus (2010), Méndez Larios *et al*. (2004), Fernández Nava *et al*. (1998), Castillo Campos *et al*. (2005), and Villaseñor (2003).

1.4 Language diversity and Otomanguean prehistory

The geographical pattern of enhanced biological diversity in the highlands of southern Mexico that is evident in table 1 correlates quite closely with the cultural diversity of the region, as quantified by the number of languages spoken there historically and at present. The State of Oaxaca and the adjacent areas of southern Puebla and eastern Guerrero constitute the region of greatest linguistic complexity in the Americas, as noted by McQuown (1955: 501): "In one small portion of the area, in Mexico just north of the Isthmus of Tehuantepec, one finds a diversity of linguistic type hard to match on an entire continent in the Old World." Languages belonging to five distinct families are spoken there: Otomanguean, Mixe-Zoquean, Uto-Aztecan, Oaxacan Chontal and Huave (Campbell, 1997). Two of these linguistic phyla are represented in Mixtec territory, Otomanguean and Uto-Aztecan [2.].

The Otomanguean family is the most diversified and also the most distinct group of languages in Mesoamerica. A number of phonological features distinguish them from the other linguistic lineages in the region: 1) all Otomanguean languages show phonemic tone, which varies from two to five level tones, and most have gliding tones as well; 2) phonemic vowel nasalization is widespread in the family; 3) open syllables are the norm, and most languages have only CV [consonant-vowel] syllables, except when they are closed with a glottal stop [CV']; 4) syllable clusters that can occur at the beginning of a syllable are limited, usually to sibilant-C, C-y or C-w, nasal-C, and C-h or C-'; 5) most languages lack labial consonants, although some have developed them from /*k^w/ (Campbell, 1997: 157). The phonological inventory of Proto-Otomanguean reconstructed by Rensch (1977) consists of /t, k, k^w, ', s, n, y, w, h; i, e, a, u; four tones/. More recently, Kaufman (1990: 99-100) postulated a much more extensive Otomanguean phonemic system: /t, c, k, k^w, ', [θ], s, x, x^w, h, l, r, m, n, w, y; i, e, a, o, u; combinations [ia], [ea], [ai], [au]; tones (two or three)/ [3.].

The Mixtec languages exhibit all the major phonological traits that characterize the family. The sound system that has been reconstructed for Proto-Mixtec lacks bilabial stops (Bradley & Josserand, 1982), and all contemporary variants that have been documented show open syllables, with the exception of Ayutla Mixtec, where CV' occurs at couplet-final position (Hills, 1990). Nasalization and complex tonal patterns, including tone perturbation (sandhi) are found throughout the Mixteca. In terms of their phonology, the varied forms of Mixtec can be viewed as typical Otomanguean languages. The unique traits of this family led them to be considered to be different from other American indigenous languages (Campbell, *op cit*). In his initial efforts to define "Amerind" as a language phylum encompassing most languages in the New World, Greenberg (1960: 791) considered Otomanguean as a possible exception to the genetic unity he postulated [4.].

Following the criteria of classification of the *Instituto Nacional de Lenguas Indígenas* (a research and policy institution of the Federal Government of Mexico), the variants of Mixtec represent the most diversified group of languages spoken in Mexico today (INALI, 2007). INALI recognizes officially the existence of 81 variants of Mixtec, a larger number than the case of Zapotec, Náhuatl or any other language group spoken in the country. By these criteria, the Mixtec lineage contributes 42% of the regional (Oaxaca, southern Puebla and eastern Guerrero) linguistic diversity, and 22% of the national total. A variant is defined by the INALI as "a form of speech which presents structural and lexical differences compared to other variants of the same grouping, and which implies for its users a certain sociolinguistic identity, differentiated from the identities of the speakers of other variants."

The institution's publications do not elaborate on the methodology for distinguishing one variant from another, but INALI's policy statements emphasize the commitment of the Mexican Federal Administration to grant them the juridical status of languages: "In conformity with advances in the studies on the linguistic reality of our country and in order to prevent linguistic discrimination, the INALI considers that linguistic variants must be treated as languages, at least in the areas of education, the impartment and administration of justice, and health, as well as in matters or procedures of public nature, and to gain full access to government management, services, and public information." (INALI, 2007: quote from the introductory statement, translated by Alejandro de Ávila).

Other sources disagree with INALI's catalog in assessing the number and relative ranking of the variants of Mixtec with regards to other language groups, but they acknowledge nevertheless that it is one of the most diversified lineages in the Americas. The Ethnologue (Lewis, 2009) lists 52 Mixtec languages, making it the second most prolific grouping in the continent, after Zapotec and ahead of Quechua. Table 2 lists the number of languages spoken in Oaxaca and neighboring regions according to the Ethnologue. By these criteria, the 52 Mixtec languages represent 30% of the regional diversity and 18% of the national total. The researchers affiliated with the Summer Institute of Linguistics who have compiled the Ethnologue usually take a level of 80% or less of mutual intelligibility as a threshold to differentiate a dialect from a language, considering that 20% of incomprehension is sufficient to cause disruption of the ability to communicate. The SIL has developed a methodology to assess the degree of intelligibility between related languages (Casad, 1974; Egland, 1978). Lewis (2009) quotes extensive estimates for the level of comprehension between most Mixtec languages listed in the Ethnologue, which range from 8% to over 80%.

region	languages	families
MEXICO	285	11
Oaxaca	157	5
Puebla	28	3
Guerrero	15	2
Veracruz	22	5
Chiapas	24	3
GUATEMALA	53	2

Table 2: Number of Mesoamerican languages currently spoken in Oaxaca and adjacent regions, based on the lists published by Lewis (2009). Indoeuropean languages such as Spanish and Plautdietsch, and Caribbean languages such as Garífuna, are excluded here. The last column sums the number of linguistic families represented in each region, according to Campbell (1997).

Other specialists question these estimates of language variation in the Americas, considering the classification procedure of the SIL to be "somewhat generous" (Campbell, 1997: 3). Kaufman (1989, cited by Smith-Stark, 2003: 26) uses more restrictive criteria to differentiate languages from dialects: discussing the variation within Zapotec, he distinguishes various "emergent languages" that share only 10 to 40% of intelligibility, "dialectal groups" with 50 to 65%, "dialects" with 65 to 80%, and "varieties" with 80 a 100% mutual comprehension. Table 3 presents the number of languages recognized by Kaufman (1989 & 2001). Although the regional sums are considerably lower than the totals that can be added up from the data presented in the Ethnologue or in INALI's *Catálogo*, the geographical pattern remains constant, with the region west of the Isthmus showing greater diversity. Following Kaufman's criteria, Josserand's (1983: 457) "more than twelve mutually unintelligible" Mixtec languages would represent at least 20% of the regional total, a result that is fairly consistent with the estimate based on Lewis (2009).

Kaufman (1990: 94-97; 2001: 83-85) has reconstructed the sequence of differentiation in the Otomanguean family, which includes the Mixtec languages, as illustrated in figure 2. He finds evidence for an initial division of Proto-Otomangue into two lineages about 6000 years ago. Each lineage would split in turn into two branches: around 4700 years ago, the western lineage would give rise to the Tlapanec-Manguean branch and the Otopamean-Chinantec branch, while the eastern lineage would beget the Popolocan-Zapotecan branch and the Amuzgo-Mixtecan branch at about the same time. The Tlapanec-Manguean branch would diverge some 4000 years before present into the Tlapanec-Sutiaba group and the Chiapanec-Mangue group. Sutiaba (a language formerly spoken in western Nicaragua, which became extinct in the early 20th century), separated from Tlapanec (present today in eastern Guerrero, just west of Mixtec territory) as recently as 800 years ago.

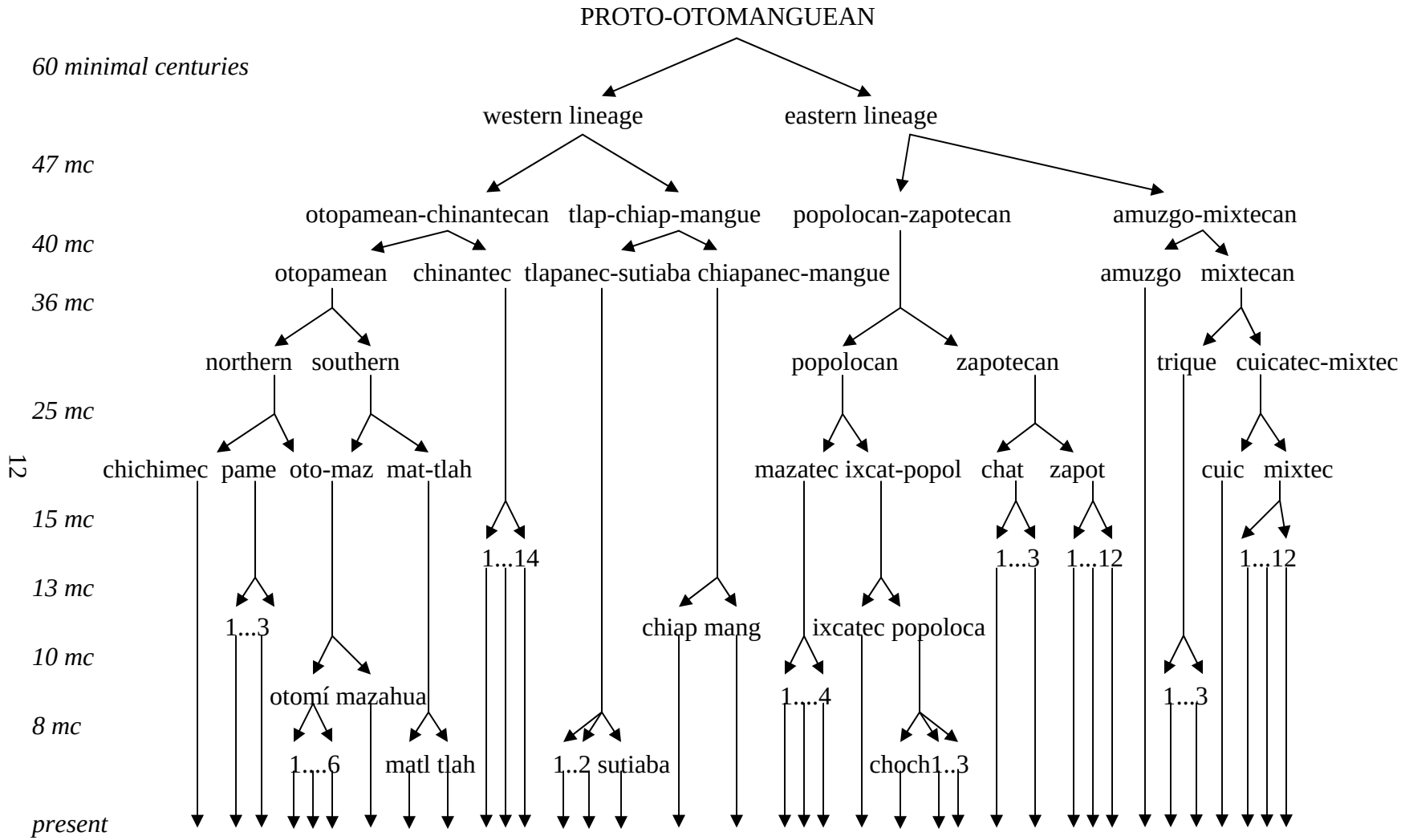


Figure 2: Diversification of the Otomanguean family, based on Kaufman (1990 & 2001); Mixtec data based on Josserand (1983)
chat: Chatino zapot: Zapotec matl: Matlatzinca tlah: Tlahuica choch: Chocholtec

region	languages
Oaxaca	43 [55]
Puebla	9 [10]
Guerrero	6 [8]
Veracruz	11
Chiapas	17
Guatemala	32

Table 3: Number of Mesoamerican languages recorded historically in Oaxaca and adjacent regions, based on Kaufman's classification (2001). The author includes languages that became extinct after the European invasion but were sufficiently well documented to determine their genetic affiliation. The numbers between brackets take into account the 18 Zapotec "emergent languages" previously recognized by Kaufman (1989), as well as the minimum number of Mixtec languages estimated by Josserand (1983) to be spoken in Oaxaca, Puebla and Guerrero. Kaufman (2001) regards only 12 Zapotec languages and 3 Mixtec "language areas".

Chiapanec (which was spoken in Central Chiapas and became extinct in the mid 20th century), would differentiate approximately 1300 years ago from Mangue (a series of dialects formerly spoken along the Pacific coast of Central America from the Gulf of Fonseca to the Nicoya Peninsula, which disappeared in the 19th century). Proto-Chinantec, whose descendants are still spoken today in northern Oaxaca, separated from the Otopamean branch about 4000 years B.P.; the latter would differentiate some 400 years later into a southern group, composed of Matlatzinca, Tlahuica (Ocuiltec), Mazahua and the Otomí languages, all of which are still present in Central Mexico, and a northern group, composed of Chichimec-Jonaz of northern Guanajuato and the Pame languages of Hidalgo and San Luis Potosí. It is likely that this group included other members which became extinct after 1521 without being documented.

In the eastern subdivision of Otomanguean, Kaufman estimates that the diversification of the Popolocan-Zapotecan branch represents 35 centuries of divergence. Within that branch, he considers that the variation in the Popolocan group reflects some 2400 years of language evolution, with the initial separation of the Mazatec lineage, followed about 1200 years later by Ixcatec, and 400 years hence, by the divergence of the four Popoloca and Chocholtec "emergent languages". Variation in the Zapotecan group he estimates to reflect likewise some 2400 years of divergence, with Proto-Chatino splitting off first, followed about 1000 years later by the diversification of the Zapotec languages.

Although Suárez (1983) and other authors have classified Amuzgo as an independent branch within the family, Kaufman places the separation of Proto-Amuzgo from the Mixtecan group around 4000 years B.P., approximately five centuries after the eastern Otomanguean lineage bifurcated to give origin to the Popolocan-Zapotecan and Amuzgo-Mixtecan branches. The Mixtecan group includes Trique, Cuicatec and Mixtec. The three Trique variants, which Kaufman (2001: 84) regards as "emergent languages," constitute the most divergent lineage,

as Proto-Trique is estimated to have split off 3700 years ago, followed by Proto-Cuicatec 1200 years later. Kaufman (1990: 95-98) estimates a horizon of 15 centuries for the diversification of the Mixtec languages and believes that the lineage expanded from the Alta into the Baja only in the last 1000 to 1500 years. Josserand (1983: 450), however, calculated that their time depth approaches 2500 years [5.], a considerably longer period than the interval of divergence of the Romance languages.

The branching pattern of the Otomanguean languages has significant implications in Mesoamerican history since they are considered to be the most diversified family in the region (Campbell, 1997: 157). Their historical distribution extends from the northern boundary of the cultural region (Pame languages in San Luis Potosí) to its southern extreme (Mangue in Costa Rica) [6.]. The nuclear Otomanguean territory in the highlands of Central Mexico and Oaxaca matches quite closely the geographic range of an assemblage of archaeological traits correlated with the earliest development of agriculture documented in the continent. Winter, Gaxiola and Hernández (1984: 72) noted that the present-day distribution of Otomanguean speakers is "roughly coterminous" with the Tehuacán tradition, whose diagnostic features were defined by MacNeish (1967: 243) to include "true manos and metates, stone bowls, Coxcatlán, Tilapa, and Garyito points, crude and fine blades, gouges, and the use of pit houses," in association with "an embryonic agriculture founded on corn, beans and squash." MacNeish located this archaeological assemblage in an area that ran from the highlands of Querétaro and Hidalgo to Oaxaca, dating it between 5000 and 2300 BC.

Winter *et al*. (*op cit*) believed that the dates and some of the defining traits of the Tehuacán tradition needed to be modified, but endorsed the basic concept advanced by MacNeish, noting that it was consistent with the findings of preceramic occupation at Guilá Naquitz in the Valley of Oaxaca, Texcal Cave in Puebla and Zohapilco in the Basin of Mexico. They emphasized, furthermore, that the Tehuacán tradition differed from contemporaneous archaeological assemblages to the north: the Cochise and Desert Cultures in the southwestern US, the Big Bend tradition in Texas, and the Abasolo complex in Nuevo León and Tamaulipas. Sites on the Pacific and Gulf coasts of Mexico, and similarly dated remains east of the Isthmus of Tehuantepec, yielded no evidence of agricultural production and bore little resemblance to the characteristic features of the Tehuacán tradition (Winter *et al*., *idem*: 74). Except for the intrusion of Náhuatl into the Basin of Mexico and surrounding areas around 500 AD (Kaufman, 2001: 88), the close fit in the distribution of the Otomanguean languages with the archaeological evidence for early agriculture led Winter *et al*. (*op cit*: 72) to infer that the bearers of the Tehuacán tradition spoke Proto-Otomangue. This notion appears to be bolstered by the territorial and demographic expansion of the Otomangueans, which remain the indigenous family with the largest number of speakers in Mexico today (over two million people, based on the population estimates for individual languages provided by INALI, 2005, and Lewis, 2008). Their remarkable linguistic diversification may also reflect their role as early plant propagators, in the same fashion that the rise of agriculture has been correlated with the proliferation and branching out of the Austronesians in Southeast Asia and Melanesia (Pawley & Ross, 1993; Gray & Jordan, 2000), the Niger-Congo family in Subsaharan Africa (Ehret & Posnansky, 1982), and the Indoeuropeans in the Middle East, India and Europe (Renfrew, 1996; Gray & Atkinson, 2003).

The early Otomanguean peoples seem the likeliest candidates for the initial development of Mesoamerican civilization. If linguistic diversification reflects a more intensive role in agricultural innovation, as has been proposed by the sources quoted above, the southern Otomangueans in general, and the Mixtecan and Zapotecan branches in particular, would appear to have been most directly involved in plant domestication. Archaeological evidence for agricultural origins published since Winter, Gaxiola and Hernández' 1984 work is consistent with this hypothesis: the site of Guilá Naquitz in Oaxaca has yielded the earliest macroscopic remains of cultivated plants discovered so far in the Americas (Flannery, 1986), including a teosinte-maize intermediate that is approximately 7000 years old (Piperno & Flannery, 2001; Benz, 2001), and squash seeds that were grown about 10,000 years before present (Smith, 1997). The extraordinary variety of the Mixtec languages and their neighbors may bear the imprint of that early involvement with horticulture.

1.5 Mixtec language history

Longacre (1957), Mak & Longacre (1960), Longacre & Millon (1961) and Bradley & Josserand (1982) delved into the early history of Mixtec based on internal evidence drawn from the variants spoken today. Longacre reconstructed the phonological system and a series of lexical items of Proto-Mixtecan, using data from five Mixtec communities [7.], along with Cuicatec, Trique and Amuzgo. He did not attempt to reconstruct Proto-Mixtec forms specifically, but used prototypical Mixtec terms which he generalized from the dialectal variants at hand. Most of his reconstructions are limited to the final syllables of the original couplets of Proto-Mixtecan. Since he included Amuzgo in his data set, Longacre's results should be regarded as a reconstruction of Proto-Amuzgo-Mixtecan, if Kaufman's (1990 & 2001) placement of Proto-Amuzgo's divergence at the earliest stage of the Mixtecan branch of Otomanguean holds true.

Bradley & Josserand (1982) presented an inventory of eight consonants, two semivowels and six vowels in Proto-Mixtec: /k^{w}, t, k, ^{n}d, s, x, n, w, l, y, i, ɨ, u, a, o/. They also reconstructed simultaneous prosodic features of glottalization, nasalization and tone for vowel nuclei. They posed four vowel paradigms { V : Ṽ : V' : Ṽ' }; i.e., vowels were plain, nasalized, checked, and checked-nasalized. The glottal stop is thus included within the vowel nucleus, and the result is "a very regular set of couplet canons, described by the formula (C)V(')(C)V('), where parentheses indicate optional constituents." (Josserand, 1983: 240). Bradley & Josserand (*op cit*) also characterized a morphophonemic process of nasalization that was regressive from nasalized vowels, which only occurred in final syllables, and both progressive and regressive nasalization from the nasal consonant /*n/. A second morphophonemic development they discussed was the reduction of couplets to CV roots in Proto-Mixtec, a process that is recurrent in Mixtec plant nomenclature today.

The general validity of Bradley and Josserand's (1982) reconstructions was confirmed by the extensive data sets analyzed by Josserand in her doctoral dissertation (1983). She used a questionnaire of 188 lexical items to survey the Mixtec dialects spoken in 122 communities in western and northern Oaxaca, southern Puebla, and eastern Guerrero. Her survey included at least one town, Cuilapan in the Valley of Oaxaca, where the language has become extinct since her study. She did not find any case where the speech was identical to that of another

community. Her data base allowed her to trace a detailed sequence of phonological changes in Mixtec language history, and to reconstruct the Proto-Mixtec form of the 188 terms, including some plant names. Based on shared phonological innovations as well as lexical isoglosses, Josserand drew a complex map [8.] showing how her 122 communities clustered into 12 dialect areas (figure 3). Her work has been the basis for all subsequent research into Mixtec linguistic variation, and her map has been reproduced in later publications (Bradley & Hollenbach, 1988: 3).

Josserand, Jansen & Romero (1984: 151-154) related five major dialect areas to geographical features, noting that they "correspond roughly to valley and river systems": 1) the Central and Eastern Mixteca Alta, centered in the Nochixtlán Valley (part of the Atoyac-Verde watershed through the Río Grande); 2) the Western Mixteca Alta, focused on the Achiutla-Tlaxiaco area (draining into the Verde by means of the Río Hondo); 3) the Northern Mixteca Baja, centered in the communities around Acatlán de Osorio, which are part of the Balsas basin by way of the Acatlán river; 4) the Southern Mixteca Baja, with the Juxtlahuaca-Mixtepec area as the focus (which drains into the Balsas through the Río Mixteco); and 5) the Coastal Mixteca, occupying the narrow coastal plain of western Oaxaca, which drains into the Pacific through the Verde and a number of smaller rivers.

Josserand *et al*. (*idem*: 151) noted that the Nochixtlán Valley, the largest expanse of relatively level terrain in the entire Mixtec territory, is "a key area for understanding the dynamics of the prehistoric Mixtecs." As a dialect area, they found that it is paradoxically the most homogeneous region in some aspects, "because it is a bounded, well-integrated area", and at other times the most diverse area, "because of the greater time-depth of the settlements in the valley." In the Western Mixteca Alta they found the dialect boundaries to coincide with the ridges separating the many narrow and long valleys, with the dialects grouping into "larger units parallel to the hydraulic systems." They also found the coastal dialects in Oaxaca to be much more uniform than any other area, and proposed that this region was colonized in "two major population movements" by 900 to 1000 AD; they found, furthermore, the coastal dialects to be related most closely to the variant spoken today in San Juan Mixtepec (district of Juxtlahuaca), where they surmised the migration to have originated (Josserand *et al*., 1984: 154).

Five phonological innovations serve to define and characterize the major dialect areas: 1. The Proto-Mixtec voiceless alveolar plosive /*t/ became /tn/ before nasalized vowels, a sound change that appears to have arisen in the Nochixtlán Valley and spread throughout the Eastern, Central and Western Mixteca Alta. It did not reach the Mixteca Baja except for the northern area around Acatlán [9.], which was presumably colonized by speakers from the Nochixtlán Valley (Josserand *et al*., *idem*: 155). The authors regard this to have been an early innovation which serves as a diagnostic feature that defines the central region of the Mixteca and distinguishes it from the periphery. They interpret its absence in Mixteca Baja dialects as an indication that there was a distinct population in the Mixtepec-Juxtlahuaca area at the time the change came about which did not participate in the innovation. Coastal Mixtec dialects lack /tnṼ/ since they are thought to originate in the same area.

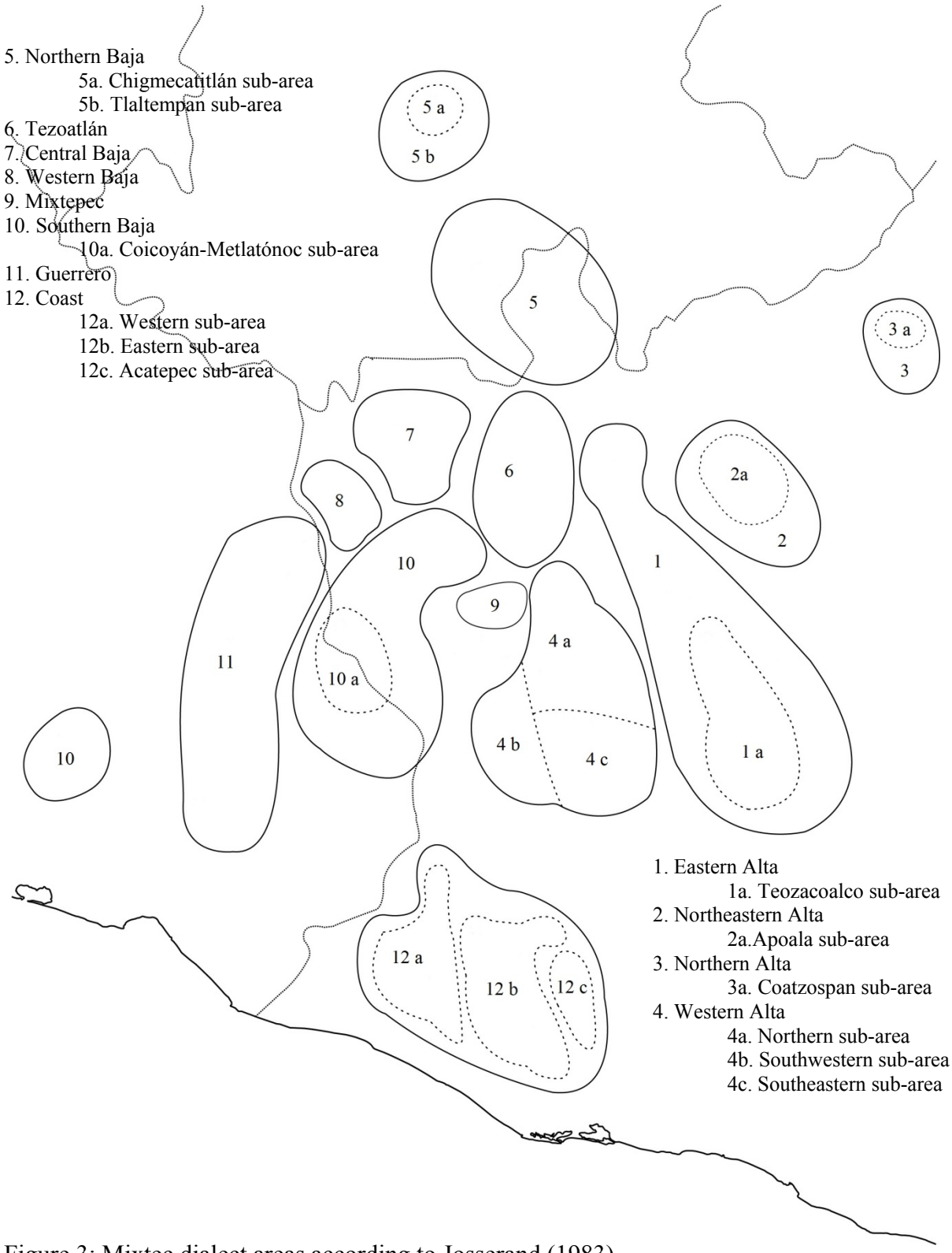


Figure 3: Mixtec dialect areas according to Josserand (1983)

2. The Proto-Mixtec voiceless alveolar sibilant /*s/ became the fronted and voiced /ð/, transcribed as <**đ**> by Josserand, written as <**dz**> in the Colonial literature, and simply as <**d**> in the practical orthography of **Ve'e Tu'un Savi** (2007). Like the previous, this change appears to have arisen in the eastern Mixteca Alta and to have spread north to the Acatlán area [10.], but it did not affect the dialects of the western Alta nor the central Baja and the Coast.

3. The Proto-Mixtec voiceless palato-alveolar fricative /*ʃ/ became the fronted affricate /tʃ/, transcribed as <**ch**>. This pronunciation change characterizes the speech of San Juan Mixtepec and the coastal dialects that are thought to have derived from it. Josserand *et al*. (*idem*: 156) note that this change obstructed intelligibility with other dialects which developed the same sound from a different source (explained below): "a stronger barrier to communication now emphasized the independence of the Mixtepec-Juxtlahuaca area."

4. Before front vowels, the Proto-Mixtec voiceless alveolar plosive /*t/ became palatalized as /tʲ/, transcribed as <**ty**>, in some areas. In other areas, it became palatalized and affricated as /tʃ/. The development /ti/ > /tʃi/ is found throughout the Mixteca, except the Coast. The parallel shift /te/ > / tʃe/, in contrast, is restricted to one area of the eastern Mixteca Alta and Cuilapan in the Valley of Oaxaca; presumably that town was settled by Mixtec speakers from the northeastern Nochixtlán district, where that phonological innovation is centered [11.]. The palatalization of /*t/ to /tʲ/ was restricted to San Juan Mixtepec and what Josserand *et al*. (*idem*: 158) believe to have been a second wave of migration to the coast, settling to the east of the area that had been colonized earlier.

5. The Proto-Mixtec mid vowel /ɨ/ became /i/. This change is common to most of the Mixteca except the eastern Alta and the eastern Coast, where the original /ɨ/ has been retained. Josserand *et al*. (*idem*: 159) believe this change to represent a relatively late phonological development, apparently ongoing in the 16th century, and perhaps influenced by the impact of a language with 4 or 5 vowels, such as Náhuatl, "whose speakers were making incursions into Mixtec territory before the Spanish Conquest." The authors also note that the retention of the old 6-vowel system on the eastern Coast coincides approximately with the boundary of the Tututepec polity, a well documented "empire" that stretched eastward along the Pacific coast as far as the Chontal area in the vicinity of Tehuantepec, but which did not subjugate the western coastal Mixtec communities of Jicayán and Pinotepa (Spores, 2007: 140).

Some of the phonological and lexical variation in the dialects spoken today probably reflects the political history and rigid socioeconomic stratification of the Mixtec people before 1521. Josserand (*op cit*: 469) noted that Mixtec was "almost certainly" triglossic during the Postclassic period (from approximately 900 to 1521 AD): 1) a local dialect, which varied from one *cacicazgo* to the next (the city states that characterized Mixtec political organization), was spoken by the majority of the population in everyday life; 2) a "commercial standard" (probably the dialect of Teposcolula) was the means of trade and appears to have been intelligible throughout the Mixteca; and 3) a court language called **i'ya** was used among the aristocracy and by the commoners when addressing members of the elite. Although she did not elaborate on this observation, the merchants' *lingua franca* and the language of the nobility probably played a role in the complex pattern of partial

phonological and lexical convergence evident across Mixtec territory in otherwise distinct dialects.

1.6 Archaeology and history

Ronald Spores, the eminent archaeologist and ethnohistorian who has worked in the Mixteca since the 1960s, has written extensive and insightful accounts of state formation and social stratification in the region (Spores, 1967, 1984 & 2007). Thanks to his ongoing research and the work of his students and collaborators, the cultural history of the Mixteca Alta and part of the Baja has been documented in greater depth than most areas of Mesoamerica. Evidence of early human presence in Mixtec territory is scanty prior to the first agricultural settlements. A stone projectile point of the Coxcatlán type was found at Yucuñudahui-Yucunoo, and a fragment of the same type appeared at Yucuita (Flannery & Spores, 1983). These meager remains are the sole testimony of hunters and gatherers in the Nochixtlán Valley around 7000 BC. Several caves and rock shelters have been investigated in the Mixteca Alta, but none has provided any evidence of human occupation during the preceramic period so far. The site of Yuzanú, which was believed to date to the archaic period at the time it was excavated, came out close to the age of the first agricultural settlements in the Nochixtlán Valley, about 2000 BC, upon radiocarbon dating (Spores, 2007: 11).

The absence of preceramic vestiges in the sites that have been excavated in the Mixteca so far is disappointing because the region must have played a role in the domestication and early dispersal of cultivated plants. The people who inhabited the area between 10,000 and 3000 years before present, whatever language they spoke, were strategically situated at the headwaters of the Balsas, Verde and Papaloapan drainages, where the most important discoveries have been made on the origin of agriculture in the Western Hemisphere. In the central Balsas basin, recent work at the site of Xihuatoxtla (Piperno *et al*., 2009; Ranere *et al*., 2009) has yielded starch grain and phytolith residues from ground and chopped stone tools, as well as phytoliths from associated sediments, which attest to the domestication of maize and squash by 8700 years B.P.

Ranere *et al*. (*idem* : figs. 4 & 5) note the resemblance of their lithic remains to the milling stones and chipped points found in the Tehuacán Valley and at Guilá Naquitz, whose distinctive features are diagnostic of the Tehuacán tradition according to MacNeish (1967) and Winter *et al*. (1984). Based on molecular evidence, a type of teosinte classified as *Zea mays* ssp. *parviglumis* Iltis & Doebley has been identified as the wild ancestor of cultivated maize (Doebley, 2004). Since that particular teosinte is common in the central region of the State of Guerrero, the Balsas basin has been proposed as the area where maize was domesticated. If that hypothesis holds true, the Mixteca Baja and the Alta would have been the most direct route of dispersal to the Verde and Papaloapan watersheds, where early maize is also attested.

The rock shelter of Guilá Naquitz in the Valley of Oaxaca, which is part of the Atoyac-Verde drainage, has produced the earliest macroscopic evidence of plant domestication in the American continent discovered so far, as cited earlier (Flannery, 1986; Smith, 1997; Piperno & Flannery, 2001; Benz, 2001). Although the local population does not appear to have been

sampled yet for genetic analysis, *Zea mays* ssp. *parviglumis* occurs naturally in the central Verde watershed (Chávez Rendón *et al*., 1997-2010) and may have been the source of the cultivated variety that was excavated at Guilá Naquitz. Furthermore, a study that genotyped a large sample of maize varieties cultivated by indigenous peoples throughout the continent, from eastern Canada to the South Cone, produced conclusive evidence for a single domestication event; only the cultivars from highland Oaxaca were found to contain the basal sequences in the resulting cladogram (Matsuoka *et al*., 2002: fig.2). If the mid Atoyac-Verde basin is indeed the area where teosinte was bred into maize, the people inhabiting the eastern Mixteca Alta would have been among the earliest recipients of the crop, given their location in the highlands of that watershed.

The Tehuacán Valley, which drains into the Papaloapan, was thought to harbor the earliest evidence of agriculture in Mesoamerica after MacNeish (1967) and his team excavated the cave of Coxcatlán and other sites nearby. Small cobs that were found in the caves were believed to represent the most primitive types of maize that had been preserved in the archaeological record. Subsequent dating of some of the plant materials using accelerator mass spectrometry revealed a considerably later time frame than had been reported by MacNeish (Long *et al*., 1989; Fritz, 1995). Nevertheless, the Tehuacán Valley still retains some of the earliest records for a number of species domesticated in Mesoamerica besides maize and squash, and the upper Papaloapan basin was probably part of the core area where agriculture first developed. Massive evidence of early irrigation works in the Valley attests to intensive food production since the Preclassic period. In historical times, Mixtec populations on the western flank of the Cuicatlán Canyon linked the Tehuacán Valley with the areas further south and west in the Verde and Balsas basins.

Winter *et al*. (1984) attempted to correlate the archaeological evidence of changes in the mode of subsistence and settlement patterns at different time periods with the linguistic differentiation of Proto-Mixtecan and other Otomanguean lineages as dated by glottochronology, placing perhaps too much credence on the reliability of the method. As mentioned above, they associated the emergence of the Tehuacán tradition with the initial expansion and branching out of the language family by 6400 BC. They also noted that this date corresponds to a period when the reliance on agricultural food increased from 5% to 14%, as estimated by MacNeish in the Tehuacán Valley. They surmised that this dietary shift would have led to increased sedentarism as well as population growth, both of which would have promoted language diversification (Winter *et al*., 1984: 74). The findings at Guilá Naquitz (Smith, 1997) and Xihuatoxtla (Piperno *et al*., 2009) would seem to call for a backward revision of the dates associated with incipient agriculture which would break the synchronicity with the initial phase of Otomanguean linguistic differentiation proposed by Winter and his collaborators. However, it now seems tenable to propose that the time depth calculated by lexicostatistics has been underestimated. New language dating techniques might move the base of the Otomanguean family tree back closer to the horizon where the first evidence for plant domestication is attested archaeologically [12.].

Winter and his collaborators (*op cit*) correlated the Tlapanec, Chiapanec-Mangue, Popolocan, Zapotecan, Amuzgo and Mixtecan branches splitting off before 1500 BC with an increase in food production, which MacNeish had estimated to entail a reliance on agriculture for 23% of the diet, and further population growth. Moreover, the settlement pattern in the Tehuacán

Valley at this time showed typically "a clustering of sites into three or four groups, suggesting a tendency toward territorial definition" (Winter *et al*., *idem*: 77). This pattern involved a single, relatively permanent settlement, with some additional temporary and seasonal camps within the group's territory. Following the glottochronological dates, by 1500 BC the various Otomanguean groups would have been isolated long enough for the major branches of the family to have become distinct. Proto-Trique and Proto-Cuicatec-Mixtec may have also separated before people began to live in permanent settlements in the highlands (Winter *et al*., *idem*: 78).

By 1350 BC, four or five hamlets had appeared in the Nochixtlán Valley (Spores, 2007: 13). The settlements occupied areas of two to three hectares next to the most fertile alluvial soils along the streams, which were being cultivated. The entire population in the valley does not appear to have exceeded 1000 individuals in the period between 1300 and 500 AC, the "agricultural village stage." Very early pottery already bears traces of contact with other regions in Mesoamerica. From 1000 to 750 BC, figurines and vessel surface decorations show the influence of the Olmec style, which is evident in other areas of Oaxaca, Puebla, Guerrero and the Gulf Coast at that time. The tendency towards linguistic differentiation emphasized by Winter *et al*. (*op cit*) under growing populations and increasingly sedentary habits must have been offset by extensive interregional language contact, as indicated by the ceramics. The same authors comment on the close similarities in the manufactures from the Valley of Oaxaca to the Mixteca Alta, the Cuicatlán Canyon, the Tehuacán Valley and all the way north to the Basin of Mexico.

Shortly after the first planned urban center in Mesoamerica was founded around 600 BC at Monte Albán, the first cities develop in the Mixteca. The best known sites are Huamelulpan, Monte Negro and Yucuita in the Alta and Diquiyú in the Baja. Social stratification becomes evident in the archaeological remains from these sites, characterized by large civic and religious buildings, stones carved with calendric and historical inscriptions (Cruz Castillo, 20007), and populations of several thousand people. Institutionalized warfare developed early in this period, witnessed by trophy skulls at Huamelulpan, defensive walls at Yucuita, and the construction of Monte Negro as a mountaintop stronghold. While no single center dominated the Mixteca, they shared a number of traits that included certain pottery types, large stone platforms built with monolithic corners, and inlaid teeth among men of high status (Winter *et al*., *op cit*: 86).

The "urban center stage," from 600 BC to around 700 AD, includes the periods conventionally known by Mesoamericanists as the late Preclassic and the Classic. Winter *et al*. (*idem*: 84-87) distinguish two periods of linguistic diversification during that stage, the first one at 600-400 BC, when the early cities were forming, and the second period at around 600 AD, when the cities of the Classic era collapsed. They see distinct languages and ethnicities emerging in specific geographic areas, including Mixtec and Cuicatec, among other southern Otomanguean languages. Marked differences in the archaeological remains of the Mixteca Alta and the Cuicatlán Canyon first appear in the 600-200 BC period: "It is likely that both the linguistic separation and the ethnic distinctions [between Mixtec and Cuicatec] were brought about by the formation of early urban centers." The development of the Cuicatec polity has been associated with the growth of irrigation in the Canyon (Hopkins, J., 1984).

In the case of the Mixtec people, the Classic period saw the construction of extensive terraces on the slopes of hills and mountains throughout the Alta and Baja around 500 AD. Spores (2007: 42) has documented archaeological terraces in a vast area that extends from Ixtayutla, Putla and Chicahuaxtla in the *Sierra Madre del Sur* to the upper Balsas basin in southern Puebla, and from the districts of Coixtlahuaca and Nochixtlán that border the Cuicatlán rift to the mountains of eastern Guerrero. Called **koo-yuu** in Mixtec and *lama-bordo* in Spanish, this system of soil and water management allowed the people to overcome major limiting factors to agriculture in the region: steep inclines, shallow soils, nutrient deficiencies, rapid desiccation. Erosion was controlled to some extent, at the same time that moisture was retained in the colluvia that built up along the rock contentions.

Winter *et al*. (*op cit*: 88-89) relate the internal diversification of Mixtec, which they place around 500 AD, to the great upheaval that prevailed at the end of the Classic period and brought the demise of most cities. They see the conflicts of that period isolating groups from each another. In the Mixteca Alta, there is evidence for warfare in the establishment of hilltop settlements and the ritual burial of men with their weapons, of which the stone tips have been preserved. In the Nochixtlán Valley, the authors point to the shift from Yucuita, the major city of earlier periods, to defensible mountaintop urban centers at Yucuñudahui, Cerro Jazmín and Jaltepec; they interpret the development of the three sites as an indication of political fragmentation, presumably accompanied by linguistic differentiation. In the Mixteca Baja, Cerro de las Minas near present day Huajuapan emerged as a city built on a defensible hilltop, as well. Spores (2007) adds Tequixtepec, Huajolotipac and Silacayoapan-Patlanala to the list in the Mixteca Baja, with numerous additional sites in the Alta. A fragmented geopolitical landscape would carry on into the following stage.

Winter and his collaborators (*idem*: 91-94) define the final period of the pre-Columbian era as the stage of city-states, from 700 to 1521, roughly the same epoch generally called the Postclassic by Mesoamericanists. The history of this period is documented by indigenous manuscripts ("codices") on paper, cloth and deer hide; the largest surviving corpus of pre-Hispanic portable literature in the Americas was created by Mixtec scribes. Additional information is provided by some 16th century Spanish sources such as the *Relaciones Geográficas*, where colonial administrators interviewed community elders with a questionnaire in hand, attempting to gain insights on the natural resources (including useful plants), social organization and religious practices of the indigenous peoples before European contact (Acuña, 1984). Both types of documents bear witness to numerous *cacicazgos* or *señoríos* in the Mixteca, politically autonomous divisions governed by "royal lineages."

The city-state stage is thought to have accentuated the linguistic diversification of Mixtec. Class endogamy maintained the cohesiveness of the aristocracy (Spores, 1974); rulers claimed descent from the mythical birth of Mixtec dynasties at the sacred tree of Apoala, in the eastern Alta. Social distance was observed strictly between **tai to'o**, the elite; **tai ñuu**, the free, land-working commoners; **tai situ ndayu** or *terrazgueros*, the bonded, landless peasants; the serfs, and the slaves. Rigid social differentiation leading to diminished spatial mobility among the lower classes is posited to have enhanced the linguistic diversification of Mixtec (Winter *et al*., *op cit*: 94).

The Postclassic is regarded as a period of florescence for the Mixtec people, when "a cultural revolution" brought about "the great convergence of philosophy, religion, politics, technology and aesthetic sensitivity which gave rise to the 'Mixtec art' of the codices, the polychrome pottery, the bones finely engraved with figures and texts, the polished gemstones, and the most impressive jewelry…" (Spores, 2007: 47). The region became the focus of a new style of art, called *Mixteca-Puebla* by archaeologists, that spread throughout Mesoamerica, reaching as far as Nicoya in Costa Rica to the south (Stevenson Day, 1994) and Guasave (northern Sinaloa) to the north (Williams, ca. 2005). Other nemes (Durham, 1991) besides some elements of style and iconography may have appeared and spread out of the Mixteca, as well.

The late Postclassic and early colonial history of the Mixtec people have been studied by a devoted group of scholars who rival the Mayanists in their depth of expertise. Maarten Jansen, Aurora Gabina Pérez Jiménez (native speaker of Chalcatongo Mixtec) and Ubaldo López García (native speaker of Apoala Mixtec), among others, have interpreted the early manuscripts and have translated their ideograms into a coherent narrative based on their firsthand knowledge of the language. Prominent Mixtec epigraphists have also included Alfonso Caso, Mary Elizabeth Smith, Nancy Troike, Bruce Byland and John Pohl. Ángeles Romero Frizzi, Ronald Spores, Kevin Terraciano and others have worked through the copious materials, primarily on the Mixteca Alta, in the 16th century archives at Teposcolula and Oaxaca. The history of the region during the late colonial period and the 19th century has been the subject for comprehensive research as well, most notably the monograph by Rodolfo Pastor (1987). The work of the Mixtecanists has allowed **Ñuu Ñusavi** (**Ñuu Ñudzahui** in the historic orthography of the Alta) to become one of the areas with the greatest density of archaeological and historical scholarship in the Western Hemisphere.

1.7 The modern period

The previous remark does not hold true for the life of the Mixtec people in their homeland during the 20th and 21st centuries. Transnational migration has garnered much attention recently (Nagengast & Kearney, 1990; Kearney, 1995; Kearney, 2000; Escárcega & Varese, 2004; Stephen, 2007), but the ethnographies remain scanty, considering the geographic size, demographic significance and rapid change in the Mixteca. Only three relatively brief studies and a lengthier monograph stand out: 1) Ravicz (1965) documented the settlement patterns, kinship systems and civil-religious cargos in five communities, Jamiltepec on the Coast, Juxtlahuaca in the Baja, Jocotipac in the northeastern Alta, and Coatzospan and Cuyamecalco in the Mixtec wedge between Cuicatecs and Mazatecs, a 270 page publication. 2) Romney & Romney (1966) wrote a 146 page description of the *barrio* of Santo Domingo in Juxtlahuaca, one of six-case studies across the world to compare child rearing and subsequent personality differences cross-culturally. 3) Butterworth (1975) focused on communal responses to population loss due to migration in Tilantongo, in the Nochixtlán district, a 230 page book. 4) Monaghan (1995), perhaps the best informed informed and most empathic ethnographer to work among the Mixtec, lived almost three years in Santiago Nuyoó, in the *Sierra Madre del Sur* in southern Tlaxiaco district, producing a 400 page narrative that weaves together domestic life, ritual, community duty and collective ownership of the land. The author gained a working knowledge of the local variant of Mixtec and recorded extensive commentary,

story- telling and formal speech in the language. Except for Monaghan's work, and compared to Mixtec archaeology and history, scholars have not been greatly interested in the fate of the surviving communities, perhaps deterred by the proverbial poverty of the people. Very little has been published on the **Ñuu Savi** in Puebla and Guerrero, mostly by themselves (Mendívil Salgado, 2008; **Tno'o savi mixtli**, 1985). The ethnobotanical literature on those regions and the rest of the Mixteca will be reviewed in the fourth section of this dissertation.

Language change during the colonial and modern periods has not received adequate attention, either. Josserand, Jansen & Romero Frizzi (1984) studied a large body of 16th, 17th and 18th century documents written in Mixtec, mostly at the Judiciary Archive in Teposcolula and the National Archives (AGN) in Mexico City. The majority of the wills, deeds, and bills of sale originated in the districts of Teposcolula, Tlaxiaco, Nochixtlán and Coixtlahuaca in the Alta, with only a few documents from the Baja. The *cabildo* (town government) officials seem to have written down the local dialect as a matter of principle: "Apparently the Spanish administrators did not attempt to unify the Mixtec language, and they did not impose the use of the Teposcolula dialect for legal documents…" (Josserand *et al*., *idem*: 145). In spite of the obstacles imposed by the early orthography based on Spanish, the authors found, where they expected, many of the phonological features diagnostic of contemporary dialect regions: e.g., /x/ in the Tlaxiaco area in correspondence with /ʃ/ in the eastern Alta.

The same authors suggest that the "Social changes related to the Conquest, and later to the Independence movement, began the decline and disintegration of the Mixtec region as a political and cultural unity, and doubtless these changes have also influenced the linguistic diversification." (Josserand *et al*., *idem*: 162). Laying aside our doubts as to what extent the Mixteca was ever unified politically or culturally, the extreme demographic collapse after 1521 (Cook & Borah, 1963) must have surely had an impact on dialect differentiation throughout Mesoamerica. However, in the case of Mixtec and its relatives, this question does not appear to have been posed as a research topic so far. The dynamics of rapid language loss in favor of Spanish in many areas of the Mixteca from the 19th century to the present have not been addressed, either. The Ethnologue (Lewis, 2009) lists at least one highly threatened variant, San Mateo Sindihui Mixtec in the southern Nochixtlán district, estimated to have had only 140 "older adult" speakers in 1990. Tejupan Mixtec has one speaker left (Michael Swanton, 2010, personal communication). Others variants have disappeared recently, such as Cuilapan Mixtec in the Valley of Oaxaca, mentioned earlier.

The lone topic in recent Mixtec history that has received considerable attention is soil management. The complex geological formations of the region have given rise to soils that tend to be alkaline, with a pH range of 6.8 to 8.7, with limited organic matter and pronounced deficiencies of certain mineral nutrients. Three quarters of the land in the western Alta and southern Baja (an area that has been designated a high priority for environmental conservation because of its biological diversity) have shallow lithic leptosols, underlain by hard rock or a continuously cemented layer, while the remainder are of eutric regosol type, developed from unconsolidated materials with a moderate to high susceptibility to erosion (Arriaga *et al*., 2000). In the Mixteca as a whole, 83% of the land is considered to show light to moderate soil deterioration, and 17% to be severely eroded (SEMARNAT, 2005). A recent recommendation (*exhorto*) by the national legislature to the federal and state governments,

urging them to take immediate actions, concludes: “If one takes into account that, in addition to the [intrinsic] soil and water factors that have been indicated above, a series of erroneous agricultural and forestry policies have been applied for a long time in the Mixteca, which far from encouraging the conservation of the natural resources, have promoted deforestation, overgrazing and changes in the use of the land, it will become clear why this region is considered to be an area of ecological disaster.” (Comisión de Medio Ambiente, 2007; translated by A. de Ávila).

Behind this “ecological disaster” hides a history of early insertion of the Mixtec people into the world economy. To uncover it, it is useful to review the sequence of alluvial depositions in the Río Verde basin. Analyzing sedimentary and archaeological evidence, Joyce & Mueller (1997) and Kraft (2010) have documented a series of episodes of soil deterioration in the Nochixtlán Valley in the pre-Columbian period, in spite of **koo – yuu** terracing. A first pulse of anthropogenic erosion took place about 1560 to 1390 BC, a period which matches the archaeological evidence for the establishment of the first sedentary villages. The sedimentary record suggests land was being cleared as population grew in the valley. A second erosive phase, dated around 110 to 200 AD, coincides with the remains of the first urban states, agricultural intensification and expansion into the piedmont. The third pulse occurred about 980 to 1180 AD, for which a demographic correlate is still debated in the transition from the early to the late Postclassic. After 1521, erosion decreased and the pattern of sedimentation reverted, as the population decreased and the impact of agriculture was reduced.

The particular vulnerability to erosion of a specific formation in the Nochixtlán Valley is well understood thanks to the perceptive fieldwork of Ferrusquía (1976) and other geologists based at the National Autonomous University of Mexico (UNAM). A new and severe cycle of erosion seems to have started sometime in the 19th century. After the massive epidemics following the Spanish conquest had subsided, population density began to increase again in the 1700s, but its environmental impact appears to have been lessened by the economic specialization of the Mixteca Alta for the export market, producing mainly silk in the 16th century (de María y Campos & Castelló, 1990) and increasingly greater volumes of cochineal in the 17th through the early 19th centuries (Donkin, 1977; Marichal, 2006). Genetic evidence indicates this insect may have been domesticated in Mexico (Ramírez Puebla *et al*., 2010), as were its plant hosts, two species of *Opuntia* cacti (Bravo Hollis, 1978; Pimienta Barrios & Muñoz Urias, 1995). Mexica tribute lists (Móhar Betancourt, 1987) indicate the provinces of Coixtlahuaca, Tlaxiaco and Cuilapan were the center of production in the 1400s; the Mixteca Alta may have been the homeland of the cochineal cactus grove as an agro-ecosystem.

The scarlet dyestuff became the most valuable agricultural product in world trade because of its unique properties (Butler, 2005). The colonial administration and the Catholic church promoted the cactus orchards. In 1523, only two years after the fall of Tenochtitlan, Hernán Cortés received a letter from the court of Charles V in Spain requesting information on *grana*, the old Latin-based name for a related insect dye from the Mediterranean (de Herrera y Tordesillas, ca. 1600, cited by Donkin, 1977: 23). The royal bureaucracy’s expectations for profit would be amply fulfilled, and Dominican parish priests sought to convince more villagers in Oaxaca to grow the cacti to increase production of the dye (Dávila Padilla, 1625,

cited by Donkin, 1977: 24). In no other enterprise were good relations between the imperial apparatus and its indigenous subjects so critical: production lay entirely in their hands. Successful cultivation of the plant host and its insect parasite relied on the Mixtec and Zapotec communities' intimate knowledge of their natural environment.

Cochineal serves to explain the exceptionally high rate of communal land tenure in the Mixteca and other parts of Oaxaca to this day. The proportion of collective to private property in the State is estimated at 4:1, and more than five million hectares are still under communal regime: "…in Oaxaca it is two and a half times larger than the *ejido* surface, which is an atypical case…" (de Gortari, 1997: 11; translated by A. de Ávila). The agrarian landscape in our region is not typical of Latin America because the viceroyal administrators enforced the rights of the indigenous communities over their fields, forests and streams in order to bolster the self sufficiency of individual households. Their "spare" labor was critical to maintain the *nopal* cactus groves and tend to the precious insects: "The fact that the main product of the local economy remained in indigenous hands prevented their lands from being affected massively, as it happened in other parts of the country. This allowed the majority of the communities to conserve the ownership of the land, which was the only way to guarantee the supply of native cochineal." (Sánchez Silva, 2001: 17, translated by A. de Ávila).

"Mixtec" cochineal was deemed to be the best colorant and demanded the highest prices; a multilingual trade compendium published in Hamburg in the early 1800s recorded the commercial names for the finest grade in French - *cochenille mestéque*, Italian - *cocciniglia Misteccia*, and Spanish - *cochinilla mesteca* (Nemnich, 1821). The *Relaciones Geográficas* of 1777-1778 describe the lavish lifestyles in the dye-producing regions, where people clothed themselves with fabrics imported from Europe and China, and wore "some little jewels which the Spaniards use" (Esparza, 1994: 173). The insect made Oaxaca affluent, and the human population appears to have increased by the same degree. Colonial accounts emphasize how the profits from the dyestuff, which was shipped to Europe and Asia, led some communities to diminish their reliance on subsistence agriculture, buying maize instead of growing it (de Ávila, 2005).

Competition from Guatemala in the early 1800s, and the breakdown of demand in the world market after synthetic dyes were developed in Europe at mid-century brought poverty to the Mixteca, after three centuries of bonanza. President Benito Juárez (1848) wrote that the cochineal trade, where profits were so easy to make, had stifled the growth of an entrepreneurial spirit in Oaxaca (Sánchez Silva, 2001: 18). An inflated population, perhaps beyond the carrying capacity of the thin rocky soils, must have turned back to subsistence agriculture, with disastrous results. The problem was probably compounded by the growth of the travelling *haciendas* of goat-herders, which roamed throughout the Mixteca and the Tehuacán-Cuicatlán rift in a yearly cycle of grazing to fatten hundreds of thousands of animals; a huge slaughter took place at the beginning of the dry season, when the meat was salted for the domestic market and the hides were exported (Mouat, 1980; Dehouve, 2004).

Mountain slope agriculture and overgrazing deteriorated Mixtec soils rapidly in a fourth cycle of erosion, still ongoing. Its severity has motivated some of the most extensive interdisciplinary research on rural involution in Mexico (Martínez Calleja, *et al*., 1986; Contreras Hinojosa *et al*., 2005) and its relationship to northward migration (Stuart &

Kearney, 1981), aggravated by the North American Free Trade Agreement (Ríos Ruiz, 2009). Cochoapa el Grande, which has the largest concentration of monolingual speakers of Mixtec, has just been declared (November 16, 2010) to be the poorest municipality in Mexico by the 61st Federal Legislature: it has been estimated that 74% of its population endures "food poverty," as defined by the Mexican Government (Méndez & Garduño, 2010). The neighboring municipalities of Coicoyán de las Flores in Oaxaca and Metlatónoc in Guerrero, also overwhelmingly Mixtec in their population, have held that status in previous years. The United Nations Development Program (UNDP) has calculated that the Human Development Index for that region varies between 0.44 and 0.49, comparable to Sub-Saharan Africa (Muñoz, 2006). It is in this context of impoverishment, ethnocidal state policies, and fast cultural change that a good part of the information reported in the following chapters has been gathered.

To summarize this introduction, high ecological diversity and a complex history of social and linguistic differentiation in the Mixteca have shaped a fertile setting to examine the relationship between ethnobiological nomenclature and classification in a diachronic perspective, which is the theme of this dissertation.

2. History and theory of ethnobiological classification and nomenclature

Knowledge of nature was not an emphasis in early anthropological inquiry. The first ethnographers brought with them to the field rather limited skills to understand the ecological webs in which the people they studied were enmeshed. Extensive bodies of information about the environment, a science that is communicated and recreated continuously by non-industrial communities throughout the world, and is critical to their day to day subsistence, went largely unnoticed. A comment by Malinowski (1925: 44) has come to epitomize that disregard for the depth of local knowledge systems: "The road from the wilderness to the savage's belly and consequently to his mind is very short. For him the world is an indiscriminate background against which there stand out the useful, primarily the edible, species, whether of plants or animals."

Such insensitive treatment of one of the most complex fields of collectively curated information among human societies contrasts sharply with the breadth of interest held by the precursors of ethnographic research during the European "age of exploration." In the case of Mesoamerica, the leading figure in early cross-cultural observation was Bernardino de Sahagún (ca. 1499-1590), a Franciscan monk who had studied at the university in Salamanca, arrived in Mexico in 1529, and promptly learned Náhuatl. In addition to numerous theological works in that language, Sahagún (1577-1579) wrote over a period of three decades three bilingual versions of a monumental treatise on the life and history of the people of Central Mexico before the European invasion. Sahagún prefigured modern ethnography in his methodology as well as his themes of interest, for he interviewed knowledgeable elders in their own language, and he recorded their names and the circumstances under which he had obtained the information. Furthermore, he wrote down how he had revised and corrected his account as his worked progressed (Ballán, 1991). His theological writings largely forgotten, Sahagún is viewed today as the preeminent pioneer of anthropology in Mexico and beyond (León Portilla, 1999).

The seventh of the twelve books that comprise his *magnum opus* deals with the astronomical knowledge of the **Me:xihcah** (inhabitants of Tenochtitlan and Tlatelolco, which became Mexico City), and the eleventh book treats "the properties of animals, birds, fish, trees, herbs, flowers, metals, and stones, and about colors." Sahagún transcribed in that book detailed descriptions of numerous kinds of plants, some of which are still known in Mexican Spanish by cognates of the Náhuatl names he recorded for them. He also wrote down how various species were used, and what the people believed about them. More than a treatise on natural history, the eleventh book can be read as the first ethnobiological study of a non-Western society. Sahagún's linkage to this modern academic field is not restricted to the "General history of the things of New Spain," however. He was affiliated with the College of Santa Cruz at Tlatelolco, where he taught Latin. The College was established in 1536 by order of Charles V to educate indigenous young noblemen. Sahagún trained a number of disciples there who would collaborate with him in his research on the language and the culture of the **Me:xihcah**.

The College at Tlatelolco produced the first herbal in the Americas. The *Libellus de medicinalibus indorum herbis*, known today as Codex de la Cruz Badiano, was drafted by

indigenous **tlahcuilome** (picture book scribes) under the direction of the physician Martín de la Cruz, who practiced at the school. The College had engaged his services after an epidemic in the city had killed many of the students (Guerrini, 2009: 21), one of the endless plagues provoked by the introduction of pathogens to which Native Americans had no resistance. Francisco de Mendoza, son of the first viceroy of New Spain, commissioned the herbal and chose the indigenous physician who would prepare it. Mendoza may have intended for the manuscript to support his application for a license from the emperor to export medicinal herbs and spices from Mexico to Europe (Viesca Treviño, 1992: 58-62). A less malicious interpretation holds that the booklet may have been produced in the hopes that the king would see it and be so moved as to renew the funding for the College, which had been suspended (Aranda *et al*., 2003: 13). Both motives would explain the haste with which it was drafted in 1552, just in time to reach the fleet that would take it from Veracruz to Spain. The directions how to use the plants, provided by Martín de la Cruz in Náhuatl, were translated into Latin by Juan Badiano, who had learned it at the College and must have been taught by Sahagún.

2.1 Francisco del Paso and Franz Boas

Three hundred years later, the information recorded by Sahagún, de la Cruz and Badiano, along with the materials on Mexican medicinal plants gathered later by Francisco Hernández, physician to the court of Phillip II, enabled Francisco del Paso y Troncoso (1886) to elucidate what he called "botany among the Nahua." A former medical student who had become interested in Mexican antiquities and linguistics, it was del Paso who published and publicized Sahagún's manuscripts, which had been shelved away for centuries in Madrid and Florence. Analyzing the etymology of hundreds of plant names that had been transcribed in the 16th century, del Paso reconstructed the major categories of Mexica botanical classification and how they were organized hierarchically. He also showed how a primary, un-analyzable term that designated a prototypical species could be polysemous, becoming the label for the larger class that encompassed it. His insightful observations sketched out the basic principles of biological nomenclature followed by many languages around the world. Del Paso's work, "…perhaps one of the most detailed and objective reports of its kind for the time of writing…" (Berlin, Breedlove & Raven, 1973: 236-237) would be appreciated anew in the late 20th century and would receive comments of praise, emphasizing the breadth of its focus in contrast to the utilitarian (i.e., medicinal) slant of the *Libellus*: "In a classic study… Paso y Trancoso [sic]… presents a much more detailed appreciation of plant life 'for its own sake' than the Badianus herbal would lead one to suspect." (Atran, 1990: 20).

Del Paso's contribution to the study of non-Western science appears to have been largely ignored within his lifetime. One of the figures who does not appear to have read his ethnobotanical paper was Franz Boas, who worked in Mexico in 1912, four years before del Paso passed away. In January and February of that year, Boas recorded Pochuteco, a language that was dying out on the coast of Oaxaca. He had come across a short vocabulary list from that area in a library in Mexico City, and had realized it was a close relative of Náhuatl. Boas worked with the last few speakers left in Pochutla, comparing the phonology and the lexicon of the language with the "classic" forms from the Valley of Mexico. He

intended to publish his results in the *Anales del Museo Nacional de México*, which del Paso had directed briefly and where he had published his paper.

Boas wrote that he left Pochutla towards the end of February "when no more could be obtained from the few individuals who know part of the language." The vocabulary he put together includes the most meager plant terminology: the generic terms for 'tree,' 'leaf,' 'flower,' 'grass,' and 'reed,' some of the main crops, and a single specific name: **pochút**, 'kapok' (Boas, 1917-1920: 24-44). It is likely that he would have obtained a much richer lexicon, no matter how feeble his elderly consultants, had he pursued the topic – if only to document further the phonological contrasts between Pochuteco and Classical Náhuatl that had motivated his research trip to the coast. It seems improbable that he would have neglected to explore this semantic field if he had read del Paso's paper and had realized the level of taxonomic sophistication encoded in Náhuatl plant nomenclature. The terms for local animals and plants that were quite likely borrowed from Pochuteco and survive to this day in regional Spanish are a tell-tale sign of what Boas must have missed (de Ávila, 2004: 219).

Boas' background in post-Kantian philosophy shaped his theoretical contributions to anthropology and linguistics (Foley, 1997: 106): "The German post-Kantians of the nineteenth century were strongly influenced by the ideas of the Romantics, and, as such, were much taken with racial differences and cultural diversity. This created tension with Kant's postulation of universal, innate mental categories. They resolved this conflict when they introduced a degree of relativism into the theory: the nature of the categories were [sic] to some degree informed by the individual's experience in the world." Foley notes that post-Kantian relativism did not contradict the doctrine of the psychic unity of mankind: "…the categories given to humans at birth are identical for all; the diversity of human mental categories is due to the molding effect of experience upon these given categories." For Boas, classification was the mechanism by which experience molds those innate categories: "…from the infinite flux of sensible experience we abstract common and related elements and assign these to the same category of thought, typically labelled linguistically." (Foley, *idem*: 107).

Boas, and Sapir and Whorf after him, emphasized the social and conventional nature of category formation, an "unconscious" process for Boas: classifications were thought to be habitual within a particular cultural and linguistic system. Whorf, for one, worked on Náhuatl linguistics in Mexico in the 1930s and became interested in botany, learning "the English and Latin names for thousands of plants and trees." This appears to have been a lasting interest of his: "…on his trip to Mexico in 1930 he took copious notes on Mexican flora, and as late as 1936 we find him filling several pages of one of his linguistic notebooks with a 'quiz' on botanical terminology and curiosities." (Carroll, 1956: 6). It is tempting to speculate how Whorf may have pursued his interest in plants in combination with his passion for Uto-Aztecan and Mayan linguistics and epigraphy had he not died prematurely in 1941.

The relativistic position espoused by Boas and his successors does not appear to have inspired much ethnographic research into environmental knowledge. Anthropologists in the first half of the 20th century seem to have felt the topic was not a high priority; if any given society had so much leeway to build a classification system, shaped by its particular collective experiences, there must be inordinate variety in the way different peoples

categorize and name nature: "…a culture consists of many semantic domains organized around numerous features of meaning, and no two cultures share the same set of semantic domains or features of meaning, nor do they share the same methods of organizing these features…" (Tyler, 1969: 11). Lexical data on various languages were gathered actively, but little reflection seems to have been given, in a comparative vein, to the categories that may underlay the nomenclature. In a parallel development, evolutionist thinking appears to have stifled the study of non-Western classification systems in the European sociological tradition: *la pensée des primitives*, "the mind of the primitives," was perceived to be as undifferentiated as their social structures (Durkheim & Mauss, 1901-1902; cited by Taller de Tradición Oral & Beaucage, 1987: 32) [13.].

2.2 Conklin and Lévi-Strauss

The reaction against that state of affairs in ethnology would be voiced forcefully by a distinguished intellectual heir of Mauss and Durkheim's, an anthropologist who had given the title "The elementary structures of kinship" to his doctoral dissertation, in analogy with Durkheim's "The elementary forms of religious life." Claude Lévi-Strauss began *La Pensée Sauvage* with a comment on biological nomenclature in "primitive" languages: "For a long time, we have indulged in citing those languages which lack terms to express concepts such as 'tree' or 'animal,' even if they have all the words that are necessary for a detailed inventory of the species and varieties… The words oak, beech, birch, etc., are no less abstract than the term 'tree,' and, given two languages, one of which should have only this term and the other one should be devoid of it, at the same time that is should possess several scores or hundreds of words to designate the species and the varieties, it would be the latter, and not the first language, which would be, from this point of view, the richest one in concepts." (Lévi-Strauss, 1964: 11-13, translated by A. de Ávila).

Plant nomenclature figured prominently throughout the book: the cover for the first edition of *La Pensée Sauvage* featured a plant of the genus *Viola*, since the title played a pun with 'wild pansy' in French. The Science of the Concrete, the opening chapter of The Savage Mind, went on to cite with admiration example after example of the extraordinary ability of local communities everywhere to recognize and codify with precision the diversity of life. Lévi-Strauss observed with irony how Malinowki's contemptuous comment was levied in reverse by indigenous people towards market economies, seeing how they destroy stable systems that balance the multiple use of natural resources, in their reckless pursuit of profit based on the exploitation of a few species. The author quoted extensive comments by several ethnographers, amazed at the precision with which "Even a child can often identify the species of a tree based on a minuscule fragment of wood…" (Lévi-Strauss, *idem*: 17), and similar feats of classification. The longest quote was devoted to the field diary of Harold Conklin, working among the Hanunóo of Mindoro island in the Philippines in the early 1950s, who narrated his experience trekking through the rain forest one day with his consultant Langba, observing how he collected plants he would use later and discussing with him how the vegetation along their path had changed over the last few decades.

Conklin (1954) documented the nomenclature and classification of 1879 botanical folk taxa (groupings of organisms at any level of inclusiveness) among the Hanunóo. Two decades

later he would surpass his own achievement, recording 2131 plant terms among the Ifugao of Luzón, also in the Philippines (Conklin, 1980). His careful research produced the most extensive ecological ethnographies of any group of people in the world, which have served as guideposts in comparing and explaining differences in the ethnobotanical repertoires across geographical areas and modes of subsistence (Berlin, 1992: 98; Ellen, 1999: 99). Lévi-Strauss was evidently impressed with Conklin's work and used it extensively in developing his own interpretive framework of classificatory behavior.

In the fifth chapter of The Savage Mind, by the title "Categories, elements, species, numbers," Lévi-Strauss grappled with Boas' unresolved questions on the nature of mythical thought. In 1914, Boas had come to the conclusion that "the essential problem" was to know why the stories concerning humans "manifested such a great and constant preference for animals, celestial bodies and other personified natural phenomena" (Boas, 1940: 490). Lévi-Strauss portrayed the issue as "the last residue of the intellectual reflections on totemism," which had preoccupied Durkheim, Freud and other predecessors of anthropology so intently; he argued that the heterogeneous beliefs and customs that were arbitrarily labeled 'totemism' did not rest on the idea of a substantive relationship between social groups or cultural domains, but "are akin to other beliefs and practices, directly or indirectly linked to classificatory schemes that allow the natural and social universe to be perceived in the form of an organized totality." (Lévi-Strauss, *op cit*.: 198).

Discussing the classification of animals and plants as it relates to the theoretical paradigms of social structure, Lévi-Strauss proposed that the diversity of species around us gives human beings the "most intuitive image" at our disposal, the most direct manifestation we can perceive, of the ultimate discontinuity of what is real: "it is the palpable expression of an objective codification" (Lévi-Strauss, *idem*: 201). The notion of the species, he went on, provides us with a mode of apprehension of an entity given by nature; "the activity of the spirit, and social life itself, do not do anything but take it in, in order to apply it to the creation of new taxonomies." In his view, the fascination that totemism had exerted on the minds of ethnologists was but a specific instance of "this fascination which the notion of species has exercised on men everywhere."

Lévi-Strauss contrasted the conceptual framework of the natural sciences, which parcel live beings into "kingdoms," with ethnobiological knowledge: "the societies which we call primitive cannot conceive that there might be a trench between the various levels of classification." To develop this counterpoint, he cited Conklin's comments on the naming and ordering of chili peppers among the Hanunóo, a species originally domesticated in Mesoamerica which is widely cultivated and has become naturalized in the Phillipines: "The Hanunóo… divide the universe into beings which can or cannot be named. The named beings are differentiated into things or into persons and animals. When a Hanunóo pronounces the word 'plant,' s/he excludes the possibility that the thing that s/he is talking about is a rock or a manufactured object. The class 'herbaceous plant' excludes, in turn, other kinds of plants, such as 'woody plant,' etc. Among the herbaceous plants, the utterance 'pepper plant' makes a distinction in relationship to 'rice plant,' etc. 'Domestic pepper' excludes 'wild pepper,' and 'domestic chili pepper' excludes 'domestic green pepper.' Lastly, 'cat penis' expresses that it is an individual plant that has nothing to do with the other five varieties or taxa distinguished by this indigenous culture within the group of domestic peppers." (Lévi-

Strauss, 1964: 202). Figure 4 illustrates this hierarchical organization of concepts, based on a diagram in The Savage Mind drawn from Conklin's field data.

Conklin drew quantitative conclusions from the data he had gathered in Mindoro that would highlight significant parallels and differences in indigenous plant nomenclature and classification compared to Linnean systematics: "…the Hanunóo distinguish types which cannot be confused with the botanical notion of species… but which share with it, nevertheless, a trait in common: the types are mutually exclusive. The names of each of the 1625 types consist of lexical elements which vary in number from 1 to 5… The binomial form is the most frequent… The resemblance between the classification of the Hanunóo and botanical science diminish rapidly when we approach the higher and most inclusive categories." (Conklin, 1954: 116-117 & 162, translated by A. de Ávila). He noted, furthermore, that 500 to 600 of the plant "types" were edible, and 406 were only used medicinally. The 1625 terminal taxa, grouped in indigenous classification into 890 larger categories, corresponded to 650 genera and close to 1100 species by the criteria of Western botany.

Conklin later adjusted his total count to more than 1800 taxa recognized by the Hanunóo, representing less than 1300 species in Linnean taxonomy. Lévi-Strauss laid stress on this disparity, which reflects indigenous peoples' ability to recognize subtle differences between plants. He also noted that the total recorded by Conklin seems to represent about the maximum sum of items that can be committed to memory, citing a similar figure of plant species guarded by angels in Rabbinic philosophy: "2000 appears to correspond well, as an order of magnitude, to some kind of threshold in the vicinity of which are located the memory capacity and the power of definition of ethnozoologies and ethnobotanies grounded in oral tradition. It would be interesting to know if this threshold has any significant properties from the point of view of information theory." (Lévi-Strauss, *op cit*: 225). The idea of a memory threshold would be taken up by subsequent authors, after considerable downward revision in the average number of taxa (Berlin, 1992; Ellen, 1999).

2.3 Brent Berlin's principles of categorization

Hunn (2008: 16) has expressed succinctly how the fieldwork begun in the Philippines would impact the field: "Harold Conklin's meticulous analysis of Hanunóo ethnobotanical systematics set a very high standard for ethnobiological ethnography. But Conklin was adverse to broad generalization." It was the research begun in the 1960s by Brent Berlin and his colleagues in Southern Mexico which would lead to a general theory of ethnobiological classification. They worked in Tenejapa, a Tzeltal Maya township in the central highlands of Chiapas, whose territory covers a substantial altitudinal and ecological gradient. Studying in great depth the names that Tzeltal men give to plants and how they sort them when asked to group those names, Berlin would make explicit the relationships of opposition and inclusion that seem to organize plant terminology into a coherent tree-like structure, much like the classificatory scheme that Conklin had sketched out for chili peppers among the Hanunóo, where the stepped cascade of dichotomies had caught the attention of Lévi-Strauss so cogently.

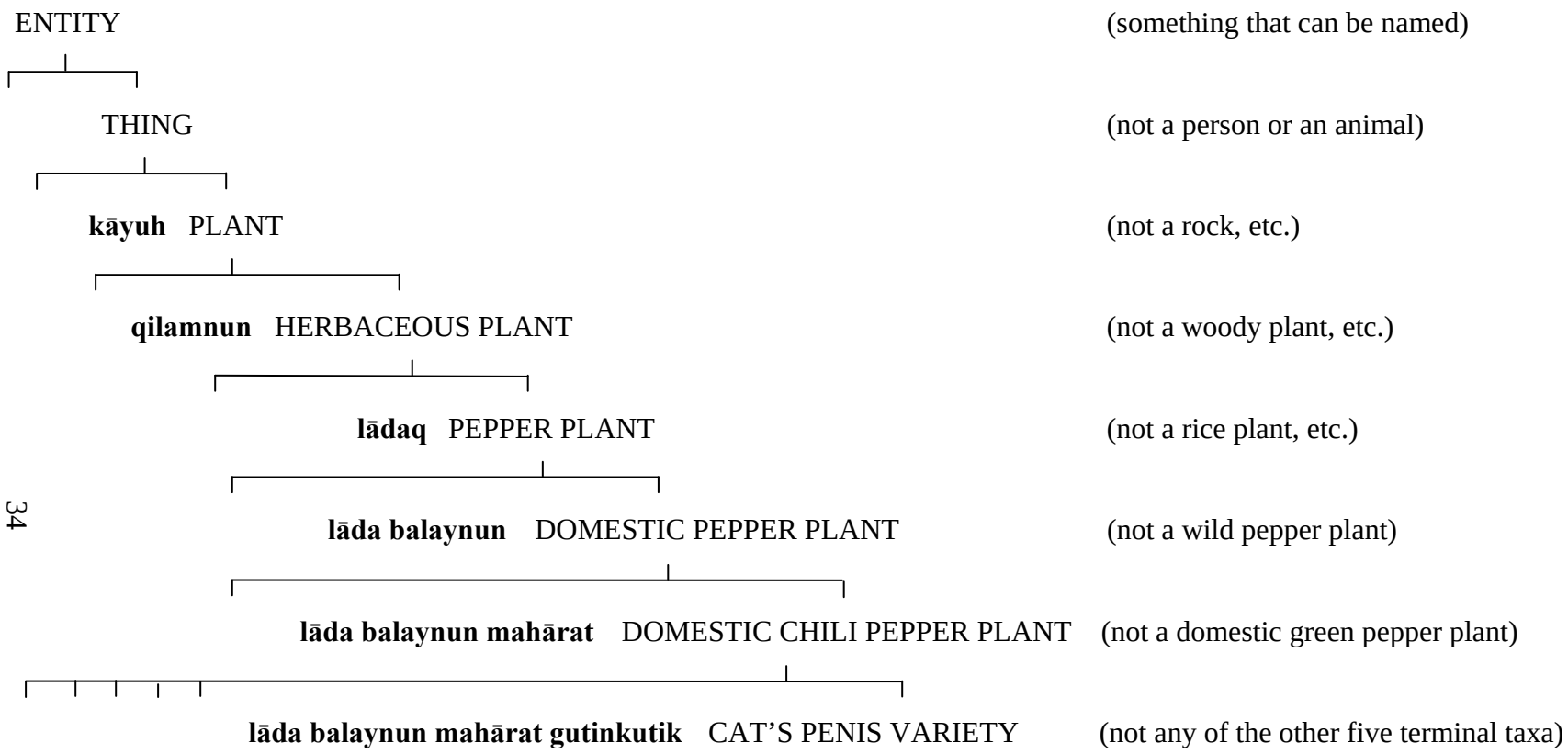


Figure 4: Hanunóo classification of a chili pepper plant, from Lévi-Strauss (1964: 204), based on Conklin (1954).

Berlin, Breedlove and Raven (1966, 1968, 1973) published a series of papers on ethnobiological classification that would culminate in a landmark study of Tenejapa ethnobotany (1974), where the set of principles laid out earlier would be illustrated plant group by plant group in a full-fledged, municipality-wide flora. After subsequent field work among the Aguaruna and Huambisa of Amazonian Peru, mainly on their knowledge of vertebrate animals, Berlin (1992) would revise and refine his general principles of ethnobiological categorization. Since this enunciation will be the basis for our discussion of Mixtec plant nomenclature and classification, it will be quoted here in full. Berlin prefaces his presentation by drawing a distinction between the "psychological conceptualization" of living beings and the "linguistic reflections" of that underlying conceptual structure: "This is a difficult issue to deal with in that our best entry into a society's system of classification is through language; ethnobiological classification is most easily recognized through the linguistic web of ethnobiological nomenclature." (Berlin, 1992: 20). He resolved, nevertheless, to formulate the principles that relate to the categorization of plants and animals separately from the principles for naming them. It is noteworthy, he comments, that the principles be quite few, "inasmuch as their applicability is claimed to be totally general":

1. Traditional societies residing in a local habitat exhibit a system of ethnobiological classification for a smaller portion of the actual plant and animal species found in the same area. This subset is comprised of the most salient plant and animal species in that local habitat, where salience can be understood as a function of biological distinctiveness.

The first principle generalizes into a formal statement the repeated observation that in any given territory, only a fraction of the species that are present are distinguished conceptually by local people. Lévi-Strauss' (1964: 224) comment, suggesting that indigenous naturalists recognize a higher number of taxa overall than Linnean biologists (at least within the 2000 items threshold), has not held true. Berlin (*op cit*: 21) notes, furthermore, that "it is theoretically possible to predict which species of plants and animals, of the thousands that may be present, will be given conceptual recognition in the folk system." He considers that the perceptual distinctiveness of a given taxon is "a function of both its evolutionary divergence and its internal phenotypic variation." Species that are more variable in appearance are presumably less distinctive.

2. The categorization of plant and animal taxa into a general system of ethnobiological classification is based primarily on observed morphological and behavioral affinities and differences among the recognized taxa.

The second principle asserts that the overriding factor organizing any indigenous system of classification will be "people's cognitive assessments of the gross perceptual resemblances observed among classes of organisms." While admitting that other organizing principles may be at work, such as the "economic significance as food" or the "symbolic salience in ritual" of a given species, "these features relating to the cultural evaluation of biological taxa are secondary in almost all systems for which we have complete descriptions." (Berlin, *idem*: 21).

3. Recognized plant and animal taxa are grouped into ever more inclusive groups to form a hierarchic (taxonomic) structure comprised of a small number of taxonomic ranks.

The third principle implies that Western and "traditional" are structured alike, in so far as the degree of affinity between organisms is expressed hierarchically, "a reflection of the empirical fact that biological taxa exhibit varying degrees of inclusiveness"; human observers everywhere, Berlin holds, are able to recognize "this inherent structure." He concedes that other logical relationships may be at work in the conceptual organization of plants and animals, citing Hunn and French's (1984) work that highlights the relationship of coordination in the classification of plants in Sahaptin, a Penutian group of languages in the Plateau region of Northwestern North America. However, Berlin considers that such cases are rare and "do not supplant the notion of natural taxonomy."

4. Recognized ethnobiological taxa are taxonomically distributed as members of six mutually exclusive ethnobiological ranks comparable in content to the ranks of Western zoology and botany. Taxa of each rank share similar degrees of internal variation as well as being separated from each other by comparably sized perceptual gaps. The six ranks, in descending order of taxonomic inclusiveness, are the **kingdom, life-form, intermediate, generic, specific,** and **varietal**.

The fourth principle entails the assumption that taxa at any given rank are conceived by local people to represent "comparably sized portions of ethnobiological reality;" the decreasing resemblance between groups of plants and animals in any particular territory, which will very rarely contain the full set of species descended from a given evolutionary lineage, "is not psychologically perceived as a continuum." Figure 5 reproduces Berlin's (*idem*: 23) diagram depicting the structural relationships of the five major ethnobiological ranks (excluding the varietal level for the sake of clarity). A telescoped representation has substituted the tree-like graphics, akin to Lévi-Strauss' diagram in figure 4, presented by Berlin, Breedlove & Raven in their paper on the same topic, published in 1973.

5. Across all folk systems of ethnobiological classification, taxa of each rank exhibit systematic similarities in their relative numbers and biological content.

    a. The most numerous taxa in folk biological taxonomies will be taxa of generic rank. In both ethnobotanical and ethnozoological systems of classification, the number of folk generics reaches an upper limit at about five hundred to six hundred taxa in systems typical of tropical horticulturalists. Roughly 80 percent of folk generic taxa in typical folk systems are monotypic and include no taxa of lesser rank. While most folk generics are taxonomically included in taxa of life-form rank, a small number is conceptually unaffiliated due to morphological uniqueness or, in some cases, economic importance. Generic taxa are among the first taxa learned by children as they acquire their society's system of biological classification.

    b. Taxa of the life-form rank mark a small number of highly distinctive morpho-types based on the recognition of the strong correlation of gross morphological

structure and ecological adaptation. Life-form taxa are broadly polytypic and incorporate the majority of taxa of lesser rank.

c. Taxa of intermediate rank are found most commonly as members of life-form taxa, and are comprised of small numbers of folk generics that show marked perceptual similarities with one another. Data are inadequate to indicate the relative numbers of such taxa in actual systems of ethnobiological classification.

d. Taxa of the rank of folk species partition folk generic taxa into two or more members; in those systems where they occur, folk varietals further subdivide folk species. Subgeneric taxa are less numerous than folk generics in all systems examined to date. There is some evidence to suggest that the recognition of subgeneric taxa is loosely associated with a society's form of subsistence. The conceptual recognition of subgeneric taxa appears to be motivated in part by cultural considerations, in that a major proportion refer to domesticated species of plants and animals. There is some evidence that foraging societies have poorly developed or lack entirely taxa of specific rank. No foraging society will exhibit taxa of varietal rank.

e. The rank of kingdom is unique in that it includes but a single member. Taxonomically, the kingdom incorporates all taxa of lesser rank. For ethnobotanical classification, the kingdom corresponds approximately to the biological taxon *Plantae*; in ethnozoology the corresponding biological taxon is *Animalia*.

The generic rank is the core of the classification scheme for Berlin, who cites A.J. Cain (1956) extensively on its status in Western taxonomy: "…the genus as the smallest 'kind' of plant or animal that can be recognized without close study… The species was a subdivision of it, often requiring expert examination both before it could be recognized and before it could be named… [The genus possesses] some characteristic peculiar to it… which will *instantly* serve to distinguish it from all others in the natural order." (Berlin, *op cit*: 60). To emphasize the point, he cites Linnaeus himself (1751): "many people who can perceive a genus cannot define it" (Berlin, *idem*: 61)

It is at this level, according to his framework of analysis, that the largest number of taxa is to be found in any indigenous science of nature. "The concepts represented by generic taxa are ones that elude linguistic definition" (Berlin, *idem*: 61); "they are ostensively defined terms for perceptually salient foci in the natural world." (Foley, 1997: 119). The words that name them are expected to be the most frequently used biological terms in the native language, the most easily elicited from speakers in the context of an interview, and the earliest to be learned by children (Foley, *idem*: 116). Wierzbicka (1985) paraphrases the relationship of inclusion between generic taxa and life-forms as "a kind of:" a cypress is a kind of tree. The relationship between generic taxa, on the other hand, is one of contrast: each of the different kinds of organisms denoted by the label for the life-form is in opposition with every other member of the same category. Unlike a life-form taxon like vine, the membership of a generic taxon like ivy is relatively homogeneous and approximates the composition of a

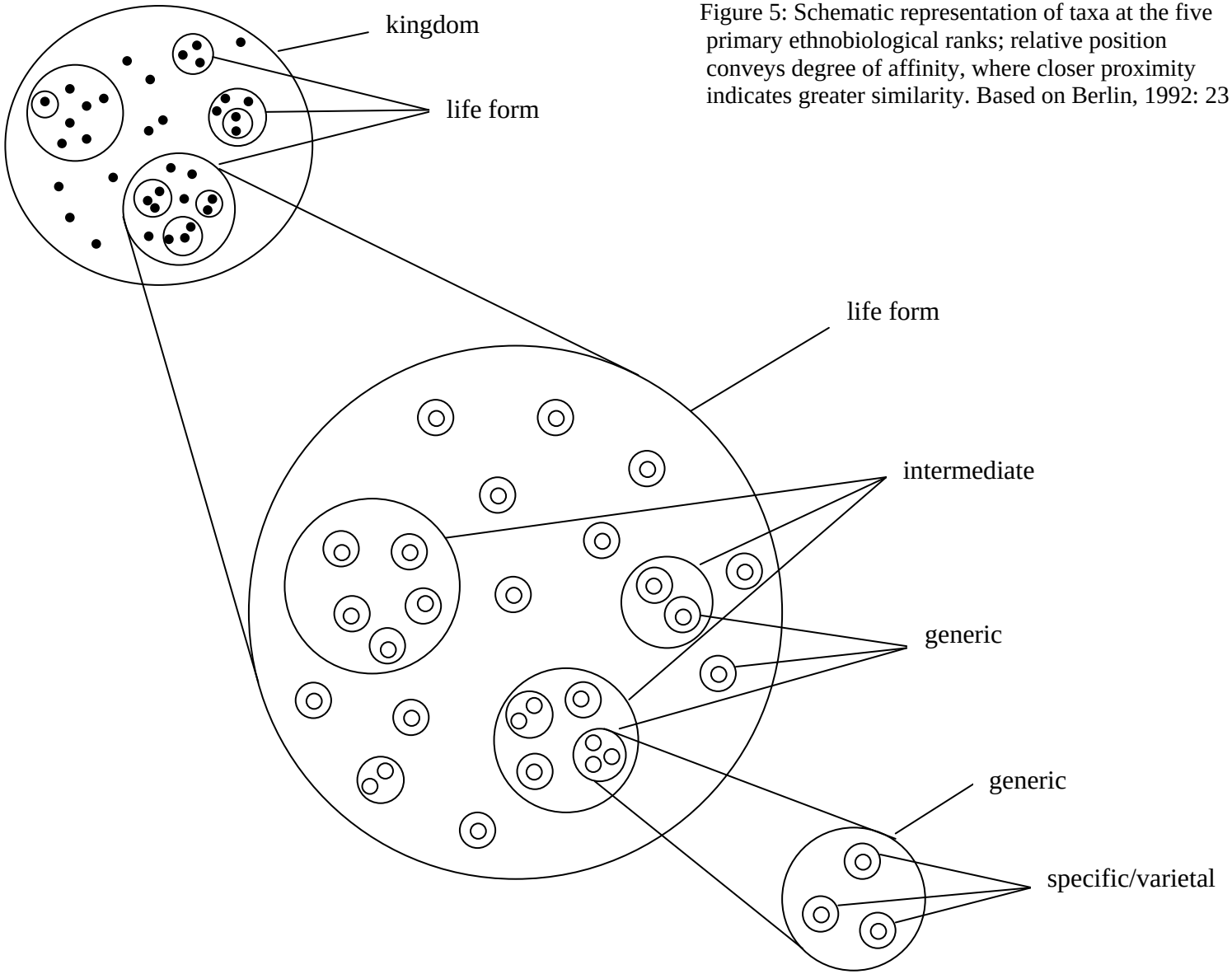


Figure 5: Schematic representation of taxa at the five primary ethnobiological ranks; relative position conveys degree of affinity, where closer proximity indicates greater similarity. Based on Berlin, 1992: 23

Linnean genus, i.e., a phylogenetically defined grouping with a number of attributes in common.

Groupings at Berlin's life-form rank often join together rather heterogeneous taxa, as the oft cited category **as** in the Kalam language of the New Guinea highlands illustrates: the label covers frogs, small marsupials and rodents (Bulmer, 1974). Groupings such as **as** led Randall and Hunn (1984) to argue that these taxa are artificial and "biologically arbitrary;" contrary to the "folk genus," they claim that there is no perceptual discontinuity motivating the recognition of the "life-form:" it does not encode a clearly discernable focus in the natural world. Berlin (*op cit*: 189) disagrees, arguing that "Life-form taxa form rather large groupings of perceptually similar folk genera. Such taxa appear to be based on a small number of biological characters." He qualifies this statement, however, by adding that "life forms represent folk biological taxa that cut across recognized scientific natural categories."

6. Taxa of generic and subgeneric rank exhibit a specifiable internal structure where some members of a taxon, **x**, are thought of as being more prototypical of that taxon than others (i.e., are the best examples of the taxon). Taxa of intermediate and life-form rank may also show prototypicality effects. Prototypicality may be due to a number of factors, the most important of which appear to be taxonomic distinctiveness (as inferred from the scientific classification of the organisms in any local habitat), frequency of occurrence, and cultural importance (i.e., salience).

The sixth principle ventures a bold claim about the composition of taxa, allowing cultural criteria to influence the development of prototypes. Berlin quotes Max Black on natural kinds and Wallace Chafe on semantic structure to bolster his reliance on prototype theory. Perhaps more germanely, he cites the type concept of Linnean taxonomy, where the definition of a species is contingent on the designation of a biological specimen that embodies the diagnostic traits that are declared to distinguish it from other taxa of the same rank. Berlin, Breedlove and Raven (1974: 56) had described similar properties of plant categories in Tenejapa: "some plant [species] are clearly seen as focal members of a category… other plants may be within the boundaries of the category… but still not be seen as the best examples of the category in question."

Atran (1990), Gelman and Coley (1991), and Wierzbicka (1992) concur with Berlin's position of innate, universal constraints on the classification of plants and animals, but question his use of prototype theory to characterize taxa, especially at the generic rank. They argue that folk genera, like their Linnean counterparts, are bounded by clear lines, not the fuzzy borders that prototype theory predicts. In their view, a genus contrasts with a life-form in having a "hidden underlying 'nature' manifested in the sensible properties of the category" (Foley, 1997: 120). When people classify living beings, the argument goes, they presume that this hidden nature is present to the same extent in all members of the category; if this is so, it implies that the boundary of the class is sharp, and prototype theory is refuted. This "underlying nature" is held responsible for the characteristic appearance and behavior of an organism, and serves to assign it to a particular genus. Atran notes that the presumption of a unique hidden nature allows English speakers to fit the juvenile form tadpole to the taxon frog. This presumed underlying nature causes live beings to develop in a set way and to display specific traits, and it is perceived to be passed on when they reproduce. The hidden

nature of organisms distinguishes them perceptually from human artifacts: “This discontinuity between natural entities and artificial ones created by human culture and technology is a universal focus of human cognition, and as such, is the basic organizational principle of ethnobiological classification… because the underlying nature is passed by reproduction, we may safely infer non-obvious, but pervasive similarities between genetically related living beings… It is processes of inference like these which are the basis of all systems of classification of living beings, ethnobiological or modern scientific.” (Foley, *idem*: 121).

7. Of those taxa recognized in any system of ethnobiological classification, a substantial majority corresponds closely in content to taxa recognized independently by Western botany and zoology. In comparison with taxa of other ranks, those of the rank of life-form show the lowest degree of correspondence in their biological content with recognized taxa of Western biology, taxa of subgeneric rank greater correspondence, and taxa of generic rank the highest correspondence. Taxa of intermediate rank correspond rather closely with portions of taxa recognized by Western science at the rank of family. For the higher vascular plants and larger vertebrate animals, generic taxa often approximate in their content the genera and species of Western scientific biology. For the smaller vascular plants, lower cryptogams, smaller vertebrates, and many invertebrates, the correspondence of folk generic taxa more closely approximates scientific taxa of the ranks of family, order, or class.

The last principle of classification makes again a strong assertion, predicting that indigenous observers and academically trained taxonomists will categorize the plants and animals found in any particular “restricted habitat” in highly similar fashion. Berlin accepts Hull’s (1970: 45) postulate that “there are indefinitely many ways of describing the patterns of variation in nature, and in each way there are indefinitely many patterns to be recognized,” but believes that “the empirical comparative data between Western scientific and folk systems of biological classification, as well as among the folk systems themselves, point to a single, preferred ordering that is primary and fundamental in humans’ appreciation of nature’s plan…” (Berlin, *op cit*: 26). He concludes the discussion quoting Gilmour and Walters (1964): in the classification of living beings, “one way is more natural than any other.”

2.4 Berlin’s general principles of nomenclature

In academic biology, the naming of taxa has become “essentially legalistic, pedantic, and tedious. Many systematists treat nomenclatural problems as a necessary evil” (Berlin, *op cit*: 26). In his classical “Principles of animal taxonomy,” George Gaylord Simpson (1961: 34) remarked that Linnean nomenclature is arbitrary at heart, merely providing labels for taxa, “a way for writing and talking” about living beings, which “has no scientific interest in itself.” Other scholars would disagree, realizing that the process of naming in Western biology is a fruitful area of inquiry in the “reflexive” sociology of science (Ashmore, 1989). In any case, the study of “folk” names for plants and animals, as opposed to Western scientific terminology, is a topic of great interest, insofar as “…ethnobiological nomenclature represents a natural system of naming that reveals much about the way people conceptualize the living things in their environment” (Berlin, *op cit*: 26).

Berlin's principles of ethnobiological nomenclature make two very strong claims: that "the formal linguistic structure of plant and animal names is basically similar in all languages," and that "the linguistic properties of …[those] names may indicate much about the cognitive status of the taxa to which they refer." (Berlin, *idem*: 26). The growing literature on the topic suggests to him "a much closer, nonarbitrary assignment of plant and animal names to their respective referents than had heretofore been suspected" (Berlin, *idem*: 27). It seems likely, he believes, that perceptually salient features in the morphology and behavior of organisms will be encoded directly in the names that are used to refer to those species. He proposes, furthermore, that this iconic assignment of names to plants and animals has adaptive significance because it will facilitate learning, remembering and using them, "thus reducing the cognitive effort required of peoples of nonliterate traditions who must control rather sizable ethnobiological vocabularies" (Berlin, *idem*: 27). Before actually formulating the principles of nomenclature, he underscores a caveat: "while a name is an unambiguous indicator of the existence of some particular taxon, absence of a label does not necessarily imply the absence of a category."

1. Intermediate taxa and the taxon marking 'plant' or 'animal' at the rank of kingdom are generally not named in systems of ethnobiological classification. Some small number of taxa of life-form rank may also be covert, that is, unnamed.

The first principle of nomenclature generalizes the finding across many languages that the 'kingdom,' most taxa at the 'intermediate' rank and some 'life-forms' are usually distinct in lacking a label. Berlin adds an empirical observation here, noting that in those cases where usually covert taxa such as the 'kingdom' are named, those terms are commonly polysemous, and cites as an example the Hanunóo **kāyuh** that appears in figure 4 on page 34 of this chapter, which can have the specific sense of 'tree' or the general sense of 'plant.' Berlin believes that such dual usage points to the prevalence of prototypicality in higher-order categories, as spelled out in the sixth principle of classification.

2. In ethnobiological lexicons, the names for plant and animal taxa are of two basic structural types that can be referred to as primary and secondary plant and animal names. Each structural type can be distinguished on the basis of linguistic, semantic, and taxonomic properties.

    a. Linguistically, primary plant and animal names may be simple (e.g., louse**,** frog**,** oak) or complex (e.g., skunk cabbage, forget-me-not, catfish). In contrast, secondary plant and animal names (exemplified by words such as sugar maple, large-mouthed bass, and Stellar's jay) are always linguistically complex.
    b. Semantic and taxonomic criteria show linguistically complex primary names to be of two structural types, productive and unproductive. Productive forms include a constituent that labels a taxon superordinate to the form in question (e.g. catfish, bluebird, bullfrog). In contrast, none of the constituents of unproductive forms marks a category superordinate to the form in question (e.g., prairie dog is not a 'kind of dog,' silverfish is not a 'kind of fish,' buckeye is not a 'kind of eye').
    c. Secondary plant and animal names are linguistically complex expressions, one of whose constituents indicates a category superordinate to the form in question (e.g., red oak, fox terrier). However, secondary forms differ from primary

productive expressions in that the former occur, with predictable exceptions, only in contrast sets whose members share a constituent that labels the taxon that immediately includes them.

The second principle of nomenclature benefits from the notion of contrast set proposed by Conklin (1962) and Frake (1962), and given formal definition by Kay (1971): two taxa are members of the same contrast set if they are immediately included in the same superordinate taxon (e.g., bald cypress and Montezuma cypress are members of the contrast set cypress. Following Berlin, to ascertain the structural type of a taxon's name it is necessary to understand which contrast set it is part of. For example, bristlecone pine is a 'secondary' plant name since pine is also the label for the category that immediately dominates this taxon, and since bristlecone pine occurs in a contrast set whose members are also labeled by the name pine, like pinyon pine, loblolly pine, lodgepole pine, etc. In contrast, complex primary names such as buttercup tree or Saint John's wort designate taxa in contrast sets where at least some members are labeled by simple primary names, such as kapok and mahogany (kinds of 'tree') or fennel and sage (kinds of 'herb') [14.]. As Berlin notes, simple primary names may be expanded into compound terms like 'kapok tree,' and secondary names like 'bristlecone pine' may be shortened to 'bristlecone,' but complex primary names like 'buttercup tree' cannot be abbreviated as 'buttercup:' "the full form… is obligatory as the taxon's habitual label" (Berlin, *op cit*: 29).

3. Generic taxa, and those life-form and indermediate taxa that are labeled, are generally labeled by primary plant and animal names, while, with specifiable and notable exceptions, subgeneric taxa are labeled by secondary names.

The third principle states that the rank of a taxon predicts how it gets named. "Folk biological life forms" like 'tree' and 'vine' are marked by primary names, which also label generic taxa like cypress, pine, oak, etc. Subgeneric taxa are usually designated by secondary names, such as bald cypress and pinyon pine. According to Berlin, "These expressions are structurally identical to binomials of standard scientific nomenclature, which are comprised of a generic appellation and a specific epithet" (Berlin, *idem*: 29).

4. Under certain conditions, subgeneric taxa will be labeled by primary plant and animal names. The empirical data indicate two widespread conditions that can be readily understood in terms of general principles of ethnobiological classification.

    a. A subgeneric taxon, **x**, may be labeled with a primary name when **x** is thought of as the prototype of the genus. In these cases, the primary name used to designate the prototypical taxon will be polysemous with the name of the superordinate generic taxon. Nonetheless, in situations of discourse where the prototypical subgeneric taxa must be unambiguously distinguished from other congeneric taxa, the prototypical taxon will be named by a secondary name containing a modifying expression that might be most appropriately glossed as 'genuine,' 'real,' 'original,' or 'ideal-type.'
    b. A subgeneric taxon, **y**, may be labeled with a primary name when **y** is a plant or animal species of major cultural importance. In such cases the name used to

designate the subgeneric taxon will be linguistically distinct from the label of its superordinate.

The exceptions to the third principle, i.e., the application of primary names to subgeneric taxa, can be explained in part, Berlin claims, by the operation of "additional abbreviation rules" based on prototypicality and cultural significance. The fourth principle spells out the conditions in which that abbreviation occurs. When one of the subgeneric taxa of a 'folk genus' is considered to be prototypical, the primary name used to label it is polysemous with that of the superordinate generic, in most cases. The second context in which this process occurs is "when the biological species involved are imbued with high cultural importance" (Berlin, *idem*: 30).

5. Names for plants and animals commonly allude metaphorically to some typical morphological, behavioral, ecological, or qualitative characteristic feature of their referents.

The fifth and last principle of nomenclature points to the iconic, non-arbitrary nature of many plant and animal names: "Primary names of all subtypes [i.e., simple, productive complex, and unproductive complex], which on first analysis might appear to be semantically opaque, often reveal metaphorical associations of the name with its referent" (Berlin, *idem*: 31). Such associations are most obvious in the case of animal names, where onomatopoeia and sound symbolism often shape the ethnozoological lexicon, but "morphological features are often focused on… in ethnobotanical vocabulary," as well. Complex primary names are frequently based on analogy with a generic name that labels "a conceptually related taxon," a process that Berlin calls generic name extension. He provides the following examples from Tenejapa Tzeltal, which involve species to be brought up again in later sections of this dissertation:

k'ewex 'custard apple,' *Annona cherimola* Mill., a delectable fruit
k'ewex max 'monkey's **k'ewex**,' *Annona reticulata* L., a less desirable fruit

ch'aben 'a small herb,' *Crotalaria longirostrata* Hook. & Arn., an edible herb
ch'aben ch'o 'rat's **ch'aben**, *Crotalaria maypurensis* Kunth

2.5 Recapitulation

Berlin begins his book (1992) discussing the utilitarian and intellectualist approaches within the discipline. He expresses words of admiration for Lévi-Strauss' challenge to the Malinowskian point of view in The Savage Mind, but feels that the credibility of the Frenchman's argument about people having an "intellectual need" to classify nature, as a manifestation of our "demand for order," depends largely on the beauty of his argument and rests "in the main" unsupported. Berlin follows a line of reasoning that is close to Lévi-Strauss' position but which differs in its interpretation: "…the striking similarities in both structure and content of systems of biological classification in traditional societies from many distinct parts of the world are most plausibly accounted for on the basis of human beings' inescapable and largely unconscious appreciation of the inherent structure of biological reality." (Berlin, *idem*: 8). The stress is on the universality of such categorization: "When

human beings function as ethnobiologists… they do not construct order, they discern it …groups of plants and animals present themselves to the human observer as a series of discontinuities whose structure and content are seen by all human beings essentially the same ways, perceptual givens that are largely immune from the variable cultural determinants found in other areas of human experience" (Berlin, 1992: 8-9). This emphasis reiterates an earlier comment by Conklin (1962): "the presence of hierarchically arranged… folk taxonomies is probably universal."

If the tendency to classify plants and animals the same way is ubiquitous, it suggests strongly that the perception of natural classes is mediated by neurological processes shared by all members of the our species: "…human beings are drawn by some kind of innate curiosity to those groupings of plants and animals that represent the most distinctive chunks of biological reality. This human curiosity about the world is no doubt adaptive, in the broadest sense, but the mass of evidence presented here strongly suggests that people are not simply curious about those parts of the world of nature that might be of some direct utilitarian value to them." (Berlin, 1992: 290). An innate pattern-recognizing ability is also endorsed by Atran (1990, ix-xi): "More likely, there are a variety of fairly well-articulated modes of human thinking – inherently differentiated components of human nature acquired over millions of years of biological and cognitive evolution… [exemplified by] the quasi-automatic character evident in the acquisition of such ordinary forms of knowledge as linguistic competence, spatial appreciation, facial recognition, color perception or the apprehension of living kinds… the cognitive 'givens' of our species."

Berlin and Atran's "universal cognitive schema common to all and only folkbiological taxonomies…" was surely influenced and reinforced by the formulation of Chomsky's (1968) universal grammar, which postulates that an innate set of linguistic principles are shared by all humans. In the parallel formulations of generative grammar and ethnobiological theory there is perhaps an echo of the inspiration that Saussurean linguistics provided for Lévi-Strauss' structural thought, with its focus on binary oppositions. The notion of a genetically programmed language logic has had a profound impact on scholarship beyond linguistics and has surely facilitated the wider acceptance of developments in cognitive anthropology, such as Berlin's ethnobiology. Moreover, strong evidence for semantic domain-specific neural processing has been forthcoming in the last three decades. Although Berlin does not cite the clinical literature, his innatist stance on the perception of nature has been bolstered by a series of studies showing how lesions to a particular area of the temporal lobe of the brain result in cognitive deficits manifested in the inability to recognize and name plants and animals, specifically (Warrington & Shallice, 1984; Silveri & Gainotti, 1988; Hillis & Caramazza, 1991; Caramazza & Shelton, 1998; Yoon, 2009: 146-160).

Converging lines of evidence have thus boosted the intellectual authority of the framework of analysis developed by Berlin, and have called the attention of a broader audience in the cognitive disciplines. In his popular book "The language instinct," Pinker (1994: 422-426) devotes a couple of paragraph to the topic: "The anthropologists Brent Berlin and Scott Atran have studied folk taxonomies of flora and fauna. They have found that, universally, people group local plants and animals into kinds that correspond to the genus level in the Linnaean classification system of professional biology… Since most locales contain a single species from any genus [a comment that betrays ignorance on ecology], these folk categories usually

correspond to species as well. People also classify kinds into higher-level life-forms, like tree, grass, moss, quadruped, bird, fish, and insect. Most of the life-form categories of animals coincide with the biologist's level of class. Folk classifications, like professional biologist's classifications, are strictly hierarchical: every plant or animal belongs to one and only one genus; every genus belongs to only one life-form; every life-form is either a plant or an animal; plants and animals are living things, and every object is either a living thing or not. All this gives people's intuitive biological concepts a logical structure that is different from the one that organizes their other concepts, such as human-made artifacts… Intuitive biology is, of course, very different from what professors of biology do in their laboratories. But professional biology may have intuitive biology at its foundations. Folk taxonomy was obviously the predecessor to Linnaean taxonomy, and even today, professional taxonomists rarely contradict indigenous tribes when they classify the local species." Such a portrayal, it will be argued in the sections that follow, fails to convey the diversity in the way people codify information about the living world in their languages, and does not adequately express differences of opinion among anthropologists about how that variation is to be modeled theoretically and accounted for.

3. Semantic classification in Mixtec grammar and lexical morphology

> "*Hablando de los Angeles es mejor vsar del* **ya**, *como de grandes señores, pues lo son, y de los demonios del* **si**, *por su baxeza, como esta dicho en otras relaciones y es ympropio nombralos por el* **te** *que es para los animales irracionales*."
>
> "Speaking about the angels it is better to use the **ya**, as of great lords, since they are so, and of demons the **si** for their lowliness, as has been said in other accounts, and it is improper to name them by the **te**, which is for irrational animals."
> (Antonio de los Reyes, 1593: 19)

In additional to the interest they hold because of their internal differentiation and the ecological heterogeneity of the territory they occupy, the Mixtec languages are exceptionally relevant to the study of natural nomenclature and categorization because they feature a system of semantic classification that is manifested in a set of grammatical and lexical categories, with some variation across dialect areas. Before dwelling on the particularities of Mixtec, a general discussion of classifiers will provide a frame of reference to characterize its semantic markers and examine how they differ from one variant to another.

3.1 Noun classifiers

Grinevald (2000), following Allan (1977), has studied classifiers as a morphosyntactic category that is present in some languages of the world and which is distinct from other nominal classification systems of a more grammatical (gender-noun classes) or more lexical nature (measure terms, class terms). Classifiers differ from purely lexical systems of categorization in marking classes of nouns beyond the noun word itself, i.e., in independent morphemes or in affixes on other elements of the clause. On the other hand, they differ from noun class-gender systems "in their incomplete grammaticalization, in remaining of a lexical nature and in having a discursive use within specific syntactic configurations" (Grinevald, 2000: 61). Whereas noun-class systems classify <u>all</u> nouns into a "smallish" number of classes, classifiers do <u>not</u> classify all nouns, and the number of categories they mark is "largish."

Grinevald (*idem*: 64) distinguishes Mixtec and a few other languages in the world as having <u>noun classifiers</u>, which are realized as "free morphemes standing in a noun phrase, next to the noun itself or within the boundaries of the noun phrase with other determiners of the noun." Crucially, they occur independently of quantification and are thereby distinct from numeral classifiers, which are found frequently in languages around the Pacific (Gil, 2005), including a number of Mayan groups (Tzeltal, Tzotzil, Ch'ol, Tabasco Chontal, Chuj, Akatek, Jakaltek and Yucatec, among others). Grinevald's typology also sets apart the classifiers found in Mixtec from genitive classifiers, prevalent in many Oceanian and South American languages, and from verbal classifiers, found in some North American and Australian languages. Noun

classifiers have been largely ignored as a distinct type: "In fact the original motivation for working out this typology was to give it a place in the context of other recognized classifier types and to define its characteristics with respect to that of the other – better-known – systems. It is not a very common type, and the documented instances are still few" (Grinevald, *op cit*: 65). Besides Mixtec (based on de Leon, 1986), Grinevald cites only Jakaltek and Akatek in the Kanjobalan branch of the Mayan family in Mesoamerica, and Yidiny in Australia, as languages that show this rare kind. Significantly, the distribution of all four types of classifiers remains strongly centered in the circum-Pacific region, a pattern that was noticed first by Berlin (1968).

Jakaltek noun classifiers fulfill "two basic but probably related" syntactic functions, as determiners of the noun, and as independent third-person pronouns, which explains their omnipresence in the language. Craig (1986: 264) recorded the following examples; the first phrase in every pair illustrates their function as noun determiners, while the second illustrates their function as pronouns:

(1) **Xil naj xuwan no' lab'a**.
saw CL(man) John CL(animal) snake
'John saw the snake'

Xil naj no'.
saw CL(man) CL(animal)
'He (man, non-kin) saw it (animal).'

(2) **Kaj te' tahnaj ixpij**.
red CL(plant) ripe tomato
'The ripe tomato is red.'

Kaj te'.
red CL(plant)
'It (plant) is red.'

Grinevald (*op cit*: 65, 80) considers noun classifiers in the Kanjobalan languages to be "the most syntacticized classifiers of this type" to have been recorded and notes that they form "a closed set that encompasses both animate and inanimate nouns." She does not comment on their comparable status in Mixtec, as will be discussed below. In Australia, noun classifiers appear "in a more incipient, less grammaticalized stage," as illustrated by the following example from Yidiny (Dixon, 1982), which involves a classifier that seems to be specific for edible plants:

Mayi imirr bama-al yaburu-Ngu julaal
CL(vegetable)-*absolutive* yam-*abs* CL(person)-*ergative* girl-*erg* dig-*past*
'The girl dug up the yam'

In support of her classification of classifiers, Grinevald (*idem*: 71-73) argues that the different morphosyntactic types correspond to different semantic categorization principles. She cites an unpublished survey of languages that possess classifiers, where the results

supported a semantic-morphosyntactic correlation: noun classifiers matched her "material/essence" semantic cluster closely (with the category examples 'animal,' 'rock,' 'man'), whereas numeral classifiers were correlated most strongly with the "physical" cluster (category examples 'round,' 'long rigid,' 'flat flexible'), and genitive classifiers matched quite tightly the "functional" cluster (e.g., 'edible,' 'drinkable,' 'transport'). Verbal classifiers were not considered one of the "major" types of classifiers. After presenting the results of the survey, however, she warns the reader that "the whole enterprise of assigning semantic values to classifiers is a delicate endeavour, highly suspect of Eurocentric bias [!] and with expected theoretical and methodological shortcomings" (Grinevald, *idem*: 74).

Grinevald discusses the function of the different types of classifiers with more self-assurance. Earlier treatments of the topic had focused on classifiers as markers of a process of individuation in languages where classifiable nouns are essentially concept nouns. The contrast between Spanish *tres muebles* and English *three furnitures exemplifies the individuating role of a measure term like 'pieces.' In addition to their function as individuation markers, classifiers play an important discursive role in many languages as referent tracking devices. In some cases, "classifiers are found essentially in anaphoric constructions." The functions of classifiers raise questions about the four types distinguished on morphosyntactic grounds: "If they all contribute to the process of individuation of concept nouns, how is it that the different types… appear to do it preferentially through different semantic categorization principles?" (Grinevald, *idem*: 76). She proposes that the three "major" types of classifiers are "different operators which correspond to different modes of individuation manifested by their different semantics: noun classifiers and their predominantly material/essence semantics are operators of quality…"

In her subsequent discussion on the possible motivations for matching their "operator" functions with the semantic classification principles of the three types of classifiers, Grinevald elaborates on the discursive roles of the noun classifiers, which include "that of providing a morphological mark of referentiality and highlighting, and that of providing an overt means for keeping track of referents." She introduces the notion of semantic bleaching to argue that various languages achieve this anaphoric function by means of "generally semantically very bleached pronominal forms which provide minimum information on the referent, such as gender and number." In their anaphoric role, noun classifiers "are also like bleached versions of the basic-level nouns they stand for." They have more semantic content than usual pronouns since the classifiers are generally derived from generic nouns, "but they also respect the condition of minimal information, choosing in this case the semantic feature of material/essence characteristic of superordinate nouns (as in animals, plants and trees, liquids, etc.)" (Grinevald, *idem*: 79).

Looking at her typology in a diachronic perspective, Grinevald considers that classifiers seem to be "secondary grammatical systems which are derived from existing lexical material and syntactic constructions;" she finds evidence for longer and shorter histories of different sets of classifiers, "and varying degrees of dynamism built into them." Sino-Tibetan languages, for example, are thought to have developed numeral classifiers from compounding constructions through the use of class terms (defined below). The Kanjobalan languages "must have developed noun classifiers for social interaction first, using the existing Mayan patterns of use of epithets and kinship terms, before expanding the system to the

classification of concrete objects" (Grinevald, *idem*: 83). An advanced degree of grammaticalization is considered a feature of older systems, like the fused numeral classifiers of Akatek, which coexist with a newer set [15.]. The "easily recognizable noun origin" indicates a more recent development in the case of the Jakaltek noun classifiers, which have become frozen, however: the system was still productive at the time of European contact, so that metal and glass objects introduced by the Spaniards were incorporated into the 'rock' class, and the 'maize' category was extended to cover wheat and the foods made from it. "But the system seems to have ceased to be active in modern times since it does not accommodate… the more recent objects of daily use in the culture which are made of unfamiliar materials, such as bottled drinks like beer and coca-cola or objects made of plastic or nylon" (Grinevald, *idem*: 85). In the case of Mixtec, some variants retain productive noun classifiers across all semantic fields, whereas in other geographic areas the system has become "fossilized" (de Leon, 1980).

In contrast with noun classifiers, Grinevald (*idem*: 59) describes "class terms" as "classifying morphemes which participate in the lexicogenesis of a language." Although they are easy to identify, their classificatory function being transparent, rarely are they treated adequately in language monographs beyond a few illustrative examples: "The difference between derivational morphemes and class terms that are used in compounding processes is not always worked out, and both have been labelled 'classifiers' at times. Class terms are classifying morphemes of clear lexical origin and show varying degrees of productivity in the lexicon of a language. One of the most common semantic domains of class terms is that of the plant world where languages specify the difference between trees and fuits by a compounding process: X-fruit/round vs X-tree/long-rigid." The English equivalent of such class terms would be morphemes like -berry (as in strawberry, blueberry, raspberry, etc.) and tree (as in apple tree, banana tree, palm tree, etc.).

The Mixtec plant lexicon involves both noun classifiers and class terms, as will be documented in the next chapters of this dissertation, following Grinevald's analytic framework. Before describing and providing some examples of both types of morphemes in Mixtec, a general discussion of the orthography, phonology and morphology of these languages is in order.

3.2 Mixtec orthography

The transcription of all Mixtec terms in this dissertation adheres to the orthographic conventions established by the Academy for the Mixtec Language (**Ve'e Tu'un Savi**, 2007: 39-42). In some instances, the Academy provides new graphemes for phonemes found in certain dialects. Chayuco Mixtec, for example, contrasts the voiceless dental fricative /□/ (transcribed by Pensinger, 1974, as <**z**>, e.g. **zaa**, 'bird') with the voiceless alveolar fricative /s/ (Chayuco Mixtec **saa**, 'noisily'). The Academy transcribes the voiceless dental fricative as <**dj**>, while the voiced dental fricative /ð/ is transcribed as <**d**> (e.g., Peñoles Mixtec **dita**, 'tortilla'). The Academy does not distinguish /ʒ/ from /j/, both of which are found in Mixtec, although they may not be contrastive; they are transcribed as <**y**>. Where the orthography recommended by the Academy differs significantly from the transcription in the original source, I have added the latter between brackets at the end of each entry, especially in those

cases where there is uncertainty on how to interpret the latter's spelling (as in de Alvarado's 1593 transcriptions of Tamazulapan Mixtec, and in some terms recorded in Alcozauca by Alejandro Casas & Juan Luis Viveros, published in Casas, Viveros & Caballero, 1994). I have taken the same provision in the instances where the Academy has not yet provided clear guidelines on how to write certain phonemes found in some dialects, e.g., the preaspirated nasals of Yosondúa Mixtec, as in **yuNnu**, 'tree' (Farris, 1992: 128), which I have transcribed as <**jn**>. /dz/ occurs in Chigmecatitlán Mixtec, where I transcribe it as <**dz**>, a grapheme that has not been sanctioned by the Academy.

Nasalized vowels are marked with an <**n**> at the end of the syllable. Segment-initial /n/ and /ñ/ cause the following vowels to be nasalized, which are therefore not marked with a final <**n**>; progressive and retrogressive nasalization affects long vowels as well as vowel clusters, but does not extend beyond glottal stops (**Ve'e Tu'un Savi**, 2007: 44-46). According to Katz (1990), Yosotato Mixtec shows the sequence /V**nt**V/ in some terms, which represents a prenasalized stop, but which in the Academy's orthography would be interpreted as a nasalized vowel followed by the voiceless alveodental stop. To distinguish these instances, I underline the <**n**>, as in **ita ki<u>n</u>ta** (*Salvia* spp.).

Regarding tonal contrasts, which are prevalent in all Mixtecan languages, the Academy states the following: "… *se ha decidido comenzar con los tonos básicos, que son: a) tono bajo b) tono medio c) tono alto. El tono bajo se marcará con un guión debajo de la vocal… El tono medio no se marcará. El tono alto se representará con el acento latino sobre la vocal…*" ("… it has been decided to begin with the basic tones, which are: a) low tone b) medium tone c) high tone. The low tone will be marked with a dash underneath the vowel… The medium tone will not be marked. The high tone will be represented with the Latin accent above the vowel…") (**Ve'e Tu'un Savi**, 2007: 43). In practice, however, tones are rarely marked in the materials written by members of the Academy: "*... los acuerdos son de no aplicar los tonos en la escritura en un primer momento*…" ("… the agreement has been, not to apply the tones in writing during the initial phase…"). Tone perturbation or sandhi, pervasive in most Mixtec dialects, is a major factor explaining the reticence of authors to mark tones. Gabriel Caballero's *Diccionario* (2008) notes tonal distinctions only occasionally, using tildes.

When tone levels are marked in the phrases and isolated terms that I cite, especially from the vocabularies produced by the Summer Institute of Linguistics, I transcribe them following the conventions of the Academy, i.e., I underline low-tone vowels, mark high tone with acute accents and leave the mid-tone unmarked. Xochapa Mixtec, however, requires a more elaborate tonal notation system to distinguish "almost low tone, more or less equivalent to musical note *re*", marked with a grave accent (e.g., <**ù**>), from "low tone, more or less equivalent to musical note *do*", marked by underlining the vowel (e.g., <**<u>u</u>**>) (Stark, Johnson & González, 2003: 100-101). In addition, these authors mark ascending (e.g., <**ǔ**>) and descending (e.g., <**û**>) contour tones. Similarly, Small (1990) and Kuiper (2003) use the circumflex accent <^> to mark high-low glides.

3.3 Phonology

As mentioned in the introduction, the Mixtec languages are characterized by a set of oral and nasal vowels; the close central unrounded vowel /ɨ/, which Josserand (1983) reconstructs as part of the vowel system of Proto-Mixtec, occurs today only in some dialect areas:

	oral			nasal		
high	i	ɨ	u	ĩ	ɨ̃	ũ
mid	e		o	ẽ		õ
low		a			ã	

The orthography for the vowels established by **Ve'e Tu'un Savi** (2007: 39) is presented in the following table:

	oral			nasal		
high	**i**	**ɨ**	**u**	**in**	**ɨn**	**un**
mid	**e**		**o**	**en**		**on**
low		**a**			**an**	

When vowels follow a nasal consonant, i.e. <**n**V, **ñ**V>, they undergo "nasalization by progressive assimilation" (**Ve'e Tu'un Savi** *idem*: 44-45) and are therefore not marked orthographically with a final <–**n**>, as in the following examples:

nuu /nũũ/ 'face'
ñɨɨ /ɲɨ̃ɨ̃/ 'salt'

Macaulay (1996: 18) remarks that the oral mid vowels /e/, /o/, and especially their nasal counterparts /ẽ/, /õ/, occur "much less frequently than the other vowels" in Chalcatongo Mixtec, an observation that can be generalized to other variants that have been documented. **Ve'e Tu'un Savi** (2007) as well as de Leon (1980) and Josserand (1983) treat glottalization as a vowel feature, but Macaulay (1996) argues for a root-based analysis of glottal stops, as will be explained below.

Macaulay (*idem*: 18-19) notes that the consonant inventories of Chalcatongo Mixtec and other variants contain some striking asymmetries. The first one concerns frequency: some of the phonemes, e.g., /mb/ and / ŋg /, have an extremely limited distribution, as will become evident in a quick perusal of any portion of the lexicon, such as plant names. A second asymmetry "has to do with the pattern (or lack thereof) in voicing and prenasalization of segments." Chalcatongo Mixtec has voiced prenasalized stops /nd/ and /ŋg/, but /b/ is only occasionally realized as /mb/; "in all of the other dialects of Mixtec with which I am familiar, voicing entails prenasalization" (Macaulay, *idem*: 19). The match between voiceless and prenasalized voiced consonants becomes apparent in the following table, compiled from the phonological inventories of variants which represent different dialect areas as defined by Josserand (1983): Diuxi Mixtec (Kuiper & Oram, 1991) - Eastern Alta; Silacayoapan Mixtec (Shields, 1988) - Southern Baja; Alacatlatzala Mixtec (Zylstra, 1991) - Guerrero; San Juan Colorado Mixtec (Campbell *et al*., 1986) - Coast; Chalcatongo Mixtec (Macaulay, *op cit*) -

Western Alta. Segments in parentheses only occur in some dialects; phonemes that have been recorded in only one variant are not included.

stops	[-voice] [+prenas] [+voice]	(p) (mb) b		t nd	(ʦ)	k (ŋg) (ɣ)	k^w	ʔ
fricatives	[-voice] [+prenas] [+voice]		(θ) (ð)	s	ʃ (nʒ) (ʒ)	(x)		
affricates	[-voice] [+prenas]				tʒ (ntʒ)			
approximants					j			
nasals		m		n	ɲ			
lateral				l				
flap				r				
glide							(w)	

The corresponding orthographic conventions, as established by **Ve'e Tu'un Savi** (2007: 40-42), would be the following:

stops	[-voice] [+prenas] [+voice]	**p** **mb** **v**		**t** **nd**	**ts**	**k** **ng** **g**	**ku**	**'**
fricatives	[-voice] [+prenas] [+voice]		**dj** **d**	**s**	**x** **ndy** **y**	**j**		
affricates	[-voice] [+prenas]				**ch** **nch**			
approximants					**y**			
nasals		**m**		**n**	**ñ**			
lateral				**l**				
flap				**r**				
glide							**w**	

3.4 Morphophonemics

Macaulay (*op cit*: 26) analyzes the syllable structure of Mixtec to be restricted to V and CV. Rare instances of consonant clusters, CCV, in Chalcatongo and elsewhere, consist of /s/ plus some other segment and are derived from an earlier CVCV form, as illustrated by the modern term for 'cattle':

idu ndɨkɨ ['deer' + 'horn']	(attested as: **idzu ndeque**; de Alvarado, 1593)
djɨndɨkɨ	(**zɨndɨquɨ**; Chayuco Mixtec, Pensinger, 1974)
sndɨkɨ	(Chalcatongo Mixtec, Macaulay, 1996)

In all variants of Mixtec, words are minimally disyllabic, a pattern described in the literature as the "couplet," with four possible combinations of vowels and consonants, illustrated by the following examples drawn from Coicoyán Mixtec (Flores & de Ávila, 1996):

VV:	**iin**	'one'
CVV:	**koo**	'snake'
CVCV:	**kivi**	'day'
VCV:	**ini**	'interior'

The couplet is subject to affixation and cliticization, leading to words of more than two syllables; "however, virtually all longer forms can be analyzed as polymorphemic – if not synchronically, then diachronically" (Macaulay, *op cit*: 27). The distribution of the glottal stop can be understood best in the context of the canonical structure of the Mixtec couplet. Josserand (1983) identified only two dialects (Ayutla and Zacatepec), in her sample of 122 communities, where a glottal stop can be found at the end of a word. Elsewhere, this feature occurs only in word-medial position, either intervocalically or preceding a voiced consonant, as exemplified by the following terms from Coicoyán Mixtec, which form a set of minimal pairs with the previous couplets:

V'V:	**i'in**	'*temazcal* sweat bath'
CV'V:	**ko'o**	'dish, plate'
CV'CV:	**ki'vi**	'to enter'
V'CV:	**i'ni**	'hot'

Interpretation of the glottal stop as a vowel feature, rather than a consonant, allows us to retain the open syllable model, which is the typical pattern in the Otomanguean family, as mentioned in the introduction. However, a simple vocalic explanation fails to account for the restriction of glottal stops to initial syllables in almost all Mixtec variants. Macaulay (1996: 28-29) proposes a root-based analysis, i.e., she treats glottalization as a feature of the couplet: in the targeted lexical entries, a rule that would associate the constricted glottis to "the timing slot corresponding to the left-most vowel of the couplet" would account for forms like **ko'o**; "typological evidence indicates that it is not unusual for glottalization to be restricted to a specific position in a root, and, furthermore, that the initial syllable is a very common locus," a phenomenon motivated by the inherent prosodic prominence of root-initial position, so that prosodic features like glottal closure are likely to appear there. In Mixtec, surface (C)V'V roots are "underlyingly" (C)VV and behave like them under the rules that determine tone

sandhi, an observation that is consistent with Macaulay's interpretation. Most significantly for our discussion of classifiers, Macaulay's analysis correctly predicts that /ʔ/ does not appear in affixes or clitics, since only roots (i.e., couplets) can be marked for glottalization.

The glosses for 'cattle' and the minimal pairs cited above involving checked and unchecked vowels all hint at another interesting trait of the Mixtec languages: a strong tendency toward vowel harmony within the couplet. Macaulay (1996: 29-32) quantified how many times the oral and nasalized vowels co-occur in a sample of 693 roots in the Chalcatongo dialect. The resulting data show that, without exception, the two vowels in a couplet must both be oral or nasal, which seems to be the general pattern for most Mixtec variants, although Ayutla (separated from other Mixtec communities by a large expanse of Tlapanec speakers) is again an exception, allowing either one or both to be nasalized. Furthermore, both vowels are identical (i.e., /[C]a[C]a/ or /[C]e[C]e/, etc.) in 57% of the Chalcatongo sample: "Such tendencies... are manifestations of... a marked preference for having a single specification for any given feature in each Mixtec couplet."

Although Macaulay does not make any allusion to such a pattern in her data, it appears that the tendency towards vowel harmony is also manifested in the frequency with which the high vowels (/i/, /ɨ/, /u/, and their nasal counterparts) co-occur in a couplet. A reexamination of the numbers presented in her tables (Macaulay, *idem*: 30-31), indicates that 84 of the roots show high vowels in harmony, which represent an additional 12% of her sample, for a total of 69% of the 693 couplets. 259 of the roots (37% of the total) present high vowels exclusively, in either complete (e.g., /[C]ũ[C]ũ/) or partial harmony (e.g., /[C]i[C]u/). The mid and low vowels occur together very rarely, according to her data. In the plant lexicon of several dialects there appears to be a tendency for some semantically related and culturally very salient roots to show high vowels, which reiterate this strong tendency for harmony (de Ávila, 1993; additional examples obtained from Caballero, 2008):

nuni / nii / ndixi / itu / viu	'shelled maize' / 'ear of maize' / 'tender maize on the cob' / '*milpa* maize field' / 'maize seedlings'
nduchi / ndichi / (yuku) xichi	'beans' / 'string beans' / 'bean plant'
ikin / tikin / tinduyu	'squash' / 'squash seeds' / '*chilacayote* squash'
ndikin	'amaranth seeds'
kindi	'*chía*,' formerly an important crop

The replication of /i/ and /u/ in these sets of couplets appears to reflect the tendency for harmony documented by Macaulay, but their lack of mid and low vowels may involve sound symbolism (Berlin, 1992: 232-255). High vowels in the terminology relating to the main crops of the **Ñuu Savi** people perhaps reflects a long standing attitude of reverence and endearment for their staples. The vocabularies of several Mixtec variants attest to the absence of /a/, /e/ and /o/ in diminutives and terms of affection (unmarked entries quoted from Caballero, 2008):

xutu 'son or child, vocative of love for boys, used for greeting and good-bye'
li'i / xɨ'ɨ 'girl, vocative of love for girls and young women'
luli / lulu / lundi / lutyi / luu 'small'
ndyi'i 'small ones, plural form of **lu'lu**' (Chayuco Mixtec, Pensinger, 1974)

lú'lu / lí'li 'small, little' (San Juan Colorado Mixtec, Campbell *et al*., 1986)
luu 'pretty, beautiful;' **lúlú**: 'baby' (San Miguel el Grande, Dyk & Stoudt, 1973)
luchi 'small' (Diuxi Mixtec, Kuiper & Oram, 1991)
lú'ndi 'small' (Coatzospan Mixtec, Small, 1990)
luvi 'pretty, beautiful' (Xochapa Mixtec, Stark *et al*., 2003)
livi / luvi 'pretty, beautiful, precious' (Cuatzoquitengo, Casiano Franco, 2008)
lulu 'small' (Ayutla Mixtec, Hills, 1990)

A fixed tone sequence, however, do not seem to be involved in this instance of sound symbolism. All variants of Mixtec, like all Otomanguean languages, use pitch phonemically. Tonal patterns differ from one dialect area to another, and can distinguish the speech of neighboring communities. Most variants appear to have three levels of phonemic tone, and it is common to find "contour" shifts in the two vowels of a (C)VV couplet, analyzed as a sequence of two level tones (Macaulay, *op cit*: 32). Dyk & Stoudt (1973) provide the following examples from San Miguel el Grande:

chaa 'man'
cháa 'write' (realis)
chaa 'write' (potential)
cháa 'arrive' (realis)
chaà 'arrive' (potential)

Tone perturbation (sandhi) rules operate in the majority of dialects, with the apparent exception of San Juan Mixtepec Mixtec (Josserand, 1983: 203-204). Different classes of terms can be distinguished within a given variant based on tone interaction, i.e., the groups are based on how their constituents affect or are affected by the tonal pattern of preceding and succeeding morphemes in an utterance (Alexander, 1980). The following examples from the dialect of Santa María Jicaltepec (Bradley, 1970) illustrate tone perturbation:

Wachí kwañu. come=Ø squirrel 'The squirrel is coming.'
úná kwáñu eight squirrel 'eight squirrels'

Mixtec was one of the first group of languages where tone sandhi were described, and the literature on the topic is extensive (Pike, 1945b, 1946, 1948; Mak, 1950, 1953, 1958; Overholt, 1961; Pankratz & Pike, 1967; Daly, 1973b, 1978; Pike & Small, 1974; Pike & Wistrand, 1974; Pike & Oram, 1976; Dürr, 1987; Hinton *et al*., 1991; Buckley, 1991; Meacham, 1991; Macaulay, *op cit*: 32-41).

3.5 Morphology

Two categories of elements may be added to the basic couplet: "ordinary" (inflectional and derivational) affixes and "phrasal" affixes (Macaulay, *op cit*: 13) [16.]. Both types are always monosyllabic, or composed of a single consonant. The inflectional affixes are verbal prefixes, and case marking and other types of nominal inflection are absent from Mixtec. The lexicon of the different dialect areas attests to varying degrees of productivity of the derivational affixes: in some variants, like Chalcatongo, derivation has become fossilized, including

aspect markers on verbs and classifiers on nouns, whereas in other areas the process continues to generate new lexicon, as documented by de Leon (1980). The phrasal affixes are elements which are bound, but which attach to phrases, rather than to words: they are "morphological entities (affixlike) in terms of dependence, but syntactic entities (wordlike) in terms of placement" (Macaulay, *op cit*: 14). Derivational affixes will be discussed extensively in the next sections; the following examples from Coicoyán Mixtec (Flores & de Ávila, 1996) and Chalcatongo illustrate inflectional affixes, such as the prefix that marks the completive aspect, and phrasal affixes like the negative marker:

Kuni=ra tanda'a=ra.
want=3MAS marry=3MAS [3MAS: third person singular masculine]
'He wants to get married.'

Ko=kuni=ña tanda'a=ña.
NEG= want-3FEM marry=3FEM [3FEM: third person singular feminine]
'She does not want to get married.'

...**tú=ní-tánda'a=rí**... (Macaulay, *op cit*.: 203)
NEG=CP-marry=1 [CP: completive marker]
'I didn't marry'

Ko=ni-kuvi=Ø kachiñu=Ø ava. (Flores & de Ávila, 1996)
NEG=CP-be:able=Ø work=Ø a:year:ago
'A year ago, I couldn't work.'

Tu=ká-ku si̱i̱ iní=ro. (Macaulay, *op cit*: 120)
NEG=PL-COP happy insides=2 [PL: plural; COP: copula]
'You all don't feel happy.'

In addition to affixation, morphological distinctions in the verb stem characterize all dialects (Macaulay, *idem*: 44). The most common contrast is between realis and potential aspect. A few verbs have a stative stem, also, and the verbs of motion have additional aspectual forms (Chalcatongo Mixtec has distinct stems for potential, imperative, progressive, and habitual aspects for those verbs). The stems may be differentiated segmentally and/or by tone, as in the examples from San Miguel el Grande quoted above. In a few cases, the realis form may be substituted by an entirely separate root in the potential aspect. Segmental, tonal and suppletive differentiation of verb stems are illustrated by the following examples from Chalcatongo (Macaulay, *idem*: 45-52), where the first form is the realis, the second one, the potential, and the third, when present, the stative:

jasú / kásu / ndasú 'close, cover'
jítú / kútú 'work in the fields' ['to work the soil' may be a more accurate gloss]
kaku / kákú 'be born'
jí'i / ku̱u̱ 'die'

Transitivity and causative action can also be encoded in the morphology of the verb stem:

ndáji / chúndaji 'wet' (adjective) / 'soak' (transitive verb) (Macaulay, *idem*: 54)
se'é / chise'e 'hidden' (adj) / 'hide' (transitive) (Coatzoquitengo; Casiano, 2008)
va'a / sava'a 'good' (adj) / 'make' (transitive) (Flores & de Ávila, 1996)

ta̲an / stáan 'action of an earthquake' / 'to cause one' (Dyk & Stoudt, 1971)
tsákú / jávákú 'cry' / 'cause to cry' (San Juan Colorado; Campbell *et al.*, 1986)

The bound morpheme **sa-/s-/ja-** in last three examples is related historically to the verb **sá'a/ja'á** and its cognates, glossed as 'to do,' 'to make' (Macaulay, *op cit.*: 59). Other prefixes that attach to the verb stem codify the inchoative, the deontic mood and the completive aspect, and plural, temporal, and repetitive actions.

The prefix **ja-**and its cognates derive nouns from adjectives, "specifying an individual with the relevant characteristic," as in 'the tall one' (Macaulay, *idem*: 65). In Chalcatongo Mixtec, **ja-** is clearly related to the phrasal affix **ja=** which marks subordinate classes. Macaulay illustrates the productive use of the nominalizer with the following example:

Sa'ma=rí kú ja-kwa'á.
clothes=1 COP NOM-red
'My clothes are the red ones.'

In the different dialects there are several nouns derived from adjectives by this prefix, where the meaning has become conventionalized:

ñiñi / sa-ñiñi 'important' / 'the main thing' (Chayuco, Pensinger, 1974)
vixi̲ / tsa-víxí 'sweet' / 'candy' (San Juan Colorado, Campbell *et al*., 1986)
vixi̲n / ja-vixín 'sweet' / 'fruit' (Chalcatongo, Macaulay, *idem*)

Although a general term for 'fruit' is derived through the nominalization of the adjective 'sweet' in Chalcatongo and some other variants, this mechanism does not appear to generate any further plant terminology. On the other hand, lexicalized noun phrase + noun phrase (NP) constructions with stereotyped meanings are quite common in Mixtec and are the most common way that botanical terminology is created, as will be illustrated in the following chapter. Some examples from other semantic domains:

ve'e kaa house + metal 'jail' (Cuatzoquitengo; Casiano Franco, 2008)
nduchi núu̲=yo̲ bean + face=1PL 'the eyes' (Dyk & Stoudt, 1971)
nduchi iní=yo̲ bean + inside=1PL 'the kidneys' (Dyk & Stoudt, *idem*)
tuká'nú íñi̲ greatness + inner:body 'the act of forgiving' (Campbell *et al*., 1986)
Iya Sí'i holy + female 'the Virgin Mary' (Coicoyán Mixtec; de Ávila, 1986)

The facility with which new terms are coined by the operation of nominalizing prefixes and through NP + NP constructions is probably one of the factors explaining why Mixtec shows such a low incidence of borrowed vocabulary from Náhuatl and from Spanish, compared to

other Mesoamerican languages. The plant lexicon is no exception, presenting very few loanwords.

3.6 Contraction processes

The first noun in NP + NP constructions is frequently reduced to a single syllable in many dialects of Mixtec, affected by the contraction rules which govern fast delivery. The strict canonical requirement on all roots, "that they must be of at least two syllables – is obscured, however, by a strong tendency to abbreviate forms with identical vowels in rapid speech, often resulting in monosyllabic surface forms" (Macaulay, *op cit*: 41). Three rules operate under the conditions of fast utterance:

(1) the glottal feature is omitted: $(C)V_i'V_i > (C)V_iV_i$
(2) a vowel is deleted: $(C)V_iV_i > (C)V_i$
(3) the initial syllable is omitted: $C_jV_iC_kV_i > C_kV_i$

Macaulay notes that the third rule, while still productive in Chalcatongo, operates much less frequently than the first two, which are attested very often. She cites the following examples:

va'a > vaa ('good') by the operation of (1)
vaa > va ('good') by the operation of (2)
kɨtɨ > tɨ ('animal') by the operation of (3)

Diuxi Mixtec bears evidence of an additional set of rules, which omit the final syllable in a couplet [(4) $C_jV_iC_kV_i > C_jV_i$] and then delete the vowel of the remaining CV root [(5) $C_jV_i > C_j$], as can be inferred from the following examples provided by Kuiper and Oram (1991: 334-342), together with Josserand's (1983: 479-484) reconstructed form for 'man' in Proto-Mixtec:

***teye** > **téyɨɨ** 'man' [17.]
téyɨɨ > **tê** 3MAS, woman speaking [by the operation of (4)]
tê > **t-** alternate form of 3MAS [by the operation of (5)]
t-vété 3MAS-untruthful 'liar'
t-lé'va 3MAS-toothless 'gossiper' [!]

Diuxi Mixtec offers two further examples of root reduction from full nouns to pronominal forms which will be relevant to our discussion of classifiers in the realm of plants, starting again with Josserand's Proto-Mixtec reconstruction:

***yutũ'** > **yutnu** 'tree/wood'
yutnu > **tnu** 3rd person singular affix for trees [by the operation of (3)]

ítâ 'flower' > **tâ** 3rd personal singular affix for flowers [by the operation of (3)]

The conversion of the full term for flowers to a noun classifier and a pronominal clitic seems to be restricted to the variant spoken in Diuxi and Tilantongo, whereas the classifier for trees

and wooden objects is widespread in the Mixtec languages, taking the shape **tun** / **tun'** / **tnu** / **tu** / **ton** / **to** / **nu** / **t-** / **ch-**. Rapid speech contraction seems to account for part of the variation in this series, but an additional process of de-nasalization has taken place in some dialects. Since Mixtec shows a strong tendency towards vowel harmony, and both vowels in a couplet are either oral or nasal in dialects like Chalcatongo (Macaulay, *op cit*: 29), the presence or absence of a nasal vowel in the classifier seems to condition the vocal quality of the compounded element in some cases and adds to the variation in Mixtec plant names when the terms are cognates, as the following examples seem to illustrate:

tuxi *Barkleyanthus salicifolius*, Compositae (Coicoyán; de Ávila, 1986)
toxí *el sumiate* (Coatzoquitengo; Casiano Franco, 2008)
tonyuxin: *zomiate*, *Barkleyanthus salicifolius* (Chinango, Flora Medicinal, n.d.)

To close the discussion of couplet abbreviation and the development of classifiers, Macaulay makes an important observation on how the reduced particles are to be analyzed in their grammatical and syntactic functions: "It is clear that contraction is the historical mechanism by which many full words have been reduced to affixes and clitics, but a synchronic description must take note of the fact that affixes and clitics cannot be replaced in a given utterance by their corresponding full forms" (Macaulay, *idem*: 43).

3.7 The pronouns

Before describing the full series of Mixtec classifiers, it is useful to present the pronominal system. The pronouns are fairly regular across dialects with regards to their syntactic distribution, but present considerable variation in the non-deictic traits they codify, which mark social and cultural categories. In the dialects that have been studied, they form two sets, one of unbound forms and another of affixed forms. The unbound set is composed of full couplets; in the following example from Chalcatongo, the second column shows the matching clitics (Macaulay, *idem*: 81):

1st person familiar	**ru'u**	**=rí**
respectful	**na'a**	**=na**
plural (inclusive)	**yó'ó**	**=yó**
2nd person familiar	**ro'o**	**=ro**
respectful	**ní'í**	**=ní**

In this dialect there is only one plural pronoun, the first person inclusive; for the other persons, the plural is marked by adding the appropriate prefix to the verbal stem. For the third person, there are no free pronouns, but rather "full nouns with generic reference," which correspond to the clitic forms:

3rd person masculine	**cha<u>a</u>** ‘man’	**=de**
feminine	**ña’a** ‘woman’	**=ña**
respectful: older	**to’<u>o</u>** ‘older person’	**=to**
younger, deceased, etc.	**zii** ‘male’	**=yi**
deity	**í’a / íya** ‘god’	**=ya**
animal	**kɨtɨ** ‘animal’	**=tɨ**
unmarked		=Ø

Macaulay’s “unmarked” category is labeled as the “inanimate” by Farris (1992) in his monograph on the Yosondúa dialect, spoken in a municipality adjacent to Chalcatongo. Other Mixtec languages do mark an inanimate category with a specific affix, as the following examples from Coicoyán Mixtec illustrate (Flores & de Ávila, 1996):

Naxa nani=an?
How name=3INA [INA: inanimate]
‘What is its [plant] name?’

Naxa nani=tun?
How name=3TRE [TRE: tree, wood]
‘What is its [tree] name?’

Naxa nani=ri?
How name=3ANI [ANI: animal/round object]
‘What is its [round fruit] name?’

Most interesting for the study of the classifiers are the dialects which use a set of independent, unbound pronouns which incorporate the third person clitics. Diuxi Mixtec has two series of “compound free pronouns,” one of which is formed by “combining the specifier **mee** with reduced poststressed” forms, and the second one involves “the indeterminate element **a**-”, apparently an older formation restricted to the subject of verbs in focus position (Kuiper & Oram, 1991: 343-344):

1st person familiar	**me<u>e</u>-r**	**<u>a</u>ru**
respectful	**mee da**	**<u>a</u>dai**
plural (inclusive)	**mee ro**	**<u>a</u>ro**
2nd person familiar		
man speaking	**mee-n**	**<u>a</u>ndo**
woman sp.	**me<u>e</u> un**	**<u>a</u>yo**
respectful	**mee-ń**	**<u>a</u>ndix**

3rd person masculine		
man sp.	**mee si / mee-s**	**ase**
woman sp.	**mee te**	**ate**
feminine	**mee ña**	**aña**
deity	**mee íá**	**aya**
animal	**mee tɨ**	**atɨ / akɨt**
tree/wood	**mee tnu**	**atnu**
liquid	**mee te**	**ante**
flower	**mee tá**	**atâ**
unspecified	**mee i**	**adich**

This elaborate system is reminiscent of 16th century Teposcolula Mixtec recorded by de los Reyes and de Alvarado, which used different sets of pronouns for the first and second person to distinguish formal, familiar and generalized contexts of communication. The pronominal sets marked gender (of the speaker, listener and referent), social position (of the speaker and the listener) and age (of the listener). Coicoyán Mixtec has an equivalent set of the first series of compound pronouns in Diuxi, but does not make the familiar/respect and men's/women's speech distinctions. It does, however, contrast first person plural inclusive and exclusive forms, as well as second person singular and plural, distinctions that are also made by the bound clitics (Flores & de Ávila, 1996):

Miiyo **kachiñu=Ø** **itu**.
1stPL-INCL work=Ø maize:plant
'We (inclusive) work in the milpa.'

Miindi **xixi=Ø** **nduchi**.
1stPL-EXCL eat=Ø beans
'We (exclusive) eat beans.'
A **iyo=Ø** **va'=un**?
Y/N be=Ø good=2SG [Y/N: yes/no question marker; SG: singular]
How are you?

Na'a=ndo **ka'an=Ø** **tuku=ndo**.
come=2PL speak=Ø RPT=2PL [RPT: repetitive]
'Come speak again, you all.'

These examples from Coicoyán serve to illustrate changes in the basic word order in Mixtec, which is Verb-Subject-Object (VSO), a frequent pattern in Mesoamerica, characterized as a language area or *Sprachbund* by the absence of verb-final word order (Campbell, Kaufman & Smith-Stark, 1986). An unbound pronoun, however, can precede the verb to emphasize the subject, whereas focus on the object is achieved by placing the unbound form after the verb. The affixed forms always appear following the verb; they are monosyllabic clitics which are grammatically independent but phonologically bound to the lexeme or phrase. The unbound forms as well as the affixed pronouns can act as the subject, direct object or indirect object in a phrase, and their function is only distinguished syntactically. The indirect object generally precedes the direct object. There is a restriction of co-occurrence so that the pronominal affix

never occurs with the unbound form with the same function in the same phrase, as shown by the following examples from Diuxi Mixtec (cited by de Leon, 1980: 45):

N-gídatátná=té=ña. CP-cure=3MAS=3FEM 'He cured her.' [woman speaking]
Meẹte n-gidátátna=ña. 3MAS CP-cure=3FEM 'He cured her.' [ws]
Meẹte n-gidátátna meẹña. 3MAS CP-cure 3FEM 'He cured her.' [ws]

The affixed forms also occur in nominal syntagms with the function of possessive pronouns, as illustrated by Shields (1988: 372) in Silacayoapan Mixtec:

kóchí lo'o jana=ñá [18.]
pig small:SG domestic:animal/spherical:object=3FEM
'her little pig'

kíti jana=da
animal domestic:animal/spherical:object=3MAS
'his domestic animals'

chikí jana=i
cactus:fruit domestic:animal/spherical:object=1SG
'my [*Opuntia*] cactus fruit'

tikwaá jana=na
orange domestic:animal/spherical object=3PL
'their orange'

The pronominal clitics function as objects in prepositional constructions, as well (Coicoyán Mixtec; Flores & de Ávila, *idem*):

Vaxi=Ø xu'un xi'=in.
come=Ø money with=1SG
'I've got money with me.'

Kuni=yu ka'an=yu tu'un nda'vi xi'i=ndo.
want=1SG speak=1SG word poor with=2PL
'I want to speak Mixtec with you all.'

Na-kaa ka'a=na xi'i=ndo.
CLA:COL-there speak-3PL with-2PL [CLA: classifier; COL: collective]
'Those people will speak with you all.'

In the last example, the demonstrative **na-kaa** could be interpreted as a compound of the pronominal clitic for the third person human plural, which has the same shape, plus the locative. However, two further examples indicate that this is indeed a classifier, rather than the pronominal affix, which has a different form for 3MAS in Coicoyán:

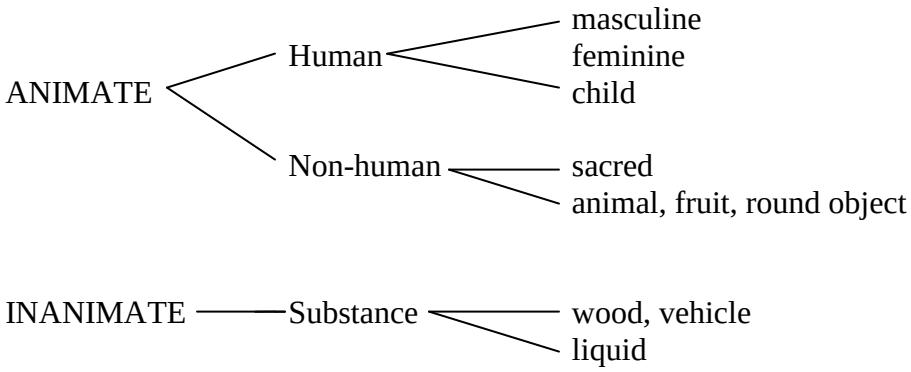
Tia-kaa **ka'an=Ø** **tu'un** **sa'an**.
CLA:MAS-there speak=Ø word non:indigenous
'That man is speaking Spanish.'

Xi'=in **xixi=ra**
with=1SG eat=3MA
'He is eating with me.'

The correspondence between the classifier and the pronominal clitic in the subject position in these elicitations are examples of the type of co-occurrence that led de Leon (1980) to pose that Mixtec noun classification derived historically from pronoun categorization. Table 4 presents the pronominal affixes ("poststressed pronouns") and the corresponding noun classifiers ("prestressed forms") that have been recorded in eleven variants of Mixtec, as well as in two other Mixtecan languages, Pápalo Cuicatec and Copala Trique, to offer a comparative perspective.

3.8 Mixtec classifiers

Grinevald (2000) refers to the work of Lourdes de Leon when she cites Mixtec as one of the few languages where true noun classifiers have been documented. De Leon based her analysis of semantic classification in Mixtec on the relationship between pronouns and "noun markers": "[the third person pronouns] establish a series of semantic classes which correspond, in many cases, to the semantic classes established by the noun markers... This correlation is interesting, as it shows the characteristics of systems of noun classification. While the semantic marker indicates the class in co-occurrence with the noun, the pronoun indicates it by substitution." (De Leon, 1980: 49, translated by A. de Ávila). She drew the following chart to represent the semantic classes established by the third person pronouns:



	MAS	FEM	CHI	DEC	DEI	ANI	TRE	LIQ	INA	COL	DIM	GEN	UN	RE	PL	FL
TAM	**ye, ta** **ta**	**ña, ndo** **ña**	 **si**	**ñu**	**ya** **ya**	**te, ti** **te**	**tnu** **tnu**	 **ta**						**to** * **to**		
DUX	**sê/tê,t-**[a] **-s,sɨ/te**	**ña** **ña**			**ya, ia** **íá**	**tɨ, kɨt** **-t, tɨ**	**tnu** **tnu**	**nte** **te**	**xá, x-**				**dich** **i**			**tâ** **ta**
OCO	 **de**	 **ña**			 **ya**	**(ti)** **ti***	**(tu)** **tu**	 **de**				 **jin**	**ja**			
CHA	**chaa** **de**	**ña'an** **ña**	**(yii)** **yi**	**(yii)** **yi**	**íya, í'a** **ya**	**kɨtɨ** **tɨ**	**(nu)**						 Ø	**to'o** **to**		
YSN	**ra** **da**	**ña** **ña**			 **ya**	 **tɨ**	**(nu)**		**ja** Ø			**yɨ, i**	**jara**			
OSP	**na/chénu** **na/chí**[a]	**tánu, tá** **tún**				**kɨtɨ** **tɨ**	**(t-, ch-)**						**é** **i, Ø**	**xta/ña**[b] **xta/ña**		
XYA	**te** **te**	**ña** **ña**			**ya** **ya**	**si** **si**	**nu,tu** **nu**	**te** **te**	 **a**							
LAC	**ta** **da**	**ñá** **ñá**				**tí, ndi** **rí**	**tó** **dó**	**tó** **dó**	**ña** **ña**				**a** **a**	**na** **na**		
ALA	**ta** **ra**	**ñá** **ñá**				**tí** **rí**	**ton** **nó**	**tá** **ra**	**ña** **ña**			**a**			**na** **na**	
AYU	**te** **ra**	**ña** **a'**				**ti'** **ri'**	**tun'** **nu'**	**tya'** **ra'**	**ña** **a**					**ña**/ Øº **a/chi**	**ne** **nya**	
JAM	**ra** **ra**	**ña** **ña**				**(tɨ)** **tɨ***	**(tu)** **tun**		**cha** **chi**	**ñu** **ñu**	**kwé**					
CUI	 **sá**	 **tá**				 **ti**	**(yi**[3]**)**		 Ø				 *	 **ya**		
TRI*	**zoh**[3] **zii**[5]	**noh**[3] **nii**[5]				**zhoh**[3]	**(r-)**		**yoh**[3] **ze**[32]				**nii**[3]			

Table 4: Noun classifiers and third person singular pronominal affixes in the Mixtecan languages

For each set, the first row is composed of what the authors affiliated with the Summer Institute of Linguistics distinguish as the "prestressed" forms, which can occur as noun classifiers. The second row consists of the "poststressed" forms, which correspond to pronominal clitics in verb conjugation and noun possession. "Prestressed pronouns" written in parentheses are reported to occur only "in frozen forms."

Pronominal categories:
MAS: masculine ([a] indicates man speaking/woman speaking distinction)
FEM: feminine
CHI: child
DEC: deceased
DEI: deitiy
ANI: animal, fruit/round (* indicates fruit/round not specified)
TRE: tree, wood
LIQ: liquid
INA: inanimate
COL: collective
DIM: diminutive
GEN: generic/general
UN: unspecified/indefinite (* human unspecified is marked in Cuicatec by fused low tone with optional glottal stop)
RE: respect ([o] indicates masculine/feminine distinction; [b] indicates general adult/distinguished man distinction; * used for "lords")
PL: human plural
FL: flower

Languages/variants:
TAM: 16th century Tamazulapan and Teposcolula (Eastern Alta) (de León, 1980)
DUX: Diuxi-Tilantongo (Eastern Alta) (Kuiper & Oram, 1991)
OCO: Santo Tomás Ocotepec (Western Alta) (Alexander, 1988)
CHA: Chalcatongo (Western Alta) (Macaulay, 1996)
YOS: Yosondúa (Western Alta) (Farris, 1992)
OSP: Coatzospan (Northern Alta) (Small, 1990)
XYA: Xayacatlán (Northern Baja) (de León, 1980)
LAC: Silacayoapan (Southern Baja) (Shields, 1988)
ALA: Alacatlatzala (Guerrero) (Zylstra, 1991)
AYU: Ayutla (Guerrero/Southern Baja) (Hills, 1990)
JAM: Jamiltepec (Coast) (Johnson, 1988)
CUI: Cuicatec from Concepción Pápalo (Bradley, 1991) In addition to the forms listed here, Concepción Pápalo Cuicatec has a prestressed locative pronoun
TRI: Trique from Copala (Hollenbach, 1992) (* the two forms of Copala Trique third person pronouns are phrase-final vs. non-phrase-final) In addition to the forms listed here, Copala Trique has two forms for the non-phrase-final locative pronoun

De Leon proposes that the classification codified by the third person pronouns preceded the development of noun markers, and that it was the pronouns which provided the semantic basis for the classification of nouns: “We could say that long before this semantic classification operated by means of markers in some dialects, it was already indicated by the third person pronouns. Indeed, there exists a classification by substitution in many dialects which have not developed the system of semantic classification of nouns by means of semantic markers” (De Leon, *idem*: 49). This notion of a classification by substitution seems to have motivated Macaulay to underscore that “a synchronic description must take note of the fact that affixes and clitics cannot be replaced in a given utterance by their corresponding full forms” (Macaulay, *op cit.*: 43), a point that she elaborates further: “The syntax of the full forms and that of the clitic forms is quite different... and so the clitic forms cannot be the result of synchronic contraction of the full forms, but must instead be regarded as invariant phrasal affixes.” (Macaulay, *idem*: 80).

De Leon emphasizes the fact that “in the dialects with semantic classifiers,” the “classifiers or derivative prefixes” mark the same semantic categories “established” by the third person pronouns. It is this semantic and morphological correlation between pronouns and classifiers, she points out, which characterizes Mixtec vis-à-vis other Mesoamerican languages that feature some forms of semantic classification, such as the numeral classifiers in the Mayan family. However, it is not clear that there are any Mixtec dialects which lack noun markers altogether; the “derivative prefixes” are no longer productive in some Mixteca Alta and coastal variants, yet there appear to be at least traces of noun classification in all dialects. Contrary to de León’s supposition, it may be that noun derivation offered a model for the pronominal categories of Mixtec; it seems significant in this regard that other Otomanguean languages bear evidence of nominal categories.

De Leon herself (*op cit*) quotes a personal communication from the late expert on Mesoamerican linguistics, Jorge Suárez, indicating that labeled noun classes are common in the Otomanguean family: “In Chinantec there are classifiers that mark round objects and persons. In Trique, the classifiers occur in possessive constructions. In Chocho, the classifier is used as an anaphoric. In Huave [believed at that time to be a member of the family] we find the presence of numeral classifiers. In Chichimec there is productive noun classification for plants and animals. In Amuzgo there are classifiers for plants and animals, as occurs also in some variants of Zapotec. What happens in these languages, generally, is that the classification is not productive but has fossilized. We find, therefore, classes of nouns marked morphologically, but which the speaker is unable to discern. In Zapotec, Mazatec, Tlapanec, Trique... and in some variants of Mixtec the classification has become fossilized.” (de Leon, *idem*: 95). The languages cited by Suárez represent all branches of the Otomanguean family except for Chiapanec-Mangue. If this commentary were to be substantiated, it may provide evidence to propose that Proto-Otomanguean used class terms, and possibly even noun classifiers in Grinevald’s sense. However, as will be shown in the fifth chapter of this dissertation, some of Suárez’ claims need to be evaluated with caution.

Unlike previous authors who had written on Mixtec, de Leon considers demonstratives to constitute a separate group from the third person pronouns. She notes that the former are not bound to nouns or verbs like the latter, but occur independently, with a syntactic distribution similar to that of the noun. They result from the combination of one of the semantic markers

that classify nouns followed by a deictic of place, indicating the degree of proximity to the speaker, whereas "...in those dialects that lack semantic markers, the demonstratives are formed by the combination of the third person clitic plus the deictic of place..." (de Leon, *idem*: 52). She does not provide examples of the latter, but the demonstratives documented by Bradley (1970:50) in Jicaltepec fit her description; the first column shows the affixed third person forms "indifferent to distance," the second column the proximal forms, and the last column the distal equivalents:

MAS	**rá**	**ráyá**	**rákán**
FEM	**ña**	**ñaya**	**ñakan**
COL	**ñí**	**ñíyá**	**ñíkán**
DEI	**yá**	**-----**	**------**
ANI	**ri**	**riya**	**rikan**
INA	**chí**	**chíyá**	**chíkán**
DIM	**we**	**weya**	**wekan**
COMMON [?]	**run**	**ruya**	**rukan**

Coatzoquitengo Mixtec, in contrast, builds a full set of demonstratives not on the pronominal clitics but on the corresponding "semantic markers" (de Leon, *op cit*: 52); here the first column shows the independent noun, the second column the "marker," the third column the proximal demonstrative, the fourth column the distal equivalent, and the fifth column the corresponding pronominal affix (recorded by Casiano Franco, 2008):

MAS	**taa**	**ta-**	**tayo'o**	**takáa**	**ra**
FEM	**ñá'a**	**ñá-**	**ñáyo'o**	**ñákáa**	**ñá**
ANI	**kiti**	**ti-**	**tiyo'o**	**tikáa**	**rí**
TRE	**itun**	**tun-**	**tũyo'o**	**tũkáa**	**tú/tún**
LIQ	**nduta**	**ta-**	**tayo'o**	**takáa**	**rá**
INA	**ña'a**	**ña-**	**ñayo'o**	**ñakáa**	**ña**

De Leon (*op cit*: 53) adds a series of examples relating compound nouns, labeled by what she calls semantic markers, with the corresponding demonstratives in Coatzoquitengo:

kiti yo'o > tiyo'o	'this animal' > 'this one'
tikimi yo'o > tiyo'o	'this star' > 'this one'
tikava yo'o > tiyo'o	'this *Spondias* fruit' > 'this one'
itũye'e yo'o > tũyo'o	'this door' > 'this one'
tũavion kaá > tũkaá	'that airplane' > 'that one'
viko kaá > ñakaá	'that cloud' > 'that one'

Casiano Franco (*op cit*: 127) provides an especially insightful illustration of how the semantic marker can become detached from the locative to function as a lexical item that fulfills all the characteristics defined by Grinevald (2000) for a noun classifier, i.e., "free morphemes standing in a noun phrase, next to the noun itself or within the boundaries of the noun phrase with other determiners of the noun":

Tú **vaxi=Ø** **káa** **kúu** **karro** **ta** **Pedro**.
CLA:TRE come=Ø there COP car CLA:MAS Peter
El mueble que viene allá es su carro de Pedro.
'The vehicle coming over there is Pedro's car.' (Casiano Franco, *op cit*: 127) [19.]

To account for the development of the semantic markers, and in spite of her initial proposal that noun classification derived historically from pronominal categories, de Leon discusses the lexicalization of NP + NP constructions in somewhat different terms than Macaulay's analysis. De Leon finds complex lexemes composed of two nouns, a noun and an adjective, a noun plus a verb, and a noun and a numeral, quoting examples from Jicaltepec:

yo'o kaa	vine/rope + metal	'wire'
kiti ndee	animal + strong	'mule'
kivi uñi	day + three	'Wednesday'

Once formed, the tri- or tetrasyllabic forms will tend to be reduced by "morphophonemic pressures of the system" and by "pressures of intensity." The first or second syllable (and there is no discussion of what phonological or morphosyntactic factors may condition which syllable is chosen) of the first term in the compound will be lost, resulting in a tri- or bi-syllabic form:

yo'o kaa > **yokaa**
kibi uñi > **ki uñi**

Through this process emerges a third type of lexical forms, morphologically distinct from the compound nouns which gave rise to it, where the first syllable (remnant of the first term of the compound) becomes a derivative prefix, functioning as a semantic marker:

yutu ndoko tree + custard apple > **tundoko** 'custard-apple tree, *Annona* sp.'

De Leon notes that in some areas, such as Santa María Yucuhiti in the Mixteca Alta, the two phases of the process can be found in the speech of a single community; the elders will use the full compound more frequently, and the younger people will prefer the reduced form, specially in informal situations. Only the abbreviated forms occur in other dialects, even though the speakers are capable of reconstructing the original tetra-syllabic terms in some instances. In the case of plant nomenclature, it seems significant that the earliest source (de Alvarado, 1593) cites full compounds much more frequently than the contemporary vocabularies:

yutnu yaa / yutnu yata *roble* 'oak'
yutnu nuu *aceiba arbol* 'kapok'
yutnu nda'ya *durazno el árbol* 'peach tree'
tnunda'ya *cerezo el arbol* '[Mexican] cherry tree'
tnuyu'ndu *madroño* 'madrone'

In the dialects where prefix derivation remains productive, de Leon continues, the prefixes form a paradigm with noun-marking functions; they will attach to nouns, adjectives and

stative verbs to derive new lexicon: “In this way, as the paradigm of derivative prefixes... is formed, a process of noun classification will begin” (de Leon, *op cit.*: 60). The productivity of the prefixes is most evident in the coinage of Mixtec terms for technological innovations:

tobixi CLA:LIQ + sweet ‘soda pop’ (Silacayoapan)
tundachi CLA:TRE + to:fly ‘airplane’ (Coatzoquitengo)

Following de Leon’s argument, in some dialects (especially in the Mixteca Baja) the system goes one step further: the prefixes lose their derivational role and become semantic classifiers with “functions of actualization”: “*el prefijo derivativo pierde sus funciones y funge como un clasificador semántico sustantival con funciones de actualización*” (de Leon, *idem*: 60). This newly acquired function as a noun classifier is more highly developed, she observes, in certain semantic categories (masculine, feminine, deities and woody objects), and is especially evident in the incorporation of Spanish loan-words:

Xita=Ø kuRosita. sing= Ø CLA:FEM-Rosita ‘Rosit sings’ (Xayacatlán)
nudanchiko CLA:TRE–to:cool [?] ‘refrigerator’ (Xayacatlán)
sipapaya CLA:ANI–papaya ‘papaya fruit’ (Micaltepec)
tukaru CLA:TRE–car ‘car’ (Coatzoquitengo)
tumakinakiku CLA:TRE–machine–sew ‘sewing machine’ (Coatzoquitengo)

De Leon highlights the correlation between the derivative prefixes/noun classifiers and the third person/demonstrative pronouns as the most salient feature of semantic classification in Mixtec. Although she observes that both the classifiers and the pronouns originate ultimately in the same nouns, she does not account for the differences between them in any given dialect. It is evident from the Coatzoquitengo sets cited above that the pronoun and the corresponding classifier are both derived from the same syllable of the source noun, yet pronoun and classifier often differ in their initial consonant. In addition, the two can vary tonally. In this dialect, the classifiers are clearly closer to the nouns than are the pronouns: it is the initial consonant and pitch level of the latter that tends to differ, as can be seen in the same forms quoted earlier (de Leon, *op cit*: 52; the first column shows the independent noun, the second column the classifier, the third column the proximal demonstrative, the fourth column the distal equivalent, and the fifth column the corresponding pronominal affix recorded by native speaker Vicente Casiano Franco, 2008):

MAS	**taa**	**ta-**	**tayo’o**	**takáa**	**ra**
FEM	**ñá’a**	**ñá-**	**ñáyo’o**	**ñákáa**	**ñá**
ANI	**kiti**	**ti-**	**tiyo’o**	**tikáa**	**rí**
TRE	**itun**	**tun-**	**tũyo’o**	**tũkáa**	**tú/tún**
LIQ	**nduta**	**ta-**	**tayo’o**	**takáa**	**rá**
INA	**ña’a**	**ña-**	**ñayo’o**	**ñakáa**	**ña**

The fact that the forms of the classifiers are closer to the source nouns than the pronominal clitics seems to lend support to de Leon’s supposition that the third person pronouns developed prior to the classifiers and provided a semantic blueprint for noun categorization. However, if noun-compound formation and prefix-derivation both remain productive, parallel processes, as appears to be the case in some Mixtec dialects, the closeness in form

between the nouns and the classifiers could be the result of sound changes conditioned by the canonical couplet, which may not affect monosyllabic morphemes such as the pronouns. If that were the case, the notion that noun classifiers are a relatively recent development in Mixtec might be weakened.

3.9 Innovation and loss of the classifiers

Plant nomenclature in Diuxi reveals evidence which suggests that noun markers and pronominal affixes have developed simultaneously, rather than sequentially as proposed by de Leon. Table 4 indicates that this variant of Mixtec is the only one documented so far to mark the category 'flower' with a specific "poststressed pronoun," **-ta**, as well as a "prestressed form," **tâ**. Kuiper (2003: 8) records an instance of the use of the pronominal affix:

> **Ita yodo nani=Ø ita ya'a chi yodo=ta nuu yutnu**.
> flower + be:on:top name=Ø flower here because be:on:top=3FL face tree
> *Las plantas llamadas* **ita yódo yútnú** *se llaman así porque trepan los árboles*.

Diuxi also happens to be the only dialect recorded to date that shows a contracted noun marker derived from **ita**, which becomes fused to couplets to designate specific species of plants (Kuiper, *idem*):

> **tavió** 'a kind of flower'
> **tayɨdî** 'a kind of flower'
> **tnúta'ú** *colorín, pipal* [*Erythrina* sp., LEGUMINOSAE]
> **tnútavé'yu** *dedalera* [probably *Penstemon* sp., PLANTAGINACEAE]
> **tnútayátu** *tronadora* [*Tecoma stans* (L.) Juss. ex Kunth, BIGNONIACEAE]
> **tnútayúxî** *un tipo de árbol, literalmente 'el árbol de la flor del mal de ojo'*
> 'a type of tree, literally 'the tree of the flower of the evil eye''

It is possible that **ta** represents an old classifier, like **tnu**/**tun**/**nu** ('tree, wood') and **ti**/**ti**/**si** ('animal, round object'), that used to be more widespread in Mixtec and happens to be retained in Diuxi and Tilantongo. It seems more likely, however, that this is a local innovation; had it been shared more widely earlier, we would expect to find traces of its former presence in the plant names that have been recorded in other variants of Mixtec, yet none seem to be forthcoming [20.]. The 16th century grammar and dictionary on Tamazulapan/Teposcolula Mixtec (de los Reyes, 1593; de Alvarado, 1593), geographically and linguistically close to Tilantongo, did not record a floral pronoun nor an abbreviated lexical marker for that category. Furthermore, **ta-** only occurs in some names in Diuxi, while others show the full form **ita**, like the **ita yodo** cited above. In fact, the majority of plant designations transcribed by Kuiper (2003) that involve the flower marker use the full term. It seems that this dialect made a parallel innovation sometime in the past, introducing a new category into its pronominal system and its botanical nomenclature, except the reduction of the nominal maker into a monosyllabic form did not go very far.

Blossoms do have a special status in the semantic classes that are marked in other variants of Mixtec. In San Jerónimo Xayacatlán, a northern Mixteca Baja variant, noun phrases involving flowers are marked with the pronominal clitic –**ya**, derived from the morpheme **yaa,** which de Leon glosses as 'whiteness or purity'; the same affix marks statements about the sun, the rain, the wind, saints and priests (de Leon, 1980: 152-153):

[**yaanchi**] **Nikana=ya**.	[the sun] rise=3DEI	'It [the sun] is rising.'
[**yadavi**] **Vaxi=ya**.	[rain] come=3DEI	'It will rain.'
Ita ku=ya.	flower be=3DEI	'It is a flower.'

Flowers have had extraordinary ritual significance in Mesoamerica since antiquity, attested lexically (Hill, 1992), philologically (Garibay, 1964-1967; Leon Portilla, 1994) and ethnographically (Hunn, 2008: 198-223).

Future fieldwork in other dialects in the eastern and northern Mixteca Alta will hopefully clarify the particular history of the floral pronoun/marker, which might shed light on de Leon's hypothesis about the development of noun classification in these languages. She observed that the presence of classifiers serves to demarcate two main zones within the Mixteca: "We note a major dialectal division between HM and CM on the one hand, and LM on the other. It seems that dialects showing gender and fossilized classification are located in HM and CM in contrast to dialects in LM that show classifiers. In spite of the fact that third person pronouns broadly draw the same categories, it is in those dialects with classifiers that semantic extensions have occurred." (de Leon, 1986: 17; HM refers to the Mixteca Alta, CM to the coastal region, and LM to the Mixteca Baja).

By "fossilization," de Leon referred specifically to the process whereby tri-syllabic forms, composed of a "semantic marker" plus a noun, become contracted even further to conform to the couplet, as the morphemic canon of Mixtec. The reduced bi-syllabic forms "will have all the morphological as well as semantic characteristics of simple lexical units; because of the phonological changes that they have undergone, it is difficult to determine the meaning and the form of the compound lexeme from which they originate" (de Leon, 1980: 62). She noted repeatedly that fossilized forms are frequent in Mixteca Alta and coastal dialects, "where the system of semantic classification is not very productive":

***kiti yuku** > ***tiyuku** > ***tyuku** > **chuku**	'fly'	(Ocotepec, Mixteca Alta)
***kiti yaka** > ***tiyaka** > ***tyaka** > **chaka**	'fish'	(Jamiltepec, coastal region)

In the following sections it will be pointed out that progressive palatalization from **ti-** into **ch-**, and perhaps a parallel process from **yu-** into **i-**, is attested by some plant names in Mixteca Baja dialects, as well.

Macaulay (1996: 67) elaborates on the fossilized classifiers and provides further examples: "The process of erosion of one of the syllables of the classifying noun has been carried to a state of complete fossilization or even loss in this dialect, and the result is a set of trisyllabic (or in some cases, disyllabic), synchronically monomorphemic lexical items... what remains of the classifiers in Chalcatongo Mixtec can no longer even be called prefixes." To illustrate this process, she cites cognate sets from three dialects that witness the initial, intermediate

and final stages of palatalization that obscure the original classifier. For each set, the first form comes from Chayuco, a coastal dialect where the prefix has not fused with the initial <**y**> of the primary lexeme that follows; the second form is from San Miguel el Grande, which preserves the full tri-syllabic compound along with the abbreviated form; and the third column shows the current form in Chalcatongo, which has lost the full tri-syllables:

ty<u>i</u>y<u>o</u>k<u>o</u>	**tiyókó / chókó**	**chókó**	‘ant’
ty<u>i</u>yúkú	**t<u>i</u>yuku / chuku**	**chuku**	‘louse’

The coexistence of both the full and the reduced forms in some dialects lends credence to a philosophical comment made by de Leon in the only paper that she appears to have published on Mixtec classifiers (1986: 17): “Mixtec is an example of a classifier system in transition. Partial fossilization in some classes and productivity in others illustrates this transition. However, it is not obvious that such a transitional stage will lead to a stable or definite end point. I suspect that the system will remain as it is: that productivity and fossilization coexist within the same system may simply reflect the fact that the language community itself exists in a changing social and cultural system that exhibits an analogous contradiction.” Such a compelling reflection is unfortunately not followed by a discussion of how the particular social and cultural dynamics of the Mixtec people, in their transition from a subsistence economy to the globalized labor market, might condition linguistic change.

In summary, Mixtec noun markers and pronominal affixes have interested linguists because they represent a rare type of classificatory system that remains poorly documented, in contrast to numeral classifiers and other types. In the Mixtec dialects that have been studied so far, the classifiers can be characterized by four basic traits: 1) they are derived from a set of generic nouns; 2) they occur with many (but not all) nouns “in a determiner-like function”; 3) their corresponding third person pronominal affixes “perform deictic and anaphoric functions”; and 4) “they show connections with social and spatial deixis” (de Leon, *idem*: 6-7). Furthermore, “this uncommon type of classifier system constitutes a particularly interesting case of grammaticalization which fills the gap in the continuum from lexical noun categorization to morphological noun classification.” (Craig, 1986). To relate that fundamentally linguistic theoretical interest to the topic of this dissertation, this chapter has shown how the pervasive tendency of the Mixtec languages to denote semantic categories has provided speakers with specific class terms like **ita**, and noun markers like **tnu**/**tun**/**nu**, to generate plant names readily, as the following sections will illustrate. Moreover, the correspondence of the pronominal categories and the noun classifiers, whether they be productive or frozen in a given dialect today, has historically offered Mixtec speakers a template, it seems, to extend the languages’ idiosyncratic principles of classification at large to a specific domain like the plant world. The Mixtec people are not alone in the region, however, in their fascination with nominal categories: “The Popolocan languages… use coreferential pronouns which are synchronically and/or diachronically related to a set of lexical classifiers. These classifiers are prefixed to nouns (but not all nouns) indicating the semantic class of the referent, such as ‘animate,’ ‘flower,’ ‘tree,’ ‘child,’ ‘male person,’ or ‘female person.’ Most of them double as autonomous nouns with a similar semantic value.” (Veerman-Leichsenring, 2001: 337). It is probably not fortuitous that plant nomenclature in the Popolocan languages shows close parallels to Mixtec botanical lexicon, as will be discussed in the fifth chapter.

4. A corpus of Mixtec plant lexicon

This chapter presents the botanical terminology that I have been able to gather in various Mixtec languages, including historical sources as well as contemporary reports. I include all the published records that I have been able to find, as well as unpublished materials provided by colleagues and data from my own research. Figure 6 locates the communities for which I have obtained information on the topographic map of the Mixteca presented in the introduction. The following list identifies each locality on the map by means of an acronym, with the corresponding altitude above sea level in meters (INEGI, 2010), and the dominant types of primary vegetation that have been reported for the area according to the system of classification of Rzedowski (1978), complemented by Valiente Banuet *et al*. (1998):

ALA: Alacatlatzala, municipality of Malinaltepec, Guerrero: 2182 m asl, pine-oak forest
APO: Santiago Apoala, district of Nochixtlán, Oaxaca: 2009 m asl, oak forest, mexical
AYU: Ayutla de los Libres, Guerrero: 384 m asl, tropical subdeciduous forest
CHA: Chalcatongo de Hidalgo, district of Tlaxiaco, Oaxaca: 2455 m asl, pine-oak forest
CHY: San Agustín Chayuco, district of Jamiltepec, Oaxaca: 250 m asl, tropical subdeciduous forest, tropical montane forest
CGM: Santa María Chigmecatitlán, district of Tepexi de Rodríguez, Puebla: 1507 m asl, tropical deciduous forest
COI: Coicoyán de las Flores, district of Juxtlahuaca, Oaxaca: 2041 m asl, pine-oak forest, cloud forest [21.]
CTZ: Cuatzoquitengo, municipality of Malinaltepec, Guerrero: 2087 m asl, pine-oak forest
DAA: San Pedro Tidaá, district of Nochixtlán, Oaxaca: 2322 m asl, pine-oak forest, fir forest
DUX: San Juan Diuxi, district of Nochixtlán, Oaxaca: 2329 m asl, pine-oak forest
HUI: San Antonio Huitepec, district of Zaachila, Oaxaca: 2306 m asl, pine-oak forest
JAM: Santiago Jamiltepec, Oaxaca: 434 m asl, tropical subdeciduous forest
JIC: Jicayán de Tovar, municipality of Tlacoachixtlahuaca, Guerrero: 731 m asl, tropical subdeciduous forest, tropical pine woodland
LAC: Silacayoapan, Oaxaca: 1640 m asl, oak forest, tropical deciduous forest
MIC: El Rosario Micaltepec, municipality of Petlalcingo, district of Acatlán de Osorio, Puebla: 1446 m asl, tropical deciduous forest, xerophytic scrub
MXT: San Juan Mixtepec, district of Juxtlahuaca, Oaxaca: 2122 m asl, pine-oak forest, tropical deciduous forest
NGO: Santa Catarina Chinango, municipality of San Pedro y San Pablo Tequixtepec, district of Huajuapan, Oaxaca: 1813 m asl, oak forest, tropical deciduous forest
NUX: Santo Domingo Nuxáa, district of Nochixtlán, Oaxaca: 1900 m asl, pine-oak forest
OCO: Santo Tomás Ocotepec, district of Tlaxiaco, Oaxaca: 2123 m asl, pine-oak forest

OSP: San Juan Coatzospan, district of Teotitlán, Oaxaca: 1778 m asl, cloud forest, tropical montane forest
PEÑ: Santa María Peñoles, district of Etla, Oaxaca: 2038 m asl, pine-oak forest
PIN: Pinotepa Nacional, district of Jamiltepec, Oaxaca: 205 m asl, tropical subdeciduous forest
SJC: San Juan Colorado, district of Jamiltepec, Oaxaca: 420 m asl, tropical subdeciduous forest
SMG: San Miguel el Grande, district of Tlaxiaco, Oaxaca: 2476 m asl, pine-oak forest
SOT: San Pedro Yosotato, municipality of Santiago Nuyoó, district of Tlaxiaco, Oaxaca: 1835 m asl, cloud forest, pine-oak forest, tropical montane forest
TAM: Tamazulapan del Progreso, district of Teposcolula, Oaxaca: 2021 m asl, mexical, oak woodland, tropical deciduous forest, xerophytic scrub [22.]
TIL: Santiago Tilantongo, district of Nochixtlán, Oaxaca: 2158 m asl, pine-oak forest
TON: Santo Domingo Tonahuixtla, municipality of San Jerónimo Xayacatlán, district of Acatlán de Osorio, Puebla: 1320 m asl, tropical deciduous forest
XOC: Xochapa, municipality of Alcozauca, Guerrero: 1456 m asl, pine-oak forest, tropical deciduous forest
XYA: San Jerónimo Xayacatlán, district of Acatlán de Osorio, Puebla: 1300 m asl; tropical deciduous forest
YLX: Yoloxóchitl, municipality of San Luis Acatlán, Guerrero: 595 m asl, tropical subdeciduous forest
YSN: Santiago Yosondúa, district of Tlaxiaco, Oaxaca: 2194 m asl; pine-oak forest, tropical montane forest
ZAU: Alcozauca, Guerrero: 1387 m asl, tropical deciduous forest, pine-oak forest
ZOL: San Juan Tamazola, district of Nochixtlán, Oaxaca: 2078 m asl, pine-oak forest

4.1 The sources of information

Before reviewing the ethnobotanical information gathered in these communities, it will be helpful to discuss the professional training of the various authors, their degree of familiarity with the local language, and the orthographic conventions followed in each source, including some historical documents and recent publications that do not specify where the data were obtained:

ACÑ: Acuña, René, historian who edited the 16th-century *Relaciones Geográficas* of Oaxaca published in 1984, which cite some Mixtec plant names, especially of species that were used medicinally, listing their Náhuatl equivalents in lieu of Spanish glosses. The transcriptions are often dubious, partly due to the challenges of the paleography, but mostly because of the lack of familiarity of the colonial scribes with Mixtec phonology. The information was gathered in a number of towns in the Mixteca Baja, the Mixteca Alta, the Valley of Oaxaca (at that time inhabited by several Mixtec-speaking communities) and the coast in present-day Oaxaca state and adjacent areas of Guerrero.

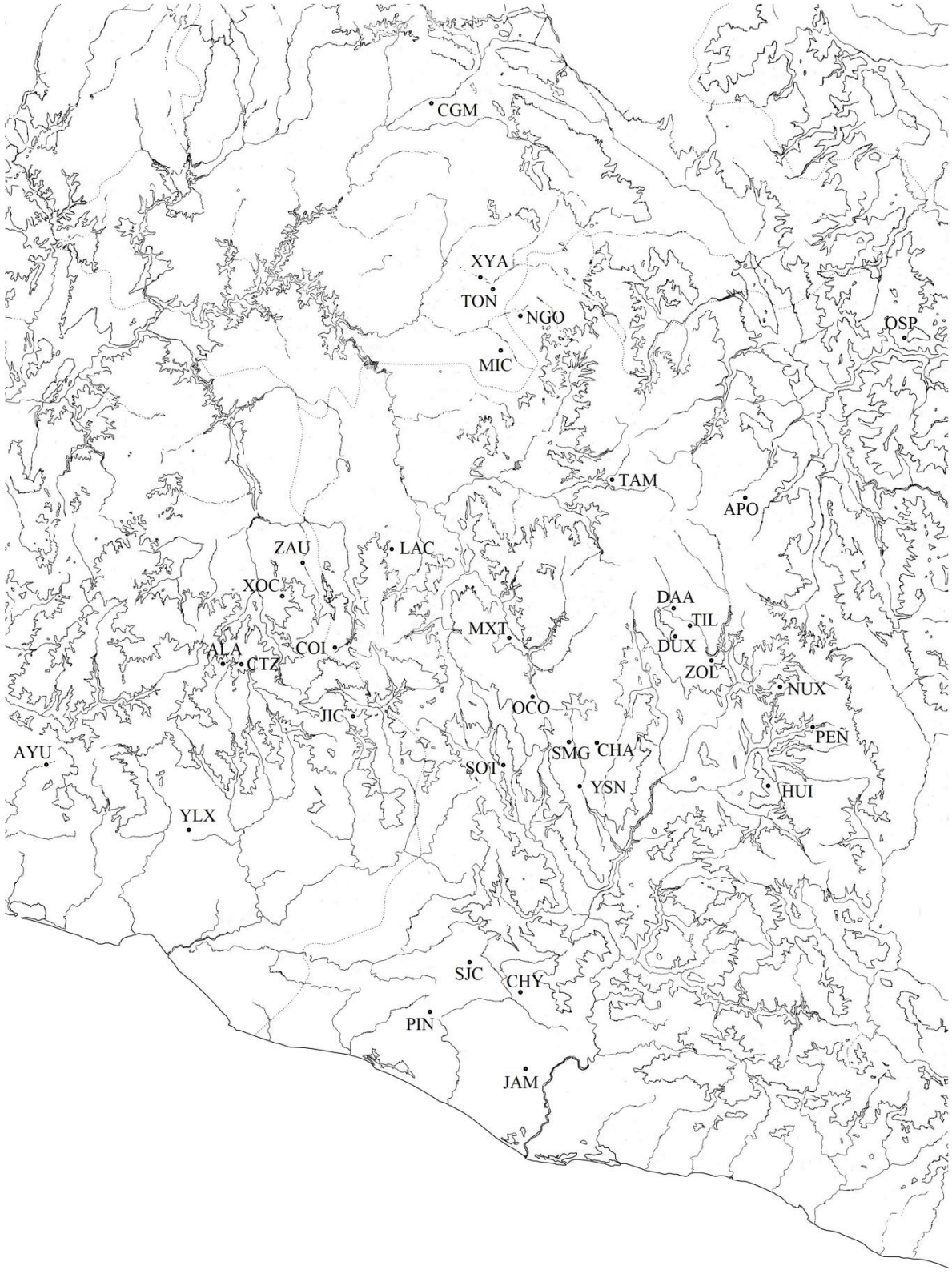


Figure 6: Communities represented in this study

ALA: Zylstra, Carol F., linguist affiliated with the Summer Institute of Linguistics (SIL) who worked in Alacatlatzala. The dialect spoken there is reported by Zylstra to be mutually intelligible with Cuatzoquitengo Mixtec, documented by Casiano Franco (2008). Zylstra (1991) published a syntactic sketch of that variant, which includes a few plant names glossed in English. Her transcriptions mark the surface tones, i.e., the phonemic pitch levels after the operation of sandhi rules.

APO: López García, Ubaldo, native speaker of Apoala Mixtec, founding member of **Ve'e Tu'un Savi**, the Academy of the Mixtec Language. Trained initially as an educator, he has studied ethnohistory and linguistics. His doctoral dissertation presented at the University of Leiden in the Netherlands in 2007 and published in 2010 examines the rich and eloquent ceremonial speeches of civic and religious *cargo*-holders in Apoala. Recording and translating this extensive body of oral tradition, he has documented a number of plants that have utilitarian and symbolic significance in the ritual life of Apoala. Maestro Ubaldo uses the orthographic conventions of the Academy, and marks tones only rarely. The plant species are glossed in regional Spanish.

AYU: Hills, Robert A., linguist affiliated with the SIL who worked in Ayutla de los Libres, Guerrero. Published (1990) a syntactic sketch of that language, characterized by phonological and morphosyntactic features that are not found in other Mixtec variants, such as word-final glottal stops and an especially elaborate system of verbal, nominal, numerical, general and sentential markers. Hills marks underlying tonal patterns (prior to the operation of sandhi rules) on all the terms he cites. His study includes a few plant terms, glossed in English; additional materials from Tepango, a community in the municipality of Ayutla, were recorded by de Leon (1980).

CAB: Caballero Morales, Gabriel: Native speaker of Huitepec Mixtec, trained in linguistics at the Master's level at the *Centro de Investigaciones y Estudios Superiores en Antropología Social* (CIESAS); currently holds a research appointment at the *Universidad Tecnológica de la Mixteca* (UTM) in Huajuapan, Oaxaca. He has compiled an 800-page dictionary with ca. 17,500 entries, published in 2008, based on a questionnaire prepared in 2001 which was filled out by bilingual teachers in 49 communities in Oaxaca, 3 in Puebla and 11 in Guerrero. Caballero records considerable phonological and lexical variation across the Mixtec region for various specific terms; unfortunately, he does not cite the provenience of any given form. He follows the orthographic conventions of the Academy of the Mixtec Language, with some modifications: 1) he does not distinguish the voiceless palatal affricate /tʃ/ from the voiceless alveopalatal stop /tʲ/, transcribing both as <**ty**>; 2) he records few instances of the voiceless dental fricative /□/, transcribed by the *Academia* as <**dj**>, found in some Mixtec dialects; 3) he transcribes as <**ndr**> and <**xr**> the retroflex allophones of /nd/ and /ʃ/ found in some varieties. Like the Academy, he does not distinguish /ʒ/ from /y/, both of which are found in Mixtec, although they may not be contrastive; they are transcribed as <**y**>. Caballero registers tones in very few cases. I have corrected typographic and orthographic errors in the Spanish glosses of his dictionary, as I have also done in the materials I cite from SIL vocabularies. The plant terms recorded in the dictionary are glossed in Spanish; no Latin binomials are quoted.

CHA: Swanton, Michael W., linguist affiliated with the Francisco de Burgoa Library, *Centro Cultural Santo Domingo* & *Universidad Autónoma Benito Juárez de Oaxaca*. He has published extensively on the phonology, grammar and philology of the Popolocan languages and is currently conducting research on Ixcatec and on Chalcatongo Mixtec. He has shared with me (2010) the entries relating to plants in the unpublished dictionary he has compiled of that Mixtec variant. Most of the species are described briefly, or glossed in regional Spanish. Swanton marks surface tones in that data base. Some additional plant terms from Chalcatongo were obtained from Macaulay (1996), who included a short vocabulary in her study of the grammar of that dialect.

CHY: Pensinger, Brenda J., linguist affiliated with the SIL who worked in Chayuco (Jamiltepec district, Oaxaca), and published a 150-page dictionary using a Spanish-based orthography that includes some botanical terms, glossed in Spanish. She marks tones "only in the cases where confusion would be created between various words if they were not indicated" (Pensinger, 1974: 138).

CGM: Ordaz Peregrina, Nazario Ignacio, Vicente Jerónimo Palacios Mexicano and Martiniano Beltrán Méndez, native speakers of Chigmecatitlán Mixtec. Don Nazario was born in 1927, don Vicente in 1928, and Martiniano in 1960. They were interviewed by Sebastian van Doesburg, Michael W. Swanton and A. de Ávila on July 25, 2009, in Santa María Chigmecatitlán. Historical narrative, grammatical paradigms, place names and plant lexicon were recorded digitally and transcribed. Swanton is studying the phonological traits of this Mixtec variant, including underlying tones and sandhi rules; surface tones have been marked tentatively, pending further analysis. Plant identifications were mostly based on Spanish vernacular names, corroborated in some cases with live plants observed nearby. Botanical voucher specimens collected in Chigmecatitlán were identified at the National Herbarium of Mexico (MEXU–UNAM), and are kept in the herbarium of the Jardín Etnobotánico de Oaxaca.

COI: Flores Romero, Celso, Trinidad Oliveros Reyes (deceased) and Rodrigo Tenorio, native speakers of Coicoyán Mixtec. Celso was born around 1960, don Trini ca. 1930, and Rodrigo around 1950. A. de Ávila worked with them on extended visits to Coicoyán from 1986 to 1990. Over 600 plant vouchers were collected in the fields and forests around the town, representing different species for the most part, with three or more duplicate specimens when possible. These collections were usually made in the company of Celso or don Trini, both fluent in Spanish; other specimens were gathered with Rodrigo, who is less bilingual. All three collaborators provided Mixtec names for the plants they knew. Some additional names were offered by the late don Telésforo González Melo (born around 1920), monolingual in Mixtec, his wife Patricia Guzmán (born around 1930 and conversant in Spanish), and their daughter Fidelia and son Juan, both bilingual and born in the 1960s. Further information and plant collections were gathered by Celso from 1990 to 1992, interviewing several individuals in Mixtec. The names and uses of plants were recorded on magnetophonic tape, when feasible, and transcribed in Mixtec and Spanish; tones were not marked. All the plant specimens were deposited in the herbarium of the Instituto Tecnológico de Oaxaca (ITO), where A. de Ávila worked at the time; the institution had covered part of the research expenses. A good part of the collections were identified according to Linnean taxonomy by Alfredo Saynes Vásquez; other specimens were determined at MEXU–UNAM,

the University Herbarium of UC Berkeley, the California Academy of Sciences, the Missouri Botanical Garden, and the New York Botanical Garden, where duplicates were sent. Unfortunately, the original collections, including many specimens for which no duplicates had been collected, appear to have been singled out for destruction by the person in charge of the herbarium at ITO. That herbarium was closed sometime before 2006, and the collections were handed over to the *Centro Interdisciplinario de Investigación para el Desarrollo Integral Regional* (CIIDIR) Oaxaca. All the specimens collected in Coicoyán, however, were missing by then (Remedios Aguilar Santelises, Director of the CIIDIR Herbarium, 2007, personal communication).

CTZ: Casiano Franco, Vicente Paulino, native speaker of Cuatzoquitengo Mixtec, founding member of the Academy of the Mixtec Language. He published privately a 200-page dictionary of his native dialect in 2008, following the orthographic conventions of the Academy. He records some forms that vary in the neighboring dialects of Cahuatache, Metlatónoc, Ocoapa, San Cristóbal and Zacatipa. Tones are marked in all entries, which provide an example of the use of each lexical item, with a translation. The plants in the dictionary are glossed in regional Spanish.

DAA: Flora Medicinal Mixteca de San Pedro Tidaá, Nochixtlán, Oaxaca (n.d.), a collection of 28 plants described in Mixtec and Spanish, elaborating on their use as remedies. The report was published on line, undated, as part of the UNAM digital library on the traditional medicine of Mexico. Six *sabedores* ('knowledgeable persons,' four women and two men), aided by a Mixtec translator, gave information to four researchers who recorded and drew the plants. The names and descriptions were written down using most of the Academy's orthographic conventions; tones were not marked. Two botanists collaborated in the project, which was advised by Nereyda Antonio Barrera, biologist working at the Instituto Nacional Indigenista (INI) in the city of Oaxaca from the 1990s to ca. 2006. Most of the plants are identified by Latin binomials.

DUX: Kuiper, Albertha H., linguist affiliated with the SIL working in San Juan Diuxi. Published a 50-page "encyclopedic dictionary" of plants and fungi with their Mixtec names, some regional Spanish equivalents and occasional Latin binomials in 2003. A few plants and fungi are illustrated by rudimentary line drawings. Tones are marked on the isolated terms but not in the accompanying Mixtec texts that describe some of the plants' uses and distinguishing features. Some of the species identifications in Latin are dubious, in addition to their orthographic errors. Kuiper and her colleague Joy Oram published a syntactic sketch of the Diuxi dialect of Diuxi-Tilantongo Mixtec in 1991. Oram marks the basic tones in the sections she wrote, while Kuiper uses a different notation system, marking the surface tones.

HUI: Julián Caballero, Juan, ethnolinguist with a Master's degree affiliated with the *Centro de Investigaciones y Estudios Superiores en Antropología Social* (CIESAS) in Oaxaca. Juan Julián is a native speaker of San Antonio Huitepec Mixtec who has shared with me (2010) information on plant names that he knows from his childhood.

JAM: Johnson, Audrey F., linguist affiliated with the SIL who worked in Jamiltepec, Oaxaca, and published (1988) a syntactic sketch of that dialect, including some plant names

glossed in English. Johnson marks the "basic tones," i.e. the underlying pattern before tone perturbation takes place.

JIC: López, Santiago, speaker of Jicayán de Tovar Mixtec. Don Santiago was born around 1940. A. de Ávila worked with him on three extended visits to Jicayán between 1986 and 1990. Over 100 plant vouchers were collected in the fields and forests around the community, most of them representing different plant species, with three or more duplicate specimens when feasible. These collections were usually made in the company of don Santiago, who speaks only Mixtec, and don Trini Oliveros or Celso Flores from Coicoyán, who translated for us. Don Santiago provided the names and information on the uses of the plants he knew. Some species were identified or confirmed by his wife, doña Josefa Gómez. The names were transcribed in Mixtec; tones were not marked. Information on the uses of the plants was recorded in Spanish. All the plant specimens were deposited in the herbarium of the ITO, and were identified taxonomically together with the materials from Coicoyán. They suffered the same fate, as described above.

JOS: Josserand, Judy Kathryn, linguistic anthropologist who surveyed lexical data from 122 Mixtec communities to reconstruct their linguistic history for her doctoral dissertation (1983). Examining cognate sets from throughout the Mixtec region, Josserand was able to reconstruct 188 Proto-Mixtec terms, including some plant terminology, which I have cited in her original phonetic transcription. The only feature I have modified are the nasal vowels, which she writes with a cedilla and which I transcribe in agreement with the International Phonetic Alphabet (e.g., <ã**>**). Josserand's work defined the dialectal areas of Mixtec and the sequence of phonological changes that distinguish the numerous contemporary variants spoken across the Mixteca. Her analysis dwells most extensively on the evolution of the vowels. Her survey data did not include tones; consequently, she did not attempt to reconstruct the tone system of Proto-Mixtec.

KAP: Kaplan, Lawrence, a biologist who conducted research in Jamiltepec and nearby Jicaltepec, Oaxaca, as a Fellow of the Chicago Natural History Museum in 1954-1955. The Mixtec plant names he recorded were published by Maximino Martínez (1979) together with their Linnean equivalents, without citing the source beyond the note "Kaplan". His wife Lucille published a paper on *naguales* and *tonas* in Coastal Oaxaca in 1956 (<www.mexicauprising.net/tonalnawal.pdf>), where she mentions his institutional affiliation. Presumably the plant specimens he collected were deposited and identified there. She also notes that their Mixtec terms were transcribed according to Howard Classen of the Summer Institute of Linguistics.

LAC: Shields, Jäna K., a linguist affiliated with the SIL who worked in Silacayoapan, Oaxaca, and published (1988) a syntactic sketch of that variant of Mixtec, including a few botanical terms glossed in English. She marks surface tones, i.e., the tonal patterns after the operation of sandhi rules.

MIC: Gil Guadalupe, Clemencia Eva, Eulalia Díaz González, Genaro Teófilo Cruz, Salvador Martínez Cruz and Gonzalo Cruz Paz, native speakers of Micaltepec Mixtec. Doña Clemencia was born in 1938, doña Eulalia in 1944, don Teófilo in 1945, Salvador in 1952,

don Gonzalo in 1934. They were interviewed by Sebastian van Doesburg, Michael W. Swanton and A. de Ávila on July 28, 2009, in El Rosario Micaltepec. Grammatical paradigms, place names and plant lexicon were recorded digitally and transcribed. Swanton is studying the phonological traits of this Mixtec variant, including underlying tones and sandhi rules; surface tones have been marked tentatively, pending further analysis. Plant identifications were mostly based on Spanish vernacular names, corroborated in some cases with live plants observed nearby. Botanical voucher specimens collected in El Rosario were identified at SERO (herbarium at *Sociedad para el Estudio de los Recursos Bióticos de Oaxaca, A.C.*), and are kept in the herbarium of the *Jardín Etnobotánico de Oaxaca*.

MXT: Reyes Santiago, Panuncio Jerónimo, native speaker of San Juan Mixtepec Mixtec who undertook a floristic and phytogeographic study of that municipality from 1988 to 1993 for his undergraduate thesis in biology at the *Escuela Nacional de Estudios Profesionales* (ENEP), Iztacala campus, UNAM. Although his project did not involve ethnobotanical observations, Reyes recorded over 160 plant names in Mixtec, representing species of all the major vegetation types in the municipality, ranging from tropical deciduous forest to various types of pine-oak forest, secondary grasslands and riparian vegetation. The Linnean plant identifications are based on voucher specimens deposited at the MEXU herbarium. He transcribes Mixtec using an orthography based largely on Spanish. Reyes occasionally marks a vowel with an acute accent, but it is not clear whether he intends to represent high tone or syllabic stress. As a native speaker, he distinguishes intervocalic glottal stops and nasal vowels more consistently than other authors who were not trained as linguists.

NGO: Flora Medicinal Mixteca de Chinango, Oaxaca, n.d., a bilingual Mixtec-Spanish description of 31 medicinal plants and their uses in Santa Catarina Chinango. The report was published on line, undated, as part of the UNAM digital library on the traditional medicine of Mexico. Eight *sabedores* ('knowledgeable persons,' four women and four men) provided the information to Lorenzo Hernández Ocampo, who wrote it down and drew the plants. The Mixtec names and descriptive glosses were transcribed using the Academy's orthography, for the most part; high tone is marked occasionally. The plants were provided with Latin binomials by four botanists, including Maestro Miguel Ángel Martínez Alfaro of the Botanical Garden at UNAM. Abigaíl Aguilar Contreras, head of the *Herbario Medicinal, Instituto Mexicano del Seguro Social* (IMSS), and Nereyda Antonio Barrera of INI were advisors to the project.

NUX: Hugghins, Susan J., linguist affiliated with the SIL who has worked in Santo Domingo Nuxaá since the 1980s. She has published a number of articles on the syntax, morphology and semantics of that variant, and has shared with me (2010) her notes on some plant names, leaving out tonal marks.

OCO: Alexander, Ruth Mary, linguist affiliated with the SIL who worked in Santo Tomás Ocotepec and published a syntactic sketch of that variant, including a few plant terms glossed in English. Her transcription records "the surface tones that result from the application of the sandhi rules, not the underlying forms." (Alexander, 1988: 158).

OSP: Small, Priscilla C., linguist affiliated with the SIL who has worked in San Juan Coatzospan from the 1960s to the present. She has published a series of articles on that

language, and has shared with me (1997-2010) her notes on plant names, leaving out tonal marks. I have transcribed some additional terms from her "Syntactic sketch of Coatzospan Mixtec," where she marks the surface tones on the accented syllables. Unaccented syllables in this variant do not carry contrastive tone and assimilate to the tone of the following syllable (Small, 1990: 268).

PEÑ: Alavez Chávez, Raúl, an ethnolinguist affiliated with CIESAS Oaxaca who has published a study on Mixtec toponyms. He is a native speaker of Santa María Peñoles Mixtec who has shared with me information on plant names he learned growing up.

PIN: López López, Pedro, native speaker of Pinotepa Nacional Mixtec, born in 1953. Michael W. Swanton & A. de Ávila interviewed don Pedro on October 11, 2009, at the *Jardín Etnobotánico de Oaxaca*, in collaboration with don Pedro's daughter Amada López Curiel, also a speaker of Pinotepa Nacional Mixtec. Grammatical paradigms and plant lexicon were recorded digitally and transcribed. Swanton is studying the phonological traits of this Mixtec variant, including underlying tones and sandhi rules; surface tones have been marked tentatively, pending further analysis. Plant identifications were based on live specimens cultivated at the *Jardín Etnobotánico*, with some additional species identified tentatively by their Spanish vernacular names.

SEL: Seler, Eduard Georg, German researcher who conducted archaeological and ethnographic fieldwork at several sites in Oaxaca in 1887-88 and again in 1895. The Mixtec plant names he recorded were published by Martínez, 1979, cited simply as "Seler," without a provenience; they seem to originate in the Mixteca Alta. The German archaeologist appears to have collected voucher specimens, as his Latin binomials distinguish some closely related species with precision.

SJC: Stark Campbell, Sara, Andrea Johnson Peterson and Filiberto Lorenzo Cruz, linguists affiliated with the SIL who worked in San Juan Colorado, and published a 200-page dictionary in collaboration with two native speakers in 1986, using an orthography based on Spanish. They mark tones in all entries. The dictionary includes some plant terms, glossed in Spanish.

SMG: Dyk, Anne, & Betty Stoudt, linguists affiliated with the SIL who worked in San Miguel el Grande and published a 130-page vocabulary in 1965 (reprinted in 1973) using an orthography based on Spanish; they mark tones in all entries. The vocabulary includes some plant names glossed in regional Spanish.

SOT: Katz, Esther, anthropologist who studied edible plants, fungi and animals consumed in San Pedro Yosotato, Tlaxiaco district, Oaxaca, for her doctoral dissertation, presented at the Université de Paris-X in 1990. Katz collected numerous herbarium specimens, which were identified at MEXU while she was affiliated with the *Instituto de Investigaciones Antropológicas* at the National University (UNAM). Her dissertartion lists the voucher specimens by collection number. She transcribed Mixtec ethnobiological nomenclature using a phonetic representation, but did not mark nasal vowels or tones. Yosotato, Yucuhiti and Nuyoo Mixtec are distinguished by a phonological development that seems unique to that area of the Mixteca Alta, the reduction of the voiced prenasalized alveolar /nd/ to the nasal

continuant /n/, resulting in a merger of the reflexes of Proto-Mixtec ***nd** and ***n** (Josserand, 1983: 262). Katz has shared with me a list of her Mixtec plant names with a revised orthography and additional species identifications not reported in her dissertation. She has published several articles on Mixtec subsistence, from which I have drawn additional information.

TAM: de Alvarado, Francisco, vicar of Tamazulapan who revised and completed the previous work of Dominican friars studying Mixtec in the area of Teposcolula. The result was the 400-page *Vocabulario* published in Mexico City in 1593, to this day the most extensive compilation of lexical information on a single Mixtec language. The dialects spoken in Tamazulapan and Teposcolula in the 16th century most likely had a mid-high vowel, transcribed by Academy today with the grapheme <**ɨ**>; de Alvarado does not appear to have differentiated this phoneme consistently, representing it at times with an <**e**> and other times with an <**i**>. As noted by Smith-Stark (2005), de Alvarado chose to represent intervocalic glottal stops with an <**h**>, a convention followed by some modern authors, and he used a <**q**> to stand for the sequence /k/ + nasalized /ɨ̃/ or nasalized /ũ/. Smith-Stark believed the Dominicans may have recognized three tones, acute (marked with an acute tilde), plain (unmarked) and grave (marked with a grave tilde), although he admits they did so only sporadically and ambiguously. Further examination, however, indicates that the acute and grave tildes were used interchangeably to mark nasalized vowels and pre-glottalized consonants (Michael Swanton, personal communication, 2009). Swanton's observation is confirmed by the occurrence of the tildes on Spanish abbreviated words, where they stand for nasal consonants, as in the entry *iúco otro ácho*… (*iunco otro ancho*…, 'another rush [which is] wide…'). The tildes seem to occur more frequently where a gloss has been compressed into a reduced space, and it is possible that these marks were introduced by the typographers, rather than the authors. My transliterations of de Alvarado's plant names to the Academy's modern orthography are tentative, especially with regards to the distinction between /ɨ/, /i/ and /e/. I transcribe his <**e**> as <**ɨ**> when I find contemporary cognates of that particular term that conserve the mid vowel in Mixteca Alta dialects. Similarly, I mark a glottal stop <V**'**C> when all contemporary cognates of a given form attest to a pre-glottalized consonant, which de Alvarado often fails to mark with a tilde. I have respected his original spelling of Spanish glosses, except for his <*ç*>, which I transcribe as either <*c*> or <*z*>, according to modern usage.

TIL: Piestrzynska, Anna, Master's degree student at the University of Leiden in the Netherlands who documented medicinal plants used in Santiago Tilantongo in March and April, 2009. She deposited her voucher specimens and ethnobotanical notes at the herbarium of the *Jardín Etnobotánico de Oaxaca,* where we have identified them according to Linnean taxonomy in collaboration with specialists at the SERO herbarium and MEXU. Piestrzynska transcribed the Mixtec plant names using a phonetic orthography. She only marks high tones, using an acute accent. The tonal patterns she perceives often differ from Kuiper's transcription of plant names that have also been recorded in Diuxi.

TON: Ovando López, Marcelina Rufina, native speaker of Tonahuixtla Mixtec, born in 1941. Sebastian van Doesburg, Michael W. Swanton & A. de Ávila interviewed doña Rufina on July 27, 2009, in Acatlán de Osoario and in Santo Domingo Tonahuixtla. Grammatical paradigms, place names and plant lexicon were recorded digitally and transcribed. Surface

tones have been marked tentatively, pending further analysis. Linnean plant identifications were based initially on Spanish vernacular names, corroborated in several cases with live plants observed on the road between Acatlán and Tonahuixtla in her company. Botanical voucher specimens collected in Tonahuixtla have been identified at MEXU–UNAM, and are kept in the herbarium of the Jardín Etnobotánico de Oaxaca.

TXA: Flora Medicinal de la Mixteca Alta, Tlaxiaco, Oaxaca, n.d., a collection of 31 medicinal plants described in Mixtec and Spanish, explaining how to use them to treat various ailments. This project involved ten traditional healers (eight women and two men) from the Tlaxiaco region and six experts on the writing of Mixtec. The report was published on line, undated, as part of the UNAM digital library on the traditional medicine of Mexico. No information is provided on the specific community of provenance for the information on any given plant, but the dialectal variation in the entries indicates that a number of municipalities are represented. Some of the data appear to originate in San Juan Mixtepec, district of Juxtlahuaca, while other entries seem to represent the variants of San Miguel el Grande, Santa Catarina Ticuá, Santiago Nuyóo and Santo Tomás Ocotepec in the Tlaxiaco district. The Mixtec names and descriptions were transcribed using an orthography mostly based on Spanish; tones were not marked. The plants appear to have been identified with Latin binomials by Nereyda Antonio Barrera, biologist working at the Instituto Nacional Indigenista (INI) in the city of Oaxaca from the 1990s to ca. 2006.

XOC: Stark Campbell, Sara, Andrea Johnson Peterson and Benita González de Guzmán, Linguists affiliated with the SIL working in Xochapa, who published a 150-page dictionary in 2002, available on line in 2003, corrected in 2005. They follow most of the orthographic conventions used by the Academy of the Mixtec Language; they mark tones in all entries. Xochapa Mixtec shows a complex tonal system, demanding the distinction of four levels plus ascending and descending notes. A few plant terms are recorded in the dictionary, glossed in Spanish.

XYA: Santiago Martínez, Alfonso, native speaker of Xayacatlán Mixtec, born in 1920. Don Alfonso was interviewed by Sebastian van Doesburg, Michael W. Swanton & A. de Ávila on July 26, 2009, in San Jerónimo Xayacatlán, in collaboration with Profesor Francisco González Rosas, also of San Jerónimo. Grammatical paradigms, place names and plant lexicon were recorded digitally and transcribed. Surface tones have been marked tentatively, pending further analysis. Tentative plant identifications were mostly based on Spanish vernacular names, corroborated in some cases with live plants observed nearby.

YLX: Jonathan Amith, anthropologist affiliated with the National Museum of Natural History – Smithsonian Institution, the University of Chicago and Gettysburg College, who has initiated a collaborative project with Rey Castillo García, linguist with a Master's degree from CIESAS who is affiliated with INALI and is a native speaker of Yoloxóchitl Mixtec. Amith has researched ethnobiological knowledge among Náhuatl speakers in the upper Balsas region for over ten years, and is also working on a distinct Náhuatl language spoken in the *Sierra Norte de Puebla*. In October of 2010, Amith and Castillo began to document Mixtec plant nomenclature in Yoloxóchitl; Amith has shared his initial field notes with me. He distinguishes five levels of phonetic pitch, which presents a challenge to transcribe into the orthography of **Ve'e Tu'un Savi**, so I have maintained his original transcription.

YSN: Beaty de Farris, Kathryn, linguist affiliated with the SIL working in Yosondúa who published a 100-page dictionary in 2002 in collaboration with five native speakers. They follow most of the orthographic conventions used by the Academy of the Mixtec Language; tones are not marked. The dictionary records a few plant names, glossed in Spanish. Some additional lexical data on Yosondúa Mixtec were drawn from Edwin R. Farris' syntactic sketch, which does mark tones, in this case "the basic tones, not the surface tones that result from the application of the sandhi rules" (Farris, 1992: 8).

ZAU: Casas, Alejandro, & Juan Luis Viveros, ethnobotanists who undertook research in four communities in the municipality of Alcozauca in the 1980s for their undergraduate thesis at the *Facultad de Ciencias* of UNAM, under the direction of Javier Caballero Nieto. Their work was published jointly in 1993. The monograph includes the Mixtec names for several plants in an orthography based on Spanish which is ambiguous at times, as it fails to distinguish nasal vowels and does not mark glottalized roots consistently. My transcription of their Mixtec terms is consequently rather tentative. Their species determinations are backed by voucher specimens deposited at UNAM, although they are not identified by collection number in the publication.

ZOL: Gabriel Hernández, Franco, native speaker of San Juan Tamazola Mixtec with a doctoral degree in education, affiliated with *Universidad Autónoma Benito Juárez de Oaxaca* (UABJO), who has shared with me some of his knowledge of Mixtec plant names which he learned during his childhood.

4.2 Dialectal geography of the sources

Figure 7 places the communities represented in our data base within the major dialect areas defined by Josserand (1983: 470). The available information is far from adequate for any community, but some areas have been covered more extensively, especially the Eastern Alta (DAA: *Flora Medicinal*, n.d.; DUX: Kuiper, 2003; TIL: Piestrzynska, 2009); the southwestern sub-area of the Western Alta (SOT: Katz, 1990); Mixtepec (MXT: Reyes Santiago, 1993); the Southern Baja (COI: Flores Romero *et al*., 1986-1990; JIC: López, Santiago, *et al*., 1986-1990); and Guerrero Mixtec (YLX: Amith & Castillo, 2010; ZAU: Casas, Viveros & Caballero, 1994). Some information is available for the Northern Alta (OSP: Small, 1990 & 1997-2010); Northern Baja (CGM: Ordaz Peregrina *et al*., 2009; MIC: Gil Guadalupe *et al*., 2009; NGO: *Flora Medicinal*, n.d.; TON: Ovando López *et al*., 2009; XYA: Santiago Martínez *et al*., 2009); the southeastern sub-area of the Western Alta (CHA: Swanton, 2010; SMG: Dyk & Stoudt, 1973; YSN: Beaty de F. *et al*., 2002); the eastern sub-area of the Coast (CHY: Pensinger, 1974; SJC: Stark C. *et al*., 1986); and the western subarea of that same region (PIN: López López *et al*., 2009). Very limited data have been published from the Apoala sub-area of the Northeastern Alta (APO: López García, 2007 & 2010) and from the northern sub-area of the Western Alta (OCO: Alexander, 1988; TXA: *Flora Medicinal*, n.d.). We have found no ethnobotanical data for three major dialect areas according to Josserand: Tezoatlán, Central Baja and Western Baja Mixtec. Four other zones are similarly absent in our data base: the Acatepec sub-area of the Coast, the Teozacoalco

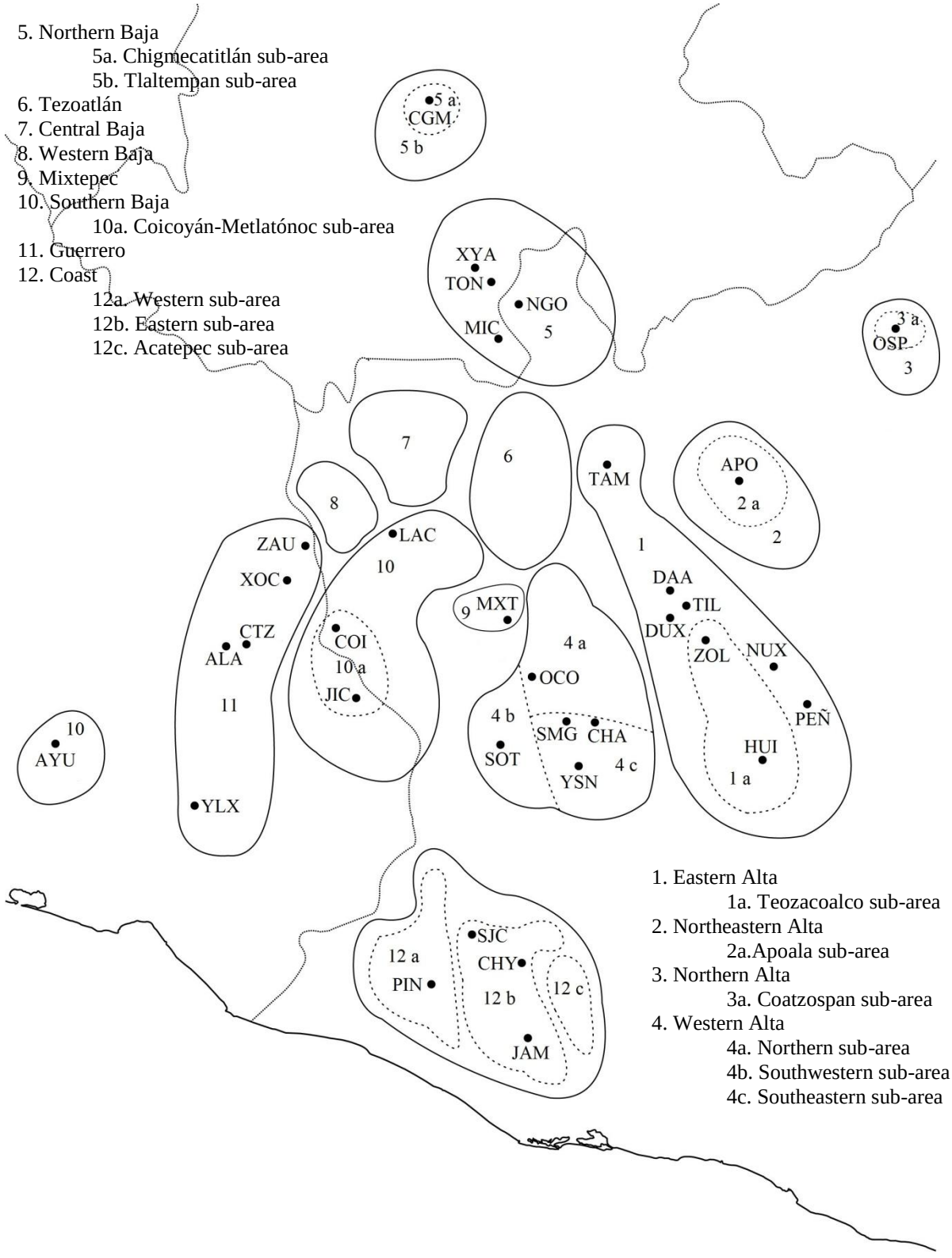


Figure 7: Communities represented in this study and Josserand's (1983) dialect areas

sub-area of the Eastern Alta, the Northeastern Alta beyond the Apoala sub-area, the Northern Alta beyond the Coatzospan sub-area, and the Tlaltempan sub-area in the Northern Baja.

The following list specifies to what dialect area (according to Josserand, 1983: written with capital letters), to which language (according to the Ethnologue: Lewis, 2009), and to which variant (according to INALI, 2007: written with italics) each community in the data base corresponds to:

ALA: Alacatlatzala – GUERRERO MIXTEC – Alacatlatzala Mixtec – *mixteco de Guerrero central alto*
APO: Apoala – APOALA SUB-AREA, NORTHEASTERN ALTA – Apasco-Apoala Mixtec – *mixteco del noreste*
AYU: Ayutla – SOUTHERN BAJA MIXTEC – Ayutla Mixtec – *mixteco de Ayutla*
CHA: Chalcatongo – SOUTHEASTERN SUB-AREA, WESTERN ALTA – San Miguel el Grande Mixtec – *mixteco del sur bajo*
CHY: Chayuco – EASTERN SUB-AREA, COAST – Chayuco Mixtec – *mixteco de Oaxaca de la costa central*
CGM: Chigmecatitlán – NORTHERN BAJA – Chigmecatitlán Mixtec – *mixteco del suroeste de Puebla*
COI: Coicoyán – COICOYÁN-METLATÓNOC SUB-AREA, SOUTHERN BAJA – Western Juxtlahuaca Mixtec – *mixteco del oeste*
CTZ: Cuatzoquitengo – GUERRERO MIXTEC – Alacatlatzala Mixtec – *mixteco central de Guerrero*
DAA: Tidaá – EASTERN ALTA – Tidaá Mixtec – *mixteco de San Pedro Tidaá*
DUX: Diuxi – EASTERN ALTA – Diuxi-Tilantongo Mixtec – *mixteco del este central*
HUI: San Antonio Huitepec – TEOZACOALCO SUB-AREA, EASTERN ALTA – Huitepec Mixtec – *mixteco de San Antonio Huitepec*
JAM: Jamiltepec – EASTERN SUB-AREA, COAST – Jamiltepec Mixtec – *mixteco de Oaxaca de la costa central baja*
JIC: Jicayán de Tovar – SOUTHERN BAJA – Metlatónoc Mixtec – *mixteco de Tlacoachistlahuaca*
LAC: Silacayoapan – SOUTHERN BAJA – Silacayoapan Mixtec – *mixteco del oeste alto*
MIC: El Rosario Micaltepec – NORTHERN BAJA – Chazumba Mixtec – *mixteco de la frontera de Puebla-Oaxaca*
MXT: San Juan Mixtepec – MIXTEPEC MIXTEC – Mixtepec Mixtec – *mixteco del oeste central*
NGO: Chinango – NORTHERN BAJA – Chazumba Mixtec – *mixteco de la frontera de Puebla-Oaxaca*
NUX: Nuxaá – EASTERN ALTA – Southeastern Nochixtlán Mixtec – *mixteco del este*
OCO: Ocotepec –NORTHERN SUB-AREA, WESTERN ALTA – Ocotepec Mixtec – *mixteco de Sierra Sur noroeste*

OSP: Coatzospan – COATZOSPAN SUB-AREA, NORTHERN ALTA – Coatzospan Mixtec – *mixteco de Coatzospan*

PEÑ: Santa María Peñoles – EASTERN ALTA – Peñoles Mixtec – *mixteco de Santa María Peñoles*

PIN: Pinotepa Nacional – WESTERN SUB-AREA, COAST – Pinotepa Nacional Mixtec – *mixteco del oeste de la costa*

SJC: San Juan Colorado – EASTERN SUB-AREA, COAST – San Juan Colorado Mixtec – *mixteco de Oaxaca de la costa noroeste*

SMG: San Miguel el Grande – SOUTHEASTERN SUB-AREA, WESTERN ALTA – San Miguel el Grande Mixtec – *mixteco del sur bajo*

SOT: Yosotato – SOUTHWESTERN SUB-AREA, WESTERN ALTA – Southwestern Tlaxiaco Mixtec – *mixteco del suroeste*

TAM: Tamazulapan – EASTERN ALTA [extinct]

TIL: Tilantongo – EASTERN ALTA – Diuxi-Tilantongo Mixtec – *mixteco del este central*

TON: Tonahuixtla – NORTHERN BAJA – Southern Puebla Mixtec – *mixteco de la frontera Puebla-Oaxaca*

XOC: Xochapa – GUERRERO – Alcozauca Mixtec – *mixteco de Xochapa*

XYA: Xayacatlán – NORTHERN BAJA – Southern Puebla Mixtec – *mixteco de la frontera Puebla-Oaxaca*

YLX: Yoloxóchitl – GUERRERO –Yoloxóchitl Mixtec – *mixteco de San Luis Acatlán*

YSN: Yosondúa – SOUTHEASTERN SUB-AREA, WESTERN ALTA – Yosondúa Mixtec – *mixteco de Yosondúa*

ZAU: Alcozauca – GUERRERO – Alcozauca Mixtec – *mixteco de Guerrero del noreste central*

ZOL: San Juan Tamazola - TEOZACOALCO SUB-AREA, EASTERN ALTA – Tamazola Mixtec – *mixteco de San Juan Tamazola*

4.3 The plants marked **tun-/tnu-/nu-**

> "*Por madero tenemos* **yutnu** *y haziendo mencion de el se dize solamente el* **tnu** *que es la diction con que acaba...*"
> "For a piece of wood we have **yutnu**, and when it is mentioned, one says only **tnu**, which is the diction with which it ends..." (de los Reyes, 1593: 20)

In the preceding chapter we have illustrated how the Proto-Mixtec noun ***yutũ'*** reconstructed by Josserand (1983) gave rise to a third person singular pronominal affix, used in reference to trees and wooden objects, as well as a nominal marker **tun-/tnu-/nu-** which is prefixed to numerous plant names. There is evidence from two Guerrero Mixtec variants that the full term derived from ***yutũ'*** may become polysemic to designate plants in general, in the same way that the Hanunóo **kāyuh** 'tree' is used as a generic term for all plants (Conklin, 1954), as shown in figure 4 in the third chapter of this dissertation:

Kananí tinaná rakuʼvai kuiya vitin saá chi vaʼaní káá itún tinanára.
Este año mi hermano va a tener muchos jitomates porque sus plantas están creciendo muy bien.
'This year my brother will have many tomatoes because his plants are growing very well.' (XOC)

Ñuʼun taʼvi nuu xichiʼi xitoi José Guadalupe, xikananí yitun tilastún.
En el barbecho donde sembraba mi tío José Guadalupe, nacían muy bien las plantitas de la mora.
'In the slash and burn field where my uncle José Guadalupe used to sow [his milpa], a lot of little *Jaltomata* plants would come up.' (CTZ)

Semantic extensions of the term for 'tree/wood' have been documented in both dialects:
itún: *árbol, palo / madera / planta / cualquier tipo de máquina* 'tree, stick / wood / plant / any type of machine' (XOC)
yitun / yutun / yutnu / itun: *árbol, palo, madera o mueble* 'tree, stick, wood or furniture/vehicle' (CTZ)

The 16th century dictionary of de Alvarado indicates that the polysemous use of 'tree' for plants in general has a long history in the Mixtec languages:
yutnu tata / yutnu nandai / yutnu nakusi / yutnu ninatavua / yutnu nakuiko / yutnu siko koʼo: *planta para plantar* (TAM) [orthography in the original source: **yutnunacusi / yutnu nacuico / yutnu sico coho**]
yutnu yeʼe yoko / iyo yoʼo / nindai yoʼo: *planta con sus raizes* (TAM) [**yutnu yehe yoco / yyoyoho / nindai yoho**]

The various contemporary sources show that the Proto-Mixtec form ***yutũʼ** has undergone considerable phonological modification in different dialect areas; the different forms of the nominal marker derived from may serve to pinpoint the origin of some plant terms that appear to have been borrowed from neighboring dialects in some areas, as in the case of Coicoyán Mixtec **tokí**, discussed below:

yutnú: *árbol* (CGM)
yoton: *árbol* (NGO)
yíto: tree, stick, pole (LAC)
yiton: tree (ALA)
itunʼ: tree (AYU)
ñutun: tree (OCO)
yunu: *árbol, madera* (SMG)
yunu vixí: *frutal* (SMG)
yujnu: tree, stick (YSN) [**yuNnu**]
yujnu vixi: *frutal* (YSN)
yutnu: tree (DUX)
yútnu tata: *árbol de cultivo* (DUX)
utun: tree, wood, stick (OSP)
yutun: *el árbol, el palo / la madera* (SJC)
yutun: tree (JAM)

yutnu: *árbol / palo* (TAM)
iton / itun / ñutun / ñunu / utun / yitno / yiton / yitun / yunu / yutno / yutnu / yutun: *árbol* (CAB)
tyite yunu: *corteza o cáscara de árbol* (CAB)

The coastal dialects have developed a distinct set of prefixes to mark plants with are labeled **tun-/tnu-/nu-** in other Mixtec variants:

ndi-: *prefijo, indica árboles cuyos frutos llevan el prefijo* **ti-** (SJC)
ndikava: *el árbol de ciruela* (SJC)
tikava: *la ciruela*
ndika'a: *la palma de coco* (SJC)
tika'a: *el coco*
ndikuva / ndukuva: *el árbol de tamarindo* (SJC)
tikuva/tukuva: el tamarindo
tundukúva: tamarind tree (JAM) [Following the prefix **tu-**, used for tree names, the fruit prefix is **ndu-**, rather than **ti-**. (Johnson, 1988: 107)]
ndu-: *prefijo, indica árboles cuyos frutos llevan el prefijo* **tu-** (SJC)
ndukuaa: *el naranjo* (SJC)
tukuaa: *la naranja*
ndukuaa kuaa'á: *el toronjo* (SJC)
tukuaa kuaa'á: *la toronja*
ndukuaa tsiná: *el naranjo* (SJC)
tukuaa tsiná: *la naranja*
ndukuaa tukuáya: *el árbol de lima limón* (SJC)
tukuaa tukuaya: *la lima limón*
ndukuaya: *el árbol de limón* (SJC)
tukuaya: *el limón*
ndukuayu: *el guayabo* (SJC)
tukuayu: *la guayaba*

ti-: *prefijo, indica que es nombre de planta* (SJC)
ti ita: *la mata de flor*
tiya'a: *la mata de chile*
ti-: *variante de* **tu-**, *indica árboles cuyo fruto no lleva prefijo* (SJC)
tindoko / tundoko: *el guanábano* (SJC)
tindoko iñú / tundoko iñú: *el guanábano* (SJC)
tindoko tinuu/ tundoko tinuu: *el árbol de chirimoya* (SJC)
tindoko tsaa'á / tundoko tsaa'á: el árbol de nanche (SJC)
tinyákua: *el árbol de cuajinicuil* (SJC) [**nyákua**: *el cuajinicuil*]
tinyika / tunyika: *el árbol de mamey* (SJC) [**nyika**: *el mamey*]
tinyika iñu: *el árbol de chicozapote* (SJC) [**nyika iñú**: *el chicozapote*]
tinyítya: *la mata de plátano* (SJC)
tinyúku / tunyúku: *el árbol de aguacate* (SJC)
tiñañ: *el cacaíto, el tlachicón, árbol cuyas hojas son como papel de lija* (SJC)
tiñii: *el otate* (SJC)
tityítya: *el árbol de zapote negro* (SJC)

tiya'mi: *la mata de camote de palo blanco* (SJC)
tiyatsi / tiyatsin: *el jícaro* (SJC)
tiyoo: *el carrizo* (SJC)

De Alvarado recorded terms referring to plants that appear to have had a function of individuation, as described in section 3.1 of this dissertation, but which do not appear to have been used lexically:

ndu'u yuvua / ndu'u yutnu / tɨ'ndɨ yuvua / sa'ndu yuvua: *mata de qualquier yerua* (TAM) [**duhu yuvua / duhu yutnu / téde yuvua / sádu yuvua**]

The coastal dialects also have two independent, unbound terms for 'plant' that are not cognates of **yutun**, and which do not seem to generate any specific names:

tsa'a: *la mata, la planta* (SJC)
¿**Najava taa'an tsa'a ndika'a tsa'ñi tyu'u**? *¿Cuántas matas de palma mató la tuza?*
[¿**Najava taahan tsaha ndicaha tsahñi tyuhu**?] (SJC)

The second form appears to have originated historically in a term which in the Mixteca Alta designates seeds or seedbeds:

yáwá: plant (Santa María Jicaltepec, district of Jamiltepec; Bradley, 1970: 15)
yava: *la planta de semilla* (SJC)
yava: *almáciga, pachol* (SMG)
ava / yava: *almácigo o almáciga* (CAB)
yawa: *semilla* (APO)

The terms for 'firewood' in Guerrero Mixtec and also in the Northern Alta appear to involve the reduplication of the marker for 'tree/wood,' or the addition of the classifier for 'animal/round object' (in other dialects, 'firewood' relates to the term **nduku**, to be discussed in the following section):

títo: firewood (LAC)
titno / titun / tsitno: *leña* (CTZ)
tutun': firewood (AYU)
tutun: firewood (OSP)

The specific plant names prefixed with the nominal marker **tun-/tnu-/nu-** constitute the largest nominal category that we have been able to document in the different variants of Mixtec. The species labeled with this marker are mostly trees and shrubs, but other life-forms are included as well, such as reeds and bamboos, large succulents, and even erect herbs. Rigidity of the stem, non-edibility of the leaves, and inconspicuousness (or perhaps undesirability) of the flowers seem to be the determinant features in assigning plants to this category. In the following list, names that appear to be cognates are grouped together, ordered alphabetically according to the bi-syllabic term that distinguishes the taxon, rather than the form of the prefix. The ordering follows Mixtec phonemes, e.g. <**nd**> is placed after <**nu**>; <**ɨ**> is interspersed with <**i**> since the forms in many Mixteca Baja dialects show the

latter vowel in place of the former, found in their cognates in the Mixteca Alta and the Coast. If two reflexes of a Proto-Mixtec phoneme are attested in initial position in the cognate set, e.g., <**d**> and <**s**>, the order will follow the phoneme reconstructed by Josserand (1983). When the bi-syllabic term involves the prefix 'animal/round object,' the order reflects the initial phoneme of the second syllable, rather than the variable form of the marker (**si-/t-/ti-/ti-/tsi-/tyi-**).

The orthography of all the Mixtec terms has been standardized, following the criteria of **Ve'e Tu'un Savi** (2007). Linnean binomials cited before the source's acronym indicate the identification is provided in the reference but does not appear to be backed by a voucher specimen. All Latin names have been updated following taxonomic changes based on molecular evidence, using Mabberley (2008) and Irekani (n.d., a database maintained by the *Unidad de Informática para la Biodiversidad*, Institute of Biology, UNAM) as references. Some Mixtec terms are occasionally quoted from Caballero's (2008) dictionary and other sources as a tentative reference to interpret the botanical names. Etymologies that are not followed by an acronym or a specific bibliographical citation were obtained from the same source as the ethnobotanical information.

4.3.1 Cognate sets and individual terms with initial <**a**>

tia'ma [?]: *cuagulote* (ZAU) [**tiahma**] *Guazuma ulmifolia* Lam., MALVACEAE [STERCULIACEAE] **tu-** appears to become **ti-** under certain phonological contexts in this dialect

yutu ánimá taki: *corazón bonito* (PIN) unidentified *Porque al cortarlo se ve bonito el corazón, muy buena madera de corazón, no se pudre.* **taki**: *bonito* This may be a calque from Spanish, rather tan a term used in Mixtec.

tiaxi: *árnica* (ZAU) [**tia shi**] *Acourtia dugesii* (Gray) Reveal & King [synonym: *Perezia dugesii* Gray], COMPOSITAE **tu-** appears to become **ti-** under certain phonological contexts in this dialect

4.3.2 Cognate sets and individual terms with initial <**ch**>

tuche'e (MXT) [**tu che'e / tu ché'e**] *Dodonaea viscosa* (L.) Jacq., SAPINDACEAE
te'e / tye'e: *cáscara dura de frutas como calabazas, cocos / pico de ave* (CAB)
chée: *viejo, anciano / grande en tamaño / importante* (CTZ, XOC)

tuchendii (MXT) [**tu chentii**] *Prockia crucis* P. Browne ex L., SALICACEAE
tise'ndu / tye'ndu: *comején* (CAB)

tuchii / tuiyu (MXT) [**tu chii / tu iyu**] *Clethra mexicana* DC., CLETHRACEAE

tuntyiki: *pitayal* (CAB) **chiki**: *Opuntia* fruit

tuchikitu: *chiquito* (MIC) apparently an arborescent cactus

tnuchichikún: *árbol de huamúchil* (CGM) *Pithecellobium dulce* (Roxb.) Benth., LEGUMINOSAE [MIMOSACEAE] **chichikún**: *huamúchil* [*el fruto*]
nuchiku: *huamúchil* (XYA)
tuchikun: *guamúchil* (XYA or TON; de Leon, 1980)
tuchíku: *huamúchil* (MIC)
túnchĭkún: *árbol de guamúchil* (XOC) **chìkún**: *guamúchil*
Ñùù Ita Ita ta íyoní túnchĭkún, kúúnní chìkún nda'ánú.
En Xochapa hay muchos árboles de guamúchil y producen muchos guamúchiles.

tnutyila'a: *muérdago* (CAB) probably *Psittacanthus* sp., LORANTHACEAE
Planta parásita con flores alargaditas que vive en las ramas de algunos árboles, como manzanales, encinos, naranjales, etc., cuyos frutos contienen una sustancia viscosa.

tuchima (MXT) [**tu-chima**] *Ipomoea murucoides* Roem. & Schult., CONVOLVULACEAE
tsu'me / tyi'ma / tyu'ma: *avispa* (CAB)

tnuchindyichi: *huizache* (CGM) probably *Acacia farnesiana* (L.) Willd., LEGUMINOSAE [MIMOSACEAE] This compound term may incorporate the roots **chiin/tyiin**: *uña*, and **ndichi/ndyityi**: *ejote* (CAB)
sindyichí: *huizache* (TON) The etymology appears to be **si-** (marker for animals and round objects) + 'string bean'
tu chíin chitu: *uña de gato* (TON) **chíin**: *uña* **chitu**: *gato*
tuchínchi: *uña de gato* (MIC) apparently a thorny species in the Mimosaceae

(**i^{3}ta$^{2)}$ tun^{5} chi^{15}ta^{2} yu^{3}ku^{5}** (YLX) *Heliconia* sp., HELICONIACEAE Etymology: 'banana + mountain [i.e., of the mountain, wild]')

nuchumi: *pochote* (XYA)
chumi: *pochote* (TON)
tuchumi: *pochote* (MIC)
ton chomi: *pochote* (NGO) [**ton chomi**] *Ceiba* sp., MALVACEAE [This species is identified as *Ceiba pentandra* (L.) Gaertn. in *Flora Medicinal Mixteca de Chinango*, but this must be an error, as the Mixtec description of a short tree does not match the stature of the kapok. Furthermore, *Ceiba aesculifolia* (Kunth) Britt. & Baker and *Ceiba parvifolia* Rose are the only species in this genus reported from the tropical deciduous vegetation of the Mixteca Baja.]
tun^{5} ka^{1}chi^{5} yu^{3}mi^{5} (YLX) *Ceiba* sp., MALVACEAE [BOMBACACEAE]
kachi: cotton **yumi**: *temporada de secas* (*fide* Amith & Castillo)
nutyumi / tnontsika tyomi / tontyumi / tundika tyinumi / tundika tyumi / tundyika tyumi / tuntyumi: *pochota, tipo de árbol que abunda en la costa* (CAB)
kaxi ñomi: *pochota, tipo de árbol que abunda en la costa* (CAB)

tnutyɨ'nkɨ juaan: *encino amarillo* (CAB)

tnutyɨ'nkɨ tnuu: *encino negro* (CAB)
tyi'nki / tyɨ'nkɨ: *bellota* (CAB)

4.3.3 Cognate sets and individual terms with initial <**d**>

yutnu dañu: *pino q´ llaman abeto / abeto arbol* (TAM) [**yutnudzáñu**] **Dañu** appears to be a primary lexeme that is the proper name for firs.

tdenu: sweetgum (OSP) probably *Liquidambar styraciflua* L., HAMAMELIDACEAE "…plant names with initial **t** or **ch**, from fused **utun** 'tree'…" (Small, 1990, p.405)

tnúde'eñu: *nebro; es de naturaleza caliente y amarga; sirve para el reumatismo, el mal aire* (TIL) [**tnú ðeʔeñu**] *Juniperus* sp., CUPRESSACEAE
tnúdé'ñu: *enebro* (DUX)

tnudia / tnudiya: *pirul* (CGM) *Schinus molle* L., ANACARDIACEAE
tu dí'a: *pirul* (TON)
tudía: *pirul* (MIC)
ton dia'a: *pirul* (NGO) *Schinus molle* L., ANACARDIACEAE
The orthographic conventions of the **Ve'e Tu'un Savi** do not allow /**tõdia'a**/ to be distinguished from /**tondia'a**/; since the Chinango Mixtec name of this tree appears to be /**tõdia'a**/, I separate the marker to avoid ambiguity, as I do in other entries.

tnudichí: *biznaga, cactus, en general para el xoconostle, la pitaya* (CGM)
nudichi kaya: *pitayo de agosto o xoconosle* (XYA) *Stenocereus stellatus* (Pfeiffer) Riccobono sp., CACTACEAE **sikaya**: fruit of *Cyrtocarpa procera* (XYA) **kaya**: *va a abundar / va a toser* [CAB]
nudichi kua'a: *pitayo de mayo* (XYA) *Stenocereus pruinosus* (Otto) Buxb., CACTACEAE
nudichi kusa: *cardón* (XYA) *Lemairocereus weberii* (J.M. Coult.) Britton & Rose, CACTACEAE *La pitayita se le quita la semilla y se revuelve con masa para tortillas*. "You take the seeds from the small fruit [of this cactus] and you mix them together with tortilla dough."
tudichi kusa: *órgano* (XYA or TON; de Leon, 1980)
nudichi nuni: *garambullo* (XYA) *Myrtillocactus geometrizans* (Mart.) DC., CACTACEAE
nudichi vee: *gigante* (XYA) *Neobuxbaumia* sp., CACTACEAE **vee**: *pesado / abajo* (CAB)
nudichi yaa: *jiotillo* (XYA) *Escontria chiotilla* (K. Schum.) Rose, CACTACEAE
tudichi laya: *chimalayo, órgano* (TON) *Marginatocereus marginatus* (DC.) Backeb., CACTACEAE **layaa**: *color gris* (CAB) **laya** may be an abbreviation of the Náhuatl form
tudichi kayá: *xoconosle* (MIC) *Stenocereus stellatus* **dichi kayá**: *choconosle*
tudichi koo: *gigante de tetecha* (MIC) possibly *Neobuxbaumia tetetzo* (F.A.C. Weber ex J.M. Coulter) Backeberg, CACTACEAE
tudichi nuni: *garambullo* (MIC) *Myrtillocactus geometrizans Sí, en el monte hay.*

tudichi yaa: *palo de jiotilla* (MIC) *Escontria chiotilla Es silvestre, no lo plantan.*
dichi yaa: *jiotilla*
tu ita dichi: *el gigante* (MIC) *Neobuxbaumia mezcalaensis* (Bravo) Backeb., CACTACEAE
tondichi: *pitahayo* (NGO) [**ton dichi]**
tuchichi: *pitahaya* (ZAU) [**túchichí**] *Stenocereus stellatus* (Peiff.) Riccob., CACTACEAE
tuxichi (MXT) [**tu shichi**] *Isolatocereus dumortieri* (Scheidw.) Backeberg / *Neobuxbaumia mezcalaensis* (Bravo) Backeberg / *Lemairocereus weberii* (J.M. Coult.) Britton & Rose, CACTACEAE
nuxichí: *órgano, cacto* (SMG)
tnúdichi: *organal; es de naturaleza fría; sirve para la gripa de los pollos, la rabia* (TIL) [**tnú ðiči**]
tnúdíchi: *saguaro* [sic], *cactus órgano* (DUX)
nidityi / nudityi / nudɨtyi / tontyityi / tundityi / tuntyityi / tunxityi: *pitayal* (CAB)
notyityi / nudityi / tinjityi / tityityi / tnudityi / tontyityi / tonxixi / tundityi / tunxityi / yitno tyityi / yitun tyityi / yutun tyityi: *organal, cactus* (CAB)
tonxiji jityi: *pitayal* (CAB)

tnúdúúñu: *romerillo; es de naturaleza caliente; sirve para jabón* (TIL) [**tnú ðúúñu**] *Baccharis pteronioides* DC., COMPOSITAE
tnúdúñu: *un tipo de arbusto… se usa para barrer* (DUX)

4.3.4 Cognate sets and individual terms with initial <**i**>

tnúíchî: *un tipo de árbol* (DUX)

tokí (COI) *Quercus elliptica* Née, FAGACEAE) *Especie preferida para leña.* Coicoyán Mixtec has the form **tu-** for the noun marker 'tree, wood'; this term appears to be borrowed from a dialect that has the form **to-**.
tun^{5} tui^{15}ki^{5} kwi^{5}ta^{1} yu^{1}ku^{1} (YLX) *Quercus* sp. Amith & Castillo provide the etymology **kuita**: 'round' + **yuku**: 'leaf'
tun^{5} tui^{15}ki^{5} na^{5}ni^{25} yu^{1}ku^{1} (YLX) *Quercus* sp. **nani**: 'long [plural]'
tun^{5} tui^{15}ki^{5} tu^{15}un^{3} (YLX) *Quercus* sp. **tuun**: *prieto*
tuiki (MXT) [**tu iki**] *Quercus elliptica* Née, FAGACEAE **iki / leke / yɨkɨ**: *hueso* (CAB)

nu'iní, nu'íní: juniper (CHA; Macaulay, 1996)
nu'íní: *enebro* (SMG)
nu'ijni: *enebro* (YSN)
yutnu tni: *enebro arbol* (TAM)
nui'ni / ti'ni / tnui'ni / tnutni'ni / tonitin / tonityi / tuni'ni / tunití / tunitin: *enebro* (CAB)

tu iní: *palo blanco* (MIC) unidentified
tu iní dáhui (MIC) unidentified

tuini (PIN) *Sale concha* [corteza] *dura, pero hay de dos, el de concha dura es* **tuini**.

tuini kóó: *tepehuaje* (PIN) probably *Lysiloma* sp., LEGUMINOSAE [MIMOSACEAE] **kóó**: *culebra*

tnúíña: *un tipo de árbol* (DUX)

tuiña: *olmo montés* (APO) This species is cited together with **yutu nda'a ndee, tutonndyi'i, tuyoko** and **tuiñu di'in** as one of the shrubs, whose wood is flexible and resistant, from which the 13 staffs (*vara cruz*) are fashioned for the incoming *teniente* and *policías* on December 31st (López García, 2007: 148).

nuiñú: sticker bush (YSN) This and the follosing may be descriptive terms for thorny shrubs rather than proper names.

nu iun / nu iñu / tno iño / tnu iñu / ton iñu / tun iñu / yutnu iun: *espino, espinal* (CAB)

tuiñu di'in: *arbusto de uña ganchuda o uña de gato* (APO) This species is cited together with **yutu nda'a ndee, tutonndyi'i, tuyoko** and **tuiña** as one of the shrubs, whose wood is flexible and resistant, from which the 13 staffs (*vara cruz*) are fashioned for the incoming *teniente* and *policías* on December 31st (López García, 2007: 148) **di'in / ji'in / si'in / xi'in**: *pierna* (CAB)

tun^{5} i^{3}ñu^{5} nda^{3}ya^{5} (YLX) *Acacia farnesiana* (L.) Willd., LEGUMINOSAE [MIMOSACEAE] Amith & Castillo provide the etymology **ndaya**: *infierno*, because of the painful sting of the thorns

tun^{5}i^{3}ñu^{5} ndio'^{3}o^{3} (YLX) *Xylosma* sp., SALICACEAE **iñu**: thorn **ndio'o**: hummingbird

tun^{5} i^{3}ñu^{5} ndu'^{3}u^{5} (YLX) unidentified species **ndu'u**: *gordo / tronco / amole* (CAB)

tun^{5} i^{3}ñu^{5} tiu^{5}va^{2} (YLX) *Acacia* aff. *cornigera* (L.) Willd., LEGUMINOSAE [MIMOSACEAE] **tiu'va**: *hamaca* (CAB)

tuisi: *mirto* (MIC) possibly *Salvia* sp., LABIATAE *Da flor blanca, es como orégano, "sable" le dicen a la que da flor roja.*

tun^{5} is^{1}ta^{5} i^{5}chi^{1} (YLX) *Casearia* sp., SALICACEAE **ista**: 'tortilla' **ichi**: 'dry'

nuitá dichi: *rompebota* (XYA) *Senna* sp. or *Cassia* sp., LEGUMINOSAE [CAESALPINIACEAE], a shrub to small tree with yellow flowers

yutnu ita kuta: *palo oloroso de que hazen los rosarios* (TAM) [**yutnu itacuta**]

yutnu ita nda'a: *guayacan* (TAM) [**yutnui tandaha**]

tun ita ndi'i / yiton ita ndi'i / yunu ita ndi'i / yutun ita ndi'i: *árbol de la flor morada o la jacaranda* (CAB) **ndi'i**: *color azul, color morado*

tuita timi: *Senna atomaria* (L.) Irwin & Barneby, LEGUMINOSAE [CAESALPINIACEAE] (KAP) [**tu-ita-timi**]

nu ita tyaa: *jacaranda* (CAB)

tnu ita xi'i: *'árbol de la flor morada', jacaranda* (CAB)

tu ita yáté: *clavellina* (TON) *Pseudobombax ellipticum* (Kunth) Dugand, MALVACEAE [BOMBACACEAE]
yutu ita yata: *itayata* (PIN) *Pseudobombax ellipticum* **yakua yutu ita yata**: *Sale una yacua para amarrar*.

tnuitsɨ: *ocote que arde* (CGM) Pines do not grow at the low altitude of Chigmecatitlán, but splintered pitchpine wood is brought in from the highlands to be sold as kindling, which is what this Mixtec term and the Spanish gloss refer to.
tuisi: *ocote o pino* (TON)
yutu iti: *pino* (PIN)
tuyɨtɨ: pine tree (JAM)
yutnu ite / yutnu yusa: *pino* (TAM)
itɨ dusa: *tea de pino* (TAM) [**itedzusa**]
itɨ kavua: *quando es trasparente* (TAM) [**ytecavua**]
nuyɨtɨ / tuniti / tun yiti: *pino, ocote* (CAB)

ti'iti: *nogal* (ZAU) [**ti ihtí / tih ti**] *Juglans mollis* Engelm., JUGLANDACEAE
tu- appears to become **ti-** before /**i**/ and /**y**/ in this dialect

ti'ití: *sabino* (ZAU) [**ti ití / tu iti**] *Juniperus flaccida* Schldl., CUPRESSACEAE

tu'iya [?] (MXT) [**tu hilla**] *Rhus oaxacana* Loes., ANACARDIACEAE

tuiyɨ: *huachipile* (SOT) [**tu 'iyɨ**] *Diphysa* sp., LEGUMINOSAE [PAPILIONACEAE]
tui'i: *chipilillo* (PIN) Two kinds are distinguished:
yutu tui'i kuan (PIN) possibly *Diphysa* sp., LEGUMINOSAE [PAPILIONACEAE] *No comen la flor pero la madera de corazón es muy resistente, pa horcón*.
tui'i kuichi (PIN) [*El*] *que es blanco, que no tiene corazón.*

tuiyu / tuchii (MXT) [**tu iyu / tu chii**] *Clethra mexicana* DC., CLETHRACEAE

4.3.5 Cognate sets and individual terms with initial <**j**>

nujanú: gretado (SMG)

tnújɨ̂n / ndua tnujɨ̂n: *cebolla* (DUX)

4.3.6 Cognate sets and individual terms with initial <**k**>

palma yitokaa (San Jorge Nuchita, district of Huajuapan, Oaxaca; Chávez Rendón *et al*.,

1999) *Dioon mixtecensis* sp. nov., ZAMIACEAE **yito** (pronounced **ʒito**) is the form for 'tree' in this Central Baja variant **kaa**: *metal / bazo* (CAB)

nukachi: [*planta de*] *algodón* (XYA)
tukachi: *algodón* (MIC)
tun^{5} ka^{1}chi^{5} (YLX) *Gossypium* sp., MALVACEAE
tun^{5} ka^{1}chi^{5} yu^{3}mi^{5} (YLX) *Ceiba* sp., MALVACEAE [BOMBACACEAE]
yumi: *temporada de secas*
tnúkáchî: *la planta que da algodón* (DUX)
yutu tukati: *palo de algodón* (PIN) *Gossypium hirsutum* L., MALVACEAE
kati ya'á: *el cuyuchi* (PIN) brown cotton

nuk<u>a</u>ji: *encina* (SMG)
n<u>u</u>k<u>a</u>jín: *encino* (CHA)
nukaji kuiji / tnukaji kuiji / tunkaji kuiji: *encino blanco* (CAB)
nikaji yaa / tonkaxi / tun ikaa / tunkaji yaa: *encino lengua de cabra* (CAB)
tukatsi kuitsi: *encino blanco* (TXA) *Quercus* sp., FAGACEAE **Yee uvi nuu tukatsi: in an kuu tukatsi kuitsi cha inkai kuu tukatsi kua, tia ntui va'a kutata kue kue'e yo'o**. *Existen dos clases de encinos; el encino blanco y el encino rojo, tienen el mismo uso.* The description of this species in TXA cites San Juan Mixtepec as the only specific locality where it grows; the prevalence of the phoneme /**ts**/ in the description seems to corroborate that the information originated in Mixtepec.
nukaji kuaan / tnaa kaji kuaan / tunkaji kuaan: *encino amarillo* (CAB)
nukaji kuiji / tunkaji kuiji: *encino blanco* (CAB)
nukaji tnuu / tnaa kaji tuun / tunkaji tuun: *encino negro* (CAB)

tunkaka: *cacahuamano* (CAB) *cacahuanano*: *Gliricidia sepium* (Jacq.) Kunth ex Griseb., LEGUMINOSAE (Martínez, 1979)

tu kalá (TON) *Wigandia urens* (Ruiz & Pavón) Kunth, HYDROPHYLLACEAE

tukandii (MXT) [**tu canti / tu kantii**] *Montanoa leucantha* (Lagasca) S.F. Blake subsp. *arborescens* (DC.) V.A. Funk, COMPOSITAE **ka'ndi**: *va a reventar, tronar, explotar / corta, va a cortar*; **kandii**: *sol* (CAB)

ítâ tn<u>u</u>k<u>a</u>pár<u>a</u>: *retama* (DUX)

tuŋat<u>ɨ</u>: *sauco* (SOT) [**tungat<u>ɨ</u>**] *Sambucus* cf. *nigra* L. var. *canadensis* Bolli [synonym: *Sambucus mexicana* C. Presl.], ADOXACEAE [CAPRIFOLIACEAE]
tnokati: *sauco* (DAA) [**tno kati**] *Sambucus nigra* L. var. *canadensis* Bolli
kati / katsi / katyi: *algo simple que no tiene sabor / algodón* (CAB) *La hierba es simple y se considera caliente… En el tratamiento para la tos: las flores hervidas se toman como té... Mal de ojo: se ocupan las ramas para hacer limpias a los niños.* (DAA)
yutnu kate: *sauco arbol* (TAM) [**yutnu cate**]

ton kawa: *el chilaco* (NGO) [**ton kagua**] *Montanoa tomentosa* Cerv., COMPOSITAE

The orthographic conventions of **Ve'e Tu'un Savi** do not allow /**tõkawa**/ to be distinguished from /**tonkawa**/; the Chinango Mixtec name of this tree appears to be /**tõkawa**/] *Sirve para cuando no puede nacer el niño: se toma en forma de té el cocimiento de tres hojas en un jarro de barro amarillo, con un cuarto de litro de agua y se toma tibio… Las flores se utilizan para adornos en los altares o en las ofrendas del día de muertos, son muy aromáticas y huelen bonito.* (NGO)

tukava: *cagual* (COI) *Tithonia diversifolia* (Hemsley) Gray, COMPOSITAE *Tallos para hacer "corralitos" y "camillas".*

i^{3}ta^{2} tu^{1}ka^{5}va^{2} (YLX) unidentified species in the COMPOSITAE Amith & Castillo do not analyze **tukava** etymologically

nuk<u>a</u>vá: *amarguita, hierba* (SMG)

tnúkáv<u>a</u>: *un tipo de hierba del ángel* (DUX)

tnúkáv<u>a</u> kuá<u>a</u>n: *un tipo de hierba del ángel… este árbol crece de tres a cuatro metros de altura. Se usa para construir los techos de las casas y para hacer corrales para los animales. Sus flores son amarillas. Sus ramitas son medicinales* (DUX)

tnúkáv<u>a</u> kué'<u>e</u>: *un tipo de arbusto rojo, nombre científico: Ageratina rubricaulis* (DUX) **kua'a / kue'e**: *color rojo* (CAB) *Ageratina rubricaulis* (Kunth) R.M. King & H. Robinson, COMPOSITAE [?]

tnúkáv<u>a</u> kuíx<u>i</u>: *un tipo de hierba del ángel, nombre científico: Ageratina mairetiana* (DUX) **kuiji / kuixi / kuityin**: *color blanco* (CAB) *Ageratina marietiana* (DC.) R.M. King & H. Robinson, COMPOSITAE [?]

tnúkáv<u>a</u> úâ: *un tipo de arbusto… es amargo… se hierve con agua, y se rocía el té sobre las piedras ardientes en el temazcal para que el vapor entre en el cuerpo adolorido y se sane* (DUX)

ítâ tn<u>u</u>káv<u>a</u>: *un tipo de flor silvestre* (DUX)

tnúkawa uwa: *hierba de coyote; es de naturaleza caliente, amarga y picosa; sirve para el dolor del estómago, la diarrea* (TIL) [**tnú kah^{w}a uh^{w}a**]

yuku tnúkawa uwa: *hierba de ángel; es de naturaleza caliente; sirve para la fiebre, el reumatismo* (TIL) [**žuku tnú kah^{w}a uh^{w}a**] *Ageratina petiolaris* (Mociño & Sessé ex DC.) R.M. King & H. Robinson, COMPOSITAE

yuku kawa: *hierba de ángel* (DAA) *Eupatorium* sp., COMPOSITAE (The majority of the species formerly included in *Eupatorium* are now placed in several other genera)

kava / kawa: *vesícula / corazón o médula del árbol / tuerce, se enreda / peña* (CAB)

Io inka nuu yuku ya'a te dani xenie'un tana xi nu sangui ña da'a. *Existe una* [*otra*] *clase de hierba de ángel, también se ocupa antes del parto, se toma como té una taza para apurar el parto.* (DAA)

yutu kina / tukíná: *quina* (MIC) possibly *Hintonia* sp., RUBIACEAE

yutu kiná: *quina* (PIN) *Muy amargo, se le echa al aguardiente, es remedio.*

yutu klavo: *palo de clavo* (PIN) unidentified

tnuku kuaan: *iunco otro pardillo* (TAM) [**tnucu qua**]

tnuku<u>a</u>: *cubata, tiene flor amarilla* (CGM) probably *Acacia* sp., LEGUMINOSAE [MIMOSACEAE]

tukuaa: *álamo* (MIC)

yitun kuaan / yutnu juaan: *encino amarillo* (CAB)

yutnu kua'a nda'yu: *ebano mas negro* (TAM) [**yutnuquaádàyu**] **kua'a** : *color rojo* **de'ye / nda'i / nda'yu / nde'yu / ntsa'yu**: *lodo* (CAB)
yutnu kua'a taku: *ebano, arbol que llaman tlacuiloltquavuitl* (TAM) [**yutnuquaha tacu**] **ndiaku / taku / tiaku / xaku**: *color* (CAB)
yutnu kua'a tata tiño'o: *ebano vn poco colorado* (TAM) [**yutnuquaha tata tiñoho**]
yutnu kua'a yo'o: *ebano negro y blanco* (TAM) [**yutnuquaa yoho**]

tonkuii kuaan / tunkuii kuaan: *encino amarillo* (CAB)
tonkuii ndiayi: *encino negro* (CAB)

tukuii (MIC) probably *Parkinsonia* sp., LEGUMINOSAE [CAESALPINIACEAE]

tnúkuí'î: *plátano* (DUX)
tunkui'i: *platanar* (CAB)

tunkuisu (KAP) *Adenaria floribunda* Kunth, LYTHRACEAE [**tuncuisu**]

yutnu kuixi: *encino blanco* (CAB)
iton kuxi / yiton kusi: *encino blanco* (CAB)

ita nukúká: palm tree (CHA; Macaulay, 1996)
nukuka: *palmilla* (YSN) **kuka**: *peine*
N̶i̶n̶ ka nastutuda veñu'un jiin nukuka ja kuu taka viko.
Siempre adornan el templo con palmilla cuando hay fiesta (YSN)

tukuoyo [?]: *encino de cuchara* (ZAU) [**tucuoyo**] *Quercus urbanii* Trel., FAGACEAE

tnukutu: *copal* (referring to the plant) (CGM) *Bursera* spp., BURSERACEAE
kutu: *incienso* (CGM)
nukutu: *copal* (XYA)
tukutu: *copal* (XYA or TON; de Leon, 1980)
tukutu: *copal* (MIC)
tukutu (MXT) [**tu-kutu**] *Bursera ariensis* (Kunth) McVaugh & Rzed. */ Bursera bipinnata* (DC.) Engl., BURSERACEAE
tnúkútu: *un tipo de árbol, la gente de la región lo llama 'copalero'* (DUX)
yutu tukutu: *árbol de copal* (PIN)
kutu / nukutu / tnokutu wa'a / tnukutu / tonkuti / tonkutu / tundukutu / tunkutu / tunkutu kuixi / tundukutu / utun kutyiu / yunu susia kutu: *copalillo* (CAB)
kutu: *copal* (OSP)
kutú: *copal* (SJC)
kutu dusa: *encienso* (TAM) [**cutu dzusa**]

su̲sia ku̲tú: *copal* (SMG)
suxia kutu: *resina de copal* (YSN)

iton kuxi / yiton kusi / yutnu kuixi: *encino blanco* (CAB)

tunkuxi: *copalillo* (CAB)

4.3.7 Cognate sets and individual terms with initial <**l**>

tun laxa: *árbol de naranja* (AYU; de Leon, 1980)
tun laxa ía: *árbol de toronja* (AYU; de Leon, 1980)

nulimún: *limón* (XYA)
tun limon: *limonero* (AYU; de Leon, 1980)

4.3.8 Cognate sets and individual terms with initial <**m**>

tun mango: *árbol de mango* (AYU; de Leon, 1980)
tuma̲ngu̲: *el árbol de mango* (SJC)

tnúma̲xána̲: *manzano* (DUX)

tumi'i / ita timi'i (MXT) [**tu-mi'i / hita ti mí'i**] *Thevetia thevetioides* (Kunth) K. Schumann, APOCYNACEAE **lamii / timii / tyimii**: *abejorro / abeja / avispa* (CAB)

tumiñi: *epazote* (CAB) *Dysphania ambrosioides* (L.) Mosyakin & Clemants, CHENOPODIACEAE

4.3.9 Cognate sets and individual terms with initial <**n**>

nunaña / tnunaña / tnut-naña / tunaña / yiton naña / yuton naña / yutun naña: *chayotal* (CAB)
yitun naña: *'árbol de chayote', chayotal* (CAB)
ita naña / tanaña: *chayotal* (CAB)
tánaña̲: *chayotera* (SMG)
te'e naña / tye'e naña: *chayotal* (CAB)
yo'ó te̲'e̲ nañá: *bejuco del chayote* (XOC)
tinaña / t-naña: *chayotal* (CAB)
yuku naña / yuku tinaña: *chayotal* (CAB)

tusinén / tusinéin: *morera* (MIC) probably *Morus* sp. *Como gusanito [el fruto]*.
tunai (MXT) [**tu nai**] *Morus celtidifolia* Kunth, MORACEAE
nunéñú: *moral* (SMG) [**neñu**: *mora*] Probably *Morus* sp., MORACEAE
tnúnéñû: un tipo de árbol… da moras (DUX)

yutnu nañu: *moral* (TAM)
nuneñu / toneñu / tnuneñu / tunai / tunañu / tuneñu: *'árbol de mora', moral* (CAB)

tunii: *elite* (COI) *Alnus* sp., BETULACEAE *Ramos de las hojas se utilizan en el baño de temazcal.*
túnįí: *árbol del elite* (CTZ)
tunii (MXT) [**tu nii / tu ni'i**] *Alnus acuminata* Kunth subsp. *glabrata* (Fernald) Furlow, BETULACEAE **nii / niñi / nɨñɨ**: *sangre / mazorca* (CAB)
tnúníį: *elite* (DUX)
tnunii: (ACÑ, *Relación de Ayusuchiquilazala*) *…otro género de árbol, que llaman ellos en su lengua* **tñuniy** *y, en mexicano,* **aili**, *el cual árbol, con la corteza molida y cocida tiñen a manera de almagre*. Ayusuchiquilazala is present-day Santos Reyes Zochiquilazala, municipality of Juxtlahuaca, Oaxaca. *Aile, ilite*: *Alnus* spp., BETULACEAE (Martínez, 1979) **nii**: *sangre / mazorca* (CAB)

tunii (JIC) *Croton draco* Schldl., EUPHORBIACEAE *La savia se inyecta en la uretra del pene como remedio para enfermedades venéreas*.
yutu tuniñi: *drago, grado* (PIN) probably *Croton draco* *Porque tiene sangre, [la savia] es roja y se ocupa para el dolor de muela, hasta deshace la muela si se aplica, con un algodoncito se saca la sangre [de la planta] y en ocho días se despedaza la muela*. **niñi**: *sangre*

tunii xuxa [?]: *tlauhtole* (ZAU) [**tuhni shusha**] *Lysiloma divaricata* (Jacq.) Macbr., LEGUMINOSAE [MIMOSACEAE]

tuni katiru siin [?]: *trovadora* (PIN) *Tecoma stans* (L.) Kunth, BIGNONIACEAE *Planta muy medicinal, viene siendo como el tabardillo de bueno*. **kati**: *porque saca un algodoncito cuando está reventando la vaina*

tunumi (MXT) [**tu numi**] *Crataegus mexicana* Mociño & Sessé ex DC., ROSACEAE
tutinumi (MXT) [**tu tinumi**] *Crataegus pubescens* (Kunth) Stend., ROSACEAE
tnútnuu: *tejocote* (DUX)
tunumi tá'an: *samaritán* (PIN) probably *Brosimum alicastrum* Sw., MORACEAE *Dicen que se come la semilla, dicen que lo hierven y lo comen, y si no lo echan como tortilla.* **tá'an**: *juntos, crecen muy cerca uno del otro* **numi**: etymology not evident to don Pedro López López
tunumi tajan (KAP): *Brosimum alicastrum* Swarts, MORACEAE [**tunumi-taján**]
tonumi / tuntinumi / yiton tinumi / nutinuu: *tejocotal* (CAB)

nunuñu: *encino de cabra* (YSN)

yutu tunuu: *pochota* (PIN) *Ceiba pentandra* (L.) Gaertn., MALVACEAE [BOMBACACEAE] *La semilla no se ocupa, la fibra se usaba para rellenar la almohada*.
tunuun: *Ceiba pentandra* (KAP)
yutnu nuu: *aceiba arbol / ceiua* (TAM) [**yutnunuu**]
tunuu: *pochota, tipo de árbol que abunda en la costa* (CAB)

tunuu: *cahual* (MIC) unidentified species in the COMPOSITAE
yuku tunuu (JIC) *Tithonia rotundifolia* (Miller) S.F. Blake, COMPOSITAE

tundzidi (TON) unidentified *Árbol que da flores moraditas.*
tunzidi (MIC) *Un árbol de flor morada.*

4.3.10 Cognate sets and individual terms with initial <**nd**>

tundaa vixi / ndaa vixi: *gusanillo* (SOT) [**túnda ʙiši / ndaʙiši**] *Vernonia aschenborniana* Schauer, COMPOSITAE the stem is nibbled on by children
ndaa: *algo que está derecho / color azul* (CAB)

yutu nda'a ndee: *árbol o arbusto de rama flexible* (APO) The context in which this designation is quoted seems to indicate that it is a species-specific name: it is cited together with **tutonndyi'i, tuyoko, tuiña** and **tuiñu di'in** as one of the shrubs, whose wood is flexible and resistant, from which the 13 staffs (*vara cruz*) are fashioned for the incoming *teniente* and *policías* on December 31st (López García, 2007: 148)
ndee: *tiene resistencia / llega / cuesta, vale / color azul* (CAB)
tunda'a ndee: *copalillo* (CAB)

tundaja: *Dendropanax arboreus* (L.) Decne. et Planch., ARALIACEAE (KAP) [**tun-daja**]

tun^{5}nda^{15}ku^{3} (YLX) *Brosimum* sp., MORACEAE Amith & Castillo do not consider **nda^{15}ku^{3}** to be analyzable.

tundaku sivi: *escobilla* (MIC) *Es más correoso.* **sivi** *barrer, limpiar*

tundakua: *calahuate* (TON) *Tilia mexicana* Benth., MALVACEAE [TILIACEAE] *El que es muy correoso es el calahuate, la varita, porque la cáscara hasta lo puede uno amarrar con algo.*
tundakuá: *calahuate* (MIC)
ndakua (ZAU) [**ndacua**] *Sida spinosa* L., MALVACEAE
tundakua (COI) *Tilia mexicana* Schldl., MALVACEAE [TILIACEAE] *La corteza sirve para hacer amarres. El nombre designa a otras plantas con corteza fibrosa útil.*
tundakua (**na'nu**) **/ ita ndaa**: *mano de león* (COI) *Chiranthodendron pentadactylon* Larreat., MALVACEAE [STERCULIACEAE] *Flor medicinal para el dolor, corteza se usa para amarres.* **na'nu**: large (plural) **ndaa**: hand
tundakua (**vali**) / **tundakua landyi** (COI) *Triumfetta brevipes* S. Watson, MALVACEAE [TILIACEAE] *La corteza flexible se usa para amarres.* **landyi**: lamb, because the dried fruits adhere to wool; the designation **tundakua landyi** was provided by don Trinidad Oliveros, but Celso Flores had not heard it before
tundakua (**yuku**) **/ tundakua kini** (COI) *Daphnopsis nevlingii* J. Jiménez Ramírez & J.L. Contreras Jiménez, THYMELAEACEAE *La corteza se utiliza para amarres.* **kini**: pig; dirty, ugly; the smell of the plant is said to account for the epithet; the designation **tundakua kini** was provided by don Trinidad Oliveros, but Celso Flores

had not heard it before

tundakua ñuu (COI) unidentified species in the MALVACEAE *La corteza de los tallos se utiliza para amarres*. **ñuu**: the town, because of the ruderal habit of this species

tundakua (JIC) *Guazuma ulmifolia* Lam., MALVACEAE [STERCULIACEAE] *La corteza sirve para amarres, el ganado come el fruto.*

tundakua (**lamba**) (JIC) *Cochlospermum vitifolium* (Willd.) Spreng., BIXACEAE *La fibra de la corteza interna sirve para amarres, se tuerce para hacer lazos.*

tundakua (**yatia**) (JIC) *Pseudobombax ellipticum* (Kunth) Dugand, MALVACEAE [BOMBACACEAE] *La fibra de la corteza sirve para amarres, se tuerce para hacer cordel y morrales de red.* **yata/xiyatya**: *cabello de elote* (CAB)

ndakua nii (ACÑ, *Relación de Xicayan*) *...tienen por remedio unas yerbas con sus raíces, la cual llaman ellos en su lengua mixteca* **dacuanjy** Xicayan is present-day Jicayán de Tovar, municipality of Tlacoachixtlahuaca, Guerrero **nii**: *uñas / delgado, flaco / sangre / mazorca / piel, cuero* (CAB)

ndaku<u>a</u>: *corteza del árbol* (CTZ)

nda^{3}kwa^{3}: *jonote* (YLX) The term designates pliable bark. Amith & Castillo note, however, that not all the plants that provide useful bark fiber are labeled with this term: *Sin embargo, no todos los árboles o arbustos cuya corteza sirve para jonote se llaman* **nda^{3}kwa^{2}**. *Así, véase el* **tun^{5} ya'^{3}a^{5} ke^{5}su^{2}**.

tun^{5} nda^{3}kwa^{2} tia'^{3}a^{2} (YLX) *Cochlospermum* sp. **tia'a**: *bule*, gourd

tun^{5} nda^{3}kwa^{2} ñu'^{3}u^{2} (YLX) *Helicteres guazumifolia* Kunth, MALVACEAE [STERCULIACEAE] Amith & Castillo relate the epithet **ñu'u**, 'fire,' to the traditional use of a stick of this species as a fire drill.

tun^{5} ti^{1}ya^{5} nda^{3}kwa^{2} (YLX) unidentified species, possibly in ANACARDIACEAE

tundakua (MXT) [**tu ntacua**] *Heliocarpus terebinthinaceus* (DC.) Hochr., MALVACEAE [TILIACEAE]

tundakua kuachi (MXT) [**tu ntacua cuachi**] *Sida rhombifolia* L., MALVACEAE **kuali / kuatyi / kuetsi**: *pequeño* (CAB)

yaku<u>a</u>: *cáscara de caña* (SMG)

t̲iyaku<u>a</u>: *corteza, cáscara del árbol* (SMG)

tundiakua yo'o (PIN) possibly *Helicteres* sp., MALVACEAE [STERCULIACEAE] *Hay otro [árbol] del que se le saca yacua, pero casi no hay, es un árbol chico, delgado.* **yakua tundiakua yo'o**: *Porque ése si lo quieres hacer como mecate que sacan los de Ixtayutla, sale yacua blandita, blandita.* **yo'o**: rope

tyakua kati (KAP, Jicaltepec) [**tyacua-cati**] *Heliocarpus tomentosus* Turcz., MALVACEAE [TILIACEAE]

tyakua na'nu (KAP) [**tyacua-najnu**] *Parmentiera edulis* DC., BIGNONIACEAE

lakua / ndakua / nxakua / tiyakua / tsakua / tyakua / yakua: *corteza, cáscara de árbol* (CAB)

tiakua xiton / tyakua jiton: *canela* (CAB)

tiakua yuku vixi: *canela* (CAB)

tunde'e poli (COI) *Prunus serotina* Ehrh. var. *capuli* (Cav.) McVaugh, ROSACEAE **poli** looks like a direct borrowing from Náhuatl **capolin**

t<u>o</u>nd<u>a</u>'yá: peach tree (ALA)

tun^{5}nde'^{1}e^{5} yu^{3}vi^{2} (YLX) *Ardisia compressa* Kunth, PRIMULACEAE (MYRSINACEAE)

yu^{3}vi^{2}: 'arroyo', because of the damp habitats this species prefers
tun^{5}nde'^{1}e^{5} i^{15}ni^{3} (YLX) *Conostegia xalapensis* (Sw.) D. Don ex DC. / *Miconia obconica* Gleason & Wurdack, MELASTOMATACEAE **i^{15}ni^{3}** refers to the dry habitat of these species
tun^{5}nde'^{1}e^{5} tu^{5}mi^{5} (YLX) *Conostegia xalapensis* (Bonpl.) D. Don ex DC, MELASTOMATACEAE **tumi**: hairy, because of the pubescent leaves

tundi'á: fruit tree (OCO)
nunde'e: *árbol frutal* (SMG)
nunde'é titúun: *el cerezo, el capulín* (SMG)
nunde'é trasnú: *el durazno* (SMG)
nunde'e: *duraznal, capulinal* (CHA)
nunde'e títúun: *capulinal* (CHA)
nunde'e trasnú: *duraznal* (CHA)
tnúnde'a dí'ân: *un tipo de árbol… da moras amarillas y rojas* (DUX)
tnúnde'a kuxi: *capulín* (DUX)
tnúnde'a traxnu: *durazno* (DUX)
tnúnde'a kuxi: *capulinar; es de naturaleza fría; sirve para la diabetes* (TIL) [**tnú nde$^{?}$a kuši**] *Prunus serotina* Erhr. subsp. *capuli* (Cav.) McVaugh, ROSACEAE
tnunda'ya: *cerezo el arbol / guindo* (TAM) [**tnundaya**]
yutnu nda'ya: *durazno el árbol* (TAM) [**yutnu dáya**]
yutnu nda'ya yo'o: *parra* (TAM) [**yutnunda yayoho**]
yutnu nda'ya yo'o / ta'i tnunda'ya yo'o: *vid* (TAM) [**yutnundaya yoho / tahi tnundaya yoho**]
yutnu nda'ya yo'o / tindi nda'ya yo'o / sandu'u nda'ya yo'o: *escobajo de vbas* (TAM) [**yutnudaya yoho téndedayayoho, sándu**] [**ndu'u / sandu'u / tindu'u / tondu'u**: *tronco* (CAB)
yutnu nda'ya tichi: *laurel* (TAM) [**yutnundaya techi**]

tnúndee: *un tipo de arbusto… sus frutas son pequeñas y rojas. Sus hojas se mastican para curar llagas en la boca. Se muelen las hojas y la corteza y se pone el polvo en una herida* (DUX)
tnúnde'e / tnúndee: *somaque; es de naturaleza caliente y ácida; sirve para las heridas y la rozadura* (TIL) [**tnú nde$^{?}$e / tnú ndee**] *Rhus standleyi* F.A. Barkley, ANACARDIACEAE **ndee**: *tiene resistencia / color azul*; **nde'e**: *sucio / derrumbe o desbarrancadero / malo / durazno, capulín / va a llorar / se va a acabar* (CAB)
tnude: *Rhus aromatica* Aiton var. *mollis* Ashe, ANACARDIACEAE (SEL) [**tnu-de**]

tnúndéte: *huaje* (DUX)
tnúndete kóó: *barba del chivo; es de naturaleza caliente; sirve para la disentería* (TIL) Unidentified species in the LEGUMINOSAE [MIMOSACEAE] **ndata / nde'te / nete**: *guaje*; **koo**: *serpiente, víbora* (CAB)

tnundeve: *chichicaxtle* (CAB)

tundeyi (KAP, Jamiltepec) *Heliocarpus tomentosus* Turcz., MALVACEAE [TILIACEAE]

nundea: *mezquite* (XYA) *Prosopis* sp., LEGUMINOSAE [MIMOSACEAE]
tundea: *mezquite* (TON)
tundiaa: *mezquite* (MIC)
ton ndia: *mezquite* (NGO) [**ton ndia**] *Prosopis juliflora* (Sw.) DC., LEGUMINOSAE [MIMOSACEAE] **ndee / ndiaa / ndiyaa / ndyaa / nsaa**: *color azul* (CAB)
ton ndia kuii: *mezquite verde* (NGO) [**ton ndia kui**] *Senna wislizeni* (A. Gray) Irwin & Barneby var. *pringlei* (Rose) Irwin & Barneby [synonym: *Cassia pringlei* Rose], LEGUMINOSAE [CAESALPINIACEAE] **kuii**: *color verde / verdioso* [CAB]

tundiaa kuaan: *encino amarillo* (CAB)

tundiaká (COI) *Epidendrum* sp., ORCHIDACEAE This may have be a casual descriptive reference, rather than a lexicalized form, for a relatively tall, cane-like epiphyte.

tun^{5} ndi^{3}chi^{2} ko^{1}o^{5} (YLX) *Inga* sp., LEGUMINOSAE [MIMOSACEAE] Amith & Castillo gloss **ndichi** as *vaina*, 'pod;' **koo**: 'snake'
tun^{5} ndi^{3}chu^{1}u^{5} (YLX) *Inga megacarpa* M.E. Jones Amith & Castillo derive the etymology from **ndichi** + **yuu**, 'stone', because the thick pod has to be broken with a stone to get to the edible aril.
tun^{5} ndi^{3}cha^{1}kwa^{5}: *cuajinicuil* (YLX) *Inga* sp. Amith & Castillo interpret the etymology as **ndichi** + **yakwa**, 'crooked;' *vide*: **tinyákua**: *el árbol de cuajinicuil*, **nyákua**: *el cuajinicuil* (SJC)

yutnu ndɨdi: *granado arbol* (TAM) [**yutnudedzi**]

tnútndídô: *un tipo de arbusto… crece hasta dos metros de altura. Da moras amarillas que son comestibles* (DUX)
tnúndido: *manzanital; es de naturaleza caliente; sirve para la disentería y el mal de orina* (TIL) *Arctostaphylos pungens* Kunth, ERICACEAE **ndido**: *atravesado* [?]
tnundido: *Arctostaphylos pungens* Kunth, ERICACEAE (SEL) [**tnu-ndido**]

tonchii: *encino* (NGO) *Quercus* sp., FAGACEAE **tonchii** appears to be a cognate of **tnundii**
tundii (COI) *Quercus* sp., FAGACEAE
yitun ndii / ndii: *encinos* (CTZ)
Nuu yíyo yitun ndii na'nu yíyoní luxu: *Donde hay grandes encinos, hay mucho heno* (CTZ)
tun^{5} ndi^{1}i^{5} (YLX) *Quercus* sp. Amith & Castillo relate the etymology **ndii** 'to burn' to the dark bark of that species.
tunii tuun: *encino* (SOT) [**tu nitu**] *Quercus* sp., FAGACEAE /*nd/ > /n/ in this dialectal sub-area (Josserand, 1983)
ndyii: *encinos* (MXT) [**nchii / nchi'i**] *Quercus* spp., FAGACEAE
ndyii cha'a / ndyii ñu'un (MXT) [**nchii cha'a / nchii ñu'un**] *Quercus glaucoides* M. Martens & Galeotti, FAGACEAE **sa'a / ta'a / tya'a / xa'a**: *bajo, chaparro* (CAB)

ndyii kasi (MXT) [**nchi'i cazi / nchii cazii**] *Quercus urbanii* Trel., FAGACEAE
kaji / kasi / katɨ: *algo que no tiene buen sabor, simple* (CAB) This term may be a cognate of SMG **nukaji**.
ndyii kuii (MXT) [**nchi cui**] *Quercus castanea* Née, FAGACEAE

nundíi: *roble* (CHA)

tnúndíî: *un tipo de encino… es duro… De este árbol se hacen los mangos de las hachas, las cuñas de los arados y yugos* (DUX)
tnúndíí kué'e: *un tipo de encino… se utiliza para curtir cueros* (DUX)

yutnu ndii / yutnu yata: *enzina* (TAM) [**yutnundij / yutu yata**]
chindutnundij: *bellota* (TAM)
ndii nu'u / **tnundii nu'u**: *carrasco arbol* (TAM) [**dijnuhu / tnudijnuhu**]

nundii kuaan / tundii kuaan / tundyii kuaan: *encino amarillo* (CAB)
nundii kuiji / nundii tɨkɨyɨ / nundyii kuxi / tnundii kuixi / tundii kuiji / tundii kuityi: *encino blanco* (CAB)
nundyii kuxi / tnundii kuiji / tundii kuityi: *encino blanco* (CAB)
tnundii ndei: *encino negro* (CAB) [**ndei**: *color negro*]
nundyii noo / tnundii tnuu / tundii tuun: *encino negro* (CAB)
nundii tɨkɨyɨ: *encino blanco* (CAB)
nundyii yaa / tundii yaa: *encino lengua de cabra* (CAB)

tundika tio'o (JIC) *Licania arborea* Seem., CHRYSOBALANACEAE *Fruta comestible*.
tio'o: *pulga* **tio'o / yo'o**: *raíz* (CAB)

tondíka: banana plant (LAC)

tun^{5} ndi^{3}ka^{5}: *mamey* (YLX) *Pouteria sapota*
tun^{5} ndi^{3}ka^{5} yu^{1}ngui^{32}: *zapotillo* (YLX) unidentified species in the SAPOTACEAE
yungui: *zorro*

nundíká: *platanal* (SMG)

yutu tundika kua'a: *zapote mamey* (PIN) *Pouteria sapota* (Jacq.) H.E. Moore & Stearn, SAPOTACEAE
yutu tundika ñuñu: *chicozapote* (PIN) *Manilkara zapota* (L.) P. Royen, SAPOTACEAE **ñuñu**: *miel*

nundiká: *platanar* (CHA)

nundika: banana tree (YSN)

tundika: *platanar* (CAB)

tundika sañii (PIN) possibly *Guazuma ulmifolia* Lam., MALVACEAE [STERCULIACEAE] *Es un árbol, la frutita, la semilla que echa así se come; a ése no le sacan yacua.* **sañii**: *olote*
tundika sañɨi: *frailecillo* (CAB)

tundkyika: marmalade-fruit tree (*Calocarpum sapota*) (JAM)

nundyika / tnundika / tundika: *mameyal* (CAB)
tondika xe'e / tundika je'e / tundika tsa'a / tundyika xia'a: *mameyal* (CAB)
tundika kue'e: *mameyal* (CAB)
tundika ndayi: *mameyal* (CAB)
tundyika yakua: *mameyal* (CAB)

tundika tyinumi / tundika tyumi / tundyika tyumi / tuntyumi: *pochota, tipo de árbol que abunda en la costa* (CAB)

yutu ndika'a / yutu nda'a ndika'a: *palo de tigre* (PIN) *Cnidoscolus* sp., EUPHORBIACEAE *Éste es el que quema… porque ése quema de a madres.*
ndikayá / ndika'ayá: *leon* **kuiñi**: *el que está pinto*

nundikin: *amaranto* (NUX) "**nu-** *es el prefijo para árbol*"
yutu iñu ndiki: *amaranto* (PIN) probably *Amaranthus* sp., AMARANTHACEAE
Se tuesta la semilla, se muele con canela y panela, se come el polvito.
chiti iñu ndiki (PIN) the seeds of this plant
tnutsikɨn da'a: *higuerilla* (CGM) *Ricinus communis* L., EUPHORBIACEAE
ndijin / ndikɨn / tsikin / xikin: *semillas de chile, rábano, amaranto, tomate* (CAB)
da'an / ja'an / sa'an / xa'an: *manteca* (CAB)

tundɨkunyi: *macuil* (CAB)

tundɨti / tuntiti ku'u: *cuatololote* (CAB) *cuatelolote: Phyllanthus acidus* (L.) Skeels, PHYLLANTHACEAE*; cuautololote, tololote: Andira inermis* (Wright) DC., LEGUMINOSAE (Martínez, 1979)
tiku'u: *cuatololote* (CAB)

tunditiú: *guapinol* (PIN) *Hymenaea courbaril* L., LEGUMINOSAE [CAESALPINIACEAE]
tundityu (KAP) [**tundityú**] *Hymenaea courbaril*

tnúndɨwu: *sanalotodo; es de naturaleza caliente; sirve para la fiebre, el sarampión* (TIL) [**tnú ndɨhwu**] *Cestrum* sp.1, SOLANACEAE: Piestrzynska #3; *Cestrum* sp.2, SOLANACEAE: Piestrzynska #12 **ndiu / ndivi / ndɨwɨ**: *huevo* (CAB)

tundixijo (KAP) *Triumfetta dumetorum* Schltdl., MALVACEAE [TILIACEAE] [**tundishijó**]

nundoko síun: *palo de anona* (XYA) **si'un**: *dinero*; **siuun ndasan**: *chachalaca*; **tiuun**: *aves de corral / trabajo / espuma / estrella / angosto* (CAB)
tundoko tuun: *árbol de zapote* [*negro*] (XYA or TON; de Leon, 1980)
tun^{5} ndo^{3}ko^{5} / tun^{5} ndo^{3}ko^{5} i^{3}ñu^{5}: *guanábana* (YLX) *Annona muricata* L., ANNONACEAE **iñu**: thorn, because of the spikes on the fruit
tun^{5} ndo^{3}ko^{5} tie^{5}tan^{25}: *ilama* (YLX) *Annona diversifolia* Saff. **tie^{5}tan^{25}**: *vieja* Amith & Castillo note that the epithet parallels the Náhuatl **ilamah**, 'old woman'
tun^{5} ndo^{3}ko^{5} tiu^{5}un^{5}: *anona* (YLX) *Annona reticulata* L. **tiu^{1}un^{5}**: *guajolote*
tun^{5} ndo^{3}ko^{5} tu^{5}va^{2} (YLX) *Jacaratia mexicana* A.DC., CARICACEAE **tu^{5}ba^{2}**: *cotorra*
tun^{5} ndo^{3}ko^{5} tu^{15}un^{3} / tun^{5} ndo^{3}ko^{5} tu^{15}un^{3} yu^{3}vi^{2}: *zapote negro* (YLX) *Diospyros digyna* Jacq., EBENACEAE **tu^{15}un^{3}**: *prieto* **yu^{3}bi^{2}**: *arroyo*
tun^{5} ndo^{3}ko^{5} tu^{15}un^{3} yu^{3}ku^{5} (YLX) unidentified species in the SAPOTACEAE **yu^{3}ku^{5}**: *cerro, silvestre*
tun^{5} ndo^{3}ko^{5} li^{5}ku^{2} (YLX) unidentified species **li^{5}ku^{2}**: *perico*

tundoko: *árbol de zapote* (AYU; de Leon, 1980)
tundoko: custard-apple tree (*Annona* sp.) (OCO)
nundókó: *zapotal* (SMG)
nundoko: *zapotal, árbol* (YSN)
tnúndókô: *zapote* (DUX)
tnúndoko íñû: *anona* (DUX)
tnúndoko língô: *zapote blanco* (DUX)
tnúndoko lingu: *zapotal; sirve para el insomnio* (TIL) [**tnú ndʾoko lingu**] *Casimiroa edulis* Llave & Lex., RUTACEAE **linki**: *delgado, flaco*; **li'nki / li'nkɨ**: *ratón* (CAB)
tundoko: custard-apple tree (*Annona* sp.) (JAM)
tundókó: *palo de anona* (PIN) *se parte*: the fruit splits open as it ripens *La que se parte hay una blanca y una roja.*
yutu tundoko cha'a: *chirimoya, se pone cenizo / palo de chirmola* (PIN) *Annona* sp., ANNONACEAE *Éste anteriormente las hojas tiernas se utilizaban si te daba dolor de estómago, con ceniza calientita, se amarraba la panza a los chamacos.*
cha'a: *se pone cenizo ceniza:* **cha'a**
tundoko yoti: *malva* (PIN) *Eso lo utilizamos nosotros para barrer, agarramos como escoba.*
yoti: *arena* (CAB)
tundoko rachiva: *Randia* sp., RUBIACEAE (KAP) [**tun-doco-rachiva**]
tundoko: *el guanábano* (SJC) **ndoko**: *la guanábana*
tindoko iñu: *el guanábano* (SJC) **ndoko iñú**: *la guanábana*
tindoko tinuu: *el árbol de chirimoya* (SJC) **ndoko tinúú**: *la chirimoya*
tundoko tsaa'a: *el árbol de nanche* (SJC) **ndoko tsaa'á**: *el nanche*
yutnu ndoko ñu'un (ACÑ, *Relación de Zacatepeque*) *Las yerbas medicinales que tienen son unas yerbas que llaman en su lengua* **yutñudocoñuhu***: ésta, cocida en una olla y con el agua della, tibia, lavarse, es muy provechosa para las hinchazones. Llámanla en mexicano* **teotzapotl**. Zacatepeque is present day Santa María Zacatepec, district of Putla, Oaxaca **ñu'un**: *deidad, sagrado, dios* (CAB); **teo:tzapotl**: divine *zapote*
tonlingo: *zapote blanco* (referring to the tree) (NGO) [**ton lingo**] *Casimiroa edulis* Llave & Lex., RUTACEAE *Sirve para calmar los nervios, para el insomnio... Las hojas se usan en todosantos para ponerlos sobre los petates para la ofrenda.* (NGO)
nundoko linko / nundoko tenko / tundoko linku / tundoko linko / tunoko tyinko / yutnu linko / yutun tyinko: *zapotal* (CAB)
tundoko linko: *zapotal negro* (CAB)
tundoko ndei: *zapotal negro* (CAB)
tundoko tinuu: *árbol de la chirimoya* (CAB) **tinuu**: *tejocote*
tundoko tuun: *zapotal* (CAB)
nundoko noo / tnundoko tnuu / tundoko tuun: *zapotal negro* (CAB)
tundoko tsa'a: *árbol de nanche* (CAB)

tundoko: *guarumbo* (PIN) *Cecropia* sp., URTICACEAE [CECROPIACEAE] *Para el caldo de kabío*. Distinguished tonally from **tundoko**, *Annona* sp.

tnúndóó kaxtíla: *caña de azúcar* (DUX)

tundoo (COI) *Acaciella angustissima* (Mill.) Britton & Rose, LEGUMINOSAE MIMOSACEAE]

tundo'o (MXT) [**tu nto'o**] *Acaciella angustissima*

tnúndó'ô: *un tipo de árbol… se utiliza la corteza… para ablandar el cuero. Se pela la corteza y se vende al curtidor quien la remoja en agua* (DUX)

ndo'o / nundo'o / tnundo'o / tundo'o: *árbol de timbre* (CAB)

ndo'o: *timbre, la cáscara de un árbol que sirve para curtir pieles* (CAB)

tundua: *guaje* (XYA or TON; de Leon, 1980)

tunduá: *huaje* (MIC)

tondua: *guaje rojo* (NGO) [**ton ndua**] *Leucaena diversifolia* (Schldl.) Benth., LEGUMINOSAE [MIMOSACEAE] The identification of this species is questionable, as the *guaje rojo* commonly grown and eaten in the Mixteca Baja is *Leucaena esculenta* (Sessé & Mociño ex DC.) Benth. *Las yemas de la planta sirven para arrojar las lombrices del estómago y limpian de parásitos: se come cruda la yema con tortilla... Las semillas de los guajes se comen cocidas en el comal y se prepara una salsa; también se guisa con carne de res o queso; esta comida es típica en esta región y se conoce como guaximole.* (NGO)

tundua isu (MXT) [**tu ntúa izu**] *Lysiloma divaricata* (Jacq.) Macbr., LEGUMINOSAE [MIMOSACEAE] **isu**: *venado* (CAB)

tundua tikuanda (MXT) [**tu ntúa ticuanta**] *Leucaena diversifolia* (Lam.) de Wit., LEGUMINOSAE [MIMOSACEAE] **tikua'ndi**: *guamúchil* (CAB)

tuchi namá: *grilla* (MIC) *Ricinus communis* **nama**: *jabón* (CAB)

tnúnduchi dé'en: *higuerilla* (DUX) **da'an / de'en / ja'an / xa'an / ye'en**: *manteca* (CAB)

tnúnduchi nde'e kuixi: *grillal blanco; es de naturaleza muy caliente; sirve para la fiebre de los bebés, el dolor instantáneo* (TIL) [**tnú nduči nde²e kwiši**] *Ricinus communis* L., EUPHORBIACEAE **nde'e**: *sucio / derrumbe o desbarrancadero / malo / durazno, capulín / va a llorar / se va a acabar*; **kuiji / kuityi / kuixi**: *blanco* (CAB)

yutnu nduchi da'a / yutnu nikuvui nduchi tinama: *higuerilla de la tierra, de que hazé el azeyte* (TAM) [**yutnunduchi dzaha / yutnu nicuvuinduchi tenama**]

tnúnduchi ídû: *un tipo de arbusto… se parece al chamizo… Las hojas se pegan al cuerpo cuando alguien está en un temazcal* (DUX)

tnúnduchi idu: *cacho de venado, es de naturaleza caliente, sirve para hojear dentro del temascal* (TIL) [**tnú nduči iidu**] *Dodonaea viscosa* (L.) Jacq., SAPINDACEAE **ndutyi**: *testículos / riñón / frijol*; **ndutyi nuu**: *frijol de la cara, ojos*; **idu / idju / isu / yusu**: *venado* (CAB)

tonduku ño'ma: *escobilla* (NGO) [**ton nduku ño'ma**] *Gymnosperma glutinosum* (Spreng.) Less., COMPOSITAE *En el caso de fracturas: se recomienda sobar previamente la parte dañada y luego colocar las varitas con hojas alrededor de la zona afectada… Se utiliza este remedio para curar a los chivitos, puerquitos o perritos cuando se fracturan. Es un material indispensable en la casa para hacer lumbre, siempre se tiene un manojito de escobilla seca. Es utilizada como escoba para barrer los patios.*

(NGO)

tunduti: *cacahuananche* (PIN) *Gliricidia sepium* (Jacq.) Walp., LEGUMINOSAE [PAPILIONACEAE] *También es curativo para nosotros, cuando le sale mal de ojo, la hoja la tallan en una piedra.*
tundutyi / tunduti: *cacahuamano* (CAB) *cacahuanano*: *Gliricidia sepium* (Jacq.) Kunth ex Griseb., LEGUMINOSAE (Martínez, 1979)

tun^{5} ndwi^{15}na^{2} [**tunduu ina**] (YLX) apparently *Vitex* sp., VERBENACEAE Amith & Castillo interpret the etymology as 'fruit + dog.'

tun^{5}ndu^{1}u^{5} se^{5}u^{2} (YLX) unidentified species in the BORAGINACEAE. Amith & Castillo explain the etymology ('fruit + tallow') by the sensation that the edible fruit leaves in the mouth.

tu ndú'u: *tehuiztle* (TON) probably *Acacia bilimekii* J.F. MacBr., LEGUMINOSAE [MIMOSACEAE]
tunduu: *tehuiztle* (MIC)

tnundu'u yavi: *izote* (CGM) *Yucca* sp., ASPARAGACEAE [AGAVACEAE] *Acá no se acostumbra comer la flor*. **ndu'u / tindu'u / tinu'u**: *amole* (CAB)
tundu'u: *izote* (TON) *Yucca* sp. *La flor sí dicen que sí se come, pero nosotros no la comemos.*

tnúndúa ndoo yúkû: *un tipo de hierba… se parece a la hierba santa* (DUX) The cognates of DUX **ndua** have the form **nduva**

tnunduvua ido: *iunco negro de que hazen baculos* (TAM) [**tnudu vuaydzo**] Etymology: tree marker + *quelite* eaten raw + rabbit

tundyai (MXT) [**tu nchái**] *Pistacia mexicana* Kunth, ANACARDIACEAE

tundye'e nkutsi (MXT) **tunchee ncutzi / tunche'e ncutzii** *Prunus serotina* Erhr., ROSACEAE **kutsi**: *cerdo*; **kutsia**: *se va a agriar* (CAB)

tundyiso [?] / **tutundyiso** (MXT) [**tu nchízoo / tu nchiso / tu tunchiso**] *Comarostaphylis polifolia* (Kunth) Zuccarini ex Klotzsch, ERICACEAE

nundyitia: *cuajilote* (XYA) *Parmentiera aculeata* (Kunth) Seemann, BIGNONIACEAE This appears to be a cognate of [**tun**]**chita / tita / titya**: 'banana.'
tusinchitiá: *cuajilote* (TON)
tundyitiá: *cuajilote* (MIC)

4.3.11 Cognate sets and individual terms with initial <**ñ**>

nda'a tuñaña: *tlachicón* (PIN) probably *Curatella americana* L., DILLENIACEAE *Tiene*

hojas como lija, con eso limpiaban las jícaras, quedaban lisas, haga de cuenta que la lijó uno con lija, queda liso, liso.

yutnu ña'un: *brasil arbol* (TAM) [**yutnuñahu**] probably *Haematoxylon brasiletto* Karst, LEGUMINOSAE [CAESALPINIACEAE]

nu'íín: *otate* (XYA) probably *Chusquea* sp. and/or *Otatea* sp., GRAMINEAE
tu'iin: *otate* (TON)
tuíín: *otate* (MIC)
yuku tuiin (JIC) *Chamaedorea* sp., PALMAE
tuiin (MXT) [**tu i'in / tu iin**] *Lasiacis divaricata* (L.) Hitchc., GRAMINEAE
tnúñ~~í~~i̲: *un tipo de bambú* (DUX)
ch~~ii~~i̲n: bamboo (OSP) "…plant names with initial **t** or **ch**, from fused **utun** 'tree'…" (Small, 1990, p.405)
tuñíí / yutu tuñíí: *otate* (PIN) *Cuando lo corta queda aguadito, por eso* **ñíí***; dicen los grandes que cada siete años nacen, ya* [*a*] *los siete años se acaban y vuelven a nacer.*
tnuñ~~ii~~: *caña maciza otate* (TAM) [**tnuñee**]
tnuñii (ACÑ, *Relación de Ayusuchiquilazala*) *unas varas que llaman en su lengua* **tñuñiy** *y, en mexicano,* **otlatl***, las cuales dichas varas son muy recias* Ayusuchiquilazala is present-day Santos Reyes Zochiquilazala, municipality of Juxtlahuaca, Oaxaca. *Otate* designates today various species of *Chusquea, Guadua, Otatea* and other genera of native bamboos (Martínez, 1979; Chávez Rendón et al., 1997-2009), as **tnuñii** and **otlatl** probably did as well.
tnuiin (ACÑ, *Relación de Xicayan*) *unas varas muy correosas que llaman, en su lengua mixteca,* **tñuyy** *y, en mexicano,* **otlatl** Xicayan is present-day Jicayán de Tovar, municipality of Tlacoachixtlahuaca, Guerrero
nuiin / nuñii / tn~~ii~~ / tnuñii / ton iin / tonii / tonñii / tun iin / tunii / tunñii / tunñ~~ii~~ / tyiin: *otate* (CAB)

nuñúchi: *fresno* (SMG) probably *Fraxinus* sp., OLEACEAE
nuyuchi: *fresno* (YSN)
tnúñúch~~i~~i̲: *fresno* (DUX)
nuñutyi / nuyutyi / tonyutyi / tnunutyi / tnuyutyi / tunñutyi / tunyutyi: *fresno* (CAB)

tuñuñu: *palo santo* (MIC) probably *Pittocaulon praecox* (Cav.) H. Rob & R.D. Brettell [synonym: *Senecio praecox* DC.], COMPOSITAE *Lo usan de adorno de Navidad, tiene nombre de miel.*

tnuñuu: *sauce* (CGM) probably *Salix* sp., SALICACEAE
nuñuu: *sauce* (XYA)
tuñuu: *sauce* (MIC)
tuñuu: *sauz* (COI) *Salix bonplandiana* Kunth, SALICACEAE *La madera blanca se usa para hacer miniaturas, artesanía.*
tuñu'u (MXT) [**tu ñu'u**] *Salix bonplandiana* Kunth, SALICACEAE
nuñúu: *sauce* (SMG)
yutnu ñuu: *sauce* (TAM)
nuñuu: *sauce* (CAB)

tnúñûú / tnútnûú: *datilera* (DUX)
tnúñúú kuá'â: *palmar real* (DUX)
tnuñuu: *palma datilera* (CGM) *Phoenix dactylifera* L., PALMAE Date palms, a species introduced from the Mediterranean, are cultivated in the canyon of the Atoyac river just below town, to the north and west of Santa María Chigmecatitlán.
ñuu: *palma de soyate* (CGM) Probably *Brahea dulcis* (Kunth) Mart., PALMAE
yutnu ñuu: *palma arbol* (TAM)
ñuu kuachi / yutnu kuachi / ñuu yuta / ñuu ñuma: *palmito* (TAM) [**yutnu quachi / ñuu quachi / ñuu yuta / ñuu ñuma**]
itun ñuu / nuñuu / tnuñuu / tonñoo / tonñuu / tunñoo / tunñuu / yitno ñoo / yitun ñoo / yitun ñuu / yutun ñuu: *'árbol de palma', palmera* (CAB)
kutu ñuu: *palmera* (CAB)

tuñu'un (MXT) [**tu ñu'un**] *Quercus conspersa* Benth., FAGACEAE
tnúñúû / tnútnúû: *un tipo de encino… mide hasta cinco metros de altura… cuando… retoñan, el encino da una fruta llamada* **luyu** *que la gente come cuando está tierna* (DUX)
tnútnúú kue'e: *un tipo de encino rojo* (DUX)
tnútnúú kuíxi: *un tipo de encino blanco* (DUX)

tnutsiun: *amate* (CGM) *Ficus* sp., MORACEAE
tnutsiun kuixi / tnutsiun overo: *amate blanco* (CGM)
nuñu'u: *amate* (XYA)
tuñuu: *amate* (MIC)
tuni'un tuun / tuni'un na'no: *amate de zorro / amate grande* (ZAU) [**tunihu tuu / tunihu nahno**] *Ficus cotinifolia* Kunth, MORACEAE
tuñú'ún: *amate* (CTZ) probably *Ficus* sp. *Algunas personas comen los frutos de este árbol.*
tu^{1}ñu'^{5}u^{2} xa'^{1}a^{1} (YLX) *Ficus* sp., MORACEAE **xa'^{1}a^{1}** *'azul' o 'color gris'*
tu^{1}ñu'^{5}u^{2} ya^{3}a^{3} (YLX) *Ficus* sp. **ya^{3}a^{3}** '*blanco'*
tu^{1}ñu'^{5}u^{2} kwa'^{5}a^{1}: *liro* (YLX) *Ficus* sp. **kwa'^{5}a^{1}** '*rojo'*
tu^{1}ñu'^{5}u^{2} tu^{15}un^{3} (YLX) *Ficus* sp. **tu^{15}un^{3}** '*prieto'*
tu^{1}ñu'^{5}u^{2} nu^{1}ni^{5}: *mezquite* (YLX) *Ficus* sp. **nu^{1}ni^{5}** '*maíz'* Amith & Castillo note that this taxon bears the only *Ficus* fruit that is eaten in Yoloxóchitl.
tu^{1}ñu'^{5}u^{2} xa^{1}tu^{1}: *chilamate* (YLX) *Sapium* sp. EUPORBIACEAE **xa^{1}tu^{1}** '*picoso/venenoso'* Amith & Castillo comment on the fact that both Mixtec and regional Spanish (name derived from Nahuatl) designate this euphorb as a 'ficus'; in fact, although the authors don't mention it, the Mixtec name looks like a calque of the Nahuatl **chi:la:matl**,'chili ficus' – or viceversa.
tuñu'u (MXT) [**tu ñu'u**] *Ficus cotinifolia* Kunth, MORACEAE
tuñu'u kua'a: *higo* (PIN) *Ficus* sp., MORACEAE **kua'a**: *colorado*
tuñu'u kuichi: *higo pero del blanco* (PIN) probably *Ficus* sp., MORACEAE
tunu'u kua'a: *Ficus* sp., MORACEAE (KAP) [**tunuhu-cuaha**]
nuñu'un / toñu'un / tun ñu'un: *amate* (CAB)
tnoño'on kua'a: *amate* (CAB)
tuñu'un nuñi: *amate* (CAB)
tuñu'un so'o: *amate* (CAB)

tuntiña'un: *amate* (CAB)

tun ñu'un: *parota, árbol conocido en la costa* (CAB) The identification as *Enterolobium* may be in error.

4.3.12 Cognate sets and individual terms with initial <**o**>

tuo'on: *tololote* (CHY) [**tu ohon**] *Se hacen las sillas de madera de tololote.*
cuatelolote: Phyllanthus acidus (L.) Skeels, PHYLLANTHACEAE*;*
cuautololote, tololote: Andira inermis (Wright) DC., LEGUMINOSAE (Martínez, 1979)
tunto'on: *cuatololote* (CAB)

4.3.13 Cognate sets and individual terms with initial <**p**>

tupayá: *el papayo* (SJC)

tunpele / tunpili: *piñón* (CAB)

yutnu peras: *peral arbol* (TAM)

tupipí: *pipe* (MIC) *Erythrina* sp., LEGUMINOSAE *Aquí hay pero no lo comemos.*
Pipi appears to be a borrowing from Zapotec, probably by way of regional Spanish.
yutu pipi: *palo de pipi* (PIN) possibly *Erythrina* sp. *No saben que se coma la flor, pero la corteza es medicinal cuando alguien tose mucho, cortan la corteza de los dos lados del tronco, del lado que sale el sol y del lado que se oculta, se hierve y se toma.*
tunpipi: *árbol de pipi* (CAB)

tun^{5} po^{5}cho^{2} (YLX) *Ceiba* sp., MALVACEAE [BOMBACACEAE] **pocho** is derived from Náhuatl **po:cho:tl**, possibly through Mexican Spanish *pochote*

4.3.14 Cognate sets and individual terms with initial <**r**>

turachoko (KAP): *Ficus* sp., MORACEAE [**turachoco**]

turrayadu / **tuvilí**: *rayado* (MIC) *Ehretia tinifolia* L., BORAGINACEAE

4.3.15 Cognate sets and individual terms with initial <**s**>

ita tusaa (COI) unidentified species in the COMPOSITAE *Flores para adorno altares.*

tusaní: *huizache* (MIC) probably *Acacia farnesiana* (L.) Willd., LEGUMINOSAE [MIMOSACEAE]

tunsañi: *cuatololote* (CAB) *cuatelolote: Phyllanthus acidus* (L.) Skeels, PHYLLANTHACEAE*; cuautololote, tololote: Andira inermis* (Wright) DC., LEGUMINOSAE (Martínez, 1979)

tusatioko: *Cordia alliodora* (Ruiz et Pav.) Cham., BORAGINACEAE (KAP) [**tusa-tioco**]
tniño tsioko / tundiyoko / tuntioko / tunyoko: *hormiguillo, árbol que abunda en la costa* (CAB) *hormiguillo*: *Cecropia* sp.*, Cordia* sp. (Martínez, 1979)

yutnu satnu: *pino otro* (TAM)

tusavi: *pipe* (ZAU) [**tusavi**] *Erythrina americana* Mill., LEGUMINOSAE [PAPILIONACEAE]
tusa'vi (COI) *Erythrina* sp.
tusavi (JIC) *Erythrina* sp.
tusava yuku (MXT) [**tu saba yucu**] *Erythrina horrida* DC.
tunsa'vi / nutiida'vi / tnutyida'vi: *árbol de pipi* (CAB) probably *Erythrina* sp.,

yutu tusia tiñi: *piñón* (PIN) *Jatropha* curcas L., EUPHORBIACEAE
tusia: *goma* **tiñi**: *ratón*

nusi'ini: *huizache* (XYA) The etymology may involve the marker **si-** 'animal/spherical object'

nusindiava: *mala mujer de monte* (XYA)
sindiava: *mala mujer* (XYA) possibly *Cnidoscolus* sp., EUPHORBIACEAE
Con ésa asada cortan la leche de cabra para comer con tortilla, se hace bolitas.
'That plant, once it's broiled, is used to curdle goat milk so that it can be eaten on a tortilla, it turns into little balls.'

nusisa: *cubata* (XYA)
tusísa: *cubata* (TON)
tusísa / tusisá: *cubata* (MIC)
tonsisa: *cubata* (NGO) [**ton sisa**] *Acacia macracantha* Willd., LEGUMINOSAE [MIMOSACEAE] **jija / sisa / xixa**: *se está amacizando* (CAB)
Las espinas tiernas de la planta sirven para calmar el dolor de las encías o dolor de muelas... Para curar el empacho... (NGO)

tun^{5} si^{13}su^{2} (YLX) *Bauhinia* sp., LEGUMINOSAE (CAESALPINIACEAE) Amith & Castillo derive the etymology from **si'in** ('leg') + **isu** ('deer'), because the shape of the leaf recalls a hoof.

tnusiya (ACÑ, *Relación de Zacatepeque*) *Hay otro árbol, que las hojas y corteza, en cuanto se caliente, y puesta en alguna cuchillada o herida, es muy buena: y llámase este árbol, en su lengua,* **tñusiya** *y, en mexicano,* **tlatlacuahuitl** Zacatepeque is present day Santa María Zacatepec, district of Putla, Oaxaca **iya / jiya / xiya**: *está acedo* (CAB) **tlatla**: *arder, abrasarse, o quemarse* (de Molina, 1571)

tusuku ñuma / tusiko ñuma: *escobilla* (MIC) *es más frágil que* **tundaku sivi**

tudju'va: *la planta de cacao* (CHY) [**tu zuhva**]
nusu'va: *nogal* (YSN)
tnosu'wa / tunsi'va tiñi / xi'va kaxi: *piñón* (CAB)

tusuví (COI) *Quercus* sp., FAGACEAE *Las agallas, llamadas "chicombas" en el español regional, se comen; la leña se considera de calidad inferior.*

4.3.16 Cognate sets and individual terms with initial <**t**>

[The names that appear to involve the marker **ta**, 'flower,' are listed first]

tnútadíkô: *un tipo de árbol* (DUX)

tnútadúxâ: *un tipo de hierba, literalmente 'árbol de flor de copal'* (DUX)
tnutadusa di'i: *árnica hembra* (DAA) [**tnu tadusa di'i**] *Heterotheca inuloides* Cass., COMPOSITAE **di'i / dɨ'ɨ / si'i**: *mamá, madre* (CAB) **Io sa di'i te io sa yii yuku ya'a**. *Hay árnica macho y hembra, su diferencia es que el macho crece 50 cm, sirve en igual forma y el macho es verde y tiene un botón que le sale una leche blanca.* (DAA)
tnutadusa yii: *árnica macho* (DAA) *Aster* aff. *gymnocephalus* (DC.) A. Gray, COMPOSITAE **yii / yɨɨ**: *macho / marido, esposo* (CAB) *Existen dos clases de árnica, uno es de hembra y el otro es macho, el macho se ocupa para dolor de huesos, untado, y la hembra se ocupa para heridas, para la tos, tomados y untados los dos son efectivos.* (DAA)

tnútakɨ́ndî: *salvia… sus flores son azules y delgadas, y contienen miel que chupan las chuparrosas* (DUX)
ítâ tnutatkɨ́ndî: *chía, literalmente 'flor del árbol de mariposa'* (DUX) The etymology offered by Kuiper is questionable, given that **kindi** designates *Salvia* spp. in a number of dialects; the compound may involve the prefix **ta-** 'flower,' as well as **ti–** 'animal.'

tnútamínô: *un tipo de hierba, nombre científico: Baccharis conferta* (DUX) *Baccharis conferta* Kunth, COMPOSITAE [?] **ita minu / tamino**: *yerbabuena* (CAB)
tnútamino: *chamizo del monte; es de naturaleza fría; sirve para el reumatismo, el mal aire* (TIL) [**tnú taa mino**] *Baccharis heterophylla* Kunth, COMPOSITAE

tnútandúû: *un tipo de hierba, literalmente 'árbol de flor de botón'* (DUX)

tnútavé'yu / ita nchíkirió'o: *dedalera* (DUX) probably *Penstemon* sp., PLANTAGINACEAE [SCROPHULARIACEAE]

tnúta'ú: *colorín, pipal* (DUX) probably *Erythrina* sp., LEGUMINOSAE

[PAPILIONACEAE]

tnútayátu: *tronadora, nombre científico Tecoma stans* (DUX)
tnútayatu: *tronadora; es de naturaleza caliente; sirve para el empacho, la diarrea* (TIL)
[**tnú taa žatu**] *Tecoma stans* (L.) Juss. ex Kunth, BIGNONIACEAE
yatu: *astringente, poderoso como el alumbre, las sales de plomo, el hierro, etc., algo que entume la boca / picoso / calzón* **yatun**: *baúl, veliz* (CAB)

tnútxítî: *un tipo de flor roja, silvestre* (DUX) The etymology appears to involve **ta-**, 'flower;' alternatively, it may involve the 'animal/round object' marker.

yúkú tachi tnútayókô: *un tipo de hierba medicinal, literalmente 'hierba del aire de árbol de flor de vapor'* (DUX)

tuta'a: *parota* (PIN) *Enterolobium cyclocarpum* (Jacq.) Griseb., LEGUMINOSAE [MIMOSACEAE] *Este semilla lo comen las vacas, anteriormente lo comía la gente, se hierve y se esponja como frijol, ya le quita uno la concha gruesa, lo de adentro está blandito, está sabroso como frijol.* **chiti tuta'a**: *la semilla*
tuta'an: *el árbol guanasatli* (CHY) [**tu tahan]**
tutajan (KAP) *Enterolobium cyclocarpum* (Jacq.) Griseb., LEGUMINOSAE [MIMOSACEAE] [**tutaján]**
tunta'an: *parota, árbol conocido en la costa* (CAB)

tun^{5} ta^{1}kwi^{5}i^{25} (YLX) *Gliricidia sepium* (Jacq.) Steud. LEGUMINOSAE (PAPILIONACEAE) **kwii**: 'green' **ta-** relates perhaps to **ita**

tontami / tnutnami: *árbol de canela* (CAB)
doo yutnu tami: *'cáscara de planta olorosa', canela* (CAB)
doo yutnu / joo yiton: *cáscara o corteza del árbol* (CAB)
doo / doo yutnu: *cáscara del palo* (CGM)
soo yutun: *'ropa de árbol', cáscara* (CAB)
ñii yunu: *'piel del árbol', cáscara o corteza del árbol* (CAB)

tutanu (MXT) [**tu-tanu**] *Pittocaulon praecox* (Cav.) H. Rob & R.D. Brettell [synonym: *Senecio praecox* DC.], COMPOSITAE **tanu**: *soyate / topil / se va a destruir*; **ta'nu**: *grande en edad, sabiduría y experiencia / se va a romper, se va a quebrar* (CAB) it seems significant that both this species and *Phlebodium*, which have been documented to be used in the treatment of fractures elsewhere in the Mixteca, are named **tanu** or **ta'nu**.
yutnu tna'nu (ACÑ, *Relación de Zacatepeque*) *Hay otro árbol, que ellos llaman en su lengua* **yutñutñanu**, *que la leche deste árbol, untada donde estuviere alguna quebradura de pie o brazo, sana y suelda luego: llámanlo los mexicanos* **poztecpatli**. Zacatepeque is present day Santa María Zacatepec, district of Putla, Oaxaca **na'nu / ta'nu / tna'nu**: *se va a quebrar o se va a romper* (CAB); **poztequi**: *quebrar palo o cosa assi* (de Molina, 1571); **poztecpahtli**: *plant used in treating fractures* (Karttunen, 1983)

tutawí: *jarilla* (MIC) probably *Baccharis salicifolia Crece a las orillas del río*.

tontavi: *jarilla* (NGO) [**ton tavi**] *Dodonaea viscosa* (L.) Jacq., SAPINDACEAE *Para sobar los golpes o fracturas…* **tavi**: *va a hilar*; **ta'u / ta'vi**: *dolor que se siente hasta en los huesos / pedimento / se va a romper* (CAB) The Linnean equivalence may be in error.

tutavi (ZAU) unidentified species used as fodder for livestock

tuta'vi (COI) *Baccharis salicifolia* (Ruiz & Pavón) Pers., COMPOSITAE *Medicinal, calentado en aguardiente se aplica sobre los pies.* **ta'vi**: *dolor que aquebranta hasta los huesos* (CAB)

tutavi (MXT) [**tu tavi / tu tavii**] *Baccharis salicifolia*
tutavi yuku (MXT) [**tu tavi yucu**] *Baccharis heterophylla* Kunth, COMPOSITAE

tɨndaú: *chamizo* (CHA) *Los de San Miguel lo ocupaban para hacer pólvora para cohetes.*
tɨndaú stílá: *chamizo de castilla* (CHA) *Lo ocupan los curanderos para hacer limpias.*

tnútáu: *chamizo… mide tres metros y medio de altura, y sus flores son blancas. Se utiliza para hacer escobas. También se utiliza para pegarse con ellas en el temazcal* (DUX)

tnútau: *chamizo del río; es de naturaleza caliente, sirve para el reumatismo* (TIL) [**tnú tau**] *Baccharis salicifolia* (Ruiz & Pavón) Pers., COMPOSITAE
ta'u: *gracias / pobre / pedimento / dolor / se va a romper*; **tau'u**: *dolor* (CAB)

tnutawi: *chamizo de río o de cuete* (DAA) **Io inka yunu sa ka na tnutayuxi, ko su ku tnutawi te ku xi in yuku i'ni**. *Hay otros chamizos como de río o de cuete, es para aliviar el estómago del frío, se utiliza para entrada al temazcal.*

tnutavui: *chamisa* (TAM)

tutayoko / tuyoko (MXT) [**tu tayoco / tu yoco**] *Amelanchier denticulata* (Kunth) K. Koch., ROSACEAE **tayoko**: *deidad, dios / zopilote* (CAB) the etymology may involve **ita** and **yoko**: *tlacuache / tibio, blando / espiga / avispa / panal* (CAB)

tutayu / tutayu kua'a: *palo de zopilote* (PIN) unidentified

tutayu kuichi: *cedro blanco* (PIN)
tutayu kua'a: *cedro rojo* (PIN) possibly *Cedrela odorata* L., MELIACEAE

tnúte'e: *calabaza* (DUX)

tun^{5}tu^{1}te'^{5}e^{5} (YLX) *Coccoloba* sp., POLYGONACEAE The etymology appears to involve a reduplication of the marker 'tree/wood.'

tnutni / tnutni kuisi: *cedro* (TAM) [**tnutni cuisi**]

tutia'a (COI) *Buddleja* sp., SCROPHULARIACEAE [BUDDLEJACEAE]

yutu tia'a / tia'á (PIN) *Cochlospermum vitifolium* (Willd.) Spreng., BIXACEAE
¿Qué no ve que cuando echa semillas parece un bulito [que e]stá? **tia'a**: *bule*
yakua tia'a: *También a éste se le saca fácil la yacua, pero el que es blanco, el rojo, colorado, no sirve, se corta; yo lo ocupaba para amarrar el ajonjolí al cosecharlo.*

tun^{5} tia^{15}vi^{2} (YLX) *Cecropia* sp., URTICACEAE [CECROPIACEAE] Amith & Castillo leave open the possibility that **tiavi** may relate etymologically to **vavi**, which refers to the joints on the stem of various plants.

tutichi: *aguacate* (MIC)
totichí: avocado tree (LAC)
tutichi yuku (COI) *Persea* sp., LAURACEAE *El fruto se come pero es poco gustado por ser dulce.*
tontíchí: avocado tree (ALA)
tutíichí: avocado tree (OCO) [**tutí:chí**]
tnútɨchɨ: *aguacate* (DUX)
tnútɨchuu: *un tipo de árbol, la gente de la región lo llama 'aguacatón'* (DUX)
tutityi: avocado tree (JAM)
tutiti: *Persea americana* Mill., LAURACEAE (KAP)
yutnu tɨchi kastiya: *higuera* (TAM) [**yutnu techi castilla**]
yutnu nda'ya tɨchi / yutnu tɨchi ñuu kuii: *laurel* (TAM) [**yutnundaya techi / yutnu techi ñuu cuij**]
nutityi / tontixi / tontyityi / tnutiki / tnutɨtyɨ / tnuxityi / tuntikyi / tuntityi: *aguacatal* (CAB)

nusidichí: *cuachalalate* (XYA) *Amphipterygium adstringens*
tusi dichi: *cuachalalate* (TON)
tontsidichi: *chacualala* (NGO) [**ton tsidichi**] *Amphipterygium adstringens* (Schldl.) Schiede ex Standl., ANACARDIACEAE *chacualala* may be a typographic error for *cuachalalá*, as this tree is commonly known in Mexico *Para los riñones: se prepara el té con la cáscara de este árbol; se toma en ayunas por una semana.* (NGO)

tnutɨdiko / yuku tɨdiko: [**tnu tedzico / yucu tedzico**] **diko / djiko / jiko / xiko**: *olor agradable o desagradable* (CAB); **isi / xɨdɨ / yisi /**
yuku tɨdiko: *eneldo* (TAM) [**yucutedzico**]

tuntiɨte: *zapotal* (CAB)

nutɨká'á: *palma / palmoreal* (SMG)
yutu tika'a: *palma de coco* (PIN) *Cocos nucifera* L., PALMAE
yutu tika'a chiti: *palma de cuyul* (PIN) *Acrocomia aculeata* (Jacq.) Mart., PALMAE
yutu tika'a ñu'u: *palma de corozo* (PIN) *Attalea cohune* Mart., PALMAE
tutika'a: *el cocotero* (CHY) [**tu ticaha**]
tunduká'á: coconut palm (JAM) Following the prefix **tu-**, used for tree names, the fruit prefix is **ndu-**, rather than **tɨ-**. (Johnson, 1988: 107)
yutnu tika'a kastiya: *nogal* (TAM) [**yutnu ticaha castilla**]
tunka'a / tundɨka'a / yutun tika'a: *cocal, árbol de coco* (CAB)

tnútka'a kuáan: *un tipo de laurel amarillo* (DUX) The marker 'animal/spherical object' appears to be involved in the etymology of this and other Diuxi Mixtec terms.
tnútka'a vídî: *un tipo de laurel* (DUX)
yutnu tika'a danu: *laurel* (TAM) [**yutnuticaha dzanu**]

tnuchka cha'me: probably *Ceiba* sp. (CGM) (described as a tree with spines on the trunk; the immature fruit is eaten raw)

tutikachima (MXT) [**tu-ticachima**] *Ceiba aesculifolia* (Kunth) Britt. & Baker, MALVACEAE [BOMBACACEAE] The etymology may involve **kachi**: 'cotton,' and perhaps **ma'a**: 'raccoon.'

tnutskaka: *uña de gato* (CGM) probably a species in the LEGUMINOSAE [MIMOSACEAE] **tsikaka / tskaka**: *cuervo*

nusikantodo (XYA) *Es una yerba medicinal.* [information provided by a person whose name was not recorded]

nusikava: *ciruelo* (XYA) *Spondias* sp., ANACARDIACEAE

tusikawa limon: *limonero* (XYA or TON; de Leon, 1980)

túnt̲ikăva: *ciruelo* (XOC) probably *Spondias* sp.
Kuunní t̲ikăva kuiy̲a vitin chi íyoní ita túnt̲ikăva. *Los ciruelos van a producir muchas ciruelas este año porque tienen muchas flores.* (XOC)

tun^{5}tia^{15}va^{5} kwa'^{5}a^{1}: *ciruela* (YLX) *Spondias purpurea* L. **kua'a**: 'red'
tun^{5}tia^{15}ba^{5} kwa^{5}an^{2} (YLX) *Spondias purpurea* **kuaan**: 'yellow'
tun^{5}tia^{15}ba^{5} yu^{3}ku^{5} (YLX) *Spondias purpurea* **yuku**: 'of the mountain, wild'

tuntikava: *ciruelo* (AYU; de Leon, 1980)

tukava: *Psidium oerstedianum* O. Berg, MYRTACEAE (SEL) [**tucava**]

yutu tikava: *ciruelo* (PIN) *Spondias purpurea* L., ANACARDIACEAE *Hay de diferente, el amarillo, el colorado, el criollo que le decimos... el café.*

tundukává: plum tree (JAM) Following the prefix **tu-**, used for tree names, the fruit prefix is **ndu-**, rather than **ti-**. (Johnson, 1988)

tutikava: *el ciruelo* (CHY) [**tu ticava**]

tnuticavua: *ciruelo* (TAM)

nusikava / tunsikava / yutun sikava: *naranjal, limar* (CAB)
nusikava ia: *'limar agrio', limonar* (CAB)

tnutskaya: *chupandía* [referring to the plant] (CGM) *Cyrtocarpa procera* Kunth, ANACARDIACEAE **kaya**: *va a abundar / va a toser* (CAB)

nusikaya: *coco, coquito* (XYA) *Cyrtocarpa procera* *Le dicen coquito porque se come lo de adentro de la semilla, es blanco.* 'They call it little coconut because the inside of the seed is edible, it's white [like coconut flesh]'

tnútkéê: *un tipo de arbusto… tiene hojas brillantes. Da pequeñas frutas azules y flores blancas* (DUX)

tnutké: *Comarostaphylis polifolia* (Kunth.) Zuccarini ex Klotzsch , ERICACEAE (SEL) [**tnu-tqué**]

tnotsiki: *cuatololote* (CAB) *cuatelolote: Phyllanthus acidus* (L.) Skeels, PHYLLANTHACEAE*; cuautololote, tololote: Andira inermis* (Wright) DC., LEGUMINOSAE (Martínez, 1979)

tun^{5} ti^{1}kin^{5} (YLX) unidentified species in the BORAGINACEAE **tikin**: 'squash seeds'

tnutskuayú: *árbol de guayaba* (CGM)
tuskuaa: *guayabo* (MIC)
tokuáá: orange tree (LAC) [**tokwáá**]
tutikuaa: *coyotomate* (ZAU) [**tuti cua**] *Vitex mollis* Kunth, LABIATAE [VERBENACEAE]
tutikua xanu (COI) *Litsea glaucescens* Kunth, LAURACEAE The leaves are used to flavor coffee and cooked *silacayote* (*Cucurbita ficifolia*); the epithet **xanu**, 'cigar,' suggests it served to aromatize tobacco formerly.
tutikuaa ndiki (MXT) [**tu ticuantiki**] *Psidium guajava* L., MYRTACEAE
tnútkuee: *árbol cítrico* (DUX)
tnútkuee chína: *naranjo* (DUX)
tnútkuee ndɨû: *un tipo de limonero* (DUX)
tnútkuee ráxa: *un tipo de limonero* (DUX)
tnútkuee vídî: *un tipo de limonero* (DUX)
yutu tikuayu: *guayabo* (PIN) *Psidium guajava* L., MYRTACEAE **yuu**: *piedra ¿Qué no ves que cuando está tierno [el fruto] está duro, pué[s]?*"
yutu tikuayu lekue: *guayaba de conejo* (PIN) probably *Psidium* sp. Synonym: **yutu tikua yukunexu lekue**: *aguado Porque cuando nadie la corta y madura se pone aguado, aguado,* **lekue**.
tikuayu nuni: *guayabillo* (PIN) probably *Psidium* sp. *Mata más pequeña, porque echa la guayabita como granos de maíz. Las tres son medicinales, para golpes, para caldear con hoja del cáncer y cuachalalá.*
tundukuáá: orange tree (JAM) Following the prefix **tu-**, used for tree names, the fruit prefix is **ndu-**, rather than **ti-**. (Johnson, 1988: 107)
tutukuaa iya: *el limonero* (CHY)
tutukuaa kua'a: *el toronjo* (CHY) [**tu tucuaa cuaha**]
tutukuaa sina: *el naranjo* (CHY)
tutukuaa vixi: *el limero* (CHY)
tutukuaa yuu: *el guayabo* (CHY)
tnutikuaa: *naranjo* (TAM) [**tnutiquaa**]
yutnu tikuaa iya kuachi / tikuaa in ndodo: *limon arbol* (TAM) [**yutnutiquaa yya quachi / tiquaa indodzo**] **in**: *uno*; **ndodo / ndojo / ndoso**: *chiche* (CAB)
yutnu tikuaa lima: *lima, arbol* (TAM) [**yutnutiquaa lima**]
nutikuaa / tnukuee / tuntikuaa / trukuaa: *naranjal, limar* (CAB)
nutikuaa iya / tuntikua ia / yunu tikuaaya: *'limar agrio', limonar* (CAB)
tnutɨkuee dijin: *'limar de nariz', limar* (CAB)
tnutɨkuee ndɨu / tuntikuaa ndivi: *'limar huevo', limonar* (CAB)

tnútkuáân: *un tipo de arbusto, nombre científico: Polynnia oaxacana* (DUX) if the taxonomic identification is reliable, this is *Polymnia oaxacana* Schultz-Bipontinus ex Klatt, COMPOSITAE

yutu tikua'ndi: *guamúchil* (PIN) probably *Pithecellobium* sp., LEGUMINOSAE *la vaina:* **tikua'ndi**

tundua tikuanda (MXT) [**tu ntúa ticuanta**] *Leucaena diversifolia* (Lam.) de Wit., LEGUMINOSAE [MIMOSACEAE] **tikua'ndi**: *guamúchil* (CAB)

yutu tikúa: *tamarindo* (PIN)
tundukúva: tamarind tree (JAM) Following the prefix **tu-**, used for tree names, the fruit prefix is **ndu-**, rather than **ti-**. (Johnson, 1988)

tunama: *higuerilla* (TON)
tontsinama: *higuerilla* (NGO) [**ton tsinama**] *Ricinus communis* L., EUPHORBIACEAE
itun tináma / yitun tináma: *higuerilla* (CTZ) **nama**: *jabón, detergente*

tun^{5} ti^{1}na^{3}na^{5} ndu^{3}xi^{5} (YLX) unidentified species in the SOLANACEAE Amith & Castillo have documented four types of **tinana nduxi**, one of which bears edible fruit (marked with the epithet **va'a**, 'good'); the etymology is 'tomato + chicken'

tnútnáñâ: *un tipo de roble* (DUX)
tnútnaña: *cucharal; es de naturaleza caliente; sirve para los dientes que se aflojan* (TIL) *Quercus* sp., FAGACEAE **tanaña / tinaña / tinaña**: *chayotal* (CAB)

tnútndúkû: *un tipo de hierba* (DUX)

tnutsnan: *tempesquistle* (CGM) *Bumelia laetevirens* Hemsl., SAPOTACEAE
tu siniáun: *tempesquistle* (MIC)

nusiní: *venenillo* (XYA) *Thevetia* sp., APOCYNACEAE
tusini: *venenillo* (TON) *Thevetia* sp.
tontsinii: *venenillo* (NGO) *Thevetia thevetioides* (Kunth) K. Schumann, APOCYNACEAE *Los huesos sirven para curar el incordio…* (NGO)

tnutiniñi: *madroño otro mas colorado* (TAM) [**tnu tineñe**] **neñe**: *mazorca ya seca* (TAM)

tun^{5} ti^{1}nu'^{5}u^{5} (YLX) unidentified species **tinu'u**: *amole* [soap plant] (CAB)

tnútndíû: *un tipo de arbusto, sus hojas crecen alrededor de los tallos. Se muelen las hojas… y se usan para curar quemaduras* (DUX)

tutindixi yuku (MXT) [**tu tintishi yucu**] *Oreobatus trilobus* (Seringe) Rydb. [synonym: *Rubus trilobus* Seringe], ROSACEAE **tindixi / tsintsidi / tyindise**: *granada* (CAB)

tnutsindziní / tnutsindzidí: *árbol de granada* (CGM) **ndzidi**: *elote*

tu sioko (MIC) unidentified The marker **ti-** for animals and round objects becomes **si-** in Micaltepec and neighboring dialects

tun^{5}tio'^{1}o^{3} (YLX) *Licania platypus* (Hemsl.) Fritsch., CHRYSOBALANACEAE
tio'o: 'root'
tun^{5}tio'^{1}o^{3} sa^{3}in^{5}: *zapote amarillo* (YLX) unidentified species in the SAPOTACEAE

sain: ‘corncob’

tun^{5}ti^{1}sa^{5}kwin^{35} ña’^{5}nu^{3} (YLX) *Randia tetracantha* (Cav.) DC., RUBIACEAE Amith & Castillo note that the etymology, ‘penis + scratchy,’ appears to refer to the shape of the fruit; **ña’nu**: ‘large [plural]’
ti^{1}sa^{5}kwin^{35} kwa^{5}chi^{3} / tun^{5} (YLX) *Randia armata* (Sw.) DC. subsp. *armata*, RUBIACEAE **kwachi**: ‘small’

tun^{5} ti^{1}si’^{3}vi^{2} (YLX) *Genipa americana* L., RUBIACEAE **tisi’vi**: *escarabajo, mayate* (CAB) Amith & Castillo relate the etymology to **si’vi**, ‘excrement,’ because of the aspect of the pulp and seeds when the ripe fruits land on the ground

yutu tisu’ma: *macuil* (PIN) *Tabebuia* sp., BIGNONIACEAE
tisu’ma: *alacrán “allí sino le puedo detallar [por qué]”*
yutun tisu’ma: *‘árbol de alacrán’, macuil* (CAB)
ndusu’ma / tisu’ma / tundusu’ma / tunsu’ma: *macuil* (CAB)

tontsiditon (NGO) [**ton tsiditon**] *Solanum erianthum* D. Don. [synonym: *Solanum verbascifolium* L.], SOLANACEAE
tnútítnû / tútítnû: *berenjena* (DUX) *... se calientan las hojas… y se ponen encima del estómago empachado* **titno / titon / titun**: *leño, leña*; **titnuu / tyituun**: *carbón*; **titoon**: *gorgojo* (CAB)
tnútitnu: *hierba loca* (TIL) *Solanum lanceolatum* Cav., SOLANACEAE *...es de naturaleza caliente; sirve para caldearse contra dolores del cuerpo* [*caldear* refers to heating the plant and applying it externally to the afflicted part of the body]

tun^{5} tiu^{13}ma^{2} (YLX) *Senna* sp., LEGUMINOSAE (CAESALPINIACEAE)
tiu^{13}ma^{2}: *insecto chico* Amith & Castillo relate the etymology to the small bees that polinize this species.

tutiutia (COI) unidentified species, perhaps in the MYRSINACEAE *Hojas y tallos tiernos se comen crudos.* **tiutia**: *atole*, maize gruel

tuti’vi / nduku ti’vi (COI) *Baccharis conferta* Kunth, COMPOSITAE *Tallos para barrer, hojas medicinales para dolor de muela.* **ti’vi**: to sweep

tusiyatu: *súchil* (TON) *Astianthus viminalis* Baill., BIGNONIACEAE Etymology appears to involve the marker **si-** ‘animal/round object’

tuton ndyi’i: *árbol de viruela* (APO) [**tutonnchi’i**] This species is cited together with **yutu nda’a ndee, tuyoko, tuiña** and **tuiñu di’in** as one of the shrubs, whose wood is flexible and resistant, from which the 13 staffs (*vara cruz*) are fashioned for the incoming *teniente* and *policías* on December 31st (López García, 2007: 148)] **ndyi’i**: *color morado / todo / está bajo / se va a acabar / liso, resbaloso / grano / gordo* (CAB)

tnunimá: *cazahuate* (CGM) *Ipomoea* sp., CONVOLVULACEAE **nima**: *corazón / cera / pluma de ave* (CAB) This may not be a cognate of **nusiu’ma** and **tnútnú’â**.

nusiu'ma: *cazahuate* (XYA) *Ipomoea* sp., CONVOLVULACEAE
tusiuma: *cazahuate* (MIC) **siumi**: tecolote o buho (CAB)
tontsio'ma koo: *casahuate blanco* (NGO) [**ton tsio'ma koo**] *Ipomoea murucoides* Roemer & Schultes, CONVOLVULACEAE **koo**: *serpiente, víbora / se va a desgranar* (CAB) *…las ramas cuelgan dando un aspecto característico como si estuviera sentado, de ahí su nombre en mixteco* **ton tsio'ma koo**…. [this may be a folk etymology] *Para los latidos muy fuertes de las venas: el agüita o jugo que se encuentra en la copita de la flor, calma los nervios o reduce los latidos, se toma el contenido de unas seis copitas cuando uno anda en el campo; en ocasiones produce bostezo y hasta sueño, como que emborracha…* (NGO)
tontsio'ma kuii: *casahuate verde* (NGO) [**ton tsio'ma kui**] *Ipomoea wolcottiana* Rose, CONVOLVULACEAE **Xichonna ton tsio'ma varaton ña kuxiton koño, a ña tuxi ndu toro. Ta ni ichiton xichon naton na nakoko ña'o kuachi ñomiton. Xichonna chiooton ña tuxi nduchi.** *Las varas gruesas se utilizan para hacer barbacoa. También para mojar el frijol y para capar toros. Las mujeres utilizan las ramas secas para prender la lumbre, ya que es un árbol bofo y arde pronto.* (NGO)
tnútnú'â: *casahuate* (DUX) probably *Ipomoea murucoides* Roemer & Schultes, CONVOLVULACEAE

tun^{5}to^{1}ko^{5}o^{25} kwa^{5}an^{2}: *roble* (YLX) *Tabeuia* sp., BIGNONIACEAE Amith & Castillo consider **to^{1}ko^{5}o^{25}** to be the proper, unanalyzable name for *Tabebuia* spp.; **kuaan**: 'yellow'
tun^{5}to^{1}ko^{5}o^{25} nde'^{3}e^{5} (YLX) *Tabebuia* sp. **nde'e**: 'purple'
tun^{5}to^{1}ko^{5}o^{25} ndi^{1}i^{52} (YLX) *Tabebuia* sp. **ndii**: 'pink'

yutu tronjil: *toronjil* (PIN) *Dicen que sí es medicinal*.

tutuka'a (MXT) [**tu tuka'a**] *Litsea glaucescens* Kunth, LAURACEAE
The etymology in this and the following term appears to involve a reduplication of the marker.

tutuku'u (MXT) [**tu tu ku'u**] *Baccharis pteronioides* DC., COMPOSITAE

tun^{5} tu^{15}ni^{5} ku^{13}xi^{2} (YLX) *Leucaena* sp., LEGUMINOSAE [MIMOSACEAE] Amith & Castillo note that the seeds of this and the following taxon are not eaten.
ku^{13}xi^{2}: 'bow [to shoot arrows]'
tun^{5} tu^{15}ni^{5} sa^{5}vi^{5} (YLX) *Leucaena* sp. **savi**: 'of the rainy season,' because this species does not shed its foliage entirely

tun^{5} tu^{1}ni^{52} (YLX) *Trichospermum* aff. *mexicanum* (DC.) Baill., MALVACEAE [TILIACEAE] Amith & Castillo consider **tu^{1}ni^{52}** to be unanalyzable.

tnútnúû / tnúñúû: *un tipo de encino* (DUX)
tnútnúú kue'e: *un tipo de encino rojo* (DUX)
tnútnúú kuíxi: *un tipo de encino blanco* (DUX)

yito tuun / yunu noo: *encino negro* (CAB)

tnunoo: *acahual* (CGM) unidentified species in the COMPOSITAE *Se llenan los terrenos de acahual; se ocupa como pastura y para hacer choza.*
tnunoo kua'a: *acahual rojo* (CGM)
tnunoo kuan: *acahual amarillo* (CGM)
nunu'u: *cahual* (XYA)
nunu'u kua'a: *cahual colorado* (XYA)
tu nu'u: *cahual* (TON) Not *Tithonia* sp. but said to be a similar, smaller species in the COMPOSITAE **ita nu'u** *es la flor*
yita tunuu: *acahual* (ZAU) [**yita tunu**] *Tithonia tubaeformis* (Jacq.) Cass., COMPOSITAE
tnútnu̲'u̲ víta̲: *acahual… el acahual se parece a la hierba* **tnútnu̲'u̲ ndáyu̲**, *nomás que las hojas del acahual son lisas y las de la otra planta son ásperas. Las flores del acahual son redondas y amarillas* (DUX) **vita / wita**: *blando* (CAB)
tnútnu̲'u̲ ndáyu̲: *un tipo de hierba espinosa* (DUX) **ndai / ndayi / ndayɨ / ndayu**: *está rasposo* (CAB)

tutyeje (KAP) *Coccoloba barbadensis* Jacq., POLYGONACEAE [**tu-tyejé**]

nundyitia: *cuajilote* (XYA) *Parmentiera aculeata* (Kunth) Seemann, BIGNONIACEAE
tusinchitiá: *cuajilote* (TON)
tundyitiá: *cuajilote* (MIC)
chîta̲: *mata de plátano* (XOC) [**chi̲ta̲**: *plátano*]
Kuà'ání itún chîta̲ chì'ii̲, ta vitin íyoní chi̲ta̲ ve'ei̲.
Sembré muchas matas de plátano y ahora hay muchos plátanos en mi casa (XOC)
tun chitya: *árbol de plátano* (AYU; de Leon, 1980)
yutu tutita: *mata de plátano* (PIN)
yutu tutita kua'a: *zapote mamey* (PIN) *Pouteria sapota* (Jacq.) H.E. Moore & Stearn, SAPOTACEAE)
yutu tutita tuun: *zapote prieto* (PIN) *Diospyros digyna* Jacq., EBENACEAE
tinyítya̲: *la mata de plátano* (SJC)
tutyitya: *la mata de plátano* (CHY) [**tu tyitya**]
tundyitya: banana plant (JAM)
nutyite / tnutyitya / tuntyitsa: *platanar* (CAB)

4.3.17 Cognate sets and individual terms with initial <**ts**>

tutsa'an (MXT) [**tu-tza'an**] *Cedrela oaxacensis* C. DC. & Rose ex Rose, MELIACEAE
jia'an / tsa'an / xa'an: *huele* (CAB)

4.3.18 Cognate sets and individual terms with initial <**v**>

tonvako: *árbol de café* (CAB)
sivoko / tivako / tsivako / tyivako: *nanche* (CAB)

yutun vati / yutun vatɨ: *toronjil* (CAB)

yutu tuvaxi: *huaje* (PIN) probably *Leucaena* sp., LEGUMINOSAE [MIMOSACEAE]
El de la costa es más dura la vaina. **vaxi**: *la vaina del huaje*
vaxi looks like a direct borrowing from Náhuatl

tuvenenu: *venenillo* (MIC) probably *Thevetia* sp., APOCYNACEAE

tuvichi (MXT) [**tu vichi**] *Juniperus flaccida* Schldl., CUPRESSACEAE

tuvilí / **turrayadu**: *rayado* (MIC) *Ehretia tinifolia* L., BORAGINACEAE
vili: *juguete / bello, bonito, guapo, precioso* (CAB)

tuvini (MXT) [**tu vini**] *Lysiloma acapulcensis* (Kunth.) Benth., LEGUMINOSAE [MIMOSACEAE]

nuvi'ndia: *nopal* (XYA) *Opuntia* sp., CACTACEA
tuvi'india: *nopal* (XYA or TON; de Leon, 1980)
tu vi'ndia: *nopal* (TON) *El que se come no tiene otro nombre.*
tu vi'ndia kuixí: *nopal blanco* (TON) *El que comen los toros.*
tu vi'ndia yuku (TON) possibly *Pereskiopsis* sp., CACTACEAE *Tiene espinas largas y tiene hojitas chiquitas, lo ocupan para cercar. Las hojas no se comen.*
tonvi'ndá: prickly pear cactus (ALA)
tumi'ndya [?] (MXT) [**tu mincha**] *Opuntia tomentosa* Salm-Dyck, CACTACEAE
nuvi'ncha: *tunal* (SMG)
tnúvítnde: *nopal* (DUX)
tun mi'nde: prickly pear (OSP)

tuviña (MXT) [**tu viña**] *Berberis moranensis* Hebenstr. & Ludw., BERBERIDACEAE

tuviñu kuitsi (MXT) [**tu viñu cuitzi**] *Acacia farnesiana* (L.) Willd., LEGUMINOSAE [MIMOSACEAE] **kuisi / kuiti / kuitsi**: *bajo, chaparro / corto* (CAB)
tuviñu ndyai / tuviñu ndyaya [?] (MXT) [**tu viñu nch'ai / tu viñu nchai / tu viñu nchaya**] *Acacia pennatula* (Schldl. & Cham.) Benth., LEGUMINOSAE [MIMOSACEAE] **ndyaa**: *color azul / color gris* (CAB)
tuviñu tsivatu (MXT) [**tu viñu tzivatu**] *Acacia* aff. *cochliacantha* Willd., LEGUMINOSAE [MIMOSACEAE]
tuviñu xi'in (MXT) [**tu viñu shi'in**] *Mimosa lacerata* Rose, LEGUMINOSAE [MIMOSACEAE] **xi'in**: *gotea / está muriendo / pierna* (CAB)

yutu tuvíu: *tanolocote* (PIN) *Porque huele a novia, de fresco no huele; árbol para hacer la ramada cuando se va a casar la novia, porque huele mucho, a los dos, tres días viera cómo huele la hoja. Tamalocote* is an unidentified species of tree in the Jamiltepec district.

yitu vixi: *palo dulce* (ZAU) [**yitu bishi**] *Eysenhardtia polystachya* (Ortega) Sarg., LEGUMINOSAE [PAPILIONACEAE]

tnúv<u>i</u>xy<u>a</u>a: *álamo, literalmente 'árbol de hojas cenizudas'* (DUX) **viji / vixi / viyi**: *hoja* (CAB)
yutnu yaa / yutnu sa'a: *alamo bláco* (TAM) [**yutnuyaa / yutnusaha**]

yutu vokote: *bocote* (PIN) *Cordia dentata* Poir., BORAGINACEAE *Muy buena la madera.*

4.3.19 <u>Cognate sets and individual terms with initial <**w**></u>

yutnu wisi danu: *laurel* (TAM) [**yutnu huisi dzanu**]

4.3.20 <u>Cognate sets and individual terms with initial <**x**></u>

duxa: *todas las clases del incienso* (CGM)
duxa: *chicle* (CGM) This may vary in its tonal pattern from 'incense.'
tuxa: *ocote* (ZAU) [**tuusha**] *Pinus ayacahuite* Ehrenb. ex Schldl. / *Pinus lawsoni* Roezl. ex Gordon / *Pinus michoacana* Martínez var. *cornuta* Martínez / *Pinus michoacana* Martínez forma *tumida* Martínez / *Pinus montezumae* Lamb. / *Pinus montezumae* Lamb. forma *macrocarpa* Martínez / *Pinus oocarpa* Schiede ex Schldl. var. *ochoterenae* Martínez / *Pinus pringlei* Shaw / *Pinus pseudostrobus* Lindl. / *Pinus oaxacana* Mirov [synonym: *Pinus pseudostrobus* var. *oaxacana* Martínez] / *Pinus teocote* Schldl. & Cham., PINACEAE
tuxa (COI) *Pinus* spp., PINACEAE **-xa** appears to relate etymologically to **xuxa**, 'resin,' 'copal'
tuxa xa'un (COI) *Abies* sp., PINACEAE **xa'un**: fifteen; this may have come about through folk etymological reanalysis based on a cognate of **yutnu dañu**: *pino q´ llaman abeto / abeto arbol* (TAM), where **dañu** appears to be a primary lexeme that was the proper name for firs.
tuxuxa (JIC) *Bursera bipinnata* (Sess, & Mociño) Engler, BURSERACEAE
t<u>o</u>xá: *el pino, el ocotal* (CTZ)
x<u>u</u>xa va'a: *copal* (CTZ)
tun^{5} xu^{1}xa^{32} chu'^{15}ma^{2} (YLX) *Bursera* sp., BURSERACEAE **chu'ma**: *sahumar*
t<u>u</u>nxa': pine tree (AYU)
tun suxa: *árbol de copal* (AYU; de Leon, 1980)
tuyutsa: *pinos* (MXT) [**tu yutza**] *Pinus* spp., PINACEAE
tuyutsa kixi (MXT) [**tu yutza kishi / tu yutza kishii**] *Pinus lawsonii* Roezl. ex Gordon **~~kidi~~ / kisi / kixi**: *olla / calentura, reacción del cuerpo por frío o alta temperatura*; **kixin**: *pegajoso / se entume* (CAB)
tuyutsa kua'a (MXT) [**tu-yutza cua'a**] *Pinus pringlei* Shaw
tuyutsa kuitsi (MXT) [**tu yutza cuitzi**] *Pinus oaxacana* Mirov **kuisi / kuiti / kuitsi**: *bajo, chaparro / corto* (CAB)
yutsa vixi: *copal* (MXT) [**yutza vishi**] This term refers to the <u>resin</u> of *Bursera* sp., BURSERACEAE

tuyuxá: pine tree (OCO)
nuyúxá / **chinu** / **nuyúxá chinu**: pitchpine, torchpine, *ocote* (CHA; Macaulay, 1996)
nuyújá / nuyúxá: *ocotal* (SMG)
yuxa ñú'ún: *ocotillo* (SMG)
yuja / yuxa: *hojarasca de ocotal, follaje* (SMG)
nuyuxiá: pine tree (YSN) [**nuyushyá**]
yuxia: *hojas de ocotal* (YSN)
tnúyúxâ: *ocote* (DUX)
Kee xaku duxa ñi̱ tnuyuxa. Xini ñu'u duxatnu xa tenee ndeero nuu ntnukue'e ñi̱ro. *Poco copal sale del ocote. Se usa su resina para pegar la piel donde hay una herida*. (DUX)
tnúyuya: *ocote; es de naturaleza caliente, sirve para el mal aire* (TIL) [**tnú žuža**] *Pinus* sp., PINACEAE **tnúyuya** may be an error of transcription for **tnúyuxa**
chu'xe: pine (OSP) "…plant names with initial **t** or **ch**, from fused **utun** 'tree'…" (Small, 1990, p.405)
sucha: *chicle* (PIN)
tuyusa: *el palo de ocote* (CHY) [**tu yusa**]
yutnu yusa / yutnu ite: *pino* (TAM)
nudusa / nuyuja / nuyuje / tnuje / tnuyuja / tnuyutya / tnuyuxa / tonyusa / tunyuja / tunyujia / tunyusa / tunyutsa: *pino, ocote* (CAB)
yuja / yuje: *'hojarasca de ocotal', cercina* (CAB)
tnuduxa / tnusuxa / tunsujia / tunxuxa: *copalillo* (CAB) probably *Bursera* spp., BURSERACEAE
tnuduje ñu'un: *'copalillo sagrado', copalillo* (CAB)
dusa / **dusa ye'e**: *resina* (TAM) [**dzusa / dzusa yehe**]
dusa dee yutnu: *goma de arboles* (TAM) [**dzusa dzee yutnu**]
dusa tnoo / dusa nikuku: *pez* (TAM) [**dzusatnoo / dzusa nicucu**] *pez* refers to hardened resin, like the kind that is rubbed on violin bows
ita dusa ya'a: *bálsamo* (TAM) [**ytadzusayaha**]
dusa ye'e / dusa iti̱: *trementina* (TAM) [**dzusayehe / dzusaite**] [**yutnu iti̱ / yutnu yusa**: *pino* (TAM)]
iti̱ dusa: *tea de pino* (TAM) [**itedzusa**]
iti̱ kavua: *quando es trasparente* (TAM) [**ytecavua**]
dusa widi / dusa danu: *liquidambar* (TAM) [**dzusa huidzi / dzusa dzanu**] (**sanu / xanu**: *cigarro* (CAB), an indication that the gum of *Liquidambar styraciflua* L. was used by the Mixtec people to flavor smoking tobacco, as reported by 16th century sources on the Mexica in the Valley of Mexico)
dusa wisi: *los árboles silvestres que a la redonda deste pueblo hay son unos árboles gruesos y altos, de que sacan un licor oloroso a manera de resina, el cual licor llaman en su lengua dellos* **zusahuysi** *y, en mexicano,* **suchiocotzotl**, *y en castellano lo llaman liquidámbar* (ACÑ, *Relación de Xicayan*: 309-310) Xicayan is present-day Jicayán de Tovar, municipality of Tlacoachixtlahuaca, Guerrero

tun^{5}xa'^{5}an^{2} bi^{1}xi^{1} ñu^{3}u^{52} (YLX) *Cestrum nocturnum* L., SOLANACEAE Amith and Castillo note that the etymology 'smell sweet night' may be a calque from Spanish.

tuxatu (MXT) [**tu shatu**] *Pinus leiophylla* Schldl. & Cham., PINACEAE

This appears to involve an etymology different from Mixtepec **tuyutsa**, 'pine.'

tun^{5} xa^{15}tun^{5}: *cuartololote* (YLX) *Andira inermis* (Wright) DC., LEGUMINOSAE
xa^{1}tun^{5}: *cajón*

yita tuxaya: *begonia* (ZAU) [**yita tushaia**] *Begonia balmisiana* Ruiz ex Klotzsch, BEGONIACEAE

tun^{5} xa^{1}yu^{5} ndi^{3}ka^{3}chi^{3} (YLX) *Luehea candida* (DC.) Mart., MALVACEAE [TILIACEAE]
xayu: 'scrotum' **ndikachi**: 'sheep' Amith & Castillo explain the etymology by the shape of the fruit.

tuxí'a: *tetatía* (PIN) probably *Comocladia* sp., ANACARDIACEAE

tuxikui (MXT) [**tu shicui**] *Asclepias lanuginosa* Nutt. [synonym: *Asclepias otariodes* auct. non Fourn.], APOCYNACEAE [ASCLEPIADACEAE] / *Plumeria rubra* L., APOCYNACEAE) **dikui / ~~sɨ~~kui / xikui**: *leche* (CAB)
Mixtepec Mixtec also has **ita nuni**: *Plumeria rubra*.

tuxi'in (MXT) [**tu shi'in**] *Mimosa* sp., LEGUMINOSAE [MIMOSACEAE]
xi'in: *está muriendo / gotea / pierna* (CAB)

tun^{5} xi^{15}nda^{5}: *parota* (YLX) *Enterolobium cyclocarpum* Jacq.) Griseb., LEGUMINOSAE [MIMOSACEAE]

tunxiñi / tunxiñu / tunxi~~ñi~~ / tunxii: *palo pie de cabra* (CAB)

(**ita**) **tuxitin**: *flor de tilia* (COI) *Ternstroemia lineata* DC. subsp. *lineata*, PENTAPHYLACACEAE [THEACEAE]) *La flor es medicinal, ingrediente de una infusión para "bilis".* **xitin**: nose

4.3.21 Cognate sets and individual terms with initial <**y**>

tnúyáa: *un tipo de roble… La gente de Diuxi usa mucho los robles para los horcones de sus casas porque son muy duros y resistentes* (DUX)
tnúyáá kuáân: *un tipo de roble amarillo* (DUX)
tnúyáá kuixi: *un tipo de roble blanco* (DUX)
tnúyáá nda'a tkádí: *un tipo de roble, tiene hojas cucharudas* (DUX) **tikadi / ~~tɨ~~kadi / tikasi / tikaxi**: *cuchara* (CAB)
tnúyáá te'e: *un tipo de arbusto* (DUX)
tnúyáá víkô: *un tipo de roble medio cenizo* (DUX) **viko / wiko**: *nube* (CAB)
nuyaa: *encino* (YSN)
nuyajnúú: black oak tree (YSN) [**nuyaNnúú**]
nuyaa jnuu: *encino negro* (YSN) **jnuu**: *negro*
nuyakuáán: yellow oak tree (YSN) [**nuyakwáán**]
nuyaa kuaan: *encino amarillo* (YSN)

cha̲á: oak (OSP) "…plant names with initial **t** or **ch**, from fused **utun** 'tree'…" (Small, 1990, p.405)
yutnu yaa / yutnu yata: *roble* (TAM)
tun yaa / yiton yaa / yutnu yaa: *encino lengua de cabra* (CAB)
nuyaa juaan / tnuyaa kuaan: *encino amarillo* (CAB)
tunyaa kuiji: *encino blanco* (CAB)
tnaa kuiji / tyaa kuixi: *encino blanco* (CAB)
nuyaa kuiyi / tunyaa kuiji: *encino blanco* (CAB)
tyaa ndee / yutun ndei: *encino negro* (CAB)
nuyaa nuu / tnuyaa tnuu: *encino negro* (CAB)
yunu yaa: *encino blanco* (CAB)

tnuyaa: *tepozán* (DAA) [**tnu yaa**] *Buddleja* sp., LOGANIACEAE
yaa: *ceniza / nuevo / lengua / color gris* (CAB) *La hierba es estítica y se considera fresca… En el tratamiento de cortadura: se prepara tres puntas de la planta por medio litro de agua, se pone a hervir, se enfría y se lava la herida una vez al día hasta que sane la herida.* (DAA)
yutnu yaa / yutnu sa'a: *alamo bláco* (TAM) [**yutnuyaa / yutnusaha**]

nuyaa kua'a / nuyakua'a: *cuajiote* (XYA) *Bursera* sp., BURSERACEAE
tuyaa kuixín: *cuajiote* (TON) **kuixín**: white
tuyaa kua'á: *cuajiote* (TON) **kua'á**: red
tu yaa: *cuajiote* (MIC) *Bursera* spp., BURSERACEAE *Hay amarillo y hay rojo.*
tun^{5} ti^{1}ya^{5} i^{1}ni^{53} / tun^{5} ti^{1}ya^{5} ma^{3}chi^{3} (YLX) *Curatella americana* L., DILLENIACEAE
Amith & Castillo do not consider **tiya** to be analyzable; they explain **ini** to refer to a local, more xerophytic type of vegetation, probably conditioned edaphycally; **machi**: *escama*, '[fish] scale'
tun^{5} ti^{1}ya^{5} kwa'^{5}a^{1} (YLX) *Bursera* aff. *simaruba*, BURSERACEAE **kwa'a**: red
The rationale for grouping this species together with *Curatella* appears to be symbolic: Amith & Castillo report that the bark of either species (but primarily *Curatella*) is used in the *cambio de año* [?] ceremony [23.], and in the rituals to cure *espanto*.
tun^{5} ti^{1}ya^{5} nda^{3}kwa^{2} (YLX) unidentified species, possibly in ANACARDIACEAE
tuyaa: *mulato* (PIN) *Bursera* aff. *simaruba* (L.) Sarg., BURSERACEAE The etymology is not transparent to don Pedro López López; pronounced **tuʒaa**.

tun yaa (SEL) *Zinowiewia concinna* Lundell, CELASTRACEAE [**tun-yaa**]

tu yuku yaa: *chilar* (MIC) *Planta de chile*
tun' ya̲'a': chili plants (AYU)
Kosora tun' ya̲'a' te̲ kua̲'nunu̲': He will water the chili plants so that they will grow. (AYU)
tnúyá'a̲: *chile* (DUX)
tnúyuku yá'â: *un tipo de chile amarillo, la gente de la región lo llama 'morongo'* (DUX) probably *Capsicum pubescens* L., SOLANACEAE
yutu tuya'a kuán: *la mata de chile amarillo* (PIN)
tuya'a: chili plants (JAM)

chá'a: chili plant (OSP) "…plant names with initial **t** or **ch**, from fused **utun** 'tree'…" (Small, 1990, p.405)
nukia'a / nuya'a / tnuya'a / tnukui'a / tnuu kuun ya'a / tonya'a / tunya'a / tunyuku ya'a / yitun ya'a / yunu ya'a / yutnu ya'a: *chilar* (CAB)
tia'a: *chilar* (CAB)
ya'a kundi: *chilar* (CAB)
yuku kuya'a / yuku ya'a: *chilar* (CAB)
ita ya'a: *chilar* (CAB)
itu ya'a: *chilar* (CAB)
jikuya'a: *chilar* (CAB)
ki'a / kuya'a: *chilar* (CAB)
nuu kaa tunya'a / nuu nika'ndi ya'a: *chilar* (CAB)

tuya'a (COI) *Clethra mexicana* DC., CLETHRACEAE **ya'a**: *chile / color café* (CAB)
tuya'a (MXT) [**tu-ya'a**] *Bursera simaruba* (L.) Sarg., BURSERACEAE

tun^{5} ya'^{3}a^{5} ke^{5}su^{2} / tun^{5} ndu^{1}u^{5} is^{1}ta^{5} ya'^{3}a^{5} ke^{5}su^{2} (YLX) *Malvaviscus* aff. *arboreus* Cav., MALVACEAE Provides useful bark fiber. **kesu**: 'cheese,' from Spanish *queso*

tu yáká (MIC) unidentified

tuyaka (MXT) [**tu yaca**] *Eysenhardtia polystachya* (Ortega) Sarg., LEGUMINOSAE [PAPILIONACEAE] **yaka**: *polvo / troje* (CAB)

tnúyákû: *un tipo de árbol* (DUX) *…las hojas… son rasposas*
Xakungatnu io : *Este árbol casi se ha extinguido* (DUX)

tuyama itu: *rastrojo* (PIN) dried stems and leaves of *Zea mays*

tuya'mi yutu: *guacamote* (PIN) *Manihot esculenta* Crantz, EUPHORBIACEAE
ya'mi / ña'mi: *camote* (CAB)

tiata: *encino blanco* (ZAU) [**tiâ.tá / tiahta**] *Quercus magnoliifolia* Née, FAGACEAE
tu- appears to become **ti-** before /**i**/ and /**y**/ in this dialect
ata / yata: *antiguo o viejo* (CAB); **yata**: *arado* (CAB)
tiata: *encino chimeco* (ZAU) [**tiâ.tá / tiahta**] *Quercus obtusata* Kunth, FAGACEAE
tuyata (COI) *Quercus* sp., FAGACEAE **yata**: old
tun^{5} tia^{15}ta^{5} kwa^{5}an^{2} (YLX) *Quercus* sp. **kuaan**: 'yellow'
tun^{5} tia^{15}ta^{5} tu^{15}un^{3} (YLX) *Quercus* sp. **tuun**: *prieto*
tuyata: *encino* (MXT) [**tu yata**] *Quercus magnoliifolia* Née, FAGACEAE
yuyata [?] (MXT) [**yu yata**] *Quercus obtusata* Bonpl., FAGACEAE **yuu**: *piedra* (CAB)
yutnu yata / yutnu ndii: *enzina* (TAM) [**yutu yata / yutnundij**]
yutnu yata / yutnu yaa: *roble* (TAM) **tai yata**: [*hombre*] *viejo*
tonyata kusi / tunyata kuiji: *encino blanco* (CAB)
tunyata kuaan: *encino amarillo* (CAB)
tunyata tuun: *encino negro* (CAB)

tunyata / tunñata / tiata: *espino, espinal* (CAB)

tnuyavi / tonyavi: *ágave o magueyales* (CAB) These two forms, for which unfortunately no provenience is indicated, are particularly interesting because they are the only attestation I have found of the use of the marker 'tree/wood' to designate agaves.

tnúyáyu: *un tipo de planta, de hojas rasposas y flores amarillas* (DUX) May be cognate of COI **itia yayu** / TAM **yayu**

niaxín / ñaxín: *jícara* (CGM)
yaxin: *jícara* (CTZ)
yaxin': gourd bowl (AYU)
yajin: *jícara* (SMG)
tuyachi: *palo de jícaro* (PIN) *Crescentia* sp., BIGNONIACEAE pronounced **tuʒachi**
tuyachin (KAP) [**tuyachín**] *Crescentia alata* H.B.K., BIGNONIACEAE
tiyatsi / tiyatsin: *el jícaro* (SJC)
yatsin / yatsi: *la jícara* (SJC)
itun ndiaxi / nuxaxi / nuyaji / nuyaxi / nuyayi / tnuyaji / tnuyaxi / tun exi / tunñaji / tunyaji / tunyatsi / tunyatyi / tunyaxi: *'árbol de jícara', jícaro* (CAB)
***yexĩ'**: *jícara* - gourd (JOS)

nuidi: *palo de aguacate* (XYA)
nuyísɨ́: *el aguacate, aguacatal* (SMG)
tnúyidi: *aguacate* (TIL) [**tnú žiði**] *Persea americana* Mill, LAURACEAE
tnuyisi: *aguacatal* (CAB)
isi / xɨdɨ / yede / yisi / yɨdɨ: *hoja de aguacatal* (CAB) *Es de naturaleza caliente; sirve para alivio* [childbirth?], *presión, arrugas.*

nuyɨkɨ́: *lengua de vaca, árbol* (SMG)
nuyɨkɨ: *lengua de vaca* (CHA)

tnúyɨkî: *un tipo de huizache* (DUX) **yɨkɨ**: *vértice* (CAB); **iki / leke / xɨkɨ / yiki / yɨkɨ**: *hueso* (CAB)
tnúyɨkɨ íñû: *un tipo de planta espinosa* (DUX)
tnuyiki / yunu yiki: *'árbol con hueso', espino, espinal* (CAB)

ton yiko kuaan: *encino amarillo* (CAB)

tu yokó (MIC) unidentified
tuyoko (JIC) *Vismia* sp., HYPERICACEAE [GUTTIFERAE]
tuyoko / tutayoko (MXT) [**tu tayoco / tu yoco**] *Amelanchier denticulata* (Kunth) K. Koch., ROSACEAE **yoko**: *tlacuache / tibio, blando / espiga / avispa / panal* (CAB)
tnúyóko: *un tipo de yagalán* (DUX)
tnúyoko tndɨ́yî: *un tipo de yagalán* (DUX)
tnúyoko víta: *un tipo de yagalán* (DUX)
tuyoko: *arbusto de panal* (APO) This species is cited together with **yutu nda'a ndee, tutonndyi'i, tuiña** and **tuiñu di'in** as one of the shrubs, whose wood is flexible and

resistant, from which the 13 staffs (*vara cruz*) are fashioned for the incoming *teniente* and *policías* on December 31st (López García, 2007: 148)

tnuyoko: *Ceanothus coeruleus* Lag., RHAMNACEAE (SEL) [**tnu-yocó**]

yutnu yoko kuaan: *box arbol* (TAM) [**yutnuyocoquaa**]

nuyoo: *carrizo* (XYA)

tuyoo: *carrizo* (XYA or TON; de Leon, 1980)

tuyoo: *carrizo* (MIC)

tonyoo: *carrizo* (NGO) [**ton yoo**] *Arundo donax* L., POACEAE *Se utiliza para cortar el ombligo del recién nacido: se corta la parte tierna o la punta de la hoja y sale el filo listo para cortar…* (NGO)

tonyoó: bamboo (ALA)

yoó: reed (ALA)

nuyoo: *carrizal* (SMG)

nuyoo: *carrizo* (CHA)

nuyoo: *carrizo* (YSN)

tnúyóô: *un tipo de carrizo* (DUX)

tnúyóó íñû: *un tipo de carrizo espinoso* (DUX)

choo: *carrizo* (OSP) "…plant names with initial **t** or **ch**, from fused **utun** 'tree'…" (Small, 1990, p.405)

tuyoo: *popote* (PIN)

tuyoo: *el carrizo* (CHY) [**tu yoo**]

tnuyoo: *caña* (TAM) attested by **yo tnuyoo / tnuyooiyu**: *caña hueca*

danu yoo / yoo ino / yoo dano: *caña de poquiete* (TAM) [**dzanuyoo / yooino / yoodzano**] This attestation, which alludes to the tobacco-filled reeds of pre-Columbian tradition, is evidence that **yoo** designated *Phragmites* originally, as *Arundo* was introduced by the Europeans.

yoo kuachi / yoo nine: *carrizo* (TAM) [**yooquachi / yoonine**]

nduyoo / nuyoo / tioo / tiyoo / tontioo / tonyoo / tnoyoo / tnuyoo / tunyoo / tyoo / yitno yoo / yiton yoo / yitun yoo / yoo: *carrizal, carrizo* (CAB)

tuyoo (COI) unidentified species in the CELASTRACEAE *Hojas para adornar altares, especie preferida.*

tun yoo: *fresno* (AYU; de Leon, 1980)

tunyo'o: *zacate* (CAB)

tuyoso chu'un / yuku yoso chu'un (MXT) [**tu-yoso chu'un / yucu yoso chu'un**] *Karwinskia humboldtiana* (Schult.) Zucc., RHAMNACEAE

yojo / yoso / xodo: *llano, planicie / metate*; **tyu'un**: *va a quemar / chitextlahua* (CAB)

tnuyu'a: *enebro* (DAA) [**tnu yu'a**] *Juniperus deppeana* Steud., CUPRESSACEAE

yu'a: *hielo, nieve / hilo / espeso* (CAB) This species of juniper is used in the treatment of ailments caused by coldness and *aire*: **Xenie'un xi sa ko'o ñayiwi kida u'u ña'an ndidi, sa kutona ñayiwi tna'an kue'e kaxi, te sa tna'an kue'e**

tachi. Ñayiwi tna'a yunu ya'a ndidaa dene nde duwa'a xi. Ñayiwi tna'an tachi kui'a naku'a xi'in yunu wixi yunu ya'a dene xi'in sañini. kue'e kaxi: *enfermedad de frío, reuma / 'enfermedad de frialdad', catarro, gripe*; **tatyi**: *aire, viento* (CAB) Two kinds of this plant are recognized, one with thorns, the second one without thorns: **Io uu nuu yunu ya'a, in sa io iño te inka sa ña tuu iño. Kada u'u ña'a xi nusa tuni ko'o nuxi. Tawa nu nduko o in ndawa o in sa'a we'e.** (DAA)

tuyuchi (MXT) [**tu yuchi / tu yuchii**] *Fraxinus uhdei* (Wenzig) Lingelsh., OLEACEAE

tnuyuku: *ahuehuete* (CGM)
nuyukun: *sabino* (XYA)
tuyuku: *sabino* (MIC)
tuyuku (MXT) [**tu yucu**] *Taxodium mucronatum* Ten., CUPRESSACEAE
tuyuku: *ahuehuete* (TXA) *Taxodium mucronatum*
nuyúkún: *sabino, pino* (SMG)
nuyukún: cypress tree (YSN)
tnúyújûn: *sabino* (DUX)
tnuyukun: *sabina* (TAM) [**tnuyuq**]
tnuyukun kastiya: *cipres arbol* (TAM) [**tnuyuq castilla**]

tunyúku / tinyúku: *el árbol de aguacate* (SJC)

tnúyuku ñama: *lengua de vaca* (TIL) [**tnú žuku ñama**] *Buddleja* sp., LOGANIACEAE
Es de naturaleza caliente; sirve para anginas, heridas, empacho.
tnúyuku ñámâ: *lengua de vaca* (DUX) **dama / ñama / xama / yama**: *totomoxtle* (CAB)
tnúyuku ñama yúkû: *un tipo de lengua de vaca silvestre* (DUX) *…se hace té de las raíces… y se toma para curar la enfermedad de mal aire*

tnúyuku yaa: *mostazón* (TIL) [**tnú žuku žaa**] *Nicotiana glauca* Graham, SOLANACEAE
Es de naturaleza fría; sirve para los piojos. **yaa**: *ceniza / nuevo / lengua / color gris* (CAB); the epithet seems to refer to the salient glaucous color of the plant

tnúyuku yúu: *un tipo de arbusto… crece de un metro a un metro y medio. Es verde cenizo y muy espinoso. Sus hojas son grandes y redondas* (DUX)
yúkú yúû: *un tipo de arbusto, literalmente 'hierba de cañada'… es espinoso. Sus hojas son muy grandes. Tiene flores moradas que no tienen ningún uso* (DUX) probably *Wigandia urens* (Ruiz & Pavón) Kunth, HYDROPHYLLACEAE

tuyukun: *encino* (XYA or TON; de Leon, 1980)
tu yukun: *encino* (TON)

tundu: *madroño* (COI) *Arbutus xalapensis* Kunth, ERICACEAE
tuyundu (MXT) [**tu yuntu**] *Arbutus xalapensis*
tuyulu: *modroño* (SOT) *Arbutus xalapensis* **yulu** designates the fruit, **tuyulu** the tree
nuyu'ndú: *madroño* (SMG)

tnúyú'ndu: *un tipo de madroño, nombre científico: Arbutus glandulosa* (DUX)
tnúyú'ndu kué'e: *un tipo de madroño rojo* (DUX)
tnúyú'ndu kuíxi: *un tipo de madroño blanco* (DUX)
tnuyu'ndu: *madroño* (TAM) [**tnu yúndu**]
nuyu'ndu / tiu'ndu / tnu'ndu / tnuyu'ndu / tun ñu'ndu / tun yu'lu / tun yu'ndu: *madroño* (CAB)

tnuyutu: *quiote* (CGM) inflorescence of *Agave* spp.
nuyutu: *quiote* (XYA)
tuyutu: *quiote* (MIC)
tnúyútû: *quiote macizo* (DUX)
yutu yáu: *quiote de maguey* (SMG)

tnuyutnu ye'e yuu: *'árbol pie de piedra', árbol de higo de monte* (CAB) probably *Ficus* sp., MORACEAE

tuyuu (KAP) [**tu-yuu**] *Casearia arguta* Kunth, SALICACEAE [FLACOURTIACEAE]

tuyu'u (MXT) [**tu yu'u**] *Quercus candicans* Née, FAGACEAE

tun yuva: *huaje* (AYU; de Leon, 1980)

tuyuxí: *azomiate* (MIC) *Ése lo agarra también cuando se cura la gente, es muy buena para aire.*
ton yuxin: *zomiate* (NGO) [**ton yuxin**] *Barkleyanthus salicifolius* (Kunth) H. Robinson & Brettell, COMPOSITAE **yuxin**: *tortuga del mar* **yudi / yuxi**: *heno, paxtle* **uji / usi / utyi / uxi / yuxi**: *diez* (CAB)
(**ita**) **tuxi** (COI) *Barkleyanthus salicifolius* (Kunth) H. Robinson & Brettell, COMPOSITAE *La flor se usa como adorno para altares.*
toxí / yuku toxí: *el sumiate* (CTZ)
Yuku toxí kúuña xíniñu'un ta níkuati.
El que reza es el que necesita las yerbas del somiate (CTZ)
nuyújí: *chamisal amarillo* (SMG)
nuyúxí: *chamizo* (CHA)
tnútayúxî: *un tipo de árbol, literalmente 'el árbol de la flor del mal de ojo'… Las flores… son amarillas. Se utilizan para limpiar a las personas a las que les han hecho ojo* (DUX) **kue'e ndoko / kue'e ndutyi nuu / kue'e nuu / kue'e tinuu**: *mal de ojos*; **kue'e ndyu'u / kue'e yi'vi / kue'e yu'u**: *enfermedad de susto* (CAB)
tnútaa yuxi: *chamizo blanco* (TIL) [**tnú taa žuši**] *Barkleyanthus salicifolius* (Kunth) H. Robinson & Brettell, COMPOSITAE *Es de naturaleza fría; sirve para catarro, mal del ojo, veneno.*
tnutayuxi: *chamizo blanco* (DAA) [**tnu tayuxi**] *Barkleyanthus salicifolius* (Kunth) H. Robinson & Brettell, COMPOSITAE [(CAB)] *Se utiliza para limpia, cuando se tiene ojo, espanto...*
nuyuji: *chamizal amarillo* (CAB)

This long list is far from exhausting the taxa of plants that are marked with **tun-/tnu-/nu-** in the Mixtec languages. The examples illustrate how the nominal category is simultaneously narrower and broader in its composition than groupings like Tzeltal **te'** (Berlin *et al*., 1974) or Aguaruna **numi** (Berlin, 1992: 173), which seem to correspond more closely to the concept of 'tree' in English or *árbol* in Spanish. It is narrower in the sense that several arboreal species with edible leaves or with perceptually salient flowers are labelled by other markers in Mixtec. It is broader in so much as several shrubs, reeds, large succulents, and even some stout herbs are incorporated into it. Other named groups are similarly ecclectic, as we will now examine with a more limited selection of illustrations.

4.4 The plants labeled **yuku**

Josserand (1983) reconstructed a Proto-Mixtec form ***yuku**, which she glossed as *hierba* in Spanish and 'brush' in English. The latter intepretation seems unwarranted, as several variants of Mixtec have a separate term for 'brush, weeds,' which in Chayuco Mixtec also serves as a generic designation for plants, and perhaps specifically for herbaceous species. Although widespread, this term does not appear to be incorporated into the name for any specific taxon in the documentation that I have been able to review for various dialects:

ku'u: *maleza, monte* (CTZ)
  Xa ndeéní vaxi kua'nu ku'u xa'a yutu. *Ya viene creciendo mucha maleza a la milpa.* (CTZ)
ku'u: brush / weeds (AYU)
kokon: *matorral, maleza, monte espeso o muy frondoso* (SMG)
ku'u: *matorral, zarzal, espesura* (SMG) [**cuhù**]
kú'û: *un tipo de hierba, es alimento para los animales* (DUX)
ku'u: *genérico, por lo usual algo que no se puede comer, pero hay excepciones; no sirve para medicina; maleza* (NUX)
ku'u: *monte* (CHY) [**cùhù**]
  Ku'u kusi tatu taña'a ka djatyiño ñiyɨvɨ: *Es monte donde la gente todavía no ha trabajado* (CHY) [**Cuhu cu si tatu tañaha ca zatyiño ñiyɨvɨ**.]
ku'u: *planta* (CHY) [**cùhù**]
  Ityi ñui kua'a xaan nuu ku'u iyo; iyosi tyaki xaa itasi: *Por mi rumbo hay toda clase de plantas, unas con flores muy bonitas* (CHY) [**Ityi ñui cuaha xaan nuu cuhu iyo; iyo si tyaqui xaa ita si**.]
ku'u: *el monte, el campo* (SJC)
ku'u: *yerua q' nace en herial* (TAM) [**cuhu**]
ku'u / ku'vi / ku'wi: *hierba* (CAB)

Unlike the variation we have noted in the forms that would have originated in the Proto-Mixtec ***yutũ'** 'tree / wood,' the contemporary cognates derived from ***yuku** exhibit more phonological stability in the different dialect areas. Semantically, however, the term can vary significantly; in some variants it incorporates edible greens, in others it appears to have been extended to include plants in general, and even fruits may be labeled 'sweet **yuku**':

yukú / kú: *yerba* (CGM)
yuku: *hoja* (CGM)
yuku xyutnú: *hoja de árbol* [**x**-NOUN: genitive in Chigmecatitlán Mixtec]
i̲ku̲ ta̲chí ná'nú: *orégano* (XOC)
yu̲ku̲: *hierba* (CTZ)
Yíyo kua'a nuu yu̲ku̲: *Hay una gran variedad de hierbas* (CTZ)
yuku̲: *arbusto, hierbas* (SMG)
ti̲yuku̲: *hierbas, plantas* (SMG)
yuku: *hierba, planta* (YSN)
Yuva kuu ~~i̲n~~ yuku ja kuu kajiyo: *El quelite es una planta que podemos comer* (YSN)
yuku kuii: *hierba / verdura* (YSN) **kuii**: *verde*
yúkû: *hierba, es comida para animales / hierbas medicinales* (DUX)
yuku: *algo que sirve para comer o para medicina, pero hay excepciones* (NUX)
yuku vidi: *hierba tibia, hierba caliente* (APO)
Doyuku / **Yodo yuku**: *llano de quelites* (APO)
xuku: *hoja, hierba, monte* (OSP)
xkudavi: *helecho* (OSP) This appears to be an abbreviation of **xuku davi**, 'leaf-rain'; cognate of COI **tiko savi**.
chó'o̲: herb, medicine (OSP)
yu̲ku̲: *las verduras / la hierba, la especia* (SJC) [**yùcù**]
yu̲ku̲ vi̲xi̲: *la fruta* (SJC) [**yùcù vìxì**]
yu̲ku̲: *la hierba* / *las verduras* (CHY) [**yùcù**]
yuku vixi: *la fruta* (CHY)
yuku: *yerua q' se estiéde y echa ojas* (TAM) [**yucu**]
ita: *yerua generalmente* (TAM) [**yta**]
yiku / yuku: *hierba* (CAB)
kivi tatan / yiku tatna / yuku tana / yuku tatan: '*planta medicinal,*' *medicina* (CAB)

The forms **i̲ku̲** in Xochapa Mixtec, **xuku / xku** in Coatzospan, and **yiku** (of unkown provenience, recorded by Caballero, 2008), are the only attestations we have found of phonological modification of Josserand's reconstruction for Proto-Mixtec. The specific taxa that are designated with the class term **yuku** are mostly herbs. Relatively small size, non-edibility of the leaves and inconspicuousness of the flowers seem to be primary traits in assigning plants to this group. Many of the plants in this category are used medicinally. As in the previous section, the examples will be presented in cognate sets ordered alphabetically:

yuku alkanfor: *alcanfor* (DAA) [**yuku alcanfor**] *Achillea millefolium* L., COMPOSITAE
La hierba es simple y se considera caliente… Para heridas: se tuestan las hojas en el comal y las hojas tostadas se remuelen, se ponen en la herida. Mal aire: las hojas se calientan con alcohol y se refriega todo el cuerpo…

yuku anís, *anís* (COI) *Tagetes micrantha* Cav., COMPOSITAE

yúkú chí'~~i̲~~n: *un tipo de hierba medicinal; literalmente, hierba de zorrillo* (DUX)

chisun / yuku chisun: *hierba venenosa* (CTZ) It is not clear whether this term designates poisonous plants in general or a specific kind.

yuku chundini: *hierba del lucero; es de naturaleza caliente y amarga, sirve para el empacho* (TIL) [**žuku ču ndini**] *Brickellia veronicifolia* (Kunth) A. Gray, COMPOSITAE; the bracts that subtend the florets of this species resemble a star when they dry, hence the Mixtec and Spanish names

yúkú chudínî: *un tipo de hierba medicinal, literalmente 'hierba estrella'... Dan flores blancas desde fines de septiembre hasta el mes de noviembre. Se hierven estas hierbas con agua para hacer té para curar el dolor de estómago* (DUX) **tikuxini / tiñuxini / tyudini**: *estrella* (CAB)
ítâ chódínî / ita chúdínî: *un tipo de flor silvestre, literalmente 'flor de estrella'... se utiliza para curar el dolor de estómago* (DUX)

yuku daxin niñi: *medicina para disentería de sangre* (NUX)

kata: *sábila* (NGO) *Aloe vera* (L.) Burm. f., ASPHODELACEAE **kata**: *va a tener comezón / malacate* (CAB) *En el tratamiento de algunos tipos de granos que se infectan: se calienta en la ceniza de la fogata una hoja abierta a la mitad y se caldea la parte afectada ... La flor en botón es comestible. Las flores maduras raspan la lengua si son ingeridas.* (NGO)
kata: *sábila* (MIC)
xku kata: *malanga* (OSP) probably *Xanthosoma* sp., ARACEAE
yuku kata: *yucucata* (PIN) unidentified species, probably an aroid **kata**: *va a tener comezón* (CAB) Various species of aroids have irritating sap due to the presence of calcium oxalate crystals; don Pedro López López confirmed that the etymology relates to itching.
vichi kata: *huichicata* (PIN) *Xanthosoma robustum* Schott, ARACEAE **vityi**: *hoja* (CAB)
yo'o kata: *come mano* (PIN) *Philodendron* sp., ARACEAE **yo'o**: 'vine, rope' This set of cognates is shared by two dialect areas at opposite ends of the Mixtec territory, which have probably been separated historically since the time Proto-Mixtec was spoken.

yuku kue'e dayu: *estafiate* (TIL) [**žuku kwe dažu**] *Artemisia ludoviciana* Nutt., COMPOSITAE *Es de naturaleza caliente y muy amarga, sirve para la diarrea, cáncer.* Piestrzynska records the same Mixtec name for *gordolobo*, which designates *Gnaphalium* spp.: *sirve para el asma, el catarro* **dayu**: *saliva*; **dayu kaa**: *'tos elevada', tosferina* (CAB)
yuku kue'e dayo: *gordolobo* (DAA) *Gnaphalium* sp., COMPOSITAE **kue'e dayu**: *'enfermedad de saliva', tos / 'enfermedad de saliva o de moco', catarro, gripe* (CAB) *Se utiliza para la herida... cólico... gripa... quemaduras...* (DAA)
yuku dayu (ACÑ, *Relación de Justlahuaca*: 289) *...otra yerba, que llaman en su lengua mixteca* **yucuzayu** *y, en mexicano,* **iztauhyatl**, *que, molida y bebida, es muy saludable para las pechugueras* (Juxtlahuaca is a large town in the southern Mixteca Baja in Oaxaca, where Mixtec is still spoken today) **iztauhyatl**, *estafiate*: *Artemisia*

ludoviciana Nutt. subsp. *mexicana* (Willd. ex Spreng.) D.D. Keck, COMPOSITAE **iztauhyatl** (vowel lengths unattested; etymology obscure, possibly involving **iztatl**, 'salt'): *axenxios o asensios yerua* (de Molina, 1571)

yuku dayu: *assencios* (TAM) [**yucudzayu**] *ajenjo*, wormwood: *Artemisia* spp., COMPOSITAE (Martínez, 1979; Real Academia Española, 1992)
yuku dayu kastiya / yuku sa'a / yuku ña'a de'e: *ruda* (TAM) [**yucudzayu castilla / yucu saha / yucu ñahadzehe**]

yuku diko: *'hierba de olor', orégano* (CAB) **diko/djiko/jiko/xiko**: *olor agradable o desagradable*
yuku diko / yuku xiko: *pimienta* (CAB)
ndaa diko: *pimienta* (CAB)
yuve xiko: *'quelite de olor', pimienta* (CAB)

yúkú díni: *un tipo de hierba medicinal… se toma el té para curar el dolor de estómago* (DUX)

yúkú dolór (DUX) *un tipo de hierba medicinal, parece hoja de zanahoria… Las mujeres muelen finamente los camotes… Entonces los ponen en un plato hondo que contiene agua. Los baten para hacer espuma, y ponen la espuma donde le duele al que está enfermo de tristeza y enojo*

yuku ii / ita ii: *toloache* (TIL) *Datura stramonium* L., SOLANACEAE *Es de naturaleza caliente, sirve para el reumatismo, el mal aire* **ii / yii**: *es delicado*; **ii / tii / titi / tyii**: *pequeño* (CAB)

ino: *cigarro* (CGM)
yuku nu (**kuii**): *tabaco* (COI) *Nicotiana* cf. *rustica* L., SOLANACEAE *Se usa para hacer daño mágicamente en la "brujería".* **kuii**: green
yuku nu yuku (COI) *Hemichaena fruticosa* Benth., PHRYMACEAE [SCROPHULARIACEAE]
yuku nu yuku (COI) *Leucocarpus* sp., PHRYMACEAE [SCROPHULARIACEAE]
yuku kuinu na'nu: *tabacón* (TXA) *Nicotiana tabacum* L., SOLANACEAE
yuku inu: *tabaco* (SMG)
yuku inu: *tabaco* (YSN)
inu: *tabaco* (OSP)
inu: *tabaco* (SJC)
ino: *el tabaco* (CHY)
ino / yuku ino: *beleño piciete* (TAM) [**yno / yucuino**]
yuku ino (ACÑ, *Relación de Ayusuchiquilazala*) *tomaban entre los bezos de la boca y los dientes una yerba que llaman ellos en su lengua* **yucuyno**, *y en mexicano piciete* (Ayusuchiquilazala is present-day Santos Reyes Zochiquilazala, municipality of Juxtlahuaca, Oaxaca) **picietl**: *Nicotiana rustica* L., SOLANACEAE (Martínez, 1979)
yuku ino / yuku inu / yuku kuino: *tabaco* (CAB)
nda'a inu / nakuino / nkuino / tainu: *tabaco* (CAB)
[nakuino] jite: *tabaco* (CAB) **jite**: *ancho*
[nakuino] ndute: *tabaco* (CAB) **ndute**: *agua*

***ino**: tobacco (JOS)

yuku íñú: *zarza* (SMG)
yuku iño: *abrojo* (TAM) [**yucuiño**]

yuku ita (ACÑ, *Relación de Justlahuaca*) *una raíz que llaman en su lengua mixteca* **yucuyta** *y, en mexicano,* **suchipatli** [**xo:chipahtli**, 'flower-remedy']*: molida y bebida es provechosa para el dolor de tripas* (Juxtlahuaca is a large town in the southern Mixteca Baja in Oaxaca, where Mixtec is still spoken today)

yuku kaku se'ena (COI) probably *Montanoa* sp., COMPOSITAE **kaku**: 'to be born' **se'e-na**: 'child-3PL,' i.e., 'herb [for] their children [to] be born'

yuku ka'ni: *'yerba caliente', jamaica* (CAB)

kándó'ó: *planta medicinal, yerba de tapón* (SMG) [**cándóhó**]
kando'o: *pitiona* (CAB)
yuku kaa: *pitiona* (CAB)
yuku kando'o / yuku ndo'o: *pitiona* (CAB)

yuku kawa (ZAU) [**yucu caua**] *Calea ternifolia* Kunth [synonym: *Calea zacatechichi* Schldl.], COMPOSITAE
yuku kava (MXT) [**yucu cava**] *Calea ternifolia*
yuku tnúkawa uwa: *hierba de ángel* (TIL) [**žuku tnú kah^{w}a uh^{w}a**] *Ageratina petiolaris* (Mociño & Sessé ex DC.) R.M. King & H. Robinson, COMPOSITAE *Es de naturaleza caliente; sirve para la fiebre, el reumatismo*.
yuku kawa: *hierba de ángel* (DAA) *Eupatorium* sp., COMPOSITAE The majority of the species formerly included in *Eupatorium* are now placed in several other genera. **kava / kawa**: *vesícula / corazón o médula del árbol / tuerce, se enreda / peña* (CAB) *La hierba es amarga y se considera caliente… Para el tratamiento de asma... la reuma... en temazcal...* **Io inka nuu yuku ya'a te dani xenie'un tana xi nu sangui ña da'a.** *Existe una [otra] clase de hierba de ángel, también se ocupa antes del parto, se toma como té una taza para apurar el parto.* (DAA)

yuku kaya (SEL) *Rhus aromatica* Aiton var. *mollis* Ashe, ANACARDIACEAE [**yucucaya**]

yuku kidi: *escobilla* (TIL) [**žuku kidi**] *Gymosperma glutinosum* (Spreng.) Less, COMPOSITAE *Es de naturaleza caliente; sirve para el reumatismo, el hueso quebrado.* **kidji**: *pegamento*; **kidi, kixin**: *pegajoso* (CAB)
yúkú kídi (DUX): *un tipo de hierba, literalmente 'hierba pegajosa'. La gente de la región la llama 'cedrón'…. Son muy pegajosas y sus flores son amarillas. Se hierven y ponen en los pies o en las manos si se han fracturado o torcido*.

yuku kini: *orégano* (CAB)

yuku kɨ'wi / ita kɨ'wi / kɨ'wi ya'a / kɨ'wi kuii: *añir color* (TAM) [**yucuquèhui / itaquéhui / quéhuiyaha / quehuicuij**] *Indigofera suffruticosa* Mill., LEGUMINOSAE

[PAPILIONACEAE]

kɨ'wɨ: *Justicia spicigera* Schldl., ACANTHACEAE (Lucila Franco, Pinotepa de don Luis, Jamiltepec district, Oaxaca, 1983: personal communication)

yuku kolo: *hierba real o hierba del guajolote* (TIL) *Lantana* sp., VERBENACEAE *Es de naturaleza caliente, sirve para la diarrea, el dolor de oído.* **kolo / ko'lo**: *guajolote* (CAB)

yúkú koyótê (DUX) *Un tipo de hierba medicinal… Se hierven con agua… Se toma ese té para curar un ligamento que se ha movido de su lugar en el vientre. Es muy amarga.*

yuku kua'a: *jamaica* (CAB) **kua'a**: red

yuku kuañu'un [?] (ACÑ, *Relación de Tilantongo*) *Y que la enfermedad más común entre ellos es dolor de pechos muy grande, y que se curan con unas yerbas que se dicen, en mixteco,* **yucuquañuu**, *que en mexicano se dice* **iztiquepatli** *y, en castellano, 'medicina fría'.* **kuañu'un**: *tumor, úlcera*; **kueñe/kueñu/kuañi/kuañu**: *ardilla* (CAB); **i:tzticpahtli**: 'cold(adjective)-remedy'

yuku kue'e niin / yuku ndikin: *verbena* (COI) *Lepidium virginicum* L. CRUCIFERAE *Medicinal en infusión para disentería.* **kue'e nii**: '*enfermedad de todo', anemia* **ndikin**: *semillas de chile, tomate, rábano, guayaba, amarando, entre otros* (CAB)

yuku kue'e nii [?] (MXT) [**yucu cue nii**] *Acalypha phleoides* Cav., EUPHORBIACEAE

yuku kue'e ndyiko'o [?] (MXT) [**yucu cue nchico'o**] *Zinnia peruviana* (L.) L., COMPOSITAE) **ndyiko**: *se va a enfriar*; **ndyikoko**: *regresa, voltea* (CAB)

yuku kue'e ndyiko: *hierba recaída* (TXA) [**yuku kue'e nchiko**] *Zinnia peruviana* (L.) L., COMPOSITAE The description of this plant in the original publication only cites localities in the municipality of San Juan Mixtepec, where the information probably originates.

yúkú kue'e xídô (DUX) *un tipo de hierba medicinal, literalmente 'hierba de la enfermedad que hierve'… Se toma té de las hierbas* **yúkú kue'e xídô** *para curar la fiebre amarilla o la tifoidea*

yuku kue'i yaji tii nu'un: *hierba de la muela* (TXA) *Ranunculus dichotomus* Mociño & Sessé ex DC., RANUNCULACEAE **yaji kiti**: *'come animal', comezón*; **tii**: *pequeño / se va a tullir / liso, resbaloso / hombre / estómago*; **tiin**: *uña / sudor / ratón / pepita*; **nu'un**: *diente* (CAB)] *Hay dos clases de hierba de muela, la otra tiene el botón de color morado y sirven para lo mismo.* (TXA)

yuku kuii: *trébol* (DAA) *Melilotus indicus* (L.) All., LEGUMINOSAE [PAPILIONACEAE] **kuii**: *color verde* (CAB) *Crece en los cultivos del chícharo y en las milpas. La hierba tiene sabor estítico y es fresca… Se usa contra el estreñimiento, para bajar la presión...* (DAA)

yuku kuiñu / ita kuiñu: *yerba de la hinchazón* (COI) *~Eupatorium* sp., COMPOSITAE

Hojas medicinales, aplicación cutánea para edema. **kuiñu**: swelling, edema

yu^{1}ku^{1} kwi^{3}ñu^{3} (YLX) unidentified species in the EUPHORBIACEAE **kwi^{3}ñu^{3}**: *hinchazón*

yuku kutu: *chicle* (COI) *Asclepias* cf. *notha* W.D. Stevens, APOCYNACEAE [ASCLEPIADACEAE] *Látex cuajado en un carrizo en el rescoldo del fogón se mastica como chicle.* See similar report for **tayúchî** (DUX) below.

yuku lastrí'i: *cañagria* (SMG) **lastrí'i** may derive from Spanish *rastrojo*

yuku lochi: *huele de noche* (TXA) [**yucuu lochi**] *Cestrum nocturnum* L., SOLANACEAE
lote / lotyi / pilo: *zopilote* (CAB)

yuku ma'a / yuku nda ma'a (COI) *Geranium* sp., GERANIACEAE *Medicinal para bebés*. **ma'a**: raccoon

yuku nata'an: *vergonzosa, no se puede comer, pero sí sirve para medicina* (NUX) probably *Mimosa* sp., LEGUMINOSAE

yuku nii: *hierba de la hemorragia* (TXA) *Bouvardia ternifolia* (Cav.) Schldl., RUBIACEAE
Yee uvi nuu yuku yo'o tia na va'a kutata-na kuu ña tsa'a ita kuaan ka. Cha na va'a kuu ña tsa'nu nuu tukatsi ra na'in kixi xiin. *Hay dos clases, pero sólo sirve una la que se da con flores en forma de plátano y de color amarillo; la que crece en el encino se ve peludita y no se recomienda*.

yuku nú'u si'ina: *diente de perro* (TON) *Datura* sp., SOLANACEAE *"[El fruto de] ése tiene mucha espina."*

no'on tsi'ina [?] **/ tsidaa tsi'ina** [?] **/ yuku tsi'ina / tolvachi**: *diente de perro / chile de perro / hierba de perro / toluache* (NGO) [**no'o tsi'ina / tsidatsi'ina / yuku tsi'ina / tolvachi**] *Datura stramonium* L., SOLANACEAE **no'on / nu'un**: *diente*; **ina / siina / tiina / tsina**: *perro*; **sidaa / tidaa / tisaa**: *pene* (CAB); **to:loa:xihuitl / to:loa:tzin**: *Datura* sp. (de Ávila, 2009) *Las semillas se usan para emborrachar a las personas, para que hablen con la verdad o digan lo que saben acerca de algún robo o pérdida, de algún daño o brujería: se les da a comer siete pares de estas semillas para que se emborrachen bien y empiezan a hablar.* (NGO)

yuku nu'un (COI) *Datura* cf. *quercifolia* Kunth, SOLANACEAE *Semilla enteógena para adivinar; hoja medicinal.* **nu'un**: tooth

yuku nu'un: *yerba de Tlapa* (COI) *Datura stramonium* L., SOLANACEAE *Considerada maleza, conocida como venenosa.*

yúkú núu: *un tipo de hierba alucinante* (DUX)

nu'u: *toloache* (NUX)

yuku nú'u (PIN) *Es una mata de hasta un metro, es curativo, da vaina, se usa como remedio.* **Nú'u** *suena como 'diente'.*

yuku nu'u (ACÑ, *Relación de Mixtepeque*) *género de semilla a manera de semilla de rábanos, que llaman ellos* **yucunuhu**, *y en mexicano llaman* **tlapatli***: esta semilla, molida y bebida, dicen que es buena para mal de todo el cuerpo* (*Mixtepeque* refers to present-day San Juan Mixtepec, Juxtlahuaca district) **tla:pa:tl**: intoxicating plant, also used

medicinally (Karttunen, 1983); *Datura* sp., SOLANACEAE

yuku nuu: *yerua que en beuiendola pierden el juyzio* (TAM) [**yucu nuu**]

yuku nuu ko'o kutu daya / yuku daya / yuku kuvui kutu daya / yuku nakani daya / yuku sinduvui kutu daya: *mandrágora* (TAM) [**yucunucohocutudzaya / yucu dzaya / yucu cuvui cutudzaya / yucu nacani dzaya / yucu sinduvui cutudzaya**]

yuku nuu: *pimienta* (CAB)

yúkú nuu tóto (DUX) *Un tipo de hierba medicinal, literalmente 'hierba cara de roca'… se asan las hojas… para curar granos en la piel de los niños*.

yúkú ndaa'a yáva (DUX) *Un tipo de hierba medicinal, literalmente 'hierba la mano pequeña'… crecen sobre rocas grandes.* **yava**: *almácigo / añejo, viejo, semillas de mucho tiempo / tecolote, búho* (CAB)

iku ndaku / yiku ndaku / yuku ndaku: *orégano* (CAB)

yuku ndau ndute: *hierba de agua* (TIL) unidentified species *Sirve para la diabetes.* **la'vi / nda'u / nda'vi / ta'u**: *pobre de pobreza, de lástima;* **ndusa / nduta / ndute / ndutya / nute**: *agua* (CAB)

yúkú ndáu yuku kée: *hierbas medicinales, medicina tradicional; literalmente, 'hierba pobre, hierba humilde'* (DUX)

yuku ndavua: *borraja* (TAM) [**yucundavua**]

yuku ndavua / yuku yuvui: *saluia* (TAM) [**yucundavua / yucuyuvui**]

yuku ndiava (JIC) probably *Urera* sp., URTICACEAE **ndia'va**: *chinche* (CAB)

yuku ndii (JIC) *Pseudogynoxys chenopodioides* (Kunth) Cabrera, COMPOSITAE *Hojas medicinales para* "*nube*" *y granos ojos.* **ndi'i**: *grano* (CAB)

yuku ntsikanchi: *malva* (NGO) *Malva parviflora* L., MALVACEAE **ndikandii / ñankyii / tyikandyii / xandyii**: *sol* (CAB) *Se usa para la inflamación: se ponen a hervir las hojas con la raíz en una olla de barro y con medio litro de agua y se toma como caldo. Se comen las hojas cocidas, diario, por cinco días.* (NGO)

yuku ndiko ye'e / yuku saa ye'e: *perexil* (TAM) [**yucundicoyehe / yucusae yehe**]

yuku ndisi (ACÑ, *Relación de Zacatepeque*) *Hay otras varillas, que las raíces, molidas y bebidas, son buenas para cualquier enfermedad, en especial para las bubas: llaman la dicha raíz, en su lengua dellos,* **yucudisi** *y, en mexicano,* **ocpatli**. (Zacatepeque is present day Santa María Zacatepec, district of Putla, Oaxaca) **ndede / ndɨdɨ / ndisi / ndixi**: *mezcal*; **ndixi yavi**: *pulque* (CAB); **ocpahtli**: *pulque* remedy

yuku ndiyi: *berenjena* (TXA) [**yuku ntiyi**] *Solanum* sp., SOLANACEAE

yuku ndɨ'i: *la pegajosa* (TIL) [**žuku ndɨʔi**] *Mentzelia hispida* Willd., LOASACEAE

Es de naturaleza caliente y amarga, sirve para granos, mal de orina. **ndii / ndi̵i̵**: *liso, resbaloso*; **ndi'i / ndi̵'i̵**: *está bajo / se va a acabar* (CAB)

yuku ndikin / yuku kue'e niin: *verbena* (COI) *Lepidium virginicum* L. CRUCIFERAE *Medicinal en infusión para disentería.* **ndikin**: *semillas de chile, tomate, rábano, guayaba, amarando, entre otros* **kue'e nii**: *enfermedad de todo, anemia* (CAB)

yuku niki̵n iñu: *hierba del santo remedio* (TXA) *Datura stramonium* L., SOLANACEAE **niki̵n**: *semillas de chile, tomate, guayaba, amaranto, etc.*; **iño / iñu / iun**: *espina* (CAB) *Se usa para saber qué enfermedad tiene la persona…* **Iyo uvi nuu yuku niki̵n iñu, chi iin vi iñu kuijin de inka vi a ni'i, so nuvi-ji nuú tatan nuu kue'i ya'a. Nkuvi ko'o-o yuku ya'a chi jikó xini-on.** *Hay dos clases de Hierba del Santo Remedio, una blanca y otra morada, las dos sirven para lo mismo, esta hierba no se toma porque quedan locos.* (TXA) [24.] The phonological peculiarity /nd/ > /n/ indicates that this information comes from the southwestern sub-area of the Western Alta, in Josserand's (1983) classification of the Mixtec languages.

yuku ndi̵ki̵n: *ceuadilla* (TAM) [**yucudiq**]

yuku ndo'o (ACÑ, *Relación de Justlahuaca*) *Otra raíz de yerbas, que llaman en su lengua mixteca* **yucudoho**, *y en mexicano se llama* **tlacopatli** [**tlaco:pahtli**: 'shrub-remedy']: *esta yerba, molida y puesta en las postemas, las deshace, y las hinchazones madura.* (Juxtlahuaca is a large town in the southern Mixteca Baja in Oaxaca, where Mixtec is still spoken today) **tlacopatle**: *Aristolochia* spp., ARISTOLOCHIACEAE (Martínez, 1979); the species in this genus, however, which grow mostly as vines or lianas, do not seem to fit the Mixtec and Náhuatl etymologies.

yuku ndute: *plantas (comestibles) de agua, berros?* (NUX) Only one of three speakers who were consulted recalled this term, with some uncertainty.

yuku nduvua / ita nduvua ndu'u kastiya / ita ti̵mii kastiya: *manzanilla* (TAM) [**yucunduvua / itanduvua duhu castilla / itatemij castilla**]

yuku ngutu (TIL) *Buddleja sessiliflora* Kunth, SCROPHULARIACEAE [BUDDLEJACEAE] **ngutu**: *toro*

yuku ña'án: *planta narcótica* (SMG)

yúkú ñadi̵'i̵ (DUX): *un tipo de hierba medicinal, literalmente 'hierba mujer'*

yuku ñi'i: *hierba del baño* (TXA) *Monnina xalapensis* Kunth, POLYGALACEAE **i'in / ni'in / ñe'en / ñi'in / ñi̵'i̵n**: *temazcal* (CAB) *Son dos clases, el macho y la hembra; en la hembra las hojas son más grandes y gruesas y la flor es blanca con semilla rojita; las dos se utilizan pero es más buena la hierba del baño macho.* (TXA)

yúkú ñúû: *un tipo de hierba medicinal, nombre científico: Oenothera* (DUX)

yuku ñuu: *palma* (SMG) probably *Brahea* sp., PALMAE
yukuñuu: *palma* (YSN)

Jiin yukuñuu kuu sa'ayo yuu, ndo'o ti lelu: *Con la palma podemos hacer petates, tenates y sombreros* (YSN)

yuku paletaria: *paletaria* (DAA) *Parietaria pensylvanica* Muhlenb. ex Willd., URTICACEAE *La hierba es simple y se considera fresca… En el tratamiento de calentura... Para mal de orines la ocupan agregando otras plantas como chamizo blanco, huele de noche...*

yuku pastor: *hierba del pastor* (NGO) *Acalypha subviscida* S. Watson, EUPHORBIACEAE *Para curar los jiotes de la mano...*

yuku pi'ndu (TON) *Matelea trachyantha* (Greenm.) W.D. Stevens, APOCYNACEAE [ASCLEPIADACEAE] The edible fruit of this plant, which is encouraged to grow in home gardens in Tonahuixtla, is called **pi'ndu** in Mixtec, *pepino silvestre* in Spanish. It is eaten cooked and is sold in the market in Acatlán de Osorio.

yuku romero: *romero* (DAA) *Rosmarinus officinalis* L., LABIATAE *Es una planta caliente y calmante… Se ocupa para el dolor de menstruación y vómito... reumatismo... Sirve para caldeados en falseaduras de vacas o toros.* **Io yuku xii** [sic] **te yuku di'i yuku ya'a. Yuku di'i ku sa sa ni kan'an nu ya'a, te yuku yii xenie'on sa kada tana nu chijuto**: *Se clasifica en romero macho especial para los toros y sirve para el reumatismo en personas, combinado con el romero hembra que ya fue descrito.* **di'i / ~~dɨ'ɨ~~ / si'i**: *mamá, madre*: **yii / ~~yii~~**: *macho / marido, esposo* (CAB)

yuku saa (COI) *Echeveria* sp., CRASSULACEAE *Medicinal en infusión para "sarampión".*

yuku San Jose (TON) *Datura* sp., SOLANACEAE The description indicates that the fruits are smooth, without thorns; said to be similar to **yuku nú'u si'ina**, *diente de perro, "ése tiene mucha espina... la semilla de la yerba de San José se muele y se toma con la flor de Guadalupe.*" The description of the latter matches *Brugmansia* sp.

nuu San José: *diente de San José* (MIC) *Datura* sp. *Tiene su bolita, hay dos, uno tiene su espina, otro liso; las semillas del liso las daban a tomar cuando alguien le robaba a uno, para ver quién había robado, pero con medida, si tomaba uno de más se volvía uno loco.*

yuku sata (COI) *Bidens odorata* Cav., COMPOSITAE **sata**: *paloma / espalda* (CAB)
yuku satá: *clase de hierba que da florecita blanca; la comen los animales* (CHA)

tiko savi: *chicosabi* (COI) This term designates most ferns in Coicoyán Mixtec; the etymology of **tiko** is obscure to my consultants, while **savi** refers to the rain.
yuku savi (MXT) [**yucu savi**] *Llavea cordifolia* Lag., PTERIDACEAE
xkudavi: *helecho* (OSP) This appears to be a contraction of **xuku davi**, 'leaf + rain'.
dukua davui: *polipodio* (TAM) [**dzucuadzavui**] probably *Polypodium* sp., POLYPODIACEAE
dukua davui / yuku dukua davui: *doradilla* (TAM) probably *Selaginella* spp., SELAGINELLACEAE

yuku dukua davui: *culantrillo de pozo* (TAM) [**yucudzucuadzavui**] probably *Adiantum* sp., PTERIDACEAE
yuku sawi takuii: *algas* (CAB) **takuii / tikuii**: water

yuku sayu: *gordolobo* (TXA) *Pseudognaphalium oxyphyllum* (DC.) Kirp. [synonym: *Gnaphalium oxyphyllum* DC.], COMPOSITAE **dayu / deye / sayu**: *saliva*; **sayu takyi / sayu xaan**: *tosferina* (CAB)
yuku sa'a / yuku ña'a de'e / yuku dayu kastiya: *ruda* (TAM) [**yucu saha / yucu ñahadzehe / yucudzayu castilla**] **yucudzayu** appears to be a cognate of TXA **yuku sayu**

yuku sayu: *hierba de la cucaracha* (TXA) *Mandevilla foliosa* (Muell. & Arg.) Hemsley, APOCYNACEAE

yuku siko kiti (ACÑ, *Relación de Mixtepeque*) *hay otra yerba, que llaman ellos en su lengua* **yucusicoquity**, *y en mexicano llaman* **yepatzin***: esta yerba, molida y untada alguna hinchazón con ella, se deshincha y quita el dolor* (*Mixtepeque* refers to present-day San Juan Mixtepec, Juxtlahuaca district) **diko / jiko / xiko**: *olor agradable o desagradable*; **kisi / kiti / kitsi / kityi / ~~k~~iti**: *animal* (CAB); **epatzin / yepatzin**: 'little skunk'; **epatl**: *cierto animalejo que hiede mucho* (de Molina, 1571)

yuku stáa iñú: *clase de enredadera en la milpa, la punta se come, se cuece en el comal; la comen los animales* (CHA) The etymology appears to be 'tortilla + thorn;' this plant would be expected to be labeled **yua**.

yuku su'ma ~~t~~iñi: *clase de planta* (CHA) *Cuphea* sp., LYTHRACEAE The etymology is 'tail + mouse.'

iku tachí ná'nú: *orégano* (XOC) **tachí**: *aire, viento*; **ná'nú**: *grandes*
yuku tachi kruxi: *hierba de conejo* (TIL) [**žuku tači kruši**] *Pherotrichis mixtecana* Brandegee, APOCYNACEAE [ASCLEPIADACEAE] *Es de naturaleza caliente; sirve para el mal aire* **takyi / tati / tatsi / tatyi**: *aire, viento* (CAB)
yúkú tachi kuíxi (DUX) *un tipo de hierba medicinal… es pequeña y blanca. Se tuestan y muelen los camotes de esta hierba. Se ponen en aguardiente, y se toma cuando entra aire en el vientre de una persona por no haber comido durante mucho tiempo*
yúkú tachi tnútayókô (DUX) *un tipo de hierba medicinal, literalmente 'hierba del aire de árbol de flor de vapor'*
yúkú tachi tnúu (DUX) *un tipo de hierba medicinal, literalmente 'hierba de aire negro'… son pequeñas y su camote es oblongo. Los camotes se tuestan y se muelen, se echan en aguardiente y se toma cuando entra aire en el vientre de una persona por no haber comido durante mucho tiempo*
yuku tachi: *valeriana* (DAA) The *Flora Medicinal Mixteca de San Pedro Tidaá* (n.d.) identifies this plant as *Valeriana* sp., CAPRIFOLIACEAE, but the accompanying drawing and physical description, which emphasize a large bulb and simple oblong leaves, do not seem to correspond to that genus: *Es una hierba, mide 50 cm de altura aproximadamente, con camotes de 20 cm, picoso, el tallo es peludo y sin espina. Hojas larguitas, anchas y verdes, nacen desde el camote. Las flores son blancas,*

primero los botones, cuando se abren tienen la forma de estrella... Todo el año hay camotes, porque las hojas se secan... Se considera caliente… Para cuando una persona está nerviosa... Desinflamar heridas...

yuku tachi kuijin: *camote de conejo* (TXA) *Asclepias glaucescens* Kunth, APOCYNACEAE [ASCLEPIADACEAE] **kuichin / kuiji / kuixi / kuxin**: *blanco* (CAB) *Sirve para curar el aire... El aire viene por espanto de monte o porque sale uno de noche y nos pega el aire, o pasa uno donde se murió una persona o también donde ve uno un muerto o cuando pasa uno en un panteón.* (TXA)

yuku tatyi: *'yerba de malaire', albahaca / ruda* (CAB)
yuku tatyi wa'a: *albahaca* (CAB)

yuku taxi kuali: *orégano* (CAB) **kuali / kuatyi / kuetsi**: *pequeño* (CAB)

yuku taja: *hierba del rayo* (TXA) *Parietaria pennsylvanica* Muhl. ex Willd., URTICACEAE **taja / tasa / tatya / taxa**: *rayo* (CAB) *Para curar de nahual: se muele toda la planta y se hace una masa y se unta en todo el cuerpo como baño… Cuando cae un rayo cerca de la casa y truena, se escucha muy feo y de ahí les pega la enfermedad…* (TXA)

yuku tamarreál (DUX): *tamarrial, medicinal… el camote… se parece al camote del lirio. Se tuesta en el comal y se muele. Se pone este polvo encima de una herida. También se puede hervir y usar el agua para lavar una herida.*

yuku tamorreal: *itamorreal* (DAA) *Potentilla* aff. *staminea* Rydb., ROSACEAE *Tamarrial* and *itamorreal* are derived from *díctamo real*; Martínez (1979) recorded a number of species in the Compositae, Ephedraceae, Passifloraceae, Polypodiaceae, Smilacaceae and Turneraceae under these names in various parts of Mexico, but did not cite any member of the Rosaceae. *Díctamo* is the Peninsular Spanish form of Latin *dictamnus* and Greek *δικταμνον*, dittany, a monotypic genus in the Rutaceae found in Central and Southern Europe to Northern China (Mabberley, 2008). *La hierba es amarga, se considera caliente… En el tratamiento de heridas... tos... golpes... Existe otro itamorreal como el de venado, sirve para la herida* (DAA)

yuku tami: *orégano* (CAB) **tami**: *fragante, buen olor, perfumado*

yuku tanaña: *clase de planta que huele un poco como lavanda* (CHA)

yuku tatna ruda: *ruda* (TIL) *Ruta chalepensis* L., RUTACEAE *Es de naturaleza fría; sirve para sordera, fiebre, [cuando la criatura] no quiere nacer, mal aire, veneno*
kivi tatan / yiku tatna / yuku tana / yuku tatan: *'planta medicinal', medicina* (CAB)

lura / yuku lota / yuku loto / yuku luta: *ruda* (CAB)

yuku taxini: *pericón* (TXA) *Tagetes lucida* Cav., COMPOSITAE **taxini**: *sombrero* (CAB), but the etymology probably involves **ita** and **xini**: *cabeza / orilla, lado, de lado / va a saber / se va a emborrachar / en la tarde* (CAB); this species is reputed to have been used as an enthogen (Ott, 2004).

yuku tayoko: *cinco negritos* (TXA) *Lantana camara* L., VERBENACEAE

tayoko: *deidad, dios / zopilote* (CAB), but the etymology may involve **ita** and **yoko**: *menor en edad / hija / tlacuache / tibio, blando / rinde, abunda / avispa / panal / vapor* (CAB) The description of this plant in TXA only cites localities in the municipality of San Juan Mixtepec as its area of distribution, where the information probably originates.

yuku táyóó: *malva, planta medicinal* (SMG)
yua táyóó: *violeta* (SMG)

yuku tayoo: *malva* (DAA) **Nuu in ñayiwi ni nakadi xi, tnii nu in ta'wi yuku kuii ya'a xi'in yuku tayoo te tastuu nu xi nuu in kidi ndute sa na ndu'a xi, dakee ni'nu nu xi te tastuu nuxi yawi diuluchi sa kuechi o dani nusa ku ñayiwi tne'nu.** *…se ocupan 20 gr de trébol y 20 gr de malva en 1 litro de agua, se hierve, se cuela y se pone lavado rectal, se ocupan 40 gr de trébol y 4 gr de malva, se hierve en 4 ó 5 litros de agua y se pone baños de asiento.* (DAA)

yuku ta'yu (ACÑ, *Relación de Justlahuaca*) *otra planta que llaman* **yucutayu**, *que, molida y puesta en alguna llaga, la sana, la cual yerba llaman en mexicano* **palancapatli** (Juxtlahuaca is a large town in the southern Mixteca Baja in Oaxaca, where Mixtec is still spoken today) **ta'yu**: *se va a podrir* (CAB); **pala:nca:** one's rottenness; **pala:nca:pahtli**: name of several medicinal plants (Karttunen, 1983) *palancapatle*: *Grindelia inuloides* Willd., COMPOSITAE / *Cineraria vulneraria* Alam. ex DC. [synonym: *Senecio vulneraria* DC.], COMPOSITAE / *Solidago velutina* DC., COMPOSITAE (Martínez, 1979)

yuku tiaka: *palo de pescado* (ZAU) [**yucu tiahcá**] *Solanum erianthum* D. Don. [synonym: *Solanum verbascifolium* L.], SOLANACEAE From the point of view of its growth habit, as indicated by its vernacular Spanish name, this species would be expected to be labeled **tu-**, but it appears to be ascribed to the **yuku** category because of the use of its foliage as a fish poison, documented by Casas, Viveros & Caballero (1994: 123).

xku tde'en: *hoja de higuerilla* (OSP) The etymology appears to involve the marker 'animal / round object'

yuku ~~t~~diko: *eneldo* (TAM) [**yucutedzico**]

tnu~~t~~diko / y~~i~~di no'on / yuku ~~t~~diko: *hinojo* (TAM) [**tnu tedzico / yedze noho / yucu tedzico**]
diko / djiko / jiko / xiko: *olor agradable o desagradable* (CAB); **isi / x~~i~~di / yisi / yixi / y~~i~~di**: *hoja de aguacatal* (CAB); **noho**: diente (TAM)

yuku tii (ACÑ, *Relación de Xicayan*) *hay otra yerba que llaman* **yucutihi**, *que llaman en mexicano* **coazihuizpatli***: esta yerba, molida y puesta en las coyunturas, el que estuviere tullido y con dolores, se le quitará y sanará con ellos* (Xicayan is present-day Jicayán de Tovar, municipality of Tlacoachixtlahuaca, Guerrero) **ndiyi / tii / tiyi / ~~t~~iyi**: *se va a tullir* (CAB); **coaciuhqui**: *gafo, gotoso, perlático o tollido*; **coaciuiztli**: *gota, o perlesia* (de Molina, 1571)

yuku tikadi / yuku tuchi: *llantén* (TAM) [**yucuticadzi / yucu tuchi**] **tikadi / ~~t~~ikas~~i~~ / tyikasi**: *cuchara* (CAB) *lantén, llantén*: *Plantago* spp., PLANTAGINACEAE (Martínez, 1979)

yuku sikandyii: *malva* (MIC) probably *Malva rotundifolia* L., MALVACEAE
Está como de lache [i.e., *alache, Anoda cristata*]... *es buena para calor, acá lo conoce uno como remedio pero en México lo comen*. **ndyikandyii**: *sol* (CAB)

yúkú tkátnû (DUX) *juncos, bejuco; literalmente, 'hierba de nudo'*

yuku tikatuu (COI) *Trigonospermum melampodioides* DC., COMPOSITAE
tikatun: *término que alguna variante asigna a número* [?] (CAB)

yuku tikayo (COI) *Helianthemum glomeratum* (Lagasca) Lagasca ex Dunal, CISTACEAE *Medicinal aplicada sobre quemadas, tostada y molida.*
tikayu: *carbón / chicharrón* (CAB)

yúkú tkúâ (DUX) *un tipo de hierba medicinal, literalmente 'hierba de mariposa'. La gente de la región la llama 'hierba de mariposa'*

yuku tiliyi: *flor de sapo* (TXA) *Oenothera rosea* L'Hér. ex Aiton, ONAGRACEAE *Hay dos clases de Flor de Sapo, blanca y rosa; las dos sirven para el mismo uso.* **tiliyaa**: *lagartija* (CAB)]

yuku tɨluu: *clase de planta que da florecita blanca* (CHA)

yuku tinaña: *sonajilla* (COI) *Lepechinia* sp., LABIATAE

tilastún: *mora semejante al tomate* (CTZ) The phonological variability in this set is puzzling and they may not all be cognates, although they seem to refer to the same two or three related species in the nightshade family.
pi'^{1}la^{5}xi^{132} (YLX) *Jaltomata* cf. *procubens*, SOLANACEAE
ndirastun: *tindaso* (COI) *Jaltomata procumbens* (Cav.) J.L. Gentry, SOLANACEAE
Fruto dulce se come crudo. The local Spanish name appears to have been borrowed from another Mixtec dialect.
tindasu'u kuachi (MXT) [**tintazu'u cuachi**] *Solanum americanum* Mill., SOLANACEAE
tindasu'u na'nu (MXT) [**tintazu'u nanu**] *Jaltomata procumbens* (Cav.) J.L. Gentry, SOLANACEAE
yuku tinesun: *hierba mora* (TXA) [**yuku tinesum**] *Solanum americanum* L., SOLANACEAE *En el tratamiento de la disípela… La disipela se presenta por susto y mal aire… De esta hierba existe otra parecida con el nombre de tileso o hierba de disípela, pero no es tan recomendable…* **va'a ka yuku yuve tinesun**: *También es comestible*.
tileso: *tileso* (SOT) *Jaltomata procumbens* (Cav.) J.L. Gentry, SOLANACEAE
tɨlaxún kuáñú'ún: *planta del género como la hierbamora* (SMG) **kuáñú'ún**: *infectado, ulcerado*
tɨlaxrnú: *clase de fruta comestible que da una planta de flor blanca; se parece al miltomate, antes se ocupó para hacer salsa* (CHA)
tɨlaxrnu kuañu'u: *hierbamora; clase de planta que se ocupa la flor para quitar el mezquino; su fruta no es comestible* (CHA)

tndédo: *un tipo de hierba… crecen hasta treinta centímetros de altura, su pequeña fruta es suave, y la cáscara es delgada, es azul, dulce y comestible* (DUX) possibly *Jaltomata procumbens*
yuve tinesu: *yerbamora* (CAB)

yuku tinuu (JIC) *Lantana camara* L., VERBENACEAE **tinuu**: *ojo* (CAB)

yuku tindaku (COI) *Gaultheria* sp., ERICACEAE *Fruto se come, es apreciado.* **tindaku**: *gusano / lombriz / escoba*; **ndaku**: *nixtamal / pozole* (CAB)

yúkú tndíɨyî (DUX) *un tipo de hierba medicinal… son útiles cuando la gente padece de fiebre* **ndɨyɨ**: *grano / se va a quemar / es friolento* (CAB)

yuku tindu'u: *clase de planta* (CHA)

yuku tiñeñe: *yerua mora* (TAM) [**yucu ti ñeñe**]

yuku tiñoo / yuku yaa: *cerraja, yerua* (TAM) [**yucutiñoo / yucuyaa**] probably *Sonchus oleraceus* L., COMPOSITAE

yuku tiñu'u [?] (ACÑ, *Relación de Justlahuaca*) *Hay otra raíz de yerba, que llaman en su lengua mixteca* **yucutñuhu** *y, en mexicano,* **tlacohuiltequizpatli***; esta raíz, molida, y desleída y bebida, es muy saludable para el dolor de costado, y, untado con ella donde se tiene el dolor, es muy saludable.* **tiñu'u**: *tuza*; **tiñu'un**: *mar / chintextlahua / se va a gastar o desaparecer / colmena / higo* (CAB); *chintextlahua* probably refers to the black widow spider (*Latrodectus mactans* Fabricius, THERIDIIDAE) , known as *chintatlahua* in the Valley of Oaxaca. The etymology of the Náhuatl name cited in the *Relación* is uncertain; it seems to involve **tlaco:tl**: *vara*, and (**tla**)**huiltequi**: *atajar, o yr por camino más breue, o atravesar* (de Molina, 1571); alternatively, the verbal root may have been **hui:tequi**: to whip, beat someone (Karttunen, 1983), in which case **tlaco:hui:tequizpahtli** would be read as 'shrubby remedy to whip (the patient).' In neither case do the Mixtec and Náhuatl etymologies seem to match, unlike other plant names in the 16th century *Relaciones*.

yuku tiojo (KAP) *Tournefortia hartwegiana* Steud., BORAGINACEAE [**yucu-tiojo**]

yuku tioo yuku (COI) *Passiflora* sp., PASSIFLORACEAE *El fruto se come ocasionalmente, aunque es agrio.*

yuku tisa'a kuachi: *hiedra* (TXA) *Psittacanthus calyculatus* (DC.) Don, LORANTHACEAE **Iyo uvi nuu yuku tisa'a, de yatin nuu iyo-jo, so mevi-ji tatan nuu kue'i káyu. Suni tata dayuku ya'a nuu no'o ña'an kue'i niñɨ xeen.** *Existen dos clases de hiedra, la hiedra verde es en la misma forma que la otra, pero ésta es toda verde, las flores verdes pero cualquiera de las dos hiedras sirve para lo mismo*.

yuku tisi'i: *yerba de coraje* (PIN) *Un bejuco curativo, lo hierven, lo muelen y se toma con*

un poco de aguardiente o mezcal, no tiene flores. **tisi'i**: *coraje*

yuku tiso'ma: *pescadilla* (ZAU) [**yucu tisó'ma**] *Zanthoxylum arborescens* Rose, RUTACEAE) From the point of view of its growth habit, as indicated by the Latin epithet, this species would be expected to be labeled **tu-**, but it appears to be ascribed to the **yuku** category because of the use of its foliage as a fish poison, documented by Casas, Viveros & Caballero (1994: 123) **lasu'ma / ndidu'ma / tiji'ma / tiso'ma / ~~t~~idu'me / ~~t~~isu'ma**: *alacrán* (CAB)

yuku titeya: *hierba de la cucaracha* (TXA) *Petiveria alliacea* L., PHYTOLACCACEA *Esta planta sirve para las sarnas y hongos de los pies: se muelen las hojas y se aplica levemente a la parte afectada…* **Va'a xeen yuku yo'o ña ka'ni tite'ya**: *Las hojas crudas de esta planta se muelen con el nixtamal y se obtiene una masita verde, ésta se pone en las rendijas de las casas y acaba con las cucarachas.* **tite'ya**: *cucaracha* (CAB) The description of the plant in TXA only refers to localities in the municipality of Mixtepec.

yuku ~~t~~iwi: *estrellera yerua* (TAM) [**yucu tehui**]

yuku tsixin'i [?]: *hierba mora* (NGO) [**yukutsixin'i**] *Solanum americanum* L., SOLANACEAE **tixi'i / ~~t~~idi'~~i~~ / ~~t~~isi'u**: *calambre* (CAB) *Para curar la discipela roja: se prepara una masa con las hojas de la planta y se aplica. Sirve para los granos infectados…* **Kui kuxindo nda'axi tata yua**. *También se comen las hojas como quelite.* (NGO)

yuku ~~t~~iyeye: *palma otra* (TAM) [**yucute yeye**]

yúkú tn<u>a</u>n<u>i</u> ñú'<u>u</u> (DUX): *un tipo de hierba, literalmente 'hierba zoyate de tierra'… Se muelen sus hojas y se ponen en una herida. Las flores y la hojas se hierven y se toma el té para curar el dolor de estómago, para curar la diarrea o el paludismo… Además, es bueno que una señora lo tome cuando tenga problemas al dar a luz.* The term *soyate* in this context refers to the belt of plaited palm (called **tnani** or a cognate in Mixtec) to keep the belly tightly bound, a habit that is believed to maintain the woman's health and fertility.

yuku tnumi yo'o: *oregano* (TAM) [**yucu tnumi yoho**]

yuku too: *hierba de la cuarta* (TXA) *Stevia* sp., COMPOSITAE *Sirve para latido y para empacho...* **Oo uu nuu yuku too ya'a, iin oo yo'o chii ñu'u, te inka jaa oo kunu yo'o, te iini nuu tatna-i**. *Hay dos clases de* **yuku cuarta**, *una que tiene raíz por abajito de la tierra y otra que tiene la raíz más profunda, las dos sirven para lo mismo.* **too**: *medida del dedo pulgar hasta el dedo índice* (CAB)

yuk<u>u</u> t<u>u</u>chi: *valeriana?* (CHA)
yuku tuchi: *simonilla* (DAA) *Conyza filaginoides* (DC.) Hieron., COMPOSITAE *La hierba es amarga, se considera caliente… Se ocupa para la bilis, para el dolor de cólico, dolor de estómago y diarrea.*

yuku tuchi: *altamisa* (TIL) [**žuku tuči**] unidentified species *Es de naturaleza caliente; sirve para los cólicos menstruales, la sangre pegada. Altamisa*: *Ambrosia artemisiifolia* L., *Parthenium hysterophorus* L., *Zaluzania triloba* (Ortega) Pers., COMPOSITAE (Martínez, 1979)

yúkú túchi (DUX): *un tipo de hierba medicinal; literalmente, 'hierba de tendones'… Se toma el té para curar un ligamento que se ha movido de su lugar en el vientre. Son amargas*.

yuku tuchi (ACÑ, *Relación de Justlahuaca*) *otra raíz de yerbas que, para dolor de ombligo, bebida, es muy buena, la cual llaman en su lengua mixteca* **yucutuchi** *y, en mexicano* **tlalhuapatli** **tutyi**: *vena, nervio, cartílago* (CAB); **tlalhua-**: *tendón, nervio*; **pahtli**: *medicina generalmente, emplasto, ungüento* (de Molina, 1571)

yuku tuchi / yuku tikadi: *llantén* (TAM) [**yucu tuchi / yucuticadzi**] *lantén / llantén*: *Plantago* spp., PLANTAGINACEAE (Martínez, 1979)

yuku tu'un (COI) *Eryngium gracile* Delaroche, UMBELLIFERAE *Raíz medicinal para "tristeza", "biliosos".* **tu'un**: *solo, solito* (CAB)

yuku xinde'e (COI) *Lopezia racemosa* Cav., ONAGRACEAE

yuku xintsii: *hierba de muerto* (NGO) [**yuku xi ntsii**] *Lepidium virginicum* L., CRUCIFERAE **ndii / ndɨyɨ / ntsii**: *difunto* (CAB) *Sirve para los jiotes en la cabeza, en la cara o en las manos: se muelen las hojas y se aplica sobre las manchas.* (NGO)

yuku xnuu (JIC) *Salpianthus arenarius* Kunth, NYCTAGINACEAE *Medicinal para "hinchazón" de los niños*. **xnu'un**: *paludismo* (CAB)

xku xte'en: *cilantro cimarrón* (OSP) The label **ve-** (cognate of **yuva**) might be expected for this species, but in Coatzospan Mixtec it appears that only the greens that are eaten cooked are assigned to that nominal category, while the taxa eaten raw like **xku ndudu** and presumably **xku xte'en** are marked simply as herbs.

yuku yaa: *estafiate* (SMG)

yuku yaa: *espule* (TIL) [**žuku žaa**] *Pinaropappus roseus* (Less.) Less., COMPOSITAE *Es de naturaleza fría y amarga; sirve para el sarampión* **yaa**: *ceniza / nuevo / lengua / color gris* (CAB); the epithet seems to refer to the glaucous coloration of the plant

yúkú yaa (DUX) *un tipo de hierba, nombre científico: Pinaropappus roseus. Parece diente de león… La gente muele la hierba… La echa en agua y se baña con ella si padece sarampión*

yúkú yaa íñû (DUX) *un tipo de hierba, literalmente 'hierba de ceniza espinosa'. La gente de la región la llama "cenizuda".*

yuku yaa: *estafiate* (DAA) *Artemisia* sp., COMPOSITAE *La hierba es amarga y se considera caliente… En el tratamiento para la diarrea... tos...*

yuku yaa / yuku tiñoo: *cerraja, yerua* (TAM) [**yucuyaa / yucutiñoo**] The Náhuatl dictionary of de Molina (1571) records **ichpoli** for *cerraja yerua*; *espule*, the local Spanish name for *Pinaropappus roseus* recorded by Piestrzynska (TIL), is derived from the Náhuatl **ichpoli**

yuku yaa: *estafiate* (CAB)
blancura / música]

yuku yaa isu (COI) *Elaphoglossum* sp., DRYOPTERIDACEAE **yaa**: tongue **isu**: deer, same etymology as the Greek Ελαφος + *γλοσσυμ* in the Linnaean name
yuku yaa sundiki: *lengua de vaca* (PIN) *Cuando los chamacos tán enfermos, lo ponen en la brasa, lo ponen con un poco de manteca de marrano y un poco de ceniza, y se lo amarran a los chamaquitos.*

yuku ya'á (PIN) probably *Argireia* sp. [synonym: *Rivea corymbosa* (L.) Hallier f., CONVOLVULACEAE *Es una hoja redonda, y sale el bejuco blanco, blanco así, y sale a la orilla de los ríos, y es curativo, que lo muelen y lo beben . . . para dejar de tomar [alcohol], pero tiene que ser fuerte la persona que lo toma, a veces se quieren volver locos… la flor es blanca, y las semillas echa tres en cada vainita.*
yuku ya'a: *mastuerzo del Peru* (TAM) [**yucu yaha**]

yuku ye'e ndɨkɨn: *cadillos que se pegan a la rropa* (TAM) [**yucuyehedeq / yucuyehe**]

yúkú yɨkɨ̱ (DUX): *un tipo de hierba medicinal, literalmente 'hierba de la enfermedad de hueso'*

yuku yudi (DAA) This term appears to designate rue or fennel: **Nada tna'an nu xi xi'in yuku yudi, xi'in ti sa'a ndiwi, tnu tayuxi, ita ntsa'nu te dandoyo nu xi'in ndute ka'nu ini te dindodo nu xi nu nu'un te naku'a nu nitu'u nuu nitu'u nda'a sa'a in da'a.** *Por aire: cuando se les echa ojo, se ocupa desde la parte media de la ramita hasta la punta, se mezcla con ruda, el hinojo, el huele de noche, el chamizo blanco, la hierba de alcanfor, la flor de maribundio, se le echa el alcohol y lo requeman y lo tallan para que suelte el olor, todo es externo.* (DAA) **yudi**: *heno o paxtle* (CAB); *heno*: *Tillandsia usneoides* (L.) L., BROMELIACEAE (Martínez, 1979)

yúkú yúû (DUX) *un tipo de arbusto, literalmente 'hierba de cañada'… es espinoso. Sus hojas son muy grandes. Tiene flores moradas que no tienen ningún uso* The description matches *Wigandia urens* (Ruiz & Pavón) Kunth, HYDROPHYLLACEAE

yukun: *hierba del grano* (TXA) *Justicia* sp. [synonym: *Beloperone* sp.], ACANTHACEAE
yukun: *surco, fila, hilera / labrar madera / va a asobar* (CAB) **Sava ka tu'un ka'an tsa'a yuku yo'o ta yuku yo'o ra avi yee. In ka kau ñasi'i cha in ña ii. Yuku ii ka ra nani ka ntu'i ra tsa i kue nta'a ntaa-tono so'o ti'in cha ya ya ni kaa kolor** [3 or more characters garbled]**. San ni tsichun-na yuko yo'o ña kuta na ku'u kue'e yo o tía ña kuun-na ña nua nti'i vari tatú na kitia ko'o-na rakue sa'i tata.** *Hay dos clases, la hembra y el macho, el macho es más alargado y con hojas parecidas a la oreja de ratón con tallo de color blanco. Esta hierba se usa también para grano pero por fuera, tomada no tiene efecto.*

A disproportionate number of the taxa that incorporate **yuku** into their designation are reported to be used therapeutically, as noted in the descriptions quoted from the different

sources. Diuxi Mixtec probably has the most balanced ethnobotanical inventory on record to date; 21 of the 34 plants labeled **yúkú** documented by Kuiper (2003) are specified to be used medicinally or to be entheogens (62%); in contrast, 22 of the 95 plants labeled **tnu-** (23%), 10 of the 45 plants labeled **ita** (22%), and only 1 of the 9 plants labeled **ndua** (11%), are noted to be used as remedies. None of the plants labeled **yua** are reported to have any medicinal use. 9 of the 34 plant names marked **yúkú** recorded by Kuiper designate bean plants (**yúkú xichi**), which in Coicoyán and Mixtec variants recorded by Caballero are labeled **yuva** or a cognate, and **yo'o** in the coastal dialects; if the bean terms are excluded (none of which appear to be used as remedies), the percentage of plants reported to be used medicinally in this nominal category rises to 84%. The high prevalence of pharmacologically significant taxa in this category is confirmed by other sources, as well: the *Flora Medicinal de la Mixteca Alta,* n.d., lists 31 medicinal plants used in the Tlaxiaco region, of which 20 are marked **yuku**, another 2 incorporate the classifier **tu-**, 1 more is labeled **ita**, 1 is a food plant with the **ti-** classifier, 1 shows a metaphoric designation ('goat's leg'), and the remaining 6 were borrowed from other languages (5 from Spanish, 1 from Náhuatl probably via Spanish).

4.5 Plants labeled **ita**

Mixtec names that incorporate the class term **ita** designate species that have perceptually salient blossoms. The literature often reports that taxa with this label serve as ritual offerings in the domestic altars, in churches and cemeteries, and in the rituals conducted on mountain tops and other sacred places to request rain and to cure sick people Some of these plants are herbaceous annuals that would be included in the folk category 'wildflowers' in English, but the group is much broader, as the examples that follow will illustrate. Josserand (1983) did not reconstruct the term for 'flower' in Proto-Mixtec; the regularity of the form **ita** in the dialects for which we have information suggests that it has not undergone significant change since the languages diversified, except for tonal modifications. In some variants, it has become homophonous with the term that labels grasses:

ita: *flor* (XOC)
ita / yita: *flor / zacate o pasto* (CTZ)
ita: flower (LAC)
ita: *flor* (SMG)
    lu'lu / lu'lu itá: *yema de la flor, pedículo* (SMG)
ítâ: flower (DUX)
ita: *flor* (OSP)
ita: *la flor* (SJC) [**ità**]
    tú'ndu: *el botón de flor* (SJC)
ita: *flor generalmente* (TAM)
    itu ita: *huerto* (TAM) [**ituita**]
ita / yita: *flor* (CAB)
lee: *flor* (CAB)

ita búrru (DUX): *un tipo de flor silvestre, literalmente 'flor de burro'*

ita cha'u: *flor morada* (CHA) *Tiene camote que se come.*

ita chete: *flor de cabello de elote, helecho* (CHA)

ita chiki (COI) *Nopalxochia ackermannii* (Haw.) F.M. Knuth, CACTACEAE *Flor se come cocida, es medicinal cruda, adorno para altares*. **chiki**: fruit of *Opuntia* sp.
ita chiki (MXT) [**hita chiqui**] *Heliocereus speciosus* (Cav.) Britton & Rose, CACTACEAE

(**ita**) **chiviyu / (yuku) chiviyu** (COI) unidentified species in the COMMELINACEAE Grows frequently in the milpas.

ita chumbi (KAP) [**ita-chumbi]** *Phaseolus* sp., PAPILIONACEAE, "*especie de frijol silvestre*"

ita daá: *flor de nochebuena* (TON)

ita dɨkɨ li'í (DUX): *cresta de gallo, silvestre*

ita díko (DUX): *un tipo de laurel silvestre, literalmente 'flor de olor'*

ita dusa ya'a: *bálsamo* (TAM) [**ytadzusayaha**] This form may entail a metaphoric use of the class term.

ita ia di'i: *Santa María* (DAA) *Tanacetum parthenium* (L.) Schultz-Bip., COMPOSITAE **iya si'i / yade'e / yadɨ'ɨ**: *'sagrada mujer', virgen* (CAB) *Antes del parto, para dolor de estómago y para calentura... para limpia...* (DAA)

ita Guadalupe: *flor de Guadalupe* (XYA) probably *Brugmansia x candida* Pers., SOLANACEAE. The flowers were an important entheogen. [25.]

ina / ita ina: *liga para paxaros* (TAM) This entry in the dictionary suggests that **ita ina** designated *Psittacanthus* spp., LORANTHACEAE

ita ini: *flor del corazón* (CAB)

ita ji'í: *flor de frijolón* (SMG) probably *Phaseolus coccineous* L., LEGUMINOSAE

ita jombííl: *bugambilia* (DUX)

ita kachini: *flor de sombrero* (CHA)

ita kadju: *la piñanona* (CHY) [**ita cazu**] probably *Monstera deliciosa* Liebm., ARACEAE

yita ka'yi takuii: *'flor pinta líquido', jamaica* (CAB) probably *Hibiscus sabdariffa* L., MALVACEAE

ita kayu (JIC) *Cosmos sulphureus* Cav., COMPOSITAE
i^{3}ta^{2} ka'^{5}yu^{15} (YLX) *Cosmos sulphureus*
ita kai (MXT) [**hita kai**] *Cosmos sulphureus* Cav., COMPOSITAE
ita ka'yu / ña'mi ita ka'yu: *dalia montés* (SOT) [**'ita ka'yu**] *Dahlia* aff. *tenuis* B.L. Rob. & Greenm., COMPOSITAE) **ka'yu**: *pinta o dibuja / va a escribir* (CAB)
ita ka'yu: *dalia* (YSN)
ita ká'î (DUX) probably *Cosmos sulphureus*. *Un tipo de flor silvestre, literalmente 'la flor que tiñe'*
ita kayu (KAP) [**ita-cayu**] *Quamoclit vitifolia* (Cav.) Don., CONVOLVULACEAE
ita ka'yu: *color leonado* (TAM) [**itacayu**] De Alvarado's entry, which referts to a color rather than a plant, probably reflects the use of *Cosmos sulphureus* Cav., COMPOSITAE, as a yellow dye by the Mixtec people, as attested by 16th century sources for the Mexica in the Valley of Mexico, where this species was called **xo:chipalli**, 'flower-dye.'

ita katila / ita stila / ita tyila: *albahaca* (CAB) From the Spanish *Castilla*, Castille.

ita kindi (COI) *Salvia stricta* Sessé & Mociño, LABIATAE *Esta planta es considerada un indicador de tierra fértil.* **Kindi** is the Mixtec term for *chía* in other dialect areas; the crop does not appear to be known in Coicoyán.
i^{3}ta^{2} ki^{1}ndi^{32} ta^{3}ta^{2} (YLX) *Ocimum basilicum* L. Amith & Castillo gloss **ta^{3}ta^{2}** as 'domestic.'
kindi (MXT) [**quinti**] *Salvia elegans* Vahl, LAMIACEAE
ita kindi na'nu (MXT) [**hita quinti nanu**] *Salvia mexicana* L., LABIATAE
ita ki<u>n</u>ta: *ita kinta morada / flor guinda* (SOT) [**'ita kinta**] *Salvia purpurea* Cav., LABIATAE Katz reports that the flowers are ingested raw in Yosotato.
ita ki<u>n</u>ta kue'e: *ita kinta roja / flor guinda* (SOT) [**'ita kinta kwe'e**] *Salvia cinnabarina* M. Martens & Galeotti, LABIATAE. Flowers ingested raw.
ita ki<u>n</u>ta lee: *ita kinta azul / flor guinda* (SOT) *Salvia recurva* Fern., LABIATAE Flowers ingested raw.
ita t<u>a</u>tk~~ɨ~~ndî / ítâ tk~~ɨ~~ndî / ítâ tn<u>u</u>t<u>a</u>tk~~ɨ~~ndî: *chía, literalmente 'flor de mariposa'* (DUX) The etymology appears to involve both the class term **itâ** and the nominal marker **t<u>a</u>** derived from it.
k~~ɨ~~ndî: *chia* (TAM) [attested as **dzahaquende**: *azeite de chia*]
ika kindi: *albahaca* (CAB)

ita kivi (JIC) *Justicia spicigera* Schldl., ACANTHACEAE

ita kixin (COI) *Cuphea infundibulum* Koehne, LYTHRACEAE **kixin**: sticky
ita kixin (COI) *Desmodium strobilaceum* Schldl., LEGUMINOSAE [FABACEAE] *El tallo se usa para sacar briznas del ojo. Nombre genérico para "flores pegajosas".*

ita k<u>o</u>'ó: *campánula, enredadera* (XOC) probably *Ipomoea* sp., CONVOLVULACEAE
k<u>o</u>'ó: *plato, trasto*
ita ko'o (COI) *Ipomoea dumetorius* Willd. ex Roem. & Schult., *Ipomoea tyrianthina* Lindl., *Ipomoea* spp., CONVOLVULACEAE **Ita ko'o** is a generic designation for *Ipomoea* spp., associated with the belief that a person who touches this plant will break dishes.
ko'o: plate, dish

ita ko'o vali (JIC) *Ipomoea hederifolia* L., CONVOLVULACEAE
ita kó'ô: *campanilla, la flor de un bejuco* (DUX)

ita ko'yo: *orquídea* (CAB)

ita kua'á: *geranio, malvón* (SMG) [**ità cuàhá**]
ita kua'a: *geranio* (CHA)
ita kuaa'á: *la jamaica* (SJC) [**ìtà cuaahá**]
ita kua'a: *'flor roja', jamaica* (CAB)
yita kua'a yiya: *'flor roja agria', jamaica* (CAB)

ita kuan: *flor de muertos* (CGM)
ita kuaán / yita kuaán: *zempoaxuchitl* (CTZ)
ita kuaan: *cempoalxochitl* (CHA)
ita kuáân: *flor de cempasúchil, cultivada* (DUX)
ita kuáan vilú (DUX) *flor de cempasúchil silvestre, literalmente 'flor amarilla de gato'*
ita kuaan: *la flor de muerto* (CHY) [**ita cuaan**]
ita kuaan (KAP) [**ita-cuaan**] *Tagetes erecta* L., COMPOSITAE

ita kuaún ndikachi (COI) *Tagetes* sp., COMPOSITAE **ndikachi**: sheep
ita kuaún (JIC) *Tagetes tenuifolia* Cav., COMPOSITAE *La flor se usa para adornar los altares el Día de Muertos.*
i^{3}ta^{2} kwa^{1}on^{5} (YLX) *Tagetes erecta* L., COMPOSITAE Two named varieties, **i^{5}i^{5}** and **ndo^{3}ko^{2}**. Amith & Castillo gloss **kwa^{1}on^{5}** as *el señor quien es dueño de los animales silvestres*.
i^{3}ta^{2} kwa^{1}on^{5} yu^{3}ku^{5} (YLX) *Tagetes remotiflora* L., COMPOSITAE

ita kuii: *trébol* (TAM) [**ytacuij**]
ita kuii: *albahaca* (CAB)

ita xkɨyɨ: *flor blanca* (YSN) **xkɨyɨ**: *blanco*
ita kuíxi búrru (DUX) *un tipo de flor silvestre; literalmente 'flor blanca de burro'*
ita kuiji / ita kuixi / ita kuxi: *'flor blanca', la margarita* (CAB)
ita kuityin: *'flor blanca', bocote* (CAB) probably *Cordia* sp., BORAGINACEAE

ita kuiya (COI) *Bidens* sp., COMPOSITAE **kuiya**: year

yita kundaa: *jamaica* (CAB)

ita leko: *pasto* (XOC) **ita**: *flor*; **leko**: *conejo* This may involve a mistranslation of the form for 'grass,' which has become homophonous with the class term for flowers.

ita limbée: *dalia* (SMG)
ita limpee: *dalia* (CAB)

ita lita: *la margarita* (CAB)

ita lo'o: *'flor pequeña', rosa, rosita* (CAB)

ita margaritá (COI) *Bejaria* sp., ERICACEAE *Adorno para los altares*. From the Spanish *margarita*, 'daisy.'

ita mayo (COI) *Bomarea hirtella* (Kunth) Herb., ALSTROEMERIACEAE [LILIACEA] *Adorno para los altares, especie preferida.* **mayo**: the month of May, from Spanish

ita minú: *yerbabuena* (SMG)
ita mi̲nú: *hierbabuena* (CHA)
taminu: *hierbabuena* (YSN)
ita mino / ita minu / tamino / taminu: *yerbabuena* (CAB)

ita minu̲ / **táminu̲**: *chamiso* (SMG) **mi̲nu**: *epazote*; **nducha mínu**: *caldito de epazote*

ita mitu: *mirto* (DAA) *Salvia microphylla* Kunth, LABIATAE **mitu**: *venadito* (CAB); **mitu** as 'fawn' may be a borrowing from Spanish *gamito*, while **ita mitu** looks like the Mixtecized form of *mirto* *Se ocupa para limpias de niños y adultos. Por aire: cuando se les echa ojo, se ocupa desde la parte media de la ramita hasta la punta...* (DAA)

ita ná'nu: *florifundio* (CHA) probably *Brugmansia x candida* Pers., SOLANACEAE

ita nii (MXT) [**hita nii**] *Penstemon kunthii* G. Don, PLANTAGINACEAE [SCROPHULARIACEAE *sensu lato*]

ita nuni: *cacalosúchil* (XYA) probably *Plumeria rubra*
ita nuní: *cacalosúchil* (TON)
ita nu̲ní: *flor de mayo* (XOC) probably *Plumeria rubra* **nu̲ní**: *maíz*
ita noní (COI) *Plumeria rubra* L., APOCYNACEAE
ita nuni (MXT) [**hita nuni**] *Plumeria rubra*
ita núnî: *cacalosúchil* (DUX)
ita nuni kawa (ACÑ, *Relación de Zacatepeque*) *Hay otro árbol que se cría en las peñas, que llaman ellos en su lengua* **ytanunicahua** *y, en mexicano,* **tepecacalosuchitl**: *la corteza deste árbol, cocida y bebida, es buena para servir de purga* [**kava / kawa**: *peña* (CAB); **tepe:ca:ca:lo:xo:chitl**: mountain crow-flower, i.e., wild frangipani

ita ndaa / ita ndaka: *lirio cardeno* (TAM) [**ytandaa / ytandaca**]

ita ndaa kua'a [?]: *…un elevado árbol nombrado en el idioma mixteco* **itandacua**, *que en el nuestro significa flor de mano colorada, que produce por fruto una azucena de la que nace una perfecta manilla a modo de las de pavo.* (*Relación de San Andrés Chicahuaxtla*, 1777; Esparza, 1994: 68) (San Andrés Chicahuaxtla is a Trique community in the Putla district, Oaxaca, where Mixtec was spoken as the lingua franca) The description matches *Chiranthodendron pentadactylon* Larreát., MALVACEAE [STERCULIACEAE] An alternative etymology would involve **ndakua**; this species is

known as **tundakua** in Coicoyán Mixtec.

ita nda'a ma'a (MXT) [**ita nta maa / hita nta'a máa**] *Chiranthodendron pentadactylon* Larreát., MALVACEAE [STERCULIACEAE] **nda'a**: *mano*; **ma'an**: *mapache, comadreja* (CAB)

ita ndádi dé'ê (DUX) *lengua de buey*
ita ndádi de'e kuíxi (DUX) *un tipo de flor silvestre*

ita nda'nu: *flor de huisote* (SOT) *Yucca* sp., AGAVACEAE The flowers are eaten cooked.

ita nda'va: *'flor que se apaga', rosa* (CAB)

ita ndaxin: *bocote* (CAB) probably *Cordia* sp., BORAGINACEAE

ita ndeka: *monjas* (CGM) *Laelia* sp., ORCHIDACEAE
ita sindiaka: *monjas* (MIC) probably *Laelia* sp.
ita ndiaka (COI) *Artorima erubescens* (Lindl.) Dressler & Pollard, ORCHIDACEAE *Ornamental para altares, especie preferida.* **ita ndiaka** is the generic name for various orchids in Coicoyán and Jicayán de Tovar
ita ndiaka (COI) *Encyclia ghiesbreghtiana* (A. Rich. & Gal.) Dressler, ORCHIDACEAE
ita ndiaka kuaan (COI) *Prosthechea citrina* (La Llave & Lex.) W.E. Higgins / *Prosthechea karwinskii* sp. nov., ORCHIDACEAE
ita ndiaka ñu'un (COI) *Govenia* sp., ORCHIDACEAE *Las flores se llevan a los altares.* The epithet **ñu'un**, 'earth,' specifies that this is a terrestrial orchid.
ita ndiaka (JIC) *Barkeria* sp.; *Encyclia* sp.; etc., ORCHIDACEAE
ita ndyaka kuaan (MXT) [**ita nchaca cuan**] *Prostechea* aff. *citrina* (La Llave & Lex.) W.E. Higgins [synonym: *Encyclia* aff. *citrina* (La Llave & Lex.) Dressler], ORCHIDACEAE
ita ndyaka kua'a (MXT) [**ita nchaca cua'a**] *Laelia furfuracea* Lindl., ORCHIDACEAE
ita ndyaka lakuku (MXT) [**ita nchaca lacucu**] *Pollardia tripunctata* (Lindl.) Withner & Harding [synonym: *Encyclia tripunctata* (Lindl.) Dressler], ORCHIDACEAE
lakuku: *tortolita* (CAB)
ita ndyaka tiin (MXT) [**hita nchaca tiin**] *Oncidium graminifolium* (Lindl.) Lindl., ORCHIDACEAE **tiin**: *uña / sudor / ratón / pepita* (CAB)
ita nchaka: *orquídea* (SMG) **nchaka**: *pegamento*
ita nchaka: *orquídea* (CHA)
ita ndékâ: *un tipo de orquídea color de rosa, florece en noviembre y diciembre* (DUX) probably *Laelia furfuracea* Lindl., ORCHIDACEAE
ita ndéká kuán: *un tipo de orquídea amarilla, florece en febrero y marzo* (DUX) probably *Prosthechea citrina / Prosthechea karwinskii*, ORCHIDACEAE
ita tndéka ñú'u: *un tipo de orquídea de tierra* (DUX)
tindyaka: *la orquídea* (CHY)
ita ndaka / ita ndaa: *lirio cardeno* (TAM) [**ytandaca / ytandaa**] **tindaca**: *engrudo*
ita ndaka kuisi / ita ndɨkɨ kuisi / ita santa maria: *azucena* (TAM) [**ytádacacuisi /**

ytandequecuisi / yta santa Maria]
ita ndeka: *lirio, orquídea* (CAB)
***^{n}deka**: glue (JOS) The mucilage of *Bletia* spp., *Laelia* spp., and other genera in the Orchidaceae has been used widely as an adhesive in Mesoamerica since antiquity.

ita andɨu: *flor del cielo* (CHA) *orquídeas*
ita ndéuî / ita ndéyû: *un tipo de orquídea rosa, florece en noviembre, diciembre y enero* (DUX) probably *Artorima erubescens* (Lindl.) Dressler & G. Pollard, ORCHIDACEAE **andeve / andiwi / andɨwɨ / ndivi**: *cielo* (CAB)

ita ndeyu: *orquídea* (SMG) **ndeyu**: *relampaguear, brillar*
ita ndeyu: *orquídea* (CHA)
ita ndéyû kuáan: *un tipo de orquídea amarilla* (DUX)

ita ndika: *platanitos* (COI) *Epidendrum gladiatum* Lindley, ORCHIDACEAE *Los niños comen las semillas inmaduras como golosina*. **ndika**: banana
ita ndika / ita ndiaka (COI) *Epidendrum oaxacanum* Rolfe ex Ames, ORCHIDACEAE *Los niños comen las semillas inmaduras como golosina.*
ita ndika / ita ndiaka (COI) *Epidendrum* sp., ORCHIDACEAE *Los niños comen las semillas inmaduras como golosina.*

ita ndikandii / ita ndyikandyii / ita nikandii / ita diki ndii / ita jiko kandii / ita nandii / ita nandyii / ita ndii / ita nkanii / ita ñandii / ita tyiki tyi nikandii / ita yandyii / ita yiki ndyii: *'flor cabeza de sol', girasol* (CAB)

ita ndi'ni saa [?]: *flor de pipi* (SOT) [**ita ndi'nisa**] *Erythrina americana* Miller, LEGUMINOSAE [PAPILIONACEAE] The flowers are eaten cooked.

yita ndio'o: *pájaro vachiquichi* (ZAU) [**yita ndio**] *Cuphea wrightii* A. Gray, LYTHRACEAE) **ndio'o / ndiyo'o / niyo'o / ntso'o / sandyo'o / tsiyo'o / tyindyo'o**: *colibrí, chupamirto* (CAB)
ita ndyo'o (MXT) [**ita ncho'o**] *Salvia mexicana* L., LABIATAE) **ndyo'o**: *colibrí, chupamirto* (CAB)
ita ndio'o: *chupamirto* (TXA) [**ita ntio'o**] *Penstemon campanulatus* (Cav.) Willd., PLANTAGINACEAE
ita ndiyo'o: *planta buena para el estómago* (CHA)

ita ndɨ´jɨn ndí'i: *un tipo de flor morada* (DUX)

ita ndɨkɨ: *flor de encaje* (YSN) **ndɨkɨ**: *cuerno*, but more likely a cognate of 'small seed'
ita ndɨkɨ kuisi / ita ndaka kuisi / ita santa maria: *azucena* (TAM) [**ytandequecuisi / ytádacacuisi / yta santa Maria**]

ita ndiutia (COI) *Fuchsia arborescens* Sims, ONAGRACEAE *Ornamental para altares.*

ita ndixii (MXT) [**hita ntishii**] *Lupinus campestris* Cham. & Schldl., LEGUMINOSAE [PAPILIONACEAE] **ndixi**: *elote / ala / mescal*; **ndixii**: *zopilote / garrapata* (CAB)

ita ndixín: *yolosóchil* (COI) *Magnolia mexicana* DC. [syn: *Talauma mexicana* (DC.) G. Don.], MAGNOLIACEAE *La flor se usa como remedio para "mal del corazón" y dolor, junto con la flor de Chiranthodendron.* **ndixín**: wing

ita nziki yaa: *flor de muerto* (MIC) probably *Tagetes* sp., COMPOSITAE *Es una flor silvestre, amarilla.*

ita ndii (COI) *Stevia* sp., COMPOSITAE *Las flores se usan como adorno para la ofrenda del Día de Muertos.* **ndii**: deceased person

ita ndɨyɨ: *flor de muerto* (YSN) **ndɨyɨ**: *difunto*

ita ndókô: *jazmín* (DUX) probably *Philadelphus mexicanus* Schldl., HYDRANGEACEAE

ita ndo'o / ita ndo'o ño'o tna'a / ita ndo'o nene / ita ndo'o kuaan / ita kuaan: *jasmin* (TAM) [**itandoho / ytandoho ñoho tnaha / itandoho nene / ytandoho quaa / itaquaa**]

ita ndoso (COI) *Brugmansia x candida* Pers., SOLANACEAE
ita ndoso (**yuku**) (COI) *Solandra* sp., SOLANACEAE *Para adivinar: infusión de la flor, o se mastica la corteza verde.* **ndoso**: *teta* **ndoso ii**: *deidad, dios sagrado* (CAB) *Brugmansia*, introduced from the Andes, seems to have displaced the native *Solandra* as the primary referent of **ita ndoso**.

ita ndukun (COI) *Salvia elegans* Vahl, LABIATAE **ndukun**: cochineal

ita nduti: *flor de cartucho* (CAB) probably *Zantedeschia aethiopica* (L.) Spreng., ARACEAE **nduti**: *frijol / riñón* (CAB)

ita nduva (COI) *Penstemon roseus* (Cerv. ex Sw.) G. Don, PLANTAGINACEAE [SCROPHULARIACEAE] The etymological link with *Leucaena* is not clear, if there is one.

ita nduvua ndu'u kastiya / ita tɨmii kastiya / yuku nduvua: *manzanilla* (TAM) [**itanduvua duhu castilla / itatemij castilla / yucunduvua**]

ita nduxa: *flor de trébol* (CHA) probably *Oxalis* sp., OXALIDACEAE

ita nduyu kaa: *clauellina* (TAM) [**ytenpuyucaa**, a typographical error for **ytanduyucaa**, as attested by **duyucaa**: *clauo*]

ita ntsa'nu [?] (DAA) This term appears to designate '*yerba de alcanfor*' or '*flor de maribundio*' (?): **Nada tna'an nu xi xi'in yuku yudi, xi'in ti sa'a ndiwi, tnu tayuxi, ita ntsa'nu te dandoyo nu xi'in ndute ka'nu ini te dindodo nu xi nu nu'un te naku'a nu nitu'u nuu nitu'u nda'a sa'a in da'a.** *Por aire: cuando se les echa ojo, se ocupa desde la parte media de la ramita hasta la punta, se mezcla con ruda, el hinojo, el huele de noche, el chamizo blanco, la hierba de alcanfor, la flor de maribundio, se le echa el alcohol y lo requeman y lo tallan para que suelte el olor, todo es externo.* (DAA) **tsa'nu**: *mollera / grande en edad, sabiduría, experiencia / el*

caballete de la casa (CAB)]

ita ntsikin ya'a [?]: *flor de muerto* (NGO) [**ita ntsikiya'a**] *Tagetes lunulata* Ortega, COMPOSITAE **ndɨjɨn / ndyikin / nsikin / tsikin**: *semillas de chile, tomate, rábano, guayaba, amaranto, entre otros*; **ntsii**: *difunto*; **ya'a**: *chile / color café* (CAB) *Para el piquete de alacrán o mordedura de víbora de cascabel… Esta flor la utilizan mucho para adornar las ofrendas con motivo de día de muertos.* (NGO)

ita ndze'e: *azucena* (CGM) **ntse'en**: *temprano* (CAB)

ita ndzidin: *calosúchil* (CGM) (*Plumeria rubra*, APOCYNACEAE) [**ndzidin**: *elote*]

(**ita**) **ñuma** (COI) *Tillandsia* sp., BROMELIACEAE *Adorno para altares*. **ñuma**: wax

ita ñuñu: *flor de panal* (ZOL) unidentified epiphytic orchid

ita ñu'ú: *flor de nochebuena* (XOC) **ñu'ú**: *tierra, suelo / terreno*; **ñu̲'u**: *sol*; **ñu̲'u̲**: *fuego, lumbre* Stark, Johnson & González (2003) relate the name of this plant to the term for 'earth'
ita ño'on: *flores de nochebuena* (CTZ) **ño'on**: *el sol*
ita ñu'un / tuita ñu'un (MXT) [**ita ñu'u / tu hita ñu'un**] *Euphorbia pulcherrima* Willd. ex Klotzsch, EUPHORBIACEAE **ño'on / ñu'un**: *sol* (CAB)
ita ñu'u̲n: *flor de nochebuena* (SMG) **ñu'u̲n**: *fuego*; **ñu'un**: *terreno, tierra*; **ndika̲ndii**: *sol*
ita ñú'û: *nochebuena* (DUX)

ita ñu'un (COI) *Castilleja arvensis* Schldl. & Cham., *Castilleja tenuiflora* Benth., *Castilleja* spp., OROBANCHACEAE **ñu'un**: fire

ita paxkua: *flor de nochebuena* (CGM) *Euphorbia pulcherrima* Willd. ex Klotzsch, EUPHORBIACEAE from Spanish *Pascua*

ita pelo (JIC) *Operculina pteripes* (G. Don) O'Donell, CONVOLVULACEAE **pelo**: vulture

yita perikoon: *pericón* (ZAU) [**yita pericoó / yita perico o**] *Tagetes lucida* Cav., COMPOSITAE

ita rosa: *rosa de Castilla* (CGM)
yita rosa: *rosa* (CTZ)
nu ita rosa / ton ita rosa / tnu ita rosa: *rosal* (CAB)
tun ita rosa: *'planta flor de rosa', rosal* (CAB)

yuku saa (COI) *Echeveria* sp., CRASSULACEAE An epiphyte, growing on *Quercus* sp.; used medicinally in an infusion to treat *sarampión*.
ita̲ sa̲á: *siempreviva* (SMG)
ita saa: *flor de siempre viva* (YSN)
ita dáa̲ (DUX) probably *Sedum* sp., CRASSULACEAE *un tipo de siempreviva; la gente*

mastica sus hojas para curar llagas de la boca
ita dáa yúkû (DUX): *un tipo de siempreviva montés*
ita daa: *flor siempre viva* (APO) "**Itadaa**, *compuesta de* **ita** = *flor*; **daa** = *perenne, permanente, duradera. Flor siempre viva* (López García, 2007: 148)" [26.]
ita daa: *siempre viua la flor* (TAM) [**itadzaa**]

sidá tundúú: *injerto de tehuiztle* (MIC) probably *Psittacanthus* sp., LORANTHACEAE
sa'a: *caballero, planta parásita… es muy bueno tomar el caballero cuando nos duelen los riñones* (CTZ)
ita sa'a / yuku sa'a (COI) *Psittacanthus* sp., LORANTHACEAE *Adorno para altares.*
ti^{1}xa'^{1}a^{1} (YLX) generic term to designate parasitic plants in the LORANTHACEAE (*Psittacanthus*) and CONVOLVULACEAE (*Cuscuta*)
sa'a (MXT) [**za'a**] *Psittacanthus schiedeanus* (Schldl. & Cham.) Blume ex Schult., LORANTHACEAE
ita sa'a (MXT) [**hita za'a**] *Sedum praealtum* A. DC., CRASSULACEAE
tisa'a: *muérdago* (SMG)

ita sama kuain [?] (MXT) [**hita sama cuain**] *Artorima erubescens* (Lindl.) Dressler & G.E. Pollard, ORCHIDACEAE) [**sa'ma**: *ropa, tela / joya, tesoro*; **kuai**: *escalera / caballo* (CAB)

ita San Juseé (DUX) *flor de San José… nadie cultiva la flor de San José porque el gobierno no lo permite* [?]

ita Sánta Mariá (DUX) *flor de Santa María… el té de las flores de Santa María es útil para curar el estómago cuando gruñe…*
ita santa maria / ita ndaka kuisi / ita ndiki kuisi: *azucena* (TAM) [**yta santa Maria / ytádacacuisi / ytandequecuisi**]

ita santo domingo: *azucenita* (SOT) unidentified edible plant

ita saña / yuku uva (COI) *Salvia* cf. *lavanduloides* Kunth, LABIATAE **saña**: corncob; **uva**: bitter

ita sa'vi / ita tida'vi / ita tida'vi / ita tnutyida'vi / ita tuntisa'vi / yita tsisa'wi: *flor de pipi* (CAB) probably *Erythrina* sp., LEGUMINOSAE

ita siki (COI) *Fuchsia encliandra* Steud. subsp. *encliandra,* ONAGRACEAE
Nombre para diversas flores "como arete". **siki**: *collar / juguete* (CAB)
ita siki (COI) *Kohleria deppeana* (Schldl. & Cham.) Fritsch, GESNERIACEAE

ita so'o tiin (COI) *Pinguicula moranensis* Kunth, LENTIBULARIACEAE **so'o**: ear **tiin**: mouse The nominal relationship between this and the following terms from Mixtepec and Pinotepa Nacional is probably incidental.
ita so'o (MXT) [**ita zó'o / hita zo'o**] *Senna holwayana* (Rose) H.S. Irwin & Barneby, LEGUMINOSAE [CAESALPINIACEAE] **do'o / jo'o / lo'o / so'o**: *orejas* (CAB)
ita so'o vilu (MXT) [**hita zo'o vilu**] *Calochortus balsensis* A. García-Mendoza,

LILIACEAE **vilu**: *gato* (CAB)
ita so'o: *flor de orejita* (PIN) *Plumeria rubra* L., APOCYNACEAE

ita suma chele (JIC) *Tillandsia* sp., BROMELIACEAE **su'mati**: *cola del animal* **tyele**: *gallo* (CAB) The relationship between this name and the following term from Mixtepec is probably incidental.
ita tsele (MXT) [**hita tzele**] *Cologania angustifolia* Kunth, LEGUMINOSAE [PAPILIONACEAE] **tyele / xele**: *gallo* (CAB)

ita tanu yata (MXT) [**hita tanu yata**] *Sprekelia formosissima* (L.) Herb., AMARYLLIDACEAE **tanu**: *soyate / topil / se va a destruir*; **ta'nu**: *grande en edad, sabiduría y experiencia / se va a romper, se va a quebrar*; **yata**: *espalda, atrás / cabello de elote* (CAB)

ita té'û: *dalia* (DUX)

ita tichavi (MXT) [**ita ti chávi / hita ti chavi**] *Calliandra grandiflora* (L'Hér.) Benth., LEGUMINOSAE [MIMOSACEAE] **tyavi**: *huarache, zapato*; **sia'vi / tiya'vi / tsia'vi / tya'vi**: *liendre* (CAB)

ita tika / yuva tika (COI) *Lagascea helianthifolia* Kunth., COMPOSITAE *Las flores se comen cocidas en el rescoldo*. **tika**: grasshopper

ita tikaka (COI) *Cosmos* sp., COMPOSITAE **tikaka**: crow
ita tkákâ: *cacalote, Conophilus* [sic] *alpina, literalmente 'flor de cuervo'* (DUX) probably *Conopholis alpina* Liebm., OROBANCHACEAE

ita tikandiutia (COI) *Rumfordia floribunda* DC., COMPOSITAE A preferred species to offer in altars and shrines. The etymology appears to involve the root 'sun'.

ita tikava kuaan / ita vixi (MXT) [**hita ticava cuan / ita vishi**] *Verbesina perymenioides* Sch.-Bip. ex Klatt, COMPOSITAE This may be a cognate of COI **tukava** and the nominally related taxa in other dialects.

ita tkúâ: *un tipo de flor silvestre, literalmente 'flor de mariposa'* (DUX)

yita tikuaa: *erisipela* (ZAU) [**yita ticua**] *Bouvardia ternifolia* (Cav.) Schldl., RUBIACEAE
ita tikuaa (**yuku**) (COI) *Rondeletia* cf. *tenorioi* Lorence, RUBIACEAE *Flor adorno para altares, especie preferida.* The term can be glossed as 'wild citrus flower,' because of its aroma.

ita tikudi: *orquídea* (CAB)

ita tkúndî: *un tipo de flor silvestre, Lupinus montanus, literalmente 'flor de pájaro'* (DUX)

ita tinu'un / ita tnutinu'un: *flor de cagual* (CAB)
ita tinu'un na'nu / ita tunu'un / tinu'un stila / yita tnono'on na'no: *'flor de cagual*

grande', girasol (CAB)

ita tindoo (COI) *Dahlia coccinea* Cav. COMPOSITAE *Flor para adornar altares.*
tindoo: spider
ita tindoo (COI) *Dahlia* sp., COMPOSITAE *Flor para adornar altares.* A different species from the previous, with rose colored ligules.
ita tindoo (**yaa**) **/ ita tindoo yuku**: *sauco* (COI) *Sambucus nigra* L. subsp. *canadensis* (L.) Bolli, ADOXACEAE [CAPRIFOLIACEAE] *Medicinal para catarro.*

ita tndúû: *un tipo de flor silvestre, literalmente 'flor esférica'* (DUX)
Viko tnunda'a Oko Ñaña xi'in Ita Ndeui ndaxa ita tnduu. Nde vitna dani daxa dichi tnunda'a ita tnduu nuu ñayiu xyuku viko ve'ei xa tnunda'ai. Dɨuni ka dakee ñayiu ita tnduu yau nuu ndeé ta'ui. *En la fiesta de la boda de Veinte Coyote y Orquídea, rey y reina antiguos, la novia repartió las flores llamadas* **ita tndúû**. *Hasta la fecha la novia reparte ramitos de estas flores a la gente que viene a la fiesta en su casa cuando se casa por la iglesia; también la gente pone ramitos de estas flores en hoyos donde colocan ofrendas a los chaneques.*

ita tise'e (COI) *Tigridia pavonia* (L.f.) DC., IRIDACEAE *Los bulbos se comen cocidos.*
ita tise'e yuku (COI) *Tigridia ortantha* (Lem.) Ravenna [synonym: *Rigidella ortantha* Lem.] The bulbs are known to cause vomiting if ingested.
se'e (MXT) [**ze'e**] *Ainea conzattii* (R.C. Foster) Ravenna, IRIDACEAE
se'e na'nu (MXT) [**ze'e nanu**] *Tigridia pavonia* (L.f.) DC., IRIDACEAE

ita titiatia: *azucena* (COI) *Milla biflora* Cav., ASPARAGACEAE [ALLIACEAE]

yita tuxaya: *begonia* (ZAU) [**yita tushaia**] *Begonia balmisiana* Ruiz ex Klotzsch, BEGONIACEAE
ita tixaaya (COI) *Begonia* sp., BEGONIACEAE *Los niños chupan el tallo, que es agrio.*

ita txíchî: *un tipo de flor silvestre* (DUX) The etymology appears to involve the marker for animals and round objects.

ita tya'a (KAP) [**ita-tyaha**] *Cochlospermum vitifolium* (Willd.) Spreng., BIXACEAE
tya'a: *bule* (CAB)

ita tsaka: *orquídea* (CAB) Presumably this form derived from ***tɨyaka** > ***tsiyaka** > **tsaka**
tɨyaka / tiyaka / tsiaka / siaka / tsaka: *pescado* (CAB)

tyiyatya (CHY) *Pseudobombax ellipticum* (Kunth) Dugand, MALVACEAE [BOMBACACEAE] *La flor itayata; hay dos clases de itayata, una es blanca y una es roja*
ita tyatya / ita yata / yita yata: *flor de la bailarina o escobetilla* (CAB)

ita tuiyɨ: *flor de huachipile* (SOT) [**ita tu iyi**] *Diphysa* sp., LEGUMINOSAE The cooked flowers are eaten.

yita tunuu: *acahual* (ZAU) [**yita tunu**] *Tithonia tubaeformis* (Jacq.) Cass., COMPOSITAE

ita tusaa (COI) unidentified species in the COMPOSITAE *Flores para adorno altares.*

ita viko (MXT) [**ita vico**] *Milla oaxacana* Ravenna, ASPARAGACEAE
ita viko ndi: *flor de fiesta de muertos* (APO) **ndii / ndiyi / ndyii / ntsii**: *difunto* (CAB)
ita viko (Santiago Ixtayutla, Jamiltepec District, Oaxaca) unidentified species in the ORCHIDACEAE (de Ávila, 1983) **viko**: festivity / cloud

ita vílû: *un tipo de orquídea azul con rayas, literalmente 'flor de gato'* (DUX)

ita víô (DUX) possibly *Satureja* sp., LABIATAE *un tipo de poleo… las flores… huelen dulce… este tipo de poleo es medicinal*
ta̲vió: a kind of flower (DUX)

ita víxa̲: *un tipo de flor medicinal* (DUX)

ita widi: *manrubio* (DAA) *Marrubium vulgare* L., LABIATAE **vidi / viji / visi / vitsi / vixi / widi**: *dulce* (CAB)

ita xatu (COI) *Persicaria hydropiperoides* (Michx.) Small, POLYGONACEAE **xatu**: spicy

ita xíka̲ ndódó: *un tipo de flor silvestre, literalmente 'flor que anda encima'* (DUX)

ita ximiria / yuku ximiria (COI) *Piqueria trinervia* Cav., COMPOSITAE *Las flores se usan como adorno en la ofrenda del Día de Muertos; es remedio para el catarro.*
The etymology is obscure; it may be a borrowing, but the source is unknown to me.

ita̲ xi̲mú: *flor de magueyito* (SMG) probably *Tillandsia* sp., BROMELIACEAE

ita xini (MXT) [**hitu̲ shini**] *Tagetes lucida* Cav., COMPOSITAE **dini / jiñi / sini / xini**: *cabeza* (CAB)
ita̲ xi̲in / yuku̲ ita̲ xi̲in: *pericón* (SMG)
ita dini: *pericón* (DAA) *Tagetes lucida* Cav., COMPOSITAE **dini**: *cabeza / nariz* (CAB) *Para falseadura, torcedura, inflamación de vías urinarias y del estómago.* (DAA)
ita díni̲ (DUX): *un tipo de flor silvestre, medicinal*
ita xiin / yuku ita xiin: *pericón* (CAB)

ita xini chito'o: *flor la cresta de gallo* (PIN) *Celosia cristata* L., AMARANTHACEAE
ita: *flor*; **xini**: *cabeza*; **chito'o**: *gallo*
ita xini xito'o (KAP) [**ita-xinixitoho**]: *Dahlia pinnata* Cav., COMPOSITAE

ita xinu (MXT) [**hita shinu**] *Tillandsia prodigiosa* (Lem.) Baker, BROMELIACEAE
ita xinu kuaan (MXT) [**hita shinu cua'an**] *Catopsis compacta* Mez,

BROMELIACEAE This appears to be a cognate of DUX **dínû** and TAM **ditnu**.
xinu nuu ñu'un (MXT) *Pitcairnia cylindrostachya* L.B. Sm., BROMELIACEAE

ita yaa / yita yaa: *'flor blanquizca', la margarita* (CAB)

ita ya'a / yuku xatu (COI) *Asclepias curassavica* L., APOCYNACEAE [ASCLEPIADACEAE] *Medio tallo aplicado para dolor de muela.* **ya'a**: chili pepper **xatu**: spicy The relationship with the following name from Mixtepec is probably incidental.
ita ya'a (MXT) [**hita ya'a**] *Bouvardia ternifolia* (Cav.) Schldl., RUBIACEAE

ita yakun / iñu yakun (COI) *Cirsium* sp., COMPOSITAE **yakun**: brush, *escobeta*

ità yau: *clase de flor de color azul, decorativa* (CHA) *Se llama así porque su hoja se asemeja al maguey.*

ita yisi: *toronjil* (SMG)
ita yisi: *flor de borrachito* (CHA)
ita yidi: *flor de la novia* (TIL) [**ita žiði**] *Satureja oaxacana* Standl., LABIATAE *Es de naturaleza caliente; sirve para frío del estómago, cólicos menstruales*
isi / yede / yisi / yidi: *hoja de aguacatal* (CAB) The aroma of *Satureja* does resemble the scent of crushed avocado leaves.
ítâ yídî: *un tipo de poleo* (DUX) *Lo toman las personas que tienen escalofrío o que tienen dolor de cabeza causado por la cruda.* **Ka xetniu ñayiu Diuxi ita yidi ora ka tnunda'ai nuu dutu. Mee kiu xe'eni xa tnunda'ai, xe kuidó ñayiu tatu ña'a tadi'i noviu ta jan yuku xa kadava'a taveñu'u, deveñu'u noviu nu'ne kuechita na kua'a daxa noviata nuu ñayiu xyuku viko ve'eña. Nde'e dikota.** *La gente de Diuxi ocupa el poleo llamado* **ita yídî** *en la fiesta de boda. El día del casamiento una persona enviada por los padres del novio va al monte a cortar este poleo para que el padrino y la madrina del novio hagan manojitos que la novia pueda repartir a la gente que ha venido a la fiesta en su casa. Esta hierba es muy olorosa.*
tayídî: a kind of flower (DUX)
ita yidi dí'i: *un tipo de flor* (DUX) **di'i / si'i / si'i**: *madre* (CAB)
ita yidi yii: *un tipo de flor, la gente de la región la llama 'flor de borracho'* (DUX)
yii: *marido, esposo* (CAB)
ita yisi: *flor del toronjil* (CAB)

ita yódo yútnú: *un tipo de parásito, literalmente 'flor que trepa árbol'* (DUX)

ita yoyuu (KAP) [**ita-yoyuu**] *Combretum farinosum* Kunth., COMBRETACEAE

ita yuku úâ: *dalia* (DUX)

ita yutnu tikuaa: *azahar* (TAM) [**yta yutnutequaa**]

ita yutu: *cacayas* (CGM) *Agave* flowers, which are eaten cooked
ita yutu nda mitu: *cacayas de cucharilla* (CGM) *Dasylirion* flowers, also edible; the

etymology of **nda mitu** was explained by our consultants as 'hand + cat'

ita yu'u (CGM) *Bourreria andrieuxii* (DC) Hemsl., BORAGINACEAE

ita yu'u (TON) unidentified species "*Ése hay en el monte, son rositas, moraditas, algo así son chiquitas, se da en el mes de diciembre , la verdad no lo he tocado de cerca para ver si huele, por acá terrenos de Xayacatlán* [de Bravo]"

ita yu'u: *Coutaportla ghiesbreghtiana* (Baill.) Urb., RUBIACEAE, or *Lindleya mespiloides* Kunth, ROSACEAE. In 2009, Michael W. Swanton (personal communication) interviewed the last speaker of Santiago Tejupan Mixtec (Teposcolula district), a woman who has lost her sight. She remembered that the fragrant white flowers of **ita yu'u** were used in the festivity of Corpus Christi. Her relatives provided Swanton and Sebastian van Doesburg with samples of both species, but could not recall which of them was the right kind.

ta<u>y</u>úchî: *chicozapote* [?] (DUX) probably *Asclepias* sp., APOCYNACEAE *Crece hasta metro y medio de altura, y las flores y la leche son blancas… Para extraer la leche, la gente cortaba las hojas. Entonces metían canutos de carrizo debajo de la parte quebrada para que la leche cayera adentro. Cuando los canutos de carrizo se llenaban de esa leche, la gente los llevaba a su casa para ponerlos cerca de la lumbre para hervir. Al día siguiente quebraban el carrizo y sacaban el chicle para masticarlo.*

4.6 The plants labeled **yuva** and **nduva**

The group marked with the class term **yuva** and its cognates encompasses a wide variety of life-forms, all of which have edible leaves, tender shoots, or occasionally, flowers. Many of them are terrestrial herbs, but there are also vines, shrubs, epiphytes and a couple of trees included in this nominal category, as the examples which follow will illustrate. The dialects of the western Mixteca Baja (including Guerrero), the extreme northeast (Coatzospan, OSP) and the Coast that have been documented only show this grouping, which encompasses the greens that are eaten raw or cooked. Most variants in the Mixteca Alta and the northern Baja for which we have records present an additional category, labeled **ndua / nduva / nduwa / nduve**, which is composed of the greens that are eaten raw, specifically (perhaps it is unnecessary to point out that his classificatory opposition of the raw and the cooked resonates deeply with the structuralist roots of linguistic anthropology and the influence of Lévi-Strauss on ethnobiology, as discussed in chapter 2). The term **nduva** is found in the western Baja as the name for *Leucaena* spp., but it does not appear to generate a larger grouping of plants. Furthermore, in the northeastern Alta, where **nduve** does mark some taxa besides *Leucaena* in at least one dialect (Apoala, APO), the group **yuva** is absent, and edible greens are labeled **yuku**. Maestro Ubaldo López García (2010, personal communication) confirms that the term **yuva** or a cognate is not used in Apoala. The dialects of the Coast, which Josserand (1983) proposed to have originated in Mixtepec Mixtec (MXT), lack the "raw" grouping, which is present in MXT, an indication, perhaps, that the **nduva** category was innovated in the highlands after Mixtec speakers colonized the Pacific lowlands. The geographic distribution of both class terms will be mapped out and discussed in the sixth chapter of this dissertation.

In San Juan Tamazola Mixtec (Nochixtlán district, Oaxaca), **yuwa** is considered a profanity ("*una grosería*"), as it refers to "*la paloma*" (the penis). *Quelites* (edible greens) are labeled **yuku** with a tonal change to distinguish from non-edible herbs (Franco Gabriel Hernández, personal communication, 1987). This semantic development may be more widespread, and may help to explain the absence of the plant category **yuva** in the northeastern Alta. In support of such a hypothesis, de Alvarado (1593) listed **yuvua** and **yeq** [**y~~ɨ~~k~~ɨ~~n**: *calabaza*] among the terms for a woman's genitals (*miembro de muger*), although plants remained the primary referents for both entries. Whatever the local history of **yuva** may have been, forms such as **yuku taka**, **yuku tetu / yuku tiiti**, **yuku tikutun**, **yuku tindaxi** / **yuku vidi**, and others, will appear in the following lists, along with cognates marked **yuva** or **nduva**.

The phonological correspondence of **yuva** and **nduva** seems to be part of a larger set of matching, semantically related terms in the Mixtec languages, which also includes **yuta / nduta** ('river' and 'water'), **yau / ndau** ('agave' and *madre de pulque*), **yuku** / **nduku** ('leaf, herb' and 'thin stick/broom'), and others. These paired terms seem to originate in a regular alternation between allomorphs that would have marked possession in Proto-Mixtecan nouns, a pattern which has been retained partly in Trique (Michael W. Swanton and Christian DiCanio, 2010, personal communication). In the plant lexicon, this hypothesis also seems to explain the curious correspondence we have recorded in Pinotepa Nacional Mixtec between **yakua** and **ndakua**, where **yakua** designates the fiber once it has been extracted, while **ndakua** is the form that is compounded into specific plant names [27.].

De Alvarado recorded native as well as introduced greens in the category **yuvua**, such as cabbage, chard, mallow, purslane and coriander. Under [**n**]**duvua** he listed lettuce, radishes and thistle. For the Spanish entry *legumbre*, 'vegetable,' the Dominican lexicographer felt compelled to cite both Mixtec forms. The terms themselves he glossed as "vegetable that is eaten cooked" and "vegetable which is eaten raw;" similar definitions are provided by contemporary vocabularies of the dialects that use both terms. An attestation from Yosondúa indicates that *quelites* may be subsumed under a wider category labeled **yuku**:

yua: *quelite que comemos* (XYA)
yúa: "*Hay un quelite que crece grande donde hay mucho abono, tiene su semilla rojita, nosotros nomás le decimos* **yúa**." (TON)
yúa: *quelite* (MIC)
iva: *hierba, quelite* (XOC)
-¿**Ndá iva kúa kútóoún kaxíún**? –**Ndi'i kúú va nuú iva kútóoi kaxíi**
-¿*Qué clase de quelite te gusta*? –*Me gustan todas las clases de quelite* (XOC)
iva / yiva: *quelites* (CTZ)
Yíyo kua'aní nuu iva: *Hay una gran variedad de quelites* (CTZ)
yua: *quelite, hierba* (SMG)
yua: *verdura que se come cocida, quelite* (CHA)
yuva: *quelite* (YSN)
Yuva kuu ~~ɨ~~in yuku ja kuu kajiyo: *El quelite es una planta que podemos comer* (YSN)
yúâ: *hierbas comestibles* (DUX)
yuve: *la verdura que se come cocida* (HUI)

uve: *quelite* (OSP)
yúva: *la hierba comestible* (SJC)
yuvua: *ortaliza para comer cozida / verdura q' se come cozida* (TAM)
yuvua: *berza* (TAM)
ndu'u yuvua / ndu'u yutnu / ti'ndi yuvua / sa'ndu yuvua: *mata de qualquier yerua* (TAM) [**duhu yuvua / duhu yutnu / téde yuvua / sádu yuvua**]
iva / yeva / yiva / yiwa / yua / yuva / yuve: *'plantas que se comen cocidas', quelite* (CAB)

Parallel entries for the group labeled **nduva** include the following:

ndua: *verduras, hierbas* (SMG)
ndua: vegetable, eaten raw (edible grass, herb, leaf, bud, shoot, etc) (CHA; Macaulay, 1996)
nduve: *plano, boca arriba / flecha*; "**nduve** is not used for herbs or greens" (OSP)
nduva / ndua: *huaje* (NUX)
nduve: *la verdura que se come cruda* (HUI)
nduvua: *ortaliza para comer cruda / verdura que se come cruda* (TAM) [**duvua**]
nduvua / yuvua: *legumbre* (TAM)
ndiva / ndrua / ndua / nduva / nduve / nduwa: *cogollo de plantas y yerbas que se consumen crudas* (CAB)

The list of taxa below will be ordered by cognate sets, independently of the class term **yuva**, **nduva** or **yuku**, since the nominal categories overlap extensively in the different dialect areas.

ndua aju: *ajo* (DUX) *Allium sativum* L., ALLIACEAE

yuwa chiin (JIC) probably *Ipomoea* sp., CONVOLVULACEAE *Hojas y tallos se comen cocidos.* **tyiin**: *uña / semillas de chile / ratón*; **tyi'in**: *zorrillo* (CAB)

yuva china (COI) *Berula erecta* (Huds.) Coville, UMBELLIFERAE *Las hojas y los tallos se comen crudos*.
ndua chína: *un tipo de berro… el cuerpo adolorido se cura con el té de los berros llamados* **ndua chína**… (DUX)

ndua dítu: *un tipo de berro comestible, la gente de la región lo llama 'berro de montón'… crece encima de las ramas de todos los árboles grandes y sobre rocas en Diuxi. Las hojitas de estos berros son redondas, pequeñas, ligeramente rojas y comestibles. Se pone sal y chile en las tortillas, y se comen con estos berros crudos. Saben a rábanos.* (DUX) The description matches *Peperomia* sp., PIPERACEAE
ndua ditu kuéñû: *un tipo de berro comestible, literalmente 'berro de ardillas'* (DUX)
ditu yetu yuvua: *breton de versa* (TAM) [**dzitu yetuyuvua**] *bretón: variedad de la col; berza: col* (Real Academia Española, 1992) **dite / ditu / djitu / lutu / sutu / xitu / xutu**: *cogollo* (CAB) **yetu**: *tallo de ortaliza* (TAM)

vedun: *estropajo* (OSP) This designation seems to relate *Luffa aegyptiaca* Mill., CUCURBITACEAE, with the edible leaves and stems of *Cucurbita* spp. and *Sechium*

edule (also a cucurbit) in Coatzospan.

yuwe iñu: *punta de guaje espinuda* (SOT) [**yuwe 'iñu**] *Mimosa watsonii* Robinson, LEGUMINOSAE [MIMOSACEAE]
ve nyuu: *cardo* (OSP)
nduvua iño: *cardo* (TAM) [**duvuaino / docoduvuaiño**] probably *Cirsium* spp., COMPOSITAE, called **huitzkilitl** [thorn-*quelite*] in Náhuatl, same etymology as the Mixtec name recorded by de Alvarado

yuve iñu yɨkɨ: *'quelite de seis esquinas', espinaca* (CAB)

yuku ido: *hierba de conejo* (NUX) probably *Tridax coronopiifolia* (Kunth) Hemsl., COMPOSITAE Historically, the terms for 'rabbit' and 'deer' appear to varied in the last vowel.

yúa ídu: *quelite de caballo* (MIC) unidentified species
yiwa isu: *hierba de venado* (ZAU) [**yiwa izu**] unidentified species used as fodder for livestock
yuwe iyu: *quelite de caballo* (SOT) [**yuwe 'iyu**] *Bidens* sp.?, COMPOSITAE **isu**: *venado* (SOT)
yuwe iyu: *quelite de toro* (SOT) [**yuwe 'iyu**] *Manihot* cf. *angustifolia* (Torr.) Muell. Arg., EUPHORBIACEAE

yuwe iti: *quintonil* (SOT) [**yuwe 'iti**] *Amaranthus hybridus* L., AMARANTHACEAE
yua jɨtɨ́: *quintonil* (SMG) probably *Amaranthus hybridus* L., AMARANTHACEAE
yua jɨ́tɨ̱: *quintonil* (CHA)
yuva tajitɨ: *quintonil* (YSN)
títî / yua títî (DUX): *un tipo de quelite… La gente come las hojas… cuando están tiernas. Se lavan, se cuecen por cinco minutos y después se exprimen. Se revuelven con sal, cebolla, chile verde y jitomate, y de la mezcla se hacen bolas. Entonces se fríen en aceite. Se ponen en tortillas para comérselas*
titi kué'e / yua títí kué'e: *un tipo de quelite rojo* (DUX)
titi kuíxi / yua títí kuíxi: *un tipo de quelite blanco* (DUX)
yuku tetu: *quintoniles* (APO)
titu: *quelite* (NUX) probably *Amaranthus* sp. or *Chenopodium* sp., specifically
yeva iti / yiva iti / yova iti / yua jɨtɨ / yuva iti / yuva ityi / yuva ixi / yuva staa jiti / yuva yɨtɨ / yuva yutɨ / yuve iti / yuve itɨ: *amaranto, quintonil* (CAB)
yuku tetu / yuku tiiti: *amaranto, quintonil* (CAB)
yuve itɨ: *yerbamora* (CAB)

yiwa kaa: *quelite de fierro* (ZAU) [**yiwa caa**] unidentified species consumed as a *quelite*
yuva kaa (COI) *Cestrum aurantiacum* Lindl., SOLANACEAE *Las hojas tiernas se comen cocidas; nombre genérico para Cestrum* spp. *comestibles.* **kaa**: metal, because of the flavor of the plant, according to Celso Flores
yiva kaa: *quelite de campana… en Cuatzoquitengo sí hay* (CTZ) **ka̱a**: *fierro, metal* / **kaa**: *campana*
yuwe tuŋaa: *quelite de fierro* (SOT) [**yuwe tungaa**] unidentified plant consumed as a

quelite The etymology appears to involve the tree/wood classifier **tun-** + **kaa**.

yuwe tuŋaya / tuŋaya: *caña agria* (SOT) [**tungaya**] *Begonia biserrata* Lindl./ *Begonia* sp., BEGONIACEAE The etymology seems to be **tuŋaa** [**i**]**ya**, 'sour metal-tree.'

ve kave: *huele de noche* (OSP) probably *Cestrum* sp., SOLANACEAE This term is placed here tentatively as a cognate.

yiwa kalixi: *mostaza* (ZAU) [**yiua calishi**] *Brassica rapa* L., formerly adscribed to *Brassica campestris* L., CRUCIFERAE

yuva kani: *alaches, acá lo preparan con frijol quebrado o con calabaza* (CGM) probably *Anoda cristata* (L.) Schldl., MALVACEAE

yuvua kane / yuku kane / yuvua tayoo kuii: *malua* (TAM) [**yuvua tayoo cuij / yucu cane** / **yuvua cane**]

yuwe kata: *huachicata* (SOT) *Xanthosoma* sp., probably *Xanthosoma robustum* Schott, ARACEAE

yiwa kini: *quelite de marrano* (ZAU) [**yiwa quini**] *Salpianthus purpurascens* (Cav. ex Lag.) Hook. & Arn., NYCTAGINACEAE

yuva kini: *quelite de marrano* (COI) *Cleome* sp., CLEOMACEAE [CAPPARACEAE] *Hojas y tallos tiernos se comen bien cocidos con "sal buena", producida en las salinas de la Mixteca Baja; especie preferida.* **kini**: pig; dirty, ugly

yu^{3}va^{2} ki^{3}ni^{2} / yu^{3}va^{2} xi^{3}li^{3} (YLX) *Rytidostylis* sp., CUCURBITACEAE Amith & Castillo gloss **kini** as 'pig' and provide no translation for **xili**, which appears to be a proper name for this plant.

yuwe kini: *quelite de cuchi* (SOT) *Manihot* cf. *aesculifolia* (Kunth) Pohl [synonym: *Manihot olfersiana* Pax], EUPHORBIACEAE

yuwa kochi (JIC) *Cynanchum* sp., APOCYNACEAE [ASCLEPIADACEAE] *Hojas, tallos y frutos se comen cocidos.* **chiki yuma**: name for the edible fruit

yuwe kolo: *quelite de guajolote* (SOT) unidentified species in the COMPOSITAE consumed as a *quelite*

yuva kondo: *chepiche, chapicha* (CAB)

ndua kua'a: *'cogollo rojo', rábano* (CAB)

yuwe kuii: *quelite verde* (SOT) [**yuwe kwii**] *Peperomia* sp., PIPERACEAE

yuwe kuli / yuwe stansia: *mostaza* (SOT) [**yuwe stancia**] *Brassica napus* L., CRUCIFERAE

yuwe kuva: *zarza hueca* (SOT) [**yuwe kuʁa**] *Byttneria* cf. *aculeata* Jacq., MALVACEAE [STERCULIACEAE]

lapandzi / lapantsi: *papaloquelite* (CGM) *tlapanche*: *Porophyllum nutans* Robinson &

Greenman, COMPOSITAE, no Mixtec name recorded (ZAU) (Casas, Viveros & Caballero, 1994: 310); **á:tlapántsi:n**: *Porophyllum calcicola* Robinson & Greenman, *Porophyllum ruderale* (Jacq.) Cass., *Porophyllum* sp.; **á:tlapántsi:n de sísiwá:tl**: *Porophyllum pringlei* Robinson (San Agustín Oapan, Guerrero, Náhuatl; Amith, 2004)

yiwa leso: *oreja de conejo* (ZAU) *Asclepias* sp., APOCYNACEAE [ASCLEPIADACEAE]

yiva lívano: *mostaza… en Cuatzoquitengo… cuando empieza a llover esto es lo primero que nace* (CTZ)

yuwe malanga: *malanga* (SOT) *Xanthosoma sagittifolium* (L.) Schott, ARACEAE

nete: *guaje* (SOT) *Leucaena leucocephala* (Lam.) de Wit / *Leucaena macrophylla* Benth., LEGUMINOSAE [MIMOSACEAE]
yuwe nete: *puntas de guaje* (SOT) *Leucaena macrophylla*
ndua néte: *guaje* (SMG) probably *Leucaena* sp., LEGUMINOSAE
ndua néte: edible part of *guaje* tree (CHA; Macaulay, 1996)
tnúndéte: *huaje* (DUX)
ndete: *huaje* (OSP)
ndrua nete / ndua ndata / ndua ndete / nduva ndete / nduva nete: *guaje* (CAB)
yuva nata / yuva ndata / yuva nyatya / yuve nete: *guaje* (CAB)
nde'te / ndetya: *guaje* (CAB)
tnundetya: *guajal* (CAB)

yuwe ne'ya: *granadita* (SOT) *Lopezia* sp., ONAGRACEAE

yuwe ne'yu: *hierba de conejo* (SOT) unidentified plant consumed as a *quelite* **nda'yu / nde'i / nde'yu / ne'yu**: *lodo* (CAB)

yuvua nidakun kavua / yuvua nitanda ndodo / yuvua nikoyo ndodo: *llanta de col* (TAM) [**yuvuanidzaqh cavua / yuvua nitandandodzo / yuvuanicoyondodzo**]

yuwe nɨ'ɨ: *siempreviva* (SOT) *Commelina* sp., COMMELINACEAE

yu^{3}va^{2} nu^{15}u^{3} kwi^{5}in^{2} (YLX) *Anoda* aff. *cristata*, MALVACEAE Amith & Castillo attribute the etymology ('face + spotted) to the margin of the leaves of this species, "which often has a faintly colored border."

yuva nuu ndute: *'quelite en el agua', berro* (CAB) This may be a description rather than a lexicalized form.

yuvua nuu yɨ̱ɨ̱: *poleo* (TAM) [**yuvua nuu yee**] **yii / yɨ̱ɨ̱**: *macho / marido, esposo* (CAB)

yuwe ndaxi: *quelite de zopilote / quelite de cañita* (SOT) [**yuwe ndaši**] *Peperomia* sp., PIPERACEAE) **ndaxi**: *se va a mojar / se va a desatar, se va a desamarrar*; **ndaxin**: *sonoro, claro* (CAB)

yuku ndiki: *creo que es el amaranto; hay uno blanco y uno rojo* (APO)
yuku ndiki dutu: *el que es de muchas semillas* (APO) **dutu**: *papá / sacerdote* (CAB)
ve ndɨkɨn: *quintonil* (OSP) probably *Amaranthus* sp., AMARANTHACEAE
yuku ndɨkɨ: *quelite* (i.e., *Amaranthus* sp. or *Chenopodium* sp.) (PEÑ)
ndɨkɨ: *amaranto* (PEÑ) *Ella* [consultant's mother] *lo sembraba*.
yuve ndɨjɨn: *quintoniles* (HUI) probably *Amaranthus hybridus* L., AMARANTHACEAE
yuva ndɨkɨ: *el* [*b*]*ledo* (CHY)
iva ndikin / nsikin / vendii' ɨkɨn / yiva ndijin / yiva ndikin / yiwa ntsikin / yuve ndɨjɨn: *amaranto, quintonil* (CAB)

yiwa ndikondo: *quelite de sapo* (ZAU) [**yiwa ndicondo**] unidentified species consumed as a *quelite* **ndikóndó**: *sapo* (CTZ)

ndua ndoo: *yerba santa* (MIC)
ndua ndoo: *yerba santa* (XYA) *Se echa al pozole*: It is used to flavor pozole.
tina ndo̲ó: *hierbasanta* (XOC)
yuwe noo: *hierba santa* (SOT) *Piper auritum* Kunth [synonym: *Piper sanctum* (Miq.) Schldl.], PIPERACEAE
yu̲a ndo̲o̲: *yerba santa* (SMG) **ndo̲o̲**: *caña* (SMG) / **nd̲o̲o̲ yutu**: *caña de la milpa* (CTZ)
yuku ndua ndoo: *la hierba santa* (TIL) [**žuku ndu'a ndoo**] *Piper auritum* Kunth, PIPERACEAE *Es de naturaleza fría; sirve para las heridas*
ndua ndóô: *hierba santa* (DUX)
tnúndú̲a nd̲o̲o̲ yúkû: *un tipo de hierba… se parece a la hierba santa* (DUX)
ve ndoo: *yerba santa* (OSP)
nduva ndoo: *hoja de yerba santa* (NUX)
nda'a nd̲o̲o̲: *yerba santa* (PEÑ) **nda'a**: 'hand, branch'
yúa ndoo: *yerbasanta* (PIN) *Piper auritum* Kunth, PIPERACEAE *"Para el caldo de pollo, caldo de vaca, pancita de vaca, patita de vaca."*
yúa ndoo va'a: *"es del bueno"* (PIN)
yua ndoo ku'u: "*que es del monte*" (PIN) *Piper* sp., PIPERACEAE
yuva ndoo (KAP) [**yubandoo**] *Piper auritum* Kunth, PIPERACEAE
yúva nd̲o̲o̲: *la hierbasanta* (SJC)
yua ndoo: *'quelite grande', yerbasanta* (CAB) **ndoo**: *grande, frondoso, selecto*
Although Caballero provides this interpretation of the name of the plant, it seems possible that the etymology involves **ndoo**: 'cane, stem', which is well attested in several dialects. Josserand reconstructs ***ndoo'** as '*caña* - cane,' and ***ka'nu'** as 'large (singular).' **Ndoo** is recorded as '*grandes (plural)*' in both CTZ and XOC, and as '*grande, selecto*' in SMG, but was not registered with that meaning in CHY nor SJC, and does not appear to be attested in TAM. I have not encountered any reference to its translation as '*leafy*,' other than CAB. Katz (1994) documented the ingestion of *Piper auritum* stems as food, which lends credence to the interpretation of **yua ndoo** as 'maize-stem / sugarcane *quelite*,' and would explain the assignment of this species to the groups labeled **ndua** or **yua** in some dialects, though the main use of this plant is as a flavoring herb, in agreement with its adscription to the **minu** nominal class in yet other Mixtec variants.

deva ndoo / diva ndoo / ndiandoo / ndiva ndoo / ndra'a ndoo / ndrua ndoo / ndua ndoo / nduva ndoo / nduve ndoo / vendoo / yandoo / yua ndoo / yuva ndoo / yuve noo: *yerbasanta* (CAB)
minu ndoo: *yerbasanta* (CAB)
minu nda'a ndoo: *'condimento de mano ancha', yerbasanta* (CAB)
nda'a ndoo / ndra'a ndroo: *yerbasanta* (CAB)
ndiandoo / tiandoo: *yerbasanta* (CAB)
tnondiva ndoo / tnonduwa ndoo / tonndiva ndoo / tunndiva ndoo / yitno ndiva ndoo: *yerbasanta* (CAB)

ndua: *huaje* (CGM)
ndua kua'a: *huaje rojo* (CGM)
ndua kuii: *huaje verde* (CGM)
ndua: *huaje* (XYA)
ndua kua'a: *huaje* (XYA)
tondua: *guaje rojo* (NGO) [**ton ndua**] *Leucaena diversifolia* (Schldl.) Benth., MIMOSACEAE The identification of this species provided in *Flora Medicinal* is questionable, as the *guaje rojo* commonly grown and eaten in the Mixteca Baja is *Leucaena esculenta* (Sessé & Mociño ex DC.) Benth.]
nduva: *guajes* (ZAU) *Leucaena* spp., LEGUMINOSAE [MIMOSACEAE]
nduva kua'a: *guaje colorado* (ZAU) [**nduva cuaá**] *Leucaena esculenta* subsp. *esculenta* (Mociño & Sessé) Benth., LEGUMINOSAE [MIMOSACEAE]
nduva kuayo: *guaje de caballo* (ZAU) [**nduva cuallo**] *Leucaena macrophylla* Benth., LEGUMINOSAE [MIMOSACEAE]
nduva kuii: *guaje verde* (ZAU) [**nduva cuií**] *Leucaena leucocephala* (Lam.) de Wit subsp. *glabrata* (Rose) S. Zárate, LEGUMINOSAE [MIMOSACEAE]
nduva manso: *guaje verde* (ZAU) *Leucaena leucocephala* subsp. *leucocephala* (Lam.) de Wit, LEGUMINOSAE [MIMOSACEAE]
nduva nduchi: *guajentuchi* (ZAU) [**nduva nduchí**] *Leucaena esculenta* (Mociño & Sessé) Benth. subsp. *paniculata* (Britton & Rose) S. Zárate, LEGUMINOSAE [MIMOSACEAE]
ndùvà: *guaje* (XOC)
nduva: *huaje* (COI) *Leucaena* sp., LEGUMINOSAE [MIMOSACEAE] *Las semillas tiernas se comen crudas o cocidas.*
nduva kuayo: *guaje de caballo* (COI) unidentified species in the LEGUMINOSAE [MIMOSACEAE] *Las hojas y los tallos tiernos se comen crudos.*
ndiva: *guaje, vainas* (CTZ)
ndiva kua'a: *guaje rojo* (CTZ)
ndiva kuíi: *guaje verde* (CTZ)
ndiva kuayi: *guaje de caballo* (CTZ)
Yasinní numa yitun ndiva kuayi: *Es muy sabroso el retoño del árbol de guaje de caballo* (CTZ)
tun yuva: *huaje* (AYU; de Leon, 1980)
ndua kua'a (MXT) [**ntúa cua**] *Leucaena esculenta*
nduva: *guaje* (YSN)
ndua: huaje (PEÑ)

ndiva / ndua / nduva / nduve / nduwa: *guaje* (CAB)
nduva kua'a: *guaje* (CAB)

ndua ndodo: *pipicha* (CGM) probably *Porophyllum tagetoides* (Kunth) DC., COMPOSITAE
ndúa ndudu: *pápaloquelite* (XYA)
ndua sikuñu'u: *pepicha* (XYA) **sikuñu'u**: *la hormiga arriera* (ants of the genus *Atta*)
ndua ndudu: *papaloquelite* (TON)
ndudu síku ñu'u: *pepicha* (TON) probably *Porophyllum tagetoides* **síku ñu'ú**: *ant*
ndua ndudu / nda ndudu: *pápalo* (MIC)
nda ndudu sikoñuu: *pipicha* (MIC) "**siko ñuu** *lo dice hormiga*"
yiwa ndusu: *pápalos* (ZAU) [**yiwa ndusú**] *Porophyllum* spp., COMPOSITAE
yuva ndusu (COI) *Porophyllum ruderalis* (Jacq.) Cass. ssp. *macrocephalum* (DC.) R.R. Johnson, COMPOSITAE *Se come crudo, lo traen a vender de la zona baja.*
ndua ndusu (MXT) [**ntúa ntuzu / ntúa ntuzu'u**] *Porophyllum ruderalis*
yuwe no'su: *papaloquelite* (SOT) *Porophyllum ruderalis* (Jacq.) Cass. var. *macrocephalum* (DC.) Cronquist, COMPOSITAE
ndua ndusú: *papaloquelite* (edible herb) (CHA; Macaulay, 1996)
nduva ndusu: *pápaloquelite* (YSN) probably *Porophyllum ruderalis* ssp. *macrocephalum*
ndua ndudu ídu: *un tipo de romero* (DUX) **idju / idu / isu / usu / yisu / yusu**: *venado* (CAB)
ndúa ndudu: *pápaloquelite* (APO)
xku ndudu: *papaloquelite* (OSP)
ndudu: *chepiche* (NUX) probably *Porophyllum tagetoides*
ndrua ndrudu / ndrua ndrusu / ndua ndudu / ndua ndusu / nduva ndusu / nduva tusu / nduve ndudu / nduve ndudu sto'o / nduwa ndudu: *pápalo o papaloquelite* (CAB)
ndua ndudu / nduva ndusu / nduve ndudu: *chepiche, chapicha* (CAB) **ndudu**: *sabroso, sazonado*
ndua ndudu sikuñu'un / ndua ndusu sikuñu'un: *chepiche, chapicha* (CAB)
ndua ndusu tyoo / nduva tyitoo: *chepiche, chapicha* (CAB) **tyoo**: *cangrejo*; **tyo'o**: *pulga*; **tyito'o**: *gallo*
yiwa ndusu / yua ndudu / yuva lusu / yuva ndusu / yuve ndusu / yuve nusu: *pápalo o papaloquelite* (CAB)
yuva ndusu / yuve nusu: *chepiche, chapicha* (CAB)
yuva ndusu ite / yuve nusu ite: *chepiche, chapicha* (CAB) **ite**: *pasto*
yuve nusu kuatyi: *chepiche, chapicha* (CAB) **kuachi**: small
xkutiudu: *pápalo o papaloquelite* (CAB) The etymology appears to be **yuku tiudu**, where **ti-** would alternate with the prefix **ndu-**, a pattern attested in other plant names.
tyindudu: *chepiche, chapicha* (CAB)
tyindudu tata: *pápalo o papaloquelite* (CAB) **tata**: *papá / señor / semilla seleccionada para sembrar*
tilusu: *chepiche, chapicha* (CAB)
ndudu satu: *'sabor picoso', rábano* (CAB)

vendunaña: *chayotal* (CAB) The tender leaves and stems of *Sechium edule* (Jacq.) Sw., CUCURBITACEAE, are eaten in Oaxaca. **naña**: *chayote*

yiwa nduu (ZAU) [**yiwa ndu**] *Galinsoga parviflora* Cav., COMPOSITAE
yuva nduu (COI) *Galinsoga quadrirradiata* Ruiz & Pavón, COMPOSITAE *Se come crudo.*
nduu: *sabroso, sazonado* (CAB) This etymology does not appear to be evident in Coicoyán Mixtec.
yuva nduu (COI) *Jaegeria hirta* (Lag.) Less., COMPOSITAE *Se come crudo, gusta con elote asado.*
yuva nduu (COI) *Jaegeria pedunculata* Hook. & Arn., COMPOSITAE *Se come crudo.*
yuva nduu isu / yuva nduu yuku (COI) *Alloispermum integrifolium* (DC.) H. Robinson, COMPOSITAE *Las hojas tiernas se comen crudas.* **isu**: deer
yuwa nduu (JIC) *Galinsoga parviflora* Cav., COMPOSITAE *Hojas se comen crudas.*
yuwe nu'u: *quelite de borrego* (SOT) *Galinsoga* sp., COMPOSITAE
ita nduvua ndu'u kastiya / ita tɨmii kastiya / yuku nduvua: *manzanilla* (TAM) [**itanduvua duhu castilla / itatemij castilla / yucunduvua**] The first form appears to be a cognate of COI and JIC **yuva nduu**, *Galinsoga* spp. & *Jaegeria* spp.., which chamomile resembles

yu^{3}va^{2} ndu^{1}xa^{32} i^{3}ya^{5} / yu^{3}va^{2} i^{3}ya^{5} (YLX) *Arthrostemma ciliatum* Pavón ex D. Don, MELASTOMATACEAE This and the following terms are cognates of ZAU **yita tuxaya** and COI **ita tixaaya**, which designate begonias.
yuwe nuxiya / nuxiya: *xocoyule* (SOT) [**yuwe nušiya**] *Oxalis decaphylla* Kunth, OXALIDACEAE The etymology appears to be **n(d)uxa + iya**.

ndzitsɨ / ndzitsé: *las flores o los retoños del huaje* (CGM)

yua nkútu: *un tipo de hierba, literalmente 'hierba de toro'… se usa el fruto… para hacer jabón* (DUX)

yuwe ña'an na'vi (SOT) [**yuwe ña'a na'ʁi**] unidentified plant consumed as a *quelite*
ña'an: *mujer*; **na'vi / nda'vi**: *pobre*; **ña'an na'vi**: *viuda* (CAB)

ndia'mí: *rábano* (XOC)
ndia'mí / yiva ndia'mi: *rábano* (CTZ)
nduva ña'mi: *rábano* (MXT; Carlos Macedonio Sánchez Bautista, personal communication, 1986) The leaves are eaten raw in Mixtepec, together with the tubercles.
nduvua ña'mi: *rabano* (TAM) [**duvuañami**]
nduvua ña'mi kuisi: *nabo* (TAM) [**duvua ñami cuisi**]
yuve ña'mi: *'quelite camote', rábano* (CAB)
yuve ña'mi kuaan: *'quelite de camote amarillo', zanahoria* (CAB)
di'va ña'mi / ndaña'mi / ndiva ña'mi / nduva ña'mi / nduve ña'mi / nduwa ña'mi / ndyaña'mi: *rábano* (CAB); **ndiva ña'mi**: *'cogollo camote', rábano* (CAB)
ndiva ya'mi kuaan / nduva ña'mi kuaan: *'yerba camote amarillo', zanahoria* (CAB)

yiwa papalo: *pápalo* (ZAU) *Porophyllum ruderale* (Jacq.) Cass., COMPOSITAE

yu^{3}va^{2} pi'^{15}lo^{1} (YLX) *Manihot* sp., EUPHORBIACEAE *Las hojas se hierven y se revuelven con sal y chile y hoja de ciruela (aparentemente Spondias purpurea*). *Se muele todo sobre metate y se forman bolitas que se comen directamente después de haberse molido. Esta comida se llama* **yu^{3}va^{2} si'^{15}vi^{3} ka'^{3}a^{5} bu^{5}rru^{2}**, *literalmente 'quelite caca trasero burro' por su apariencia como estiércol de burro*. See **yuva xii**, which may be the same species of *Manihot*, used in Jicayán de Tovar to make the same type of food.

yuva rindi: *yerbamora* (CAB)

yuwe saa: *quelite de pajarito* (SOT) *Ipomoea* sp.?, CONVOLVULACEAE

yua sa'a: *quelite santo* (XYA) *Es la hoja de un árbol, retoña en enero, se cortan los retoños y se cuecen en horno de maguey, se le echa agua para apagar la piedra para que salga blandito, le echan el agua por un tubito de maguey para apagar el horno. Es de lugares altos donde hay cucharilla, gigante*. 'It's the leaf of a tree, it sprouts in January, the new sprouts are cut and they are cooked in an earth oven of the kind used for baking agaves, they put water in to cool the hot stones so that the leaves come out soft, they add the water by means of an agave [inflorescence] tube to turn off the oven. It grows in high altitude places where there is *Dasylirion, Neobuxbaumia*.

yua sá'a: *quelite santo* (TON) *Ése hay en mes de diciembre, enero, febrero, cortan el tiernito, la puntita, hacen el horno y lo cuecen como la barbacoa, y muy sabroso, hay en el cerro, lejos, crece como el huaje ése, ¿vio usted el venenillo?, más delgadita la hoja y son retoños tiernos que empieza nacer en diciembre.*

yuva sa'a tuya'a: *hierba de pierna de vieja* (CHY) **yuva saha tu yaha**; **sa'a yo**: [*nuestro*] *pie*; **ya'a**: *el chile*

yuva sava: *berro* (COI) *Rorippa* sp., CRUCIFERAE *Se come crudo.* **sa'va**: 'frog'
yuva sava (**vali**): *berro chiquito* (COI) *Rorippa nasturtium-aquaticum* (L.) Hayek., CRUCIFERAE *Se come crudo.*
ndua sava (MXT) [**ntúa sava / ntú'a saba**] *Rorippa nasturtium-aquaticum*
yuwe tya'va: *berro* (SOT) [**yuwe tya'ʁa**] *Rorippa nasturtium-aquaticum* **ndia'va / nditia'a / tiya'a / tya'va**: *chinche* (CAB); **tia'a**: *chinche, Edessa cordifera* Walker, an edible insect (SOT)
yuku la'va: *berros* (PEÑ) **la'va**: *rana* (CAB)
yuvua sitiyawa: *berros* (TAM) [**yuvuasiteyahua**] **tiyahua**: *rana*
yiva la'va / yuva sa'a / yuva tya'wa / yuve tia'va: *berro* (CAB) **la'va / sa'va / tia'wa**: *rana*
nduva sa'a / nduva sa'va / nduve ya'va / ndiva la'la: *berro* (CAB)
yuku tya'wa: *berro* (CAB)
yiva la'va / yuva sa'a / yuva tya'wa / yuve tia'va: *rábano* (CAB)
ndiva la'la / ndua sa'va / nduva sa'va / nduva sa'a / nduve sa'a: *rábano* (CAB)

ndua jatu: *berro* (SMG) **etu / jatu / jetu / sati / satu / tsatu / tyatu / xati / xatu / yatu / yetu**: *pica, está picoso* (CAB)
ndua jatu / nduva jatu / nduva tijatu: *berro* (CAB)

ndúa satu: *rábano* (TON) **satu**: *picoso*
ndua satu: *'cogollo picoso', rábano* (CAB)

yuva chichi (COI) the leaf buds and tender stems of the bean plant, which are eaten

yuwe silantro: *cilantro* (SOT) [**yuwe cilantro**] *Coriandrum sativum* L., UMBELLIFERAE

yuva skítaka (COI) *Stellaria* cf. *prostrata* Baldw., CARYOPHYLLACEAE This may be a cognate of de Alvarado's **yuwa siki**, with perhaps the epithet **taka** (*enmarañado*: CAB), which describes its appearance.
yuwa siki / yuwa yondaa siki: *mastuerzo de la tierra* (TAM) [**yuhua siqui / yuhua yondaa siqui**]

yuva so'ma (COI) *Smilax* sp., SMILACACEAE *Las puntas tiernas se comen cocidas.*

yiva sutu: *el berro* (CTZ) probably *Rorippa* sp., CRUCIFERAE **sutu**: *sacerdote, cura*
This name, which is unique among Mixtec designations for water-cross, seems to be a calque of **ya'**$_{3}$**wi:**$_{2}$ **ja**$_{2}$**ku:n**$_{2}$, '*quelite del cura,*' *berro* (Malinaltepec Tlapanec, spoken in the immediate vicinity of Cuatzoquitengo; Suárez, 1983b)

yuwe taan: *quelite de temblor* (SOT) [**yuwe taa**] unidentified species consumed as a *quelite* **naa / tnaa / taan**: *tiembla* (CAB)

yua taka: *quelite* (CGM)
yua taka kua'a: *quelite rojo* (CGM)
yua taka kuixi: *quelite blanco* (CGM)
yua taka (MXT) *Sonchus oleraceus* L., COMPOSITAE
yuwe taka: *quelite de manteca* (SOT) *Chenopodium berlandieri* Moq., CHENOPODIACEAE
yua taká: *quelite de manteca* (CHA)
yua tákâ: *un tipo de hierba, parece huazontle… La gente come las hojas y las flores de esta hierba… las flores se cuecen en un poco de agua y se exprimen… se untan las flores con huevos batidos y se fríen con aceite… las hojas se echan en una olla con agua y se ponen en la lumbre a hervir. Se echan ajo, sal, chile y cebollas en la olla. Se cuece durante quince minutos* (DUX)
yuku taka: *quintonil, huazontle* (NUX)
yuku taka: *huazontle* (PEÑ)
yuvua taka: *acelga* (TAM) [**yuvuataca**]
ita yuva taka / ita yuve taka / yuva taka / yuve taka: *huazontle, quelite de manteca* (CAB)
sitaka / staka /taka: *nido, con referente a aves* (CAB) / **taka**: *nido, maraña, enredo, maleza, embrollo* (CTZ)
nduva taka: *huazontle, quelite de manteca* (CAB)
taka yaa: *huazontle, quelite de manteca* (CAB)
yuku taka: *huazontle, quelite de manteca* (CAB)

nduva taya'á (MXT) *Dyssodia pinnata* (Cav.) B.L. Robinson, COMPOSITAE (Carlos Macedonio Sánchez Bautista, personal communication, 1986)

ndua taya'a (MXT) [**ntúa taya'a**] *Dyssodia glandulosa* (Cav.) Hoffm., COMPOSITAE
nduva taya'a: *pata de gallo* (YSN) **taja / tajia / tasa / tasia / tatsa / tatya / taxa / taya**: *rayo*; **ndeya'a / nduta ya'a / ndute ya'a / ndutsia'a / taya'a / tya'a / tiya'a / tsiya'a / tyiya'a**: *salsa* (CAB); **tià'á**: *salsa* (XOC); **teya'a'**: chili sauce (AYU); **nducha'a**: *salsa* (YSN)

yiwa ta'[**y**]**i**: *quelite podrido* (ZAU) [**yiwa tai**] unidentified species consumed as a *quelite*
ta'yi: *podrirse* (CTZ)

yua tuyóo: *alachi* (TON) "*Acá no acostumbran comerlo; es babosito.*"
yua tayoo: *alache* (NGO) [**yuatayoo**] *Anoda cristata* (L.) Schldl., MALVACEAE *Sirve para el estómago en el caso de la disentería… Las hojas son comestibles al igual que los tallos tiernos. Se pueden preparar poniendo a hervir las hojas y los tallos y ya cocidos se sacan de la olla y se pasan a otra cazuela...* (NGO)
yua tayoo / yua teyoo: *alaches* (MIC)
yiwa tayoo: *malva* (ZAU) [**yiwa taio**] *Malva parviflora* L., MALVACEAE
yiwa tiyoo: *alache* (ZAU) [**yiwa tíio / yiwa tio**] *Anoda cristata* (L.) Schldl., MALVACEAE
yuva tayoo: *alachi* (COI) *Anoda cristata* (L.) Schldl., MALVACEAE *Se come cocido.*
yua tayo'o (MXT) *Anoda palmata* Fryxell, MALVACEAE
yuwe tyoo: *quelite de violeta* (SOT) *Anoda cristata* (L.) Schldl., MALVACEAE
yua táyóó: *violeta* (SMG) probably *Anoda cristata*
yua tayóó: *violeta, malva* (CHA)
yuva tayoo: *violeta* (YSN)
tayóo / yua tayóo: *violeta* (DUX)
yua tayoo kúchî: *un tipo de hierba, literalmente 'hierba violeta de puerco'* (DUX)
yuku ita yoo: *violeta* (NUX) probably *Anoda cristata* This form suggests that the etymology of **tayoo** in other dialects may involve a contraction of **ita**, 'flower,' since *Anoda* has salient purple blossoms.
yuvua tayoo kuii / yuku kane / yuvua kane: *malua* (TAM) [**yuvua tayoo cuij / yucu cane** / **yuvua cane**]
yua tayoo / yuve tóó: *quelite de violeta* (CAB)

yuva tia'a: *culantrillo* (COI) *Peperomia* sp., PIPERACEAE *Se come crudo, especie preferida*. **tia'a**: edible chinch bug, considered a delicacy

yiwa tiaka: *hoja de pescado* (ZAU) [**yiwa tiahcá / yiwa taca**] *Rumex* sp., POLYGONACEAE

yiwa chi'na: *amole / lava ropa* (ZAU) [**yiwa chîna / yiwa chi'ná**] *Phytolacca icosandra* L. / *Phytolacca octandra* L., PHYTOLACCACEAE
tixi'na: *planta de fuchina silvestre* (CTZ) *Fuchina*, the synthetic dye fuchsine, resembles the deep purple juice of the ripe fruit of *Phytolacca* spp.
yuva tichina (COI) *Phytolacca octandra* L., PHYTOLACCACEAE *Las hojas tiernas se comen cocidas.*
yua titsina (MXT) [**yúa titzina**] *Phytolacca icosandra* L., PHYTOLACCACEAE
txíchi íná: *un tipo de hierba silvestre… crecen en las milpas. Crecen hasta treinta centímetros de altura… sus frutas son azules oscuras y por dentro son moradas con*

muchas semillas. La gente las come (DUX) **xityi**: *pitaya / ejote / estómago* (CAB) **ina**: 'dog' This may not be a cognate of the rest of the set.

yiva ti̲'ín: *quelite de zorrillo* (CTZ) [**ti̲'ín**: *zorrillo*]
Yasinní yiva ti̲'ín, mii ka vi kivi táanna tikava xi'inña: *Es muy sabroso el quelite de zorrillo, sobre todo cuando le ponen ciruelas* (CTZ)
yu^{3}va^{2} ti'^{5}in^{5} (YLX) *Solanum nigrescens* M. Martens & Galeotti, SOLANACEAE Amith and Castillo confirm ti'5in5 as *zorrillo*, 'skunk.'

yiwa ti'in: *hierba mora* (ZAU) [**yiwa tii**] *Solanum nigrum* L., SOLANACEAE
yuwa tiin (JIC) *Solanum* cf. *nigrum* L. SOLANACEAE *Hojas se comen cocidas*. **tiin**: uña; sudor; ratón; pepita (CAB)
yiva tí'i̲n: *yerba mora* (CTZ) probably *Solanum nigrescens* Mart. & Gal., SOLANACEAE Distinguished tonally from the previous entry, an interesting "minimal pair" for phonemic analysis.
Va'aní yiva ti'i̲n kaxiyo kivi ndó'oyo sayi, chi yo̲va̲ lo'oña: *Es muy bueno comer el quelite de yerba mora cuando tenemos gripe, aunque está un poco amargo* (CTZ)
yiva ti'in / yiwa tni'in: *yerbamora* (CAB)
yuva ti'in: *yerbabuena* (CAB) This may be an error in response to Caballero's questionnaire.

nduva tijaku: *rábano* (CAB)

yuva tika / ita tika (COI) *Lagascea helianthifolia* Kunth., COMPOSITAE *Las flores se comen cocidas en el rescoldo*. **tika**: *chapulín*, grasshopper

nduvua tɨkadi: *lechuga* (TAM) [**duvuatecadzi**] **ticadzi**: *cuchara* (TAM)

yuwe tyɨkɨ [?]; alternatively, **yuwe tyɨkɨn** [?]: *quelite de vela / quelite de hoja gruesa / quelite de semilla* (SOT) [**yuwe tyɨkɨ**] *Peperomia* aff. *obtusifolia* (L.) Dietr., PIPERACEAE **tyikí / tyinki / tyɨkɨ**: *tuna*; **ndikin / tiyikin / tyɨkɨn / xikin**: *semillas de calabaza, támala, sandía, chilacayote, melón, pepitas* (CAB)

tsivatnu: *verdolaga* (CGM) This and the following terms seem to be cognates of **tɨkutnu** / **chikitun**, although the phonological process that would have generated the Northern Baja forms is a challenging reconstruction.
sivatnu: *verdolaga* (XYA)
tsivaton: *verdolaga* (NGO)
sivatu: *verdolaga* (MIC)
yiwa xikitu: *verdolaga* (ZAU) [**yiwa xikitú / yiwa xiki tu**] *Portulaca oleracea* L., PORTULACACEAE
chigiton (JIC) *Portulaca oleracea* L., PORTULACACEAE *Hojas y tallos se comen cocidos.*
yiva chi̲ki̲tu̲n: *verdolaga* (CTZ)
yua tikitu (MXT) *Portulaca oleracea* L., PORTULACACEAE
yuwe skitu: *verdolaga* (SOT) *Portulaca oleracea*
tkútnû / yu̲a tkútnû: *verdolaga* (DUX)

yuku tikutu: *verdolaga* (APO) Maestro Ubaldo López García (2010, personal communication) interprets the etymology of **tikutu** as "*que no se cultiva*"; **kutu**: *arar* (SMG); *desyerbar, limpiar la milpa* (CTZ)
chikutun: *verdolagas* (NUX)
yuku tekuitnɨ: *verdolaga* (PEÑ)
tɨkutnu: *verdolaga* (HUI)
xikitu: *verdolaga* (PIN)
yúva xikitun: *la verdolaga* (SJC)
xikutu / yuva xikutu: *la verdolaga* (CHY) **Va'a sasi yuva xikutu**: *La hierba verdolaga es sabrosa para comer*
yuku tɨkutnu / yuvua tɨkutnu: *verdolagas* (TAM) [**yucu tecutnu / yuvua tecutnu**]
yio tyikiton / yiva tyeketno / yiva tyikitun / yua sivatnu / yua skutnu / yuva skitnu / yuva skutun / yuva tyiton / yuva xikitun / yuve tɨkutnu / yuve skitun / yuve tikutun: *verdolaga* (CAB)
yuku tikutun: *verdolaga* (CAB)
tikuitun / tyikitno / tyikutnu: *verdolaga* (CAB)
yi4**va**4 **nd'i**3**tu**3 (Cuicatec from Santa María Pápalo) *verdolaga* (Anderson & Concepción, 1983)
kkweej 32 **chiritun** 2.2.3 (Trique from San Martín Itunyoso) purslane (Christian DiCanio, 2009, personal communication)
tsco xi'qui'tyon (Amuzgo from San Pedro Amuzgos) *verdolaga … La verdolaga se encuentra en la milpa de chagüe, en tierra húmeda*. (Stewart & Stewart, 2000: 199)
tson tskö xikiton (Amuzgo from San Pedro Amuzgos) *verdolaga* (Tapia, 1980). **Tsco/tskö** is the class term for 'leaf/herb.' These Trique and Amuzgo forms are evidently cognates of the Mixtec terms; the variability of the latter suggests that Trique and Amuzgo borrowed theirs from dialects in the western Mixteca. The Cuicatec term may be a cognate of an earlier form in the northeastern Alta. It is intriguing that the term for 'purslane' should be borrowed so frequently, since there appear to be few cognates derived from Proto-Mixtecan and little evidence of language contact in the plant lexicon of Mixtec, Trique and Amuzgo. **Tɨkutnu** and its sister forms may be testimony of the recent spread in Mesoamerica of *Portulaca oleracea*, which may originate in western Asia, although it has been found in archaeological contexts that predate 1492; it has been proposed that humans facilitated the spread of this species (Chapman *et al*., 1974).

yua tsiko'ne / yua tsko'ne: *quintoniles* (CGM) probably *Amaranthus hybridus*
yua sikuni: *quintoniles* (MIC)
yiwa tiku'ni: *alegría* (ZAU) [**yiwa ticu uni**] *Amaranthus hypochondriacus* L., AMARANTHACEAE
yiwa tiku'ni: *quintonil* (ZAU) [**yiwa ticúni / yiwa ticú'uni**] *Amaranthus hybridus* L., AMARANTHACEAE)
yuwa tikone (JIC) *Amaranthus hybridus* L., AMARANTHACEAE *Hojas y tallo tiernos se comen cocidos.*
yiva tiku'ni: *quintonil* (CTZ)
yua tikuni (MXT) [**yua ticuni**] *Amaranthus hybridus* L., AMARANTHACEAE
yua siku'ni: *amaranto, quintonil* (CAB)
yuva tyikoni'i: *yerbamora* (CAB)

ndua tikuañu'un [?] (MXT) [**ntua ticuañu un / ntua ticuañu'un**] *Porophyllum tagetoides* (Kunth) DC., COMPOSITAE **tikuañi / tikuañu / tɨkuañɨ**: *zancudo*; **kuañu / ndikuañi / tikuañi**: *ardilla*; **uun**: *sabor simple* (CAB) This may be a cognate of **nda ndudu sikoñuu**: *pipicha* (MIC)

yuvua tinama / yuvua nikuni / yuvua tinduu: *repollo de versa* (TAM) [**yuvuaniqni**]

yuku sínana tnuu: *yerbamora* (TON) probably *Solanum* sp., SOLANACEAE "*La verdad nosotros no lo comemos; tengo una nuera que viene de por Veracruz, que dice que sí lo come.*"

yuva tinana: *quelite tomate* (COI) *Physalis* sp., SOLANACEAE *Las hojas tiernas y los brotes se comen cocidos.*
yiva tinana: *quelite de tomate* (CTZ)
Yíyo nuu va'aní yíyo yiva tinana yíyoña yuku kó'o va'a: *Hay lugares donde abunda el quelite de tomate, hay en montes bien tupidos* (CTZ)

yuku tinesun: *hierba mora* (TXA) [**yuku tinesum**] *Solanum americanum* L., SOLANACEAE *En el tratamiento de la disípela… La disipela se presenta por susto y mal aire… De esta hierba existe otra parecida con el nombre de tileso o hierba de disípela, pero no es tan recomendable* …**va'a ka yuku yuve tinesun**: *También es comestible*.
yuwe tineso: *hierba mora* (SOT) *Solanum americanum* Mill. / *Solanum nigrescens* M. Martens & Galeotti, SOLANACEAE There is probably a historical link between **tineso** and **tileso** (*Jaltomata procumbens*), both designating solanaceous herbs with prominent round fruit.
yuve tinesu: *yerbamora* (CAB)

yua tndá'a: *herbáceas, literalmente 'hierba gusano de oro'* (DUX) The etymology appears to involve the marker 'animal/round object.'

yuku tindaxi: *chepil, chipil* (CAB)

yuwa tindii (JIC) *Kallstroemia maxima* (L.) Hook. & Arn., ZYGOPHYLLACEAE *Hojas y tallo tiernos se comen cocidos*. **tindi**: *grillo* (CAB)

yuwe tinɨyɨ: *quelite de ardilla* (SOT) *Peperomia quadrifolia* (L.) Kunth, PIPERACEAE
ndɨyɨ: *difunto / se va a encoger / se va a tullir / se va a quemar* (CAB)

yuku tiñeñe: *yerua mora* (TAM) [**yucu ti ñeñe**] **tneñe**: *raton*

yuwe tiñɨ: *quelite de ratón* (SOT) *Polanisia uniglandulosa* (Cav.) DC., CAPPARIDACEAE
nduve tnɨñɨ: *chepiche* (HUI) **tnɨñɨ**: *ratón, por la forma de las hojitas*
yiva tiñu: *chepiche, chapicha* (CAB) **tiñu**: *ratón*

tɨtá'ɨ / yua tɨtá'ɨ: *chayotillo* (DUX) *Se cuecen chayotillos con agua en una olla, se sacan, se*

exprimen, se ponen sobre tortillas y se comen con sal. También se fríen en aceite.

ndua sitnii: *huaje de ratón* (TON) "*Es un pequeñito así que también se come el huajito, son pequeños pero muy sabrosos*."

nduve tyitn~~ɨ~~ñ~~ɨ~~: *chepiche, chapicha* (CAB)

yu<u>a</u> t~~ɨ~~v<u>a</u>yá: *guía de calabaza* (CHA) Refers to the edible, tender leaves and young stems of squash, widely eaten in Oaxaca.

yuva tixa'ya (JIC) *Heterocentron parviflorum* Whiffin, MELASTOMATACEAE *Se come cocida con carne para quitarle la "xoquía".* This is a cognate of COI **ita tixaaya**, which designates a *Begonia* that children suck on the stems for their sweet and sour flavor; the etymology seems to involve **iya**, 'acidic.'

yuku tsixin'i [?]: *hierba mora* (NGO) [**yukutsixin'i**] *Solanum americanum* L., SOLANACEAE **tixi'i / t~~ɨ~~di'~~ɨ~~ / t~~ɨ~~si'u**: *calambre* (CAB)
Para curar la discipela roja: se prepara una masa con las hojas de la planta y se aplica. Sirve para los granos infectados… **Kui kuxindo nda'axi tata yua**. *También se comen las hojas como quelite.* (NGO)

yuva tiyuku: *pápalo o papaloquelite* (CAB)

ndua tn<u>u</u>j~~ɨ~~ĩ~~n~~ / tn<u>u</u>j~~ɨ~~ĩ~~n~~: *cebolla* (DUX)

yuva too / yuve too: *yerbamora* (CAB)
yuve tóó / yua tayoo: *quelite de violeta* (CAB)

ndú<u>a</u> to'ó: *chepiche* (APO)
nduve to'o: *pápalo* (HUI)

yúa úa: *yerbamora* (PIN) probably *Solanum nigrescens* M. Martens & Galeotti, SOLANACEAE "*Hervido, después se fríe y una salsa roja.*" **úa**: *amargo*
yuva uva: *la hierbamora* (CHY) **uva**: *amargo*

yuwe viko: *jabonera* (SOT) [**yuwe ʁiko**] *Phytolacca icosandra* L., PHYTOLACCACEAE **viko / wiko**: *nube / fiesta / estación o el tiempo del año* (CAB)

yuwe viyu: *pierna de vieja* (SOT) [**yuwe ʁiyu**] *Hybanthus verticillatus* (Ortega) Baill., VIOLACEAE) **ʁiyu**: *milpa tierna* (SOT)]

yua wa'á: *quintoniles* (TON) Etymology: 'quelite good'

yuva xii (JIC) *Manihot* sp., EUPHORBIACEAE *Las hojas tiernas se comen cocidas y molidas, alimento durable que los mestizos nombran "caca de burro" en son de burla.* **xii**: *se va a marchitar* (CAB)

nduva xiko: *planta de olor, cilandro* (CAB)

yiwa chi'ndi (ZAU) [**yiwa chihndi**] unidentified species consumed as a *quelite*

yuva xi'ndi (COI) *Cyclanthera tamnoides* Cogn., CUCURBITACEAE *Las hojas, tallos tiernos y frutos se comen crudos y cocidos*. **xi'nde**: *joto, puto* **xindi**: *nalga* (CAB) **tixi'ndi**: name of the edible fruit
yuva xi'ndi kava (COI) *Cyclanthera langei* Cogn., CUCURBITACEAE *Los frutos, las hojas y los tallos tiernos se comen cocidos*. **kava**: *peña* (CAB)

yuwe xi'ni: *chayotillo* (SOT) [**yuwe ši'ni**] unidentified plant consumed as a *quelite*, evidently a cognate of COI **yuva xi'ndi**, and probably a species in the CUCURBITACEAE

yuve tidi'ndyi: *planta bejuquera con flores blancas y frutos pequeños que llaman chayotillo* (CAB) The description, which corresponds to a cucurbit, agrees with the phonological resemblance to propose that this is a cognate of **yuva xindi**.

yiwa xiki (ZAU) [**yiwa shiqui**] unidentified species consumed as a *quelite*

yuva xiyo (COI) *Miconia globulifera* Naudin, MELASTOMATACEAE
yuva xiyo leso (COI) *Tibouchina scabriuscula* (Schldl.) Cogn., MELASTOMATACEAE No use reported. **leso**: rabbit
yuva xiyo (**na'nu**) (COI) *Leandra subseriata* (Naundin) Cogn., MELASTOMATACEAE **na'nu**: large (plural) *Para tapar barbacoa; tinte amarillo para lana.*
yuva xiyo (**na'nu**) (COI) *Miconia militus* Wurdack, MELASTOMATACEAE *Para tapar barbacoa; tinte amarillo para lana.*
yuva xiyo vali / yuva xiyo (**nu'un**) **tiin** (COI) *Monochaetum calcaratum* (DC.) Triana, MELASTOMATACEAE *Las hojas tiernas se comen cocidas con carne*. **vali**: small (plural) **nu'un**: tooth **tiin**: mouse

yuva xiyo (JIC) *Conostegia xalapensis* (Bonpl.) D. Don., MELASTOMATACEAE *Las hojas se comen cocidas en caldo de carne; el fruto se come crudo*.
yuva xiyo (**leko**) (JIC) *Tibouchina hintonii* Gleason ex Todzia, MELASTOMATACEAE *Se come cocida con carne.* **leko**: rabbit
yuva xiyo (**leko**) (JIC) *Tibouchina* cf. *naudiniana* (Decne.) Cogn., MELASTOMATACEAE
yuva xiyo (**ndiaa**) (JIC) *Miconia schlechtendalii* Cogn., MELASTOMATACEAE *Las hojas se usan para tapar carne cocida en barbacoa bajo tierra.* **ndiaa**: *color azul* (CAB)
yuva xiyo tumi (JIC) *Clidemia hirta* (L.) D. Don, MELASTOMATACEAE **tumi**: 'pubescent'

yuva si'yu: *el chiyu* (CHY) **si'yo**: *capulín* This appears to be a cognate of COI and JIC **yuva xiyo**; the phonological similarity is reinforced by the fact that the fruit of various melastomes is often called *capulín* in regional Spanish.

tscoxiuu (Amuzgo from San Pedro Amuzgos) *hoja de capulín (comestible) … Ayer agarraron un mapache y lo hicieron en barbacoa con hojas de capulín.* (Stewart & Stewart, 2000: 199) **Tsco** designates 'herb, leaf'; **xiuu** appears to be a cognate of **xiyo** in Coicoyán and Jicayán, where wild game is cooked in a pit oven with melastome leaves, as the Amuzgo entry specificies. The *Relación de Justlahuaca* of

1580 (ACÑ) mentions that Amuzgo was spoken in addition to Mixtec in both Jicayán de Tovar and Ayusuchiquilazala, present day Santos Reyes Zochiquilazala, a community close to Coicoyán (which does not appear to be cited in the colonial record prior to the 18th century). The direction of borrowing for this term is not clear to me, which does not seem to be widespread in Mixtec. Only one melastome is reported to be eaten as a green in Yoloxóchitl in the neighboring coastal area of Guerrero, where it is designated **yu^{3}va^{2} ndu^{1}xa^{32} i^{3}ya^{5}** (Amith & Castillo, 2010).

yuva xkula: *chepil, chipil* (CAB)

yuwe xukui: *quelite de leche* (SOT) **yuwe šukwi**] unidentified species consumed as a *quelite* **dekue / dikui / sikui / sɨkuɨ / xikui / xukui / yukui**: *leche* (CAB)

yiwa xuxa: *fraile* (ZAU) [**yiwa shúsha**] *Euphorbia graminea* Jacq., EUPHORBIACEAE This appears to be a cognate of **xuxa**, 'pine resin / copal,' and **tuxa**, 'pine.' The plant is characterized by its white latex, which may motivate the nominal link to tree resins.

yiwa yaa: *quelite de manteca* (ZAU) *Chenopodium berlandieri* Moq., CHENOPODIACEAE
yuva yaa stila (COI) *Chenopodium album* L., CHENOPODIACEAE *Medicinal para diarrea.*
yiva yaa / yiwa yaa / yuva yaa: *huazontle, quelite de manteca* (CAB)

yuva yaa (COI) unidentified tree with large edible leaves; Don Trinidad Oliveros translated **yaa** as 'music, song,' but Celso Flores disagreed with that interpretation. Differs tonally from the term for the *Chenopodium*.
yuwe yaa: *chichicastle* (SOT) unidentified plant consumed as a *quelite*, possibly a cognate of COI **yuva yaa**

ndua yáá: *diente de león color cenizo, comestible* (DUX) probably *Taraxacum* sp., COMPOSITAE **yaa / xaa**: *ceniza* (CAB)
ndua yáá íñû: *diente de león con espinas, no comestible* (DUX) probably *Taraxacum* sp., COMPOSITAE

yua yáá ína: *un tipo de hierba, literalmente 'hierba lengua de perro', es comida para animales* (DUX)

yuva ya'a: *lengua de vaca* (COI) *Rumex* sp., POLYGONACEAE *Se come cocido con frijol molido.* **yaa**: *lengua* (CAB)
yuwe yaa snikɨ: *lengua de perro* (SOT) *Rumex salicifolius* Weinm. var. *mexicanus* (Meisn.) C.L. Hitchc., POLYGONACEAE **snikɨ**: *toro* (SOT)

yuwe yava: *cilantrillo* (SOT) [**yuwe yaʙa**] *Daucus montanus* Humb. & Bonpl. ex Schult., UMBELLIFERAE) **ava / yava**: *almácigo / añejo, viejo, semillas de mucho tiempo* (CAB)
yuvua yavua: *culantro verde* (TAM)

nduve ya'va: *rábano* (CAB)

yiwa vixi: *chipile* (ZAU) [**yiwa bishí**] *Crotalaria pumila* Ortega, *Crotalaria* sp., LEGUMINOSAE [PAPILIONACEAE] **vixi**: 'sweet' This may be a reinterpretation of an earlier form, attested by the designations found in other areas.
yiva yixi: *chipiles… este quelite se da en tierra caliente* (CTZ) probably *Crotalaria* sp.
yu^{3}va^{2} a^{1}xin^{5}: *chipilin* (YLX) *Crotalaria spp.*
ndikaxi (MXT) [**nti cashii**] *Crotalaria rotundifolia* Walter ex J.F. Gmelin var. *vulgaris* Windler, LEGUMINOSAE [PAPILIONACEAE] The etymology may be **ndika axi**, cognate with CTZ **yiva yixi** and SMG **yúv<u>a</u> <u>a</u>x<u>i</u>n**, which also refer to *Crotalaria* sp.; **ndika** seems to allude to a banana because of the shape of the seed pods.
yuku ndikaxi (MXT) [**yucu nticashii**] *Crotalaria filifolia* Rose, LEGUMINOSAE [PAPILIONACEAE]
yuwe ixi: *chipile* (SOT) [**yuwe 'iši**] *Crotalaria* sp., LEGUMINOSAE [PAPILIONACEAE]
yuku vidi: *chepil* (NUX)
yua axi: *chipile* (PIN) "*Se come con chile y limón.*" **axi***: sabroso*
yúv<u>a</u> <u>a</u>x<u>i</u>n: *el chipile* (SJC)
yuva ixi: *el chipil* (CHY)
iva yaxin / yiva yaxin / yiva yese / yiva yisin / yiva yixin / yiwa yaxin / yiwa yixin / yuva axin / yuva ixin / yuve ixin / yexin: *chepil, chipil* (CAB)
yuve vidi: *chepil, chipil* (CAB)
yuku vidi: *chepil, chipil* (CAB)

yua yena (MXT) *Rumex salicifolius* Weinm. var. *mexicanus* (Meisn.) C.L. Hitchc., POLYGONACEAE

yiwa yo'o (ZAU) [**yiwa yoo**] *Cynanchum jaliscanum* (Vail.) Woodson, APOCYNACEAE [ASCLEPIADACEAE] **yo'o**: vine, rope
yiwa yo'o (ZAU) [**yiwa yoo**] unidentified species consumed as a *quelite*
yiwa yo'o lapis (ZAU) [**yiwa yoo lapiz**] unidentified species consumed as a *quelite*
yiwa yo'o livi saa (ZAU) [**yiwa yoo livisa**] unidentified species consumed as a *quelite*) **livi**: *bonito, bello, precioso* (CTZ)
yiwa yo'o owa (ZAU) [**yiwa yoo owa**] unidentified species consumed as a *quelite*
eva / ewa / iva / oa / ova / owa / ua / uva / uve / yova / yuva / yuwa: *amargo* (CAB)
yuva yo'o (COI) *Gonolobus* sp., APOCYNACEAE [ASCLEPIADACEAE] *Las hojas, los tallos tiernos y los frutos se comen cocidos.*
yuwe yo'o / yuwe yuku: *chicañuma* (SOT) [**yuwe yo'o / yuwe yukuu**] unidentified species in the APOCYNACEAE [ASCLEPIADACEAE] consumed as a *quelite*
yuwe yo'o savi: *rabo de iguana* (SOT) [**yuwe yo'o saʁi**] unidentified plant consumed as a *quelite* **Savi** may refer to rain but also to the Mixtec people, to distinguish this plant as the native **yuwe yo'o**, in the same way that **minu savi** (*Dysphania ambrosioides)* is contrasted with **minu stila** (*Mentha* sp.)

ve uku: *quelite del monte* (OSP) It is not clear whether this is a specific designation, or a generic term for *quelites* that are gathered in the forest. **uku/yuku**: mountain, forest

yuwe yuyu: *quelite de rocío* (SOT) *Drymaria cordata* (L.) Willd. ex Schult.,

CARYOPHYLLACEAE

4.7 Other labeled groupings

Mixtec plant nomenclature includes a variable number of smaller categories, in terms of the quantity of taxa that they encompass. Some of these appear to be absent in certain dialects, where the generic term may be known but it does not seem to generate a nominal set.

4.7.1 Thorny plants

The term 'thorn' generates a sizable and ecclectic nominal grouping of plants: **Iñu ta'a kuu iin nuu iñu**: *Las hierbas llamadas* **iñu ta'a** *son miembros de una clase de hierbas espinosas* (DUX).

iun: *espina* (CGM)
iñu / ñiñu: *espina* (CTZ)
iñu': thorn (AYU)
iñu: *abrojos, espinas* (SMG)
iñu: thorn (OSP)
iñu: *la espina* (SJC)
iño / iñu / ɨñiño / iun: *espina* (CAB)

iñu cháâ: *cardo* (DUX) [**cháâ**: *gris*]

iñu cha'a (MXT) *Ferocactus macrodiscus* Britton & Rose / *Mammillaria haageana* Pfeiff./ *Mammillaria mystax* Mart., CACTACEAE **tya'a**: *bule* (CAB)

iñu che'e ndyo'o (MXT) [**iñu che'e ncho'o**] *Xylosma flexuosum* (Kunth) Hemsl., SALICACEAE **te'e / tye'e**: *cáscara dura de frutas como calabazas, cocos / pico de ave*; **ndyo'o**: *colibrí, chupamirto* (CAB); **chée**: *viejo, anciano / grande en tamaño / importante* (CTZ, XOC)

iñu kɨmɨ́: *cardos* (SMG) **kɨmɨ**: *estrella* (CAB)

iñu kɨun: *un tipo de cardo* (DUX)

iño koo / iño tɨtɨ: *zarza* (TAM) [**yñocoo / yñotete**]

iñu kuan: *espina de una yerba que es muy frágil* (MIC)
iñu kuaan (MXT) [**iñu cuan**] *Argemone mexicana* L., PAPAVERACEAE
iun kuaan: *huizache* (ZAU) [**inu cua**] *Acacia farnesiana* (L.) Willd., LEGUMINOSAE [MIMOSACEAE])
iñu kuan: *zarza amarillo* (PIN) *"como uña de gato"*

iñu lewu: *chicalote; es de naturaleza fría y amarga; sirve para cataratas, mal aire* (TIL) [**iñu leh^{w}u**] *Argemone* sp., PAPAVERACEAE **leu kuku / liuku / luku**: *tortolita*

(CAB)

iñu nlèu: *un tipo de planta silvestre y espinosa, literalmente 'espinosa palomita'… útiles para curar el mal de aire, la gente enferma se pega con estas plantas* (DUX)

iñu lusu: *chilusu* (MIC) probably *Cylindropuntia* sp., CACTACEAE *Espina muy penetrante de una planta tipo nopal, stá redondo, cuando se pega ya no se suelta.* **si lusu**: *zorro*

iñu ndata (JIC) *Mimosa albida* Kunth ex Willd., LEGUMINOSAE [MIMOSACEAE] *Planta medicinal, aplicada caliente sobre piernas.* **ndata**: *va a rajar, se va a abrir o romper la piel* (CAB)

iñu ndikachi (MXT) [**iñu nticachi**] *Xanthium strumarium* L., COMPOSITAE **ndikachi**: 'sheep'

iñu ndiki: *amaranto* (PIN) probably *Amaranthus* sp., AMARANTHACEAE

iñu sisi: *abrojo* (MIC) probably *Kallstroemia maxima* (L.) Hook. & Arn., ZYGOPHYLLACEAE *Da flor amarilla.*

iñu ta'a: *un tipo de hierba espinosa, tiene flores amarillas y crece en el campo de trigo… se utilizan para curar a la gente que padece de mal aire, la gente se pega con estas hierbas en la parte adolorida de su cuerpo para aliviarse* (DUX)

iñu tika: *zarza* (PIN) *Mimosa* sp., LEGUMINOSAE **tika**: *chapulín*

iñu tikonduu: *berenjena* (COI) *Solanum lanceolatum* Cav., SOLANACEAE *Se usa como remedio.* **kondo**: *rodilla*; **ko'ndo**: *puño/pelota* (CAB)

iñu tndúu: *un tipo de hierba espinosa* (DUX) The etymology appears to involve the marker for animals and round objects.

iñu tukuia'a iñi / yuku tukuia ini: *vergonzosa* (PIN) *Mimosa pudica* L., LEGUMINOSAE [MIMOSACEAE] **tukuia'a**:*"de tristeza, porque no más lo toca y ya se cierra*"

sivíxi (MIC) probably *Hechtia* sp., BROMELIACEAE

iñu vitsi (MXT) [**iñu vitzi**] *Hechtia* aff. *podantha* Mez, BROMELIACEAE **vitsi**: *dulce / piña* (CAB)

iñu dini: *biznaga* (XYA) **iñu**: *espina*; **dini**: *cabeza*

iñuidíní: *biznaga* (MIC) probably *Echinocactus platyacanthus* Link & Otto, CACTACEAE

iñu xini chee (COI) Don Trinidad Oliveros cited this term that designates globular cacti found in the drylands of the Balsas basin to the north of Coicoyán. **xini**: 'head,' **chee**: 'ox.'

iño kua'a / iño tita'[] / **tiño dini**: *espinas de visnagas* (TAM) [**yño quaha / iño tetah[] / teñodzini**] []: illegible character **dzini**: *cabeza* (TAM)

iñu yakun (COI) *Cirsium* sp., COMPOSITAE **yakun**: 'brush,' for the shape of the flowers

4.7.2 Grasses

Relatively few taxa are labeled with the term glossed in Mexican Spanish *zacate*, which in some dialects appears to have become homophonous with the class term 'flower,' indistinguishable, it seems, even in its tonal pattern.

ete: *pasto* (CGM)
itia: *pasto* (NGO)
ita, **yita**: *flor / zacate o pasto* (CTZ)
ity<u>a</u>: grass (AYU)
ich<u>a</u>: *zacate, hierba, pasto* (SMG)
ítê: *pasto* (DUX)
ite: grass (OSP)
ity<u>a</u>: *el pasto, el zacate* (SJC)
itya: *el zacate* (CHY)
tu itya: *el palito de zacate* (CHY)
itya ityi: *la paja* (CHY) **ityi**: *seco*
ita: *yerua generalmente* (TAM) [**yta**]
ita: *paja* (TAM) [**ita**]
ita yechi: *paja seca* (TAM)
ita kasiti: *pasto la comida* (TAM) [**ita casite]** The etymology appears to be eat=3ANI.
ita / ite / itia / itsa / itya: *pasto* (CAB)
itajii: *pasto* (CAB)
ita xa'an: *zacate* (CAB)
ite kuii / kuii: *'pastura verde', zacate* (CAB)
ite na'nu: *'pastura grande', zacate* (CAB)

itsa dii: *pasto duro o resistente* (APO)

ita leko: *pasto* (XOC) [**ita**: *flor*; **leko**: *conejo*]

ite na'nu / itsa na'nu / itya na'nu: *pasto grande, zacatón, pasto de vainas largas y rasposas* (CAB)

ita nda'a / ita kua'a: *yerua otra con que hazen xacales* (TAM) [**itandaha / ita quaha**]

ita ndaku / ita yoko: *yerua con q´ hazé casas paxizas* (TAM) [**itandacu / yta yoco**]

ita ndatnu / ita ñee / ita yuu: *grama yerua* (TAM) [**ita datnu / ita ñee / yta yuu**]

ita ndɨkɨn: *zizania* (TAM) [**itandeq**]

ite ndoo: *'pasto crecido', zacatón* (CAB)

íté ndú'û: *un tipo de pasto… crece un metro de altura… la gente lo ocupaba para techar sus casas* (DUX)
itya ndu'u: *pasto tostado, zacatón* (CAB)

icha tikatu (MXT) [**hicha ticatu**] *Paspalum* sp., POACEAE **tikatun**: *término que alguna variante asigna a número* [?] (CAB)

i^{3}ta^{2} ti^{1}ndu^{32} (YLX) unidentified species in the CYPERACEAE Although Amith & Castillo gloss this taxon as a 'flower,' it seems more likely to correspond to the class labeled 'grass.'

itia tumi (JIC) unidentified species in the GRAMINEAE **tumi**: 'hairy'

ich<u>a</u> vé'e / ich<u>a</u> nd<u>a</u>'á: *zacatón* (SMG)

itia yayu (COI) *Muhlenbergia* sp., GRAMINEAE The little horses made for the Day of the Dead appear to be made specifically with this species of grass. Bits of the food offered on the altar for the souls are attached to the straw animals as if on saddle bags, and the little horses are deposited together with the flowers of the altar on the side of the path close to the house, for the deceased to take their meal with them.
icha yai (MXT) *Sporobolus indicus* (L.) R. Br., POACEAE
yayu: *pajas que vsauan los yndios para sacrificios* (TAM) This entry appears to refer to the ancient practice of peforating the tongue or other appendages of the body and passing through a stem of grass or a piece of cord to be offered to the deities.
ite yayu / ite yeyu / itya yayu: *'pasto rasposo', zacatón* (CAB)

ita yoko / ita ndaku: *yerua con q´ hazé casas paxizas* (TAM) [**yta yoco / itandacu**]
ite yoko: *'pasto de espiga', zacatón* (CAB)

4.7.3 Brooms – switches – shrubs:

Some Mixtec dialects generate a few plant names based on **nduku**, glossed as *vara* (switch), *escoba* (broom), or *leña* (firewood). Historically, **yuku** and **nduku** may represent reflexes of allomorphs that indicated possession, as discussed with regards to the phonological correspondence between **yuva** and **nduva** in the preceding section.

nduku: *vara* (CTZ)
nduku ti'ví: *escoba* (CTZ) [**ti'ví**: *barrer*]
ndu^{3}ku^{2}: *vara* (YLX)
ndu^{1}ku^{5}chi^{5} : *escoba* (YLX)
nduk<u>u</u>: *leña* (SMG)
nduku: *la leña* (PIN)
nduk<u>u</u>: *leña* (SJC)
nduku: *leña* (CHY)
duku / nduku / nruku: *leña* (CAB)

nduku ti'vi: *escoba* (CAB)
ndaku / nraku / tindaku: *escoba* (CAB)

Most species assigned to this nominal category appear to be small shrubs:

ndaku: *escobas* (ZAU) [**ndacu**] *Schkuhria pinnata* (Lam.) Kuntze ex Thell. var. *virgata* (Llave) Heiser, COMPOSITAE

ndu^{1}ku^{5}chi^{5} kwi^{5}i^{25} (YLX) unidentified species in the MALVACEAE **kuii**: 'green'
i^{3}ta^{2} ndu^{1}ku^{5}chi^{5} kwa^{5}an^{2} (YLX) designation for two species of *Sida*, MALVACEAE **kuaan**: 'yellow'
i^{3}ta^{2} ndu^{1}ku^{5}chi^{5} ya^{3}a^{3} (YLX) unidentified species in the MALVACEAE **yaa**: 'white'
ndu^{3}ku^{2} tu^{5}mi^{5} (YLX) *Malachra* cf. *fasciata* Jacq., MALVACEAE **tumi**: 'hairy'
Amith & Castillo note that the Mixtec entry for this *vara aguatosa* may be a descriptive designation, rather than a lexicalized term.

ndu^{3}ku^{2} mi^{1}ni^{5} (YLX) unidentified species in the COMPOSITAE Two kinds are distinguished by size epithets.

nduku ti'vi / tuti'vi (COI) *Baccharis conferta* Kunth, COMPOSITAE *Tallos para barrer, hojas medicinales para dolor de muela.* **ti'vi**: to sweep

nduku yoo: *bejuco* (XYA) *La que se enreda el pitayo*. 'The plant that grows on *Stenocereus* cacti.'

yuku ndaku: *clase de hierba que se ocupaba para hacer escoba* (CHA)

nduku iño / yutnu iño / yutnu[]**a tɨmii / yutnu yeke**: *espinoso arbol* (TAM) [**ducuiño / yutnu iño / yutnu**[]**a temij / yutnu yeque**] []: illegible character

4.7.4 Soap plants:

Some Mixtec languages mark a few plants with a class term that indicates their use as soap, often glossed in Mexican Spanish as *amole*, derived from the equivalent label in Náhuatl:

itun tináma / yitun tináma: *higuerilla* (CTZ) **nama**: *jabón, detergente*
ndanama: *amole, camote de jabón* (APO)
nama: *amole, jabón* (OSP)
nama: *un género de raíces que llaman los mexicanos amole en su lengua y, en mixteco,* **nama***, con que lavan la ropa; y la para tan blanca como con jabón, salvo que da comezón* (ACÑ, *Relación de Xicayan*)
nama: *yerua xabonera* (TAM)
nama / tnama: *jabón* (CAB)
nama kata: *'jabón comezón', amole* (CAB)
nama tañe: *'jabón de banco', amole* (CAB)

nama teyu: *amole* (CAB)
ña'mi nama: *'camote de jabón', amole* (CAB)

nama choko (MXT) [**nama choco**] *Manfreda hauniensis* (Boye-Petersen) S. Verhoek, AGAVACEAE) **nama**: 'soap' **tyoko**: *hormiga / tlacuache / zopilote / panal* (CAB) The genus *Manfreda* may be subsumed into *Agave* together with *Polianthes*, based on their molecular phylogenies (Gerardo Salazar, Instituto de Biología UNAM, personal communication, 2009).
nama choko kua'a (MXT) [**nama choco cua'a**] *Polianthes geminiflora* (Lex.) Rose, AGAVACEAE

namateyo (ZOL) probably *Microsechium* sp., CUCURBITACEAE The tuber was used as soap. Pronounced /namateʒo/.

4.7.5 Tuberous roots:

Like other Mesoamerican languages, Mixtec labels several plants with edible tubers with a specific class term. This nominal category also includes medicinal roots in some dialects.

ña'mi: *camotes* (ZAU) [**ñá^.mi**] *Dioscorea* spp., DIOSCOREACEAE
ña'mi: *camote* (CGM) *Ipomoea batatas* L., CONVOLVULACEAE
ña'mi: *camote* (XOC)
ña'mi: *camotes* (CTZ)
ña'mi naña: *camote de chayote* (CTZ)
ña'mi vixi: *camote dulce* (CTZ)
ña'mi vixi yaa: *camote dulce blanco* (CTZ)
ña'mi vixi ndí'í: *camote dulce morado* (CTZ)
ña'mi yitun: *guacamotes* (CTZ)
ña'mu̲: *camote, colmena, tubérculo* (SMG)
ña'mu: *camote* (YSN)
xa'mi: *camote* (OSP)
yá'mi: el camote (SJC)
yá'mi cui̲tsin: *el camote de palo blanco, un camote pequeño y blanco* (SJC)
yá'mi̲ ñu̲'u̲: *un tipo de camote, más largo que el camote de palo blanco y crece más hondo en la tierra, pero sabe casi igual* (SJC)
yá'mi̲ vi̲xi̲: *el camote dulce* (SJC)
yo'o yá'mi vixi: *mata de camote dulce* (SJC)
ña'mi kua'a: *el camote de bejuco* (CHY) [**ñahmi cuaha**]
ña'mi yutu: *el camote de palo* (CHY)
ña'mi: *batatas, que en su lengua llaman* **ñami** *y, en mexicano, camotes* (ACÑ, *Relación de Ayusuchiquilazala*)
ña'mi: *batata* (TAM) [**ñami**]
ya'mi vixi: *camote dulce* (CAB)
ña'mi kuiji / ña'mi vixi: *jícama;* **ña'mi kuiji vixi**: *'camote blanco dulce', jícama* (CAB)

ña'mi isu: [*i*]*tamo real* (COI) unidentified species, possibly *Odontotrichum* sp.
isu: 'deer' Deer are thought to dig up this root when wounded, to eat it and heal. It is considered one of the most important and sought after remedies in Coicoyán.
tamarrial (MXT) *Odontotrichum paucicapitatum* (B. Robinson & Greenman) Rydb., COMPOSITAE

ña'mi ka'no (ACÑ, *Relación de Zacatepeque*) *Hay otra raíz que llaman ellos* **ñamicano** *y, en mexicano,* **hueycamotli***: esta raíz, seca y molida y bebida, es muy buena para purgar.* **ja'nu / ka'no / ka'nu**: *grande* (CAB) **hue:icamohtli**: large-tubercle

ña'mi kuaan tsa'an [?] (ACÑ, *Relación de Cuahuitlan*) *Los remedios para salud de los naturales son muy pocos: sangría y vómitos, los cuales toman con una yerba que se da en estas partes, de muy mal olor, y ésta provoca muy fácilmente, bebida, a vómitos; la cual se ha de dar desleída, y bebida en agua un poco tibia… llámase esta raíz en mixteca* **ñamiquatza***, que es en castilla 'raíz amarilla'* **tsa'an**: *huele* (CAB) Cuahuitlan was a large Mixtec town near the Pacific Ocean to the west of Pinotepa.

ya'mi kua'a: *'camote rojo', rábano* (CAB)

ña'mi ku'u: *camote montés* (SOT) (*Dioscorea remotiflora* Kunth, DIOSCOREACEAE)

ña'mi maso (COI) unidentified species in the COMPOSITAE *Tubérculo medicinal, aplicado sobre fracturas.* **maso** appears to derive from Spanish *maestro*

ña'mi nika: *camote de platanar* (SOT) the roots of *Musa* spp., MUSACEAE, a famine food

ña'mi ñu'un (JIC) *Dioscorea* sp., DIOSCOREACEAE *Los tubérculos se comen cocidos.*
ñu'un: *tierra, suelo* / *bajo, chaparro* (CAB)

ña'mi sayɨ: *cebolleja* (SOT) *Tigridia pavonia* (L.f.) DC., IRIDACEAE

(**ña'mi**) **tindoyo** (JIC) (*Calathea* sp., MARANTACEAE) *Los tubérculos se comen cocidos.*
tinduyu: *Cucurbita ficifolia* C.D. Bouché, CUCURBITACEAE

ya'mi tioko: *Se dan en los huertos que hacen, melones, sandías, camotes, quacamotes, jícamas, camotes de hormiga que así dicen los indios en mixteco* **Yac Mitioco** *parecen papas porque son redonditos y cada raíz que es como una cabeza tendrá como ciento o más camotillos.* (*Relación de Santa María Huazolotitlán*, ca. 1777; Esparza, 1994: 142) Santa María Huazolotitlán is a Mixtec municipality in the district of Jamiltepec, Oaxaca.
tioko / tiyoko / tsoko / tyoko / xoko: *hormiga* (CAB)

ña'mi vixi: *camote* (ZAU) [**ñaami bishi**] *Ipomoea batatas* (L.) Lam., CONVOLVULACEAE

ña'mi yatu: *agengible* (SOT) *Zingiber officinale* Rosc., ZINGIBERACEAE **xatu**: 'spicy'

ñami yuku (MXT) [**ñami yucu**] *Dioscorea cyphocarpa* B.L. Rob., DIOSCOREACEAE

ña'mi yutu: *camote de palo* (SOT) *Manihot esculenta* Crantz, EUPHORBIACEAE

4.7.6 Agaves and plants that resemble them

The Mixtec languages have an elaborate lexicon for the *maguey* and its relatives, as might be expected from the fact that the Mixtec territory probably has the greatest diversity of agavaceous plants in general, and specifically of species in the genus *Agave*:

***yawi'**: agave (JOS)
yau: *maguey* (CGM)
    tnuyutu: *quiote* (inflorescence of *Agave* spp.) (CGM)
    ita yutu: *cacayas de maguey* (CGM) (flowers of *Agave* spp., which are eaten cooked)
yawi: *maguey* (MIC)
yaví: *maguey* (XOC)
yavi̱: *maguey* (CTZ)
    tití: *flor del maguey… para que comamos* (CTZ)
yau: *maguey* (SMG)
    yutu yáu: *quiote de maguey* (SMG)
yau: *maguey* (CHA) *variante:* **ndau**
yau: *maguey* (YSN)
    yutu: *quiote* (YSN)
    yutu tarrɨ: *quiote de cacaya* (YSN)
    Taka nuu yau ka ja'a yutu tarrɨ: *Toda clase de maguey da quiote de cacaya* (YSN)
yáu̱: *maguey* (DUX)
    tnúyútû: *quiote macizo* (DUX)
xavi: *maguey* (OSP)
yavi: *el maguey* (SJC)
yavi: *el maguey* (CHY)
yawi: *En este dicho pueblo, y toda su comarca, hay un árbol que es en todas partes desta Nueva España general, que le llaman* **yagui** *y, en mexicano,* **metl**, *y en castellano maguey. Deste árbol tienen muchos aprovechamientos, como es sacar dél aguamiel, y hacer miel negra, cociéndola, y pulque, que es el vino que ellos usan, y curar con el zumo de las pencas muchas maneras de heridas y llagas; y hacen mantas dél, y sogas, jáquimas y agujas (de las puntas), así para coser como para enclavar algunas cosas. Y, ansí mesmo, hacen a uso dellos los zapatos que traen, que llaman en mexicano* **cactle** *y, en mixteco,* **chissa**. *Y dél hacen otras muchas cosas.* (ACÑ, *Relación de Nochiztlan*)
yavui: *maguei* (TAM)
    yetu yavui / ita yetu yavui / ndutu yavui: *maguei la flor que sale encima del tallo* (TAM) [**yetuyavui / itayetu yavui / dutuya vui**]
xavi / yau / yavi / yawi: *maguey* (CAB)
    tnuyavi / tonyavi: *ágave o magueyales* (CAB)

yavi chuku / yavi tachuku (MXT) [**yavi chucu / yavi tachucu**] *Agave angustifolia* Hort. Par. ex Steud., ASPARAGACEAE [AGAVACEAE] **tiuku / tɨyuku / tyuku**: *piojo*

(CAB)

yau isa: *tipo de maguey* (CHA)

yavi itia (TON) "*Es el [maguey] de cacayas, se raja y se hace atadero, antes se ocupaba para amarrar zacate*."

yau kastilá: *maguey de sábila; es de naturaleza caliente, sirve para la gastritis* (TIL) [**žau castilá**] *Aloe* sp., ASPHODELACEAE

yavi kochi: *maguey de cochino* (XYA) probably *Agave marmorata* Roezl., which has salient yellow flowers and is called **pitzometl** in Náhuatl, 'pig agave' *La flor amarilla la usan de adorno en Semana Santa*. 'They use the yellow flowers for decoration during Holy Week.'
yawi kochi: *maguey tepeztate o pitzomé* (MIC) probably *Agave marmorata* *Están las pencas grandes para tapar la barbacoa.*

yavui kua'a / yavui yɨkɨn: *maguei otro mas pequeño y de mas dulce miel* (TAM) [**yavui quaha yavui yeq**]

yavi kuaan (MXT) [**yavi cuan**] *Agave americana* L. var. *oaxacensis* Gentry

yavui kuachi tiyeye / yavui kuachi yaku: *maguei pequeño que nace é las peñas* (TAM) [**yavuiqchi tiyeye / yacu**]

yáu kuii / yáu tata: *un tipo de agave para pulque* (DUX)

yavui ndaa yusi: *mague q´ llamá pita* (TAM) [**yavuindaayusi**]
yavui yuku / yavui ndaa yusi: *pita especie de maguei* (TAM) [**yavui yucu / yavuindaa yusi**]

yave ndixi: *maguey mezcalero* (ZAU) [**yaave ndishí**] *Agave* sp. **ndisi / ndixi / ndɨdɨ / nridi**: *mezcal* (CAB)

ngíchî / yáu ngíchî: *un tipo de sábila… las pencas… son delgadas, no son anchas como las de los demás magueyes. Se hierven y se toma el agua si la sangre se ha coagulado en el pecho… Así se prepara el maguey para masticarlo o comerlo: se corta la parte blanca de la penca, se pela y se despedaza. Luego se busca coyul. Se mide en partes iguales el coyul y el maguey: un tenate de maguey y un tenate de coyul. Debido a que el coyul es agrio, los dos se cuecen juntos y se ponen dulces por el maguey. Se echan en una olla y se ponen en la lumbre donde se cuecen por cuatro o cinco horas, hasta que se pueden masticar* **Dakaro nduxa xi'in yau ngichi**: *[Para comer] se mezcla el trébol con un tipo de sábila* (DUX)

yavi nkoyo [?] (MXT) [**yavi incoyo**] *Agave salmiana* Otto ex Salm-Dyck

yau ñú'û: *un tipo de maguey, literalmente 'maguey de fuego'… las hojas … son anchas y suaves. Este maguey se usa de muchas maneras. La gente corta pencas de maguey y*

saca tirantes fibrosos para atar los palos que usan para construir sus casas. Cuando empieza la temporada de lluvias, las pencas que se ponen tiesas se pudren, y la gente saca ixtle de ellas para hacer mecates… También la gente asa las pencas que no están tan endurecidas y las pone en agua dos o tres días para que se pudran y entonces les quita las fibras… Cuando el hijuelo de maguey brota, la gente y los bueyes se lo comen… (DUX)

yavi siku: *maguey de cacaya* (XYA) *Es muy sabrosa [la cacaya], es tipo mezcalero [el maguey]*. 'The flowers are very tasty, the agave is of the type that is used for making mezcal.'

yawi sívivi (MIC) possibly *Agave potatorum. Maguey chiquito para curar.*

yavui tɨchi / yavui kuii: *maguei grande* (TAM) [**yavui techi / yavui cuij**]

yavi tii / ti'i [?] (MXT) [**yavi tii / tí'i**] *Dasylirion acrotriche* (Schiede) Zucc., NOLINACEAE

yavi tikuchi (MXT) [**yavi ticuchi**] *Agave potatorum* Zucc. **tikutyi**: *murciélago / gusano* (CAB)
tɨ̲kunchi̲ / yau tɨkunchi̲: *papalomey* (SMG) probably *Agave potatorum* Zucc.
yáú tílunche̲ / yáú tilúnchí / yáú tɨrɨ́rɨ́: *papalome*, medicinal agave (CHA; Macaulay, 1996)
tɨkundyi: *maguey de papalomé* (CAB)

yavui tɨwisi: *maguei otro que nace en las peñas espinoso* (TAM) [**yavui tehuisi**]
yavui yuku: *maguei grande de que no sacan miel* (TAM) [**yavui yucu**]
ditu yavui / yutnu yavui: *maguei el tallo* (TAM) [**dzitu yavui / yutnu yavui**]

yavi túyutu: *maguey pechomel* (TON) probably *Agave marmorata* Roezl "*El que da quiote... Las hojas es el jugo que toma uno cuando recibe un golpe, una caída.*"

yavi tyuu: *maguey de papalomé* (CAB)

yavi vasu (MXT) [**yavi bazu / yavi bazu'u**] *Agave angustiarum* Trel.

yáu̲ ve̲do: *un tipo de maguey… son chicos y las pencas son angostas. Cuando las hojas de estos magueyes se han secado, la gente las talla para obtener ixtle para hacer mecates. El ixtle es muy tieso* (DUX)

yavi viji / yavi vixi: *'maguey de la piña', piñal* (CAB)

4.7.7 Vines

The generic term that is glossed as *bejuco* seems to generate relatively few specific plant names in Mixtec, although it is attested in most dialects. Kuiper's (2003) compilation does not include any terms based on **yo'o** or a cognate. As might be expected, the lowland areas

close to the Pacific show a greater diversity of lianas and vines that are labeled with this class term, including some cultivated plants that might not be expected to be part of this group, such as tomatoes.

nduku yo'o / nduku yoo: *bejuco* (CGM)
yo'o / yo'otnú / yo'o yutnú: *raíz* (CGM)
yo'ó: *bejuco* (XOC)
Iin ndàà ndi'i yo'ó te'e nañá nda'á tikăva: *Se subió todo el bejuco del chayote al ciruelo* (XOC) This example is particularly interesting in that it combines the generic **yo'ó** with **te'e**, a term that seems to be restricted to squash and chayote plants.
yo'o yitun: bejuco (CTZ)
yo'o': vine (AYU)
yo'o yúku: *bejuco* (SMG)
yo'o yuku: *bejuco* (YSN)
xo'o: *bejuco* (OSP)
yo'o: *bejuco* (SJC) [**yoho**]
yo'o yutnu: *barva de planta* (TAM) [**yohoyutnu**]

yo'o chiti tilandyi: *chicalotillo* (PIN) "*Amarga, con eso lavaban, con eso anteriormente todo mundo lavaba porque deja blanca la ropa*." **chiti**: *semilla* **tilandyi**: *golondrina*

yo'o kua'a (COI) *Vitis tiliifolia* Kunth ex Roem. & Schult., VITACEAE *Tallo medicinal y para cinchar la troje; los niños comen los frutos*. **kua'a**: red

kui^{1}yo'^{1}o^{5} kua^{5}an^{2} (YLX) *Solandra maxima* (Sessé & Moc.) P. S. Green, SOLANACEAE In Yoloxóchitl, the term for *bejuco* has become a compound, which appears to involve 'green' as the prefix.

yo'o kuun (JIC) unidentified species, probably in the VITACEAE

yo'o nu'u ina: *bejuco diente de perro* (PIN)

yo'o ndáa: *la mata de estropajo* (SJC) [**yoho ndáà**]
ndaa: *el estropajo* (SJC) **daa / naa / ndaa / ndaxa / tindaa**: *ixtle* (CAB)

i^{3}ta^{2} kui^{1}yo'^{1}o^{5} ndi^{3}ku^{3}'un^{3} (YLX) *Desmodium* spp., LEGUMINOSAE Two kinds are distinguished by color epithets. **ndi^{3}ku^{3}'un^{3}**: 'toad'

yo'o nduta: *bejuco de agua* (PIN) *También es bueno cuando se da uno un golpe en el ojo, se lo echa uno.* The sap of the vine is drunk when no water is available

yo'o ndútyí: *el bejuco de frijol, la mata de frijol* (SJC)

yo'o sa'a (COI) *Struthanthus* sp., LORANTHACEAE This term is significant because it shows productive alternation of class terms to designate distinct taxa within a group of related plants: other members of the same family that belong to the genus *Psittacanthus* are labeled **ita sa'a** in Coicoyán. This species of *Struthanthus* does have

elongated, vine-like stems.

yo'o tia'a / yo'o tiáa: *bejuco de bule* (PIN) *Lagenaria siceraria* (Molina) Standl., CUCURBITACEAE [28.]

yo'o tinana va'a: [*planta de*] *tomate* (PIN) *Solanum lycopersicum* L., SOLANACEAE
yo'o tinana saa: *tomatito chiquito* (PIN) An arvensic form of the same species. "*Nace solo.*" **saa**: *pájaro*
yo'o tɨnana: *tomatal* (CAB)

kui^{1}yo'^{1}o^{5} tu^{15}un^{3} (YLX) unidentified species, probably in the genus *Vitex* or *Cissus*, VITACEAE The epithet specifies a darker coloration.

yo'o xikáma: *la mata de jícama* (SJC)

yo'o yá'mi vixi: *mata de camote dulce* (SJC)

yo'o yuku: *zarzaparrilla* (TAM) [**yohoyucu**]

4.8 Unaffiliated plants

The names for several taxa do not include a generic label. In some cases, these represent morphologically distinct plants, that would not be expected to fit a classification based primarily on growth habit. In other instances, however, it seems that the specific taxa could easily be assigned to one of the nominal categories, and it appears to be the case that certain dialects have a tendency to discard the generic labels, while cognates will be retained in full binomial form in neighboring areas. Some of the taxa included in this section, such as **koyo** and **minu** form large enough groupings that they could be considered "lesser categories" in Mixtec plant nomenclature; unlike the previous, however, the set seems to be clearly focused on a prototypic Linnean genus, e.g., *Typha* and *Dysphania*.

chanda: *tipo de maleza, no deja crecer la milpa* (NUX)

chɨ'î: *un tipo de aceitillo* (DUX) *aceitilla/aceitillo*: *Bidens* spp. (Martínez, 1979)
chɨ'î burru: *un tipo de aceitillo* (DUX)
chɨ'î kuixi / chɨ'î rátâ: *la gente come este tipo de aceitillo con tortillas cuando está tierno* (DUX) We would expect this plant to be marked **ndua** or **yua**; edible species of *Bidens* are labeled as such in other dialects. **kuiji / kuityin / kuixi**: *blanco* (CAB)
chɨ'î yúku: *un tipo de aceitillo* (DUX) **uku / xuku / yuku**: *cerro, montaña* (CAB)

dzi'í: *cucharilla* (CGM) probably *Dasylirion* sp., NOLINACEAE
si'ì: *cucharilla* (XYA)
ti'i [?] **/ yavi tii** (MXT) [**tí'i / yavi tii**] *Dasylirion acrotriche* (Schiede) Zucc., NOLINACEAE
chiyi / tɨyiyi: *cucharillo, planta* (SMG)
chɨyî: *cucharilla* (DUX)

chíi: *agave delgado llamada 'cucharilla'* (APO)

chika kiwi: *tlanchana* (DAA) [**chikakiwi**] *Solanum* sp., SOLANACEAE **tika / tyika / xika**: *chapulín, término genérico / cesto o canasto*; **kiwi**: *día / va a entrar / rollo de vestir que es de lana, enredo* (CAB) *Para el tratamiento de espinilla: la fruta se muele y se le aplica en la piel de todo el cuerpo...* (DAA)

chikuili: *pingüica* (DAA) *Arctostaphylos pungens* Kunth, ERICACEAE **kuilu / tyidaa kuili / tyikuili**: *pájaro azul* (CAB) *Para la ronquera en garganta y gripa: se cortan dos o tres ramitas y se mastican... para fuegos... para cálculos renales... para golpes internos...* (DAA)

da'a: *planta parásita que crece sobre árboles* (APO) This term appears to be a cognate of COI **ita saa / yo'o saa**.

dá'yá dáû: *plantas de la lluvia* (DUX) *Empiezan a crecer durante el tiempo de las lluvias. Literalmente, 'hijos de la lluvia'.* It is not clear whether this poetic term designates a specific taxon, a group of species, or annual plants in general that germínate during the rainy season. **da'a / da'ya / de'e / dja'a / ja'a / ja'ya / se'e / se'ya**: *hijo, hija*; **dau / davi / dawi / djavi / javi / sau / savi / sawi**: *lluvia* (CAB)

dikui te'i: *la golondrina* (NGO) *Euphorbia prostrata* Aiton, EUPHORBIACEAE **dikui / sikui / xɨkui**: *leche*; **te'i**: *pico de ave / se va a pudrir* (CAB) *Para sacar espinas, astillas o cañuelas de la milpa o del zacate enterradas: se ponen de dos a tres gotas de la lechita de esta planta en el lugar que se encuentra metidos estos objetos y a los tres días madura y salen.* (NGO)

ka'ne: *iuncia otra delgada de que se hazé esteras* (TAM) [**cáne**]

tskoyo: *tule* (CGM) probably *Typha* sp., TYPHACEAE

koyo: *popote* (COI) *Juncus effusus* L., JUNCACEAE *Se usan manojos de esta planta (contados al parecer en múltipos de 13) para los rituales de petición de lluvias en la tradición de "San Marcos".*

koyo kita'an (COI) *Equisetum* sp., EQUISETACEAE **kita'an**: 'to disassemble' This term was provided by Rodrigo Tenorio; Celso Flores had not heard it before.

i^{3}ta^{2} ko'^{1}yo^{1} (YLX) unidentified aquatic species

ko'^{1}yo^{1} pa^{5}tu^{2} (YLX) unidentified aquatic species The epithet is from Spanish *pato*, 'duck'

koyo yucha (MXT) [**coyo yucha**] *Hymenocallis riparia* Greenm., AMARYLLIDACEAE **yutya**: *arena / tierno / río* (CAB)

ko'yo: *junco, planta que crece en terreno pantanoso* (SMG) [**cohyò**]

ko'yo [?]: *espadaña* (TAM) [**cóyo**]

koyo / **diya'i**: *iuncia* (TAM) [**coyo / dziyahi**]

koyo ita: *iuncia otra* (TAM)

koyo siki: *iuncia otra* (TAM)

koyo tinduu / **koyo tikoo**: *iuncia otra* (TAM) [**coyo tíduu / coyo ticoo**]

ko'yo diya'i / ko'yo tikoo yetu / koyo tinama / koyo nikana ditu / koyo nikana yetu: *espadaña có tallo, y bohordo* (TAM) [**cóyo dziyahi / cóyo ticooyetu / coyo tinama / coyo nicanadzitu /** l. **yetu**]
ko'yo siki diñe: *espadaña esquinada* (TAM) [**còyo siquidziñe**]

kuaan *Cuscuta* spp., CONVOLVULACEAE Used in the treatment of 'fright' in children; after the curing ceremony, a bunch of this parasitic plant is thrown into the river for the child to observe, symbolically carrying the illness away. The name for the plant differs tonally from **kuaan**, 'yellow.'
kwa^{3}an^{2} (YLX) *Cuscuta* sp.
kuaan: *una planta con flores amarillas* (SMG) [**kuáán**: *amarillo*] The lexical relationship with COI **kuaan** is probably incidental; in both dialects, the name for the plant and the color differ tonally.

kuayo: *algas* (CAB)

kúlí: *una especie de flor* (SMG)

kuxi: *musgo* (PIN) *Donde sale agua en la piedra, se pone verde*.

lómbrâ: *un tipo de planta con vainas* (DUX) This looks like a borrowing from Spanish, but the source term is not evident; perhaps from *alfombra*, 'rug'. *Alfombrilla* has been recorded as the designation of four species in two different plant families in Mexico (Martínez, 1979).
lómbrá ndíi: *un tipo de planta de hojas lisas* (DUX)
lómbrá ñii ndáyu: *un tipo de planta de hojas ásperas* (DUX)

vinu: *epazote* (CGM)
alaveno: *yerbabuena* (CGM)
minu davi: *epazote* (XYA)
minu kastila / minu ndei: *yerbabuena* (XYA) **ndei**: *negro / mole, comida, guisado* (CAB)
minu dávi: *epazote* (TON) **dávi**: 'Mixtec'
minú dawí: *epazote* (MIC)
minú sílá: *yerbabuena* (MIC)
mino: *epazote* (ZAU) [**miíno**] *Dysphania ambrosioides* (L.) Mosyakin & Clemants, CHENOPODIACEAE
mìnù nduxí: *epazote* (XOC) **nduxí**: *pollo, gallina*
mìnù stila: *yerbabuena* (XOC)
minu xatu: *epazote* (COI) *Dysphania ambrosioides* **xatu**: 'spicy'
minu stila: *yerbabuena* (COI) *Mentha* sp., LABIATAE **stila**: 'from Castille'
minu nduchi: *poleo* (COI) probably *Mentha pulegium* L., LABIATAE **nduchi**: '[for] beans'
minu nduxí: *epazote* (CTZ)
minu kastila: *yerbabuena* (CTZ)
minu (MXT) *Dysphania ambrosioides*
minu: *epazote* (SOT) *Dysphania ambrosioides*

minu stila: *hierba buena* (SOT) *Mentha arvensis* L., LABIATAE)
mino: *epazote; es de naturaleza caliente; sirve para las lombrices* (TIL) *Dysphania ambrosioides* (L.) Mosyakin & Clemants, CHENOPODIACEAE
mino kastilá: *la hierba buena; es de naturaleza caliente; sirve para la diarrea* (TIL) [**mino castilá**] *Mentha* sp., LABIATAE
mi̲no̲ ñu̲u̲ dáû: *epazote* (DUX)
mi̲no̲ ka̲xti̲la: *hierbabuena* (DUX)
mi̲nu: *epazote* (SMG)
ita̲ minú: *yerbabuena* (SMG)
minu: *epazote* (YSN)
minu: *epazote* (OSP)
minu: *epazote* (PIN)
minu ita ístia̲ / ita ístía̲: *yerbabuena* (PIN)
mino: *el epazote* (CHY)
mino kastiya: *yerua buena* (TAM) [**mino castilla**]
mino / minu / winu: *epazote* (CAB)
minu davi / minu idawi / minu ñudavi / minu savi: *'condimento de lluvia', epazote* (CAB)
minu jatu / minu satu / minu tyatu / minu xati / minu xatu: *'condimento picoso', epazote* (CAB)
mino kua'a / minu kua'a / vino kua'a: *'condimento colorado', epazote* (CAB)
minu tsu'un / minu tyɨ'ɨn: *'condimento apestoso', epazote* (CAB)
minu yii: *'condimento macho', epazote* (CAB)
ita minu: *yerbabuena* (CAB)
minu ja'a: *yerbabuena* (CAB)
minu kastyila / minu sila / minu stila / minu tila / minu xila: *'condimento de Castilla', yerbabuena* (CAB)
minu kɨnɨ: *yerbabuena* (CAB)
minu no'on / minu nu'un: *yerbabuena* (CAB)
minu wa'a: *yerbabuena* (CAB)
minu nda'a ndoo: *'condimento de mano ancha', yerbasanta* (CAB)
minu ndoo: *yerbasanta* (CAB)

nméndê: *bisnaga* (DUX)

nu'un chika'a: *diente de león* (DAA) *Taraxacum officinale* G. Weber ex Wigg., ASTERACEAE **no'on / nu'un**: *diente*; **tyikaa**: *cuchillo*; **ndɨka'a / ndyika'a / ntsika'a / sika'a / xika'a**: *león* (CAB); the Mixtec term appears to be a calque from Spanish *La hierba es amarga y se le considera fresca… Se ocupa cuando se tiene dolor de muela, para dolor de estómago... Se come como verdura...* (DAA)

nda̲di̲ de̲'e̲ kuíxi̲: *un tipo de planta* (DUX) **ndadi / ndadɨ**: *sucio, cochino*; **da'a / de'e / dja'a / ja'a / ja'ya / se'e / se'ya**: *hijo, hija* (CAB)

nda'nu: *huisote* (SOT) *Yucca elephantipes* Regel, AGAVACEAE

tnutsɨndeva (CGM) Described as a plant with large round leaves with stinging hairs,

possibly *Wigandia urens* (Ruíz & Pavón) Kunth, HYDROPHYLLACEAE

sindiava: *mala mujer* (XYA) *Con ésa asada cortan la leche de cabra para comer con tortilla, se hace bolitas*. 'That plant, once it's broiled, is used to curdle goat milk so that it can be eaten on a tortilla, it turns into little balls.'
nusindiava: *mala mujer de monte* (XYA)

sindia̲vá: *mala mujer* (TON) "*Para cortar la leche*."

sindiawa: *mala mujer* (MIC) "-*¿Cómo se llama esa* **sindiawa** *para comer?* - **Sindiawa** *nomás, crece su palo, allá sale la fruta... es como piñón."*
sindiawa tuun: *ortiga* (MIC) *Tiene la hoja grande.*
sindiawa yoo (MIC) *Es enredadera de hoja chiquita.*

ndyava (MXT) [**nchava**] *Tragia nepetifolia* Cav., EUPHORBIACEAE As indicated by the common name of *Tragia* spp. in English, 'noseburn,' this genus is notorious for causing skin irritation and allergies (<www.allergenica.com/Greer.asp>)

nch̲au: *abrojos, espinas, ortigas* (SMG)

ndewa tata: *chichicastle de Castilla o mala mujer* (DAA) **tata**: *semilla seleccionada para sembrar / papá, señor;* **tatan**: *va a rajar, va a romper / medicina* (CAB)
Io uu nuu ndewa ya'a, ndewa tata te ndewa data. *Existen dos clases de chichicastle, uno es de té, el otro es de castilla o mala mujer. Chichicastle de té sirve para refrescarse y para el pulmón. Chichicastle de castilla es caliente, se ocupa para reumatismo, dolor de huesos, mal de aire, calambre de los pies, molido colorado como licuado se toma en ayunas*. (DAA)
ndewa yuku data: *chichicastle de té* (DAA) *Urtica* sp., URTICACEAE **data / djata / jata / sata**: *paloma* (CAB) *La hierba es simple y se considera fresca… En tratamiento de fiebre y dolor de cabeza...* (DAA)

ndéuâ: *un tipo de hierba silvestre; la gente de la región la llama 'chicaxle'* (DUX)
ndéuá ku̲a̲an: *un tipo de hierba silvestre; la gente de la región la llama 'chicaxle amarilla'… le gente pega chichaxle amarillo en la parte del cuerpo adolorida para calmar el dolor* (DUX)
ndéuá nkútu̲: *un tipo de hierba silvestre; la gente de la región la llama 'chicaxle de toro'… es curativa como la hierba llamada* **ndéuá ku̲a̲an** (DUX) The accompanying drawing in this publication (Kuiper, 2003) seems to indicate that this is a species of *Cnidoscolus*, EUPHORBIACEAE.
ndéuá tɨ̲tnɨ́ñɨ̲: *un tipo de flor silvestre; la gente de la región la llama 'chicaxle de ratón'… es curativa como la hierba llamada* **ndéuá ku̲a̲an** (DUX)

ndavua kua'a / **ndavua tnene**: *hortiga* (TAM) [**davuaquaha / davua tnene**]
yuku ndavua: *borraja* (TAM) [**yucundavua**]

tnundeve: *chichicaxtle* (CAB)

ndikin Iya Si'i (COI) The seeds of *Ipomoea* sp. or *Argyreia* sp., CONVOLVULACEAE, used as an entheogen **Iya Si'i**: 'Holy Female,' i.e., the Virgin Mary.

ndikin saña (JIC) *Amaranthus* sp., AMARANTHACEAE Cultivated for its seeds.

ndikin saña (JIC) *Sorghum* sp., GRAMINEAE *Las semillas se comen tostadas y molidas en pinole* **saña**: corncob

nd̲o ídu: *cola de caballo* (MIC) probably *Equisetum* sp., EQUISETACEAE
nd̲o *cola,* **ídu** *caballo "Áhi lo tengo, acá lo hay a la orilla del río."*

ndó̲o chiní: *rabo de iguana* (MIC) unidentified shrub or small tree *Se ocupa lo grueso para*

hacer corralitos. **chiní**: *iguana*

ndo'o landyi (COI) *Huperzia taxifolia* (Sw.) Trevis, LYCOPODIACEAE **ndo'o**: 'tail' **landyi**: 'lamb' The nominal relationship between these three species is probably incidental.

ndoto kuu: *doradilla* (NGO) *Selaginella lepidophylla* (Hook. & Grev.) Spring, SELAGINELLACEAE **ndoto**: *va a retoñar, va a revivir* / **kuu**: *se puede / es / va a poder* (CAB) *Se usa para los riñones: se hierve toda la planta y se toma como agua normal… Se utiliza a veces, en las ofrendas de día de muertos, colocándola sobre los petates donde se pone la ofrenda. En los nacimientos navideños se acostumbra acostar al Niño Dios sobre estas plantas.* (NGO) Metaphoric designations of this type seem rare in Mixtec.

ndrúta: *un tipo de hierba medicinal* (DUX) Some Mixtec dialects have retroflex consonants, conventionally spelled <**Cr**>.

nduxa: *cuyule* (ZAU) [**dushaa**] *Oxalis* sp., OXALIDACEAE
nduxa (**vali**) (COI) *Oxalis* sp., OXALIDACEAE *Las hojas se comen cocidas con hoja de frijol.*
nduxa: *xocoyul, cierta variedad de planta sabor agrio* (CTZ) probably *Oxalis* sp.
Yasinní yavi, kivi chi'yoña ta táanna nduxa xi'inña: *Es muy sabroso el maguey cuando lo cuecen y le ponen el xocoyul* (CTZ)
ndutsa iya (MXT) [**ntutza iya**] *Begonia gracilis* Vilmorin-Andrieux, BEGONIACEAE
nduxa: *trébol* (CHA)
nduxa: *coyul; es de naturaleza fría y ácida; sirve para la disentería* (TIL) *Oxalis nelsonii* (Small) Knuth, OXALIDACEAE
ndúxá: *trébol* (DUX)
Dakaro nduxa xi'in yau ngichi: *[Para comer] se mezcla el trébol con un tipo de sábila* [sic] (DUX)
tindusa: *azedera, yerua* (TAM) [**tindusa**]

ñaña: *piñuela* (PIN) (*Bromelia* sp., BROMELIACEAE)

ñau ndika yuu: *la contra hierba; sirve para la epilepsia* (TIL) [**ñau ndika žuu**] unidentified species **ñaun / ñami / ñawi**: *águila*; **ja'un / ña'un / tsa'un / xa'un**: *quince*; **ndika**: *mamey, plátano* / *pecho, chiche / cresta / ancho / ladera*; **yuu**: *piedra / testículos / petate* (CAB)

ñuchi: *cola de caballo* (DAA) *Equisetum* sp., EQUISETACEAE *No tiene sabor pues por lo regular se toma acompañada con otras hierbas y es fresca. Crece en la orilla del río, donde hay agua en la ciénaga… Se utiliza cuando sufren de calor, para refrescar el estómago, para reumas y para mal de orines...*

ñuu: *palma de soyate* (CGM) *Brahea dulcis* (Kunth) Mart., PALMAE
ñuu: *palma* (OSP)
yuku ñuu: *palma* (SMG)
yukuñuu: *palma* (YSN)

Jiin yukuñuu kuu sa'ayo yuu, ndo'o ti lelu: *Con la palma podemos hacer petates, tenates y sombreros* (YSN)

ñuu kuachi / ñuu yuta / ñuu ñuma: *palmito* (TAM) [**ñuu quachi / ñuu yuta / ñuu ñuma**]

si'in ndixi'yu: *pata de cabra* (TXA) [**si'in ntixi'yu**] *Solanum rostratum* Dunal, SOLANACEAE) **di'in / ji'in / si'in / xi'in**: *pierna*; **ndixi'yu**: *chivo o caprino en general* (CAB) This may be a calque from the Spanish name, which is widespread in Mexico, although it has not been recorded to refer to a *Solanum* (Martínez, 1979).

ti[y]anda [?] (MXT) [**tiantha**] *Cornus excelsa* Kunth, CORNACEAE) **tianda / yanda**: *cicatriz* (CAB)

ti[y]anda kua'a [?] (MXT) [**tiantha cuá'a**] *Viburnum* sp., ADOXACEAE

tikee: *planta jabonera* (SMG)

tikeye: *siempre viua* (TAM) [**tequeye**] These may not be cognates.

tikii (MXT) *Echeveria megacalyx* E. Walther, CRASSULACEAE **tikii**: *tamal* (CAB)

tikuiti yuku: *papa montés* (COI) *Solanum agrimoniifolium* Rydb., *Solanum stoloniferum* Schldl., SOLANACEAE

tikú'u / tikú'u táná: *romerillo, planta* (SMG) **táná**: *curativo, medicinal*

tila'pi (ZAU) [**tilahpi**] *Matelea crenata* (Vail) Woodson, APOCYNACEAE [ASCLEPIADACEAE] This plant would be expected to be labeled **yiwa**, since it is eaten as a *quelite* (Casas, Viveros & Caballero, 1994: 308)

tsinda'ndzi / tsinda'ndzi (CGM) *Una plantita que se quiebra y tiene leche, y al picarla entre los dos [pedazos] se hace una bolita de chicle*. A small herb that contains a latex, which becomes a small ball of chewing gum by breaking the stem and rubbing the ends of the two pieces together. Possibly *Asclepias* sp., APOCYNACEAE, from which a chewing gum is prepared elsewhere in Coicoyán and probably elsewhere in the Mixteca.

tindiii (MXT) [**ti ntii**] *Matelea dictyantha* Woodson, APOCYNACEAE [ASCLEPIADACEAE]

tndiyi búrru: *un tipo de arbusto silvestre, la gente de la región lo llama 'buvardia'... buvardia de burro, se llama así porque a los burros les gusta mucho comerlas. Estos arbustos crecen hasta un metro y medio de altura. Dan flores blancas que abren y huelen bonito cuando oscurece. Al amanecer del día siguiente las flores se cierran, y ya no huelen. Todos los días se abren y se cierran hasta que se marchitan* (DUX) The description matches *Bouvardia erecta* (DC) Standl., RUBIACEAE, which has been recorded in the area. **Nani yutnu ya'a tndiyi burru chi yo ka tna ini burru xa kaxititnu. Xa'nutnu iin yodo metro**: *El tipo de arbusto llamado* **tndiyi búrru** *se llama así porque a los burros les gusta mucho comerlas. Estos arbustos crecen hasta un metro y medio de altura.* (DUX)

tɨndu'u: *amole, jaboncillo* (SMG) This may be the same species as CHA **yuku tɨndu'u**
tɨndu'u: *amole* (YSN)
ndu'u / tindu'u / tinu'u / tɨndru'u: *amole* (CAB)

tita'nu (**itun**) (COI) *Polypodium pseudoaureum* Cav., POLYPODIACEAE) *Rizoma molido y aplicado como supositorio es remedio para fatiga extrema; se usa también en el tratamiento de fracturas y en el parto.* **ta'nu**: *se va a romper, se va a quebrar* (CAB) The **tita'nu** that grows on trees (**itun**) is contrasted with the kind that grow on rocks; the two taxa are used to treat different ailments.

tanu ñu'u (MXT) *Phlebodium araneosum* (M. Martens & Galeotti) Mickel & Beitel, POLYPODIACEAE **tanu**: *soyate / topil / se va a destruir*; **ta'nu**: *grande en edad, sabiduría y experiencia / se va a romper, se va a quebrar* (CAB)
tanu yutu (MXT) *Woodwardia spinulosa* M. Martens & Galeotti, BLECHNACEAE)

titi sno'o: *cerbatana* (SOT) [**titi sno'o**] *Saurauia oreophila* Hemsley, ACTINIDIACEAE **Titi** appears to designate edible seeds in this Mixtec variant.

tɨvíví: *tegüisote* (SMG) possibly *Fourcraea* sp., AGAVACEAE

tɨwɨ / tɨwɨ ndayu / tɨwɨ ndasi: *césped* (TAM) [**tehui / tehudayu / tehudasi**]

tixivo: *Triumfetta* sp., TILIACEAE (KAP) [**tishibo**]

tsa'an ndiwi [?]: *huele de noche* (DAA) [**t sa'a nd'wi / ti sa'a ndiwi**; the latter orthography is recorded in the Mixtec text describing the use of **ita mitu**] **tisa'a**: *cazo*; **jia'an / sa'an / tsa'an / tya'an / xa'an**: *huele*; **ndivi / ndiwi / ndɨwɨ**: *huevo*; **ndivi**: *guapo, bello, bonito / día, de día / cielo* (CAB) The name may be a calque from Spanish. The *Flora Medicinal Mixteca de San Pedro Tidaá* identifies this plant as *Cestrum nocturnum* L., SOLANACEAE, but the description of the leaves as small and round and the corollas 'like a butterfly'does not seem to match this species: *Es una planta de 2 m, su tallo es liso sin espinas. Sus hojas son pequeñas, redondas, con puntas no muy largas…Flores medio amarillas, en su parte baja y medio dulces, el botón es largucho y al abrir es como mariposa… Sirve contra el mal de orines... Aire: se agarran seis o siete varitas y se limpian a personas grandes y niños, se mezcla con ruda, hinojo, mirto, chamizo blanco, hierba de alcanfor, la flor de floribundio se junta se le frota el alcohol y se prende el cerillo y con eso se agarra y se restriega para que suelte el olor y ya se da la limpia… Se ocupa para barrera, para troncos de terreno, ya que echa mucha raíz.*

u'uti [?]: *chicle* (ZAU) [**u uti**] *Euphorbia macropus* (Klotzsch) Boiss., EUPHORBIACEAE This may be a cognate of **kutu** (*copal / chicle*) in other dialects.

***wi'ⁿde'**: prickly pear (JOS) The contemporary terms derived from this Proto-Mixtec form are often prefixed **tun-/tnu-/nu-**, as noted in section 4.3

ve'nde: *nopal* (CGM)
vi'ndia: *nopal* (XYA)
vi'ndia: *nopal* (MIC)
vi'ndia chii ídí: *un nopal muy espinoso* (MIC)
vi'nia: *nopales* (ZAU) [**vihnia**] *Opuntia* spp., CACTACEAE
vi'nia lakuii: *nopal* (ZAU) [**vih nialacui**] *Opuntia* sp., CACTACEAE **lakuii / ndikuii / ñukuii / tyikuili / xikuilo**: *zorro, zorra* (CAB)
vi'ndá: *nopal* (XOC)
vi'ndia (COI) *Opuntia* spp., CACTACEAE
vi'nda / vi'ndia / wi'nda : *el nopal* (CTZ)
mi'ne: *nopal* (SOT) [**min'e**] *Opuntia* spp., CACTACEAE
mi'ne ñuŋwii: *nopal de zorro* (SOT) [**min'e ñungwi**] *Opuntia* spp., CACTACEAE
nkuii / ñakuii / ñunkuii / xunkuii: *zorro, zorra* (CAB)
vi'ncha: *nopal* (SMG)
vi'ncha sákɨ: *cacto* (SMG)
vi'ncha skóó: *nopal redondo* (SMG)
ví'ya: *nopal* (CHA)
ví'ya iso: *nopal de conejo* (CHA) *Tiene vellito.*
ví'ya sko'o: *clase de nopal* (CHA)
ví'ya va'a: *nopal de castilla (*CHA)
ví'ya vá'u: *nopal de coyote* (CHA)
vi'ncha: *nopal* (YSN)
mi'nde: prickly pear (OSP)
vi'nya: *el nopal* (SJC)
mi'ndya: *el cacto de cualquier clase / la tuna* (CHY) [**mihndya**]
wi'ntsa [?] (ACÑ, *Relación de Nochiztlan*) *Hay en este dicho pueblo, y en muchas partes, otro árbol que llaman* **hunitza**, *que en mexicano se dice* **nopale**, *y en castellano tunal, de adonde cogen grana, y tunas coloradas y blancas y amarillas de otro género, y comen las pencas cocidas* (Nochiztlan is present day Nochixtlán, Oaxaca).
wi'nda: *tunal* (TAM) [**huinda**, attested by the entry *penca de tunal*: **daha huinda / yai huinda**]
mi'nde / mi'ne / mi'ndya / mi'ntsa / mi'ya / nvi'ndya / vi'nda / vi'nde / vi'ndia / vi'ndre / vi'ndya / vi'ntsa / vi'ya / wi'nda / wi'nde: *nopal* (CAB)

víchi chá'a: *bliján / biliján* (PIN) *Heliconia* sp., HELICONIACEAE *Porque allá las hojas se ponen cenizos, y con esto antes se hacían las casas.* The leaves were used for thatching, alternating a layer of straw (*zacate del llano*) and a layer of *Heliconia*.
cha'a: *ceniza*
vichi kata: *huichicata* (PIN) *Xanthosoma robustum* Schott, ARACEAE The leaves are used to wrap cheese and other foods to keep them moist and clean.
visi: *la hoja de plátano* (CHY) [**vìsì**] [cognate of PIN **vichi kata**]
vijin jen / vitsin tsa'a / vityin tya'a: *beliján* (CAB) [cognate of **visi**]
viji / vityi / vixi / vixri / wixi: *hoja* (CAB)

xímú: *planta bromeliácea; magueyita, gallito* (SMG) probably *Tillandsia* sp., BROMELIACEAE

dítu: *lama* (MIC)

xinu̲: *lama* (SMG)
xinu (MXT) [**shinu**] *Tillandsia plumosa* Baker, BROMELIACEAE
ita xinu (MXT) *Tillandsia prodigiosa* (Lem.) Baker
xinu̲: *heno* (CHA) probably *Tillandsia usneoides* (L.) L., BROMELIACEAE
dínû: *un tipo de parásito que invade los árboles* (DUX)
dínú cháâ: *un tipo de parásito que invade los árboles* (DUX) [**cháâ**: *gris*]
dínú nda̲'a̲ ndákû: *un tipo de parásito que invade los árboles* (DUX)
dínú ndáku̲ ku̲e̲'e̲: *bromelia roja… crecen en los árboles… la gente de Tilantongo las ocupa para adornar los altares de los santos* (DUX)
dítnu̲: *alga* (DUX)
ditnu / yudi yutnu: *marojo de los arboles* (TAM) [**dzitnu / yudzi yutnu**] *marojo: hojas inútiles o que sólo se aprovechan para el ganado; planta muy parecida al muérdago* (Real Academia Española, 1992)
di'itun ndiute / ditnu / sikitun / skitnu / skitun / xikitun / xitoon: *algas* (CAB)
xinu: *lama o moho* (CAB)
yadi ndé'â: *un tipo de hierba silvestre y comestible… crece veinte o treinta centímetros de altura. Da una flor roja. Se echan las hojas tiernas, no las macizas, de esta hierba en una olla con agua, chile, sal y ajo. Se hierven hasta que se cuezan, y se comen* (DUX)
This plant would be expected to be marked **yu̲a**. **nde'a / nde'e / nde'ña / nde'ya / ne'ya**: capulín, cereza (CAB)

yaku: *sotol* (APO) This may refer to *sotolín, Beaucarnea* sp., NOLINACEAE.

yata: *iú[n]co otro á[n]cho pero no aspero* (TAM)

yisi̲ ñú'ún: *anisillo* (SMG) **ñú'ún**: *hecho de terreno*
yisi̲: *hoja de aguacate* (SMG)
yɨsɨ: *hoja de aguacate* (YSN)
Yɨvɨ ja ka sa'a jijnu mani nda'a nuu yɨsɨ ka chu'un nava na kuu asun: *La gente que hace barbacoa siempre le echa hoja de aguacate para que quede sabrosa* (YSN)
Dakee ñadɨ'ɨ yɨdɨ nuu yua titi a nuu yua tayoo xa kidava'aña ndeyu yua: *Cuando las mujeres preparan quelites o violetas, ponen hojas de aguacate como un condimento* (DUX)
yɨdjɨ: *la hoja de aguacate; la gente usa hoja de aguacate para cocinar con frijol molido* (CHY) [**yɨzɨ**]
yɨdɨ no'on: *hinojo* (TAM) [**yedze noho**] **yixi / yɨdɨ**: *hoja de aguacatal* (CAB) **no'on**: diente (TAM) [**noho**]
isi / yede / yisi / yɨdɨ / xɨdɨ: *hoja de aguacatal* (CAB)

yodi: *iunco o junquillo* (TAM) [**yodzi**]

yo̲ó: reed (ALA)
to̲nyo̲ó: bamboo (ALA)
yoo tata: *carrizo cultivado / carrizo que se cultiva, carrizo doméstico* (APO)
danu yoo / yoo ino / yoo dano: *caña de poquiete* (TAM) [**dzanuyoo / yooino / yoodzano**]
The associations with tobacco is evidence that **yoo** designated *Phragmites* originally, since smoking tubes made out of that species have been documented archaeologically.

tnuyoo: *caña* (TAM) [attested by **yo tnuyoo / tnuyooiyu**: *caña hueca*]
yoo kuachi / yoo nine: *carrizo* (TAM) [**yooquachi / yoonine**]

yotno'o: *marojo* (TAM) [**yo tnoho**] [*marojo: hojas inútiles o que sólo se aprovechan para el ganado; planta muy parecida al muérdago* (Real Academia Española, 1992)]

yuchi: *iunco, ancho y aspero* (TAM)

yuudí: *paxtle* (CGM) probably *Tillandsia usneoides*
yudi (TON) *Tillandsia* sp., BROMELIACEAE "*Son cosas muy pequeñas, ése se da en la rama del mezquite.*"
yudí (MIC) *Cuscuta* sp., CONVOLVULACEAE
luxu: *heno* (CTZ)
Nuu yíyo yitun ndii na'nu yíyoní luxu: *Donde hay grandes encinos, hay mucho heno* (CTZ)
ixi kuii (COI) *Lycopodium clavatum* L., LYCOPODIACEAE *Ornamental para los "nacimientos" en las "posaditas", fiestas de Navidad.* **kuii**: 'green'
ixi nda itun (COI) *Tillandsia usneoides* **nda'a**: 'hand,' **itun**: 'tree'; **nda itun** refers to branches
yuxi (MXT) [**yushi**] *Tillandsia usneoides* (L.) L., BROMELIACEAE
yuxi: *heno, paxtle* (SMG)
yúdi: *heno* (DUX)
yudi cháâ: *un tipo de musgo gris* (DUX)
yudi kuaan: *un tipo de musgo amarillo* (DUX)
xude: *heno* (OSP)
yudi: *yerua que crian los arboles parda* (TAM) [**yudzi**]
yudi yutnu / ditnu: *marojo de los arboles* (TAM) [**yudzi yutnu / dzitnu**] *marojo: hojas inútiles o que sólo se aprovechan para el ganado; planta muy parecida al muérdago* (Real Academia Española, 1992)
yudi / yuxi: *heno o paxtle, planta parásita, vive en la copa de algunos árboles, es de color blanquizco, sirve de adorno en las fiestas* (CAB

yu'u chúan: *un tipo de planta… estas plantas no crecen verticalmente, sino que se extienden en el suelo. Dan flores blancas. Cuando esas flores se marchitan, se forma el fruto que se llama* **chúan**. *Su tamaño es como el de un chile morrón. Tiene partes verdes y partes blancas. Asamos los* **chúan** *en la lumbre y comemos la cáscara y la carne, pero no comemos las semillas* (DUX) **tyu'u / xu'u / yu'u**: *boca, orilla, ribera* (CAB)]

4.9 The main crops

The long history of agriculture in the Otomanguean region that has been documented by archaeologists, as described in the introduction to this dissertation, seems to be reflected in an extremely rich and diversified terminology for maize, beans and squashes in the Mixtec languages. Following Berlin's (1992) prediction, these plants of highest cultural salience are

not assigned to any nominal category, for the most part, and are consistently subdivided into a higher number of labeled kinds or varieties than any other botanical taxon. Even the plants that are only metaphorically associated to the Mesoamerican triad dispense with the class terms that might be expected in their nomenclature, as the examples of *Conopholis*, *Dioon* and *Parasicyos* will illustrate.

4.9.1 Maize

Zea mays L. (GRAMINEAE) has the most elaborate vocabulary in Mixtec, by far. The numerous types and subtypes of corn that are named in the different dialects will not be presented here, but only the cognate sets for the basic terms will be listed. As might be expected, the forms that have been recorded in the different dialects show greater phonological stability than other plant names.

***itu**: cornfield (JOS)
itu / itun: *milpa* (XOC)
itu / yitu / yutu: *milpa* (CTZ)
itu: corn plant (AYU)
utu: cornfield (LAC)
itu: maize plant / *milpa* (COI)
itu: *milpa, campo* (SMG)
itu: *maíz* (SOT) [**'itu**]
ítû: cornfield (DUX)
itu: cornfield (OSP)
itu: cornfield (JAM)
itu: *milpa* (SJC)
itu: *huerta* (TAM)
    itu ita: *huerto* (TAM) (**ituita**)
    itu nduchi: *hauar* (TAM) [**itunduchi**] This would be *habar* in contemporary Spanish, i.e., 'faba bean field.'
iti / itiu / itu / utu / yitu / yutu: *milpa* (CAB)

itu mila (COI) unidentified mosses that grow in dense, cushion-shaped clusters
    mila: 'lizzard' The implication of the name is that the moss is figuratively the lizzard's milpa.

itu kuiyo (JIC) *Tripsacum* sp., GRAMINEAE **kuiyo**: roadrunner, the bird *Geococcyx velox* A myth that was recorded in Copanatoyac Mixtec in Guerrero (**Tno'o savi mixtli**, 1985) dwells on the relationship between *Tripsacum* or teosinte and the roadrunner. [29.]

itu lasu'un (MXT) [**hitu lazu'un**] *Sorghum bicolor* (L.) Moench, GRAMINEAE
    lasu'un / la'un / laxu'un: *correcamino* (CAB)
itu su'un: *milpa de correcamino* (SOT) [**'itu su'u**] unidentified species, possibly *Tripsacum* sp. or wild *Zea* sp., GRAMINEAE, a famine food **du'un / la'un / su'un**: *correcamino* (CAB)

ndzidin: *elote* (CGM)
nzídi: *elote* (TON)
ndixín: *elote* (XOC)
ndis<u>i</u> / ndix<u>i</u>: *elote* (CTZ)
ndixi: *elote* (COI)
nd~~ɨ~~x~~ɨ~~: *elote* (SMG)
nyixi: *el elote* (SJC)
ndixi: *el elote* (CHY)
nd~~ɨ~~di: *mazorca ya quajado el maiz* (TAM) [**dedzi**]
dixi / ndede / ndidi / ndi~~ɨ~~d~~ɨ~~ / ndiji / ndixi / nd~~ɨ~~di / nd~~ɨ~~d~~ɨ~~ / nd~~ɨ~~x~~ɨ~~ / ndridi / ndr~~ɨ~~x~~ɨ~~ / ndyixi / nsidi / ntsixi / nyixi / nxii / tyixi: *elote* (CAB)

ndixi tikaka: *mazorca de cacalote* (COI) *Conopholis alpina* Liebm., OROBANCHACEAE **ndixi**: *elote,* tender ear of maize **tikaka**: crow

tilí'<u>i</u>: *elote con unos cuantos maicitos… no lograron llenarse de maíz, se desgranan y se asan al comal, qué ricos son* (CTZ)

isá: *elotito* (XOC)
yis<u>a</u>: *jilote, elote aún no cuajado* (CTZ)
is<u>a</u> / yis<u>a</u>: *jilote* (CTZ)
isa: *elotillo, jilote* (SMG)
ida: *mazorca de maiz, antes que quaje el grano* (TAM) [**idza**]
ida / ija / isa: jilote (CAB)

níi: *mazorca* (TON)
nií: *mazorca* (XOC)
ni<u>i</u>: *mazorca* (CTZ)
ni<u>i</u>': corn ear (AYU)
n~~ɨ~~ñi: *mazorca* (SMG)
niñi da'a: *'mazorca hijo', mazorca con cabeza ancha y doble cabeza* (APO)
niñi ke'en: *'mazorca varias', varias mazorcas en una mata* (APO)
n~~ɨ~~ñ~~ɨ~~: *la mazorca* (SJC)
n~~ɨ~~ñ~~ɨ~~: *la mazorca* (CHY)
n~~ɨ~~ñ~~ɨ~~: *mazorca ya seca* (TAM) [**neñe**]
nii / niñi / niñ~~ɨ~~ / n~~ɨ~~ñ~~ɨ~~: *mazorca* (CAB)

nii yuku (MXT) [**ni'i yucu / nii yucu**] *Conopholis alpina* Liebm., OROBANCHACEAE The etymology appears to involve **nii**: *mazorca*, and **yuku**: *monte, cerro* (CAB).

niñi ñu'u: *mazorca de monte* (SOT) This is an unidentified 'cob' ingested as a famine food in the lowlands, tentatively assigned by Katz to the PALMAE, but more likely a species of *Dioon*, ZAMIACEAE. At least one species of that genus has been reported from lower altitudes in the Verde-Atoyac drainage in the southern Mixteca (Chávez *et al.*, 2001; *Dioon* is notorious for its large cones that resemble maize (called *teocinte* in Honduras) and yield large, starchy seeds, that can be made into tamales and other

foods if processed properly to get rid of their toxic compounds.
sañi: *olote* (CTZ)
saña: *olote* (COI)
sa̲ñii: *olote* (SMG)
xiñi̲: *el olote* (SJC)
djañi̲: *el olote* (CHY) [**zañi̲**]
dañi̲: *mazorca, el corazon della* (TAM) [**dzañee**]
dañi̲ / janii / larli̲n / nsidiin / sañii / sañoo / xiñii: *olote* (CAB)

Curiously, in the communities in southern Puebla the old term for 'corn cob' appears to have been lost, and it is designated **yutu nuní**, which can be glossed as 'stick of the maize grains.'

***noni'**: corn grain (JOS)
nuni: *maíz* (TON)
nu̲ní: *maíz* (XOC)
nu̲nu̲: *maíz* (CTZ)
nuni̲': corn (AYU)
nuni̲: *maíz* (SMG)
núní: corn (DUX)
nuni duku tikaxiki: *maíz envuelto en totomoxtle* (APO) **duku**: *envuelto*, **tikaxiki**: *totomoxtle*
nuni: maize (OSP)
nu̲ñi̲: *el maíz* (SJC)
nuñi: *el grano de maíz* (CHY)
nuni: *mayz* (TAM)
nuni kastiya: *trigo* (TAM) [**nuni castilla**] 'Castilian maize,' i.e., wheat
nuni kuisi: *mayz blanco* (TAM) [**nuni cuisi**]
nuni kuisi kastiya: *arros* (TAM) [**nunicuisicastilla**] rice
nundoko / nuni vuiyu ti̲do'o: *ceuada* (TAM) [**nundoco / nunivuiyutedzoho**] barley
noni / nuni / nuñi / nuñi̲: *maíz* (CAB)

viu: *cuando apenas está naciendo la milpa* (MIC)
wiyi: *milpitas de 20 cm* (CTZ)
vi̲u: *milpitas* (SMG)
vii / viu / viyi / viyu / wiu: *milpitas recién germinadas* (CAB)

ñamá: *totomoxtle* (CGM)
ña̲ma̲: *totomoxtle, hojas de mazorca* (CTZ)
ñama̲ / ndoko̲ ñama̲: *el totomostle* (SMG)
ya̲ma̲: *el totomoxtle, el rastrojo* (SJC)
ñama: *el totomoxtle* (CHY)
ña̲ma̲: *el rastrojo, el guamil* (CHY) [**ñàmà**] This and the previous term are distinguished tonally.
ñama: *caña de mayz seca* (TAM)
dama / ñama / ñama nii / xama / yama: *totomoxtle* (CAB)

tika xiki: *totomoxtle* (CAB)

vixi niñi: *totomoxtle* (CAB)

***^{n}doo'**: cane (JOS)
ndoo: *caña* (CTZ)
Xina'an vixiní nixiyo ndoo yutu, chi un nixitaanna tatan xa'a yutu: *Antes eran muy dulces las cañas de la milpa, porque no le echaban abono a la milpa* (CTZ)
ndoo': sugarcane (AYU)
ndoo: *caña* (SMG)
tnúndóó kaxtíla: *caña de azúcar* (DUX)
ndoo: *la caña de azúcar* (SJC)
ndoo: *la caña de azúcar* (CHY)
ndoo: *caña de comer* (TAM) [**doo**]
ndoo kusa / ndoo tu'u: *caña sin mazorca* (TAM) [**doo cusa / doo tuhu**]
ndoo tnami: *caña de mayz elada* (TAM) [**dootnami**]
ndoo widi: *caña dulce* (TAM) [**doohuidzi**]
ndoo / noo: *caña* (CAB)

***yawã'**: *rastrojo* – cornstalk (JOS)
toñama: *zacate* (NGO) [**ton ñama**] The context in which this term is quoted in the publication makes clear that it refers to dried maize stalks and leaves, rather than grass.
nuñámá: *caña seca del maíz* (SMG)
tama / tiama / tiñama / tyama / nuñama / tnoñama / tnoyama / tnuñama / tonñama / totama / tunñama / tnuyama: *cañuela, rastrojo* (CAB)
nayama / ñama: *cañuela, rastrojo* (CAB)
tixanda ñama: *cañuela, rastrojo* (CAB)
tnundoo ñama: *cañuela, rastrojo* (CAB)

Communities in southern Puebla seem to have lost again a reflex of this Proto-Mixtec form; in Chigmecatitlán we were given **lastruju** for *rastrojo*, and in Micaltepec the equivalent term is **itia**, the same as 'grass.'

ndió'o: *zacate* (XOC) This refers to green maize foliage used as fodder.
Chikaa ndió'o nuú burro ná kuxirí chi tă'an kuxirí: *Échale zacate al burro porque no ha comido* (XOC)
nda'á yo'o: *zacate de la milpa* (CTZ)
ndayó'o: *zacate, maloja* (SMG)
na'a yo'o / nda'a yo'o / ndiyo'o / ndra'a yo'o / ndyo'o: *zacate* (CAB)

yate: *cabellos de elote* (NGO) 'corn silk' *Sirve para los riñones, el mal de orines y dolor en el vientre: se prepara el té con los cabellos de un jilote… También se comen hervidos con los elotes…* (NGO)
chete itú: *cabello de mazorca* (SMG)
diete / stiatsa / tiete / tiyate / tyate / tyete / xiyati / xiyatya / yata / yate / yete: *cabello de elote* (CAB)

***yoko'**: *espiga* – tassel (JOS)

yoko: *espiga* (CGM)
nutska yoko: *zacate de punta* (CGM) This refers to the top of the maize stem and the tassel, used as fodder.
yok<u>o</u>: *espiga* (CTZ)
yoko: *espiga* (SMG)
yoko: *la espiga* (SJC)
ndika yoko / sika yoko / tika yoko / tiyoko / tunyoko / tyiyoko / xika yoko / xoko / yoko: *espiga de la milpa o del pasto* (CAB)

tiete: *espiga de la milpa o del pasto* (CAB)

4.9.2 Beans

As mentioned in the third chapter of this dissertation, in some Mixtec dialects there is a set of basic terms for maize distinguished by vowel harmony, as illustrated by the following forms:

nuni / níi / nzídi / itu / viu (MIC)

There is a matching set of terms for beans with a harmony of high vowels and an alternation of consonants:

nduchi / ndichi / yuva chichi (COI)

The meaning of these terms will become clear in the following sets of cognates, which confirm the tendency for high V harmony in other variants of Mixtec:

***^{n}duti'**: bean (JOS)
nduchi: *frijol* (CGM)
nduchí: *frijol* (XOC)
nduchí nduu: *ayacote* (XOC) *Phaseolus coccineous* L., LEGUMINOSAE
nduchi / **nduchu**: *frijol* (CTZ)
nd<u>u</u>chi': beans (AYU)
ndúch<u>u</u>: bean (LAC)
nduchi: *frijol* (SMG)
nduchi xá'án: *higuerilla* (SMG) *Ricinus communis* L., EUPHORBIACEAE
nduchi stila: *haba* (YSN)
nduchi tɨluu: *chícharo, arveja* (YSN)
nduch<u>i</u>: legume (DUX)
ndutsi: beans (OSP)
ndutyi: *el frijol* (SJC)
ndutyi: *el frijol* (CHY)
ndutyi ñu'u: *el cacahuate* (CHY) [**ndutyi ñuhu**]
nduchi: *frisoles* (TAM) [**duchì**]
nduchi kuachi / nduchi tɨyadi: *lantejas* (TAM) [**duchi quachi / duchi teyadzi**]
nduchi na'nu / nduchi nono: *haua* (TAM) **duchi nanu / duchi nono**
nduchi tinduu: *arueja* (TAM) [**duchitinduu**] **satinduu**: *esphera, o espherica cosa*

nduchi nikɨni / nduchi tɨnama: *higuerilla* (TAM) [attested in **dzahaduchiniqni** / **dzahaduchitenama**, *azeite de higuerilla*]
ndiutsi / ndiuxi / ndrutyi / ndukyi / nduti / ndutyi / ndyutyi / ndutyu / nutyi: *frijol* (CAB)

***^{n}diti**: *ejote* – green bean (JOS)
ndichi: *ejotes* (NGO)
ndìchì: *ejote* (XOC)
ndi̲chi: *ejotes* (CTZ)
ndi̲chi: *ejote* (SMG)
nyítyi̲: *el ejote* (SJC)
ndyityi: *el ejote* (CHY)
ndichi: *frisoles con vaina* (TAM) [**dichi**]
ndichindaya: *garroba o algarroba* (TAM) [**dichindaya**]
ndiji / ndikyi / nditi / ndityi / ndjityi / ndɨtsi / ndrityi / ndyityi / nityi / ntsityi / xityi: *ejote* (CAB)

The reflex for this Proto-Mixtec form is again lost in southern Puebla, where we found what looks like a borrowing from the Náhuatl **exotl** via Spanish:

nduchi yote: *ejote, acá se come pero ya macizo* (CGM)

The same dialect does share with other areas a form which was not reconstructed by Josserand, and which distinguishes the bean plant, marked by the class term 'herb' in some variants and by '*quelite*' in others:

yuku xichi: *guía de frijol, acá no se come* (CGM)
yúkú xi̲chi̲ ndúchi̲: *legumbres* (DUX) Kuiper lists several types, including the following:
yúkú xi̲chi̲ ndúchi̲ nda̲'a̲ víú: *un tipo de frijol con ejotes negros y largos… Este frijol se siembra con la milpa para que se pueda enredar alrededor de ella* (DUX) This highly specific designation incorporates the term **viu** for newly germinated maize plants.
yúkú xi̲chi̲ ndúchi̲ téyu̲: *un tipo de frijol* (DUX) **teyu**: *banco, silla* (CAB)
yúkú xi̲chi̲ ndɨyî: *un tipo de frijol silvestre, comestible, literalmente 'hierba del surco de muerto', la gente de la región lo llama 'frijol de muertos de surco'… Produce frijoles negros, pintos, blancos y amarillos. Las mujeres cortan los ejotes… de sus guías. Los abren, y los frijoles salen de sus vainas. Ponen una olla al fuego. Echan agua adentro de la olla y los frijoles, hierba santa, ajo, sal y chile. Los cuecen media hora. También las flores son comestibles* (DUX)
sichi / yuku sichi: *frisoles quando empiezan a salir* (TAM) [**sichi / yucusichi**]
yuku sichi: *mata de frisoles* (TAM) [**yucusichi**]
yuku ityi / yuku jityi / yuku ndutyi / yuku tsityi / yuku tyityi / yuku xityi / yuku xixi / xkundiutsi: *frijolar* (CAB)
iva tyityi / yiva ndityi / yiva tyityi / yiwa tyityi: *frijolar* (CAB)

The coastal dialects, which refer bean plants and other crops to the nominal category labeled **yo'o**, do not share a cognate of **chichi / sichi / xichi**:

yo'o nduti tún: *frijol negro* (PIN) *Phaseolus vulgaris* L., LEGUMINOSAE
yo'o ndútyí: *el bejuco de frijol, la mata de frijol* (SJC)

There may be a fourth term in the set **nduchi / ndichi / chichi**, which is poorly documented, however. Caballero (2008) cites the forms **ita kuityi** and **yi'i**, *flor del frijolar*, and **tnukuityi**, *frijolar*; unfortunately, as in all entries in his dictionary, there is no information on the provenience of these terms. Dyk & Stoudt (1973) provide what seems to be a specific name for the flowers of the scarlet runner bean, a distinct species domesticated in Mesoamerica:

ita ji'í: *flor de frijolón* (SMG)

In analogy with the term **viu** for maize seedlings, Diuxi Mixtec has an equivalent for bean sprouts:

chitútnû: *la planta de frijol negro cuando apenas brota o germina* (DUX)
tnuu / tuun: 'black'

4.9.3 Squashes

Vowel harmony also characterizes the main terms relating to the species of *Cucurbita* that are cultivated in different areas of the Mixteca:

***yɨkĩ'**: squash (JOS)
ikɨn: *calabaza* (CGM)
ikín: *calabaza* (XOC)
yikin / yijin / ñijin: *calabaza* (CTZ)
yɨkɨ: *calabaza* (CHA)
sɨkɨn: *calabaza* (OSP)
yɨkɨn: *la calabaza* (SJC)
yɨkɨn: *calabaza* (TAM) [**yeq**]
ikin / nikin / ñikin / xijin / xɨkɨn / yɨjɨn / yikin / yikun / yɨkɨn: *calabaza* (CAB)

Cucurbita pepo L. subsp. *pepo*, called *huicha* or *huiche* in Oaxaca, is distinguished as the 'thorny squash' in the few Mixtec dialects for which we have a specific designation:

yɨkɨn íñú: *calabaza* (SMG)
yíki íñú: *calabaza* (CHA)
yɨkɨn iñu: *huicha* (YSN)

Cucurbita moschata (Duchesne ex Lam.) Duchesne ex Poir, called *támala* in Oaxaca, is related etymologically to the sweet potato, or qualified as the yellow squash:

kiâ'mi: *tamalayota* (XOC)
yɨkɨn ña'mu: *támala* (YSN)
yɨkɨ kua'a: *la calabaza* (CHY) [**yɨquɨ cuaha**]
yɨkɨn ña'mi: *calabaza grande amarilla* (TAM) [**yeqñami**]

ikin ña'mi / jia'mi / xikin a'mi / yijin ña'mi / yikin ña'ma / yikin ña'mi / yikin ya'mi / yɨjɨn ña'mi / yɨjɨn ya'mi / yɨkɨn ña'mi / yɨkɨn ña'mu / yɨkɨn ya'mi: *támala* (CAB)
yikun kuaan: *támala* (CAB)

Cucurbita ficifolia Bouché, called *chilacayote* in Mexico, is marked as a squash in some Mixtec dialects, while in others it is not preceded by the class term **yikin**:

tinduyú: *chilacayote* (XOC)
tinduyu: *chilacayote* (CTZ)
tinduyu: *silacayote* (COI)
yɨkɨn tínduyu̲: *chilacayote* (SMG)
tɨnduyu: *chilacayote* (CHA)
yɨkɨn tɨnduyu: *chilacayota* (YSN)
tinduyu: *calabaza blanca y redonda* (TAM)
nduxiu / nduyu / tenduyu / tindruyu / tindui / tinduyu / tinuyu / tɨnduyu / tsinduyu / tunduyu / tyinduyu / xinduyu: *chilacayota, chilacayote* (CAB)

A wild cucurbit that is endemic to the Mixteca is referred to the latter nominal group in San Juan Mixtepec:

tinduyu ko'o [?] (MXT) [**tintuyu co'o**] *Parasicyos dieterleae* R. Lira Saade & R. Torres Colín, CUCURBITACEAE **koo**: *serpiente*, *víbora*; **ko'o**: *plato* (CAB)

Cucurbita argyrosperma Huber, called *pipiana*, has been rarely recorded in Mixtec lexicography:

tinoo: *la calabaza pipiana* (CHY)
yɨkɨn tɨnuu: *calabaza larga lisa* (TAM)

A few Mixtec names have been recorded for other kinds of squash, but there are probably other terms to distinguish the different species and landraces:

yíki ña'u: *calabaza de tierra caliente* (CHA)

Squash seeds receive a specific denomination in some dialects:

tsikɨn: *semilla de calabaza* (CGM)
tsɨtɨn / tyikin / tyitin / xini yikin: *'semillas de calabaza, támala, sandía, chilacayote, melón', pepitas* (CAB)

In other areas, the cognate seems to designate a broader group of seeds, and **iki** is used as an epithet to specify cucurbits:

chiti iki: *pepita de calabaza* (PIN)

A term that appears to have focused on amaranth historically has come to designate a larger category of seeds in some dialects, including squash *pepitas*:

ndikin / ndɨjɨn / nsikin / ventiɨkɨn: *amaranto, alegría* (CAB)

ndikin / nikin / nsikin / tiin / tiikɨn / tikin / tiyikin / tɨjɨn / tɨyikin / tsiyikin / tyiin / tyikin / tyikɨn / tyɨjɨn / tyɨkɨn / xikin / yikɨn: *pepita* (CAB)

Squash blossoms, a highly valued food in Mesoamerica, receive a specific name in Mixtec:

vayá: *flor de calabaza* (CGM)
vàyà / yàvà: *flor de calabaza* (XOC)
vaya / yita waya: *flor de calabaza* (CTZ)
tɨvayá: *flor de calabaza* (SMG)
tɨvaya / ita yɨkɨn: *flor de calabaza* (YSN)
tivuaya / ita vuaya: *flor de calabaza* (TAM)
ita vaya / ndivaya / tavaya / tivaya / tivea / tiveya / tiwaya / tɨvaya / tɨvea / tɨveya / tsivaya / tyiveya: *flor de calabaza* (CAB)

In some dialects, squash flowers are designated with the term that is reserved for the plants of squash and chayote (*Sechium edule* (Jacq.) Sw., CUCURBITACEAE):

ita ta'yi: *flor de guía de calabaza* (SOT)
ita tye'e: *la flor de calabaza* (CHY) [**ita tyehe**]

Guías, the tender stems and leaves of squashes and chayote, are also eaten commonly in southern Mexico and may have motivated the development of a distinct term for the vegetative structure of these species, which in some dialects seems to have acquired later a broader denotation:

tee: *guía de cualquier planta que se extienda* (CGM)
    numá tee: *guía de calabaza* (CGM)
yo'ó te'e nañá: *bejuco de chayote* (XOC)
te'e yikin: *guía de calabaza* (CTZ)
    te'e naña: *guía de chayote* (CTZ)
    Yasinní nuu te'e yikin á te'e naña kaxi yo: *Es muy sabrosa la guía de calabaza o de chayote para comer* (CTZ)
ta'i: *guías de calabaza* (SMG)
tnúte'e: *calabaza* (DUX)
    te'e yɨjɨn: *calabaza* (DUX)
    te'e tndúyû: *chilacayotera* (DUX)
tye'e: *la mata, la planta de bejucos u otras plantas que tienen guías y se extienden por el suelo* (SJC)
    Kuiya vityin kua tatsiyu kua'a tye'e yɨkɨn: *Este año voy a sembrar muchas calabazas* (SJC) [**Cuiya vityin cua tatsi yu cuaha tyehe yɨquɨn**]
ndu'u ta'i: *mata de calabazas* (TAM) [**duhu tahi**]
    yutnu nda'ya yo'o / ta'i tnunda'ya yo'o: *vid* (TAM) [**yutnundaya yoho / tahi tnundaya yoho**]**tnute'e**: *guía de calabaza* (CAB)
ste'e / ta'a / ta'yi / te'e / tye'e: *guía de calabaza* (CAB)

5. Conclusion: the geography of *quelites* and flowers

The previous section of this dissertation has documented how nominal markers serve to generate a major portion of the plant lexicon in the Mixtec languages, and how the categories labeled 'flower' and 'edible green,' among others, can encompass a substantial number of the terms that designate species that might be expected to be assigned to differing life-form categories in Berlin's (1992) interpretive framework. This final chapter is focused on a geographic pattern that becomes evident in the lexical data that have been presented. The occurrence of the two labeled groupings 'flower' and 'quelite' in the botanical nomenclature of other Mixtecan and Otomanguean languages, as well as in neighboring linguistic families, is charted on a map to show that the classificatory features found in Mixtec are not unique and have a wider distribution in Mesoamerica.

5.1 Spatial distribution of the **yuva** and **nduva** class terms

Among the nominal categories presented in chapter 4, the class labeled *quelite* ('edible green') appears to be the most variable across the Mixteca. Some dialects attest to an additional nominal grouping to distinguish greens eaten raw, while other variants seem to dispense with the category altogether, labeling all taxa involved as **yuku**, the generic term that can be glossed roughly as 'herb'. Figure 8 shows the spatial distribution of three lexical patterns in Mixtec plant nomenclature:

1. dialects which distinguish raw (**nduva**) and cooked (**yuva**) *quelites*

2. dialects which label edible greens in general as **yuva**

3. dialects which lack the nominal category **yuva** and label *quelites* as **yuku**

Omitted from the map in figure 8 are the localities for which we have insufficient information, such as Ayutla and Silacayoapan. It should be pointed out as well that some dialects that lack the **yuva** marker do show some terms that are labeled **nduva**, e.g., **nduva ndoo** (*Piper auritum*) in Nuxaá and **ndua ndudu** (*Porophyllum* sp.) in Apoala, but the data at hand are insufficient to determine how widespread this fourth nominal pattern might be.

The available information indicates that the presence or absence of the two classes of *quelites* does not correlate with the linguistic history of Mixtec, as reflected in the dialect areas defined by Josserand (1983) on the basis of phonological features. Among the variants that show the ***t**V**n** > **tn**V and ***s** > **d** developments that characterize the Mixteca Alta in general, and the eastern Alta in particular, some dialects like Diuxi and Huitepec distinguish raw and cooked *quelites*, while others like Apoala, Nuxaá and Peñoles lack the **yuva** marker altogether. In the western Alta, San Miguel el Grande, Chalcatongo and Yosondúa belong to the first grouping in figure 8, while Yosotato falls into the second pattern. In the Mixteca Baja, all the variants in Puebla for which we have data (Chigmecatitlán, Xayacatlán, Tonahuixtla and Micaltepec) make the **yuva** vs. **nduva** distinction, whereas the Baja dialects in Oaxaca (Coicoyán) and Guerrero (Alcozauca, Coatzoquitengo, Jicayán, Yoloxóchitl) do not show any plant terms labeled **nduva**, except for *Leucaena* and its close relatives in some variants. San Juan Mixtepec, which shares with the coastal area the ***j** > **ch** development and is thought to have been the original

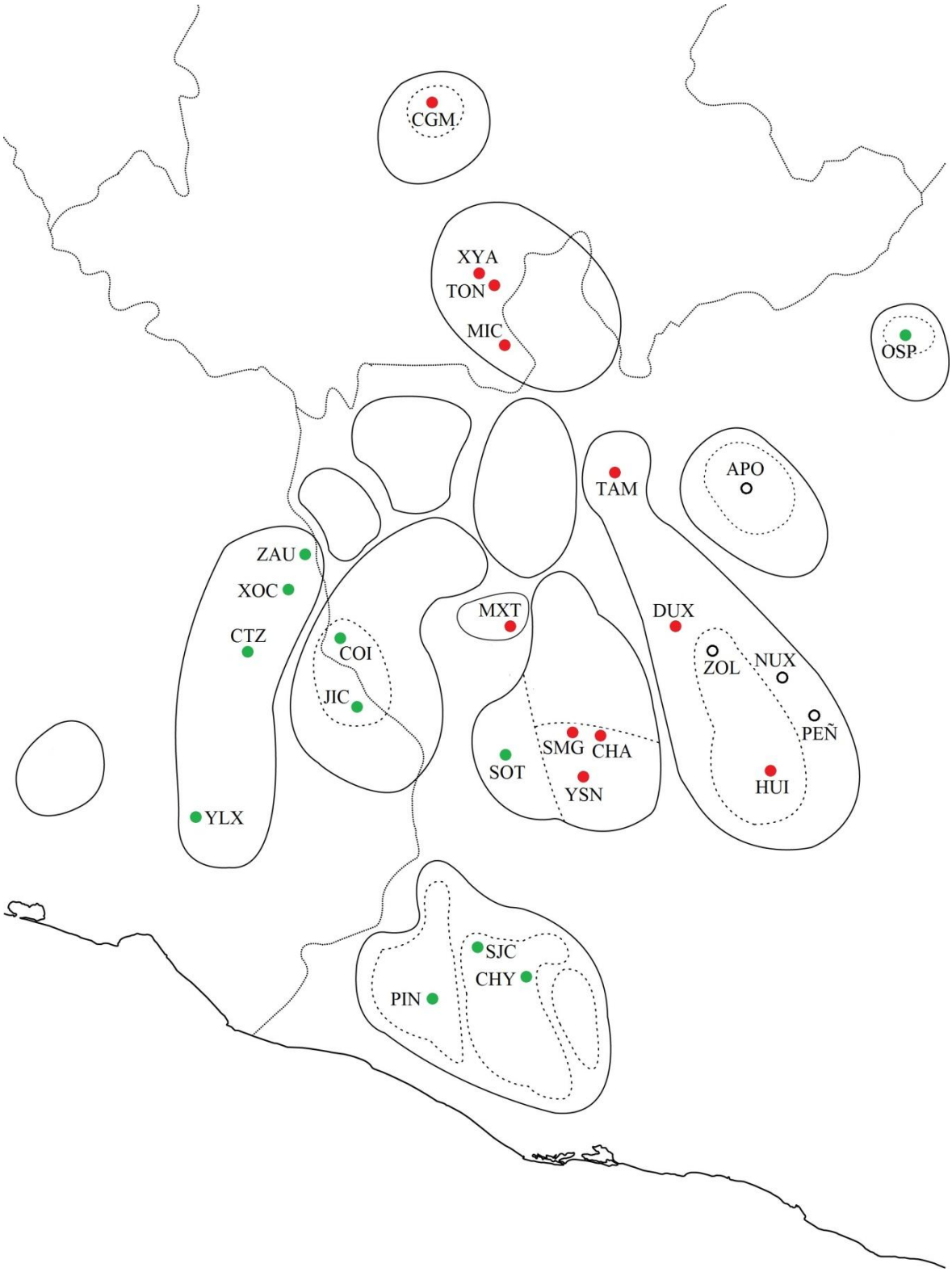


Figure 8: The class terms for *quelites* in the Mixtec dialect areas
- localities where **nduva** and **yuva** are attested
- localities where all greens are labeled **yuva**
- localities where *quelites* are labeled **yuku**

homeland of the people who colonized the Pinotepa – Jamiltepec – Tututepec area, distinguishes raw and cooked quelites, whereas all the dialects on the coast that have been documented (Pinotepa Nacional, San Juan Colorado, Chayuco) lack the **nduva** group.

In view of this distribution, and given the fact that the closest relatives of Mixtec (Cuicatec and Trique) both show a *quelite* class term that labels the majority or all of the taxa of edible greens, it seems tenable to propose that Proto-Mixtec had a nominal category labeled with a term that gave rise to **iva / yeva / yiva / yiwa / yua / yuwa / yuva / yuve / uve** and other reflexes. The dialects in part of the eastern Mixteca Alta must have lost this term, perhaps due to a semantic shift of the type mentioned in section 4.6, and the plants formerly labeled with it were subsumed under the category marked **yuku**. The other Mixtecan languages besides Mixtec do not seem to show a raw and cooked opposition in their plant terminology, which appears to be unique to the central and northwestern Mixteca. If the development of the **nd**V / **y**V correspondence from allomorphs marking possession in Proto-Mixtecan nouns holds true, as proposed by Swanton and DiCanio (2009, personal communication), the origin of a **nduva** grouping must be early, and its presence in most of the Alta and the northern Baja would represent a retention, rather than an innovation. In this interpretation, the designation of *Leucaena* as the sole referent of **nduva** in the southern Baja and Guerrero would be a secondary development, after the cognate of **nete** / **ndete** had been dropped. I had proposed earlier that *Leucaena* had served as a prototypical species to generate the **nduva** nominal category by polysemy (de Ávila, 1993), an interpretation that I have revised. The fact that some eastern Alta dialects show a grouping labeled **nduva**, even though **yuva** is absent from their plant lexicon, seems to be consistent with an early origin of the 'raw' category.

5.2 Botanical class terms in other Mesoamerican languages

In previous works (de Ávila, 2004; de Ávila, in press), I have discussed the presence of class terms in plant nomenclature in the languages of Mexico and northern Central America that have been sufficiently documented. Figures 9 and 10 summarize the results of those surveys, including research in progress that we have initiated on other languages in Oaxaca. The map in figure 9 shows the distribution of localities where a nominal category of *quelites* has been recorded, representing all of the linguistic families of Mesoamerica for which we have found adequate data. The map in figure 10 presents the distribution of languages with a nominal category that marks flowers. Both maps distinguish three types of occurrences:

1. languages where the majority or all the edible greens or perceptually salient blossoms appear to be named with terms that incorporate a label that is specific for that semantic category

2. languages where some edible greens or flowers are named with such labeled terms, while the majority seem to be designated by either simple or unproductive primary names, following Berlin's (1992: 27-28) definition

3. languages where a *quelite* or flower class term has not been recorded

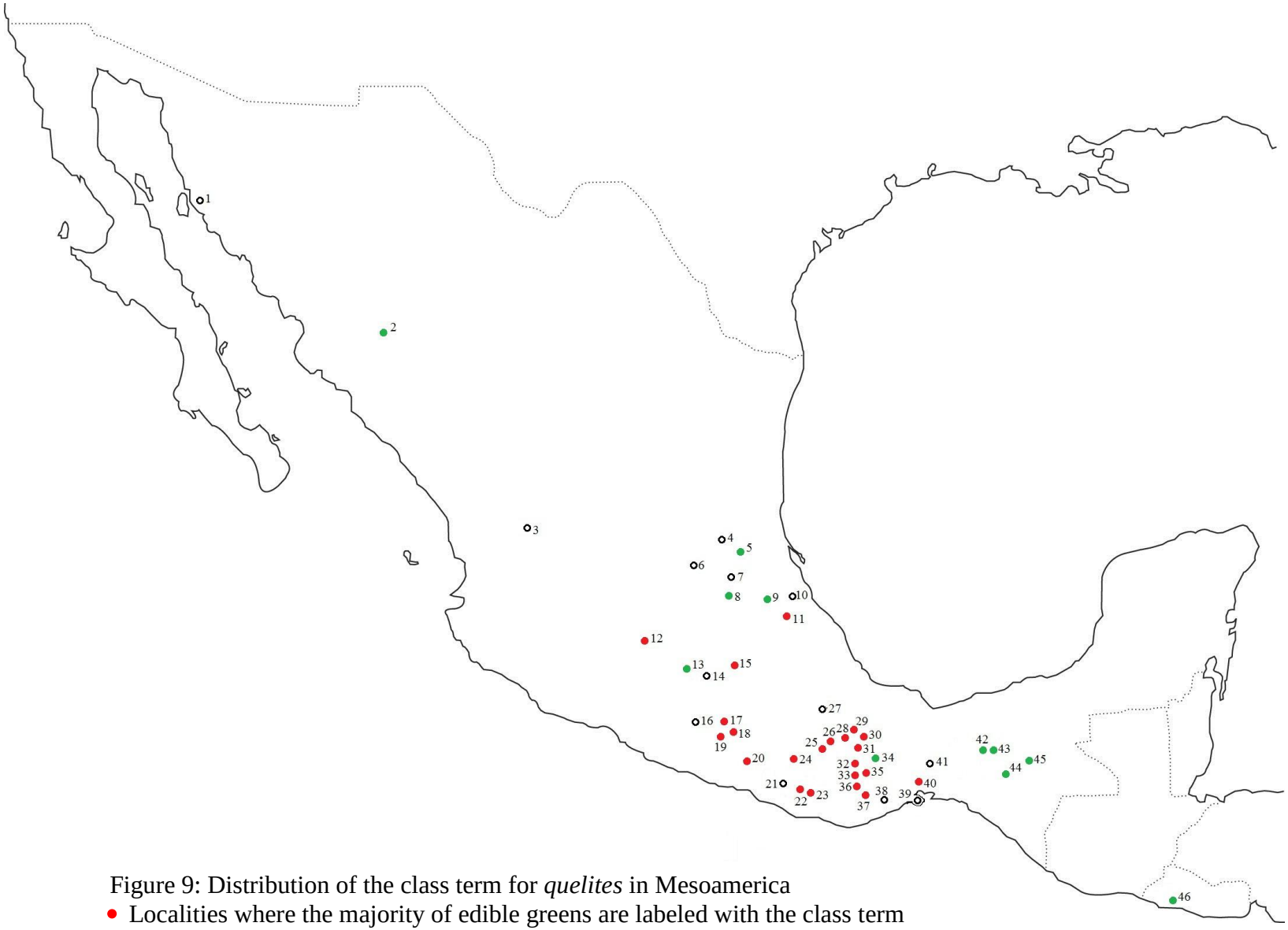


Figure 9: Distribution of the class term for *quelites* in Mesoamerica

- Localities where the majority of edible greens are labeled with the class term
- Localities where some edible greens are labeled with the class term
- Localities where the class term has not been recorded

Languages and localities:

1. Seri: Punta Chueca, Sonora
2. Northern Tepehuán: Nabogame, Chihuahua
3. Huichol: San Andrés Cohamiata, Jalisco
4. Northern Pame: La Palma, municipality of Tamasopo, San Luis Potosí
5. Huastec: Tancanhuitz (Ciudad Santos), San Luis Potosí
6. Chichimec Jonaz: Misión de Chichimecas, San Luis de la Paz, Guanajuato
7. Southern Pame: Jiliapan, Hidalgo
8. 17th century Otomí: Ixmiquilpan, Hidalgo
9. Sierra Madre Otomí: Tenango de Doria, Hidalgo
10. Totonac: El Tajín, Veracruz
11. Sierra de Puebla Nahuat: Cuetzalan, Puebla
12. 16th century Purépecha: Tzintzuntzan, Michoacán
13. Mazahua: San Francisco Mihualtepec, State of Mexico
14. Matlatzinca: San Francisco Oxtotilpan, State of Mexico
15. 16th century Nahuatl: Mexico City
16. Cuitlatec: San Miguel Totolapan, Guerrero
17. Balsas Nahuatl: Xalitla, Guerrero
18. Balsas Nahuatl: Ameyaltepec, Guerrero
19. Balsas Nahuatl: Oapan, Guerrero
20. Tlapanec: Malinaltepec, Guerrero
21. Amuzgo: San Pedro Amuzgos, Putla, Oaxaca
22. Chatino: Tataltepec de Valdés, Juquila, Oaxaca
23. Chatino: Panixtlahuaca, Juquila, Oaxaca
24. Trique: San Juan Copala
25. Chocholtec: Coixtlahuaca, Oaxaca
26. Ixcatec: Santa María Ixcatlán, Teotitlán, Oaxaca
27. Popoloca: San Juan Atzingo, municipality of San Gabriel Chilac, Puebla
28. Cuicatec: Santa María Papalo
29. Mazatec: Chiquihuitlán, Cuicatlán, Oaxaca
30. Tlatepuzco Chinantec: San Pedro Tlatepuzco, Tuxtepec, Oaxaca
31. Comaltepec Chinantec: Santiago Comaltepec, Ixtlán, Oaxaca
32. Sierra Juárez Zapotec: Atepec, Ixtlán, Oaxaca
33. 16th century Zapotec: Tlacochahuaya, Tlacolula, Oax.
34. Mixe: Totontepec, Mixe, Oax.
35. Mitla Zapotec: Mitla, Tlacolula, Oax.
36. Chichicapan Zapotec: Chichicapan, Ocotlán, Oax.
37. Mixtepec Zapotec: San Pedro Mixtepec, Miahuatlán, Oax.
38. Highland Chontal: San Matías Petacaltepec, Yautepec, Oax.
39. Huave: San Mateo del Mar, Tehuantepec, Oax.
40. Isthmus Zapotec: Juchitán, Oax.
41. Oaxaca Zoque: San Miguel Chimalapa, Juchitán, Oax.
42. Francisco León Zoque: Francisco León, Chiapas
43. Rayón Zoque: Rayón, Chiapas
44. Chiapanec: Chiapa de Corzo, Chiapas
45. Tzeltal: Tenejapa, Chiapas
46. Pipil: Cuisnahuat, Departamento de Sonsonate, El Salvador

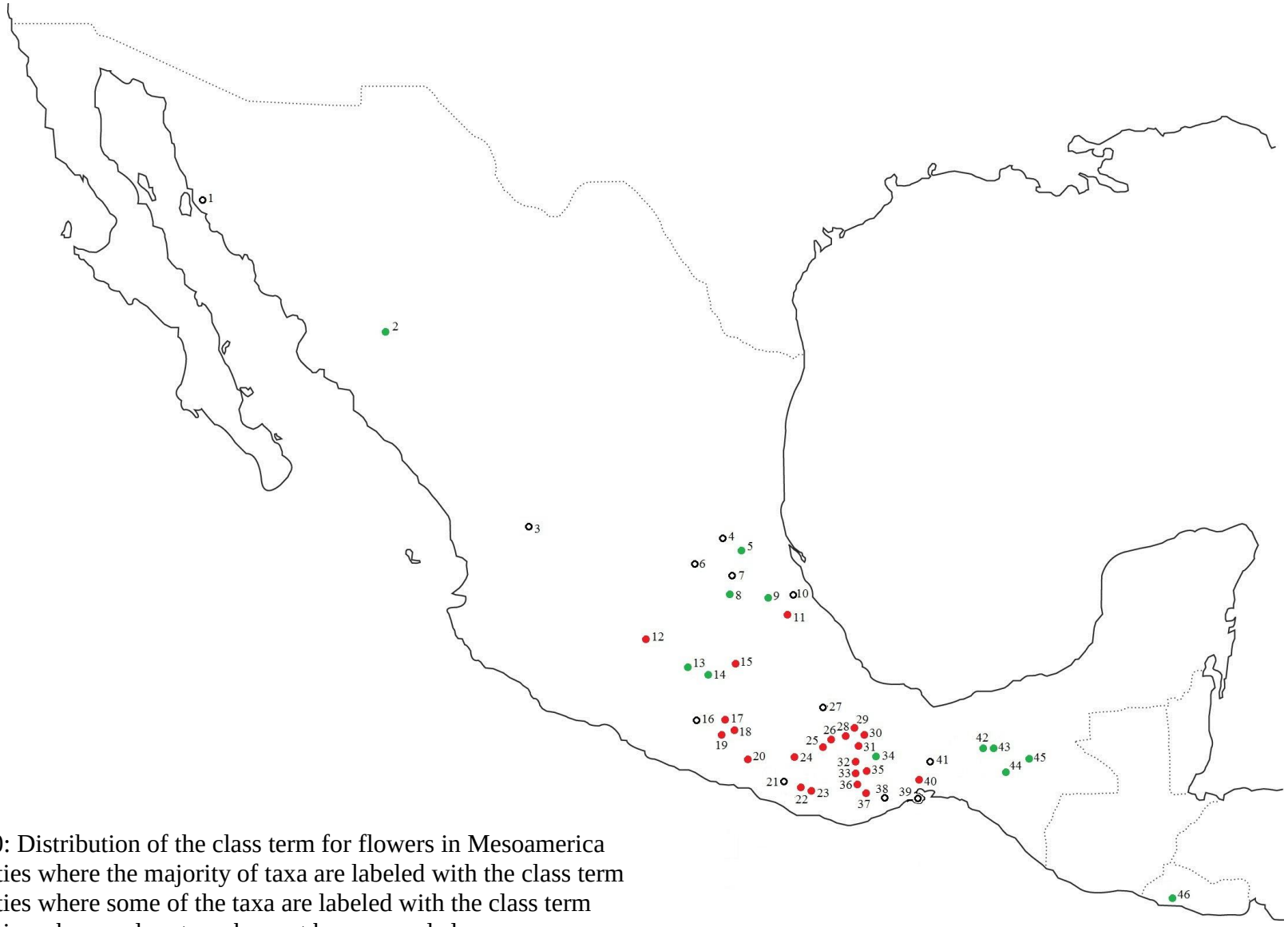


Figure 10: Distribution of the class term for flowers in Mesoamerica

- Localities where the majority of taxa are labeled with the class term
- Localities where some of the taxa are labeled with the class term
- Localities where a class term has not been recorded

A well defined pattern can be discerned in figures 9 and 10, which show a greater incidence of both class terms in the central area of Mesoamerica. Towards the north, a progressive decrease of their frequency is relatively well documented in the sources we have reviewed. A large gap persists towards the south: there is little ethnobiological information available on the Mayan languages of Guatemala. The documentation is even more limited for Sutiaba and Mangue, extinct languages of Otomanguean stock. We have not found adequate information for the Jicaque languages of Honduras, the Misumalpan languages within the conventional borders of Mesoamerica, or the Xinca and Lenca languages, small, isolated families in southeastern Guatemala, northern El Salvador, and southern Honduras that have recently become extinct (Campbell, 1997).

Nicholas Hopkins (1987), summarizing the studies on the classification of plants in Mesoamerica that had been published to date, suggested that: *Es de esperarse que en un área cultural donde otros sistemas (términos básicos de color, números, etcétera) son comunes entre miembros de familias lingüísticas distintas, la ciencia botánica también sería común*. ['It is to be expected that in an cultural area in which other systems (basic terms for colors, numbers, etcetera) are common among members of distinct linguistic families, that botanical science would also be shared.'] The class terms that are so salient in plant nomenclature in the Mixtec languages, which we can now compare with the botanical lexicon of other peoples in Mesoamerica, contradict that expectation. They reveal that the classification systems created by human beings are more diverse than expected and that they merit renewed theoretical discussion.

NOTES:

[1.] De los Reyes (1593) and other early sources cite **Ñudzavui** as the Mixtec people's name for themselves, composed of **ñuu** 'town, people' and **Dzavui** 'rain,' both as a physical phenomenon and as a deity. The cognate term **Ñuusavi** and other related forms are still used today as a self-designation by Mixtec speakers in various areas of their territory (INALI, 2007), but people in Coicoyán de las Flores, where I did most of my field work, refer to themselves as **Nanda'vi**, 'the poor ones,' and call their language **Tu'un nda'vi**, 'the poor word.' De León (1980) reports **teda'abi** as the gloss for 'Mixtec man' in San Jerónimo Xayacatlán; she interprets the etymology as '*hombre de limpia expresión*,' 'man of clean expression,' i.e., clear speech. The phonological similarity of **Ñuusavi** to **Nanda'vi** and **teda'abi** suggest that the latter terms arose as folk etimologies. Nevertheless, **Savi** retains its full meaning (rain and rain-god) in Coicoyán. Other self-designations that have been recorded for the language include **Sáin Sa<u>u</u>** (Macaulay, 1996), **Ña Ma Va'a** and **Snuu Vico** (INALI, 2005).

[2.] Náhuatl, a member of the Uto-Aztecan family, was spoken until recently in an area of coastal Guerrero surrounded by Mixtec, Tlapanec and Amuzgo communities. In the 1970s, Lastra's (1986) collaborators surveyed the language as it was spoken by elders in three communities in the municipalities of Ometepec, Azoyú and Cuautepec, showing considerable divergence from the variants of the upper Balsas and the region known as La Montaña in eastern Guerrero north of the coast. Furthermore, they documented significant dialectal variation between the three communities, which would indicate Náhuatl had occupied that enclave in southwestern Mixtec territory for a long time. More recently, a different dialect of Náhuatl, called *mexicano pastor*, that appears to have originated in the vicinity of Santa María la Alta in the Tehuacán Valley in southern Puebla (Hvilshøj, 2004), spread over several communities in the Mixteca Baja of northwestern Oaxaca, the districts of Putla and Jamiltepec on the coast, and the mountains and coastal plain of eastern Guerrero, in tandem with the development of travelling *haciendas* of goat-herders during the 18th and 19th centuries (Mouat, 1980). Today, *Pastor* Náhuatl is dying out, even as Mixtec remains vital in some of the same communities. Besides Náhuatl, there are two other linguistic enclaves within Mixtec territory, Triqui and Amuzgo, which belong to the Otomanguean family.

[3.] Kaufman (1990: 99-100) notes that /*r/ may have actually been /θ/, and that /*p/ is "rare or nonexistent." His reconstructed syllable has the shape (H)(n)C(y)V(V)(n)(h)('), where H stands for the laryngeals /'/ and /h/. Every syllable begins with some consonant, which can include H and N (the nasals /n, m/). "The preconsonantal nasal, written <**n**>, is homorganic to what follows: before laryngeals it is apparently [n]. Vowel clusters are monosyllabic following diphthongs. The diphthongs are written as such because /Vy/ and /Vw/ sequences would be ambiguous for inserting syllable boundaries, and no semivowel corresponding to /a/ is available or otherwise needs to be reconstructed. Disyllabic strings must have a consonant between the two syllabic nuclei."

[4.] Greenberg (1987) grouped Tlapanec and Sutiaba into his Hokan "subgroup" of "Amerind" (following Sapir's 1925 paper linking Sutiaba with Hokan), but Campbell (1988) objected specifically to the removal of Sutiaba-Tlapanec from Otomanguean, upholding Jorge Suárez' opinion, who had related that lineage to the family and had excluded Huave. Rensch

(1976) had reconstructed the phonological system of Proto-Otomanguean based on languages representing all the other branches of Otomanguean. He did not dismiss the inclusion of Tlapanec-Sutiaba and Huave in Otomanguean, which other authors had proposed, but considered that there was not enough information on these languages to incorporate them into his study. Rensch (1976) points out that Greenberg had singled out Otomanguean for a word of caution within his Amerind stock: "Among the groups listed here only Otomanguean ... is considered at all not likely to belong to this great family" (Greenberg, 1960, p.791). The latter was to acknowledge Rensch's work later, which made unnecessary for him what he referred to as "the daunting prospect of a general internal comparison of Oto-Mangue" (Greenberg, 1987: 123). In light of these comments, one is led to wonder how Greenberg would have taken Rensch's intent to classify Tlapanec-Sutiaba in Otomanguean, had Rensch had the data for Tlapanec that Suárez later published. This does not seem to be a trivial detail, since the affiliation of Tlapanec in Otomangue would place it into an altogether different branch of Amerind in Greenberg's scheme: he considered Otomanguean to be part of his "Central Amerind subgroup," separate from the Hokan branch.

[5.] Josserand (1983: 450) presents a preliminary estimate of 2300 years of divergence between the variants spoken in Zapotitlán Palmas in the Mixteca Baja and San Miguel Sosola in the eastern Mixteca Alta. The temporal estimates cited in this dissertation are based on the lexicostatistic or glottochronological method, which uses lexical similarities between related languages to calculate the time that has elapsed since the ancestral language was spoken which gave rise to them, assuming a constant rate of change. All the premises that sustain this method have been questioned (Campbell, 1997: 210), and the reliability of the resulting dates is dubious, but some linguists continue to use them as a measure of the degree of internal differentiation in any given family (Smith Stark, 2004, personal communication), lacking more robust alternatives for quantification.

[6.] Chiapanec and Mangue are outliers: "they originally must have been located somewhere within the area outlined by the rest of the stock… Given that the Mangues were also known as Chorotegas (Nahua /**cholol-te:ka-h**/ 'people from /**cholol-la:n**/'; /**cholol-la:n**/ is Cholula) it seems feasible to locate the Manguean homeland in the valley of Puebla, whose main center was Cholula." (Kaufman, 1990: 98).

[7.] Longacre's Mixtec data were recorded in San Miguel el Grande and San Estebal Atatlahuca in the Tlaxiaco district in the western Alta, Santa María Jicaltepec in the Jamiltepec district on the Coast, Xayacatlán in the northern Baja in Puebla, and Metlatónoc in the upper "Montaña" of Guerrero.

[8.] Josserand's (1983: 470) map is quite distorted geographically, especially with regards to the location of the southwestern dialects on the coast of Guerrero. She probably intended the map to be a didactic model, rather than an accurate portrayal of Mixtec territory. Besides its geographic inaccuracy, however, her map marks Mixtec presence in two large areas where it has not been spoken recently, and may never have been: the Tlapanec territory, which separates the Mixtec enclave in the municipality of Ayutla de los Libres from the communities further east in Guerrero; and the former Chocholtec polity in the districts of Coixtlahuaca and northern Teposcolula in Oaxaca, which separated the Eastern Alta dialects from northern Baja Mixtec in southern Puebla. Furthermore, Mixtec does not appear to have been present, as

Josserand's map indicates, in the area connecting the Eastern Alta variants with the Mixtec enclaves in Mazatec (Coatzospan) and Cuicatec (Cuyamecalco, Santa Ana Cuauhtémoc, San Miguel Santa Flor) territories. These shortcomings have been corrected on the map in figure 3, which remains a tentative approximation to a complex and still insufficiently documented linguistic reality.

[9.] The plant names that we have recorded in Santa María Chigmecatitlán (Ordaz Peregrina *et al*., 2009), Santo Domingo Tonahuixtla (Ovando López *et al*., 2009), and San Jerónimo Xayacatlán (Santiago Martínez *et al*., 2009) in the upper Balsas drainage, confirm the northern distribution of the /*tṼ/ > /tnṼ/ innovation (Ṽ = nasal vowel, transcribed as <V**n**> in the practical orthography developed by **Ve'e Tu'un Savi**, 2007). This phonological change does not appear to be present, however, in El Rosario Micaltepec in the same region (Gil Guadalupe *et al*., 2009).

[10.] The botanical terminology we transcribed in four communities around Acatlán de Osorio in southern Puebla in 2009 again confirms the presence of the /*s > ð / innovation.

[11.] The *Relación de Cuilapa* of 1581 states that the Mixtec people who lived had come from a specific area of the Mixteca Alta: *La gente deste pueblo no tiene su nación y origen, ni su nacimiento, en este pueblo, porque son advenedizos… Estos indios son naturales de la Mixteca, que llamamos Alta… Vinieron estos indios de unos pueblos de la Mixteca que llamamos las Almoloyas, tierra muy áspera y fragosa, por ciertos casamientos que hubo en diferentes tiempos, y esto, ha más de trescientos años*. "The people of this town do not have their nation and origin, nor their birth, in this town, because they are newcomers… These Indians are native to the Mixteca, which we call High… These Indians came from some towns in the Mixteca which we call the Almoloyas, a very harsh and broken land, because of certain marriages which took place at different times, and this happened more than three hundred years ago." (Acuña, 1984, vol. I: 178)

[12.] A statistical model derived from phylogenetic studies has recently been applied to historical linguistics, in an effort to overcome the limitations of the glottochronological method in order to obtain more precise estimates for the dates of divergence of the main branches of the Indoeuropean family (Gray & Atkinson, 2003). The results, which are not accepted by all specialists, indicate that the diversification of Proto-Indoeuropean occurred some 3000 years earlier than is commonly held, and they bolster the hypothesis that the expansion of that family is linked to the diffusion of agriculture outwards from the Middle East and Anatolia. It is to be pointed out that the conventional time frames estimated for the Otomanguean and Indoeuropean languages are quite similar, on the order of 6000 to 7000 years. The linguists who have worked on Proto-Otomanguean, furthermore, pride themselves on the completeness and accuracy of their reconstructions, which rival the depth of Proto-Indoeuropean (Campbell, 1997: 157). We can envision that the new dating techniques will shift the initial split in Proto-Otomanguean closer to the period when the first evidence for plant domestication comes up in the archaeological record.

[13.] The full quote: "*L'étude des systèmes de classification non occidentaux est une branche de l'ethnologie qui a connu un destin singulier. Entreprise par les grands maîtres il y a trois-*

quarts de siècle, elle demeura longtemps en veilleuse en raison des conclusions mêmes de leurs recherches, marquées au coin de l'évolutionnisme triomphant: la pensé des primitifs était aussi indifférenciée que leurs structures sociales (Durkheim et Mauss 1901-1902)."

[14.] To choose a Mesoamerican species that will be referred to repeatedly in later sections, 'buttercup tree' is the English name for *Cochlospermum vitifolium* (Willd.) Sprengel, in the family Bixaceae.

[15.] Grammaticalization refers to the diachronic conversion of nouns or verbs into auxiliaries, case markers, inflections or connectives; along this process, a term loses gradually its original lexical content and acquires an increasingly grammatical function (Heine, *et al*., 1991).

[16.] It seems valid to generalize Macaulay's (1996) observations on Chalcatongo Mixtec morphology to other variants that have been sufficiently well documented: Alacatlatzala (Zylstra, 1991); Atatlahuca (Alexander, 1980); Ayutla (Hills, 1990); Coatzospan (Small, 1990); Diuxi-Tilantongo (Kuiper & Oram, 1991); Jamiltepec (Johnson, 1988); Jicaltepec (Bradley, 1970); Ocotepec (Alexander, 1988); Peñoles (Daly, 1973); Silacayoapan (Shields, 1988); Yosondúa (Farris, 1992).

[17.] Kuiper & Oram (1991) analyze **téyi̱i̱** as 3MAS + 'male,' but if Josserand's Proto-Mixtec reconstruction ***teye** is valid, it implies that Diuxi **yi̱i̱** is a qualifier derived historically from the term for 'man.'

[18.] In Silacayoapan Mixtec, "nouns referring to specific kinds of animals or spherical objects cannot occur as the nucleus of a possessive noun phrase"; they appear, instead, "in apposition to a possessive noun phrase with the inherently possessed noun **jana** 'domestic animal' or 'spherical object' as its nucleus" (Shields, 1988: 372). This syntactic peculiarity is further evidence for the conceptual linkage of animals and fruit documented in other Mixtec Baja dialects by de Leon (1980: 124, translated by A. de Ávila): "the generic **kisi** probably does not refer to 'animal' but rather to a type of characteristic like 'animation,' perhaps correlated with the 'edibility' or 'utility for people'..." De Leon quotes a comment by Lorenzo Martínez from Silacayoapan to affirm that link: "animals and fruit [both] bear fruit."

[19.] Allan (1977:301) notes that "the commonest inanimate classifier is one for trees and wooden objects, often including boats. The 'tree' classifier is frequently connected with the class of long or saliently one-dimensional objects." He states further that "boats are perhaps the original vehicles, and the 'boat' classifier is more widely used than any for vehicles in general." A series of examples from Xayacatlán Mixtec quoted by de Leon (1980: 154) seem to follow this pattern of semantic extensions:

nunu'u	'match [to light a fire]'
nuxii	'rifle'
nukanoa	'canoe'
nukarreta	'cart pulled by oxen'
nutreen	'train'
nuavion	'airplane'

[20.] One possible exception is the name for *Tagetes lucida* Cav. in an unidentified community in the area of Tlaxiaco: **yuku taxini** (Flora Medicinal de la Mixtec Alta, n.d.).

[21.] Coicoyán de las Flores is the head of the municipality of the same name in the district of Juxtlahuaca, in westernmost Oaxaca; Jicayán de Tovar belongs to the municipality of Tlacoachixtlahuaca, Guerrero. Both villages are located on the slopes of the Sierra Madre del Sur, geologically the most complex and diverse region in Mexico as described in the introduction to this dissertation. Jicayán is a day's walk from Coicoyán, and the dialects spoken in the two villages are mutually intelligible. The population of Coicoyán exceeds 1600 people, whereas Jicayán barely reaches 1000. The center of town in Coicoyán is situated at about 2040 meters above sea level, at the head of a valley that drains into the Balsas basin to the north. The lands of the village rise to almost 3000 meters above sea level, and are covered in a complex patchwork of mostly secondary vegetation derived from mixed oak-pine forest. Above 2400 meters there are remnants of a high altitude cloud forest, with species in the Lauraceae, Pentaphylacaceae, Cyatheaceae, *Chiranthodendron*, *Chamaedorea*, *Abies*, etc. Jicayán is located at about 730 meters asl, on the edge of a small alluvial plain that is irrigated and cultivated intensively. The valley is part of the Ometepec watershed, which drains south to the Pacific. The lands of the village lie mostly between 600 and 1500 meters; the original vegetation appears to have been a subdeciduous tropical forest, giving way to an open pine forest (which may be secondary) at higher altitudes.

[22.] Tamazulapan (district of Teposcolula, Oaxaca), where Francisco de Alvarado was the vicar in the late 1500's, lies at the point where the Mixteca Alta meets the Mixteca Baja and the Chocholtec area (a Popolocan-speaking people). The town is located at the edge of a heavily eroded plateau, nowadays covered with scrub oak and grasslands. Just west of Tamazulapan there is a sudden drop to dry tropical deciduous forest and cactus scrub. The vocabulary gathered by de Alvarado attests to both temperate and tropical biotas, including species from the Pacific and Gulf coasts, such as ceiba, brazilwood and ebony.

[23.] Perhaps Amith & Castillo (2010) refer to *cabo de año*, the ritual that marks a year's observances after a person has died, a widespread tradition in southern Mexico.

[24.] The full description of how *Datura* sp. is used: *Se usa para saber qué enfermedad tiene la persona cuando no se consigue ninguna medicina para la enfermedad… se muelen solamente las hojas y se le unta sólo en la cabeza y las flores se ponen en la nuca. Cuando se duerme la persona sueña qué enfermedad tiene, si es cosa buena o brujería… Esta planta se usa nada más para saber qué enfermedad tiene la persona, cuando no se cura con nada y avisa para saber quién le hizo el daño a la persona, quién robó animales, a las casas o dinero…* (Flora Medicinal de la Mixteca Alta, Tlaxiaco, Oaxaca. n.d.)

[25.] Don Alfonso Santiago made the following comments on the use of **ita Guadalupe** in San Jerónimo Xayacatlán: *Se toma… antes sabía yo que la tenía el difunto Lino… como ya no ando yo el río… [su difunta esposa] no lo tomó, nomás lo bañó, pero sí lo subió, vio. Hay que buscar una chamaca para que lo hierva para que lo tome… a las cinco de la mañana, para que a las siete lo vea. Siete flores lo toman, se hierva, porque ése lo cortan el viernes, el martes, ese día lo cortan para tomar. No hay que hablarle [a la persona que lo toma], nomás cuidarlo, [si se va a hacer daño] lo agarra uno. Solamente uno de Barranca Salada, ése si lo*

tiene. Don Teobaldo trajo la flor, es blanca, como de [10 a 12 cm de larga]. Se hierve, se enfría tantito y se toma. La flor se parece a la de **yuku San José**. *Va uno siguiendo [a] ella [la persona que la tomó], si va [a] un cantil, hay que [a]garrarla, hay que encaminarla. Hay que darle agua, porque se reseca la boca. Es planta como de [1.5 metros de alta], no es enredadera, es planta*. It's ingested in a beverage… I know that the deceased Lino used to have it… as I no longer go along the river [I don't know where it may grow now]… [my deceased wife] did not ingest it, she only bathed herself with it, but it did have an effect on her, she saw [things]. You have to look for a young girl to boil it so that you can take it… at five in the morning, so that at seven you will see [things]. They ingest seven flowers, they are boiled, they pick them on a Friday, on a Tuesday, those are the days when they pick them to ingest them. You must not speak to the person [who ingested it], you only look after her, you take her by the hand [in case she might hurt herself]. Only one man from Barranca Salada, he does have it [the plant]. Don Teobaldo brought the flower, it's white, approximately 10 to 12 cms long. It's boiled, then it's cooled a little and you drink it. The flower is similar to the blossom of **yuku San José**. You follow her [the person who ingested it], if she approaches a cliff, you have to take her by the hand, you have to guide her. You have to give her water, because the mouth gets very dry. It's a [shrubby] plant about 1.5 meters tall, it's not a vine, it's a [shrubby] plant. *Información adicional proporcionada por la tía del Mtro. Francisco González Rosas*: *La flor de Guadalupe es un narcótico… si está enferma, se da cuenta si se va a aliviar o se va a morir. Si pierden algo, en el sueño ven dónde está. Es una flor blanca, dicen, como la yerba de veneno… va a nombrar a la persona que hizo mal… pero si se le pasa la dosis, ya no dice nada, está hablando pero no se le entiende nada… un pétalo lo hacen en rajitas, son siete pares* [*los que se ingieren*].

[26.] López García (2007:162) has recorded the traditional oratory delivered by the representative of the *principales* [elders] in response to the speech made by the representative of the incoming authorities, prior to the ceremonial presentation of a flower bouquet on January 2nd, following the oath of office on January1st. In this metaphorical reference to the resilience of the *Sedum* plant, the incoming office holders are entreated to endure the hardships and deprivation that service to the community often entails (López García, 2003, personal communication):

Na kua'a ini, na kua'a kutsa sa kusa'ando
Na kadatsa, kuenta kida ita vili nani ita daa
Sáni-ini ntsa kivi nu, kivi di'na sa chiñu'undo
En Tade'e, en santu dando ndida tse kida.
Kuan ita ya'a, saani tu jnu yu, tu jnu yutu
Adi en nu'u wa'a, adi en nu'u kaxi kui'ia
Ita ya'a ti kui'ia, ti kataini meni ita wa'a ku
Ti veeni, ti u'unixi saani, ntse'enika yakui.
Que nos aguanten y nos soporten
Como la flor bonita, como la siempreviva
Que pensaron y establecieron desde el inicio
Los antepasados para recibir y dar honor.
Porque ésta florece sobre piedra, sobre árbol
En un terreno fértil, en un terreno durísimo
No es una flor mala, es una flor muy buena
No le pesa, no le duele, florece, es aguantadora.
(excerpt from the full speech published by López García, 2010)

[27.] Unlike the other examples, however, where **y-** would mark the unpossessed form and **nd-** its useful/possessed equivalent, in **yakua / ndakua** the pattern is reversed.

[28.] *Bule* and *tecomate* refer to bottle gourds, **tya'a** in Yosotato Mixtec, **siya'a** in Xayacatlán. Mention of the *calabazo*, an alternative designation in Spanish, elicited comments on funerary customs in San Jerónimo: *Todavía se acostumbra ponerle a un difunto un bulito con su agua, y siete tortillitas, y un rollito de zacate. Ese zacate dicen que cuando llega uno allí donde va uno a estar, salen los toros: le echan para que coman y ya pasan. Los perros nos pasan el río, hay avenida; nos pasan en su oreja, dentro nos llevan. Les echaban cacao [a los difuntos], era su dinero, o siete maíces como dinero.* 'It's still the custom to bury a deceased person with a small bottle gourd with water, and seven little tortillas, and a small bundle of fodder [tall grass or dried maize stalks]. They say this fodder is for when we arrive there where we will stay, and bulls come out [blocking the way]: the deceased person throws down the fodder for the bulls to eat, and then that person can pass through. Dogs get us across the river, which is swelling; they get us across in their ear, inside their ear they take us across. They would throw in cacao beans [into the deceased persons' graves], that was their money, or seven grains of maize as money.'

[29.] In the myth, a poor man is helped by his animal companions to obtain true seeds of maize, beans and squash, while his rival unwittingly grows the wild relatives of the three crops. When the fields are visited at harvest time by their father-in-law in common, the poor man is praised for his abundant yield, while his rival gets punished by the old man, who pulls his hair. In disgrace, he becomes the roadrunner, whose tuft of feathers at the back of its head is explained by the story. This is a Mixtec version of a widespread theme on the origin of food crops, with parallels to the Aguaruna **Núngkui** myth cited by Berlin (1992: 153-160).

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