

# Horticultural Interpretation

FINAL REPORT

to the

2008-09

Elvenia J. Slosson Endowment Fund



Submitted by

The Arboretum at the University of California, Santa Cruz

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## Summary

The generous support from the Elvenia J. Slosson Endowment Fund is recognized and, through this award, has enabled the UCSC Arboretum to significantly enhance its educational goals of improved and expanded signage and information.

The completed goals of this award included the adding of horticultural information in the form of permanent and temporary signage, brochures, and handouts to the gardens and plantings at the UC Santa Cruz Arboretum. With this award we successfully replaced older signs and updated the designs of these signs, brochures, and web-based information to be more attractive and consistent to those newly placed in the garden. A sign inventory was developed and completed within this project to track, monitor, and replace signs according to our mission and education plans.

Plantings along the recently completed Horticulture and Taxonomy Trail have been evaluated and modified to better serve the visiting public and professionals seeking information on the collections.

## Results

This award from the Elvenia J. Slosson Endowment Fund supported the efforts of the UCSC Arboretum to enhance its educational effectiveness to learners of all ages. Educational interpretation of the collections is a top priority within the Arboretum's *Mission and Program Plan* adopted mid-year in 2007. This generous award represents one of the first significant steps in addressing this priority and engaging visitors to the Arboretum in issues of horticulture, collections, and conservation; all core activities of the Arboretum.

The original proposal was submitted for nearly \$50,000 but, due to allocation restraints facing the Slosson Endowment, funding was approved for \$25,000 for the one-year project. With this reduced funding, modifications to the original seven goals (within five Parts) resulted in the completion of four of the original seven. The Arboretum continues to seek support for addressing and completing these other goals. We are pleased to report that the Arboretum has successfully completed each of the four remaining goals as proposed.

Below, each of the objectives as proposed are discussed and the results of the progress made with support from the Slosson Endowment Fund:

### Part 1 Upgrading the Horticultural Interpretive Materials in improved signage, printed materials, and on-line educational materials

Under this portion of the project a comprehensive sign inventory was developed and is being used to track and monitor the 484 signs presently in the database. This useful database allows curatorial staff to report when a sign has been damaged, when it needs to be cleaned or replaced, and the location of the signs across the Arboretum for planning of events, additional interpretation and improvements to educational interpretation. Each sign in the database is characterized as to type, present condition, specific garden location, purpose, included interpretation, expected lifespan, and other measures of effectiveness to provide educational interpretation including, if relevant, whether the associated collection is present and thriving. We are now able to more quickly make maintenance and replacement lists for the plants in a particular curator's area. Through the inventory process we were able to highlight two groups of signs that had been completed but had not been installed yet.

Even we were surprised to learn the large number of signs the Arboretum already has on the grounds providing interpretation. The next steps are to use the database to organize specific groups of signs by their function and purpose to upgrade these groups of signs to permanent and stable materials through specific grants and opportunities. Part of the inventory process involved prioritizing the next signs to be cleaned, repaired or replaced.

Also competed as part of this portion of the Slosson Endowment Fund award was some upgrading and maintenance of signs that were in most need of replacement and attention. Some signs that existed as laminated paper had outlived their life expectancy and no longer were effective in providing information. These useless signs have been repaired and/or replaced and in many cases to permanent materials (weather proof epoxy-coated paper laminate and photo-metal printing) consistent with others across the Arboretum.

Almost all archived sign files that were saved in file formats that are no longer available have been upgraded to files in modern formats. Some of these signs have been upgraded using the new files and have been replaced in the garden.

With support from the Slosson Endowment award the Arboretum added horticultural information to ethnobotanical signs and printed materials produced with support from The Christensen Fund. The supplemental support provided by the Slosson Endowment Fund allowed us to add valuable and relevant information to the ethnobotanical signage for visitors. These signs now highlight the importance of plants to the cultures of Australian Aborigines, New Zealand Iwi (Maori), and the Central California Coast Amah Mutsun and their use and culture in gardens. The revised Bird List was edited and printed. The link for the Bird Guide through the Arboretum website is <http://arboretum.ucsc.edu/visit/bird-list.html>. The brochure on ethnobotanical uses of California native plants (attached to this report as a pdf) the revised bird list, and recent Arboretum Bulletins (indexed) have now been uploaded to a revised website. Before they were uploaded we undertook the first major upgrade to the look and feel and navigation through the website that had been done in the last ten years at <http://arboretum.ucsc.edu>.

### Part 3: Arboretum Entrance Garden Educational Partnership with Ecology Action.

Some of the support (\$2,500) from the Slosson Endowment Fund award was used as a match to an existing Arboretum grant from Ecology Action provided from Proposition 50 funds available through the State Water Resources Control Board. The Arboretum used this support to make related and complementary enhancements to the garden display of plants and developed a specific sign presenting the “Principles of Ecological Landscaping” including:

- The consideration of the placement and use of California native plants in appropriate horticultural settings
- Native plants that attract beneficial insects for pest control and pollination
- Educational interpretation on soil characteristics and how they affect garden success
- In-Garden examples for avoiding water runoff and maximizing water catchment and recharge of soil moisture

The original grant from Ecology Action was for \$5,000. Half of this amount provided by the Slosson Endowment Fund was used as a match. This garden interpretation has enhanced the understanding of conservation of water resources and provided living and functioning examples for all garden visitors to appreciate and learn.



Native Rockeries Sign in Entrance Native Garden

#### Part 4: Elvander Trail Plantings.

A portion of the award was used to support the labor of curators within each garden to complete landscaping and collection development around plants along The Patrick Elvander Taxonomy Trail. This support was important to provide compelling, interesting, and thriving taxonomic examples of plants at each location along The Taxonomy Trail and to develop each of these into interesting and integrated horticultural displays. Planting, pruning, weed removal, enhancements and companion plantings were all supported by these supplemental funds provided by the Slosson Endowment Fund.

For example, the location highlighting the family Polygonaceae, covering the horticultural uses of native buckwheats, was significantly enhanced with the planting of horticultural selections that extend the blooming season and appreciation of these beautiful native plants. At the site along the Taxonomy Trail additional Australian plants suitable for home gardeners were planted at the *Epacris* Ericaceae (Epacridaceae) location.

The photo below shows one of these locations along the Patrick Elvander Taxonomy Trail.



The Arboretum is pleased to report that each supported objective outlined above was completed within the grant period. Unfortunately, due to reduced funding levels, all of the objectives in the original proposal were not completed at this time. The Arboretum continues to seek funds to complete these important objectives to enhance educational interpretation for the benefit of learners of all ages who visit the UCSC Arboretum.

The generous support of the Elvenia J. Slosson Endowment Fund is here acknowledged. This support continues to provide needed and appropriate funds to priority projects and objectives of the UCSC Arboretum. The positive results of investment over the years of the Slosson Endowment Fund awards in the UCSC Arboretum is clear to anyone who visits the gardens in enhanced beauty, accessibility, improved interpretation, superior stewardship, and the highest level of curatorial care.



# Plant Uses: California

*Native American Uses of California Plants - Ethnobotany*

*People have taken from and tended the land in California for more than 12,000 years. Indigenous people employed traditional resource management strategies to create useful landscapes that provided food, fiber, tools, and medicine. When European settlers came to California they found areas they described as tended gardens rich in wildflowers, edible bulbs, and carefully groomed grasslands.*

*To keep this brochure please pay \$1.00, or return it when finished.*

NOTE: This brochure is meant as an introduction to ethnobotany, and is not to be used in place of professional medical advice from a certified health practitioner. The University of California does not recommend any specific medical treatments, natural health practitioners, or books, either in this booklet or in the more detailed bibliography housed in the library. As with many medicines, some may be poisonous, depending on the dose, or mutagenic (cancer causing).

## How to use this guide

We welcome you to learn more about these plant uses through reading this pamphlet and by conducting a treasure hunt of sorts to find the plants that are referred to in this brochure scattered through the Entrance Natives Garden. To make it more of an adventure, unlike other trails in the garden, there are no numbers on the plants in this pamphlet, just signs with the words “Plant Uses” and the logo (see logo below). You will find the descriptions for the plants in this booklet organized alphabetically.

The map of the California garden on the back page marks the approximate places in the garden where you can find the plants in this guide. The scientific name is often followed by an English or Spanish common name and, if available, a name from one of the many Native American languages.



## What is ethnobotany?

Ethnobotany is the study of human uses of plants. People have engaged in a relationship with medicinal, edible, and otherwise useful native plants. The native plants on this tour have known uses as medicines, tools, clothes, dyes, religious instruments and, of course, foods. In discussing the many potential uses and ways of interacting with native plants, we hope to convey a sense of the value of our native landscapes. As you walk through the California native garden let this booklet be your guide to their many uses, and an introduction

to the relationship between people and plants that started with the first humans and continues with us today.

## The people who used the plants before European contact.

The indigenous people who lived along the coast between the San Francisco and Monterey bays have been called Ohlone and/or Costanoan. These words do not reflect the true diversity of the area. Costanoan is a Spanish word that was applied broadly to the “coastal people.” Ohlone is an Indian/indigenous word taken from one particular tribal band in the area, but it is incorrectly used to apply to all of the diverse tribelets along the coast. In the 1700’s there were approximately 10,000 people in about 40 distinct tribelets in what is now referred to as Ohlone territory. They spoke different dialects of the Rumsun and Mutsun language groups. The tribelet that lived here in the Santa Cruz area between Davenport and Aptos was called Awaswas. The current descendents of the people who lived from the San Juan Valley (San Juan Bautista) to the Pajaro Valley refer to themselves as Mutsun or Amah Mutsun. (Paul Mondragon and Chuck Striplin, personal communications, 2009 and the Amah Mutsun Tribal Band of Costanoan/Ohlone Indians [http://www.icimedia.com/costanoan/history\\_pre-mission.html](http://www.icimedia.com/costanoan/history_pre-mission.html), accessed April 27, 2009). Where possible, information on local uses and names is included, but the information on the plants may be from any of the tribes in the western U.S.

Historically, Native Americans had a unique and complex relationship to the land because they depended directly on it for their survival. For the most part they used resources respectfully and employed sustainable land management techniques to ensure the survival of their people for generations to come. Today, we can continue to have a meaningful, reciprocal, and sustainable relationship with the land if we consciously work to stimulate that relationship, be it through the simple recognition of a native plant on a forest walk, or through utilizing and appreciating the herbal remedies that are naturally available to use if we choose to look and learn. Ethnobotany studies the ways both past and present cultures interact with plants, and that includes a look at our own interaction with local ecosystems. We all can achieve and benefit from a meaningful connection to our native landscapes, and this pamphlet is meant to encourage that connection.

The Arboretum at UC Santa Cruz provides an engaging opportunity to interact with plants in an educational environment. In line with its message of conservation, education, and research, this project is part of a larger theme at the Arboretum of human uses of plants. We hope you enjoy your experience at the Arboretum, and continue to consider your relationship with plants in your world.



### *Achillea millefolium*

Yarrow. Sunflower Family (Asteraceae)

Yarrow is a common and useful plant.

The umbrella-like, flat top flowers are not visible for parts of the year because yarrow is deciduous. The leaves are finely divided and look feathery. The leaves can be used externally as an outdoor first aid to ease pain and stop bleeding wounds. The plant

has compounds that are anti-inflammatory, meaning they reduce inflammation and pain, and hemostatic, meaning they control bleeding and stimulate clotting. Yarrow is used to bring relief for arthritis, toothaches, headaches, menstrual pain, digestive problems, and colds. Indians, such as the Shoshone, Chumash, Paiute, and Wasco, and others, applied a poultice of boiled or chewed leaves as a treatment for sores, burns, bruises, sprains, swellings, and even broken bones. The leaves and roots were chewed for tooth and gum aches, and a piece of leaf could be rolled and inserted into the cavity of a painful tooth to bring relief. Cecilia Garcia, a Chumash healer, comments that the Chumash (roughly Santa Barbara and environs) take their medicines “softly and neutrally”. She recommends sucking on a yarrow leaf for pain until the leaf loses its flavor, thus allowing the plant to slowly give the proper dose of medicine that the body can absorb.



*Arctostaphylos uva-ursi* Bearberry, Kinnikinnik, Uva Ursi. Heather Family (Ericaceae)

California is home to more than 50 recognized species in the genus *Arctostaphylos*, at least two dozen of which can be found here in the Arboretum. California Indians had a unique taxonomic system that allowed them to distinguish and identify the uses of the many similar but different species of manzanita.

The berries of a number of manzanita species were used as a food, medicine, and refreshing drink. Berries were eaten fresh, dried and stored for future use, and pounded and added to mush, cakes, and meat. *Arctostaphylos uva-ursi*, also known as Bearberry, Kinnikinnik, or simply uva-ursi, was especially useful in California Indian medicine, and it continues to be used medicinally today. *Arctostaphylos uva-ursi* grows as a trailing vine or mat, generally in the coastal mountain regions from 3,000-9,000 feet, but can also be found on the sandy slopes of some beaches along the coast. The bark and especially the leaves are a useful astringent and antiseptic for the kidneys and urinary tract, and can be used to relieve bladder ailments. Other species of manzanita were used similarly; local Rumsen and Mutsun people called the manzanitas *tcuttus* and used them medicinally. The active

chemical constituent in uva-ursi, arbutin, is used today in modern medicine to relieve urinary tract infections, and for some people may constitute an alternative to antibiotic treatment. Some species are extremely widespread and some are on the brink of extinction.



***Artemisia californica***

Coastal Sagebrush. Sunflower Family (Asteraceae)

The coastal sagebrush smells similar to the mountain sagebrush (also on the ethnobotany tour), but has green to silver thread-like leaves, and grows along the California coast and in chaparral areas below 2,500 feet. The Luiseño and Cahuilla tribes used coastal sagebrush in girl's puberty rights; smoke from

the leaves purified and perfumed the skin and clothes of the young girls in the ceremony. A tea of the stems and leaves was also used by women at the beginning of each menstrual period and after giving birth. For respiratory ailments, a decoction of the leaves and stems was used externally for the relief of colds, cough, and asthma, and a decoction was taken internally for bronchitis. Some tribes used a decoction of the plant as a bath for rheumatism. Some Indians of the California coast used the leaves to relieve tooth aches and as a poultice for wounds, and the Cahuilla chewed and smoked the leaves mixed with wild tobacco. The pungent smell of the coastal sagebrush makes it effective as an insect repellent, and some California Indian tribes wore necklaces of the stems to ward off bad spirits.



***Artemisia douglasiana*** California Mugwort, Douglas's Sagewort. Sunflower Family (Asteraceae)

California Mugwort is an erect and aromatic plant, growing to be three to seven feet, with small, inconspicuous flowers that form terminal clusters. It has been used medicinally and ceremonially for thousands of years around the world, and the plant has been prized for its calming, sage-like

scent. The Paiute people used California Mugwort ceremoniously as a wash when coming out of ritual dances. Some considered mugwort to be a magic plant, and Chumash, Paiute, and other California Indian tribes burned or inhaled smoke from the leaves to promote healthy sleep, sacred dreams, and to ward off ghosts or evil spirits. California Indians burned mugwort and inhaled the smoke to treat flu, colds, and fevers, and the Chumash chewed the leaves to relieve tooth aches and gum pain. The leaves, dried, fresh, or burned, were used as an insect repellent and were placed in food storage containers to keep

pests away. A tea of the plant was used to relieve asthma, rheumatism, gastric ailments and stomachaches, and urinary problems. It can be especially useful as a treatment for women's ailments such as premenstrual syndrome, painful menstruation, difficult childbirth, and menopause, however due to its powerful effects, should not be taken when pregnant. The fresh leaves have been used to treat and prevent poison oak inflammations. Mugwort contains a compound called thujone which is said to induce hallucinations and convulsions. When mugwort is smoked or taken as a tea, very little thujone is present. However, extracts of mugwort made with alcohol are (generally) not recommended, as they can be too concentrated and potentially dangerous.



***Artemisia tridentata*** Mountain Sagebrush, Big Sagebrush. Sunflower Family (Asteraceae)  
Mountain Sagebrush grows in dry areas throughout the Western U.S. and Northern Mexico up to elevations of 9,000 feet. In California it is found mostly in the Eastern Sierra. The wedge shaped leaves of this sagebrush have three lobes and give off a pleasant, aromatic scent that make it ideal for burning

as a smudge stick. Smudge sticks were burned to disinfect the home and purify the air in sweat houses and ceremonies. The Paiute, Shoshone, and other tribes used *Artemisia tridentata* to cure colds, stomachaches, and fevers, and a tea from the leaves was used as a disinfectant wash. Leaves were boiled and taken internally for pneumonia, laryngitis, tuberculosis, and as a treatment for gum and mouth diseases. To relieve headaches the crushed leaves were applied as a poultice to the forehead, the fumes were inhaled, and tea from the branches was used internally and used externally to bathe the head. A fine powder from the dried leaves can be used as a talcum-like powder for babies to relieve chafing. To treat pulmonary problems or a sore throat, contemporary herbalist Michael Moore recommends to boil the stems and leaves and inhale the vapor slowly through the mouth.



***Asarum caudatum*** Wild Ginger, Western Wild Ginger. Pipevine Family (Aristolochiaceae)  
Wild ginger has glossy, dark green, heart shaped leaves about four inches across. It is a common sight along the damp, shady soil in mixed conifer and redwood forests. Various California Indian tribes used the warmed fresh leaves as a poultice to bring boils to a head. Similarly, a poultice could

be used to relieve toothaches. Wild ginger was among the various plants that

California Indians used as a sedative for nervousness, insomnia, and hysteria, and stems were placed in a baby's bed to promote calming and to relieve illness. A moist, soft poultice of the plant was also applied to a newborn's navel to prevent infection. A tea made from the leaves was used as a wash for sores and a tea made from the roots was drunk for indigestion, colds and constipation. Although some California Indians used this plant internally, today it is not recommended to take the plant internally due to possible mutagenic effects.



***Eriogonum latifolium*** Coast Buckwheat.  
Buckwheat Family (Polygonaceae)

Coast buckwheat is a perennial with small white to rose flowers presented in an oval to round bunch on a leafless stalk. It is found mostly in coastal bluffs and dunes from Santa Barbara County to Washington State. Tribes in the Mutsun region made a tea from boiled leaves, stems and roots that was taken

for colds and coughs. California Indian groups used coast buckwheat for stomach pains, menstrual disorders and headaches. The Sanpoil used a root decoction (boiled into water and made into tea) for diarrhea, and the whole plant was used in steam baths to ease pain resulting from rheumatism and aching joints. Various species of buckwheat found in California were used as food. The small seeds were ground and eaten raw, mixed in porridge and cakes, and dried for future use. The new leaves and stems of some species of buckwheat were also eaten as a green, either cooked or raw. Other members of the buckwheat family, such as common buckwheat or *Fagopyrum esculentum*, are important food crops today. Flour made from the seeds of common buckwheat is used in foods ranging from Japanese soba to buckwheat pancakes. Since buckwheat is gluten-free, it may be an important alternative grain for those with an allergy to wheat or gluten. Many species of *Eriogonum* in California are common and some may be rare and/or endangered. *Eriogonum crocatum* and *Eriogonum grande* var. *rubescens* are listed as fairly endangered in California.



***Fragaria chiloensis*** Coast Strawberry,  
Beach Strawberry. Rose Family (Rosaceae)

There are three (or four) species of wild strawberries in California, all of which are edible and have crawling, low to the ground stems that send out runners. The coast strawberry is found on coastal beaches and nearby areas from San Louis Obispo country up to Alaska. Wild strawberries do not produce many

fruits, but they are very flavorful and nutritious. California Indians ate the wild strawberries fresh, dried them for winter use, and used them in jams and preserves. For the Pomo Indians the first berries of the year were celebrated with the strawberry festival in mid-spring, and only after the festival could the berries be gathered and eaten. The fruits are not the only useful part of this plant. Wild strawberry leaves are high in vitamin C and make one of the better wild teas. A tea made from the roots can be used for stomach disorders and acts as a mild diuretic. The roots were chewed to clean teeth and ease gum inflammations. The relatives of these wild fruits have great economic significance. Strawberries constitute an important cash crop in California, the nation's leading producer of strawberries. *Fragaria chiloensis* is one of the parents of the commercial strawberry we enjoy today.



***Fremontodendron californicum***

Fremontia, Flannelbush. Mallow Family (Malvaceae)  
Flannelbush is a large bush with low spreading branches, and it gets its name from the dense brownish felt that covers the stems and undersides of the leaves. The leaf hairs that coat the flannelbush, however, can be irritating if touched or inhaled and caution should be taken around the leaves and stems of the

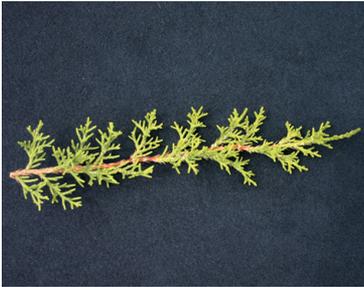
plant. Flannelbush is found on north facing slopes in the chaparral up to 6000 feet, in rocky canyons and in oak and pine woodlands in California, Baja California and Arizona. The inner bark of the flannelbush is anti-inflammatory and contains mucus that coats, soothes, and protects body surfaces, making it useful externally as a poultice on sores and internally to soothe sore throats and ulcerous stomachs. The Kawaiisu used the inner bark of flannelbush to relieve sore throats and also as a laxative. California Indian tribes such as the Mono, Yokut, Washoe, Paiute, and others used the flexible wood of the flannelbush to create animal traps and snares, harpoons and spears, cordage, and hoops for the popular hoop-and-pole game. They managed the length and form of flannelbush shoots by pruning, and burning. Pruning and burning encouraged strong, new growth and allowed California Indians to control the quality of the materials they used.



***Grindelia* spp.** Gumplant. Sunflower Family (Asteraceae)

This cheerful plant with yellow flowers gets the name gumplant from its sticky buds that were once chewed “like gum.” We’ve tried it and it wasn’t pleasant or like chewing gum. American Indian groups used the sticky buds and flowering heads

for respiratory, skin, urinary, and digestive ailments such as asthma, bronchitis, kidney problems, bladder infections, poison oak inflammations, and general cuts, sores, and swellings. Gumplant is useful as an antispasmodic and expectorant because it relaxes bronchial passages, clears mucus, and desensitizes the bronchial nerve endings, making breathing easier. The Shoshone and the Blackfeet Indians of California used gumplant as a remedy for colds, making a medicinal tea from the leaves and especially the sticky flowers. Gumplant was also popular in California Indian medicine as treatment for poison oak inflammations because it increases surface blood supply to skin tissues and contains antimicrobial agents, thus stimulating the healing of tissue and the easing of inflammation. Gumplant is still used today as a modern remedy for poison oak; it is the main “itch relieving” ingredient in “Tecnu Extreme”, a mainstream skin product manufactured as a wash for poison oak and ivy.



***Juniperus californica.*** Juniper, Hireeni, Xirren.  
Cypress Family (Cupressaceae)

The California Juniper is a small tree or large shrub with gray bark, scale-like leaves, and small green to purple berries that are produced in the spring and summer. It grows on dry, rocky slopes up to 5,000 feet, and is often found growing with piñon (piñon) pines, another useful food plant.

Junipers are resinous, aromatic plants, and have been used to ward off bad spirits and sickness in cultures all over the world. The leaves and branches are burned as a smudge stick, and the berries are thrown on hot rocks, in a fire or in a sauna to be used as incense. California Indian groups used the berries, leaves, and bark in teas to treat colds, coughs, flu, fever, high blood pressure, and constipation. The Kumeyaay Indians made juniper tea to stop hiccups. The inner bark of the juniper was used to make diapers, clothing, sanitary napkins, and mattresses, and the Paiute Indians harvested the wood to shape their bows. The berries were eaten as a medicine for colds and were also useful nutritionally during food shortages, especially in the lean winter months. The Mutsun people of the central California coast called the junipers hireeni and their neighbors the Rumsen called them xirren. Today juniper berries are used commercially to flavor gin and other liquors, and they are also added as a spice to foods such as meats, fish, and sauerkraut.



***Mulhenbergia rigens*** Deergrass. Grass Family (Poaceae)

Deergrass is one of California's largest and most prominent native perennial bunchgrasses, and it was prized by California Indian tribes in over half the state for its role in basket weaving. The flowering stalks of deergrass were valued for their flexibility and length. When

immersed in water, baskets made from deergrass stalks would expand until they became watertight, making them ideal for water jugs and cooking baskets. They were used to form the foundation of coiled baskets made by tribes such as the Cahuilla and Mono. A Mono cooking basket could require around 3,750 flowering stalks, or the yield of at least three dozen large deergrass plants. California native basket weavers carefully managed large stands of deergrass in order to produce the most ideal material for creating beautiful and useful baskets. Deergrass stands were groomed, pruned, trimmed, and weeded to produce long, straight stalks with no side branches. Also important, grassland areas were carefully burned by tribes such as the Foothill Yokuts, Luiseño, Kumeyaay, and Mono, every two to five years in order to clear out dead material, eliminate insect pests, recycle plant nutrients, and thin other competitive shrubs that blocked the sunlight. Today, as a result of cattle ranching, agriculture, fire regulations, and an increase in invasive grass species, the habitat for deergrass has been compromised and the natural populations are thus limited and difficult to find. Sadly, this means that the continuation of the weaving tradition, and the vast cultural and ecological knowledge associated with it, is increasingly difficult to maintain, for without a large amount of raw materials, the baskets cannot be made.



***Philadelphus lewisii*** Wild Mock Orange. Hydrangea Family (Hydrangeaceae)

Wild mock orange is a deciduous plant that can grow to be 10 feet tall. It has 1-3 inch ovate leaves, sweet smelling white flowers, and reddish-brown bark. It is found in California, Oregon, Washington, Idaho, Montana and British Columbia in forest openings, canyons and slopes. Some

California Indians made a decoction of the plant by boiling the branches in water. The decoction was used for soaking eczema and hemorrhoids, and was also drunk in the morning and evening as a cleansing laxative. A lather made from the leaves could be rubbed on the skin for sores and swellings, and a

poultice of the leaves was said to be useful for sore breasts or a sore chest. In northern California especially, Indian groups used the young shoots of mock orange to make arrows, and the older wood to make bows. For arrow making California Indians harvested the one to two year old shoots of the mock orange. They ensured that the branches would grow straight and strong by burning the shrubs and thus encouraging strong shoots that would grow up from the bottom rather than from the top of the shrub.



***Pinus monophylla***. One-leaved Piñon Pine, Pinyon Pine. Pine Family (Pinaceae)

This species of pine gets its name because there is a single needle in each leaf bundle on the stem. Within California it grows predominantly in the eastern and southern part of the state, at elevations of up to 9000 feet. Although all species of pine have edible nuts, piñon (pinyon) pine is especially

favorable because it has the largest nuts, is comparatively easy to shell, and has an exceptional taste. Ripe cones can be spotted because they have brown tips in early September–October. They are best enjoyed after cooking over a fire to burn away the pitch and the scales without burning the nuts inside, which vary in color from light tan to dark mahogany. Piñon pines had great value to many California Indian tribes, who ate the nuts plain or used them to make flour, soup, baby food and nut butter. The bark could be used as an emergency food, and was sometimes pounded and made into bread. The resin seeps readily from all parts of the pine and was used medicinally. Heated resin was applied externally as a dressing for cuts, sores, swelling, and insect bites; as a poultice for drawing out splinters; and as a treatment for pneumonia and muscle soreness. Resin was also chewed to relieve a sore throat. The boiled pitch was taken internally to stop menstruation or make one infertile, and may have been used as an abortifacient (to induce abortions). Today the seeds from the piñon pine, more commonly known as pine nuts, have a commercial value and can be found in stores alongside or instead of pine nuts from pines of the Mediterranean.



***Quercus agrifolia***. Coast Live Oak. Oak Family (Fagaceae)

For California Indian tribes, members of the *Quercus* genus probably constituted the most important food producing plant in California, with over three quarters of native Californians relying on acorns as a primary daily food. The coast live oak, with

wide-spreading limbs and dense evergreen leaves, was one of the more desirable species of oak and is a common presence here in the Santa Cruz landscape. Acorns contain high levels of bitter tannins and therefore cannot be eaten raw, but must be ground into a powder and leached with fresh water until the tannins are washed away. There were many different ways to make the acorns palatable, but all techniques followed the same basic pattern. First the acorns were dried, the kernels were removed from the hulls, and then were either roasted or left raw and made ready for pounding. The kernels were pounded with stone mortars and pestles until the versatile acorn meal was produced. The acorn meal was then sifted and leached in fresh water many times until the tannins were gone and the water ran clear. Once the acorn meal was prepared, it could be used to make a variety of foods such as acorn soup, acorn mush, acorn bread, and a beverage that was used much like coffee. Acorns were an important staple crop because they are plentiful and nutritious, containing more fat than corn, high amounts of vitamins A and C, and essential amino acids that make them a prized food plant. Beyond their uses as food, acorns were important culturally and medicinally as well. The high tannins in the bark, acorns, and galls were helpful in treating bladder infections, washing open wounds, reducing inflammation, and regulating the bowels. Some tribes, such as the Luiseño, used the mold that grew on acorn mush as an (apparently) effective antibiotic, long before the discovery of penicillin in Western medicine.



***Rhamnus californica*** Coffeeberry, Puruuiric.  
Buckthorn Family (Rhamnaceae)

Coffeeberry is a large shrub that can grow to be 4 to 10 feet tall. Its fruits are green, but become the color of roasted coffee they ripen—which is how it got its common name. Another characteristic that *R. californica* shares with coffee is that the berries are a strong laxative, especially

when eaten raw. Some physicians today use *R. californica* as a substitute for *R. purshiana*, or Cascara Sagrada, which is widely accepted as a laxative and is available commercially in the form of tablets or liquid capsules. The Kawaiisu Indians used the mashed berries, sap, and leaves to stop bleeding and to heal infected sores, burns, and wounds. Coffeeberry can also be useful for inflammatory rheumatism, taken internally at a low dosage. The bark and berries of the coffeeberry were used to induce vomiting, and while some Indian tribes enjoyed the berries boiled and in jellies, other tribes considered them to be poisonous. The Mutsun people of the Monterey Bay and San Juan areas ate the berries raw and called them *puruuiric*.



***Ribes* spp.** Currant, Gooseberry. Gooseberry Family (Grossulariaceae)

There are thirty species of currants and gooseberries recognized in California; all have leaves that resemble a maple leaf with rounded points, and all have small red to purple berries that are considered edible. California Indians used berries from many members of the *Ribes* genus to make jellies, preserves, beverages, and dried fruit snacks.

Some species of *Ribes*, such as *R. aureum*, or the golden currant, and *R. malvaceum*, the chaparral currant, were especially prized as a tasty treat, while others, such as *R. cereum*, or bear currant, were edible but were mostly used as an emetic to induce vomiting. Pemmican was made by pounding ground meat, fat, and dried *Ribes* berries together, and it was considered a staple of the California Indian diet. Members of the *Ribes* genus were also used medicinally. The Paiute and Shoshone Indians used the inner bark of *R. aureum* as a poultice on sores and swelling. The Paiute used the powdered bark on sores and would chew on a piece of the root to ease sore throats. Currants and gooseberries can still be found in the California landscape today, and many contain high levels of vitamin C, phosphorus, and iron. Today you can find currant or gooseberry products in stores, though they may be from European varieties. Currants have been used by people worldwide to make jams, beverages, and dried fruit, though a majority of these are from the “currants” that are dried from currant-sized, small grapes.



***Salvia apiana*** White Sage. Mint Family (Lamiaceae)

There are many species of *Salvia*, or sage, in California, and most are useful due to their antiseptic, astringent, and anti-inflammatory properties, as well as their pungent aroma. White sage is characterized by its broad, slightly fuzzy, very light green leaves, and its particularly pleasant

scent. It is considered one of the most useful and sacred sages in California. The Chumash Indians considered white sage to be their “everyday plant”; it was said that one should suck on a leaf or drink it in water everyday in order to strengthen your soul and to remain calm, peaceful, and healthy. The dried leaves of the sage were bundled and burned, and the combination of prayer and sweet smoke was thought to protect, cleanse, and heal. Sucking on a leaf of white sage or drinking water with leaves in it is especially useful for sore throats. Other medicinal uses of white sage include relief of stomach aches,

tooth aches, colds, flu, asthma, to promote menstruation, and to cleanse skin wounds and rashes. The Luiseno and Cahuilla Indians used white sage as a shampoo and deodorant, making a shampoo by rubbing fresh leaves between the palms with water. It is also said that smoking white sage can induce sacred dreams and help people recovering from addiction, due to the calming effects of the smoke and the good spirits it is said to attract.



***Satureja douglasii*** Yerba Buena. Mint Family (Lamiaceae)

Yerba buena is an understory vine that grows in mats and has opposite leaves. San Francisco was originally named after this sweet smelling, mint tasting plant, and although it was once widespread, today patches of it grow mostly in the redwood forests and woodlands of California.

The leaves of yerba buena make one of the tastiest wild teas, and the natural spearmint-like flavor is soothing to the stomach. Yerba buena tea has been used by many cultures as a remedy for colds, fevers, stomach ache, gas, colic, menstrual cramps, and insomnia. The Chumash Indians used yerba buena to treat parasitic worm infections, and they also rubbed the leaves on themselves as a deodorant before hunting. If you would like to use this medicine, it is recommended that you plant some yerba buena in your garden and refrain from gathering in the wild, since its habitat and range have been affected by invasive species and habitat destruction. It is not the most rare native medicinal, but planting your own will help wild populations.

## Conclusion

We hope you have enjoyed the ethnobotanical tour of the medicinal, edible, and otherwise useful plants in the California garden. Now that you have been introduced to these native plants and their potential uses, we hope that you take this information with you and walk through the California landscape with a different sense of vision. In discussing the many potential uses and ways of interacting with native plants, we hope to convey a sense of the value of our native landscapes. New plant foods and medicines are still being discovered and utilized today, and with one third of our native plant species listed as endangered, rare, or threatened, it is important to preserve California native plants as best we can, both for the health of our ecosystems, and for the health of ourselves.

If you would like more detailed information on recognizing and using medicinal and edible plants, some resources include:

Chevallier, Andrew. 1996. *The Encyclopedia of Medicinal Plants*. DK Publishing Inc, New York.

California Native Plant Society (CNPS). 2009. Information on native plant rarity. <http://www.cnps.org/cnps/nativeplants/> accessed 3/26/2009.

Cartier, Robert. 1991. An Overview of Ohlone Culture. Santa Cruz Public Libraries, Local History. <http://www.santacruzpl.org/history/Spanish/ohlone.shtml> accessed 03/26/2009.

Moore, Michael. 2003. *Medicinal Plants of the Mountain West*. Museum of New Mexico Press, Santa Fe.

For a detailed bibliography of the entries in this booklet and on the accompanying signs, and more information on the the senior thesis project that contributed to this and earlier editions of this brochure, please see:

Reid, Sara. 2007. *Ethnobotany of California: The Value of Traditional Knowledge and Our relationship to the Land*, an unpublished work available in the Arboretum's Jean and Bill Lane Library. See also the text of the unabridged version of this pamphlet.



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