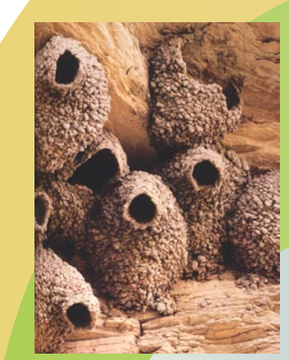
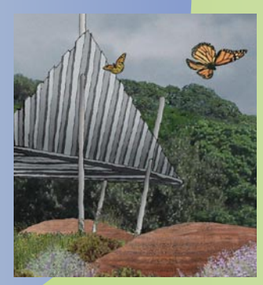
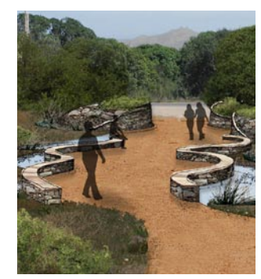


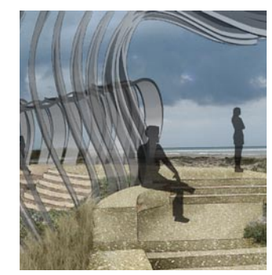
# Cinematic Frames & Progressions

## *A Public Art Vision Plan for the Harbor Wetlands Ecological Reserve*

**Lorna Jordan Studio, Artist & Project Lead**







**in association with**
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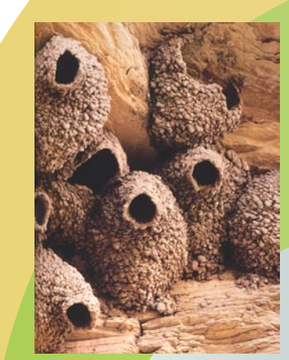
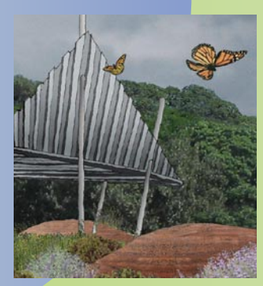
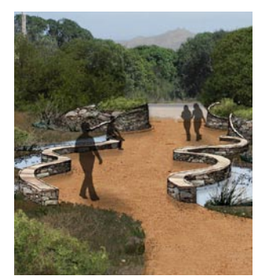
**Moore Iacofano Goltsman, Inc.**
**Winterbottom Design**
**December 13, 2007**







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PLANNING

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GRAPHIC DESIGN

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**CITY OF SAN BUENAVENTURA PUBLIC ART COMMISSION**

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# Table of Contents

5 Introduction

9 Design Concept

- 10 Environmental Art Sequence
- 12 Cinematic Frames and Progressions

14 Existing Site Layers

- 14 Animal Architecture
- 16 Water Context
- 18 Habitat Enhancement Strategies
- 19 Visitor Experiences and Activities
- 20 Existing Habitat Zone

21 Environmental Artworks

- 22 Killdeer Passage
- 24 Heron Blind & Bridge
- 26 Dune Overlook and Drifts
- 28 Caddisfly Cascade
- 30 Monarch Garden

32 Recommended Phasing Plan & Funding Levels

33 Existing Context - Selected Aspects

- 34 Site Use and Context
- 36 Geologic and Climatic Conditions
- 38 Habitats and Selected Plants
- 42 Selected Species

47 Appendix

- 48 Selected Bibliography
- 50 Acknowledgements

Location of Ventura Harbor Wetlands Environmental Art Project
Ventura
Pierpont Bay
SAN BUENAVENTURA STATE BEACH
Dulah
Saticoy
Montalvo
El Rio
Nyland
OXNARD
SAN MIGUEL (Olivas and Lorenzana)
Ventura Marina
MC GRATH BEACH STATE PARK
Mandalay Beach Park
Ventura Co Airport
Mandalay Beach
Santa Clara
River
Duck Ponds
Percolation Basin
Limonera
SANTA PAULA Y SATICOY
SANTA CLARA DEL NORTE
SAN BUENAVENTURA
CANADA DE SAN MIGUELITO
Grant Memorial
Mission San Buenaventura
Ventura College
Substation
Gravel Pit
Well

# Introduction

## Ventura Harbor Wetlands Ecological Reserve

Surrounded by the Ventura Harbor, the Santa Clara River estuary, and the Pacific Ocean, the fifty-acre Harbor Wetlands is an important environmental asset and a critical link along the Ventura shoreline. The site is part of the Ventura Water Reclamation Facility and an important component of the city's infrastructure. It provides the final step in wastewater treatment and allows chlorine to evaporate prior to the water's release into the Santa Clara River. The site is alive with the activity of animal life. Birds, small mammals, insects, spiders, reptiles and amphibians are attracted to the rich habitats in and around the site's three ponds.

## Ventura Harbor Wetlands Vision Plan

The Ventura Harbor Vision Plan (Vision Plan) provides an exciting opportunity to preserve, protect, and enhance fragile habitat while connecting people to the environment. It calls for the integration of environmental art into this multidimensional place that is both ecological reserve and wastewater infrastructure. The art heightens people's experience of: the habitats and life cycles of other species, the phenomena and processes playing upon the site's diverse landscapes, and the water located in and around the Harbor Wetlands. The art also promotes environmental literacy through an experience of the place.

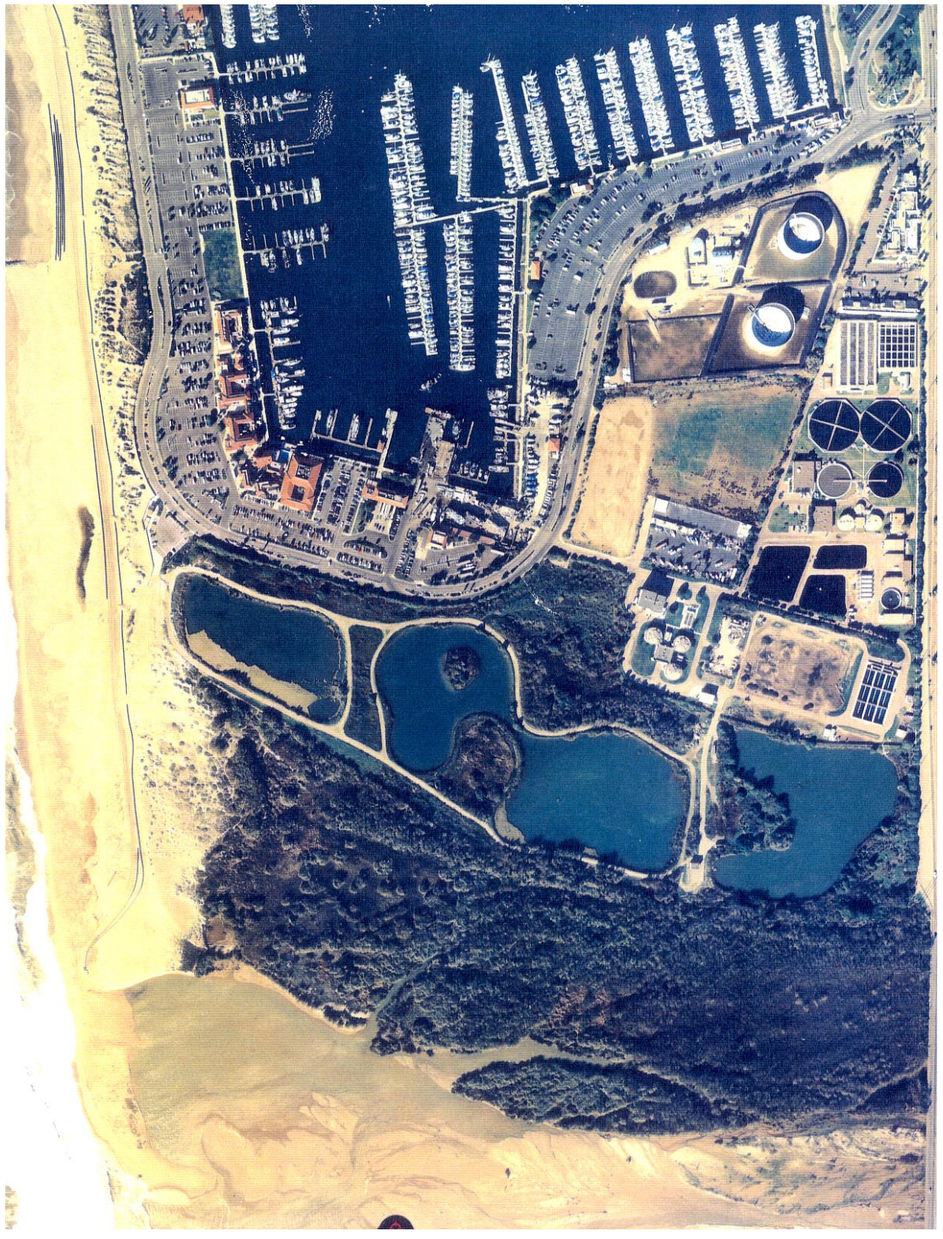
Biophilia is a term coined by the biologist E. O. Wilson that pertains to the human propensity to affiliate with other species. He suggests that people move beyond observing other species to empathizing with them and imagining the world from their perspective. In support of this, the environmental art sequence provides people with ways to experience their habitats and to appreciate the profound influence they have on us. The artwork offers important nooks and crannies and makes habitats legible. It also connects people to natural processes and cycles.

The Vision Plan considers, reinforces, and supports community goals as defined in the Ventura Vision document, the Ventura Public Art Plan, and the Ventura Harbor Master Plan.

## Ventura Water Reclamation Facility

The Ventura Water Reclamation Facility, 1400 Spinnaker Drive, is situated on the north bank of the Santa Clara River Estuary. The facility provides wastewater collection and treatment for the approximately 109,000 people who live in Ventura and its outlying areas. The treated wastewater enters the Ventura Harbor Wetlands, a 34 million gallon system of wildlife ponds adjacent to the estuary, where it is retained for approximately four days. The effluent reuse system provides water for irrigation of a golf course, parks and other landscaped areas. This reuse is integral to the city's water conservation program: it reduces demand on drinking water supply approximately 300 million gallons each year. Approximately 10% of the water is recycled; the rest is released into the Santa Clara River estuary.

Public access to the Harbor Wetlands is currently monitored by the wastewater facility



offices and is limited to weekdays. Visitors include students on environmental interpretive tours, bird watchers, walkers and runners. The area is used by city recreation programs and local schools, as well as by regional colleges and universities. By the end of this school year approximately 30 school tours will have been conducted though the Community Services Environmental Outreach Program. These tours alone teach approximately 1,000 students annually. Public bird walks are occasionally held on weekends.

## Planning & Design Teams

Environmental artist Lorna Jordan is leading an interdisciplinary team engaged in planning and design. The planning group includes Lorna Jordan Studio, MIG, AMEC, & Winterbottom Design. The design group includes Lorna Jordan Studio and Winterbottom Design. A strong and inclusive process has allowed the team to work alongside the community to serve the cause of environmental stewardship.

The team's expertise has also contributed to the planning and design process. As team leader, artist Lorna Jordan has drawn upon her experience creating environmental plans and designs that blur the boundaries between sculpture, architecture, theater, and ecology. She has focused in particular on habitats, water, and placemaking. During the planning process, AMEC provided environmental science and permitting expertise and MIG provided planning and landscape architecture expertise. Winterbottom Design worked with Lorna Jordan Studio during the design of an environmental art sequence. Kovacevich Design provided graphic design services throughout the planning and design process.

## Planning Process

The Vision Plan has been derived from a comprehensive planning process. It also draws upon the team's research, observations of the site, and expertise. The following steps were included in the draft Vision Plan:

- Research and background studies
- Site analysis and evaluation
- Meetings with 12 stakeholders
- Development of preliminary project approach
- Mapping of potential opportunities
- Meetings with 2 Focus Groups
- Development of Vision Plan concept and approach
- Submittal of Research Report
- Town Hall Meeting
- Additional Research
- Refinement of Vision Plan concept & approach based on research and community process
- Preparation of Draft Vision Plan & Preliminary Designs

## Research Phase

In the first phase, the team conducted conversations with staff and residents, held individual meetings with identified stakeholders, and facilitated workshops with two focus groups. The following were consulted during stakeholder meetings: Audubon Society, California Coastal Commission, California Department of Fish and Game, California Native Plant Society, California State Parks, Coastal Conservancy, Ventura Unified School District, Santa Clara River Trustee Council, US Fish and Wildlife Services, US Army Corps of Engineers, Ventura Harbor Community Council, and the Ventura Harbor Port District. Focus group workshop participants included the aforementioned stakeholders, Public Art Commissioners, representatives of local environmental groups, officers of local community councils, members of the art community, representatives from the tourist industry, and other interested community members.

The team also conducted research, visited the site, and prepared a Research Report dated March 3, 2003. The Research Report provides a specialized analysis of the site and has been used in the development of the Vision Plan. It analyzes the existing setting in terms of its place within the community, its location, size, and surrounding uses. It also analyzes the natural, cultural, and technological features of the Ventura Harbor Wetlands site: it examines the site's physical context and character, its habitats and vegetation, its utilities and current circulation patterns, and its recreational and educational uses. The report addresses the opportunities and constraints of improvements.

The Research Report resulted in a deeper understanding of the Harbor Wetlands—its six distinct habitat zones; plant and animal species; geologic and climatic factors; water context; community context; and

wastewater infrastructure. It also uncovered the history of the site's transformation from undeveloped coastal habitat, to landfill, to wastewater treatment facility, to ecological reserve. The findings of the Research Report have been refined in this Vision Plan based on subsequent input from the community, staff, and the public art commission. It led to the development of preliminary themes and strategies regarding the location and type of future environmental art improvements including pathways, nodes, habitat enhancements, and uses.

The findings of the Research Report have been refined in this Vision Plan. The Vision Plan also responds to input from the community, staff, and the Public Art Commission.

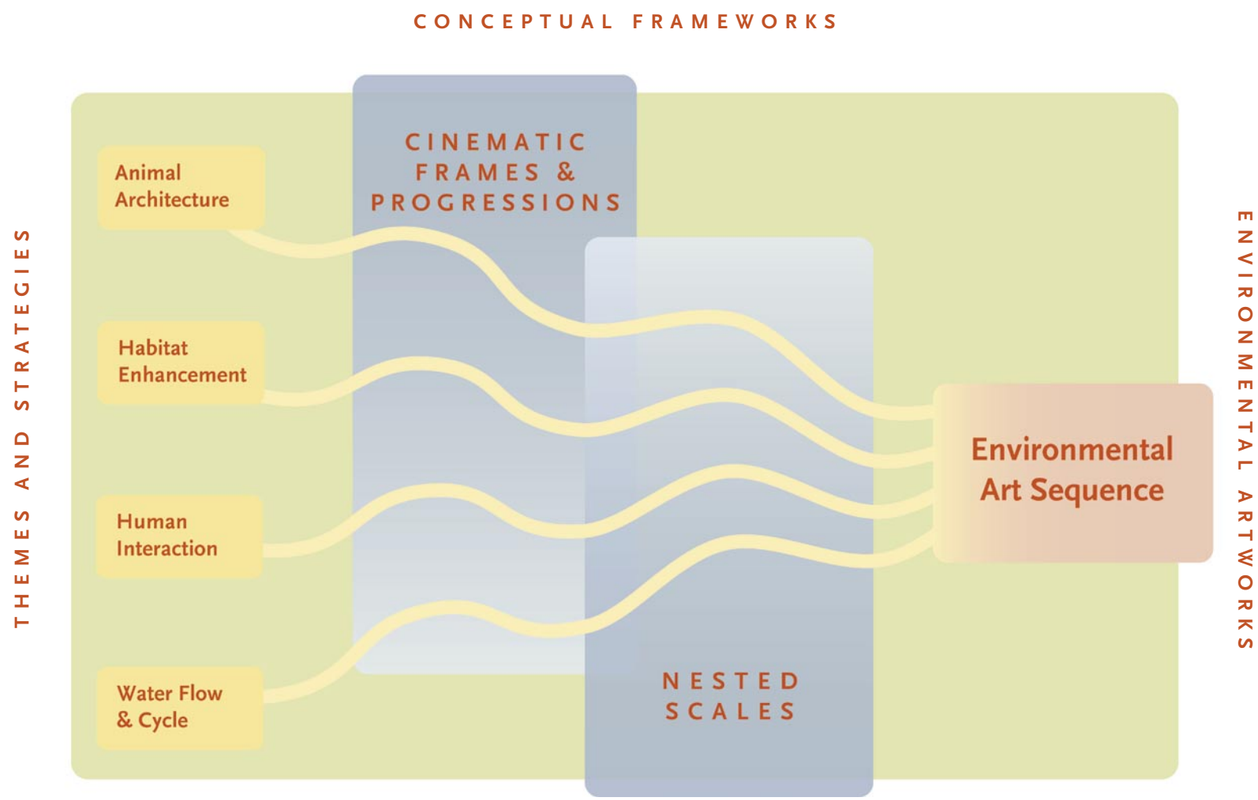
## Vision Plan Goals

1. Reflect and manifest community goals as defined in the *Ventura Vision Document*, *Ventura Public Art Program Long Range Plan*, and *Ventura Harbor Master Plan*.
2. Promote ecological and cultural tourism by creating a new link/destination along the coastline.
3. Respect and respond to the existing site's habitats, plant and animal species, infrastructure, community context, natural processes, and wetlands (as well as the estuary, harbor, and ocean)
4. Provide a series of focused, aesthetic places and connections conceived as cinematic progressions and frames. The resulting environmental art sequence:
   - contains and focuses people's experience while protecting wildlife habitat
   - guides the visitor through a sequence of frames and progressions that trigger internal perceptions, emotions, and narratives
   - promotes curiosity, environmental literacy, and site interpretation
   - heightens people's aesthetic experience of the place
   - engages people in four dimensions and at a variety of scales
   - recommends strategies for circulation and ecological enhancements
   - acts as a memory theater triggering internal narratives and associations
5. Create opportunities for experiences that connect people to:
   - the site's context, history, uses, habitats, species, processes, and phenomena
   - the perception of natural phenomena and processes over time
   - the poetics and interconnectedness of water in the wetlands, estuary, harbor, ocean, and beyond
   - animal architecture, morphology, behaviors, and life cycles

# Design Concept—Environmental Art Sequence

# Environmental Art Sequence






## CONCEPTUAL FRAMEWORK

The Vision Plan provides an exciting opportunity to preserve, protect, and enhance fragile habitat while connecting people to the environment. An environmental art sequence heightens people's experience of the habitats and life cycles of other species, the phenomena and processes playing upon the site's diverse landscapes, and the water located in and around the Harbor Wetlands.

### Cinematic Frames & Progressions

The Ventura Harbor Wetlands Ecological Reserve is a place of motion and stillness. Dynamic natural processes and animal activities play upon the Harbor Wetlands' serene landscapes. Thus, the site can be experienced as a theater of both dramatic change and timeless stasis. In response, environmental artworks are conceived as cinematic frames and progressions through which people view, understand, and respond to the site's landscapes and ecology.

Visitors move along pathways and pause—their attentions captured and directed by aesthetic frames and platforms. Progressions of sculptural form echo the drama of nature's cycles and phenomena: waves crashing, dunes migrating, water flowing, birds flying, butterfly larvae molting, and animals constructing. Working in tandem with the site's changes and cycles, these animated sculptural progressions yield a heightened experience of the site's dynamism. The relative movements of the visitor are juxtaposed against those of natural cycles.

The cinematic frames and progressions trigger internal emotions and narratives. The visitor leaves with a heightened sense of the site's beauty, processes and cycles—an interplay of motion and stillness. Experiences of the site are imprinted upon memories.

### Nested Scales

The environmental artwork sequence is conceived as part of a larger continuum of nested scales. It exists within and is informed by the site (its habitats, species, animal architecture, water, landscapes, and treatment plant), community (surrounding water bodies, neighborhoods, coastline, and city), and larger natural cycles of the planet (seasons, migrations, growth, and decay).

## THEMES

### Animal Architecture

From the pyramids of ancient Egypt to modern skyscrapers, we judge our cultures by our built structures. We fabricate all kinds of buildings in which to live, work, sleep, raise families and protect ourselves. We believe ourselves different from other species because we live in a built environment. However, the animal kingdom is filled with creatures that are marvelous architects. Just as we construct dwellings, roads, and waterways, animals also build a variety of structures. They construct shelters to attract mates, provide sanctuary, raise offspring, and trap prey. They also build runways to make fast tracks to their food sources. Some use building materials from the resources found in nature while others create their own materials using their body fluids.

Animals have developed ingenious solutions to problems involving insulation, solar heat, ventilation, drainage and waterproofing—problems familiar to humans. Moss or cattail down is used for insulation and bedding. The leaves of large plants are overlapped like roofing shingles, or rolled and sewn to provide shelter. Though labor intensive, building is essential for survival.

Animals exhibit beautifully functional ways to survive by building diverse structures using techniques that we have adopted—stacking, weaving, cementing, and sculpting. Each environmental artwork at the Harbor Wetlands draws from and is inspired by the techniques and materials employed in animal architecture.

### Poetics & Interconnectedness of Water

The environmental artwork sequence responds to water both inside and around the site. To enhance physical and visual connections, the artworks focus attention upon adjacent water bodies: ocean, river, harbor, ponds, and treatment plant tanks. Water is collected, reused, revealed, and released to enhance habitat, create connections, celebrate processes, and provide pleasure. This results in diverse and changing experiences based on the cycles and mysteries of water.

## STRATEGIES

### Visitor Activities & Experience

Activities at Ventura Harbor Wetlands are within the framework of passive recreation. People can observe other species, natural processes, interactions between artworks & other species, and can participate in educational activities and workshops.

The environmental art sequence allows for interpretation through an experience of place. Other approaches can include cell phone- and docent-led tours, informational pamphlets, a sign with a site map at the Angler Court entry, and web tours.

### Access & Circulation Improvements

The existing internal site circulation will be modified to enhance local habitat and visitor experience. Portions of the existing maintenance road are not needed for vehicular access and will be converted to pedestrian paths. Alignments will be modified to reveal vistas and create special opportunities for viewing wildlife. Widths vary from wide, vehicular roads to narrow intimate trails. Surfaces for the intimate trails may include fine aggregate surfacing and/or boardwalks.

The new entrance along Angler Court allows for street parking. The development of safer pedestrian connections and roadway crossings along Spinnaker Drive could help accommodate greater pedestrian activity, and a slowing hump in the road could help control the speed of vehicular traffic at the crosswalks. A visitor control point may be required. A policy regarding public access needs to be developed.

### Habitat Enhancement Within the Environmental Artworks

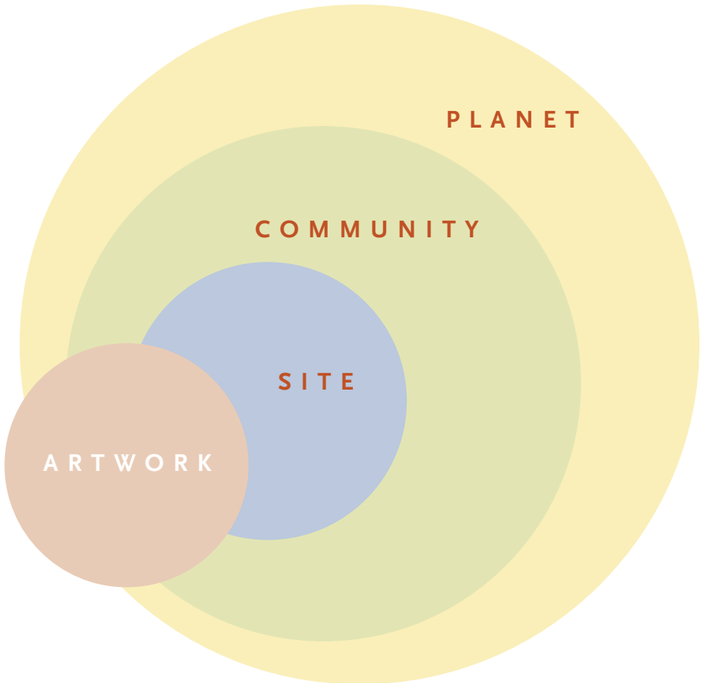
Many of the artworks call for the enhancement of habitat for a diverse array of species. By contributing to the essentials of habitat—food, shelter, water, and space—the artworks improve conditions for many species.

### Other Restoration Efforts

Several of the site's existing habitats support invasive plant species or are otherwise degraded and require rehabilitation. It is anticipated that some of the habitat enhancements may be designed and implemented by others seeking mitigation opportunities. It is recommended that these efforts be developed in close coordination with City Staff and local environmental agencies. This will be critical to the success of the overall improvements. The development of a detailed restoration plan will help establish restoration goals and objectives, implementation methodology, and monitoring and maintenance procedures. The desire is to create a self-sustaining safe haven for native plants and wildlife through the removal, control, and replacement of disturbed communities with native plant species.

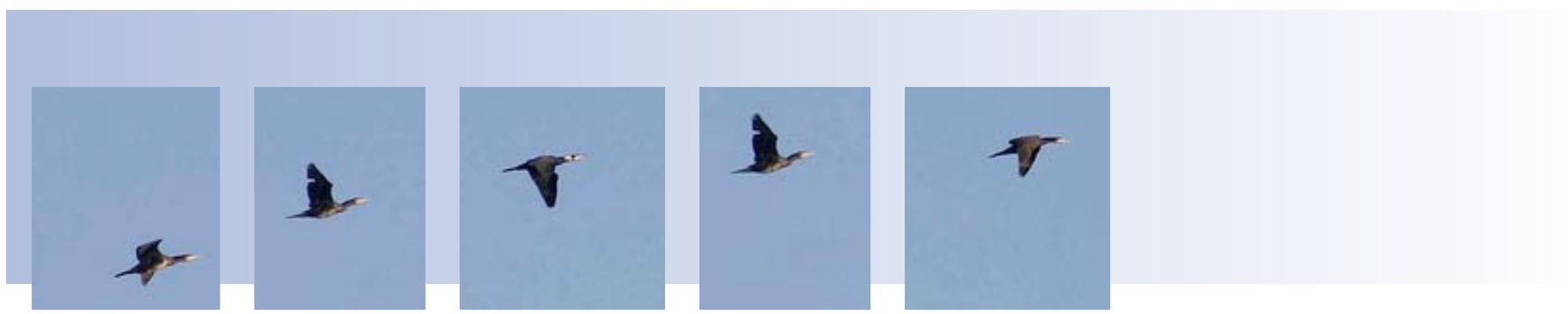
Among the key objectives is a phased restoration of disturbed environments, including dunes and riparian areas. Other opportunities include the improvement and generation of habitat for specific species, such as mudflat and pond shoreline improvements for shorebirds, and snags for perching and cavity-nesters.

Restoration efforts include removal and replacement of invasive species with target native plants. Among the highest priority areas are the dunes at the western end of the facility. These are possibly the most disturbed areas, supporting extensive stands of Hottentot fig (Carpobrotus edulis) as well as other invasive plants. Other targeted areas and species are riparian habitats with the exotic pest tree myoporum (Myoporum laetum), disturbed wetlands and adjacent areas supporting giant reed (Arundo donax), and disturbed areas that are dominated by a variety of invasive grasses.




NESTED SCALES

# Cinematic Frames & Progressions



Progression of Animal Movements

Progression of Life Cycles

Progression of Human Movements

Progression of Animal Building Projects

Progression of Natural Phenomena

# Animal Architecture

## OVERVIEW

Just as we construct dwellings, roads, and waterways, animals also build a variety of structures. They construct shelters to attract mates, provide sanctuary, raise offspring, and trap prey. They also build runways to make fast tracks to their food sources. Some use building materials from the resources found in nature while others create their own materials using their body fluids.

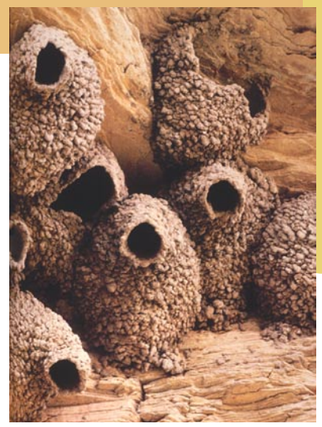
Animals have developed ingenious solutions to problems involving insulation, solar heat, ventilation, drainage and waterproofing—problems familiar to humans. Moss or cattail down is used for insulation and bedding. The leaves of large plants are overlapped like roofing shingles, or rolled and sewn to provide shelter. Though labor intensive, building is essential for survival.

Animals exhibit beautifully functional ways to survive by building diverse structures using techniques that we have adopted—stacking, weaving, cementing, and sculpting. Each environmental artwork at the Harbor Wetlands draws from and is inspired by the techniques and materials employed in animal architecture.



### MODELING

Some animals work a collected or secreted plastic material into a desired shape. To do this, the animal must be equipped with delicate coordination and precision tools. Insects and birds that mold their homes often use mud or earth as a major construction material. Birds often mix mud with other ingredients such as saliva and grass to create their nests. Some build them up by modeling and arranging large numbers of mud pellets. Grass fibers, much like man-made composites such as fiberglass or reinforced concrete, add tensile strength. This type of modeling is achieved by vibrating the head as each load is applied. This disperses the moisture more evenly and allows the fresh mud to fill small air spaces. Some birds also use mud to plaster the interior of their nest cup.



### CLIFF SWALLOW

The cliff swallow builds its mud nest in covered areas such as the undersides of cliffs or on the overhangs of human-made structures. They are found in a wide variety of biomes where water is available, and even in desert areas near towns. The nests are typically built in colonies. They are completely enclosed other than a small hole for coming and going. Swallows use mud combined with grass to achieve tensile strength. They create very durable nests that can be used year after year.

### PILING & STACKING

Some species create structures by piling and stacking collected materials at the construction site. They are typically not bound together by adhesive and are entirely in compression. The simple piling of material requires specific positioning and orientation of elements. The interlocking of elements gives structural integrity. Examples include bird nests that consist of stacked stones or sticks with a shallow cup at the top—wide in proportion to height. Rough surfaces provide frictional resistance to movement of materials.

### KILLDEER

The killdeer creates scrape nests that are depressions in the ground. These have stones and other materials in them.

## INTERLOCKING & WEAVING

In this technique, materials become fastened together without the use of an adhesive. Birds often use plant materials that are woven or piled up to build their nests. The nature of the fastening depends upon a combination of the actions of the builder and the nature of the material. Velcro fastening is achieved using spider silk with plant material, a technique used by birds. Stitches are discrete fastenings made with fine fibers. Entangling is a modification of the piling up technique wherein birds tie twig ends back into the core of the nest. The primary nest-building instrument for these birds is the beak. A survey of the nests of several hundred species of birds reveals its widespread occurrence. With more flexible lengths of plant material, the entangle technique is easier. Weaving includes loops, half hitches, hitches, bindings, slip knots, and overhand knots, as well as a more regular over-and-under pattern of weft through warp that defines human weaving. Animal weavers require a looser definition than that describing human workmanship. Animal woven fabrics are generally much less regular in the orientation and in the over – under pattern of the threads than are human ones. However, both hold together without the use of any adhesive.

## MARSH WREN

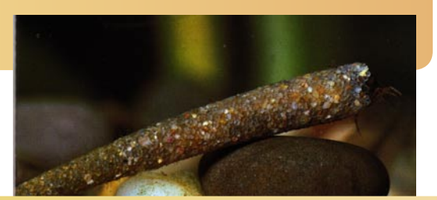
The marsh wren nest is anchored to standing vegetation, 1-3 feet off the ground, and is an oval mass of grasses, cattails, and sedges woven together with an entrance at the side. The lining is made of fine grass, plant down, and feathers. Males build many unfinished nests and then show them to the female, who selects one and adds a lining to it.

## SPIDERS

Spiders that weave webs use silk they excrete from their own bodies. Some of the strands in the web are sticky, to catch bugs, but some are dry. The spider walks on the dry strands so she doesn't get stuck. Spiders that weave webs use silk they excrete from their own bodies. Spiders have several spinneret glands located at the their abdomen which produce the silken thread. Each gland produces a thread for a special purpose. Some of the threads in the web are sticky, to catch bugs, but some are dry. The spider walks on the dry strands so as not to get stuck. Webs allow a spider to catch prey without having to expend energy by running it down. Thus it is an efficient method of gathering food. However, constructing the web is in itself an energetically costly process due to the large amount of protein required, in the form of silk. In addition, after a time the silk will lose its stickiness and thus become inefficient at capturing prey. It is not uncommon for spiders to eat their own web daily to recoup some of the energy used in spinning. The silk proteins are thus 'recycled'.

## ADHERING & STICKING

Some species adhere ready-made objects collected from the environment.. The adhesive itself may be secreted by the builder or collected (while initially plastic and used before hardening). Two self-secreted materials characteristic of this construction method are mucus and silk. Collected materials include silk and mud, often used by birds to hold their nests together.

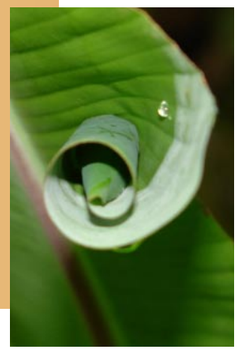


## CADDISFLY

Caddisflies may be the most marvelous of all the aquatic invertebrates, because in addition to being bugs, they are architects. Most caddisfly larvae live in houses, called cases, that they make themselves. They spin out silk, and either live in silk nets or use the silk to stick together bits of whatever is lying on the stream bottom. These houses are so specialized, that you can almost always identify a caddisfly larva to genus if you can see its case. One type makes a dome of large pebbles.

## FOLDING & ROLLING

Sheets of material if treated in this way become three-dimensional structures, in which animals can live or use as a shelter for their offspring. Leaves provide such sheets of materials and a few species, although of widely differing taxa are able to utilize them in this way. Folding and rolling is not a technique suited to dry leaves as they would split and break up under the distortion. However, living leaves are specifically built to resist bending or crumpling, creating a problem for the builders to overcome. The rigidity of the leaves depends upon two factors, the strength of the veins and the turgor pressure in the cells. The builder must either weaken these, overcome them with a great force, or use a combination of the two.



# Water Context & Poetics

## OVERVIEW

The Harbor Wetlands Ecological Reserve is noted for its abundance of water both within and around the site. The Pacific Ocean to the west, the Santa Clara River Estuary to the south and the Treatment Plant's three wetland ponds provide recreation resources, habitat areas, and dramatic scenic views. Water is also present in more ephemeral ways, such as the fog typical along the California coast in spring and summer. Hidden within the site's hydrologic infrastructure, 9 million gallons of water are treated each day. Holding tanks store and treat water before it is released into the ponds and estuary, or reclaimed and sent back to clients throughout the City via pipes and lift stations.

### PONDS

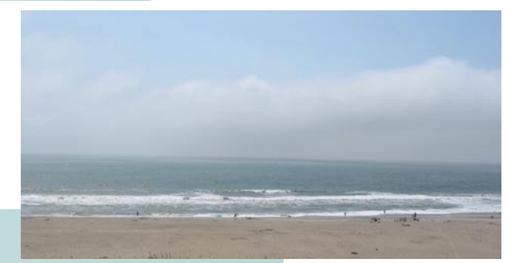
The Ventura Harbor Wetlands are part of the infrastructure of Ventura. They provide a final treatment phase and retention for wastewater released from the wastewater treatment plant. The site's three ponds were constructed in 1971. The pond's naturalistic forms include an island, peninsula and undulating banks.

Though designed as part of a treatment process and for containment of reclaimed water, the ponds are also recognized for both their aesthetic qualities and habitat value. Birders have been frequenting the site for a number of years to catch glimpses of the species that forage, breed and nest around and within the ponds. Fish and other small aquatic creatures that live in the ponds provide food for these birds. Among the three ponds, the eastern pond currently has the best habitat value. The middle pond, with its habitat rich island, is a favorite for birders. The western pond is generally considered the most degraded, impacted by the migration of sand and the proliferation of invasive species on its western edge.

### WASTE WATER & TREATMENT

The Ventura Water Reclamation Facility, 1400 Spinnaker Drive, is situated on the north bank of the Santa Clara River Estuary. The facility provides wastewater collection and treatment for the City and its outlying areas with a total population of approximately 109,000 people. Approximately 9 million gallons of wastewater travel to the facility each day through an extensive system of sewer mains and lift stations. Wastewater goes through a three-step treatment process before entering the Ventura Harbor Wetlands, in which the final step in the tertiary treatment process is completed. The wetlands have a combined capacity of 34 million gallons. The reclaimed water is retained in these wetlands for approximately 4 days, then either released into the estuary or delivered to reclaimed water customers.

The reclaimed water system provides water for irrigation of a golf course, park and similar landscaped areas. This reuse is an integral part of the city water conservation program and represents a reduction in demand on the drinking water supply each year of approximately 300 million gallons. Approximately 10% of the water is recycled in this manner while the rest is released into the Santa Clara River estuary. Everyday the reclamation facility releases 7 million gallons of treated wastewater into the estuary.



### OCEAN

The Pacific Ocean lies just across the dunes from the Ventura Harbor Wetlands Ecological Reserve. Water treated in the site's three ponds passes through the Santa Clara Estuary before entering the ocean's rich nearshore environment. This environment has three distinct oceanic seasons maintained through changes in wind patterns and resultant current shifts. These oceanic climatic shifts are critical for the support of healthy habitat zones. Phytoplankton, algae and kelp forests provide nourishment for a diversity of marine animals, from jellyfish, krill and sea urchins to abalone, kelp bass, sea otters and harbor seals.

Approximately 14 miles offshore, the Channel Islands National Park and Marine Sanctuary attracts visitors interested in both the cultural history of the islands and the natural resources within the park's unique ecosystems. The park contains the biological diversity of 2500 miles of the North American coast with marine life that ranges in scale from plankton to blue whales. The islands are home to 2000 species of terrestrial plants and animals, 145 of which are unique to the islands. Because of this, the islands are sometimes referred to as the "American Galapagos."

### SANTA CLARA ESTUARY

The Santa Clara River is adjacent to the Ventura Harbor Wetlands' southern border. Its estuary is a designated Natural Preserve within McGrath State Beach. The primary purpose of the designation is to maintain and enhance habitat for native plants and wildlife. Strategically located on the Pacific Flyway, the estuary provides habitat to many resident and migratory birds. Recreational use within the preserve is limited to passive activities.

Since 1855, the floodplain of the Santa Clara has been impacted by the gradual encroachment of agriculture, roads, urban development and attendant levees. The levee on the river's north bank is adjacent to the Ventura Water Reclamation Facility. Due to the presence of this levee, the site is not in the river's floodway nor is it in a 100-year or 500-year flood zone.

### THE HARBOR

Opened in 1965, Ventura Harbor has since become a thriving community and a coveted recreation destination. The harbor is home to 2,200 boat slips and sees a large number of people coming and going from various parts of the world. Its active waters serve a number of boating activities, from kayaking and paddle boating, to whale watching and deep-sea fishing. The harbor acts as a connecting gateway between the Pacific Ocean and the mainland for both recreationists and those who make their livings from the sea.

Ventura Harbor Village, in addition to hosting a wide range of amenities, is home to Channel Islands National Park headquarters. The five remarkably well preserved islands hold unique plants, animals, and archeological resources found nowhere else on earth.

## Poetics of Water

Water is a sublime, poetic and mysterious substance. It can change forms from a solid, to a liquid, to a vapor. It cleanses and provides habitat. Yet water is more than this. The water cycle is a mighty force that sculpts the world into watersheds.

Throughout the Harbor Wetlands Ecological Reserve, visitors experience water in a variety of ways. The environmental art sequence focuses attention upon water's cycles and mysteries—reaching out and making reference to the ocean, wetlands, river, harbor, and water treatment plant that surround the site. In addition, water is collected, reused, and released to enhance habitat and provide sensory experiences. This allows for diverse and changing experiences in of water.

### MOVEMENT

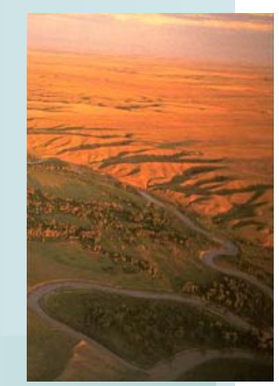
Water is pushed and pulled by wind, gravity, adhesion, and magnetic forces into choppy, short bursts or long, slow, sinuous waves.

### ATMOSPHERE

Water vapors shape our experience of space, transforming clear expanses into mysterious spaces.

### STREAM OF CONSCIOUSNESS

Like water, thoughts and imagination flow, moving in channels that cross back and forth, disappearing then reappearing transformed at a later date.



### SCULPTURE

Water carves, pushes and sculpts the land, molding solid earth into sinuous, graceful forms.

### REFLECTIVITY

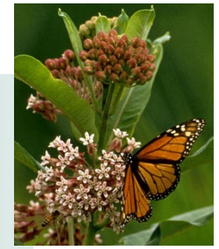
Water catches and transforms light, splitting and scattering it to create dramatic displays. These flicker dramatically across the landscape or subdue it, softly cloaking it in subtle hues.

# Habitat Enhancement Strategies

## OVERVIEW

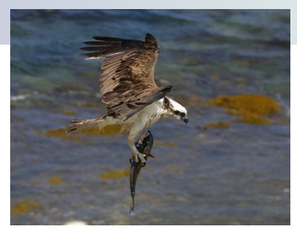
Habitat is a living creature's "support system". Within habitats, plants and animals meet their life requirements. Water, food, shelter and space are crucial to all species' existence, but each meets individual needs in unique, ingenious ways. Animals have developed beautifully functional ways to survive, often in extreme, constantly changing environments, and humans, the ultimate adapters, have emulated them.

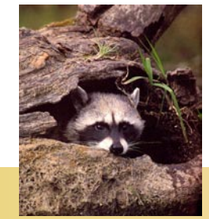
The proposed artworks allow people to experience first hand how other species modify the environment to meet their habitat needs in two ways. First, animal innovations inspire site-specific artworks that shape people's experience of the dune and wetland landscapes. Second, native habitats are enhanced and observational opportunities are provided to allow people to experience the animals' creativity in their unique environments.



### FOOD

Birds, mammals and insects require a diverse assortment of foods. In addition to providing nectar, nuts and fruits, native plants support insect populations that feed resident and migratory birds, fish that live in the ponds and estuaries, and small mammals that move through the wetlands. Habitat improvements throughout the site focus on the introduction of native plant species that will provide a rich, continuous palette of native food resources.





### SHELTER

Undulating earth forms and native plant communities provide the materials and the structures that shelter birds, mammals and insects from weather and predators. Whether by digging into the sandy dunes, burrowing under fallen plants, or weaving elaborate homes out of twigs, rocks, shells or debris, animals have evolved unique means of protecting themselves from environmental threats. Habitat improvements at the Harbor Wetlands include the creation of many different shelter options for a variety of species.

### WATER

The Harbor Wetlands provide habitat for numerous plant and animal species that inhabit freshwater and marine environments during their life cycle. However, the quality of this habitat varies considerably across the site. In the easternmost pond the habitat quality is high, so improvements focus on enhancing the visitor experience while maintaining habitat value. In the central and western ponds the habitat quality can be significantly increased through the removal of invasive species and the replanting of native species. This will cleanse the water, provide shade and increase food resources for animals living and foraging in and around water.

### SPACE

All animal species have territorial requirements for the food, water, building materials and social interactions on which their survival depends. They mark and defend their territories with sounds, scents, structures and behavioral displays. The sounds of animals howling, birds calling or insects chirping reveal the rich overlay of species in a landscape. Similarly, a bird's nest can often be read as a map of its travels through the surrounding environment. At the Wetlands, habitat improvements recognize animals' needs for space and are designed to enhance the human experience of the site while protecting the territorial needs of resident and migratory species.

# Visitor Experiences & Activities

## OVERVIEW

The rich collection of landscapes, species, and natural phenomena within the Harbor Wetlands can educate, fascinate, and humble visitors. Through patient observation, a leisurely stroll, community maintenance, or an environmental art experience, the captivating site provides a variety of encounters and activities. Over time, repeat visitors can develop a deeper appreciation of the natural cycles and species the Harbor Wetlands has to offer.

### Observe other species

The Harbor Wetlands provides an exciting opportunity for community members to observe other species. Throughout the site there is a constant hum of activity as insects, spiders, reptiles, amphibians, birds and mammals move about the site's varied habitats. Visitors can watch as birds build homes, forage for food, and feed their young.

### Observe natural processes

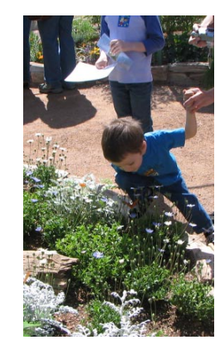
Visitors can observe the ongoing natural processes at the Harbor Wetlands. The site is constantly in flux, but the rate of change varies. Some of these processes are only perceptible over time. Through periodic visits, monitoring and documentation, community members come to understand that these are not static systems. Dunes and animals migrate, waves shift patterns, water levels fluctuate, and plants bloom and die.

### Observe interactions between artworks & other species

Animal species can interact with the forms, spaces, plantings, water, and shelter offered by the environmental artworks. For example, birds, such as osprey and cliff swallows, are known to build onto and inhabit human structures. Butterfly-attracting plants support monarch butterflies. Collected water provides habitat for a number of species. Over time, the artworks are transformed by other species. Each visit to the site presents new possibilities to observe these phenomena.

### Conduct educational activities, workshops, & temporary installations

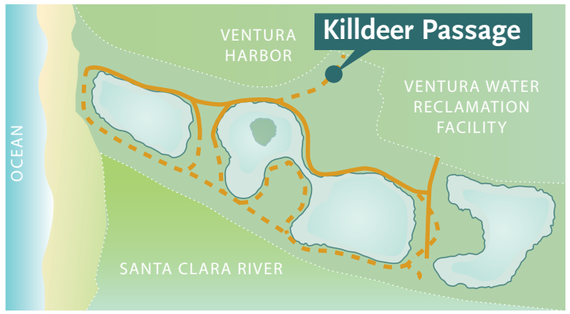
Student activities add to the experience of the site. Through workshops, students learn about the site's species and its dynamic systems and processes. They can also be engaged by drawing, mapping, bird watching, and artmaking. Temporary installations add another layer to the art experience. Students create their own small, ephemeral works inspired by animal architecture, dune migration, the water cycle, or other site systems. Projects can be inspired by the woven, floating nests of the grebe or the sculpted earthen nests of the cliff swallow. These activities and experiences contribute to a deeper understanding of the site.



# Existing Habitat Zones

# Environmental Artworks

# Killdeer Passage




## EXISTING SITE

## ARTWORK DESCRIPTION

As one enters the Harbor Wetlands site from Angler Court, a mounded, sculptural form appears on the horizon. Inspired by the "piling" techniques killdeer use to build their nests, the mound consists of stacked stone, boulders, soil, and plantings. The entry pathway bisects the mound, splitting it into two distinct forms, and revealing its layered composition of materials. The undulating, stone/earthwork acts as a gateway, marking the entrance and funneling people into the site.

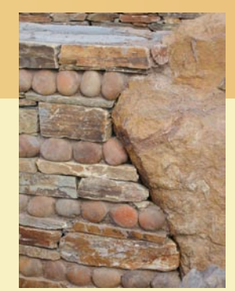
After passing through the mound the pathway leads to a gathering space framed by seat walls that provide a place to meet friends, rest, or enjoy a break from the city. The space doubles as an outdoor classroom, providing a convenient spot to begin educational tours or hold small community meetings. Ponds frame this area and are funded by ground water. The plantings, earthworks, and pools in this area provide habitat—food, shelter, water, and space—for local fauna. From here, the pathway ascends, leading the visitor to the Harbor Wetlands.

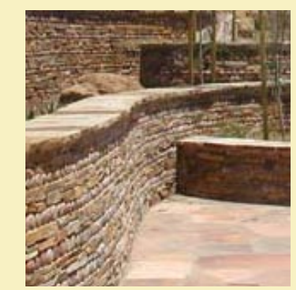
*Design Specifications:*
Type of Amenity – Entryway, Benches, Native Plantings, Natural Pools
Size of Amenity – overall: 170' L. x 101' W. x 6' H., mounds: 6' H. max.,
benches: 150' L. x 18" H., pools: 50' L. x 20' W. max.

## Selected Sources

### ANIMAL ARCHITECTURE

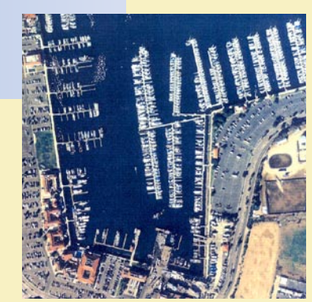
**KILLDEER INSPIRES MASONRY CONSTRUCTION**
Within its often low, scrubby habitat the killdeer looks for small depressions to lay its eggs in. It then surrounds its eggs with piles of small rocks to camouflage them from predators.





### HARBOR SLIPS

The harbor is home to 2,200 boat slips and sees a large number of people coming and going from various parts of the world. Its active waters serve a number of boating activities.



# Environmental Artwork

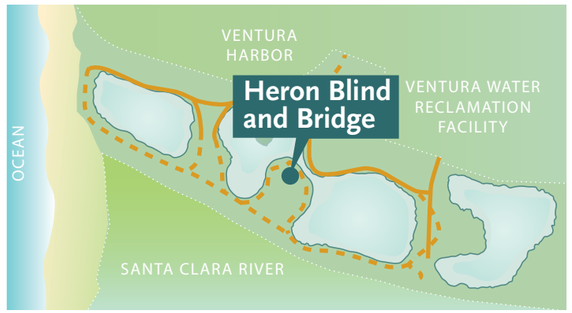
## HABITAT ENHANCEMENT

Plantings, earthworks, and pools provide habitat for a wide variety of local fauna. Native terrestrial and wetland plants attract insects on which birds feed. They also provide nest-building materials and shelter. Pools provide water for birds to drink and bathe in.

## COMMUNITY USE

This artwork offers a transitional space from city street to Harbor Wetlands. Sheltered by berms and planted mounds, people slow down as they enter the meanders, stopping for social encounters, educational gatherings, or wildlife observation.

# Heron Blind & Bridge




## EXISTING SITE

## ARTWORK DESCRIPTION

The Heron Blind and Bridge is inspired by the animal architecture of the marsh wren. The male marsh wren uses a construction technique called entanglement to weave a nest of interlocking vegetal matter. The artwork's bridge and nest are draped with a crisscrossing canopy of wood slats that obscure the viewer from nearby birds.

Spanning a narrow channel of the site's central pond, the covered, curvilinear bridge provides shelter, connection, and a concealed vantage point. From here, the visitor has unique, uninterrupted glimpses of water habitat and wildlife. Benches inside the bridge allow people to sit and view the wetlands, the adjacent island, and blind. The undulating roof echoes the subtle movement of the adjacent pond's ripples.

Past the bridge, the pathway leads to the Heron Blind. This camouflaged viewing sanctuary appears to rise naturally out of the surrounding upland landscape. The blind, like the bridge, is cloaked in an entangled wood screen, but is less ordered and is open to the sky. The network of crisscrossed slats emerges from a low rammed earth wall. Benches within the blind provide a place to watch, wait, rest, and relax.

*Design Specifications:*
Type of Amenity – Bird Blind, Bridge
Size of Amenity – Bird Blind – overall: 75' L. x 25' W. x 17' H., blind: 17' D. x 15' H.
Bridge – overall: 70' L. x 15' W. x 14' H., benches: 30' L. x 18" H.

## Selected Sources

### ANIMAL ARCHITECTURE

**MARSH WREN INSPIRES WOOD CONSTRUCTION**

The marsh wren uses a technique known as entanglement to weave a nest of interlocking vegetal matter. Many nests in their territory are left unused to ensure concealment of their eggs.

### RIPPLING PONDS

Winds blow across the reflective surface of the wetlands, creating delicate patterns that scatter light throughout the surrounding landscape and obscure views into the water's depths.

# Environmental Artwork

## HABITAT ENHANCEMENT

The Heron Blind and Bridge includes improved pond edges of the wetlands to provide food, shelter and building materials for wildlife.

## COMMUNITY USE

Hidden from view within the artworks, people find unique opportunities to observe wildlife. The Heron Blind and Bridge allows people to observe animals in their native habitat and to experience the rich diversity of life in the Harbor Wetlands.

# Dune Overlook & Drifts

## EXISTING SITE

## ARTWORK DESCRIPTION

The Dune Overlook is perched at the west end of the site. Rising over the dunes, it offers rare, simultaneous views of the dunes, ocean, and Harbor Wetlands.

A series of curving canopies of stainless steel tube and mesh shade the perimeter of the overlook. Arranged in an animated progression of heights and positions, these provide sequential snapshots of breaking waves. Benches tucked within the waves' curves provide a place to sit, view, and relax. The concrete surface of the overlook's platform is embedded with local shells to add texture and to blend with the shoreline landscape.

A series of arced, interlocking fences composed of bound and bundled vertical mulch are arranged in the dunes around the overlook and along the pathway by the ocean. These fences are oriented to minimize the amount of sand deposited on the path, stairs and viewing platform. Over time these fences accumulate wind-blown sand, forming new Dune Drifts—an important step in the restoration of the inland dune zone. These earthworks have a participatory relationship with the processes of dune migration. Once fully covered, the fences will slowly decompose and native plant species will colonize to anchor and stabilize the newly formed dunes. The Dune Drifts will evolve, ensuring a nuanced relationship to the site and a shifting experience for visitors. Community members and student groups can help monitor the native dune species and help prevent the encroachment of invasive species.

*Design Specifications:*
Type of Amenity – Overlook, Dune Enhancing Vertical Mulch
Size of Amenity – Overlook – overall: 75' L. x 32' W. x 17' H., platforms: 20' L. x 14' W. max.,
canopies (24 total): 8' L. x 2' W. x 11' H. max.
Vertical Mulch – overall: 500' L. x 3' H.



## Selected Sources

### ANIMAL ARCHITECTURE

**SPIDERS INSPIRE STEEL CONSTRUCTION**
Web-spinning spiders excrete silk to trap insects. Spider webs are suspended from trees and other existing forms, adapting to diverse circumstances.

**INTERLOCKING & WEAVING**
Each deceivingly delicate silk strand gains structural integrity through its woven interaction with other strands. As the spider increases the web's density, the composite interlocking structure achieves high tensile strength relative to its weight.

### CRASHING WAVES

Arcing walls of water crash along the shore, carving and etching patterns in the beach sands and bringing new life and materials to the shoreline.

### DUNE ENHANCEMENT

**VERTICAL MULCH**
Dunes are enhanced using vertical mulch. The mulch causes wind to slow down and drop sand particles. This establishes a relationship between humans and the natural processes of dune formation.

# Environmental Artwork

## HABITAT ENHANCEMENT

The formation of new dunes is encouraged along the entire length of the western edge of the site. Dune formation and the establishment of native plants adjacent to the pathways heightens people's experience of the shifting, dynamic dune habitat.

## COMMUNITY USE

This artwork allows people to experience the changing, dynamic nature of the California coast through sculptural form and natural processes. People play an active role in maintaining the health of this landscape by managing invasive species and monitoring native plant establishment. The Dune Overlook & Drifts is located inside the Ventura Harbor Wetlands' security fence so it remains part of the experience and progression of five environmental artworks located along the interior pathway. If desirable, secondary access could be provided at Surfer's Knoll along the beach.

# Caddisfly Cascade

## EXISTING SITE

## ARTWORK DESCRIPTION

The Harbor Wetlands are part of the treatment plant's infrastructure. When the chlorine added to purify the water has evaporated, cleansed water is quietly released into the Santa Clara estuary where it will begin the next stage of its hydrologic journey. Currently, this important and ceremonious process is concealed in a thicket and goes unnoticed.

Located on the southern edge of the site adjacent to the ponds' existing outfall to the Santa Clara River, the Caddisfly Cascade celebrates the release of treated wastewater with a cascade and a series of terraces. Water for this feature comes from a regulated flow drawn from the existing outlet structure.

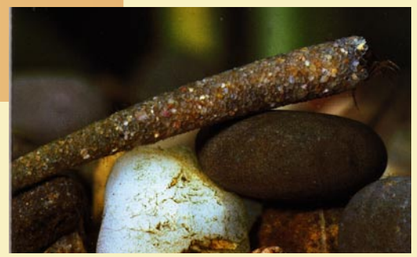
*Design Specifications:*
Type of Amenity – Wastewater Outfall Garden
Size of Amenity – overall: 56' L. x 30' W. x 10' H., path: 100' L. x 5' W.

## Selected Sources

### ANIMAL ARCHITECTURE

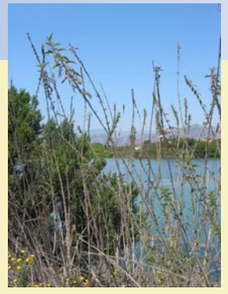
**CADDISFLY INSPIRES MOSAIC CONSTRUCTION**

Some species of caddisflies construct tubular protective shells by using silk to bind nearby organic material such as sand or vegetal matter.

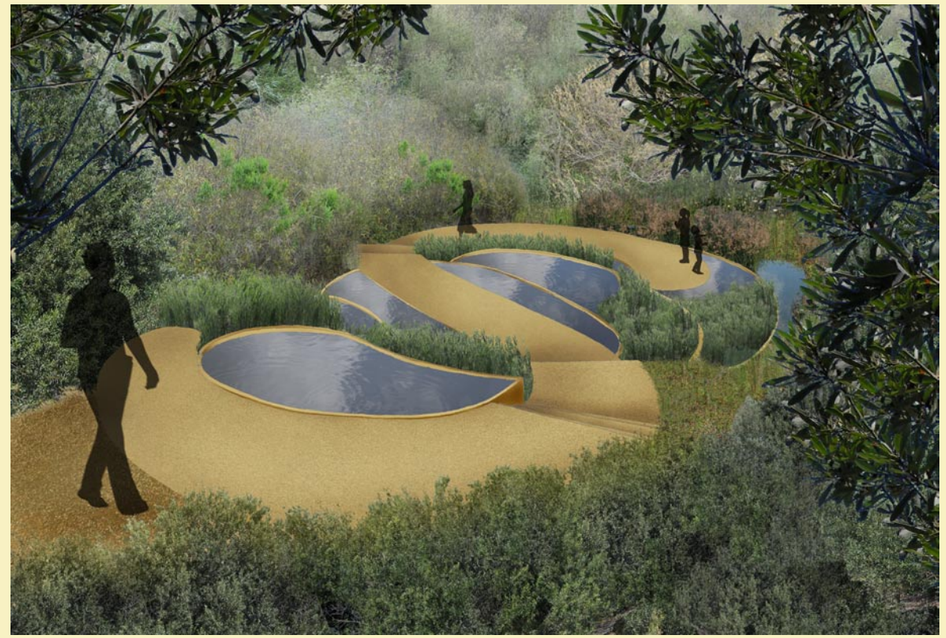


### TREATMENT PLANT, WETLANDS, & RIVER

Chlorine is evaporated as the cleansed wastewater moves through the wetlands. The water then enters the Santa Clara estuary after this final stage in the treatment cycle.



# Environmental Artwork



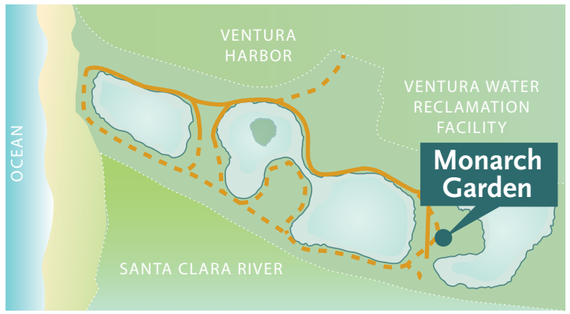
## HABITAT ENHANCEMENT

Cleansed water is released through a series of cascades and terraces that aerate it along its way to the Santa Clara estuary. Vegetation surrounding the terraces supports insect communities that, in turn, provide organic matter to the water. This becomes food for many estuary species.

## COMMUNITY USE

Within the artwork, people experience the passage of water from our human infrastructure to nature's infrastructure. They follow the water's downward flow as it makes its way to the estuary. The sound of the cascades reveals the life-giving aeration of water.

# Monarch Garden




## EXISTING SITE

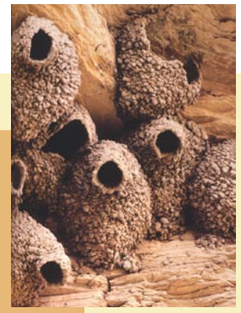
## ARTWORK DESCRIPTION

Located east of the site's middle pond, this artwork's forms are influenced by its location along the Pacific Flyway and by monarch butterflies—their flight paths, life cycles, and migratory patterns. Ribbon-like plantings, pathways, and walls dart, bank, and swerve around to define a series of connected outdoor spaces.

Four small pavilions shaded by butterfly roofs provide ideal spots for educational or social gatherings. More intimate spaces offer respite for individuals. Benches extend from curvilinear rammed earth walls to provide seating in both sun and shade. The walls evoke the prior larval stage of the caterpillar. In addition to providing habitat for the site's many small animals, native plants attract monarch butterflies. During the monarch's migration, the garden will be flooded with their vivid colors and fluttering movements.

*Design Specifications:*
Type of Amenity – Outdoor Classroom/Gathering Area, Native Plantings
Size of Amenity – overall: 140' L. x 90' W. x 16' H., walls: 8' H. max.,
pavilions: 30' L. x 18' W. x 16' H. max.

## Selected Sources



### ANIMAL ARCHITECTURE

**CLIFF SWALLOW INSPIRES EARTH CONSTRUCTION**

Cliff swallows construct nests using thousands of mud pellets consisting of sand, silt, clay, and organic matter (such as hair or feathers). These become cemented to one other as they dry.

### ANIMAL LIFE CYCLE

**MONARCH MIGRATION**

Beginning its life as a caterpillar, the Monarch transforms itself into a spectacular, striped butterfly. It embarks on a months-long migratory journey that will take it thousands of miles from Canada to Mexico and back.

**BUTTERFLY METAMORPHOSIS**

Butterflies begin their lives as clumsy, crawling caterpillars (larvae). Their magnificent transformation into beautiful, fluttering creatures takes place within the chrysalis, a protective shell created by the caterpillar's skin. Inside this cocoon, the larvae's tissues become liquids that form the organs of the adult butterfly.

# Environmental Artwork

## HABITAT ENHANCEMENT

The Monarch Garden is located in a disturbed area. It enhances habitat to support the butterfly life cycle. The pavilions' roofs direct water to small pools. Rocks provide sites where butterflies can warm their flight muscles. Wild patches of plants provide butterflies with shelter and food.

## COMMUNITY USE

In contrast to the sequestered nature of the Heron Blind and Bridge, this place allows people to become part of the active landscape. They weave through the drifts of plants and walls, observe fluttering butterflies, learn in an outdoor classroom, and chat with each other in the shade.

# Recommended Phasing & Funding Plans

The Environmental Artworks Diagram on page 21 illustrates the location of various proposed elements within the Ventura Harbor Wetlands site. Since the funding stream will occur over the next 15 or more years, the project will be phased. Recommended funding allocations for proposed art elements within the environmental art sequence are provided in budget ranges. Some art elements will benefit from alternative funding sources.

The team based project phasing upon comments expressed during community meetings and upon communications with City of Ventura staff. The Heron Blind & Bridge is a priority based on the desire for bird viewing opportunities. The Dune Overlook & Drifts is a priority because it provides an important visual and experiential link between the ocean and the ponds.

NOTES:

- Preconstruction project management, estimating, value engineering, and constructability are not included and could range from .5% to 5% for each art element.
- Sales tax not included.
- Budget ranges shown are in 2007 dollars.



DEMONSTRATION PROJECT

PHASE I OR II

**Heron Blind and Bridge**

Recommended Budget Allocation Range:
$475,000 - $825,000

DEMONSTRATION PROJECT ALT

PHASE I OR II

**Dune Overlook & Drifts**

Recommended Budget Allocation Range:
$500,000 - $865,000

PHASE III

**Killdeer Passage**

Recommended Budget Allocation Range:
$765,000 - $1,350,000

PHASE IV

**Monarch Garden**

Recommended Budget Allocation Range:
$675,000 - $800,000

PHASE V

**Caddisfly Cascade**

Recommended Budget Allocation Range:
$400,000 - $1,750,000

# Existing Context—Selected Aspects

# Site Use & Context

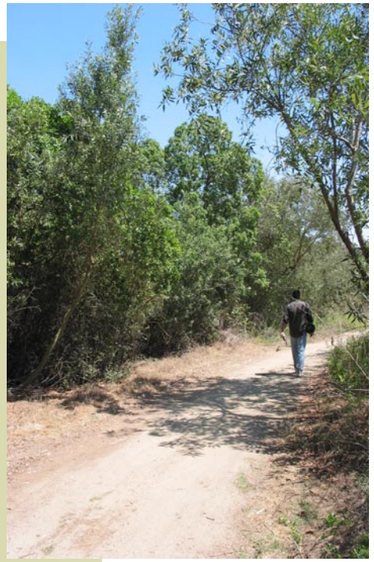
## OVERVIEW

Though designed as part of a waste water treatment process and originally the site of the Ventura City Dump, the ponds are now recognized for both their aesthetic qualities and habitat value. The site is frequented by birders, school children, and residents of the neighboring communities. At the site, they can catch glimpses of some of the 300 migratory and resident birds found along the coast. Neighboring communities are growing due to the influx of young families, new shopping centers and recreational opportunities.



### BIRDERS

The Ventura Harbor Wetlands Ecological Reserve is frequented by birders hoping to catch glimpse of some of the more than 300 migratory and resident birds found along California's Central Coast, a critical section of the Pacific Flyway. The Reserve is located near the southern end of the Central Coast Birding Trail, a trail established by the Audubon Society to provide good bird viewing areas. In addition, the Reserve's location between the Ventura River to the north and the Santa Clara River to the south, along with its own distinct habitat areas, creates an excellent opportunity for birding year round. Among the species highlighted by the Audubon Society for this site are: Bonaparte's gull, ducks, sora, common moorhen, marsh wren, phalaropes, warblers, grebes, peregrine falcon, and spring swallows.



### NEIGHBORING COMMUNITIES

The residential neighborhoods surrounding the Harbor Wetlands are diverse. Pierpont Keys, a desirable beachfront residential area, is gaining in value as small houses and rentals give way to larger owner-occupied homes. Several prime development sites remain, presenting an opportunity for infill development with high cost housing and rentals. This is balanced by a mobile home park that currently represents 21% of the housing in the area. Preble, Arundell, and Olivas, communities dominated by medium-sized single-family units built mostly between 1940 and 1960, is gradually growing younger as new families, currently 30% of the population, replace original owners. The residential density of these communities will likely continue to increase as developers convert office and industrial land to housing.

The area also attracts non-residents with its shopping and recreational opportunities. Harbor Village, a large shopping center in Ventura Harbor, contains many specialty retail shops, waterfront restaurants and cafes. Activities including harbor cruises, pedal boat and kayak rentals, sport fishing, diving, island excursions and the Channel Islands National Park Visitor's Center highlight the rich, water-oriented recreation opportunities in the area. Visitors to the Village can also enjoy a ride on the carousel, art exhibits, and weekend concerts as well as a collection of outdoor ceramic murals crafted by artist Michel Petersen.

### SITE HISTORY—SEARS BY THE SEA

For many years the site now occupied by the ponds served as the Ventura City Dump. Nicknamed "Sears-by-the-Sea", the dump was a source of salvageable junk, even appliances, for those able to see value in the discarded items. Closure of the dump was completed in 1962.

### SCHOOLS

Ventura Unified School District is a K-12 system with 29 schools serving approximately 15,200 students. Currently, the Ventura Harbor Wetlands site is used by many school programs, including classes from local high schools, colleges, and universities such as UCLA. More than 20,000 students attend the 36 different programs offered by the City's Interpretive Outreach Program such as bird walks at the project site, tidepool excursions, and wetland ecology programs at the Ventura River. California State Parks conducts another wetland-related school for elementary students at The Santa Clara River/McGrath State Beach Park.

## SITE ACCESS, CIRCULATION & PARKING

Currently, visitors access the project site through the treatment facility from Spinnaker Drive, a four lane scenic drive. After signing in at the Administration Building, visitors drive through the treatment facility site and park near the ponds. Formal parking for employees at the facility is provided in a lot at the Administration Building that contains approximately 25 spaces plus 1 space designated and signed for accessible parking. Additional parking adjacent to the site includes the public lots at Surfers Knoll and along Angler Court. The Surfers Knoll lot is heavily used by surfers, beach-goers, and paragliders. While ample parking is available at Ventura Harbor Village, this option requires pedestrians to cross Spinnaker Drive on a blind corner.

Within the Wetlands site, internal circulation is designed to accommodate vehicular traffic around the perimeter of each of the three ponds. Currently, these roadways also serve as the pedestrian path system.

## SITE INFRASTRUCTURE

The project site contains one building: a one-story masonry sulphur dioxide building located at the west side of the easternmost pond. A channel between this building and the outfall provides a view to the water and contains monitoring devices. Other visible on-site structures are water intake and outfall structures connecting the ponds, an 8' high chain link fence surrounding the entire site, and a vehicle gate in the parking lot at the West end of the site.

## PONDS

The Ventura Harbor Wetlands are part of the infrastructure of Ventura. Although originally designed to treat and contain wastewater, the ponds are now recognized for both their aesthetic qualities and habitat value. The three ponds' naturalistic forms include an island, peninsula and undulating banks. Birders have been frequenting the site for a number of years to watch the species that forage, breed and nest around and within the ponds. Fish and other small aquatic creatures that live in the ponds provide food for these birds. Of the three ponds, the eastern pond currently has the highest quality bird habitat. The middle pond, with its habitat rich island is a favorite for birders, while the western pond is the most degraded, impacted by the migration of sand and invasion of exotic plant species.

## WASTE WATER & TREATMENT

The Ventura Water Reclamation Facility is located on the north bank of the Santa Clara River Estuary. The facility collects and treats wastewater for approximately 109,000 people, including the City and its outlying areas. Roughly 9 million gallons of wastewater travel to the facility each day through an extensive system of sewer mains and lift stations. With a combined capacity of 34 million gallons, the Ventura Harbor Wetlands provide the final step in the tertiary treatment process, detaining water for four days before it is either released into the estuary or delivered to reclaimed water customers.

The reclaimed water system provides water for irrigation of a golf course, park and similar landscaped areas. This reuse is an integral part of the city water conservation program and represents a reduction in demand on the drinking water supply each year of roughly 300 million gallons. Approximately 10% of the water is recycled in this manner while the rest, 7 million gallons per day, is released into the Santa Clara River estuary.

# Geologic and Climatic Conditions

## OVERVIEW

The Harbor Wetlands sits in the east-west aligned Transverse Ranges. The three ponds are aligned along a site characterized by a high water table and poorly draining sedimentary and fill soils. Thick coastal fog frequently blankets the area, cooling and moistening the site to allow plants to thrive in an otherwise arid environment. The moderate Mediterranean climate is maintained with cool, moist, onshore winds in the summer and warm Santa Ana winds in the fall. In the winter the coast is buffeted by winds and rain traveling with storms moving in from the north.

### TOPOGRAPHY

The project area is located in the coastal area of the Transverse Ranges Geomorphic province of Southern California. The Transverse Ranges are identified by their east-west alignment in contrast with the general northwest-southeast alignment of other California geologic structures. The Oak Ridge Fault zone passes through the Ventura Harbor, almost half a mile to the north of the site. The Oak Ridge Fault is considered to be a late Quaternary fault (i.e., latest movement within the last 700,000 years) (Ogden 2000). The Oak Ridge Fault is not identified as a special study earthquake zone, as designated in the Alquist-Priolo Special Studies Act of 1972 (LSA Associates, Inc. 2002).

The topography of the site was created through the digging of three naturalistic settling ponds in 1971. Since that time, the movement of dune sand into the west end of the site has modified the landform. Further encroachment by the dunes has been prevented by continued maintenance of the roadway in this area.

### SOILS

Soils in the project area are derived from sedimentary rocks and from fill material. The Natural Resources Conservation Service map of the project site indicates that soils are predominantly fill land, Hueneme sandy loam, and coastal beach sand (USDA 2002). Fill land such as that present in the Ventura Harbor area typically has poor natural drainage, low shrink-swell potential, variable subsoil permeability, runoff, and erosion hazard. The underlying soil conditions, including fill material and a high groundwater table (within 10 feet of the surface), in conjunction with moderate potential for ground shaking, exposes the project site to a high liquefaction potential (LSA Associates, Inc. 2002).

### FOG

"Marine air" or fog is a common occurrence along the California coast in the spring and summer months. This ephemeral form of water can blanket the site in a cool and dense vapor during the night and much of the morning. Coastal fog has a cooling and moistening effect, allowing plants to thrive that would otherwise dry out in the typically arid California climate. California's fruit and nut trees grown along the coast for agricultural purposes rely on fog for survival.

A combination of circumstances—the "Pacific High", the earth's rotation, wind and currents—leads to the upwelling of cold waters to the surface of the nearshore ocean environment beginning in March. As winds from the northwest move over these cold surface waters, the moisture in the air condenses creating a thick vapor, blanketing the coast as it is pulled inland.

## MICROCLIMATE

The project area enjoys a moderate, Mediterranean climate, strongly influenced by the Pacific Ocean and the Eastern Pacific High Pressure System that creates a flow of warm air into the Southern California coastal area. The warm, rainless summers are characterized by days that are typically mild with frequent periods of morning fog that burn off by the afternoon. Coastal temperatures in the project area are characteristically moderate, ranging from lows in the high 40's to highs in the low 70's (Johnston 2002).

During the winter months, the Eastern Pacific High weakens, allowing storms bringing rain to reach Southern California. Average yearly rainfall in the project area is approximately 15 inches, of which nearly 80 percent falls during the months of December through March (Engineering Science Inc. 1976).

Two modifications of the general climatic pattern influence the climate of the project area: In the summer, temperatures in the project area can remain cool due to the presence of clouds that form as the development of a thermal low pressure area in the inland desert allows an onshore flow of cool, moist maritime air (Engineering Science, Inc. 1976). In the late summer and fall, the formation of a high pressure area over the Great Basin can produce hot, powerful Santa Ana winds that flow toward the ocean (Engineering Science, Inc. 1976).

## SUN/WIND EXPOSURES

The three ponds are situated linearly along an essentially east/west axis. This allows for long southern and northern exposures along the length of the ponds.

The predominant wind direction during the day is from the west and southwest, and at night the wind direction is from the north. Wind speeds are typically light in the morning and pick up in the afternoon. Afternoon wind speeds range from 15 to 18 knots with occasional gusts up to 35 to 40 knots (Glaser 2000).

The predominant wind patterns change during the winter due to occasional storms coming from the north and northwest and during the late summer and fall by the Santa Ana winds, which are strong northerly to northeasterly winds that originate from high-pressure areas centered over the desert (Ogden 2000).

## SCENIC VIEWS

Views into the site from adjacent roadways and the Santa Clara River Estuary are limited due to dense vegetation growth along the edges of the site. Though Spinnaker Drive and Harbor Boulevard are considered scenic roads, views into the site are brief and limited. From the beach to the west, there are views of the westernmost pond, over the sand dunes and through the chain link fence.

From the site there are a number of scenic views. To the north and northeast are the Ventura Hills, including Topa Topa Mountain. Also to the north are "Two Trees," a local Ventura landmark of two eucalyptus trees on a ridgeline. From the western end of the site there are scenic views of the Pacific Ocean and Channel Islands. Drifting sand dunes within the site provide slightly elevated views over the beach and western portion of the site. Views to the south and east are primarily blocked by vegetation, obscuring the Santa Clara River estuary to the south and features to the east.

# Habitats & Selected Plants

## OVERVIEW

The Ventura Harbor Wetlands Ecological Reserve supports several habitat types. The six dominant habitat types are: 1) Freshwater Marsh Wetlands, 2) Riparian Woodlands, 3) Stabilized Dunes and Uplands, 4) Active Dunes, 5) Open Water and, 6) Landscape/Disturbed Areas. This diversity of habitat zones supports numerous plant and animal species, resulting in a rich and varied site ecology.

### FRESHWATER MARSH WETLANDS

The term wetland is generally used to describe those areas that are neither fully terrestrial nor fully aquatic. This wide definition thus applies to everything from seasonally wet depressions such as vernal pools to the more traditional marshes, bogs and swamps. There are many ecological functions associated with wetlands that in turn provide a value to society. Among these functions and values are wildlife habitat, water quality, flood storage, shoreline erosion protection, recreation, and aesthetics. Although under normal circumstances riparian woodlands would also be considered jurisdictional wetlands by the United States Army Corps of Engineers, the term wetlands refers to freshwater marshes comprised of bulrushes, cattails, and other wetland plants.

Wetlands are a salient part of the site. They support a variety of plants that are uniquely adapted to thrive in aquatic and semi-aquatic environments. These plants are referred to as hydrophytes, and include cattails, bulrush tule, stinging nettle, rabbit's foot grass, and chinese pusley.

**The United States Army Corps of Engineers defines wetlands as:**

***Those areas that are inundated or saturated by surface or ground water (hydrology) at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation (hydrophytes) typically adapted for life in saturated soil conditions (hydric soils). Wetlands generally include swamps, marshes, bogs, and similar areas (40 CFR 232.2(r)).***

### CATTAILS (*TYPHA LATIFOLIA*)

Cattails are the plant most commonly associated with marshes. This plant is easily identified by its tall, flattened leaf-blade and narrow rounded stems often topped by brown seed spikes. Cattails often grow in dense nearly impenetrable stands that support a wide array of other plant and animal species.

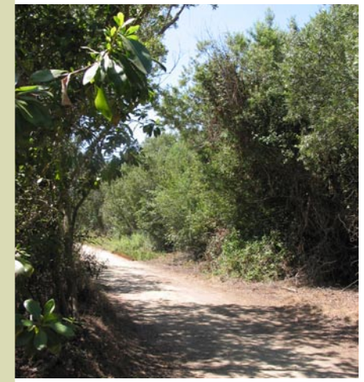
Native Americans used cattails for food, construction material, and other purposes. The starchy roots were peeled and either eaten raw or cooked. The roots were also peeled, dried and pounded into flour. Flowers and delicate stems and roots of young plants were also eaten. Cattail leaves were used to make cordage, thatched huts, mats, and baskets. The soft, tufted seeds of the cattail were used to line a variety of objects.

Many birds use cattails for their nests. Several blackbird species, marsh wren, common yellowthroat, and song sparrow use this plant and bulrush as support and even construction material for their nests. Floating debris from this species is used by pied-billed grebes in the construction of floating nests. The fluff attached to cattail seeds is used by many bird species to line their nests.

## RIPARIAN WOODLANDS

Like most of California the Ventura Harbor Wetlands fall within an area where a dry, Mediterranean climate prevails. Winters are wet and cool while summers are drier and warm. Many trees that would otherwise fail in these environments have adapted to living in conditions where soils are wet or moist most of the year. Riparian woodlands are unique plant assemblages that exploit these conditions typically along streams or rivers, but also in other places where moist soils prevail.

At the project site this assemblage is found in wet and moist soils both immediately adjacent to the ponds as well as within depressions away from the ponds. Many plant species occur here, but native willows and the invasive tree myoporum dominate.



## STABILIZED DUNES AND UPLANDS

This category is used to describe those areas where native and invasive plants have colonized migrating dunes or other unvegetated substrates. Given the sandy substrates and proximity to similar vegetation nearby, the expected upland communities would probably be best described as dune scrub and alluvial scrub. Examples of plants that naturally occur in both of these communities can be found in areas away from wetlands and other depressions.

Stabilized dunes and dunes support a number of invasive plants (weeds) because many of these plants are aggressive growers that thrive under a wide variety of conditions.

## WILLOWS (*SALIX* SPECIES)

Willows are a group of several related species that are generally found in riparian habitats and other wet areas that provide the moisture regime necessary to support these water-adapted plants. Tea made from the bark of willow trees has been used for thousands of years in the treatment of headaches and other pains, and ailments such as fever. The medicinal compounds in willows are salicylates, the principal ingredient of aspirin (acetylsalicylic acid).

Willows are valuable to wildlife in a variety of ways. The sometimes-uniform stands of mature willows found in riparian areas provide protective cover for many species. Birds frequently use willow stands for nesting, foraging, and roosting habitat. Many of the rare bird species (i.e., yellow-breasted chat) and the many migratory bird species found around the wetlands at the facility occur in this habitat. This is largely due to the high productivity of insects associated with riparian environments. Rabbits often heavily use willow stands for forage and the buds and tender twigs of these trees are staple food for many other species.

## MULEFAT (*BACCHARIS SALICIFOLIA*)

Mulefat is usually found at the edges of riparian woodlands but is more typical of alluvial scrub areas like those found in the adjacent Santa Clara River. Its growth could be considered a tall shrub since it is rarely taller than 12 feet with multiple stems and small white flowers. A member of the sunflower family, this plant is important to wildlife. Many birds roost and nest in the sometimes-dense growth created by colonies of this plant. Mulefat flowers are also an important source of nectar for many butterflies and other insects.

# Habitats & Selected Plants (con't)

**ACTIVE AND SEMI-ACTIVE DUNES**

On many beaches, sand is blown inland and trapped by plants and other obstructions. As this sand accumulates, large sand ridges or dunes grow in height and width. Just as plants are critical to the incipient stages of dune development, they are equally important to their stabilization. Dunes are highly active geological features that occur in areas subject to at least occasional high winds. Exposed to high reflectivity, wind and airborne sand, certain plants have evolved characteristics that allow them to thrive in the sometimes inhospitable conditions that occur on dunes.

**LANDSCAPE/DISTURBED AREAS**

Small patches of highly disturbed vegetation occur within the project site. In addition to remnant species of the natural communities on-site, are disturbance-dependent species such as red-stemmed filaree (*Erodium cicutarium*), wild radish (*Raphanus sativa*), doveweed (*Eremocarpus setigerus*), wild oats (*Avena* spp.), and short-pod mustard (*Hirschfeldia incana*). Giant reed (*Arundo donax*) is an invasive reed and is found in isolated patches. Trails on the site support a variety of weeds as well, such as telegraph weed (*Heterotheca grandiflora*). Some portions of the stabilized and semi-active dunes are occupied by iceplant (*Carpobrotus edulis*), and because this plant deprives other plants of moisture and nutrients it precludes native plant growth. The value of this plant to wildlife is equally low.

**OPEN WATER**

Very few plants grow in open water; however, some plants like duckweed (*Lemna minor*) have adapted to do so. Duckweed is a small floating plant that grows in colonies and often spreads in still water such as ponds where it can form a uniform carpet of growth. Duckweed provides an important food resource for fish and other wildlife.

# Existing Habitat Zones

# Selected Species

## OVERVIEW

The Harbor Wetlands' diverse habitats support a wide-variety of wildlife species. The site's contiguity with the Santa Clara River and the shoreline of the Pacific add to the diversity of animals within the site boundaries. Both resident and migratory animals inhabit this place; populations and species composition vary seasonally.

Species represented on the site, as well as other species, provided inspiration for the Vision Plan. Although diverse in selection, these are not a comprehensive survey and were chosen based on their forms, habitats, and behaviors, and their commonality with evolving themes.

### SPIDERS

The *Black and Yellow Garden Spider* (*Argiope aurantia*) is one of the most colorful orb weaver spiders of southern California. This spider is a striking species with black and yellow stripes on the legs and abdomen. The female of the species constructs a spectacular and large web up to two feet across, consisting of radiating threads joined by a sticky thread spiral for catching prey. Near the center she builds a zigzag structure called the stabilimentum—a structure alternately believed to provide camouflage for young spiders and assist in prey capture. Several species of the genus are sometimes referred to as "writing spiders" because this structure resembles letters of the alphabet. The entire web is usually eaten and then rebuilt each night, often in the same place.

### INSECTS

The *Dune Sand-Treading Cricket* (*Rhachocnemis validus*) bears strong and thick hind legs with large spurs that it uses to move sand for a number of purposes, but primarily to dig their relatively deep burrows. The life history of these insects is not well known. Restricted to active and semi-active dune areas, it is most active in the spring and is nocturnal. It feeds above ground on detritus blown over the dunes.

Mixing chewed plant material with adhesive saliva, the *Yellow-legged Paper Wasp* (*Mischocyttarus flavitarsis*) builds nests that consist of hexagonal paper cell clusters. The paper nest cells act as larval nesting chambers for the young wasps. The nests rarely exceed four inches in diameter and normally have fewer than 12 members. The bulb-shaped nests are usually constructed to hang upside down, with combs exposed downwards.

### INSECTS

As adults, *Caddisflies* are a primarily nocturnal, weak-flying group of insects that resemble moths. They are often attracted to lights at night, and find moist and cool areas to hide during the day. Their bodies are elongate with long elliptical wings that cover the body when the insect is resting. Both the body and wings are covered with long silky hairs called setae. Most adult caddisflies have small or vestigial mouthparts and are short-lived. Consequently, only a few species have been observed feeding.

The larval caddisfly is a much more interesting creature. The larval form can be either herbivore, scavenger or predator, but is always aquatic. Caddisfly larvae secrete silk through their mouths similar to that spun by the caterpillars of butterflies and moths. Most use this silk to construct tubes, carried with them or attached to rocks, used for protection and pupation. The cases are often covered with sand, twigs, rocks, shells, leaves and other organic and inorganic debris, which serve to camouflage the case. Some caddisfly larvae construct silken nets to capture food from the water in much the same way that fishermen use nets to catch fish.

**MAMMALS**

The *California Ground Squirrel (Spermophilus beecheyi)* is a small diurnal animal that lives in numerous habitats. This species spends much of its time above ground and is easily identified by brownish-gray fur, its loud one-note "bark" often repeated for long periods of time, and the fact that it is only one of a few ground-dwelling squirrels in Southern California and the only ground-dwelling squirrel on the site.

California ground squirrels live in colonies. They excavate large, often complex burrows consisting of numerous tunnels and side-chambers. These burrows are designed to serve as shelter with confusing mazes of tunnels and easy escape routes to discourage and flee from predators. More than one squirrel may occupy a single burrow.

**MAMMALS**

The *Raccoon (Procyon lotor)* is a brown mammal native to most of North America and parts of Central and South America. It bears a black mask on the face and several black rings on the tail. It has dexterous forepaws that it uses to catch and handle prey and food items. Its natural habitat includes stream edges, woodlands, and coastal marshes (Jameson and Peeters 1990).

In their natural habitat, raccoons use hollow trees, logs and other animal burrows as shelter and for raising their young. They feed primarily at night sometimes in familial groups that can be a nuisance to humans. Raccoons often wash their food before they eat it, diligently scrubbing food under water prior to ingesting it. This display of dexterity is a function of adaptation of the hands and feet. Consequently, raccoon paw prints look curiously human, but with well-defined claws and both fore- and hind-paws imprinted where they are present.

**REPTILES AND AMPHIBIANS**

The *Western Fence Lizard (Sceloporus occidentalis)* is a common reptile found in a variety of conditions in southern California. Robust, it bears a dark brown or black blotched pattern on its back with blue patches underneath. Like other lizards this species is often seen in patches of daylight acquiring the heat necessary to maintain its vital functions. Western fence lizards, like other lizards, perform "push-ups." These entertaining calisthenics are a form of communication, the frequency and duration of which have different meanings but are primarily to announce territory limits.

The *Pacific Chorus Frog (Hyla regilla)* is a small frog that lives under a variety of conditions in the Pacific States. It can be green, brown, tan, red, gray, or black but always bears a prominent dark brown or black eye stripe. The species gets its common name because large groups of these frogs are often heard calling simultaneously. The loud, distinctive sound is heard near wetlands, woodlands, and other moist areas primarily at dusk, but also at night.

# Selected Species—Birds

**GREBE**

The *Pie-billed Grebe (Podilymbus podiceps)* is a small, brown bird that resembles a duck in general form and appearance, though is completely unrelated to that group of birds. Pied bill grebes are an aquatic species that dive for such diverse food items as fish, crayfish, and aquatic insects. Largely solitary, this bird readily retreats into vegetation or dives when frightened. Pied-bill grebes are remarkable because they build floating nests from vegetative material that is then attached to emergent plants.



**KILLDEER**

*Killdeer* belong to a group of shorebirds known as plovers. The common name of the species appears to be a derivation of the call that the bird makes, which it often repeats when startled or in flight. Killdeer are brown-backed, with white bellies and throat. The throat and chest bear black rings. The iris is red. They have a medium-length narrow bill. Killdeer feed primarily on a variety of food items, and can thus be considered omnivores. Their preferred diet, however, consists of various aquatic and terrestrial invertebrates, specifically insects.

Killdeers nest in a wide-variety of open spaces and bare turf. The nest consists of a shallow scrape thinly lined with feathers, down, twigs, grass, pebbles and other debris comprised of, and perhaps intended to match, items from the surrounding environment. The eggs are cream color and oval to almost conical in shape with dark spots or other marks that serve to further camouflage the eggs.

**MARSH WREN**

*The Marsh Wren* (*Cistothorus palustris*) is a small bird generally less than 4 inches in length with a brown body, a streaked black and white back, and white chin and throat. This diminutive bird is a vocal resident of marshes and similar wetland areas. Males build several nests every season, possibly to distract or even lure potential predators to an empty nest. The nests are about the size of a grapefruit and consist of reeds and other emergent vegetation, lined with finer plant material, such as cattail fluff, and feathers. The nest is built low, attached to reeds and cattails either close to the ground or near the surface of the water. The entrance of the nest is near the top.

Marsh wrens largely feed on insects and other invertebrates such as spiders, aquatic worms, larvae, etc. They feed on or near the marsh floor and glean insects from stems and leaves of vegetation and the water's surface. These birds sometimes venture outside of their normal habitat to find food.

**CLIFF SWALLOW**

*Swallows* (Family:Hirundinidae) are a group of birds distinguished by their long, pointed wings, rounded heads, and small legs. Although swallows have short bills, they have wide mouths that allow them to feed on flying insects. Seven swallow species breed in California. Although any of these swallows could occur at the site, bank swallows are most likely to be seen in migration, and purple martins would be considered a rarity.

The nesting habits of swallows are of interest to many since some species nest in close proximity to humans. Barn and cliff swallows build mud nests that are often attached to buildings and other structures. Purple martins, tree swallows, and violet-green swallows are cavity nesters and, as such, make use of birdhouses. Only bank and rough-winged swallows nest in natural crevices or burrows excavated along river and creek banks.

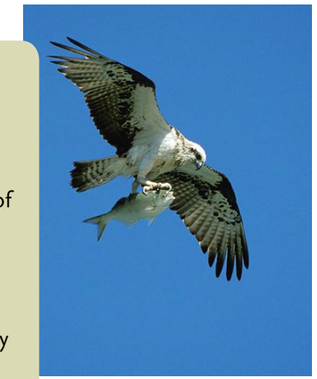
## BLACK PHOEBE

*Black Phoebe (Sayornis nigricans)* belongs to a group of birds known as flycatchers because they feed primarily on flying insects. This bird is about six inches long and is mostly black with a gray belly. It has a distinctive habit of wagging its tail. It typically nests near water in woodlands, canyons, suburbs, and farmlands where there are at least some scattered trees to support their nests. The nest consists of many often-intermingled materials such as mud, plant fibers, grass, and roots. (Harrison 1979; Baicich, and Harrison 1997). At the project site, this species' nests can be found on a variety of structure ledges including several culverts.

## OSPREY

*Osprey (Pandion haliaetus)* are one of the largest raptors found in North America, measuring 21-23 inches across with a wingspan of up to 71 inches. Their coloring is black and white with speckling in the chest area. Extremely skilled at capturing fish, their diet almost exclusively consists of live fish. They often hover over water bodies searching for prey, and then dive feet first to seize fish with the barbed pads on the soles of their feet.

Traditionally, osprey build their nests in trees by piling sticks and then lining the nest with bark, sod, grasses, and vines. They are also frequently known to build nests on manmade structures including telephone poles, duck blinds and nest platforms. This adaptability has been critical in reestablishing Osprey populations in areas where their numbers have dwindled.



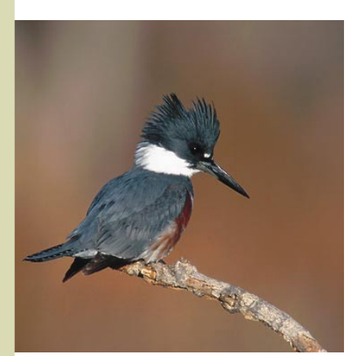
## BUSHTIT

The *Bushtit (Psaltriparus minimus)* is a small, gray, gregarious bird that lives in a complex social system. They remain in a group that varies from just a few individuals up to several dozen. They feed and roost closely together maintaining contact using thin delicate chirps. The bushtit's nest is a hanging basket up to a foot in length and comprised of grass, leaves, and twigs typically bound with spider web. The entrance is a small hole near the top of the nest. It is often lined with hair, feathers, or plant fluff and may be decorated with flowers and many other natural materials.

## BELTED KINGFISHER

The *Belted Kingfisher (Ceryle alcyon)* is noted for its large and shaggy crested head, tiny legs and short tail. Rare among birds, the female is actually more colorful than the male of the species due to a chestnut colored band across the chest. Kingfishers are primarily fish eaters, though they have been known to eat other small animals, including birds, mammals, lizards, and insects. They search for prey from a waterside perch and then dive head-first vertically into the water to seize small fish.

The Kingfisher's nest is typically a horizontal tunnel carved out of the top of sand or river banks. The male and female of the species take turns excavating until a nesting chamber is created 3 to 6 feet from the entrance of the tunnel. It is here that the female lays her eggs and where the parents will take turns feeding fish to newly hatched birds.



## PACIFIC FLYWAY

The Pacific Flyway was first identified by biologists in the mid-1930's as one of four migratory bird routes in North America. The route extends from Alaska to Patagonia and includes the following US states: Alaska, Arizona, California, Idaho, Nevada, Oregon, Utah, Washington, and portions of Colorado, Montana, New Mexico, and Wyoming west of the Continental Divide.

The flyway is both a political/administrative designation and a biological corridor. In the United States, the Pacific Flyway Council was established in 1947 to protect and conserve migratory birds through the cooperative administration of public wildlife agencies in western North America. The Council sets policy and regulations, contributes research, and provides management. As development encroaches on bird habitat areas, the value of sites such as the Ventura Harbor Wetlands Ecological Reserve increases.

# Appendix

# Selected Bibliography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# Acknowledgments



## City of San Buenaventura

### City Council

Mayor - Carl E. Morehouse
Deputy Mayor - Christy Weir
Neal Andrews
Brian Brennan
Bill Fulton
James L. Monahan
Ed Summers

### Public Art Commission

Joyce Cantrell
Tyson Cline
Susan Cook
Kara Davis
Dawne Jenelle Fowkes-Cushing
Matthew Furmanski
Wendy Halderman

### City Staff

City Manager - Rick Cole
Community Services Director -Elena Brokaw
Cultural Affairs Manager - Kerry Adams Hapner
Public and Visual Art Supervisor - Denise Sindelar

### Staff Project Team

Public and Visual Arts Supervisor - Denise Sindelar
Utilities Manager - Don Davis
Wastewater Superintendent - Dan Pfeifer
Interpretive Program Supervisor - Johnji Stone
Utilities Division Management Analyst - Karen Waln

## Planning & Design Team

### Planning

Lorna Jordan Studio
Winterbottom Design
Moore Iacofano Goltsman, Inc.
AMEC Earth and Environmental, Inc.
Kovacevich Design

### Design

Lorna Jordan Studio
Winterbottom Design

## Community

**Planning Meeting Attendees**
**All Meetings Conducted by Project Team**

Wednesday, May 29, 2002 - Interdepartmental Kick-Off Meeting

- Kerry Adams Hapner, City of Ventura, Public Art and Visual Arts Supervisor, Community Services
- Jo Rolfe, City of Ventura, Cultural Affairs Specialist for the Public Art Program
- Karen Waln, City of Ventura, Management Analyst, Utilities, Public Works
- Peter Brown, City of Ventura, Community Services Manager, Community Services
- Jim Walker, City of Ventura, Community Services Director Community Services
- Jerry Revard, City of Ventura, Parks Supervisor, Parks Division, Public Works
- Dan Pfeifer, City of Ventura, Wastewater Superintendent, Public Works
- Mary Joyce Ivers, City of Ventura, Fleet & Facilities Superintendent, Public Works
- Susan J. Daluddung, City of Ventura, Community Development Director, Community Development
- Paul Calderwood, City of Ventura, Senior Planner, Community Development
- Don Davis, City of Ventura, Utilities Manager, Public Works
- Kelly Nicely, City of Ventura, Marketing Specialist, Community Services
- Joncee Kohls, City of Ventura, Community Services Coordinator for Partners in Progress, Community Services
- Brian Clark, City of Ventura, Deputy Fire Marshall, Fire Department, Inspection Services
- Lisa Porras, City of Ventura, Associate Planner, Community Development
- Sidney White, City of Ventura, Economic Development & Revitalization Manager, Community Development

Thursday, May 30, 2002 - Stakeholder Meetings

- Sandy Delano, Ventura Harbor Village Property Manager, Ventura Harbor Village Port District
- Oscar Pena, General Manager, Ventura Harbor Port District
- Lynn Mikelatos, President, Ventura Harbor Community Council

Friday, May 31, 2002- Stakeholder Meetings

- Bonnie Luk, Coastal Planner, California Coastal Commission
- Spencer Mcneil, US Army Corps of Engineers
- Denise Stirs, Santa Clara River Trustee Council/ US Fish and Wildlife Service
- Peter Brand, Senior Project Manager, Coastal Conservancy
- Neil Ziegler, President, Audobon Society

Wednesday, August 14, 2002- Stakeholder Meetings

- Wes Chapin, Interpretive Specialist, California State Parks
- Kirk Whalen, California Native Plant Society

Friday, December 13, 2002 - Focus Group No. 1

- Kathy Janega-Dykes, Visitors & Convention Bureau
- Oscar Pena, General Manager, Ventura Harbor Port District
- Steve Treavor, Resident
- Shelley Jones, Resident
- Stepen Svete, Resident
- Dan Long, Resident
- Dan Pfeifer, City of Ventura, Wastewater Superintendent, Public Works
- Joy Berger, Public Art Commissioner
- Scott Boydstun, Public Art Commissioner
- Donna Granata, Focus on the Masters

Friday, December 14, 2002 - Focus Group No. 2

- Kay Requester, Ventura Audubon
- Kirk Whalen, California Native Plant Society
- Ginnie Bottorff, Friends of the Santa Clara River & Tree Swallow Nesting Project
- Todd Collart, Ventura County Sustainability Council
- Stephen Schafer, Public Art Commission Chair
- Mark Rochin, Resident & Business Owner
- Shelley Jones, Resident
- RJ Henchy, Resident
- Ed McCombs, Resident
- Donna De Paola, Resident