

Indian Uses of Desert Plants

Indian Harvest Methods and Preparation of Pinyon Pine, Chia, and Agave

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Prehistoric Rock ring.

As a professional archaeologist, I have been trained through the doctorate level to study the ground, to look for signs of ancient human activity—an unusual shaped and rounded stone, an angular cobble chipped and formed, the long extinguished campfire's gray black soot.

Over the years, I've studied the ground of deserts throughout the United States. Walking dry stream channels and crawling over blackened basalt boulders, I thought that I had come to know the desert more intimately than most. What once seemed threatening to me now feels more like an old friend.

Seeing With New Eyes

I had spent many months wandering around an area known simply as "Little Lake," a maze of lava flows located on the edge of the western Great Basin on the eastern side of the Sierra Nevada. It is littered with volcanic glass chips—the product of 10,000 years of human activity. After I thought I'd seen nearly all that remarkable area has to offer, I called upon a wildlife biologist to share some insights into the local fauna. In all the time I'd spent walking, surveying, looking and recording in this wild tangle of desert beauty, I had seen relatively few species of wildlife.

Almost as soon as we reached the area, we saw a hawk flying around the fossil waterfall of the Pleistocene (the time of the Ice Ages) Owens River. We saw jackrabbits dashing out from under a bush here and there. Those are not uncommon. I had seen them many times.



Chuckwalla

But I had not anticipated what we would see next. My biologist friend said, "I think this must be one of the largest concentrations of chuckwallas in the entire California desert." Chuckwallas? I thought he was kidding. I'd never

seen a single one. He said, "look up on the tops of those lava boulders. You can see them silhouetted against the sky."

I looked up, and to my astonishment, I discovered that almost literally on the top of every boulder sat a beautiful black-brown and burnt orange lizard basking in the noonday desert sun. There must have been a dozen or more within just a few yards. How could I have missed seeing them before?

It was a stark reminder that we always have an opportunity to see with "new" eyes, to discover something new. Sometimes we miss the most remarkable things when we are narrowly focused—looking just for what we have been led to expect or taught to see.

Through the Native American's Eyes

To our modern eyes, the desert may look like a lifeless and barren landscape, but to the eyes of the Native American, it looked like a cornucopia of valuable plants. Plants served not just for food, they provided much of the fabric of society. They were used for medicine, home construction, cooking, storage containers, clothing, furniture, hunting, recreation and fuel. They figured prominently in mythology, religion and ritual.

For most of the prehistoric past, desert Indians were strictly hunters and gatherers. They did not even begin practicing agriculture until about 4,000 years ago, and even then, they continued primarily as hunters and gatherers for at least another 2,000 years. They relied heavily on their keen knowledge of natural local resources, especially the plants, to feed, clothe and shelter their families. They located campsites and hamlets and timed their seasonal moves specifically to capitalize on the availability of key economic plants, which were the foundation for their survival.



Pinyon Pine Tree, photo by Damian Fagan

Pinyon

Seeds of the nut pines or pinyon pines (*Pinus monophylla*, *P. edulis*), for one classic example, were highly prized. The single leaf pinyon pine (*P. monophylla*) can be found throughout the western Great Basin (southeastern California, Nevada, Utah and northern Arizona). The double leaf pinyon (*P. edulis*) is characteristic of the eastern Great Basin and the Southwest (western Utah, western Arizona, Colorado and New Mexico).

Pinyon nuts were especially important in the aboriginal diet because they provided an important plant staple that was high in both fats and carbohydrates—a characteristic rare for most other edible seeds, roots, berries and fruits. Pinyon nuts are also one of the easiest plant foods to harvest and store, and they were often abundant



Pinyon Nuts, photo by Damian Fagan

Stands of these small-statured (scrubby and rounded) trees were the focus of rather large-scale activities, which involved entire families and villages in years of abundant harvests.

Margaret Wheat provides an especially picturesque description of the pinyon harvest in her book, "Survival Arts of the Primitive Paiutes." She tells us that "...the pinenutting season was a time of reverence, contentment and good fellowship. Cousins who had not seen each other for months set up camps side by side. Friends met friends and exchanged bits of news as they moved from tree to tree. Word of births and deaths was greeted with laughs or wails that rang through the forests. Jokes were told, girls were courted, and songs were sung. Naked, cream-colored babies tumbled in the pine needles, cutting their teeth on pine sticks. Boys climbed pine trees to shake down the cones, their lithe bodies, black with pitch, became blacker when they rubbed themselves with dust so they would not stick to their rabbit skin blankets at night."

Harvests began in late summer or fall with the taking of green cones. A long hooked or pronged harvesting pole (two long willow sticks spliced together) was used to knock the tangerine-size cones from the trees. Cones were

gathered in light weight conical burden or packing baskets and transported to pits where they were roasted in a fire that dried the pitch and spread the leaves of the cone.

The nuts, about the size of olive pits, were jarred from the cones by tapping them with a small handstone (mano) against a flat anvil stone. Once the raw seeds were released, they were given a first parching in an open twined tray, making the seed coats rather brittle. The seed coats could then be cracked by shelling the nuts on a flat grinding stone (metate). The broken seed coats were removed by winnowing. A final parching readied the nuts for grinding into flour.

The nuts could be eaten raw, but the preference was to prepare them into a mush or gruel (like our oatmeal). The pine nut meal was mixed with cold water in a basket, and most Indians ate the pine nut soup cold, like gazpacho. Some prepared the delicacy further by stone boiling. The mixture could be set outside in very cold temperatures and turned into a kind of pinyon nut ice cream, which was greatly loved by children.

Pinyon was an important staple because the raw or processed product could be cached for later consumption. Archaeologists surveying the desert landscape have found evidence of these pinyon storage caches in ancient camps, which are marked by small rock rings located in the pinyon juniper forests. They have also discovered collections of stacked manos and metates, left where they lay in anticipation of the next pinyon harvest. Dating of these camps suggests thousands of years of use of pinyon nut harvests conducted by the ancient Native Americans.



Agave with recurved sharply pointed leaves with barbed margins

Agave

Throughout the region are found a large number of species of agave (*Agave desertii*, *A. utahensis* and others), a second classic example of a prehistoric food plant. These include the century plant, so known for the odd mythology that the plant only blooms once every hundred years, which is fortunately untrue.

The life history of the plant is, in fact, rather brief. Actually, it only takes some 12 to 15 years before it reaches maturity. As they grow, they emerge into small rounded heads or "cabbages." Over the years they enlarge, throwing out fibrous leaves tipped with an armor-like spike. Then in a remarkable burst, a central stalk shoots to the sky growing with great rapidity. In the largest species, the stalk may grow to be 20 to 30 feet tall and 18 inches in diameter at the base. From the top of the stalk clusters a bevy of bright yellow blossoms, thousands in number—the century plant's swan song, for it then dies.



Century plant in bloom with stalk.

From April on, the cabbages and stalks are full of sap. Usually the Indians harvested them in the spring just as they were about to send up their flower stalks. Roots were separated from the plants with a chisel-shaped wooden wedge or a special knife. Leaves were trimmed to within one to two inches of the base.

Great fire pits or ovens were dug into the sand and a fire built. After the fire burned down, stones were added, and each family placed its agave harvest in a different section of the pit. More rocks were added and a fire built on top. Grass and earth covered the pit and the mescal heads were then earth-oven cooked for a day or two.

During the wait, singing and dancing took place, and certain prohibitions ensured a good bake. When the pit was finally opened, it revealed a delicious and wonderfully nutritious food that though fibrous, was sweet and good. One writer recalled the roasted stalks as tasting like "jute strings and molasses." I've prepared a similar delicacy in exactly the same manner for a sister plant form known as Our Lord's Candle or The Spanish Dagger (*Yucca whipplei*) and I found that the taste is much like a baked sweet potato, and the texture is reminiscent of sugar cane.

The sweet, dark mass of agave food could be eaten straight from the fire, but it was more often cooled, pounded and formed into large flat cakes that were then dried and stored. Agave would be mixed with other types of meal or meats and made into stew.

In areas of the desert where the agave and yucca are common, there are many remains of the Indian roasting ovens. I worked on one such prehistoric camp that covered over 1,000 square feet. The ground was covered almost completely with fire-cracked rock. In some instances, the hearths had attained such a high temperature that rock itself had melted! Such was the aboriginal prototype for our modern crock-pots.



Chia

Chia

Many centuries before the modern late night advertising icon of ch-ch chia pets, the Indians harvested the seeds from this rather exotic plant. Chia (*Salvia columbariae*), another classic food plant, is among the smallest of the sage family. It is noticeable in the spring for its slender, square branching stem, terminated by several whorls (as many as five pods per stalk) tipped by bright blue purple flowers.

Seed heads were beaten with specialized sticks or basketry known as "seed beaters" and gathered into flat baskets. The seeds were then parched in trays and ground into flour. The seeds are rich in mucilage and oil and when added to water, expand to several times their original bulk. They dissolve rapidly. The chia seeds are very nutritious and easily digested. The ground

meal or pinole was part of the desert Indians' diet for many thousands of years.

For more information on Native American plant foods here are some selected resources. Good reading and research!

Sources

There are several good sources about plant uses by desert Indians:

Barrows, David Prescott
1967 *Ethnobotany of the Coahuilla Indians*. Classics in California Anthropology 1. Malki Museum, Banning, California.

Fowler, Catherine
1977 *Subsistence*. In Handbook of North American Indians, Volume 11, Great Basin. Smithsonian Institution. Washington, D. C.

Wheat, Margaret
1967 *Survival Arts of the Primitive Paiutes*.
University of Nevada Press. Reno, Nevada.

In The Journal of California and Great Basin Anthropology you will find various articles on ethnobotany and the archaeological identification of Indian plant use prehistorically.