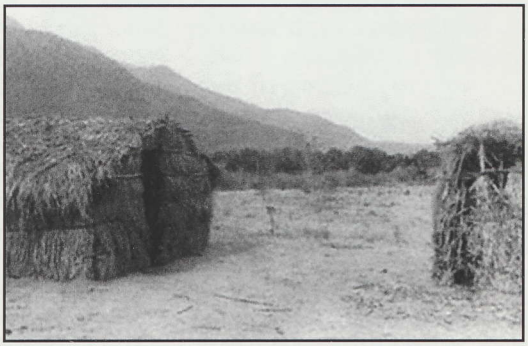
Big Morongo Canyon Preserve

Marsh Trail Guide

This brochure describes points of interest at numbered markers along the Marsh Trail beginning to the left of the kiosk.

1. FIRE ECOLOGY. This area has significantly recovered from an accidental fire in 1992. The fire destroyed mesquites, cottonwoods, willows, and even the kiosk. The denuded, flat surface was then subjected to a flood that gouged the small gorge. Many burned cottonwood trees have resprouted from their roots, but even dead burned trees are preserved for their value to wildlife. Native plants have gradually replaced non-native weeds that moved in after the fire. The dominant perennial shrub around you is alkali goldenbush *(Isocoma acradenia).* It is the first native perennial to revegetate disturbed soil in flat, often alkaline areas. It is a member of the Sunflower Family and it blooms profusely in October, providing a bright yellow color to the landscape and abundant pollen for bees.

2. INDIAN SETTLEMENT. The oasis is not only a refuge for plants and animals, but also for people past and present. The Serrano and Cahuilla Indians who camped here, traveled between different elevations with the seasons for trading and for collecting food and supplies. Trade along east-west routes was brisk in food, beads, housewares, clothing, and industrial materials. This area went through a transition from Indian lands to farm land and now back to native vegetation.



1890 Cahuilla Home

3. HONEY MESQUITE *(Prosopis glandulosa).* Various parts of this thorny shrub were used in many ways by the Serrano and Cahuilla, including beans for food, thorns and ashes for tattoos, fire-hardened wood for arrow points, and plant extracts as astringents. The beans also are a seasonal food for wildlife.

4. YERBA MANSA *(Anemopsis californica)* and **SALTGRASS** *(Distichlis spicata).* Both plants contributed to what could be called the Serrano and Cahuilla medicine chest and spice cupboard. The cone-shaped flower heads of the ground cover, Yerba Mansa, produce tiny seeds that were used for seasoning, and the fragrant leaves were used medicinally as a poultice for skin irritations. The Saltgrass Leaves accumulate deposits of salt. The Indians recovered it by washing or beating and used it as a food flavoring. At this point along the boardwalk, the desert and the riparian zones meet.

5. NARROW-LEAVED WILLOW *(Salix exigua)* and **PACKRAT NEST.** One of three species of willows on the Preserve, this one propagates by cloning, producing clusters of small, smooth-barked shrubs or small trees. The flexible stems were used by natives for basket weaving.

Look behind you at the tangled mass of dry twigs forming a packrat nest. This rodent dwelling, which can be used by many generations, contains areas with special uses, including bathroom and nursery.

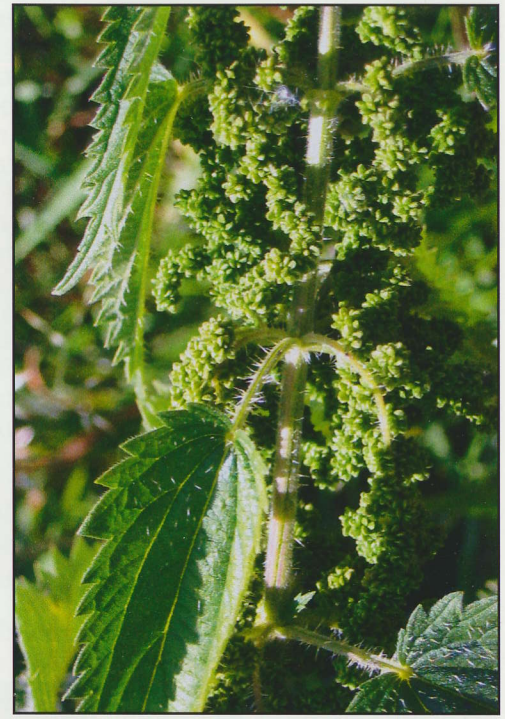
6. FREMONT COTTONWOOD *(Populus fremontii).* These fast-growing trees, as well as this entire area, have regenerated since the 1992 fire. Cottonwoods occur in male and female forms and are always indicative of nearby water. The heart-shaped leaves with flat petioles (leaf stalks) flutter easily in wind, allowing sunlight to penetrate deeply into the tree. The fibrous bark was used by the Serrano and Cahuilla Indians as a soft, comfortable material for skirts and the seats of clothing. The Indians also hollowed out sections of trunks to use as metates for grinding food supplies. This substitution for rock metates eliminated solid particles that remained with ground meal and destroyed teeth.

Cottonwood Seadpod

Scratches in the boardwalk planks at this point (opposite side from the cottonwood) are the work of a California Black Bear that attempted to claw its way through to the honey in a beehive below the deck. The bear was finally successful by digging under the deck to the hive.

7. OLNEY BULRUSH *(Scirpus americanus)* and **STINGING NETTLE** *(Urtica dioica).* The plants with three-angled stems are Olney Bulrush, a member of the Sedge rather than Rush Family. The stems contain tubes that allow air to reach the roots, otherwise the plant could not grow submerged in water. The stems were flattened by native people to weave mats.

Here and throughout the marsh areas are the hairy, vertical plants of Stinging Nettle. The hairs act like small hypodermic needles that produce a burning sensation when the skin is penetrated; surprisingly, the young plants can be boiled to produce a nutritious soup.



Stinging Nettle

8. FRESHWATER MARSH and **NURSE LOGS.** Freshwater marshes can occur where underground water comes to the surface, often along earthquake faults. Melted snow from the San Bernardino Mountains to the north feeds the springs and streams in this oasis. Plants here have special adaptations for living submerged in water.

Nurse logs are dead and downed trees that provide habitat for insects, lizards, birds, raccoons, and bobcats. Fungi and molds feed on the rotting logs and eventually create and enhance soil nutrients. Nurse logs also provide young plants with protection from weather extremes and from being eaten before they mature.

9. KOBALY DECK. The disappearance of marshes in the United States is a major ecological problem because of the number of living species that depend on them. This deck overlooks a typical marsh area. In winter, it also provides a view of San Gorgonio, at 11,499 feet the highest peak in Southern California. Several of our common animals, such as Virginia Rails, raccoons, and Pacific Tree Frogs, are closely tied to marshland.

10. CALIFORNIA FAN PALM *(Washingtonia filifera).* This thick-trunked native palm provided Southern California Indians with a regular, dependable food source (small, sweet dates) and a source of construction material. The Morongo Basin marks the northern extent of its natural distribution. Indian groups planted this palm widely throughout its range from here to below the Mexican border.

11. ENTRANCE TO DESERT HABITAT. Just past the John Butz Deck is the juncture with the Desert Willow Trail. This trail quickly leaves the riparian area and enters a dense mesquite forest followed by creosote bush scrub on the hillside slopes. Changes can be observed not only in plant and animal life (birds, mammals, insects) but also in humidity, temperature, and light.

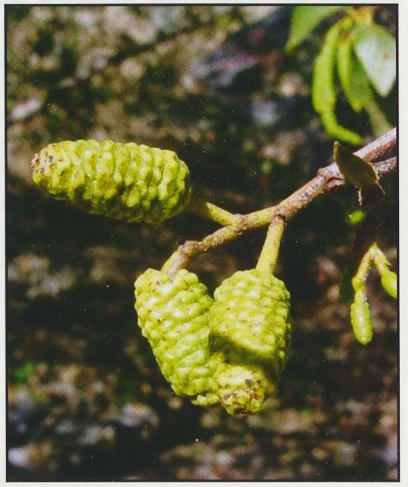
12. POND LIFE. In standing or slow flowing water, different species appear, such as water striders, tadpoles, dragonflies, and abundant microscopic life.

13. STREAM ORCHID *(Epipactis gigantea).* The Orchid family is the most numerous family of flowering plants worldwide, but this is the only member of the family occurring here. The Stream Orchid grows from rhizomes that spread underground in damp soil forming clumps of streamside plants. The complexity of color in its flowers (green-yellow-reddish-purplish) make for a lovely display in summer, but when dormant in the winter months, the plant is not notable. Syrphid flies, beneficial flies whose larva feed on aphids, are the pollinators of this plant.

14. CALIFORNIA SYCAMORE *(Platanus racemosa).* A true California native, growing almost exclusively in the state and in Baja California, this tree is recognized by its large, lobed leaves, its striking "jigsaw puzzle" bark, which is smooth and ashy-white with greenish-gray and tan patches, and its bristly, golf ball-size fruit.

15. VIRGIN'S BOWER *(Clematis ligusticifolia)* and **WHITE ALDER** *(Alnus rhombifolia).* The vining Virgin's Bower grows high into the canopy to gain access to sunlight. Its flowers and especially its fruits provide a spectacular seasonal display.

White Alder is common in riparian areas in much of the West, but it is rare to find it here. The fruits resemble miniature pine cones. Its roots contain nitrogen-fixing bacteria.



White Alder

16. HOLLOW RED WILLOW TREE. For many years, this tree was plagued with disease and wood-boring insects that took pleasure in gorging themselves on its soft, succulent center. In response to the repeated attacks, the tree began using its natural wound-response mechanism in order to defend itself, resulting in a hollow tree that is still very much alive. You can peer into the center of the tree and see light at the far end and on one side. Its determination to survive shows that, while insects may have destroyed the center of the tree, its outer layers are still alive and pumping nutrition into the branches, providing food and shelter for inhabitants of the marsh.

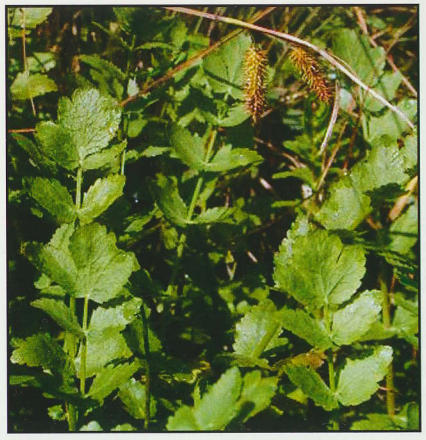
17. RED WILLOW *(Salix laevigata).* This is the common willow tree in the riparian area. Willow extracts, from leaves, twigs, and tissue between the bark and heartwood, are a source of a precursor of salicylic acid (aspirin) and have been known to treat a number of ailments, from calluses to tumors.

18. LISTENING BENCH. This is a wonderful spot to use one of your best birding senses, your ears! Listen for Song Sparrows, Bewick's Wrens, Common Yellowthroats, and Spotted Towhees. The plant with bent stems is Beaked Spikerush *(Eleocharis rostellata).* Despite its name, this plant is in the Sedge Family. It can grow to seven feet high. When the stems can no longer support themselves, the tips bend over, touch the ground, and resprout. This forms a dense sedge "lawn."

19. CATTAIL *(Typha domingensis).* The "frankfurter" type tail of this plant is a cluster of female flowers with a small male spike above. The fluff from the mature fruit is used by hummingbirds for nest building. It also provided early residents and modern peoples with soundproofing, heat insulation, buoyant filling for life jackets, and absorbent material for diapers. The pollen is highly nutritious, and the roots were used extensively as a starch food.

20. SLOW MOVING WATER. Here and elsewhere, where water is shallow, there occur typical water plants, such as Water Cress (Rorippa nasturtium-aquaticum), Iris-leaved Rush *(Juncus xiphioides),* Water Parsnip (Berula erecta), and Horned Pondweed *(Zannichellia palustris).* Water surface animals, such as water striders, appear in calm ponds. The adjoining muddy ground is home to two species of goldenrod.

Water Cress



This is a favorite area for Pacific Tree Frogs, which leave their winter hiding places, on land, to enter these breeding pools and slower-moving water courses in the spring. The full chorus of the male frogs is surprisingly loud for such small creatures (1-2 inches long). These tiny frogs, with suction cup toes, can change color from dark to light in a few minutes.

Water Parsnip

21. TRANSITION ZONE FROM RIPARIAN AREA. The very slight elevational change that occurs here is quite obvious from the change in plant life. The willows disappear and are abruptly replaced by grasses, goldenrods, and mesquite. In fairly flat ground where water seeps to the surface, evaporates, and leaves an inorganic chemical deposit, the change in plant life is abrupt. Salt-tolerant species, such as Saltgrass *(Distichlis spicata),* Arrow Weed (Pluchea sericea), and Alkali Goldenbush *(Isocoma acradenia)* now dominate.

22. ARROW WEED *(Pluchea sericea).* This is a native plant and should not be classified as a weed. The straight stems were used by the Serrano and Cahuilla and other Indians for arrow shafts and as construction material. The flexible stems were interwoven with stronger materials as part of a wattle and daub construction to make a nearly solid wall that was impervious to rains and wind.

23. INTRODUCED TREES. The row of fan palms was planted during the area's farming and ranching era. The fact that the trees are very near the edge of their native environment makes it possible for them to survive here and also reproduce through the dispersal of their seeds by birds that eat the fruits. Introduced trees that do not self-propagate or damage the environment, such as the Arizona Cypress and Canary Island Pine behind you near the Education Center, are allowed to survive; others, such as tamarisk (which removes huge amounts of subsurface water) are removed as soon as they are discovered.

24. DESERT MISTLETOE. Three kinds of mistletoe are present in the Preserve. One is a virtually leafless species that grows on Honey Mesquite (behind the Education Center) and provides berries eaten by Phainopeplas (a black silky-flycatcher). A leafy species, growing on cottonwood and willow, is very much like the "Christmas Mistletoe" sold in markets. A third with orange and gold witches hair grows on junipers that occur on canyon slopes.

25. BUTTERFLY AND HUMMINGBIRD GARDEN. The garden in front of the Education Center was established with butterflies and hummingbirds in mind. Here you can view butterflies attracted to Milkweed, Mallow, Paper-bag Bush, Mojave Aster, and Sages, which provide nectar for the butterflies and/or food for their larvae. Hummingbirds are drawn in by the nectar-producing blooms of Penstemon and Bladderpod. All the plants were grown from seeds collected within the Preserve.

26. POVERTY WEED *(Iva axillaris).* This is an aromatic plant that grows to about 12 inches high in disturbed soil. An alternate name, Poor Mother's Plight, refers to its former use to abort a fetus when a mother in poverty could not feed any more children.

27. DATURA OR JIMSON WEED *(Datura wrightii).* Use of the datura plant spans man's written history, and it appears in some form on every continent. American Indians used it extensively. Because of its mind-altering properties, it was used as a means of coming into contact with the sacred world. Indian shamans used it to transcend reality, and it was also used in puberty ceremonies and to increase the strength and energy of dancers and singers in sacred ceremonies. Medicinally it was used as a very effective painkiller for setting broken bones, for toothaches, for spider and snakebites, and to alleviate severe bronchial and nasal congestion. While native peoples were able to utilize this plant due to the extensive knowledge of their shamans, datura is a dangerous plant and should not be handled. All parts of the plant are extremely poisonous and can cause temporary psychoses and even death!

28. BEETLES, BEES AND DEAD COTTONWOODS. If you look carefully at the surface of this dead cottonwood tree, you will see small holes shaped the same as the beetles who bored them. Also notice that some of the holes have been plastered shut with mud. This was done by leaf-cutter bees, who cut circular pieces of leaves to stuff into the hole to feed their larvae.

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PO Box 780 • Morongo Valley, CA 92256
(760) 363-7190 • www.bigmorongo.org

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