



Aztec Ruins National Monument Ethnobotany Series

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Introduction

What is Ethnobotany, you ask? There are many definitions, but to describe it in the very simplest terms, it is the study of interrelationships between people and plants. There are many aspects to this study because it can involve how different people in different cultures have used plants for food, clothing, cooking utensils and other tools, medicinal purposes, soaps, shelter, dyes and artistic expression, and spiritual reasons. This series will focus on how ancestral Pueblo people and other tribal ancestors utilized the natural world around them and how their descendants continue those practices today.

At our site, on the east side of the wall around the parking lot, we have a native plant walk, where you can view a number of plants that are representative of those that have grown in this area for hundreds of years and were utilized by the ancestral Puebloans and others who lived here. If you would like to borrow a guide for that walk, please ask inside the visitor center, and we will be happy to loan you one.

Important Note: Wild plants should never be used without the aid of a knowledgeable person. This information provided in this document is solely for historical interest.

Four-wing Saltbush

The shrub commonly called Four-wing Saltbush (*Atriplex canescens*) is widely distributed throughout the western United States and has served many purposes for indigenous peoples including the Hopi, Isleta, Jemez, Navajo, and Zuni. These plants can grow in dry alkaline or sandy well-drained soils up to 8 feet in height, and, if the soil depth allows, their root system can go down to 20 feet!

Although the leaves and seeds are edible and were sometimes boiled and eaten as greens or parched and ground up as a type of flour, the primary food use was either as a salty seasoning or as a leavening agent for bread. When the leaves are roasted and go to ash, the heat changes the structure to sodium bicarbonate,



Photo credit: NPS/Lisa Davenport

which is the same as baking soda. This ash would be mixed in with ground corn and cooked to make Hopi piki bread, for example, and this gave it a bluish color.

Another major use for saltbush was for medicinal purposes. One way the Jemez people used it was to burn the leaves to revive someone who had fainted or was badly injured. Another common use was to grind and crush the flowers and roots into a paste to treat ant bites, wasp stings, or even boils and warts.

Besides being used in food or for medicinal purposes, there were two other major uses. The flowers were sometimes boiled together with twigs and leaves to create a yellow dye, and the wood was often burned as one of the major kiva fire fuels.

Are there any other plants growing near you that make you wonder about their hidden uses?

Globemallow

If you catch a hint of something with orange flowers growing by the roadside in New Mexico, it might be Globemallow (*Sphaeralcea* spp.), another plant that has had important uses for indigenous peoples in the Four Corners area. The plants grow to a size of up to 3 feet tall and 3 feet wide. There are about 10 to 12 varieties in this area, and they all grow in dry, desert-like soils, disturbed washes, roadsides, and other similar places.

These plants were used by Acoma/Laguna, Cochiti, Hopi, Navajo, Tewa, and Zuni people, among others, primarily as medicine for various ailments. The flowers, stems, and leaves were crushed in hot water and blended to make a salve to put on wounds, punctures, or sunburn for healing as the gooey substance has properties which causes the skin to heal quickly and helps clean the wound and prevent infection. The leaves could also be steeped in hot water to make a tea to drink in treating colds, flu, or cough. The stems were sometimes chewed like gum, or they could be soaked in water to make a foamy type of shampoo which helped prevent hair loss.



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The roots were used in several ways as well. Sometimes they were boiled and chewed with cactus root to treat constipation or other intestinal problems, and also as a medicine for pregnant women. Finally, the roots were used for ceremonial purposes, either by being boiled and drunk as a tea for ceremonial medicine, or by crushing them into a powder and mixing with water for a body paint or paste.

Prickly Pear Cactus

There are at least 20 species of prickly pear (*Opuntia spp.*) that grow in New Mexico, and many other species grow throughout the world. Though they are believed to have originated in the Americas, through importation they have spread into virtually every continent except Antarctica. They can grow in a wide range of temperatures from 6 inches to over 15 feet tall.

Two of the most common species in the Four Corners area are Brown Spine Prickly Pear (*Opuntia phaeacantha*) and Plains Prickly Pear (*Opuntia polyacantha*). The purple prickly pear fruit (called tunas) and other parts of the plant were an important food source to many groups such as Acoma, Laguna, Hopi, Mescalero Apache, San Felipe, Zuni, and others.



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The ways of preparation for eating varied from removing spines from the tunas by rolling them in the sand or singeing them off and then boiling and eating the pulp, making jelly, or eating them fresh or sun-dried. The joints of the plant were sometimes roasted and stored for winter use, boiled and dipped in syrup of sweet corn, or mashed into cakes, dried, then stored for future use. The green pads, or nopales, could have spines removed by rubbing them in the sand, and those could be boiled and eaten, too.

Other uses for prickly pear include using the fruit juice to make tan, pink, or rose-colored dye or using the gummy substance of the pads to coat buckskin. Parts of the cactus could also be used as medicine, either in treating boils, splitting the pads and applying them to wounds, or using the spines to scrape infected eyelids, for example.

Do you know of other uses for this versatile plant?

Rocky Mountain Bee Plant

The Rocky Mountain Bee Plant (*Cleome serrulata*), sometimes called such diverse names as spiderflower, stinkweed, or Navajo spinach, can be found on roadsides primarily in the Western United States, but it has been found as far east as Minnesota. It grows in dry, barren pastureland, sandy soils, and well-drained open woodlands and mountain foothills to a height of between 2 to 5 feet.

The most widespread uses for this plant by indigenous peoples were as a food source and as a source for dyes and paint pigment. The shoots could be gathered, boiled, and eaten as greens, and they were a great source of calcium and Vitamin A. The seeds could be dried and ground up for mush or meal for bread, and the seed pods could also be eaten raw or used as seasoning. A tea could be made to help with fever and stomachaches, and a compress could be made to help soothe sore eyes.



Photo credit: NPS/Lisa Davenport

When the leaves are boiled, the result is a liquid that has been used as a yellowish-green dye. When the entire plant is boiled down (including stems and roots), the end product is a thick, black resin that can be used as a paint for pottery. And bees love it!

Where have you seen bee plants growing in abundance?

Sages

There are 3 types of sages found in northern New Mexico, but the one most commonly seen is Big sagebrush (*Artemisia tridentata*). Big sagebrush can be found in a range from New Mexico to Baja California and further north up into the Canadian Rockies. This shrub is typically 1 ½ feet to 9 feet tall, and its twisting branches can sprawl as much as 15 feet wide. It is so plentiful in this part of the country that it is often overlooked and underappreciated for its many uses.

Big sagebrush has been used by many groups of Indigenous people, including the Acoma, Hopi, Mescalero Apache, Zuni, Navajo, and Ute. In addition to most groups burning it as fuel for fires, the wood has also been used as part of prayer sticks by the Hopi, and the shredded bark has been woven into wicks by the Ute people.



Photo credit: NPS/Lisa Davenport

One major use of the leaves and twigs of Big sagebrush and other sages has been for medicinal purposes. They have been boiled and used in a tea for drinking, which has helped with colds (since it contains camphor), fever, headaches, digestive/intestinal problems, easing childbirth, and even foot problems. Zuni people have been known to place sage leaves in shoes to treat athlete's foot, heal cracked skin, and serve as deodorant. Navajo people have also used sage to treat blisters on feet. Other uses have included using sage as seasoning for meat and for creating greenish-yellow and greenish-gray dyes. Some tribes have used sage in curing ceremonies, and others burn bundles of sage for blessings.

The other sages that are found in the area are White sage (*Artemisia ludoviciana*) and Sand sage (*Artemisia filifolia*). These two variants have been used for many of the same purposes as Big sagebrush. One interesting characteristic of Sand sage is that because of its softness, it has sometimes been used as toilet paper.

The next time you pass a large open landscape filled with sages, remember that there is more to be appreciated in common, everyday plants than you might have previously thought.

Threeleaf Sumac

Threeleaf Sumac (*Rhus trilobata*) not to be confused with Poison Sumac (*Toxicodendron vernix*), which is in the same family but different genus, the Threeleaf Sumac (also called Lemonade bush or Skunkbush) has been a very important plant for many indigenous groups in this area for a variety of reasons. Since it grows well in dry, rocky soils, it was traditionally easy to find throughout the western United States. The plant can grow to a height and width of 5-8 ft., has waxy green leaves in groups of 3, and produces fruit of fuzzy red berries called drupes.



Photo credit: NPS/Lisa Davenport

As a food, the drupes were eaten raw, crushed and mixed with water for a lemonade-type drink, or dried and used as seasoning or made into cakes or mush. The drupes could also be boiled and used as a mouthwash, as a brownish-orange dye, or as a mordant, a way to get paint to set.

The leaves, bark, and roots of the Threeleaf Sumac were used for a number of purposes as well. Tea could be made from the bark or leaves to be used as a medicine or wash after childbirth or as an emetic, and the root could be mixed with pinyon as a perfume or deodorant, as well as a treatment for consumption or tuberculosis.

Finally, the twigs, branches, and wood had a number of uses. The twigs or branches were used for basketry, cradles, or ceremonial purposes. The twigs, along with leaves, could be boiled and mixed with pinyon and ochre soil to create a black dye. The wood has also been used as one of the four sacred kiva fuels.

Have you ever seen Threeleaf Sumac or used it for these or any other purposes?

Yucca

One plant that was used extensively by the ancestral Puebloans was the Yucca. There are a number of species of Yucca plant found in the desert southwest, but the ones most commonly found and used by the people here were Narrowleaf Yucca (*Yucca angustissima* and *Yucca glauca*).

These species can be found in Northern and Western New Mexico, Southwestern Colorado, in the canyon country of Utah, and Northern Arizona. The plants grow in sandy soils and on rocky hillsides, and the leaves can range from 7 to 30 inches in length.

All parts of the Yucca plants were used for a variety of purposes by virtually every group of Indigenous people in this region. The flowers and flower stalks were sometimes eaten raw, baked, or boiled when they were young and tender, and the shoots were even used to make tea to be drunk for weakness or in rituals as a sweat bath ingredient by some tribes.

One of the most important uses was in working the leaf fibers into rope, cordage for blankets, baskets, paintbrushes, and even sandals. Another major part of the yucca that was used was the root, which could be crushed and used for soap.



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