

Systematic Treatment of Plants of the San Antonio Missions

The purpose of this study is to commence to understand the ethnobotanical importance of some of the plants of the San Antonio Missions. Lists of local plants used in this study are from VanAucken (1981) and Dewers, Ornamental and Horticultural Bulletin No. 11. Nomenclature follows that of Correll and Johnston (1970). Spanish and Indian common names have been verified when possible from Correll and Johnston (1970) or from Standley (1920-26). Plants are listed in order by family with scientific name followed by common or vernacular names. Common names found in the mission literature have been included where applicable.

Equisetaceae (Horsetail family)

Equisetum laevigatum (Horsetail, cola de caballa, canuela)

Horsetail is an aquatic fern ally producing neither flowers nor fruits. Stems are hollow and cells of the plants contain deposits of silica, aconitic acid and alkaloids. The plants are toxic. Horsetail was used as a scouring plant because of its rough texture. Quantities of the stems may be gathered and used as a substitute for steel wool.

Polypodiaceae (Fern family)

Young and tender fern leaves may be eaten when found in quantity. A mild, delicate tea can be made from the leaves of some species of ferns. Rhizomes may be dried and ground to make a meal. The extent they were used in mission life is not known. Two species found in the mission flora are: Thelypteris kunthii (Southern shield fern) and Adiantum capillus-veneris (Madenhair fern).

Taxodiaceae (Taxodium family)

The taxodium family includes two species of cypress encountered by Spanish colonists in Mexico and Texas. Well known to the Indians of Mexico is the Montezuma Bald Cypress (Taxodium mucronatum) reported by Standley (1920-1926) as being the "best known tree in Mexico" especially noted for its large size. Large well known specimens include the tree of Santa Maria de Tule, Oaxaca, and the Cypress of Montezuma in the gardens of Chapultepec. Our local cypress, the common bald cypress (Taxodium distichum) is a smaller tree but comprises a significant and impressive portion of the vegetation of the rivers of Central Texas and the Edwards Plateau. Colonists quickly recognized the local cypress and recorded it as a significant portion of the local San Antonio flora.

Taxodium distichum (Bald cypress, southern cypress, ciprés, cipreso, sabino, sabino-tree)

The bald cypress is one of the largest and perhaps most noticeable portions of the vegetation along the San Antonio River. The trees are known to live for

several centuries. It is possible some extant specimens were living during colonial times. Bald cypress is deciduous standing bare during the winter.

Wood of bald cypress is straight-grained, easily worked and easily split. It is only moderately hard, not considered to be a strong wood, but durable. Cypress wood has been used for tanks, casks, and other purposes where wood comes in contact with water. Heart wood is susceptible to attack by certain fungi resulting in "heart rot" and degeneration of the centers of old and damaged trees. Even though cypress is one of the anticipated sources of large wooden timbers found in the local flora, there is no evidence cypress was used as a major structural component of the missions. Cypress vegetation is soft and delicate and could be expected to be used as bedding by both Indians and early colonists.

Cupressaceae (Cypress family including cedars and junipers)

The native junipers are found in central Texas as part of the flora of dry soils. They are found growing on breaks and rimrocks of the Edwards Plateau. They are small evergreen trees with green to blue-greenish scale-like leaves. Female cones are small, oval, berry-like structures at the tips of growing branches. Wood is dense, hard, knot-filled, durable, and used as fence posts, tool handles and building materials. It is a good structural wood because of its strength and durability. Juniper wood is desirable as a firewood. Two junipers, Juniperus virginiana and Juniperus ashei are found in the San Antonio area. Juniperus virginiana is native of east Texas. It has many horticultural varieties and its presence in the local mission flora is probably as the result of relatively recent introduction. Juniperus ashei is the local native juniper of Central Texas.

Juniperus ashei (Ashe juniper, mountain cedar, cedar brake, Texas cedar, sabino, enebro, tascate, taxate, cedro, Mexican cedar, mexican juniper)

Because of the characteristics of the wood of native junipers, it was undoubtedly used by Indians and colonists as a major source of structures, tools, firewood, and fences. Its resistance to deterioration made it very desirable for these purposes. The berries or cones present at the ends of the stems were ground and used as a meal. Both cones and leaves were used as a seasoning and in the production of gin. Foliage was used as bedding.

Palmaceae (Palm family)

Sabal minor (Bush palmetto, dwarf palmetto)

Sabal minor is the palmetto of east Texas and protected canyons and rivers of the southern edge of the Edwards Plateau. This species is considered to be part of the native flora of the San Antonio area growing in the vicinity of rivers, streams and springs. It may have spread with time along the irrigation waterways in and around the missions. It is easily cultivated and used horticulturally at the present time. The plant produces large fan-shaped leaves readily used as thatch and in mats and weaving. Stems are reasonably soft and when cooked can be eaten. Seeds were gathered, ground, and used as food. Fiber from the leaves can be used as string.

Sabal texana (Texan palmetto, Rio Grande palmetto, palma de micharos, palma real)

Colonists traveling from the south would have encountered Sabal texana along the Rio Grande. It was used in much the same way as Sabal minor. Leaves were used in thatch and weaving. Stems were cooked and eaten. Seeds were ground into a meal. String was produced from the fibers of the leaves.

Lilaceae (Lily family)

Hesperaloe parviflora (Red-flowered yucca)

This is one of the native yucca-like plants of Central Texas. It grows in rocky breaks and mesquite groves and has been used horticulturally because of its distinctively colored flowers.

The red-flowered yucca was used by Indians as a source of food and fiber. As a food plant, the stems were cooked and eaten. Flowers were eaten as a source of sugar. Fiber produced from the leaves was used as string. Fruits, especially when young, could be eaten.

Yucca sp. (Beargrass, Spanish-bayonet)

Species of Yucca have been used by cultures of North and Central America in many ways. Yuccas generally are used as fiber plants in the production of woven or tied materials of many types such as rope, mats, sandals, baskets, and cloth. Yuccas were a very desirable food plant, the stems producing a central core that was eaten either boiled or baked. Flowers, especially the sweet gynoecium, were much desired in season as a sweet food. Fruit and seeds were also eaten. Tips of leaves were used as punches or fasteners. Fermented drinks were produced from the sap. Saponifying soap was also produced from the sap. It is reported as being especially desired for washing hair. The uses of Yucca paralleled the use of Agave by Indians. Seeds from mature fruits were ground and used as meal.

Two species of Yucca, Yucca torreyana and Yucca tenuistyla are currently found in the mission area. It is probable that the number of species and number of individual plants surrounding the mission farms and ranches were much greater during the mission period.

Dasylirion texanum (Sotol)

Dasylirion was one of the staple plants of Indian culture. Stems were eaten either boiled or baked. Leaves were stripped and peeled and the center core of the stem either baked in a pit or boiled. Stems were sweet and wet and constituted both a source of water and sugar. In times of drought the stems were split and used as a water source for either humans or for animals. A fermented, pungent alcoholic "sotol" drink was produced from the fluids of the plant. Woven materials were produced from the fiber of the leaves. Indians used sotol to produce baskets, mats and other woven materials. Sharp leaf tips were used as punches or fasteners.

Smilax rotundifolia (Common green-brier, bull-brier, horse-brier)

Smilax bona-nox (Cat-brier, zarzaparrilla, greenbrier)

Both species of Smilax are viney, thorny, herbaceous plants with fleshy root stocks or tubers. Indians dug these tubers, ground them, and used the meal as either baked food or as a gruel. Seeds may also have been eaten.

Alismataceae (Arrowhead family)

Sagittaria sp.

All nine species of arrowhead found in Texas were used as a source of food by Indians. Sagittaria grows in mud and standing bodies of water and produces large, fleshy, starchy root stocks or tubers. These may be gathered by Indians and eaten much in the same way one would use potatoes, either cooked, ground to form a meal, or eaten raw. Leaf petioles are soft and were also eaten. Sagittaria is called "wapatoo" by western Indians and is the "tule potato" of California. Sagittaria is one of the common plants of the San Antonio River and was available as Indian food throughout most of the year.

Typhaceae (Cat-tail family)

Typha angustifolia (Narrow-leafed cat-tail)

Typha domingensis (Tule)

Typha latifolia (Common cat-tail, tule, tule espadilla)

Three species of Typha may be found in the San Antonio area and all may be used in much the same way. The tuber or rhizome is a good source of food either raw or cooked. Young stems or leaves are cooked or eaten raw. Pollen may be gathered during the spring and mixed with meal from other sources. All species of Typha are perennial, aquatic, and to some extent can be gathered as a food source almost any time of the year. Young flower stalks can be eaten. Typha may be considered to be a significant source of food for Indians in the San Antonio area.

Gramineae (Grass family)

Grasses were undoubtedly very important in mission life. The efficiency of the mission ranches to the south of San Antonio depended on grasses for animal forage. Of the grasses now found in the Mission Park, at least 10 or more species are introduced range grasses. Grasses also comprised a significant source of food raised on mission farms. Crops such as corn, oats, wheat, rice, and sorghum were grown for food. All of these except corn are introduced grasses. Indications are that the corn grown on mission farms was different from varieties of corn used by local Indians (Schuetz, 1969) and was brought in by the missionaries from southwest Mexico.

Arundinaria gigantea (Giant cane)

Indians and colonists alike used seeds as food. Seed may be used in much the same way one would use wheat seed. Young shoots were boiled and eaten. Mature stems were used for fishing poles, arrows, and construction. The leaves were used in weaving and as thatch. Arundinaria is one of the two or three largest grasses in the San Antonio area and constituted a significant part of the Indian technology.

Arundo donax (Giant reed, Georgia cane, carrizo, carricillo)

Arundo was naturalized from Europe to Mexico and reported as occurring in Texas at least during the 19th century. It is another of the large grasses and was used as thatch, mats, poles, arrows, and flutes. The earliest introduction in Texas is not known.

Phragmites communis (Common reed, reed grass, sometimes called broom corn)

Phragmites is another of the very large grasses used as thatch, woven materials, poles, arrows and as a food. Rhizomes and young shoots were eaten either cooked or raw. Stems produced a sweet exudate when punctured and the sweet gum flowing from the stems eaten as a candy. Stems soaked in water produce a sweet drink.

Zizaniopsis miliacea (Southern wild rice)

Seeds of southern wild rice were gathered, boiled or ground, and used as a meal or eaten as a gruel.

Bromus unioloides (Rescue grass, brome grass)

This brome grass is native of South America. It is used as a forage and animal feed being an early spring grass. Extracts of the plant were used as a cathartic. The date of its introduction into Texas is not known.

Zea mays (corn, maize)

Maize has been grown in the New World from prehistoric times. It does not occur in nature except as escaped from cultivation. Its origin is not clearly understood. Corn probably originated in Central America from as many as three different species. Maize constituted a major crop in the missions. Varieties cultivated during the mission period probably had their affinities with varieties imported with the missionaries from Southwest Mexico.

Avena sativa (Oats)

Oats originated from Europe. It was cultivated in the missions as food for animals and probably humans. It is suspected it was boiled and eaten as a gruel.

Triticum sp. (Wheat)

Three species of wheat, Triticum dicoccum (summer wheat), T. durum (macaroni wheat), and T. aestivum (bread wheat) are from Europe. Wheat cultivation commenced in the later part of the 18th century in the missions. Indians did not have a taste for wheat and missionaries commented on their preference for corn. Production of wheat is labor intensive and requires threshing not needed with corn. The mill at San Jose was probably designed originally to grind wheat. It was used several years after secularization to grind wheat.

Cyperaceae (Sedge family)

Scirpus validus (Great or soft-stem bulrush, great American bulrush, soft-stem bulrush)

Roots, rhizomes, tender shoots of the great soft-stem bulrush were eaten either raw or cooked. The leaves were used in woven materials such as mats, also used as thatch.

Eleocharis sp. (Spikerush)

Small fleshy stems and young shoots may be dug and eaten.

Cyperus papyrus (Papyrus)

Introduced from Europe for horticultural purposes as well as for weaving, mats, baskets, paper and paper-like uses.

Cyperus ochraceus (Flat wedge)

A native sedge, the roots and rhizomes were dug and eaten. The foliage was used in woven materials.

Carex muhlenbergii (Sedge, caric-sedge)

A native sedge, the roots and rhizomes were dug and eaten. The foliage was used in woven materials.

Aracaceae (Arum family)

Colocasia esculenta (Elephant's ear, kalo, taro)

Elephant's ear is an introduced plant from Asia probably through Europe and into the Spanish colonies at an early time. When it was introduced into the San Antonio mission area is not known. The use of Colocasia as a food dates back to very ancient times. Roots, stems and leaves contain oxalic acid crystals that are sour, potentially toxic. Plants eaten raw cause damage to the tissues of the mouth and throat because of sharp raphids in the plant cells. In addition, large dosage of oxalic acid is toxic to humans. Roots and rhizomes are boiled before eating. Boiled rhizomes are beaten or shredded, eaten immediately or dried and stored. A kind of flour is produced that is rich in starch. Vegetation may be boiled to remove oxalic acid and eaten as greens. Colocasia is grown as an ornamental plant along the San Antonio River and functions to stabilize the banks. It could easily overgrow small irrigation systems producing problems with free flow of water.

Bromeliaceae (Pine-apple family)

Tillandsia recurvata (Ball moss, gallitos)

Tillandsia usneoides (Spanish moss, pastel, long moss)

Tillandsia grows epiphytically on a variety of trees in south, central and eastern Texas. A variety of species are known from Mexico. Uses of Tillandsia were well known by both the Spanish and Indians before the colonial period in Texas. Both ball moss and Spanish moss are used in bedding. Foliage

was used as insulation in clothing and Indians used it to keep warm. Mixed with mud, vegetation was used in construction of mud huts. Early settlers in Texas, after the Spanish colonial period, regularly used Tillandsia for mattresses and overstuffed furniture. The use of Tillandsia has proven to be a superior upholstery material into modern times.

Commelinaceae (Spiderwort family)

Commelina erecta var. deamiana (Dayflower)

Commelinantia anomala (False dayflower)

Tradescantia sp. (Spiderwort)

All three genera in the family Commelinaceae are cultivated for their floral structure and beauty. Roots and rhizomes in all genera are fleshy and could potentially be eaten even though there is no record of this use. Sap of the plants is viscous or slimy and may be used as a treatment of burns. Floral color varies in different species and to some extent with the maturity of the flower from blue to violet to purple, sometimes whitish with age. Dye produced from these flowers has been reported but the process for extracting and stabilizing the colors are not understood. Vegetation is soft and may be cooked as a potherb.

Pontederiaceae (Pickerel-weed family)

Eichhornia crassipes (Water hyacinth)

Eichhornia azurea (Water hyacinth)

Pontederia cordata (Pickerel weed)

All are aquatic plants either floating on the surface of water or setting root in mud along waterways. Flowers are showy, delicate, and may be of horticultural value in special aquatic settings. Leaves, stems and roots are soft and may be eaten. Eichhornia crassipes, growing unchecked, may fill waterways growing on the surface. Eichhornia azurea is introduced from Central or South America and grows much in the same way as E. crassipes.

Juncaceae (Rush family)

Juncus torreyi (Rush)

Stems and roots are tender. They are gathered and eaten by Indians.

Lilaceae (Lily family)

Asparagus officinalis (Asparagus)

Asparagus is native to Europe and Asia, introduced, and escaped from cultivation in some places. Asparagus probably was introduced by Spanish from Mexico as a source of food in the missions. Seeds in quantity can be ground and used to make a coffee-like drink.