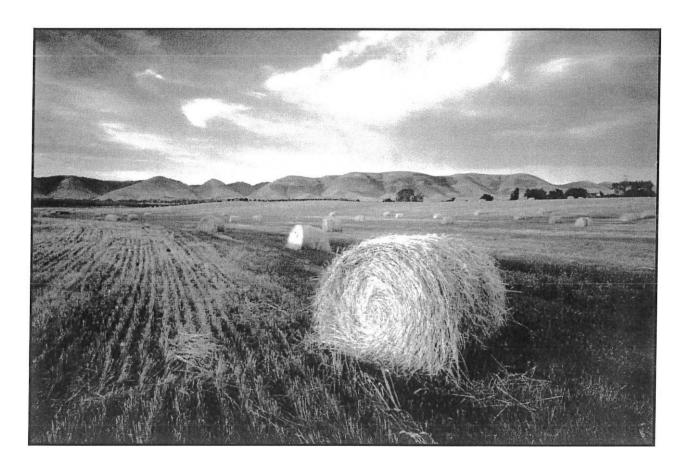
# Nipomo Creek Watershed Management Plan

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Prepared for

The Guadalupe-Nipomo Dunes Restoration Subcommittee

Prepared by

Central Coast Salmon Enhancement

The Land Conservancy of S n Luis Obispo County

On Behalf of
The Nipomo Creek Watershed Forum
December 2005

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# **Executive Summary**

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A legal settlement was reached to resolve a case involving many years of slow discharge of diluent (an oil/kerosene mix) in the Guadalupe Nipomo Dunes which resulted in funds being allocated for restoring or replacing lost natural resources that had been damaged. The Guadalupe-Nipomo Dunes Restoration Subcommittee, comprised of representatives from the Department of Fish and Game, Office of Spill Prevention and Response, and the State Coastal Conservancy, was established to facilitate identifying and funding projects that would restore or replace lost resources in the Guadalupe-Nipomo Dunes area.

The Land Conservancy of San Luis Obispo, in partnership with Central Coast Salmon Enhancement, secured a grant from the Restoration Subcommittee in 2002 to create the Nipomo Creek Watershed Program. Through a comprehensive community and landowner outreach program, the Nipomo Creek Watershed Program was developed to establish water quality and biological monitoring programs, pursue riparian restoration projects, and permanent protection of land areas containing important natural resources. This report represents the culmination of the tasks specified in the approved work plan. The following work products are integrated into this watershed management plan:

- Summary/Details of Nipomo Watershed Forum
- Summary of Volunteer Water Quality Monitoring
- Report on Riparian Habitat Assessment
- Existing Data on the Watershed (Watershed Characterization Report)
- Nipomo Creek Watershed Program Final Report of Concept Recommendations for Short-term Project Implementation

The original approved work plan included fisheries related assessment and monitoring tasks. Following start up of the project it was decided to modify the work plan to reduce fisheries related tasks. While there are fisheries issues within the watershed, there was a lack of sufficient perennial flow to support an extensive habitat assessment for salmonids in the Nipomo Creek Watershed. This report does, however, address historical accounts of salmonids in the watershed based on limited written records and anecdotal evidence.

# **Introduction and Background**

## **Summary of Nipomo Creek Watershed Forum**

In 1999 the Nipomo Creek Committee, a subcommittee of the Nipomo Community Advisory Council (NCAC), was established with a mission of educating and involving the community on issues of flood and erosion control, scenic protection, and habitat protection within the Nipomo Creek watershed. When the County of San Luis Obispo's Public Works Department developed the Drainage and Flood Control Study for the

Community of Nipomo in 2001, the Creek Committee was assigned by the NCAC to be the official liaison.

When the Land Conservancy of San Luis Obispo County (LC) and Central Coast Salmon Enhancement (CCSE) received the grant for the Nipomo Creek Watershed Program, the Creek Committee and the Nipomo Creek Watershed Forum Steering Committee combined efforts to provide public forums and education in the aftermath of the March 2001 urban area flooding in Nipomo.

The Nipomo Creek Watershed Forum Steering Committee \_began meeting in 2003 and continued during 2004 and 2005. The Steering Committee's work involved:

- Development of goals, objectives, and a group mission.
- Determination of watershed stakeholder sectors and establishing contact through outreach.
- Engaging stakeholders within the watershed and requesting their direct participation. If a stakeholder did not wish to participate, s/he was kept abreast of progress via mailed minutes.
- Development of the Table of Contents for the Plan.
- Planning and conducting community-wide meetings.
- Planning and conducting annual Creek Day Clean Up event.
- Periodic reports to the Nipomo Community Advisory Council.
- On-site meetings with landowners documenting watershed issues.
- Obtaining a multi-year permit for vegetation maintenance for flood control and erosion prevention.
- Collaborating with the Farm Bureau and UC Cooperative Extension to promote Water Quality Sh01i Courses for landowners.

- Providing leadership for the NCAC's revision to the Nipomo Drainage and Flood Control Study.
- Monitoring water quality through volunteer efforts.
- · Generating a list of projects that meet the mission.
- · Identification of potential restoration sites and projects.
- Reviewing drafts of the Plan.

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The participants in the group varied over time. Total attendance recorded on sign-in sheets for the Creek Committee meetings, Watershed Forum Steering Committee meetings, and community-wide forums totaled over 450. Public meetings included guest speakers, agency representatives, and watershed experts. The process yielded direct benefits by introducing residents and landowners to the watershed program. At least two landowners have agreed to develop projects on their properties. Longer-term benefits will be accrued as additional projects are completed from the prioritized project list.

The stakeholder driven process for the watershed was met with particular successes and challenges.

- The Nipomo Creek Committee response to the 2001 flood provided three years of public meetings, articles, and forums that helped to raise the community's awareness on watershed issues, paving the way for the Nipomo Creek Watershed Forum. The flooding issues brought large numbers of community members to the meetings in 2001 and 2002.
- In 2003 when the Forum began its meetings, the meetings drew smaller numbers, but comprised a core group of stakeholders looking at a wider range of watershed issues.
- The relatively small size of the watershed and the majority of land being held by a small group of landowners meant that landowner participation would be limited to a small group of voluntary participants (30.6% of the watershed is owned by one family and 72.6% of the watershed is owned by fourteen families). Almost every major landowner, farmer or rancher in the watershed is on record as having attended meetings over the three-year period.
- New water quality regulations rallied many landowners to take Farm Water Quality Short courses in 2003. The timing of the formation of the Forum and the new regulations established trust issues for some landowners that saw the Forum as an allied agency of the regulatory action.
- While flooding was a major concern for the community, and the reason some participants were involved, there were no impending regulatory implications

- such as threatened or endangered species, Habitat Conservation Plans, or large-scale developments along Nipomo Creek to spur interest and participation by residents and regulatory agencies.
- Removal of Steelhead Trout from the Work Plan took pressure off an issue many landowners were concerned about, but also reduced the number of stakeholders attracted to the process.
- Concurrent and perhaps competing issues such as groundwater litigation and drought, pursuance of city-hood, and very rapid development in the community outside watershed boundaries may have impeded more widespread participation in the process. The Steering Committee and CCSE attempted to leverage interest in groundwater issues and therefore engage landowners by providing educational forums on the relationship among groundwater, surface water, and recharge within the watershed.
- Some stakeholders such as public agencies, schools, and landowners who did
  not regularly attend evening steering committee meetings evidenced their
  support by attending the annual Creek Day educational event and creek cleanup. This event has significantly reduced the amount of dumping into the creek.
  Similarly, landowners and public agencies that have participated in the
  vegetation maintenance program have become part of the working team for
  the Nipomo Creek Watershed Forum.

## The Nipomo Creek Watershed Management Plan

The Nipomo Watershed Management Plan is a community devised plan of action to address resource conservation within the Nipomo Creek Watershed. The mission statement developed by the stakeholders is: *To develop a watershed management plan with an emphasis on habitat management, flood management and long-term agricultural viability for the benefit of the community*. A community-wide stakeholders group developed the plan with guidance from the Steering Committee. The management plan identifies a set of actions that could improve habitat and flood management, and better ensure agricultural viability for the community. Recently related published documents include the Nipomo Drainage and Flood Control Study which focused on County Public Works projects in the urban area of Nipomo both inside and outside of the Nipomo Creek Watershed, and the Water Supply in the Nipomo Mesa Area Resource Capacity Study which focused on groundwater supplies in the Nipomo area both inside and outside the Nipomo Creek Watershed. The Nipomo Creek Watershed Management

Plan differs from the aforementioned in that this plan concentrates on surface waterways of the Nipomo Creek Watershed.

### Why develop a management plan?

The Steering Committee considered methods of communicating community-wide land management concerns that address habitat, flooding, and agricultural viability. They decided that a written plan with specific recommended actions would best address accomplishing the watershed organization's mission. The Steering Committee determined that securing funding for projects that are part of a community wide stakeholder based plan may be more productive than seeking funds for individual projects. There is also the potential for securing permits for multiple projects as an efficiency tool and perhaps eventually seeking to pursue a stream-lined permit process whereby conservation practices are authorized by permitting agencies in advance through watershed-based permits, as has been accomplished in the Salinas and Morro Bay watersheds.

#### How and by whom will the plan be used?

It is envisioned that community advisory committees, homeowners, landowners, public agencies, and nonprofits that served allied purposes would use the plan. The Steering Committee dete1mined that by identifying projects of the following nature and documenting the need for implementing the projects, the plan would help to achieve the watershed forum's mission.

Creek maintenance: Annual clearing of trash, debris and in-channel vegetation management would reduce flooding potential during the rainy season. Having an established protocol and volunteer group to plan and implement Annual Creek Clean-up Days is seen by the Steering Committee to be essential for success in this relatively low cost, high impact activity.

**Sediment Control:** Locating areas where erosion is contributing to an increased sediment load to the creek and finding low-tech and engineered solutions is seen as an impolation impolation to develop and implement the plan. It also facilitates education within

the community about using accepted (and in some cases, permittable) practices and methods.

Collection of Data: In order to identify problems and projects to address the problems, the Steering Committee determined the need to conduct a preliminary assessment of current conditions within the watershed. The preliminary assessment includes a baseline hydrologic study, land use characterization, habitat evaluation, water quality data collection and analysis, and identification of soil types and bank stability. In addition, the committee decided to collect historical information from residents via a direct mail survey.

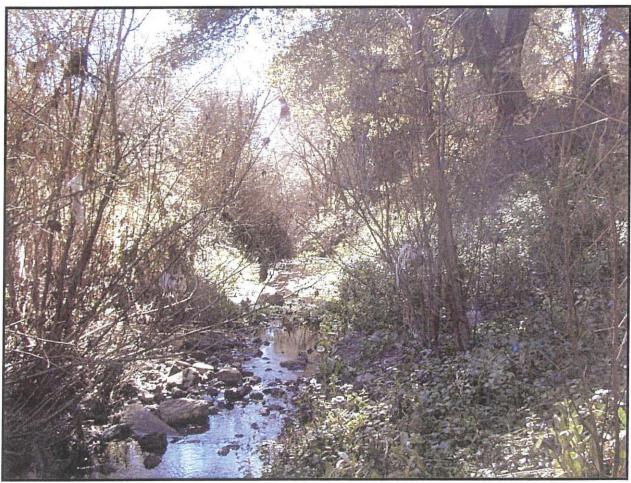


Figure 1: Main Stem of Nipomo Creek

## **Overview of the Watershed**

Nipomo Creek is located in southern San Luis Obispo County. Its headwaters are found in the Nipomo foothills, also known as the Temettate Ridge, which is a subset of the larger Coast Ranges which run most of the length of California. Nipomo Creek Watershed is a part of the larger Santa Maria/Sisquoc River watershed system. A map showing the regional context for Nipomo Creek watershed is found in Figure 2 on the following page.

The main stem of Nipomo Creek typically runs year-round. The tributaries that drain into Nipomo Creek, such as Deleissigues Creek, Mehlschau Creek, Haystack Creek and many other unnamed tributaries, run on a seasonal basis. The main stem of Nipomo Creek is approximately 10 miles long and generally runs from the northwest to the southeast. The entire watershed is 16,318 acres, or 25.5 square miles (based on the area of the digitized polygon shape of the watershed created for use in the Nipomo Creek Watershed Program's Geographic Information System). The watershed attains a maximum elevation of about 1,804 feet above mean sea level (msl). Mountain and foothill areas account for 61 percent of the surface area, and valley areas account for about 39 percent (DWR, 2002).

Nipomo Creek is a third-order stream, based on the classification system put forth in Ann Riley's *Restoring Streams in Cities: A Guide for Planners, Policymakers, and Citizens,* "A first-order stream channel has no tributaries; when two first-order streams join, they create a second-order stream, and so on" (1998).

There are fourteen (14) tributaries that show as blue lines on the United States Geologic Survey (USGS) map that flow into Nipomo Creek. Except for those mentioned above, most of these tributaries are unnamed on the USGS map. For the purpose of easy identification, names have been assigned to those tributaries based on either locally recognized names or by major landowners whose properties contain these tributaries. A map of the watershed and its associated tributaries is shown in Figure 3 on page 11.



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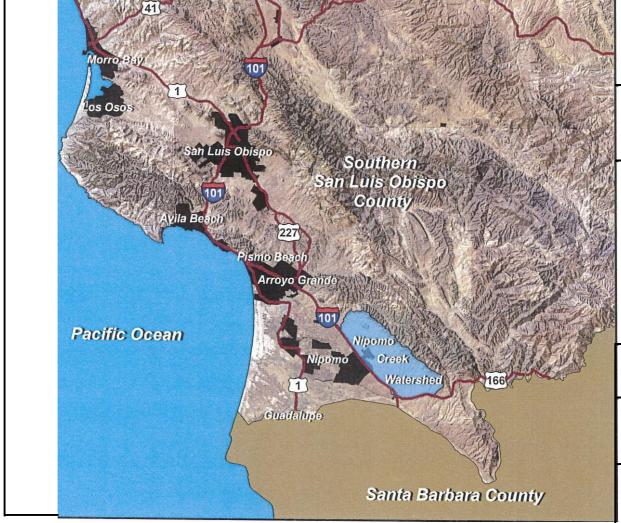
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The Nipomo Creek Watershed Program - Regional Context -

# Map Key:

1111 Nipomo Creek Watershed

1111 Urban Reserve Lines

Major Highways

Geo-rectified Aerial Photograph Base Map with Digitial Elevation Model Hillshade

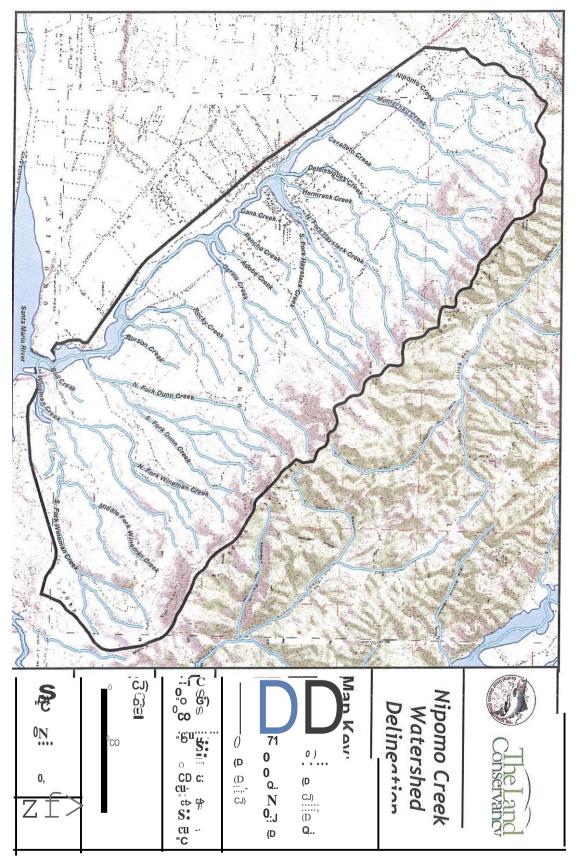
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The upper reaches of the main stem and tributaries primarily collect water from steep grazing lands on the west side of Temettate Ridge. By the middle elevations, the stream channels become more defined and the land uses are mixture of avocado and citrus trees,



Figure 4: Overhead View of Nipomo Creek Watershed

greenhouses, and residential. The tributaries join the main stem in the lower elevation Nipomo Valley where land uses include irrigated and dry land farming, residential,

commercial, and public facilities in and around Olde Towne Nipomo, and then more grazing and other agricultural uses before the creek passes the commercial and industrial areas found near the confluence with the Santa Maria River.

The neighborhood and commercial areas near Olde Towne Nipomo have been the subject of significant flooding events over the years where some of the major confluence areas in the middle of Nipomo Creek's course interface with development in and near Olde Towne Nipomo. Deep stream channels with occasionally eroded banks characterize the lower elevations of Nipomo Creek, but there are also several zones where broad, perennial wetlands and pools are located which host excellent wildlife habitat. Just upstream of the confluence with the Santa Maria River, the creek flows under Highway 101 to the west side and joins with an area which historically accommodated more wetlands, but has been significantly impacted by commercial and industrial development during more recent times. There are several substandard bridges and crossings in this area that are restricting flood flows. This confluence area might be described as "the cork at the bottom of the tub" due to its general inability to naturally accommodate and pass significant floodwaters.

# **History of Nipomo Creek**

## **Pre-History**

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There is widespread evidence of prehistoric human occupation within the Nipomo Creek Watershed for at least the last nine thousand years, including evidence of Millingston Horizon and Oakgrove culture occupation. Recently, Paleo artifacts in conjunction with mega-fauna fossils have been identified and are being evaluated for evidence of very early human occupation in the area (Ardoin/Bishop, 2004). Nipomo Creek provided a year round source of fresh water, a mild climate, abundant game, and a proximity to a variety of plant and animal communities suppolting a diversity of food and game throughout the year. Nipomo Creek and associated wetlands supported native fish including steelhead trout, water fowl, and a variety of mammals. Among these species surviving today are badger, rabbit, skunk, gray and ground squirrel, rattlesnake, fox, bobcat, mule deer, California quail, raccoon, and coyote. In addition, black bear and mountain lion can still be found in the surrounding hills to the east. Important native species to local prehistory and history that can no longer be found in the area are tule elk, pronghorn antelope, bighorn sheep, and grizzly bear. These were particularly important species to the local Native American, and later Spanish Colonial inhabitants (Wheeler, 2005).

The Nipomo Creek Watershed was occupied at the time of Spanish contact by speakers of the Obispefio dialect of the Chumash Language (Greenwood, 1978). The Chumash were a group of hunter-gatherer-fishers who attained an extraordinary level of social complexity given their means of subsistence. Today descendants of these groups continue to live in San Luis Obispo, Santa Barbara, and Ventura Counties as well as elsewhere in California. Numerous seasonal Chumash encampments and several permanent village sites are recorded within the Nipomo Creek Watershed.

Native American habitation in the general area has spanned at least 9,000 years and perhaps significantly longer (Fitzgerald 1997; Greenwood 1972; Gibson 1996). The most densely populated areas are usually located near littoral or riparian environments. This is due primarily to the fact that these areas offered the most abundant and diverse array of

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resources utilized by the aboriginal inhabitants. Like other prehistoric coastal California groups, the Chumash and their predecessors were quite capable of exploiting the wide variety of aquatic resources available to them. Littoral (seaweed, shellfish, crustacean, sea mammal), riparian (fish, aquatic plants) and pelagic (fish, sea mammal) resources were all valuable. Terrestrial resources also provided a great part of their consumable goods. This is especially true at site locations in the interior. Most of the sites recorded in the watershed occur on the bluff of the mesa overlooking several creeks and in the foothills near larger tributaries. These locations appear to have been chosen to allow equal access to resources found both on the mesa and in the creek drainages. They also provided their inhabitants with a vantage point where long distances could be easily viewed.

The project area was once part of the frontier occupied historically by the Purisimeno and Obispefio Chumash. The Purisimeno and Obispefio each spoke a distinct dialect of the Chumash language, one of many languages classified in the Hokan linguistic family. Although culturally and genetically related, these two groups apparently did not interact to the extent necessary to eliminate the existence of their respective dialects. Today, the Nipomo Mesa is generally regarded by archaeologists as Obispefio Chumash territory. Marriage ties, alliances, and trade and exchange networks blurred this boundary in prehistory and the perception of this area as a "frontier" was probably not held by its inhabitants (Wheeler, 2005).

The Nipomo Mesa did not support as dense a population as neighboring coastal and river areas such as Morro Bay and Pismo Beach. This is primarily due to the lack of marine and riparian resources that were aggressively exploited in the coastal regions. This pattern of population concentration and distribution appears to have occurred throughout the Chumash homeland and beyond to neighboring areas of California. Despite this trend there are known prehistoric sites that exist upon the mesa landfo1m. Most of these sites represent temporary occupations or small village sites. Other sites in the area suggest they were used for a particular function such as milling stations or quarry sites (Wheeler, 2005).

With the establishment of Mission San Luis Obispo de Tolosa in 1772 and occasional European visits to the area prior to that time, the Native American culture of the area changed dramatically. Indigenous technologies were lost or replaced by western ones and religion and belief systems became integrated with the Spanish culture. Most devastating to the local Chumash population was the introduction of Old World diseases for which they had little natural tolerance (Heizer 1974). As a result, the Native American population in the area dropped dramatically between the end of the 18th to the end of the 19th century (Gibson 1991).

The prehistoric human impacts on the Nipomo Creek watershed include periodic burning of grasslands, which favored edible native grasses. Although fire has some desirable effects, it can also cause significant negative impacts if used persistently in an area including the impoverishment and hardening of the soil, gradual displacement of indigenous plant species by fire-hardy grasses and woody species, and long-term loss of soil nutrients (Hobbs et al. 1991, Cox 1993, Wilcox 1992, Smith 1996). A possible impact of early human inhabitants is a contribution to the extinction of mega-fauna in the late Pleistocene, though this remains a contested hypothesis among authorities in archeology (Wheeler, 2005).

## **History**

The following description of the origin of Nipomo is derived from Salinan and Northern Chumash Ethnogeography in San Luis Obispo and Northern Santa Barbara Counties Elicited from Mexican Land Grant Records:

The name Nipomo, (derived from *Nipoma, Nipumu'* or *Nipomo'*) is the name of a Chumash village that was located near the present day town. According to historian Mark Hall-Patton, Nipomo meant "place at the bottom of the hill" in the dialect of the Northern branch of the Chumash people (Hall-Patton 1994). This interpretation is based on a statement made to Juan Francisco Dana, an offspring of Captain William Dana, by a local Native American in the middle of the last century. Overhearing a conversation including Dana about Nipomo, the Chumash descendent insisted, "Senora, no es Nipomo, es Ni-po-mah." Then with a long motion of his arm he pointed to the valley below us. He lifted and

lowered his arm seeming to indicate the rising hills then with a quick stamp of his foot he again exclaimed, "Ni-po-mah." (Dana 1960:96-97; Norton 1968:32)

The Nipomo Creek Watershed was likely first visited by Mountain Men. James Ohio Pattie, who may have crossed this area in 1831, passed between the Mission La Purissima and San Luis Obispo vaccinating Indians at the Missions as he went (Pattie, 1831). The watershed is part of the original Rancho Nipomo, a Mexican Land Grant awarded to



Figure 5: Portrait of Captain William Dana

Captain William Dana. Dana, on becoming a naturalized Mexican citizen, applied for the Grant in 1835. As one of the earliest grants obtained, Dana's 37,887.91 acre Rancho exhibited his profound good judgment in choosing one of the most productive areas in San Luis Obispo County (Angel, 1883). After having established businesses in both Oahu and Santa Barbara, Dana moved full time to Nipomo where he built a thirteen-room adobe as a residence for his large family. The Rancho

was for many years a center of agriculture and industry for a hundred mile stretch along the El Camino Real, supplying Missions and neighboring ranchos with its products including soap, woven material, furniture, and agricultural implements (Norton, 1968). Dana's herds of cattle and sheep had free range of the Rancho. At the height of the rancho era, Dana's neighbor on Rancho Guadalupe reported 40,000 head of cattle (Dana, 1960).

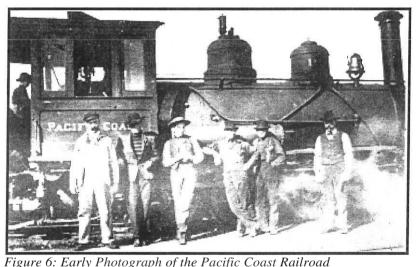
The introduction of large numbers of domestic livestock had profound impacts on the flora and fauna of the Nipomo Creek Watershed. "The tendency for livestock is to concentrate in riparian areas and to disproportionately use the vegetation to the degree that riparian function and vegetation are compromised" (Del Curto, Porath, Parsons, Monison, 2005). Intensive grazing and the introduction of old world grasses and other exotic flora reduced the number and biodiversity of riparian and grassland native flora. Concentration very likely reduced terrestrial and aquatic habitat, created extensive erosion, reduced canopy cover, and increased downstream sedimentation. The livestock

also are known to trample young Coast Live Oak seedlings, which may have impacted pre-existing oak woodlands. However, some assert that certain native plant species are selectively adapted to benefit from herds of grazers as the hoofs create favorable conditions for native species, and herds of grazers in unfenced settings were part of the natural ecology (Dahlberg 1994; Critchley & Netshikovhela 1998; Bezuidenhout 2000).

The first mention of a township in the record of the newly formed judicial district at the beginning of the American period, outside the town of San Luis Obispo, was the township of Nipomo in 1851 (Angel 1883).

By 1882, the remaining 31,000 acres were evenly split among the Dana Family, dividing ownership of the Nipomo Creek Watershed and the surrounding area among heirs.

In 1878, the Pacific Coast Railway was granted a 14 mile long strip by the Dana Brothers to allow the narrow gauge railway to cross the Rancho Nipomo (Best 1964). They also



donated land for a warehouse, and railroad station. During this time, the Rancho was subdivided and included a town site with the name Nipomo. The rail access was anxiously awaited in 1878 by the farmers trying to get

their grain to market. The railroad increased the economic viability of farming. Properties near the creek and within the flood plain area were prized for growing grain and beans.

Loren Nicholson details in his book, *Rails to Ranchos*, the following list of buildings in 1887 for the town of Nipomo:

... two hotels, a general store, a wagon and blacksmith shop, a schoolhouse, an agricultural implement and hardware store, a livery and feed stable, four real

estate offices, three saloons, and a newspaper called the <u>Nipomo News</u> that put out its first issue in July 1887. (Nicholson 1993)

In 1890, the population of Nipomo was 700, the same as Cambria and Cayucos, and a new business was on the way as Articles of Incorporation were filed for the Nipomo Orchard and Packing Company (Tognazzini, 1990). Tracts of land within the watershed were growing fruits, vegetables and grain and processing plans were underway to expand the markets for the produce (Tognazzini 1990). The Packing Company was followed a year later by the formation of the Nipomo Nursery Company (Tognazzini, 1991). At the invitation of the manager of the Nipomo Nurseries, the San Luis Obispo Morning Tribune reported the following count of plants and trees planted by the nurseries:

One hundred and fifty thousand French prunes; 50,000 Tragedy prunes, 150,000 assorted apricots, 100,000 assorted peach, 25,000 almonds, 50,000 soft shell walnuts, 15,000 assorted pears, 5000 olives, 5000 figs, 10,000 apples, 2000 oranges, 1000 guavas, 10,000 rooted grape vines, and 10,000 ornamental trees and shrubs, such as palms, loquat, arbor vitae, umbrella trees, etc., and so many bulbs and bushes that we could not remember the names long enough to write them down. We did not count the above but took the figures as given by the manager, which we believe to be plenty small (Tognazzini 1991).

During this time of growth, telephone lines from San Luis Obispo to Nipomo were put in place. Continuing in the early 1890's, Mr. Lem Rice and his Chinese crew were busy working in the area of the narrow gauge railway depot. Immigrant families from Kansas and Minnesota came to work the land in Nipomo at various times. Twenty-three families were expected in one week in April of 1892 causing a shortage of housing. The new settlers became the major part of the agricultural landscape. Later, the excitement of the promise of the Southern Pacific railroad coming through the Rancho encouraged more speculation and development of the land. John F. Dana represented the Rancho Nipomo interests.

In 1917, the following description of Nipomo was made by Mrs. Annie Morrison:

This little town is on the Pacific Coast Railroad about halfway between Arroyo Grande and Santa Maria. It is built on the Nipomo ranch, and the Dana families

live on the surrounding ranches. All that section once belonged to the founder of the Dana family, W.G. Dana. There are Methodist and Catholic churches, a modem schoolhouse of four or five rooms, and many substantial and pretty homes. It is a shipping point for beans and barley, the principal crops grown in that section. Grocery stores are owned by Burke Bros. and the Dana Mercantile Co. Mrs. Cameron has for years kept a supply of dry goods. There are shops to meet other needs, and W.M. Cotter runs a meat market. Two saloons still remain, one run by J.A.G. (Jag) Dana, and one by B. Knotts. (Morrison and Haydon 1917)

Dry farming in the valley and orchards in the foothills continued to be the predominant land use in the watershed throughout the first half of the century. The development boom expected in Nipomo at the tum of the century would not transpire for another ninety years.

## Historical Glimpses of Nipomo Creek from the Twentieth Century

Dorthea Lange chronicled the dire poverty of the migrant "pea pickers" in Nipomo,



taking the iconic photo of the depression. Her portrait, *Migrant Mother*, taken in 1936 is a classic image of the dust bowl era, and was taken on Oakglen Avenue, next to Nipomo Creek, where a migrant camp was located during that time (Sprague 2005).

Oral histories and interviews from several living residents of Nipomo

Fig 7: Migrant Mother reveal important insights about Nipomo Creek, past and present:

Helen Bishop, 90, recalls camping on the east side of Nipomo Creek, just south of town, as a Camp Fire Girl in 1924. "There were turtles, there were fish and pollywogs, everything. The water was clear running water, not muddy and it was a gravelly stream. Where we camped there were no trees, but I remember seeing willows on the banks in town."

Harold "Bud" Walsh, 88, was born and raised on Oakglen Avenue overlooking Nipomo Creek and has farmed and ranched all his life. Bud recalls his childhood "fishin' for trout in the creek" and walking along the narrow gauge railway to and from school. Walsh

tells that his father and other landowners "stood guard with shotguns around the 'Pea Pickers' camp at night to keep them from getting out and stealing from us." He added, "I would'a done the same and tried to steal if my kids was hungry." Walsh also remembers farming in the wide flood plain beside Nipomo Creek, which now has a marshland. "It is the best soil in all Nipomo." He adds that, "the cattle really like the algae that grow in the creek, and it is a real boost to their health."

Harold Barr, 71, recalls fond childhood memories in Nipomo Creek as a 10-12 year old between 1944 and 1947. He and his friends swam regularly at a dam near Holloway's property. "There were lots of turtles in there... they were flat not domed shaped and about the size of a saucer, and lots of frogs." Barr still volunteers for Creek Days, and compares the creek today with what he saw as a child, "there was a lot more water then, the creek (mainstream) flowed year round from the Canada property all the way down, and there was much more vegetation." He also recalls a wetland marsh that extended from Nipomo Creek above at Holloway's property to old Hwy 101, now Thompson Ave. "There was a large marsh with lots of tules and lots of ducks squawking." Barr recalls:

A train broke down carrying a load of fingerling trout, rainbow or cutthroat. Ed Epperly, the local constable, and Frank Lucas, local postmaster, dumped them into Nipomo Creek and they matured. I fished every night below Holloway's farm. Leonard Dana caught a 21-inch whopper several years later below the Dana Adobe. The ones I caught were 8 to 9 inches.

Farmer and rancher Lupe Esquisvel is the current ranch manger for the Dana Family Trust, one of the largest landowners in the Nipomo Creek Watershed. Esquivel sums up the status of agriculture in the watershed today:

Growth and development keeps moving the boundaries affecting farm operations. If we can't survive, we don't want to be put up against a wall. The good news is - we now work together with conservationists. The Land Conservancy is helping with permits (to clear selective vegetation from creek channels) and they are building goodwill with farmers getting easements and doing creek restorations. I couldn't be happier; I think we are a model for other communities.

# **Existing Conditions**

#### Climate

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The maritime climate of the Central Coast of California is cool and mild, and does not display much daily or seasonal temperature variation due to the moderating affect of the Pacific Ocean. The Nipomo Creek watershed is located just inland of the southern coast of San Luis Obispo County. The average maximum daily temperature is about 70 degrees Fahrenheit and average minimum daily temperature is about 48 degrees Fahrenheit. The annual precipitation ranges between 15 and 28 inches, which normally falls between November and March.

## **Geographic Boundaries**

The Nipomo Creek watershed is located on the seaward side of the Santa Lucia Range. The Santa Lucia Range is one of the outermost ridges of the coast ranges of California. The Coast Ranges are a series of northwest trending parallel ridges extending from Santa Barbara County in the south to Humboldt County in the north. Together, the Coast Ranges constitute a nearly continuous ridge system. One of the subsets of the Coast Ranges is Temettate Ridge, which acts as the headwaters for the Nipomo Creek watershed from the east.

To the west of the Nipomo Creek watershed are the Nipomo Mesa and the Guadalupe-Nipomo Dunes. The Nipomo Mesa is a formation of stabilized sand dunes found behind the Guadalupe-Nipomo Dunes, which is one of the largest coastal dtme complexes in California (Hill, 2003).

## **Geologic Setting**

The west-southwest facing slopes of the Temettate Ridge, the east-west aligned alluvial ephemeral tributaries, and main stem in the Nipomo Valley, comprise the Nipomo Creek Watershed. The bedrock of the watershed is typical of the Monterey and Franciscan formations of the California Coastal Range and is composed primarily of shale, chert, and other melange components (Chipping 1985). The zone of influence encompassed within the Nipomo Creek Watershed is encompassed within a geological melange bordering the

subduction between the Pacific and American plates. The buckled tenaces of rock folmation exhibit several time-periods in earth's history.

The Monterey Shale was deposited between 10 and 18 million years ago during the middle Miocene Epoch, and transpolied by the tectonic action of the Pacific plate moving Southwest to East-Noliheast, originating from approximately 400-500 miles south, the current location of Baja California. The abundant marine mammal fossils, such as whale, pinniped, and fish suggest a source stratigraphy of a near coastal shallow marine environment. The particular abundance of cetacean fossils suggest a breeding and calving zone. The miocene marine fossil record within this Monterey Shale formation is one of the natural resources of this watershed (Ardoin/ Bishop, 2004; Cooper, 1999).

Immediately below the middle Miocene marine fom1ation is a broad contact with early Miocene volcanic material known as "the Obispo Tuff." Near the end of the Miocene Epoch, sediments of this and underlying formations, including Obispo Tuff, were blockfaulted and uplifted. Massive shield flows of volcanic rock erupted along weak points of the crust along a line between Figueroa Mountain to the south and Cambria to the north, fmming intermittent surface outcroppings of basal and rhyolite minerals. The Nipomo Creek Watershed contains several of these outcroppings. This formation provided the matrix for hydrothermal deposition of unique quartz gemstones approximately three million years ago. The minerals in these outcroppings and the alluvial deposition of these quartz minerals from the volcanic formations are sought after nationwide by lapidary artists and are known as "marcasite and sagenite agates." Nipomo is considered a "type location" for these rare gemstones. These unique minerals are another natural resource of this watershed (Ardoin/Bishop, 2004).

During the Pliocene Epoch, 5 million years ago, uplifting of the coastal ranges including Temettate Ridge took place. The land mass arose from the ocean at that time. By 2.4 million years ago, the alternating cycles of cooling and warming of the Ice Age were well established. Nipomo Creek, at that time, flowed to the no1ih joining Los Berros Creek and Anoyo Grande Creek. "The climate suppolied vast grass lands and wetlands and mega-fauna, such as woolly mammoths, mastodons, saber-toothed cats, and giant ground sloths" (Ardoin/Bishop, 2004). These mega-fauna were prolific in the Nipomo Creek

Watershed until catastrophic weather patterns began a sustained global warming pattern approximately 12,000 years ago. A significant deposition of Ice Age mega-fauna fossils have been found in the Nipomo Creek Watershed. These paleontological artifacts are unique natural resources within the watershed (Ardoin/Bishop, 2004, Cooper 1998).

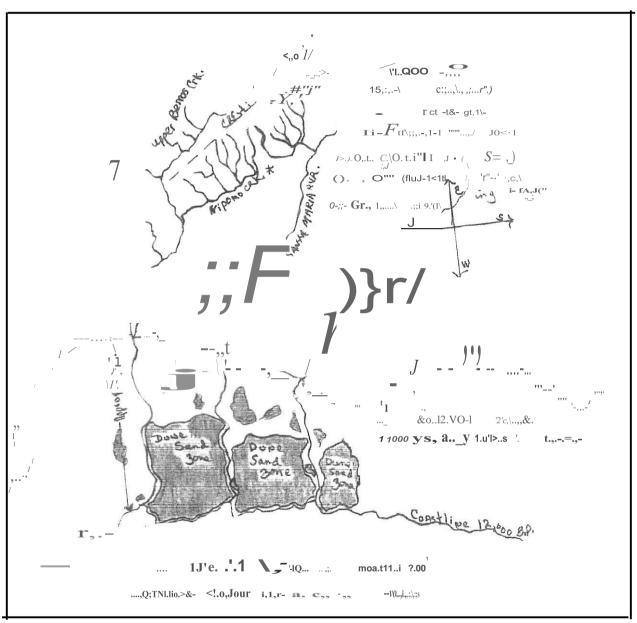


Figure 8: Nipomo Creek Watershed, 12,000 BP (Credit: Ra/pit Bis/top)

During the Quaternary period of the Holocene Epoch, 11,000-7,000 years ago, rapid melting of glaciers caused an approximate 300 feet elevation of sea levels. Shoreline dunes rapidly advanced inland during this rise in sea level and blocked the northward

outflow of Nipomo Creek. The blockage of the northerly flow of Nipomo Creek created shallow lake environments in the Nipomo Creek Watershed during this period. These lakes of Nipomo Creek broke through their confines across the stabilized dune lobe of the Nipomo Mesa creating a deep scar and folming what is now known as Black Lake Canyon. The scouring effect of the catastrophic movement of water also created the Dune Lakes.

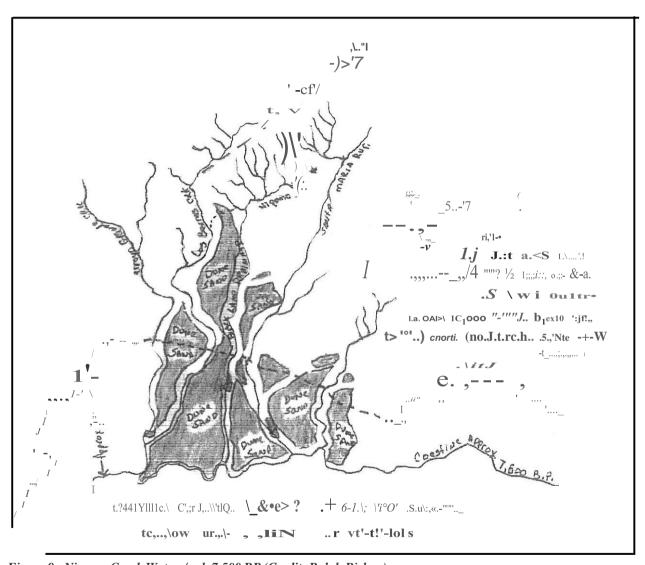


Figure 9: Nipomo Creek Waters/zed, 7,500 BP (Credit: Ralph Bishop)

Further encroachment of wind driven sand eventually blocked this direct seaward exit of Nipomo Creek. The subsequent build up of water in Nipomo valley found its weakest point to exit through a southern route. At this point, Nipomo Creek became a tributary of the Santa Maria River Watershed (Ardoin/Bishop 2004).

Today, the Nipomo Mesa, a large stabilized sand dune overlying an elevated Pleistocene terrace, is located to the immediate west of the main stem of Nipomo Creek and defines the westerly edge of the Nipomo Creek Watershed (Spanne, 1981). The interface of the adobe and sandy soils is a unique geological feature, and defines certain hydrological characteristics within the Nipomo Creek Watershed.

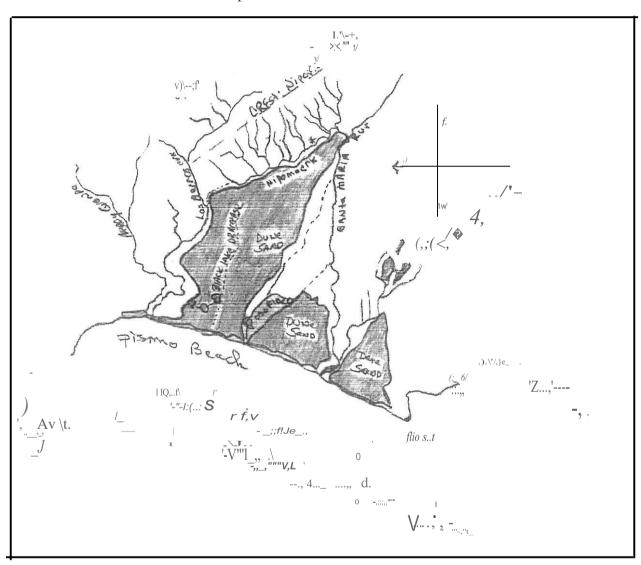


Figure 10: Nipomo Creek Watershed, Present Day (Credit: Ralph Bishop)

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**Soil Types** 

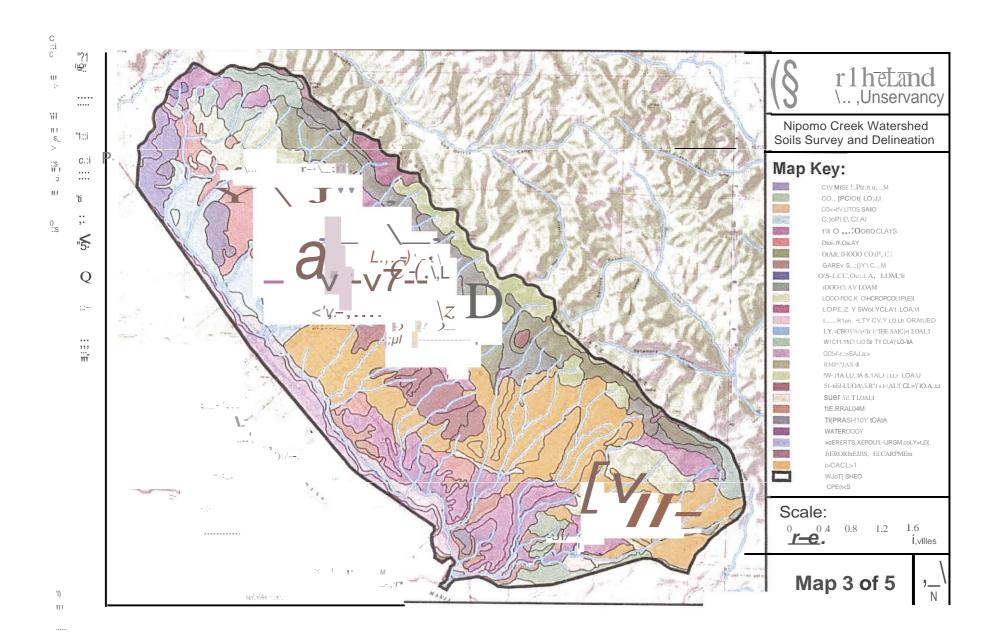
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Examining local soil conditions is relevant to creeks in terms of bank stability, vegetation coverage, sedimentation transfer, and water absorption ability and its relationship with flooding. For example, in the stream reach demarcation section of this report, upper Nipomo Creek is described as having very little riparian vegetation and tree canopy coverage until a particular point where suddenly there is an abundance of vegetation and trees. When looking at the soils map of the watershed, there is a soil type conversion that occurs at the same place and may offer some explanation for this phenomenon.

As another example, there are a number of different soils in the watershed that are described below as having rapid surface runoff and high susceptibility towards water erosion. However, upon inspection of the soils location, there does not appear to be a direct correlation with the location of the actual erosion sites. This suggests that erosion in the Nipomo Creek Watershed might be more a function of land management practices than of particular soil characteristics.

Much of the upper watershed is comprised of heavy clay soils. These soils tend to have a good capacity for holding water, as they are known to shrink and swell between dry and wet times of the year. At the same time, during extremely wet times of the year, the clay soils will reach their maximum holding capacity, and will then begin to contribute significantly to stream flows during rain events. Thus, while the clay soils can hold a great deal of water, they do reach a point where they cannot hold water any longer, leading to compounded flooding problems downstream.

There are 24 different soil types found in the Nipomo Creek watershed, according to the United State Department of Agriculture Soil Conservation Service's *Soil Survey of San Luis Obispo, Coastal Part* (1984). A map showing the different soil types and their locations within the watershed follows on the next page. A complete list of the watershed's soil types and characteristics is found in Appendix I.



## **Hydrology**

Nipomo Creek meanders through the Nipomo Valley parallel to and east of Highway 101. About a mile before the Santa Maria River confluence, it flows westerly and crosses Highway 101. Precipitation falling on the western side of the Temettate Ridge accumulates in numerous small tributaries that carry runoff to the main stem of Nipomo Creek. The creek is ungaged. An estimate of average annual base period runoff is 800-925 acre-feet (DWR, 2002).

A unique hydrological feature of the tributaries in Olde Towne Nipomo is that they are relatively similar in length and therefore during heavy rain events, floodwaters from each tributary tend to converge in the urban area at the same time.

#### Stream Reaches

For ease of reference, the various creeks that comprise the watershed were divided up into a standardized set of stream reaches in order to further evaluate and classify different sections of the watershed. The stream reaches consist of strictly demarcated lengths of the main stem and tributaries that share similar natural resources conditions or separate obvious breaks in the landscape. Each reach has then been qualitatively described in terms of its course, vegetation coverage, tree canopy, channel, bank conditions, and any other special concerns. These descriptions are based on field inspections, helicopter reconnaissance, and review of aerial photography. A map of the stream reach demarcations is found on the following page. The qualitative descriptions and a few photos of the reaches are found following the map. While reading the descriptions, it is useful to simultaneously refer to the map and photos.

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### Nipomo Creek Main Stem

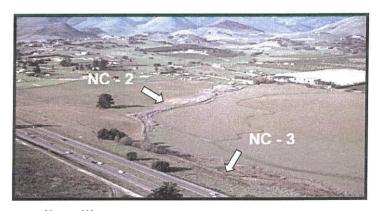
NC - 1: This reach is the uppermost section of the main stem. It begins in an area dominated by new, rural-estate subdivisions with lots ranging between 5 and 15 acres.



The topography is gently rolling. There is little to no riparian vegetation along this reach, with small willows representing what does exist. This reach primarily has the appearance of a swale. At the downstream terminus

of this reach, the creek has been straightened in order to accommodate a large greenhouse complex. This particular area is significantly degraded and features some rock fill.

NC - 2 to NC - 3: These reaches are in the lowlands of Nipomo Valley, which are predominately in agricultural use. These reaches have little riparian vegetation and have the appearance of a minor swale.



There are a few nice oaks and some smaller willows.



d abundant vegetation comprised of a mature tree canopy and understory associates. Non-native invasive vegetation also exists. Stream channels are shallow with sloped banks at some points and are deep with steep, eroded banks at other points. NC - 6: This reach continues with the mature tree canopy and under story associates.



Non-native invasive
vegetation also exists. This
reach is host to three
impoliant confluence areas
immediately upstream of the
Old Towne Nipomo area.
Stream channels are shallow
with sloped banks at some
points and are deep with steep,

eroded banks at other points. There are frequent debris dams present due to the proliferation of willows.

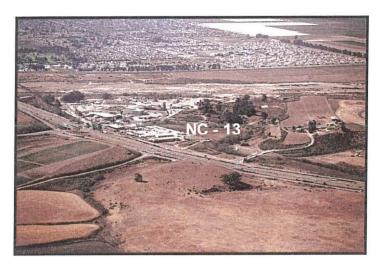
NC - 7 to NC - 8: These reaches contain mature tree canopy and under story associates. Non-native invasive vegetation also exists. Stream channels are shallow with sloped banks at some points and are deeply incised with steep, eroded banks at other points. The latter sections contain little riparian vegetation.

NC - 9 to NC - 11: In these reaches the creek widens out and flows into broad perennial wetlands and pools in several locations. These wetlands provide excellent wildlife

habitat, but are
threatened by
sedimentation
transfer from
upstream locations.
Outside of the
wetlands areas, there
is little riparian
vegetation and the
channels are often
deeply incised.



NC - 12 and NC- 13: These reaches also historically contained wetlands, but they are currently in a somewhat degraded state. There are several substandard bridges and



"Arizona" style crossings. The channels are mostly deeply incised with eroding banks.

There is some riparian vegetation in places, but it is primarily absent. NC - 13 passes through various commercial and industrial developments.

#### Mehlschau Creek

MC - 1: The upper reach of Mehlschau Creek features two forks. The left-hand fork (when looking at the map) is located in a deep gully and offers mature canopy cover and stable stream banks. The right-hand fork is located on the other side of a small knob from the left-hand fork. It does not have much in the way of riparian vegetation and is a very minor tributary. The channel has the appearance of a swale. This reach demarcation ends just after the two forks meet.

MC- 2: This reach does not offer much in the way of native vegetation. There are some sparse, intermittent willows in the upper half of this reach. There is also a retention pond that has been built into the creek channel. At the lower half of this reach, the creek



travels through orchards where there is no vegetation at all. Near the end of the reach, at Thompson Road, there is a series of concrete steps that stretch across the entire stream channel. It appears that their purpose is for gradient control. MC - 3: This reach has no riparian vegetation, except for a small stand of mixed trees adjacent to a residence at its beginning. The channel has the appearance of a swale.

#### Cavaletto Creek

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CVC - 1: This reach offers some sparse riparian vegetation. The channel is primarily incised with steep banks. Towards the end of the reach the channel widens and the banks

here are more sloped.

CVC - 2: The creek is very minor here and has the appearance of a swale. There is no vegetation at all.

#### Deleissigues Creek

DLC - 1: This reach represents three smaller forks. The left and right-hand forks (when looking at the map) are further divided into smaller yet sub-forks. The middle fork does not have any sub-forks. The left-hand forks drain the side of steep hillsides. Riparian vegetation is intermittent, but the stream banks are in relatively good condition. The middle fork has very little vegetation. The right-hand fork has some intermittent vegetation in its upper sections before passing through orchards, where all native vegetation is absent. This reach ends at the confluence area of the three main forks where there is abundant riparian vegetation and tree canopy.

DLC-2: Near the beginning of this reach the creek passes underneath Mehlschau Road. Immediately at the downstream side of the bridge the creek is forced to make a ninety-



degree turn. At this location there is a massive erosion problem with the left bank (when looking downstream) being approximately twenty feet high. The right hand bank is filled with riprap. There is no vegetation as the ground cover has been entirely graded for agricultural purposes. After this

section, the creek continues through orchards where there is no vegetation. The final

section of this reach offers intermittent riparian vegetation and limited tree canopy before its end at Thompson Road.

DLC-3: This reach is one of the more problematic in the entire watershed. Immediately after crossing under Thompson Road, the creek interfaces with residential



development. Several inadequate flooding solutions have been tried here. The creek then continues for a short, undisturbed period where some intermittent riparian vegetation is present before it again passes by residential development.

There is a sharp bend in the

creek that is immediately followed by an even sharper bend that forms a horseshoe shape. This area appears to have been one of the causes of flooding damage suffered by the aforementioned residences in March 2001. The creek continues to flow adjacent to these residences for a stretch before turning right towards the confluence with Nipomo Creek. There is both native and exotic vegetation present and intermittent tree canopy, including some nice oaks. The confluence zone offers rich vegetation and tree coverage. There are frequent debris dams located here due to the thick willows that are present.

#### Hermreck Creek

HMC - 1: This reach starts out either flowing through, or adjacent to, orchards and other agriculture. There is little or no vegetation in this area. After this, the creek flows through a graded agriculture field and features some intermittent vegetation. The channel is incised and often has steep, eroded banks. Following this, the creek travels through a new residential subdivision of approximately 100 homes. Currently, the first phases of construction have been completed. Where the creek flows through, the banks have been fenced off under an Army Corp permit condition to avoid sedimentation filling while construction is under way. The channel has been widened and the banks have been

graded back. There is a drainage weir installed at the end of this section right before the creek crosses under Thompson Road. Continuing downstream, the creek flows tln·ough



an underground culvert beneath residential development for two city blocks. Upon seeing daylight, the final section of this reach offers little riparian vegetation until right at the confluence area with

Nipomo Creek, where there is dense native and non-native vegetation and tree canopy cover. Debris dams tend to accumulate here due to the proliferation of willows in this area. The stream banks are severely eroded in several locations.

#### North Fork Haystack Creek

NHC - 1: This reach is comprised of two sub-forks. Both sub-forks drain the steep hillsides of Temettate Ridge. The left-hand fork (when looking at the map) flows through orchards until it reaches Foothill Road. There is no vegetation present in this section. After Foothill Road, there is intermittent vegetation and the channel is primarily incised up to the confluence with the right-hand fork. The right-hand fork features much more consistent riparian vegetation and tree canopy coverage than the left-hand fork does, and its channel and banks are in good condition.

NHC - 2: After the above described confluence zone, the vegetation and canopy coverage remains dense for a stretch before reaching more orchards where there is little or no vegetation. The stream banks and channels range from good condition to fair condition. Beyond this, the creek flows through residential and commercial development located in the Olde Towne Nipomo area. In this stretch the vegetation is inte1mittent and dominated by non-natives. The banks are often eroded and the channel is incised. Many



residents have attempted makeshift erosion and flood control efforts over the years in order to protect their properties. This reach should be considered a problem spot, although the multiple small lot ownership pattern of this

urbanized area would make comprehensive restoration efforts difficult to permit and implement.

## South Fork Haystack Creek

SHC - 1: This reach is comprised of four sub-forks. Above Foothill Road all four feature intermittent vegetation and occasional tree coverage. At this point the forks could primarily be described as swales. Below Foothill Road the far left-hand and middle left-hand forks (when looking at the map) continue with the same characteristics. The far right-hand and middle right-hand forks contain more frequent vegetation and tree canopy coverage and feature nicely sloped banks. Where the far right-hand fork crosses Rancho Road there is a huge erosion sump on the downstream side that might have been caused when the culvert had become clogged and the water flowed over the road during a flooding event. The clogged culvert has been cleared, but the erosion sump remains.

SHC - 2: This reach is the area between where the above described sub-forks of South Haystack Creek have converged down to where the confluence with North Fork Haystack Creek is located. The reach briefly traverses a farm field where there is intermittent vegetation and tree canopy coverage before entering into the residential Olde Towne Nipomo area. The commentary for residential section of NHC - 2 applies to this reach, as well.

## Haystack Creek Main Stem

HC- 3: As with SHC-2, the commentary for the residential section of NHC - 2 also applies to most of this reach. One of the more significant erosion problem areas is located near the corner of Mallagh and Tefft Streets at the Men's Club where a culvert exit is misdirected towards the side of the stream bank. As the creek approaches the confluence area with Nipomo Creek, the vegetation and tree canopy coverage becomes much thicker. There is a high percentage of non-native species present. Debris dams tend to accumulate here due to the proliferation of willows.

## Dana Creek

DAC - 1: This short tributary features consistent riparian vegetation and some willow coverage. There is no other tree canopy coverage to speak of. The channels are moderately incised and the banks are somewhat steep and at times eroded.

### Rancho Creek

RAC - 1: This reach begins in an orchard where there is no vegetation or tree coverage.



After this it cross under
Thompson Road and featured
some intermittent riparian
vegetation and willow coverage
until illegal grubbing activities
were undertaken in the fall of
2004. An enforcement case
ensued thereafter.

## Adobe Creek

AC - 1: This reach features begins with robust riparian vegetation and willow coverage. There are a few nice oak trees. After is crosses under Thompson Road, it is devoid of

vegetation until it reaches the confluence area with the main stem. The channels are moderately incised and the banks are somewhat steep and at times eroded.

## Carillo Creek

CAC - 1: This reach is comprised of two separate main forks. The left-hand main fork (when looking at the map) features three sub-forks. Of these sub-forks, the right-hand one features very attractive and consistent riparian vegetation and tree canopy coverage all the way from the steep slopes of Temettate Ridge. The middle sub-fork also features consistent riparian vegetation and tree canopy coverage from its start at Foothill Road. The left-hand sub-fork starts with good coverage, but it dwindles further downstream. The main right-hand fork of this reach is deeply incised and offers little riparian vegetation and virtually no tree canopy coverage. It appears from the aerial photos that some of the banks may be badly eroded; however, an up-close field inspection was not possible.

CAC - 2: This short reach is deeply incised and offers only a little bit of intermittent riparian vegetation and tree canopy coverage before reaching the main stem.

### Rocky Creek

RCC - 1: This reach is comprised of two forks. Both forks feature very attractive and consistent riparian vegetation and tree canopy coverage. The stream banks and channels are primarily in good condition, with one small-incised section.

RCC - 2: This reach is also comprised of two forks. The left-hand fork (when looking at the map) continues with characteristics described for RCC - 1. The right-hand fork, however, offers little riparian vegetation and no tree canopy coverage. This fork carries relatively minor flows.

#### **Burson Creek**

BRC - 1: This short reach also features very attractive and consistent riparian vegetation and tree canopy coverage before it drains into the wetlands described in NC -11. The stream banks and channels are primarily in good condition.

### Dunn Creek

DNC - 1: This reach features a north fork and a south fork. The north fork flows from near the top of Temettate Ridge and is a very attractive creek. It offers consistent riparian vegetation and tree canopy coverage. It has carved out a large gully for itself through most of its run. The stream channels and banks appear to be in good condition. The south fork features three smaller sub-forks. These forks are very similar in their characteristics with the north fork; they offer consistent coverage in a deep gully environment.

DNC - 2: This short reach represents the section of the creek after the confluence of the north and south forks on down to Nipomo Creek. The consistent vegetation and tree canopy coverage continues. The creek passes underneath a dirt road on two occasions during this stretch.

#### **Bull Creek**

BLC - **1:** Bull Creek is a very minor tributary. It features little in the way of vegetation and offers just a few trees. The stream channels are somewhat incised; however the outer banks slope quite a bit to form a larger gully system.

## North Fork Wineman Creek

NWC - 1: As with many of the other tributaries, this reach features multiple sub-forks. The left-hand main fork (when looking at the map) features very consistent riparian vegetation and tree canopy coverage throughout its length. The channels and banks appear to be in good condition. The sub-forks of the left-hand main fork feature intermittent vegetation and canopy coverage and have incised channels at times. The right-hand main fork begins with very attractive tree canopy coverage, but this ceases near the confluence with the left-hand main fork and the channel becomes very deeply incised. There is also another minor fork located lower and to the right of the right-hand main fork. This section is badly eroded and incised in its entirety. The channel is in the neighborhood of 15 to 20 feet deep. There is no vegetation or tree canopy coverage at all here.

### Middle Fork Wineman Creek

MWC - 1: This reach starts at the base of some very attractive rock outcroppings. It also features two forks. The left-hand fork (when looking at the map) begins with consistent riparian vegetation and tree canopy coverage and a shallow channel with sloped banks. Further down, however, the coverage ceases and the channel becomes more incised. The right-hand fork is similar to this in its entirety.

## South Fork Wineman Creek

SWC - 1: The South Fork of Wineman Creek is comprised of three sub-forks.

Beginning at the side of the base of the same rock outcroppings described with MWC - 1, all three sub-forks feature generally good riparian vegetation and tree canopy coverage, with some intermittent blank spots along the way. The conditions of the stream channels and banks range from good to fair.

SWC - 2: This reach features the primary creek channel, with a smaller swale joining it at about its halfway mark. The primary section has intermittent vegetation and tree coverage. The channel tends to be somewhat incised, leaving steeply sloped banks.

## Wineman Creek

WC - 3: This final reach collects the north fork, middle fork, and south fork of Wineman Creek. Surprisingly, it appears as a relatively minor section of creek. There are a few



trees and some riparian
vegetation present. This
reach is primarily incised to
a depth of about two feet.
The channel is about three
feet across and the banks are
vertical. There are several
dirt roads crossing over the
creek.

## Nipomo Creek Flood Insurance Study Peak Discharge

The Federal Emergency Management Agency (FEMA) publishes information that is used to determine flood insurance rates for homeowners. The peak discharge flow is the



volume of water
expected to flow at
each of the
depicted storm
events. For
example, every ten
years at Tefft
Street, on average,
there is expected
to be 1,290 cubic
feet per second

Figure 13: Flooding in Olde Towne Nipomo on Mallagh Street

passing in the creek. As the watershed develops and there is an increase in impervious surfaces, peak discharge per storm event is predicted to increase as the system becomes "flashier;" bank erosion typically increases, incising the creek channel, and groundwater recharge is reduced.

## FEMA Peak Discharge Flows:

		Peak Discharge (cfs)			
Nipomo Creek	Area (sq.mi.)	10-Year	50-year	100-year	500-year
!At Tefft Rd	10.5	1290	4100	5900	12800
IAt confluence with Santa Maria River	19.3	1740	5600	8000	17400

## **Riparian Cover**

Aerial photos were used to depict riparian conditions of each tributary. Each reach was measured in linear meters and linear feet, riparian cover for each reach was measured in meters and feet, and percent cover was calculated for each reach. In addition, riparian cover and associated agricultural land use were characterized and measured in linear feet and cover in feet, and percent cover for each was estimated.

Nipomo Creek Watershed Riparian Cover:

	Linear		riparian	riparian	
Creek Name	meters	linear feet	cover (m)	cover (ft)	% cover
Nipomo Mainstem	18641	61515.3	8282	27330.6	44.4
Mehlscau	5338	17615.4	1718	5669.4	32.2
Cavaletto	3239	10688.7	295	973.5	9.1
Deleissigues	14452	47691.6	4973	16410.9	34.4
N Fork Haystack	6785	22390.5	2867	9461.1	42.3
S. Fork Haystack	11732	38715.6	3020	9966	25.7
Hermrick	3502	11556.6	300	990	8.6
Dana	642	2118.6	130	429	20.2
Rancho	1857	6128.1	237	782.1	12.8
Carillo	9840	32472	4315	14239.5	43.9
Adobe	1416	4672.8	300	990	21.2
Rocky	7223	23835.9	3032	10005.6	42.0
N ForkDunn	5211	17196.3	2475	8167.5	47.5
S. Fork Dunn	11313	37332.9	6693	22086.9	59.2
Burson	1567	5171.1	464	1531.2	29.6
N Fork Wineman	13439	44348.7	5952	19641.6	44.3
Middle Fork					
Wineman	4696	15496.8	1930	6369	41.1
S Fork Wineman	10696	35296.8	3733	12318.9	34.9
Bull	1173	3870.9	700	2310	59.7
Total	132762	438114.6	51416	169672.8	38.7
Miles		82.97625		32.135	38.7
Total watershed area	18459 acres				

Riparian Cover by Land Use:

	linear ft	cover (ft)	% cover
lower row crop/development	196892.4	68912.34	35
middle orchard	88209	31755.24	36
upper rangeland	153013.2	68855.94	45

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As development proceeds, it is recommended that creek set-backs be adhered to in order to protect infrastructure and associated activities such as agriculture. The wider the riparian set back corridor, the more protection is offered for human habitation. In addition, flood plain areas with riparian cover function to filter floodwaters allowing for sediment to be caught before entering the main channel. In this way, the riparian flood plain protects the main channel's water quality.

In the aftermath of hurricanes in the southeast, one might wonder how the events are applicable in our smaller watersheds. It is intrinsic to any watershed for vegetation to function as the flood sink and act to absorb storm surges and peak flows. Therefore, guarding flood plains with enforceable codes and ordinances is a cost saving measure when considering long term flood protection in any sized watershed.

## **Water Quantity**

Historical precipitation information is available for the Nipomo Valley from 1921 to 2000 from station Nipomo 2NW (DWR, 2002). The long-term mean precipitation for Nipomo Valley is 16.29 inches. See Appendix II for DWR discussion of precipitation data for Nipomo 2NW.

There has been much inspection of groundwater resources during the past eight-year-long groundwater litigation between the Santa Maria Valley Water Conservation District and the City of Santa Maria, and is summarized in the Relationship to Existing Plans section of this plan. Groundwater resources are peliinent to the Nipomo Creek Watershed for its capacity to recharge the groundwater aquifer, and groundwater extractions can have an impact on surface flow and is a predictor of riparian habitat health along the creek.

Stream infiltration from Nipomo Creek and tributary surface flow is one of several sources of groundwater recharge in the valley. Groundwater is also recharged via deep percolation of direct precipitation, deep percolation of applied water and septic tank effluent, and subsurface inflows from Temettate Ridge (DWR, 2002).

## **Land Ownership**

In order to assess land ownership patterns in the watershed, assessor's parcel pages for the entire watershed were purchased from the county assessor's office. Although an assessor's parcel page does not always represent an exact property boundary survey and assessor's parcels are not necessarily legal lots, these records were deemed to be sufficient enough to get an idea of where property boundaries are located. Each page was carefully digitized into separate polygons for each parcel using Geographic Information Systems software. While doing this, each new polygon was also assigned the appropriate Assessor's Parcel Number in the data table. Once this task was complete, the assessor's records were purchased, which include the owner's name and address, land values, improvement values, and homeowner's exemptions. This data was then, in turn, linked to the APN-based data structure prepared while mapping the parcel boundaries. The end product is that land parcels in the watershed are now in digital format so that they can be overlaid on top of aerial photos or digital topographic maps, and each parcel can also be readily queried for ownership information. Parcels located within the Nipomo Urban Reserve Line were not included in this process because these residential sized parcels are generally too small to yield any appreciable conservation value.

With a digitized parcel database now available, it is possible to quickly determine some of the important land ownership patterns <sup>1</sup>. Examples of relevant land ownership patterns are as follows:

- Total number of parcels digitized: 402
- Range of parcel sizes: 0.21 to 718.48 acres
- Mean parcel size: 42.35 acres
- Parcels in private ownership: 99.4%
- 102 owners claim homeowner's exemptions
- 220 parcels have improved values

24% of the parcels have been owned since before 1960<sup>2</sup> 43% of the parcels have been owned since before 1980

- 30.6% of the watershed is owned by one family
- 72.6% of the watershed is owned by fourteen families

This info1111ation indicates that the majority of the watershed is in the private ownership of a few families whom have owned their land for a long period of time. There are many parcels that have only changed hands once or twice since they were first platted.

Parcel sizes tend to be fairly large, although there is wide range of sizes. About half the parcels are improved in some way, and about 25% are owner-occupied. In addition, there is a large lot, estate-style subdivision in the no1them p01tion of the watershed, and several antiquated subdivisions in the middle and southern portions.

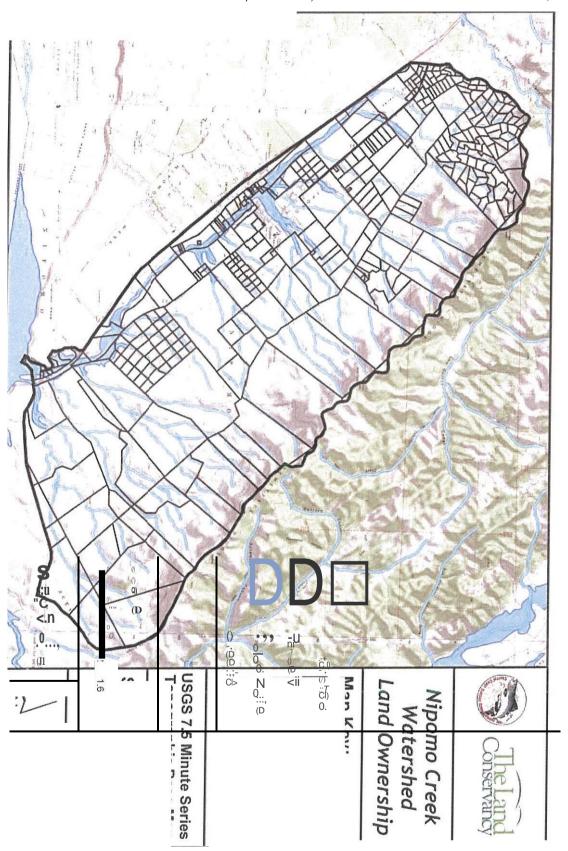
These antiquated subdivisions may become problematic in the future as pressure for rural residential development continues. A recent effort to secure a General Plan Amendment to enable the residential development of the antiquated subdivision known as the "Tri W Enterprises" site near the south side of Olde Towne Nipomo was denied at the Board of Supervisors level. The Pogue Brothers subdivision in the lower watershed would also be similarly difficult to develop due to the lack of access from a public road; but nonetheless, these parcels include many underlying legal lots which if developed would greatly impact the character and functionality of the watershed.

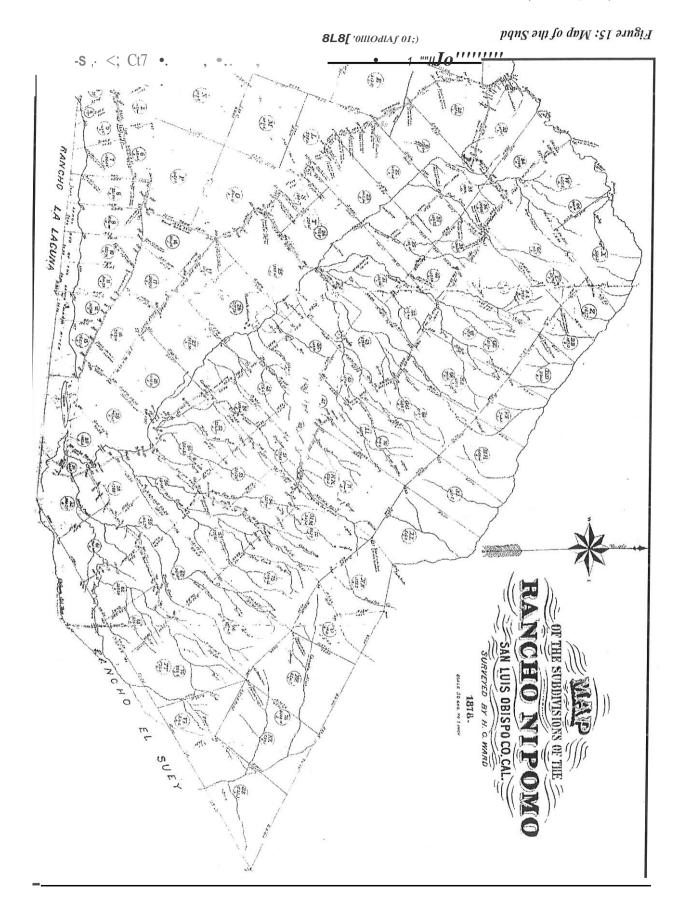
A map showing the parcels in the watershed is found on the next page. Following that is a copy of a map of H.C. Ward's resubdivision of the original Rancho Nipomo in 1878. This map is of great interest insofar as it also shows streams as they appeared at that time, as well as impolation historical sites, such as the location of the Dana Adobe. When comparing the modern parcel configuration with that of 1878, it is clear that many of the parcels in the watershed remain unchanged since that time.

<sup>&</sup>lt;sup>1</sup> As a matter of policy, the Land Conservancy does not include landowner's names in reports such as this one until they have stepped forward and said that they are willing to participate or are interested in participating in the program.

The assessor's records appear to begin in 1953. However, many of these ownerships are likely to be older.

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## **Biology**

One of the goals of the Nipomo Creek Watershed Program was to establish on going biological monitoring programs of riparian and adjacent corridors. To that end, riparian habitat assessments were conducted on selected properties where access permission was granted. In addition, several previously conducted surveys' species lists are provided in an effort to compile as many independent assessments as possible to inform long term monitoring (See species lists in Appendix III).

## **Riparian Habitat Assessments**

#### Dana Adobe

Vegetation sampling for the portion of Nipomo Creek running through the Dana Adobe property was perfo1med in winter 2004 and spring 2005. It was determined through these sampling efforts that a dense woody canopy covering the stream channel characterizes the vegetation in the Dana Adobe riparian corridor. The canopy growth is dominated by native shrubs and trees, including Arroyo Willow (Salix lasiolepis), Box Elder (Acer negundo), and Coast Live Oak (Quercus agrifolia). The woody overstory abruptly ends at the edge of the stream bank, where it is replaced with a grassland habitat dominated by non-native annual grasses and forbs. It is at the ecotone between these two community types that the majority of invasive species are found. Small populations of Poison Hemlock (Conium maculatum), Veldt Grass (Ehrharta calycina), and Italian Thistle (Carduus pycnocephalus) are located adjacent to waterways. In addition, there are founder populations of Periwinkle (Vinca major) and German Ivy (Senecio mikanioides) growing along the stream banks at the northern most boundary of the property. Invasive weeds at the Dana Adobe propelty appear to be founder populations that are feasible to manage if action is taken immediately. If no action is taken, they will quickly travel down the waterway and have profound affects on the native vegetation.

The stream channel is well defined with an average width of 20 feet and average bank height of 15 feet. A canopy of native plants shades approximately 95% of the stream channel. The heavy rains of 2005 have had severe impacts on the channel dynanlics for

the-portion of Nipomo Creek flowing through the Dana Adobe property. First, the fence at the north-most-end of the property blew out and traveled downstream. The fence, along with hundreds of pounds of debris, accumulated in two locations along the creek.

The debris, which includes plant material, old appliances, and trash, is being held in place by dense thickets of willows. This build-up of debris is impeding water flow and will undoubtedly result in hankerosion in these locations. Five exotic catfish were found in shallow pools upstream of the debris dam, and as the water filtered through the debris, the catfish were left behind to die. The heavy water flow from 2005 also contributed to the destruction and uprooting of many plant species in the riparian corridor.

Flowing water was fow1d in the channel during winter and spring, however, the flow was not continuous and the water levels were low. Thus, it is doubtful that this p01iion of the creek can sustain any migratory fish populations. Crayfish, bullfrogs, and catfish were found living in the deepest waters, it is unknown if these populations will be able to smvive through the drought seasons. The persistence of water in portions of the creek sustains a handful of native fresh water marsh species, including Cat Tail (*Typha* sp.), Fresh Water Parsley (*Oenanthe sarmentosa*), and Spiny Juncus (*Juncus acutus*).

The Dana Adobe riparian corridor is an ideal site for a restoration project for two reasons. First, the Dana Adobe property has relatively small fow1der populations of invaders, but these populations would be easy to remove given their small size. In addition, the Dana Adobe riparian corridor has a number of established plant communities found both within and adjacent to the waterway. For example, the areas with standing water have remnants of freshwater marsh plant populations. In addition, the northern boundary of the property has relatively pristine Coast Live Oak woodland with a fare amount of juvenile oak recruitment.

## Adobe Plaza

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The Adobe Plaza site was surveyed in winter 2004 and spring 2005. The Adobe Plaza property, owned by the Land Conservancy and known as the Olde Towne Nipomo Creekside Preserve, has a large-scale restoration project currently underway. The bluffs adjacent to the riparian corridor have been planted with coastal scrub, chaparral, and

riparian species (not included in survey). Re-vegetation efforts have not yet extended into the riparian zone. The riparian corridor is dominated by Coast Live Oak (*Quercus agrifolia*) and Arroyo Willow (*Salix lasiolepis*). The under story growing along the stream banks is dominated by two invasive species: Periwinkle (*Vinca major*) and German Ivy (*Senecio mikanioides*). Removal of these two exotic species is critical to successful revegetation of the stream banks. The populations of Periwinkle and Ivy were sprayed in 2004, at the time of the winter 2004 survey the majority of the plants were dead. In spring 2005, all populations of invasives were burgeoning. Weed removal efforts at this location will need to be continued frequently throughout many seasons, and possibly many years.

The stream channel at Adobe Plaza is approximately 20 feet wide and 25 feet high. Standing water appears to be seasonal because no water was found during the winter 2004 survey. The stream banks in many parts of the corridor are extremely eroded.

Many locations along the banks have exposed soil (no under story) and exposed tree roots. Efforts to stabilize the stream banks and redirect water flow have begun in the stream cham1el. Bio-logs are currently being used to divert water flow. In the future, eff01is need to be Focused on removing non-



Figure 16: Bank Stabilization Efforts at Adobe Plaza

native species and replanting with aggressive, fast growing natives to stabilize stream banks-and reduce erosio 11.

## Lower Creek Wetland Property

Vegetation sampling on this propeliy was performed in Spring 2005. From a distance, vegetative zonation can be seen at this site. When standing along the road, the riparian corridor is distinct in the distance. Adjacent to the riparian corridor is a freshwater marsh

habitat dominated by Cat Tail (*Typha* sp.), Sedges (*Scirpus* sp.), and Rushes (*Juncus* sp.). Non-native grasses and forbs dominate the remaining portion of the land closest to the speedway parking lot. This area appears to be a fallow field, which has had much disturbance in the past.

The riparian corridor runs directly adjacent to the Nipomo Creek stream channel. The water level at this site is so high that no stream banks are apparent. Above the water line the ground slopes up mildly, and ultimately plateaus. It is on this mild slope that the riparian vegetation is found. The riparian vegetation is dominated by willows, and provides the stream with approximately 70% shading. The water in the stream channel is not flowing, rather it appears that it pools in this area year round. It is questionable whether the folmation of this pond is a natural phenomenon. While surveying this site the surveyor spoke with a nearby resident who indicated that historically there was no pooling of water at this location, and consequently there was no flooding of the adjacent lands (i.e. no freshwater marsh community). He suggested that the creek channel downstream has been drastically modified, with water being divelied and parts of the stream being back filled. Whether this anecdotal evidence holds any weight warrants further investigation.

Radiating out from the riparia corridor is a freshwater marsh community. Within the freshwater marsh community there are two zones. The first is closest to the riparian corridor and is characterized by having soil that is completely saturated with water. The water level in this "wet" zone is approximately one foot high. The vegetation is dominated by Cat Tail (*Typha* sp.), Sedges (*Scirpus* sp.), and Rushes (*Juncus* sp.). In addition, this area is able to support a unique assemblage of water loving birds (a Night Heron was seen hunting). The second zone consists of mesic soil with very little standing water. Surprisingly, this area was lacking many of the native species expected to be seen growing along the drier parts of a freshwater marsh. There were a few isolated populations of native Rushes and Sedges, but the majority of the mesic zone was dominated by non-native grasses and forbs (primarily *Polypogon monspeliensis*, *Lolium multiflorum*, and *Rumex* sp.).

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Many freshwater marsh co1mmmities in the county have been lost to development and agriculture. The continual removal of freshwater marsh vegetation will ultimately result in the loss of numerous avian and amphibian species. Currently, this land has all the abiotic elements of a freshwater marsh system.

The driest part of land extends from the edge of the marsh to the parking lot of the speedway. This area is a fallow field, with very few native species. The exotic species dominating this area include Prickly Ox Tongue (*Picris ecioides*) and Bermuda Grass (*Cynodon dactylon*). It appears that this land has experienced much disturbance in the past. I suspect that it was back filled and fanned, however no crop species have persisted. Small populations of Coyote Brush (*Baccharis pilularis*), Narrow Leaved Willow (*Salix exigua*), and Poison Hemlock (*Conium maculatum*) are able to persist at the very edge of the field next to the road. Most likely these populations are sustained by increased water runoff from the road.

## **Previously Conducted Surveys**

Confluence of Deleissigues and Nipomo Creek

An excerpt of the <u>Nipomo High School Environmental Impact Report</u> (EIR) is included here as its recent description adds to the understanding of this segment of the watershed:

Nipomo Creek is adjacent to the western edge and Deleissigues Creek is adjacent to the eastern edge of the project area. Nipomo Creek is a meandering, heavily shaded, perennial creek. The riparian corridor is approximately 5 meters on each side of the stream. The tree layer is approximately 90 percent in cover, consisting mainly of willows (*Salix* spp.) with some coast live oaks (*Quercus agrifolia*) and California sycamores (*Platanus racemosa*). The shrub layer cover is approximately 80 percent, consisting mainly of willows (*Salix* spp.), castor bean (*Ricinus communis*), and poison hemlock (*Conium maculatum*). The herbaceous layer is approximately 60 percent, consisting mainly of German ivy (*Senecio mikanioides*), stinging nettles (*Urtica holosericea*), monkey flower (*Mimulus* spp.), poison oak (*Toxicodendron diversilobum*), and bulrush (*Scirpus microcarpus*).

The willow scrub floodplain contains the following plants: summer mustard (Hirschfeldia incana), black mustard (Brassica nigra), telegraph weed (Heterotheca grandiflora), star-thistle (Centaurea spp.), milk thistle (Silybum marianum), elderberry (Sambucus mexicana), coyote brush (Baccharis pilularis), sandbar willow (Salix hindsiana), coffeeberry (Rhamnus californica), yerba santa (Eriodictyon spp.), California wild rose (Rosa californica), western sycamore (Platanus racemosa), and box elder (Acer negundo).

There are abundant aquatic invertebrates present, including mosquito larvae (Aedes spp.), and water striders (Gerris remigis). Observed high water marks indicate that high flows do occur in the stream. Stream substrates are boulders with some cobble. The stream banks are very steep (in some places 90 percent slope) and unstable.

Deleissigues Creek is a small, ephemeral creek with little riparian or in stream vegetation. The substrates are gravel and sand. Due to the size of the creek and the lack of riparian vegetation, the wildlife habitats are of low quality.

## Special Status Plants

Presently, no federal or state listed plant species (endangered, species of concern, candidate, or threatened), plant species mandatory to be considered under the California Environmental Quality Act, or CNPS listed species, were observed on this site.

## Special Status Wildlife

Eight special status wildlife species that could potentially occur in or around the project area are listed below:

Cooper's hawk (Accipiter cooperii)

Sharp-shinned hawk (Accipiter striatus)

Prairie falcon (Falco mexicanus)

Burrowing owl (Athene cunicularia)

Southwestern pond turtle (Clemmys marmorata pallida)

Two-striped gaiier snake (Thamnophis hammondii)

California red-legged frog (Rana aurora draytonii)

Monai·ch butterfly (Danaus plexippus)

California Department of Fish and Game (CDFG) has designated the following species of special concern: the Cooper's hawk and sharp-shinned hawk. They breed throughout California and nest and forage in deciduous riparian forests. Suitable riparian habitat occurs along Nipomo Creek.

The prairie falcon is a CDFG species of special concern. Prairie falcons nest on steep rocky cliffs or rock faces and forage in grasslands and open shrub habitat. Foraging but not nesting habitat occurs in or near the project area; therefore, the proposed project should not affect the prairie falcon.

The burrowing owl is designated by CDFG as a species of special concern.

Burrowing owls occur in grasslands and sparsely vegetated woodland and scrub habitat throughout California. Burrowing owls nest in abandoned ground squirrel burrows. No burrowing owls or potential burrows required for nesting habitat were observed in the project area. The proposed project should not affect burrowing owls.

The southwestern pond tU1ile and the two-striped garter snake are designated by CDFG as species of special concern. They occur in watersheds which have stream flow year·round. They are found in areas that contain deep pools (>1 meter deep). The two-stripped garter snake and the southwestern pond turtle could occur in Nipomo Creek; however, the habitat is of low quality for these species.

California red-legged frogs historically occurred from Marin Cow1ty, California to Baja California, Mexico. Due to a decline in their range, the California red-legged frog was federally listed as threatened, under the Endangered Species Act of 1973, on June 24, 1996 (Federal Register 25813). The California red-legged frog is a large (85-138 mm) reddish/brown frog with variable red pigment on the ventral surfaces (Jennings & Hayes 1994). They occur in varied habitats during

their life cycle (Jennings & Hayes 1994). California red-legged frog eggs are usually laid on emergent vegetation (Jennings & Hayes 1994). The breeding areas include lagoons, streams, ponds, and even siltation or irrigation ponds (USFWS 1997). Tadpoles usually stay in these areas until metamorphosis (USFWS 1997). Sub adults and adult California red-legged frogs may travel 1.6 km upstream or downstream or dozens of meters away from water (USFWS 1997). California red-legged frogs are nocturnal although sub adults are sometimes active during the day (Jennings & Hayes 1994). The USFWS (1997) California red-legged frog protocol suggests two night-surveys and two daysurveys and a habitat assessment in and around the project site.

A U.S. Fish and Wildlife Service, *Guidance on Site Assessment and Field Surveys for California Red-legged Frogs* (USFWS 1997), survey protocol was performed near the proposed project site for a Nipomo Community Services District waterline project (Reents 1997). No California red-legged frogs were observed uring this survey.

The monarch butterfly has no special-status although the NDDB does monitor the availability of the species' roost sites. The Monarch is a migratory butterfly. In California, the adults migrate southward in the fall and over winter in Monterey Pine and eucalyptus groves. Eucalyptus trees border Nipomo Creek and may provide habitat for monarch butterflies.

The only special status species observed was one monarch butterfly. Non-special status species observed, include the Pacific tree frog (*Hyla regilla*) in the Nipomo Creek riparian corridor and a possible three-spined stickleback (*Gasterosteus aculeatus*) in Nipomo Creek.

The more recent Bjorn EIR has extensive information on biological resources at the confluence of Nipomo Creek and the Santa Maria River. Species lists are provided in Appendix III.

**Fisheries Considerations** 

The Southern California Steelhead Trout was listed as endangered by NOAA Fisheries on August 18, 1997. It is listed as a threatened species in the South Central Coast ESU. The demarcation between the southern and central coast ESU is the Santa Maria River. Steelhead are an anadromous form of rainbow trout that reproduce in freshwater, but spend much of their life cycle in the ocean, where increased prey density provides a greater growth rate and size.

The position of the watershed in a regional context, as a subwatershed of the Santa Maria River, suggests that Steelhead once existed in the main stem of Nipomo Creek. Due to lack of perennial flow in the Santa Maria River with the installation of Twitchell Dam, the remaining flow from the Sisquoc River (a tributary to the Santa Maria River) does not currently suppoli a steelhead run within the lower Santa Maria River Watershed. The RWQCB CCAMP program, discussed below, indicates that Nipomo Creek's water temperatures are no longer sufficient to harbor cold-water fish species. The NCSD's Sphere of Influence Final Environmental Impact Repoli does however list Steelhead trout (*Oncorhynchus mykiss*) as being found in the Nipomo area (May, 2004) as does the Bjorn EIR for the Asphalt Plant (August, 2005). Historical information suggests that the Santa Maria River supported a steelhead run in the early 1900s. Currently, there is no evidence suggesting this species has been present for several decades. However, it is assumed this species has the potential to occur within Nipomo Creek (Bjorn EIR, 2004). There are also anecdotal accounts of Steelhead presence in the watershed from long-time residents of the watershed as depicted in the history section above.

## **Water Quality**

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Surface water quality in Nipomo Creek was monitored through a volunteer monitoring program as part of the Nipomo Creek Watershed Program during 2004. In addition, water quality has been tracked by the Regional Water Quality Control Board's monitoring program called the Central Coast Ambient Monitoring Program (CCAMP) during 2000-2001. Results of water monitoring are compiled in Appendix IV.

Beneficial uses for surface water are divided into twenty (20) standard categories (RWQCB, 1994). Nipomo Creek no longer supports the water contact recreation beneficial use and non-contact water recreation beneficial use. In addition, the aquatic life beneficial use is currently listed as threatened.

Status of Nipomo Creek Water Quality

Nipomo Creek is currently listed as an impaired body of water by the Central Coast Regional Water Quality Control Board (RWQCB) for fecal coliform with a start date of March 10, 2004. The listing resulted from water quality sampling conducted during the 2000-2001 sampling rotation and led to the board's requirement of a TMDL, described below. The monitoring listing identification is 819 and the project identification is 596.

Total Maximum Daily Load (TMDL) is the amount of a particular material that a waterway can absorb on a regular basis and still remain safe for the beneficial uses designated for that water body. Section 303 of the Clean Water Act requires development of a TMDL for threatened or impaired waters. The designation as threatened or impaired (commonly referred to as the "303(d) list") identifies the pollutant or stressor causing the threatened or impaired condition of each water body. A TMDL must be developed for each stressor or pollutailt for each water body threatened or impaired. The Clean Water Act requires that TMDLs be incorporated into the state's water quality management plan (which consists of Regional Board Basin Plans). Potier Cologne Water Quality Control Act, in tum, requires that Basin Plans have a program of implementation to achieve water quality objectives (Watershed Management Initiative, Central Coast RWQCB, January, 2002).

Nipomo Creek is proposed on the current draft 303(d) list of impaired water bodies list. The recommendation is to retain Nipomo Creek on the list for fecal coliform. The Santa Maria River is listed for several constituents including ammonia, chlorpyrifos, DDT, Dieldrin and Endrin. By proactively protecting this tributary, the water quality of surface flow entering the larger system, will in turn be protected. Based on the CCAMP monitoring, additional constituents of concern include:

- Ammonia as N (single sample indicates cause for concern)
- Chlorophyll a (single sample indicates cause for concern)
- Fecal coliform (not supporting some beneficial uses)
- Total colifo1m (not supporting some beneficial uses)
- Dissolved oxygen (partially supp01iing beneficial uses)
- Oxygen Saturation (not supporting some beneficial uses)
- pH (a single sample indicates cause for concern)

## Volunteer Water Quality Monitoring

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Volunteer water quality monitoring sites were chosen along the wetted sections of the watershed given that most of the tributaries within the watershed are seasonal drainages and do not contain perennial flow. Approximately 90% of the watershed is on private property. Sites were chosen that were legally accessible at road crossing or where landowner access was granted, and to maintain consistency with the RWQCB's monitoring protocol.

*Typical monthly water monitoring locations (flow dependent):* 

## 1. <u>Upper main stem Nipomo Creek @ ThompsonRd</u>

This site will most likely be sampled only during storm events. Surface flow is not apparent at this site but sampling at this location will give data from ranching and orchard operations immediately upstream of the site. The very upper poliion of the watershed looks to be very small as three

tributaries converge to form the main stem Nipomo Creek upstream of this

location.

#### 2. Main stem @ Nipomo High School

This site will probably be the first to have regular monitoring of at least surface water. This site can be adopted by a science class and future

projects or class curriculum could be developed, as we get more involved in the watershed.

#### Main stem @ Tefft St 3.

There will be two sample sites located here. One upstream of the bridge, outside of potential influence from street storm water runoff and the second located downstrean1 of the bridge. Local stakeholders are interested in seeing the influence in the creek from the road. There is a discharge culvert located on the upstream, left bank and there appears to be a runoff swale from the road on the downstream left bank. A serious bank cut has formed on the left bank and is seemingly caused from a clump of willow on the right bank directing water to the left bank that is further eroded from the road runoff.

#### Main stem @ Dana Adobe 4.

This site will serve as a monthly monitoring site and samples from Rancho, Adobe, and Carillo Creeks can be pulled during sto1m events.

#### Main stem@Thompson Rd upstream ofDNC 5.

Depending on access, this site will show the differences in the creek after a large wetland area allows potential sediments to settle out, and a potential reduction in nutrients, if there are any found, from emergent vegetation uptake.

#### 6. Main stem@ last grouted culvert bridge

This final road crossing is important to sample due to the fact that it is just upstream from the discharge of Nipomo Creek to the Main stem of the Santa Maria River. This will also be an important site just to monitor, as it appears to be "the plug" in the lower watershed/wetland holding area. There is a 6-8 foot drop in elevation on the downstream side of these multiple 12-inch culverts.

## Recommended Storm Event Monitoring Sites:

In addition to regular sites, it is recommended the following sites be monitored during storm events.

- Mehlshau Creek @ Thompson Rd To assess upper watershed impact.
- 2. <u>Cavaletto Creek @ Nipomo High S chool</u> The confluence with Nipomo Creek is located on the high school
  property or immediately upstream.
- 3. <u>Deleissiques Creek @ Mallagh</u> St. Deleissiques Creek runs parallel to Mallagh St and severe incising is occurring. Monitoring for sediment delivery will be beneficial.
- 4. Hermreck Creek@Mallagh St. Hermreck Creek runs through and underneath a development, daylights,
  and then is forced through another culvert. Monitoring to assess and
  control water delivery will be key for safety here.
- 5. <u>Haystack Creek @ Mallagh St</u> -

This tributary to Nipomo Creek has the most impact on the residents of the watershed and needs to be carefully monitored. Being one of the largest tributaries, and running right through the middle of Olde Town Nipomo, monitoring, planning, and improvements should be focused here. Differentiating between the forces from the North or South forks could aid in expediting the remedy.

6. Rancho, Dana, Adobe, and Carillo Creeks @ Darm Adobe -

Need to evaluate aerials and see what creeks can be monitored from the Adobe to record their influence. Intense agriculture operations occur downstream from Thompson.

## 7. ROcky Creek @ Poague Rd -

Smaller tributary but could be monitored to see what influence, if any, it has on the main stem.

## 8. <u>Du1m Creek @ Thompson Rd</u> -

Sizeable tributary that, if sampled from Thompson Rd, will give influence data as its confluence with Nipomo Creek is immediately downstream of the road crossing.

## 9. Bull and Wineman Creeks @ South side of Highway 101 -

Evaluation of Bull Creek to see what influence, if any it has on the main stem will determine the use in testing. Wineman Creek drains the most amount of land in the watershed and it is routed through a maze of culverts and concrete drains. This tributary will be very important to monitor over time.

## Water Quality Monitoring Parameters

When CCSE started the water-monitoring project in the Arroyo Grande Creek watershed, the test kits were purchased from Earthforce. Their Global Rivers Environmental Education Network (GREEN) test kits give a snapshot of the watershed, are easy to use, and accurate. The kits analyze nitrate, phosphate, pH, turbidity, temperature, and dissolved oxygen. Percent saturation of oxygen is derived from temperature and dissolved oxygen. The individual tests use tablets, which turn color accordingly and are compared to cards to determine the levels of the different parameters.

Nitrogen is a nutrient that acts as a fe1iilizer for aquatic plants. When nutrient levels are high, excessive plant and algae growth creates water quality problems. Nitrogen enters the water from human and animal waste, decomposing organic matter, and run-off of fertilizer from lawns and crops. Nitrogen occurs in water as Nitrate (NO3), Nitrite (NO2), and Ammonia (NH3). Unpolluted waters usually have a nitrate level below 4

pails per million (ppm). Nitrate levels above 40 ppm are considered unsafe for drinking water.

Phosphorus is a nutrient that acts as a fertilizer for aquatic plants. When nutrient levels are high, excessive plant and algae growth creates water quality problems. Phosphorus occurs in natural waters in the form of phosphates (P(?4). Over half the phosphates in lakes, streams aild rivers come from detergents. Phosphate levels higher than 0.003 ppm contribute to increased plant growth.

pH is the measurement of hydrogen ions in a water sample. The pH scale ranges from 0 to 14. Water samples with a pH value below 7 are considered acidic, above 7 are basic, and 7.0 is considered neutral. A pH range of 6.5 to 8.2 is optimal for most organisms. Rapidly growing algae and vegetation remove carbon dioxide (CO2) from the water during photosynthesis. This can result in a significant increase in pH.

Turbidity is the measurement of the relative clarity of the water. Suspended colloidal matter such as silt, clay, organic and inorganic matter, and microscopic organisms causes turbid water. Turbidity should not be confused with color, since darkly colored water can still be clear and not turbid. Turbid water may be the result of soil erosion, urban run-off, algal blooms, and bottom sediment disturbances, which can be caused by abundant bottom feeders. Temperature is very important to water quality.

Temperature affects the amount of dissolved oxygen in the water, the rate of photosynthesis by aquatic plants, and the sensitivity of organisms to toxic wastes, parasites and disease. Thermal pollution, the discharge f heated water from industrial operations, for example, can cause temperature changes that threaten the balance of aquatic systems.

Dissolved Oxygen levels below 3 ppm are stressful to most aquatic organisms. Dissolved Oxygen levels below 2 or 1 ppm will not support fish. Levels of 5 to 6 ppm are usually required for growth and activity.

## **Demographics**

According to the 2000 census the Nipomo area is home to 12,626 residents with 4,146 dwelling units. The NCSD now serves approximately 10,000 residents compared to an estimated 5,700 in 1990. Over the last 20 years, Nipomo's population has increased by approximately 7,379 people or 140%. This equates to an estimated 7% per year rate of population increase over the 20-year period. From 1980 to 1990, the community of Nipomo increased by 1,862, a 35.5% increase, an average growth rate of 3.55% per year. In the 1990's, Nipomo's population increased by 5,517 residents, a 10 year growth rate of 77.6%. The annual population growth rate for that last decade was an average of 7.8% (Sphere of Influence Update, Municipal Service Review, SLO Local Agency Formation Commission, 2004; http://www.slolafco.com/SOI\_Updates.html).

A detailed review of demographics of the area and projections for the future are included in the population section of the Sphere of Influence BIR, as well as in the Growth Management Ordinance BIR. For the purposes of this report, it is critical to stress that as population grows, water resources must be integrally managed to ensure maximum recharge to the ground water while reducing flood impacts to Nipomo Creek.

# Approach to Implementing the Plan

The implementation of the watershed management plan is completely voluntary. Implementation will be guided by the steering committee to ensure projects of community concern and support are considered and that the original intentions of the stakeholder group are upheld. In addition, eff011s will be made to overlay projects recommended in this plan with other plans including the Nipomo Drainage and Flood Control Study and the South County Area Plan, Inland P01tion, as well as the use of oppo11unities related to required mitigation projects in the watershed to implement already targeted projects. Further, this plan will make recommendations for articulation with the above plans for an on-going organizational framework for coordinating management activities within the watershed.

It is the desire of the Nipomo Creek Watershed Forum Steering Committee that this plan be circulated among all sectors of the watershed. The Steering Committee will be seeking suppoll for the plan by regional municipalities and regulatory agencies to familiarize them with the grassroots effort to enhance and restore the watershed.

# **Benefits to Landowners and Community**

As landowners, community members, agencies and organizations discussed the issues and existing conditions within the watershed, they have gained new perspectives about other stakeholders' needs and the resources the community depends upon. With the assistance of the information in the plan, landowners will be able to implement projects that benefit not only their own prope1ty but benefit the environment as well. Projects, such as bank stabilization, ensure the landowner will retain his/her "prope1ty" while protecting habitat by reducing excess sediment inputs to the stream. Tools provided in this plan will facilitate project design, permitting and planning.

In addition to project design and implementation information, financial support will be developed using this plan as a basis for grant applications. Landowners will be able seek funding to complete projects defined in this plan. Funding opportunities are available for on the ground projects, installation of management practices and for landowners interested in easements to achieve specific objectives. It is advisable for all landowners to direct questions about pelmitted land use practices to agencies prior to initiating activities hat could impact natural resources.

## **Recommended Projects**

The following set of projects has been developed based on landowner and steering committee input, projects previously identified by the Land Conservancy of San Luis Obispo County in the two primary documents produced as part of the Nipomo Creek Watershed Program (Watershed Characterization Report and Nipomo Creek Watershed Program Final Report of Concept Recommendations For Short-Term Project Implementation), the Nipomo Community Drainage and Flood Control Study and previous documents produced by the Nipomo Creek Committee.

## Nipomo Creek Watershed Program Final Report of Concept Recommendations for Short-Term Project Implementation

The Land Conservancy is proposing five projects that have arisen out of the landowner outreach process and are the primary projects for subsequent funding requests from the Restoration Subcommittee. Each project is summarized here. The proposed projects address Guadalupe Settlement Funding Criteria based on a biological and water quality nexus between the Nipomo Creek Watershed and the Guadalupe-Nipomo Dunes.

The Nipomo Creek watershed is linked hydrologically to the Guadalupe-Nipomo Dunes as a tributary system of the Santa Maria River watershed providing surface flow and, geologically as a source of alluvial material for the dunes ecosystem. In addition, both watersheds share the same groundwater basin.

The majority of the recommended projects are water quality improvement projects which serve to benefit surface flow particularly regarding sedimentation reduction. A more detailed narrative of water quality improvements accompanies the project descriptions.

In addition, the majority of the projects provide habitat continuity despite the impact of fragmentation of habitat between the dunes system and the Nipomo Creek watershed. Nipomo Creek is believed to be a migration corridor for wildlife species moving within the region and coastal habitat to the west. These migration corridors are especially critical through areas where human activities (i.e., urban development, agricultural development, etc.) would otherwise prohibit or impair the movement of species between habitat areas (Bjorn EIR, 2004).

## Riparian Restoration Project

The purpose of this project is to restore a portion of the main stem of Nipomo Creek where two large eucalyptus trees have fallen into the stream channel, thereby disrupting the hydrological function of the stretch and causing significant erosion problems, both at {he site and downstream. The project site is particularly important because it is in the immediate vicinity of several confluence areas with tributaries to Nipomo Creek, and is located just upstream from the Olde Towne Nipomo area where significant flooding has occurred over the years. There is also a historically imp01tant, natural, artesian spring that has been impacted by the hydrological changes that have occurred as a result of the two trees that have fallen into the channel. The work proposed to be performed includes the removal of both fallen trees followed by the stabilization ar1d re-planting of the impacted stream banks. This project will reduce bank erosion and improve surface flow water quality.

## Invasive Species Removal Project

The purpose of this project is to implement an invasive species removal regime on a property where significant infestations of periwinkle (*Vinca minor*) have overtaken the native riparian vegetation. Large portions of the project site are periwinkle monoculture, providing very little ecological benefit to the project vicinity. The entire riparian co1Tidor on the property will be protected by a permanent conservation easement. In addition, as part of the easement, the landowner has agreed to provide limited public access for hiking and nature watching as an extension of the trail which currently exists along the creek on the Dana Adobe property (see separate discussion of this property in the ensuing pages of this report). The conservation easement on this property would protect an approximately 1/4 mile length of Nipomo Creek. The total size of the easement would be approximately three acres (1,320 feet long by 100 feet wide). The conservation easement associated with this project and the acquisition of the Dana Adobe property, taken together, would represent the permanent protection of nearly one contiguous mile of the main stem of Nipomo Creek.

## The /Jana Adobe Cultural Landscape and Riparian Restoration Project

This project centers around the fee simple acquisition of the 40 acre property that immediately surrounds the historic Dana Adobe, located on South Oak Glen Road. The Laud Conservancy has recently entered into an informal partnership with the non-profit Dana Adobe Nipomo Amigos (DANA) whom also desires to acquire the property in order to protect the extremely impoliant historical resources and cultural landscape associated with the Dana Adobe structure itself. Although the Dana Adobe and the ¼ acre parcel it sits on today had been owned by the San Luis Obispo County Historical Society since 1954 until it was recently deeded from the Historical Society to DANA, the surrounding 40-acre landscape for which the adobe was originally sited remains in private ownership.



In addition to its unparalleled historical resources, this property also includes nearly 3/4 of a mile of Nipomo Creek, as well as the confluence area of Nipomo Creek with two seasonal tributaries. As such, the property represents one of the longest intact stretches of

Figure 17: The Dana Adobe Cultural Landscape

Nipomo Creek in a single ownership in the entire watershed. For the most part, the riparian resources located on the propeliy are in excellent condition, exhibiting a good mix of native species and a healthy canopy cover. There are, however, a few areas where restoration activities would be desirable. The proposed restoration includes the stabilization and revegetation of two separate sections of eroded stream bank that are now vertical from top to bottom, as well as the removal of an old, junked car that lies within the stream chalmel and is causing undesirable hydrological changes in that area leading to further erosion problems. This project will reduce bank erosion and improve surface flow water quality.

The long-term vision for the prope1iy is to create a "living history park" in which members of the public will have the opportunity to interpret the unique cultural and natural l:iistory that is germane to this property in a restored and easily accessible environment. This includes DANA's goal of completing the restoration of the adobe itself and the construction of other historically contextual visitor serving amenities, including a visitor center museum in *which* a long-time Nipomo resident's collection of local geological and paleontological artifacts can be displayed, and a natural, outdoor amphitheater where community events can take place. For the Land Conservancy's part, the long-term goal is to re-establish a stable and healthy riparian system on the property, and also to provide hikes where the interpretation of the natural history of Nipomo Creek that this prope1iy affords can occur. There are already informal walking paths established on the property. Furher, part of this *de facto*, informal trail system is the right-of-way of the former Pacific Coast Railroad alignment, which is immediately adjacent to the subject property running along its east side. Prior to the Pacific Coast Railroad, this same alignment was also a p01tion of the El Camino Real.

## Stock Pond Restoration Project

The purpose of this project is to implement the restoration of a registered stock-watering pond located on a 530-acre property located in the middle of the watershed. The owners' family originally installed the stock pond in the 1950s for stock watering purposes in suppoli of their cow and calf ranching operation on the property. There is an appropriative right to hold three acre-feet of water in the pond, the capacity for which it was originally designed. Over the years, however, the pond has silted up to the point that it is no longer functional. This is due in part to increasing sedimentation transfer from upstream, and in part due to general neglect stemming from the owners' fear of dredging the pond without fully understanding the complexities of environmental regulation relative to ponds such as theirs. With the long-term build up of sediment in the pond, it no longer holds water, as it should; rather, any flow from the stream above it flows into the basin and immediately exits out the overflow drainage. The overflow drainage was never intended to handle significant levels of stream flow velocity. The result of this has been erosion of the overflow drainage area and a significant erosion blow out of a stream bank approximately twenty yards downstream. The restoration of the stock pond will

provide for the control of the erosion groun, dwater re-charge, and assistance long-tem1. This project will reduce ere

## Wetland Restoration Project

The purpose of this project is to perma: lower Nipomo Creek Watershed, as we occur in that area. The propelity is cunl due to the wetland and reoccuning flool little economically viable use of the pro'. is one area at the rear of the property tha exists.

The concept for the project design is similar to mat which was implemented by the Coastal San Luis Resource Conservation District in the late 1990's at Chorro Flats near



the Morro Bay Estuary. In this project, a small berm was constructed to the height of about two feet, running along the outside of the flood plain area. Everything on the creek side of the be1m is managed for wetland habitat and sediment capture, while the land on the outside of the berm in used for agriculture.

Because the be1m has greatly reduced flooding over the entire prope1iy, the use of the agriculture land is now viable all year, except in extremely wet times.

The Land Conservancy proposes conducting a wetland delineation in accordance with the Army Corps of Engineers' established protocol A qualified heavy equipment contractor would construct the berm to the outside of the delineation line in accordance with an engineer's specifications. All of the land with' the wetland delineation area will be

placed under a permanent conservation easement donated by the landowner; the benefit to them being the ability o engage in farming on the outside of the be1m, and perhaps more importantly, allowing them to drive to the rem· of the property where they plan to construct a residence in the future. The Land Conservancy would then endeavor to plant a variety of wetland vegetation in the established wetland area, including willows, rushes, reeds, and cattails. The overall goals of the project are to increase wetland habitat for birds and aquatic wildlife, increase the prope1ty's ability to capture and filter sediment, and to contribute to agricultural viability in the area by addressing the on going flooding that occurs at this site. This project has also generated interest by the adjacent landowner whose property is also subject to flooding.

## **Drainage Projects**

The Nipomo Drainage and Flood Control Study was conducted for the Community of Nipomo following heavy rainfalls in March, 2001. A report was prepared under the direction of the County of San Luis Obispo Public Works Department, released in February 2004, and summarized below. The Nipomo Community Advisory Council (NCAC) then led a public input process to solicit comments on the report. In addition, during 2004, an NCAC task force prioritized projects recommended in the study and generated additional project ideas, depicted in the table on the following page. The study does not include the entire Nipomo Creek watershed, but focuses on Olde Towne and the Mesa. Much of Olde Towne is located within a 100-year flood hazard zone. These areas have been identified by FEMA as subject to flooding during a 100-year rainfall event. The lower lying areas near the creek and tributary channels may also be subject to flooding from more frequent rainfall events due to inadequate local drainage facilities to convey urban runoff from homes and streets to the creeks. The major flooding problems in Olde Towne result from flood flows breaking out of one of the five creeks flowing through the urban areas of Olde Towne. A majority of the culve1t crossings in Olde Towne do not meet the current minimum County standard. The culverts within Olde Town are generally not sufficient to pass the 10-year flow rate without surcharge, although some can pass higher return period storms with surcharge. The culverts and

crossings along Haystack Creek, with exception of the newly installed arch at the Tefft Street crossing, are generally insufficient to carry the 10-year flow, when the minimum standard requires sufficient capacity to pass the 25-year flow. If the channels and culverts were designed per the County's standards for Major and Secondary waterways, then the threat and frequency of flooding from large storms would be reduced because the facilities would have sufficient capacity to convey the peak storms. Maintenance of existing drainage structures is lacking in Olde Towne. The creek channels, culvert crossings, and roadside ditches need restorative and periodic annual vegetation management and sediment removal. Conducting necessary maintenance on creeks in Olde Towne is complicated not only by the regulatory permit approval process, but also by the location of most creeks within private propeliy. The County was not granted a drainage easement on any of the creeks in Olde Towne and therefore cannot perform routine maintenance or channel clearing on any reach of creek outside of public right-of-way.

The proposed projects for Olde Towne are typically culve1i replacement projects to raise the design standard of most street crossings and conform to the County's current standards for minor, secondary and major waterways. The community can also pursue projects that provide 100-year level of flood protection and could potentially remap the FEMA flood hazard zone, removing homes and businesses from the 100-year floodplain. The proposed Deleissigues Creek vegetative management and sediment removal project and the proposed detention basins could potentially impact jurisdictional waters and sensitive species habitat. Mitigation would likely be required by the resource agencies to offset any impacts to habitat.

The potential for habitat impacts presents permitting challenges and increases the level of complexity that must be addressed during the environmental documentation and permitting phase, and with the appropriate design features and mitigation, these impacts can be reduced to a less than significant level. Constant communication with the resource agencies during the design and permitting phase will be necessary to ensure that their concerns are addressed and that appropriate features required by the permits are designed into the project. Just as impoliant as the structural improvements, the community should form a drainage facility maintenance department. Routine

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maintenance of the roadside drainage ditches and culverts would minimize flooding problems associated with the more frequent moderate storms. The community's maintenance department would also be responsible for implementing a long-term maintenance program for the creeks to remove sediment, manage vegetation and ensure that the natural resources are protected during routine maintenance. The community should also implement a community awareness campaign to educate residents living alongside creeks on preserving the creeks' conveyance capacity by not disposing of trash or storing household items in the channel. Informing and educating the community on the benefits of maintaining clean creeks will help Nipomo achieve multiple objectives from flood protection to creek restoration. The educational programs could also assist the community on how to prepare for the rainy season. Much like annual maintenance, awareness and preparedness are on-going activities.

The desirability of linking projects in the upper watershed to retain and detain water to protect Old Towne is high. This action is further implicated as new development further increases impervious surfaces and adds to runoff from roads and roofs. For example, according to the Environmental Impact Report (EIR) conducted for the Nipomo High School construction project, runoff from the property would nearly double from its preconstruction quantity of 62 cubic feet per second (cfs) to post-construction flow of 112 cfs during a 10 year storm (David Foote, 1998). Impervious cover fundamentally alters the hydrology of urban watersheds by generating increased sto1m water runoff and reducing the amount of rainfall that soaks into the ground (CWP, 2004). Impervious cover is also the best indicator to measure the intensity of development and predict the severity of impacts to the remaining stream network (CWP, 2003).

According to Booth and Jackson ("Urbanization of Aquatic Systems, Degradation Thresholds, St01m water Detention, and the Limits of Mitigation", 1997), in relation to impervious area in a watershed and observable aquatic-system degradation, typically about ten percent effective impervious area can cause significant degradation in sensitive water bodies and a reduced, but less well quantified, level of function throughout the system as a whole. While Environmental Impact Reports (EIR) address cumulative impacts on a project by project basis, there appears to be lacking a data collection system which permits inspection of cumulative impacts of development occurring within a

watershed, which would, in turn allow decision-makers to make better info1med decisions about development policy and projects. As the impervious surface area in the Nipomo Creek Watershed increases with increased upstream development, it is increasingly important to link planning functions with drainage needs to be able to handle increased peak flows during storm events.

Funds to implement drainage projects could be attained by leveraging development mitigation monies and directing them to prioritized projects depicted above.

### Nipomo Drainage and Flood Control Study:

Location	<b>Project Description</b>	Project Type	Estimated Cost	Proposed by
Deleissigues Creek	Vegetation Management	Vegetation Management	\$387,000	County of SLO
Tributary 1 (c1ment standards)	Install new culverts	Roadway Crossings in Public Right of Way to Meet County Standards	\$171,000	County of SLO
Tributary 1 (100 year protection)	Install new culverts	Roadway Crossings in Public Right of Way to Meet County Standards	\$253,000	County of SLO
Hermrick Creek (cun-ent standards)	Install new culvelis	Roadway Crossings in Public Right of Way to Meet County Standards	\$108,000	County of SLO
Henmick Creek (100 year protection)	Install new culverts	Roadway Crossings in Public Right of Way to Meet County Standards	\$412,000	County of SLO
Haystack Creek	Install New Arch Culverts	County Standard Improvements and Erosion Protection	\$1,746,000	County of SLO
Haystack Creek	Install Detention Facility	Optional Storm Detention Facilities	\$2,267,000	County of SLO
Knotts Street Concrete Ditch	Remove and Replace Ditch with Strom Drain	n Knotts Street Roadway Hazard Improvement	\$669,000	County of SLO
Men's Club - Mallagh Street	Culvert Repair/Extension with redirection and bank stabilization	Re-engineering, sediment removal and re-vegetation	Unknown	NCAC Task Force
Deleissigues Creek at Mallagh & Eve Streets to Sea Street		Sedin1ent removal, revegetation and bank stabilization	Unknown	NCAC Task Force

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Haystack Creeks; north and south (priority) fork	License agreement to create detention basin (same as County project without purchasing the property)	Lower cost	Unknown	NCAC Task Force
Fairview Track	Improve detention basin maintenance	Stabilization of sediment	Unknown	NCAC Task Force
Deleissigues Creek up stream of Thompson Ave	Detention basin		Unknown	NCAC Task Force
Thompson Ave near undeveloped area between High School	Development requirements that require element to slow water; bioswell, widened channel, vegetation		Unknown	NCAC Task Force

## **Lo Impact Development Projects**

Ther is a growing cadre of development professionals and officials nation-wide who are integrating Low Impact Development (LID) into new infrastructure and redevelopment projects. LID principles are a set of technologies based on ideas/concepts that can potentially recreate pre-development hydrologic regimes of watersheds and thereby reduce impacts to soils, water and natural systems integrity as the community experiences growth. LID ideas were originally instituted to meet resource protection regulations, but in the past fifteen years LID has become economically efficient for both new development projects and redevelopment retrofits. Specifically, LID design features and practices distributed throughout urban development can:

- Disconnect impervious surfaces
- Mimic natural hydrologic processes
- Reduce runoff rates and volumes
- Reduce pollutant loads

The Nipomo Creek Watershed would be an ideal locale to pilot LID for the County of San Luis Obispo. It is therefore reco1mnended that funding be sought to work with a developer to institute these practices as a way to initiate their more wide-spread use throughout the region.

## Continuation of the Nipomo Creek Watershed Program

The initiation of the Nipomo Creek Watershed Program is an important step in involving the community in long-term watershed management and enhancement activities. It is that much more imp01iant to keep the momentum going by continuing the program through implementation measures. The implementation of the Nipomo Creek Watershed Progran1 could take several paths. The following recommendations assume the NCSD will not be the lead agency for implementing the Drainage and Flood Control Study, and that the organizations that have thus far been involved are potential partners, pending funding availability.

- 1. Implementation by the Land Conservancy of projects within its Final Report of Concept Recommendations for Sho1i-Te1m Project Implementation after acceptance of this document by the Restoration Subcommittee utilizing funds from the Guadalupe Oil Settlement Fund. Unused funds from the cycle, which funded the Nipomo Creek Watershed Program, could be circulated back into these implementation projects. Unused funds could be retained in a restricted account for a long-tenn vegetation maintenance program.
- 2. The Coastal San Luis Resource Conservation District (RCD) could partner with the Land Conservancy to implement erosion control measures outside the NCSD boundary line that could benefit NCSD residents in Old Towne. Pending funding, this is a typical way the RCD would engage in soil and water conservation.
- Central Coast Salmon Enhancement could partner with the Lm1d Conservancy to implement additional projects within this plan beyond the concepts proposed in the Land Conservancy's <u>Final Rep01i of ConceptRe OJ11rnendati ons</u> for <u>Short-Term</u> <u>Project Implementation.</u>

A Coordinated Resource Management Planning (CRMP) group can work as a tool to establish cooperation among landowners, government agencies, and other interested individuals and groups to address the dilemma of managing areas with multiple use ownership, conflicting management objectives and requirements, conflicting land use demands, and off site impacts. CRMP integrates and coordinates resource uses to accomplish specific goals (Cover Up Story, 1994). The CRMP process is centered on

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) ] three core tenets; consensus decision-making, local control, and voluntary implementation.

## **Exotics Species Removal**

Identified sites could be prioritized and a program established to coordinate with the county weed management area (WMA) program to treat and eradicate exotics.

## **Bridge Replacement Over Nipomo Creek**

Funds to widen the Highway 101 Bridge over the Santa Maria River have recently been allocated. It may be advisable to pursue widening the bridge over Nipomo Creek at the same time to alleviate the potential for flooding. The current configuration of the bridge has, in the past, been a bottleneck. Floodwater backs up behind the bridge and in March 2001, water flowed over the freeway, resulting in a road closure for public safety.

## Floodplain Enhancement Inventory

Inventorying potential sites for floodplain enhancement and seeking participation from willing landowners would serve to increase the watershed's natural capacity to hold sediment, keeping it from entering waterways, which would preserve water conveyance capacity. Once an inventory is complete, an acquisition/conservation easement plan could be undertaken to include incentives to landowners to participate. Laying back and re-vegetating banks, allowing for greater volumes of water to be carried and slowing the velocity along banks, reduces erosion potential as sediment can be deposited on the enhanced floodplain.

## **Road Inventory**

The road system throughout the watershed could be inventoried to identify areas where sediment is entering the creek in order to modify structures or initiate best management practices (BMPs) to reduce inputs. This would lead to reduced sedimentation to the system that could, in turn, preserve water conveyance capacity in the creek bed.

## **Policy Planning and Education**

#### Ordinances Which Benefit Watershed Health

The Land Conservancy could continue to work with local jurisdictions to generate concepts for local ordinances, researching currently applicable ordinances, regulations, resolutions and institutional incentives to protect and restore watershed health, particularly regarding sediment generation and control. Potential activities include:

- Partner with other countywide organizations to formulate a countywide ordinance for watershed restoration projects by private landowners.
- Evaluate current standards for sediment generation and control.
- Work with the California State Association of Counties to provide information on the model county ordinance proposed by the Task Force to Remove Barriers to Restoration.
- Investigate methods of incorporating channel evolution time frames into urban
  planning models so that a riparian channel is given an opp01iw1ity to reach a
  stable urban condition within the context of current land use planning
  principles.

## **Permit Streamlining for Restoration Projects**

As the Land Conservancy works to fund and implement projects, it would be useful to examine streamlined permit programs in adjacent watersheds and help to facilitate and institute such a program in this watershed with as many regulators as possible. At this writing, Sustainable Conservation, a state-wide nonprofit organization, is working with the local Resource Conservation Districts to establish a water quality stream-lined pelmitting program for southern San Luis Obispo and northern Santa Barbara Counties which would include the Nipomo Creek Watershed.

In addition, it would be useful to investigate the California EPA's and the California's Resources Agency's Strategic Watershed Plan which is exploring options for pelmit assistance centers, regional pilots for coordinated technical review and permitting of

restoration projects, watershed-based permit coordination programs, using funds such as Prop 40 (AB 2534), and developing a watershed planning guide.

## Continue Steering Committee/Watershed Forum or Council and 1Community Education and Awareness

Continued support of the Nipomo Creek Watershed Program will provide a platform for receiving public input on watershed wide issues. To that end, there is a need to continue community education and awareness. Some educational opp011unities include:

- Inviting National Riparian Service Team to conduct a workshop on Proper Functioning Condition (NRCS, BLM and USFS)
- 2. Initiating Adopt-a-Watershed program to fullher community involvement
- 3. Placing watershed signs at creek crossings and at watershed divides
- 4. Continuing and expanding monitoring activities
- 5. Working to reduce road drainage to waterways
- 6. Supporting the development of watershed-based general plans
- 7. Producing a watershed owner's manual
- 8. Offering classes for urban users in sto1m water issues
- 9. Creating a watershed stewards education class
- 10. Continuing existing community education projects such as Nipomo Creek Clean Up and Education Fair
- 11. Use existing venues such as Save the Mesa and the Nipomo Chapter of the Land Conservancy to keep project progress in the public arena
- 12. Utilizing the County Integrated Water Management Plan to leverage grant funds for restoration and Low Impact Development (LID) pilot/demonstration projects
- 13. Engaging in the water resources aspect of the Community 2050 Smart Growth effort being initiated by the San Luis Obispo Council of Governments, County Planning Department, Air Pollution Control District and Local Area Fo1mation Council to move SMART growth principles towards implementation.

## **Safe Harbor Agreements**

• , Promote Safe Harbor agreements for areas where threatened and endangered species are a concern on private working landscapes like farms and ranches to provide protection to landowners from regulatory action related to the Endangered Species Act.

## Long term acquisition projects

## Agricultural Preservation

A the Land Conservancy continues its work in implementing the above-mentioned projects (Nipomo Creek Watershed Program Final Report of Concept Recommendations for Short-Te1m Project Implementation), the Conservancy will continue to engage with landowners who own large parcels to gauge interest in developing projects.

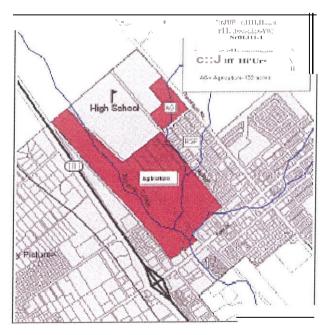
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# Relationship to other existing plans

The Sphere of Influence (SOI) Update for the Nipomo Community Services District
The Sphere of Influence (SOI) Update for the Nipomo Community Services District was adopted on May 20, 2004. The document and its Environmental Impact Report provide very detailed information on all areas being considered for inclusion in the district as well as impacts and mitigation for inclusion. Of relevance to this report, the SOI depicts three areas for consideration for eventual inclusion within the district, study areas 2, 3 and 4. All have main stem Nipomo Creek as a component. The following is excerpted from the SOI Update.

Study Area 2 - This area is located to the north of Olde Towne and on the east side of Highway 101 and is broken into a large and a small area. The total acreage for both areas is a total of 132 acres the zoning is Agriculture. The new Nipomo High School is located to the northeast; Olde Towne of Nipomo is to the south and east. The larger of

the two propeliies is currently being farmed and it is considered to be prime agricultural land. The area is also prone to flooding during storms and is mapped by FEMA as in a flood hazard zone. The Nipomo Creek is located adjacent to Highway 101 on the southwest side of the propeliy. The propeliy has significant environmental constraints that would need to be addressed in the development and review process if a project is to be considered for this site. This area is



nearly surrounded by development and is an island panhandle within Nipomo. The future use would be determined through either a comprehensive update of the South County Area Plan or a Land Use Ordinance Amendment submitted by the propeliy

owner to the County for processing. It is possible that with the high school to the north, Commercial Retail to the south and Residential Single Family to the east, this area could eventually develop into a more urban environment that would need the services of the District. The District has water and sewer infrastructure adjacent to the area.

Area 2 is almost entirely within the floodplain of Nipomo Creek and tributaries, Deleissigues and Hermreck Creeks. It would be useful to consider floodplain conservation as future development in this area occurs. Its proximity to the urban core suggests planning for an urban linear park would be appropriate. In addition, it would be helpful to consider easements that define beneficial activities that could be conducted while preserving the agricultural and open-space character of the area. At the very least, a development set back of ideally 50 feet would serve to protect future development in the floodplain.

Study Area 3 - This area is located east of Highway 101 and south of Olde Towne Nipomo. Much of the land is within the Nipomo Urban Reserve Line (URL) as defined by the County in the South County Area Plan. The only area outside the URL being

considered for inclusion into the SOI is a site between Thompson and the Nipomo Creek adjacent to Sparks Ave. This site, zoned Agriculture, is a small area designated to be the future site of a government center. Area 3 includes several land use categories, including; Residential Single Family, Residential Suburban, Agriculture and Recreation. The Dana Adobe site is located in an area that is zoned Recreation. To protect the historic

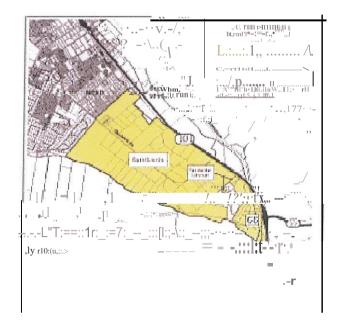


nature of the Adobe, the South County Area Plan has special development standards for this area. The District currently provides the Adobe with water service under an agreement approved in 1972 between the District and the San Luis Obispo County Historical Society. The SCAP recommends that a Specific Plan be completed to identify the appropriate civic-related functions and related private uses that would be associated with a government center. The Knotts Street area, on the east side of Highway 101 and the south side of town, is the subject of special development standards in the SCAP, including the requirement of a detailed hydro-geologic analysis for projects proposed Chapter 2 Sphere of Influence Update in the area. As this area develops it will eventually need the services of the District and is within the URL, with the small exception of the government center site designated in the South County Area Plan. The Nipomo Hills annexation proposal has also been submitted for processing and includes a limited Residential Single Family area on the southeast of town.

Area 3 also resides in the main stem's floodplain and contains two tributary confluences, Adobe and Carillo Creeks. As for area 2, it would be useful to consider floodplain conservation as f-t1ture development in this area occurs as well, considering easements to preserve agricultural and open-space elements of the area. The presence of the Dana Adobe in this area suggests the need to extend the protected land around the Adobe as far up and down stream as possible.

Study Area 4 - This area is located to the south of the cunent District boundary and

n01ih of the Santa Maria Valley. The area to the south of Southland Street is zoned Rural Lands and a poliion of it is currently used for growing strawberries, using impolied water. The total area is approximately 1,522 acres. The South County Area Plan (SCAP) calls for a Specific Plan to be prepared for the site just south and adjacent to Southland Street. The



SCAP calls for the application of the Highway 101 Corridor Design Standards as well as area standards that apply to the Rural Lands land use zone. As currently zoned, the area would not likely need the services of the District, with the exception of the Maria Vista development and the surrounding lands zoned Residential Suburban. If the Rural Lands zoning is changed to increase the allowed density, the area may need services from the District. The District does have infrastructure in the area if the zoning were to change.

Area 4 is at the most downstream reach of the main stem and includes the beginning of the confluence with the Santa Maria River. One of the Land Conservancy's recommended projects occurs in this area and is more fully described above in the projects section. The confluence zone is currently being considered for an expanded commercial use that would impact the Nipomo Creek riparian corridor at its most downstream reach in the watershed. The Bjom Asphalt Plant Site EIR more fully describes the proposed commercial development and is available on the web at www.sloplanning.org.

#### Growth Management Ordinance Amendments Draft Environmental Impact Report

This report (June 2005) points to several County Land Use Ordinance standards for watershed health:

Chapter 52 of the County's Land Use Ordinance (Title 22 of the County Code) and Chapter 5 of the Coastal Land Use Ordinance (Title 23 of the County Code) contain site development standards for the County, including drainage, grading, erosion, and sedimentation control. Sections that are applicable to drainage, grading, erosion, and sedimentation are outlined below.

Section 22.52.020 (Inland) states that the County's standards for grading and excavation are to minimize hazards to life and propeliy; protect against erosion and the sedimentation of water courses; and to protect the safety, use, and stability of public rights of way and drainage channels. Future projects would potentially require a grading plan and approval of the plan is based on the following criteria:

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- The extent and nature of the grading is appropriate for the proposed use and will not create site disturbance greater than required for that use.
- The grading will not result in erosion, stream sedimentation, or other adverse offsite effects or hazards.
- The grading will not create substantial long-term adverse effects visible from offsite.

Grading projects requiring land use approval are required to submit grading plans according to Section 22.52.070 (Inland) of the County Land Use Ordinances. Engineered grading plans are required for projects involving disturbance of 5,000 or more cubic yards of material, located on twenty percent slopes or greater, or located in a designated Geologic Study Area or Flood Hazard combining designation. Projects sited within the 100-year flood zone must have specific design considerations to ensure the structure is adequately protected as defined in Section 22.14.60 (Inland).

Grading must follow the standards provided in the Uniform Building Code (section 3309) and the following standards:

- Areas of cut and fill are to be limited to the minimal amount necessary.
- Grading for a building site is prohibited on slopes of 30% or greater.
- Contours are to be blended with the natural terrain.
- Grading may not alter watercourses except as permitted through the Department of Fish and Game and various watercourse protection methods shall be followed.
- Areas where natural vegetation has been removed must be replanted by various approved methods.

Section 22.52.080 of the Ordinance states that standards for the control of drainage and drainage facilities are designed to minimize harmful effects of storm water runoff and resulting inundation and erosion on proposed projects, and to protect neighboring and downstream properties from drainage problems resulting from new development. Future applicants for building permits would be required by this ordinance to develop a drainage lan for their project. The plan would include finished contours of the project, the

location and design of any proposed facilities for storage or conveyance of runoff into drainage channels, including sumps, basins, channels, culverts, ponds, storm drains, and drop inlets, estimates of existing and increased runoff resulting from the proposed improvements, identification of existing and proposed drainage channels, facilities for storage or conveyance of runoff, erosion and sedimentation control measures, and proposed flood-proofing measures.

Section 22.52.080 (Inland) requires submittal of a drainage plan for projects that:

- Increase or decrease runoff volume or velocity leaving the site beyond those that existed prior to site disturbance;
- Involve land disturbance of more than 20,000 square feet;
- Will result in a impervious surface of more than 20,000 square feet;
- Is subject to local ponding due to soil or topographic conditions;
- Is located in an area with a history of flooding or erosion that may be further aggravated by or have a harmful effect on the project or adjoining propellies;
- Is located within a Flood Hazard combining designation;
- Is located over a known high recharge area;
- Involves land disturbance or placement of structures within 100 feet of the top bank on any watercourse shown with a blue line; or
- Involves hillside development on slopes steeper than 10 percent.

Erosion and sedimentation control to protect damaging effects on-site and on adjoining properties is discussed in Section 22.52.090 (Inland) of the Ordinances. A sedimentation and erosion control plan would be required for future developments. The plan must discuss temporary and final measures including:

Slope surface stabilization including temporary mulching or other stabilization
measures to protect exposed areas of high erosion potential during construction
and interceptors and diversions at the top of slopes to redirect runoff;

 Erosion and sedimentation control devices such as absorbing structures or devices to reduce the velocity of runoff;

• Final erosion control measures including mechanical or vegetative measures.

Section 22.52.090 requires submittal of an Erosion and Sedimentation Control plan unless all of the following site characteristics exist:

- Site has a maximum slope less than 10 percent in the area to be graded;
- Site is not located within geologically unstable areas;
- Site is located on soils rated as having a low erosion hazard by the National Resource Conservation Service;
- Site is located more than 300 feet from the top bank of any blue line watercourse or water feature;
- The grading will not cause organic or earthen materials from logging,
   construction or other land disturbance activities to be carried into a swale,
   drainage way, watercourse, or onto adjacent propeliies by rainfall or runoff; and
- All grading activities and site disturbance activities will occur after April 15 and before October 15 and will create minimal site disturbance from combined activities.

In addition to the requirements above, several specific areas of the County require submittal of a drainage plan due to soil conditions, existing problems, and general area concerns. Most of Nipomo would be required to submit a drainage plan regardless of site conditions.

#### Urban Water Management Plan

The District has recently (01-14-04) adopted an <u>Urban Water Management Plan</u> that provides for better overall management of the water resources and includes enhanced water conservation measures. At this writing the Final Urban Water Management Plan has not been reviewed by the State Department of Water Resources but is available on

the web <u>(www.nipomocsd.com)</u>. The district is also staffing a position that will be responsible for regulatory compliance and water conservation implementation.

#### Santa Maria Groundwater Litigation

NCSD has entered into a settlement regarding the <u>Santa Maria Groundwater Litigation</u> that will likely have long-term implications on groundwater use for the district. It is unclear exactly how Nipomo Creek Watershed will be impacted as a result of the settlement agreements. The June 30, 2005 court stipulation identifies a Nipomo Mesa Management Area, one of three Management Areas. The Management Areas will be legally bound to specific programs intended to preserve the Santa Maria groundwater basin's integrity.

#### South County Area Plan

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The <u>South County Area Plan</u> points to several key pe1mit requirements related to drainage, proximity to Nipomo Creek and agricultural preservation.

- 1. Nipomo Lowland Areas Drainage Plan Requirement. All land use pelmit applications for new structures or additions to the ground floor of existing structures shall require drainage plan approval in compliance with Chapter 22.52 if the project is located within the area shown on Figure 112-44, unless the county engineer detelmines that the individual project site is not subject to or will not create drainage problems.
- 2. Creek Preservation Nipomo Creek. Retain Nipomo Creek in an open condition within fifty feet of the floodway and incorporate it into site development with landscaping that is compatible with riparian habitat (as recommended by the Department of Fish and Game) as well as compatible with county drainage requirements. All other development, including pedestrian seating and pathways, must be at least fifty feet away from the floodway for Nipomo Creek. Within the central business district (CBD), this provision shall remain in effect until such

time that this issue is fulther evaluated, defined and approved through the Nipomo CBD Design Plan.

3. Agriculture (AG) - Agricultural Preserve Status. When the present agricultural preserve contract is elminated on the land within the Nipomo urban reserve line in the agriculture land use category, the property owner shall initiate a request to amend the Land Use Element in order to determine the appropriate land use category to be placed on the propeliy.

#### The Draft Integrated Water Management Plan

The Draft Integrated Water Management Plan released by the County of San Luis Obispo Public Works Department contains a wealth of information about county-wide effo1is to integrate water planning. County-wide watersheds, including Nipomo Creek, are described.

# Regulatory Setting/ Agency Jurisdiction

The Nipomo Creek Watershed lies within many local, state and federal governmental jurisdictions. In order to work effectively to restore the watershed, it is impoliant to understand the regulations and jurisdictions. The following gives a brief overview of these organizations. Contact names, addresses and phone numbers for these agencies are found at the end of the report.

## **Federal Regulatory Agencies**

#### United States Army Co,ps of Engineers (ACOE)

The Nipomo Creek Watershed lies in the Los Angeles District of the South Pacific Division. The local office is located in Ventura, CA. The Congress of the United States has assigned the U.S. Army Corps of Engineers the responsibility for regulation and construction and other works in the waters of the United States. The Corps is charged with protecting our nation's harbors and navigation cham1els from destruction and encroachment, and with restoring and maintaining environmental quality. This is accomplished by regulating activities in three areas:

- 1. Discharge of fill or dredged materials in coastal and inland waters and wetlands;
- 2. Construction and dredging in navigable waters of the United States;
- 3. Transport of dredged materials for dumping into ocean waters.

The principal regulatory mechanisms of the Army Corps that relate to watershed enhancement are the Clean Water Act, Section 404(b)(l) Guideline; Marine Protection; Research and Sanctuaries Act; Endangered Species Act; National Historic Preservation Act; Coastal Zone Management Act; National Environmental Protection Act; and others as they relate to the regulatory actions of the District.

#### United States Fish and Wildlife Service (USFWS)

The U.S. Fish and Wildlife Service is the principal federal agency for conserving, protecting, and enllancing fish, wildlife, plants, and their habitats for the continuing

benefit of the public. The Service enforces federal wildlife protection laws such as the Endangered Species Act, and works in consultation with the Army Corps to ensure that permitted projects protect fish and wildlife. When protected species are involved, the Service prepares "Biological Opinions" on the project to assess the potential impacts and restrict potentially harmful activities.

The Nipomo Creek Watershed lies in the Service's Pacific Region (Region #1). This region headquarters is located in Portland, OR and the region contains the states of Washington, Oregon, California, Idaho, Nevada, Hawaii, and the Pacific Islands.

#### NOAA Fisheries formally known as National Marine Fisheries Service (NMFS)

NOAA Fisheries is a division of the National Oceanic and Atmospheric Administration (NOAA). The NOAA Fisheries strategic plan contains three goals: rebuilding and maintaining sustainable fisheries, promoting the recovery of protected species, and protecting and maintaining the health of coastal marine habitats. The Nipomo Creek watershed is in the Southwest Region (California, Hawaii, and the Pacific Trust Territories) with headquarters, located in Long Beach, California. The region is responsible for managing fisheries in the Pacific Islands for lobster, ground fish, swordfish, and precious coral; off the coast of California for salmon, ground fish, and anchovies; and or conducting enforcement, marine mammal and habitat programs to protect fishes, marine mammals and endangered species within the region.

Enforcement activities are carried out in cooperation with other State and Federal agencies in the Southwest Region to ensure compliance with various federal regulations relating to stewardship of fishery and protected species resources. For example, NOAA Fisheries works locally with the Army Corps permitting process by providing "Biological Opinions" on proposed projects. These opinions describe potential impacts to protected species and contain restrictions that assure protection of these species during project implementation.

#### United States Environmental Protection Agency (EPA)

Founded in 1970 as an independent agency, the Environmental Protection Agency (EPA) is generally responsible for protecting human health and safeguarding the natural environment (air, water, and land) in the United States. In its mission statement, the EPA identifies as its charge, research, standard setting, monitoring and enforcement with regard to five environmental hazards: air and water pollution, solid waste disposal, radiation, and pesticides. While presiding over the entire country, the EPA also coordinates and supp01ts research and pollution mitigation activities by state and local governments as well as private and public groups, individuals and educational institutions. The Nipomo Creek watershed lies in the US EPA's Southwest Region (Region 9). This region contains Arizona, California, Hawaii, Nevada, and the Pacific Islands and the headquarters are in San Francisco. This agency was recently involved in settling a wetlands violation of the Clean Water Act that provided funding to the Land Conservancy to acquire lands along Nipomo Creek.

## **State Regulatory Agencies**

## California Department of Fish and Game (CDFG)

The Nipomo Creek Watershed is in CDFG's Central Coast Region, a region that includes Alameda, Contra Costa, Marin, Mendocino, Napa, San Benito, San Luis Obispo, San Mateo, Santa Clara, Santa Cruz, San Francisco, Sonoma, and Solano Counties. The Depaitment of Fish and Game is responsible for conserving, protecting, and managing California's fish, wildlife, and native plant resources. To meet this responsibility, the law requires any person, state or local government agency, or public utility proposing a project that may impact a river, stream, or lake to notify the CDFG before beginning the project. If the CDFG determines that the project may adversely affect fish and wildlife resources, a Lake or Streambed Alteration Agreement (1602 Agreement) is required. The principal enforcement mechanism for the CDFG is the California Fish and Game Code, Section 1602. The CDFG currently holds a California Environmental Quality Act (CEQA) mitigated negative declaration for projects conducted using CDFG fisheries

enhancement funds for this area. Exclusions include projects conducted by a governmental agency and permits requirements from the Anny Corps of Engineers.

#### Regional Water Quality Control Board (RWQCB)

The Regional Water Quality Control Board is the local administrative unit of the State Water Resource Control Board. The Nipomo Creek Watershed is in Region 3, the Central Coast Region. The local office is in San Luis Obispo. The mission of the RWQCB is to develop and enforce water quality objectives and implementation plans that will best protect the beneficial uses of the State's waters. Each RWQCB has nine part-time members appointed by the Governor and confirmed by the State Senate. RWQCB's are responsible for developing "basin plans" for their hydrologic areas, governing requirements, issuance of waste discharge permits, enforcement actions against violators, and monitoring water quality. The focus of the RWQCB is water quality; the Clean Water Act is the primary enforcement tool. The RWQCB also maintains the State's 303d list of impaired water bodies (section 303d of the Clean Water Act). When a water body is listed on the 303d list, regional offices prepare studies and remediation plans to bring water quality to within the State's standards.

The RWQCB becomes involved in watershed enhancement projects as pail of Section 401 of the Clean Water Act (CWA). The Board works in coordination with the Army Corps of Engineers (ACOE) to issue compliance documents for this section of the CWA. The RWQCB recently modified discharge pe1mits associated with irrigated agriculture requiring landowners and farm operators to enroll in the Conditional Ag Waiver program which requires the development and implementation of a farm water quality management plan for the reduction of water quality impacts. Plans include use of Best Management Practices among others. The RWQCB is currently enrolling landowners and farm operators in the program. Nipomo Creek is to be initially included in the core-monitoring network for the implementation of the waiver. Ranch and farm management practice checklists applicable to the Ag Waiver program are available at the Board's website located in the contact section of this report.

#### Department of Water Resources (DWR)

DWR operates and maintains the State Water Project, including the California Aqueduct. The department also provides dam safety and flood control services, assists local water districts in water management and conservation activities, promotes recreational opportunities, and plans for future statewide water needs. The mission of the Division of Flood Management is to prevent loss of life and reduce property damage caused by floods, and to assist in recovery efforts following any natural disaster. Although this agency has not historically been involved in decision-making or daily maintenance for the Nipomo Creek watershed, they have been involved by funding the Land Conservancy's purchase of land now comprising the Adobe Plaza park area through the Urban Streams Restoration Program (USRP) operated by DWR's Division of Planning and Local Assistance. The program in the past has offered grants to assist communities in reducing damages from stream bank and watershed instability and floods while restoring the environmental and aesthetic values of streams. The USRP program is currently unfunded.

## **Local Regulatory Agencies**

#### County of San Luis Obispo

The County administers regulatory programs that impact watershed health, primarily through planning and building, and public works permit functions. Several key components are discussed above in regards to the South County Area Plan under the heading Relationship to Other Existing Plans.

In addition, the Nipomo area falls under county jurisdiction regarding storm water management through the federal Environmental Protection Agency's storm water National Pollution Discharge Elimination System permit program that covers pollutants discharged from mw1icipal storm drain systems. Under these permits, locally administered by the Central Coast Regional Water Quality Control Board, communities must demonstrate that they have local programs to manage storm water, detect and eliminate illicit discharges, prevent pollution and educate and involve the public. As of this writing, the County Public Works Department has submitted their NPDES permit request to the RWQCB and is awaiting approval.

# Resource Agencies/Non-Regulatory

Within the watershed there are numerous agencies and organizations conducting activities, many of which serve as a resource for landowners. Listed below are some of these organizations along with their general scope of work.

## Federal Non-Regulatory Agencies

#### Natural Resources Conservation Service (NRCS)

The Natural Resources Conservation Service (NRCS) provides leadership in a partnership effort to help people conserve, maintain, and improve our natural resources and environment. The Programs Deputy Area mission in NRCS is to manage natural resource conservation programs. These programs provide environmental, societal, financial, and technical benefits that include both on-site benefits and off-site benefits. Program benefits include many, but are not limited to, many of the following aspects:

- Sustaining and improving agricultural productivity.
- Cleaner, safer, and more dependable water supplies.
- Reduced damages caused by floods and other natural disasters.
- Enhanced natural resource bases that support continuing economic development, recreation, and other purposes.

Grants and technical support are available to landowners interested in improving the environment with projects on their property.

## **State Non-Regulatory Agencies**

### California Coastal Conservancy

The California Coastal Conservancy, established in 1976, is a state agency that uses entrepreneurial techniques to purchase, protect, restore, and enhance coastal resources, and to provide access to the shore. We work in partnership with local governments, other public agencies, nonprofit organizations, and private landowners.

To date, the Conservancy has undertaken more than 950 projects along the 1,100 mile California coastline and around San Francisco Bay. These projects often accomplish more than one Conservancy goal. Through such projects, the Conservancy:

- Protects and improves coastal wetlands, streams, and watersheds.
- Helps people get to coast and bay shores by building trails and stairways and by
  acquiring land and easements. The Conservancy also assists in the creation of lowcost accommodations along the coast, including campgrounds and hostels.
- Works with local communities to revitalize urban waterfronts.
- Helps to solve complex land-use problems.
- Purchases and holds environmentally valuable coastal and bay lands.
- Protects agricultural lands and supports coastal agriculture.
- Accepts donations and dedications of land and easements for public access, wildlife habitat, agriculture, and open space.

### California Conservation Corps (CCC)

The California Conservation Corps engages young men and women in meaningful work, public service and educational activities that assist them in becoming more responsible citizens, while protecting and enhancing California's environment, human resources and communities. The Santa Maria and San Luis Obispo CCC provide services ranging from vegetation management hand crews to tree planting to labor for restoration projects. In addition, the San Luis Obispo office offers staff expertise in stream and watershed enhancement projects done in cooperation with private landowners and public land managers.

## **Local Non-Regulatory Agencies**

#### Coastal San Luis Resource Conservation District (CSLRCD)

Resource Conservation Districts (RCDs) are local units of government organized by local residents under State law. The Coastal San Luis Resource Conservation District (CSLRCD) is considered a legal subdivision of the State of California. Under state law,

the CSLRCD is responsible for soil and water conservation work within its boundaries. The Directors of the Coastal San Luis RCD are elected by district voters or appointed by the County Board of Supervisors, and they are not compensated for their work. The Board of Directors can make legal agreements with county, state and federal governments for work in the district. Associate directors may be appointed by the CSLRCD to assist in special areas of interest. Consultants and other individuals with special expertise may be called upon to achieve conservation goals. A characteristic unique to Resource Conservation Districts is their ability to work directly with landowners on private lands.

#### Nipomo Community Services District

Nipomo, as part of the unincorporated area of the county, elects residents to the NCSD board of directors. NCSD is responsible for providing water and sewer to residents within its boundaries and not jurisdictionally responsible for drainage, flood control, or storm water management. The Community of Nipomo has been establishing a plan to incorporate as a city. The City of Nipomo would then have authority to integrate its planning functions, which it does not currently have, with watershed management planning and address drainage and flood control issues as a part of the development process.

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## Conclusion

This document represents the accumulated eff01is of the community to articulate their concerns about the Nipomo Creek watershed and an attempt at a comprehensive review of what has transpired in the last decade regarding creek and watershed conservation activities. As this report is circulated, and as short-term projects are implemented, it is hoped these successes will bring additional interest in creek enhancement by additional landowners. We are already seeing the fruit of our labor ripen as adjoining landowners to the proposed slate of project proponents contact our offices wishing to participate. We hope that the recommended projects will serve as a blue print for the community for the future of the watershed.

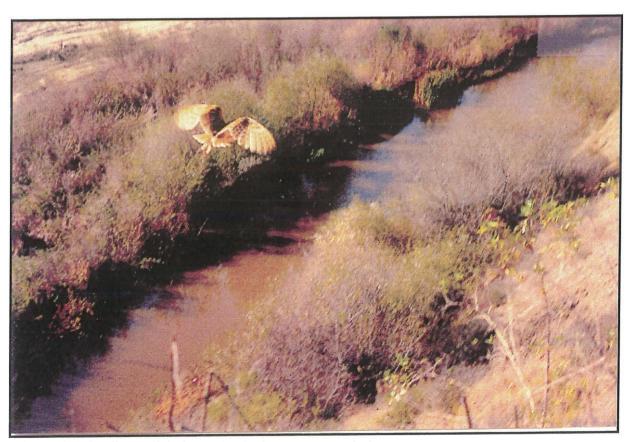


Figure 19: A Small Earred Owl Foraging in the Lower Watershed

## Resources

The following listing include documents landowners and managers will find helpful when planning or implementing watershed projects. In addition is a contact list of agencies and organizations named in this document.

## **Suggested Documents**

The Cover Up Story, A Soil Resource Management Guide for Central Coast Counties. This publication is packed with easily accessible measures to reduce and prevent soil erosion. It includes sections on construction site and sho1i-term erosion control measures, long-term erosion control measures, road construction and management, and agricultural conservation measures. Contact the UC Cooperative Extension Office.

Water Acquisition Handbook, A Guide to Acquiring Water for the Environment in California. This handbook is designed to assist conservation organizations, and other interested paiiies, with the steps required to purchase water in California for the purpose of improving environmental conditions for fish and wildlife, and improving water quality for human populations. See \:\:\!\:\!\:\!\:\!\:\!\:\!\:\!\:\U\.\:\text{tpl.org/cal} for more information.

<u>Urban Subwatershed Restoration Manual Series.</u> This 11-part manual produced and distributed by the Center for Watershed Protection provides extensive information and background on techniques to restore small urban watersheds. See <u>www.cwp.org</u> for more information.

A Primer on Stream and River Protection for the Regulator and Program Manager. A great translation of the complicated field of river science into some generalizations that the relative novice to river science can apply to regulatory and program management issues. By Ann Riley.

<u>Creek Cai·e Manual</u>, Santa Barbara County, CEC (Bob Thiel)Agency

# **Contact Information**

Federal Agencies		
United States Army Corps of Engineers (ACOE)	2151 Alessandro Drive #255, Ventura, CA 93001 http://www.usace.army.mil/ Lisa Mangione, 641-3753 and email	
United States Fish and Wildlife Service (USFWS)	Santa Barbara/Ventura/LA Division 2493 P01iola Road, Suite B Ventura, CA 93003 http://pacific.fws.gov/ecoservices/	
NOAA Fisheries (fo1mally known as National Marine Fisheries Service (NMFS))	NOAA Fisheries 501 W. Ocean Blvd., Suite 4200 Long Beach, CA 90802-4213 <a href="http://www.nmfs.noaa.gov/">http://www.nmfs.noaa.gov/</a> Anthony Spina 562-980-4045 Anthony.Spina@NOAA.Gov	
United States Environmental Protection Agency (EPA)	United States Environmental Protection Agency 75 Hawthorne St. San Francisco, CA 94105 http://www.epa.gov/	
Natural Resources Conservation Service (NRCS)	Santa Maria Field Office http://www.mcs.usda.gov/programs/	

State Agencies		
California Department of Fish and Game (CDFG)	California Department of Fish and Game Central Coast Region P.O. Box 47 Yountville, CA 94599 <a href="http://wvvv-1.dfg.ca.gov/">http://wvvv-1.dfg.ca.gov/</a> Margaret Paul-Basin Planner 650-413-1501 <a href="mailto:nroper@dfg.ca.gov">nroper@dfg.ca.gov</a> John Kleinfelter 831-649-2885 <a href="mailto:ikleinfelter@dfg.ca.gov">ikleinfelter@dfg.ca.gov</a> Mike Hill-District Biologist 805-489-7355 <a href="mailto:mhill@dfg.ca.gov">mhill@dfg.ca.gov</a>	
Regional Water Quality Control Board (RWQCB)	Regional Water Quality Control Board Central Coast Region 895 Aerovista Place, Suite 101 San Luis Obispo, CA 93401  www.swrcb.ca.gov/rwqcb3 http://wvvw.swrcb.ca.gov/rwgcb3/AGWaivers/documents  /Rai1ch Info.pdf. Allison Jones 542-4646 ajones@waterboards.ca.gov	
Department of Water Resources	Department of Water Resources 1416 Ninth Street POB 942836 Sacramento, CA 94236 http://www.water.ca.gov/	
California Coastal Conservancy	1330 Broadway, 11th Floor, Oakland, CA 94612. www.scc.ca.gov Tim Duff tduff@scc.ca.gov	
California Conservation Corps	Los Padres Service District 549-3561 http://www.ccc.ca.gov/cccweb/DISTRICT/LOSPAD/LOS PAD.htm	
University of California Cooperative Extension Service	Farm Water Quality Planning Program Julie Fallon 788-2321 http://waterauality.ucanr.org	

Local Agencies		
County of San Luis Obispo	County Government Center, Room 370 San Luis Obispo, CA 93408 htt12://www.co.slo.ca.us/	
County of San Luis Obispo Agricultural Commissioner's Office	Michael Isensee Agricultural Resource Specialist San Luis Obispo County Department of Agriculture 2156 Siena Way, Suite A San Luis Obispo, CA 93401 805.781.5753 805.781.1035 (fax) misensee@co.slo.ca.us	
Coastal San Luis Resource Conservation District	CSLRCD 545 Main Street #B-1, Mono Bay, CA 93442 <a href="http://www.coastalrcd.org/">http://www.coastalrcd.org/</a> Julie Thomas 772-4391 jthomas@coastalrcd.org	
Nipomo Community Services District	148 S. Wilson Street, Nipomo, CA 93444 PO Box 326, Nipomo, CA 93444 805-929-1133 Michael LeBrun, gm@nipomocsd.com	
Nipomo Community Advisory Committee	PO Box 1165 Nipomo, CA 93444 805-929-1576 ,vww.m12ornocac.org	
San Luis Obispo County Farm Bureau	Joy Fitzhugh 543-3654 www.slofarmbureau.org iov@slofarmbureau.org-	
Central Coast Vineyard Team	http://vineyai-dteam.org/	
Central Coast Salmon Enhancement	Com1ie O'Henley, Executive Director Stephnie Wald, Project Manager PO Box 277 Avila Beach CA 93424 805-473-8221 www.centralcoastsalmon.com	
Land Conservancy of San Luis Obispo County	Brian Stark, Executive Director Bob Hill, Conservation Director PO Box 12206 San Luis Obispo CA 93406 805-544-9096 www.special-places.org	

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Watershed

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- Bob Hill, Conservation Director, Land Conservancy of SLO County for The Nipomo Watershed Plan and The Olde Towne Nipomo Creekside Preserve

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## **Map and Photo Credits**

Cover Photo - David Stroup

D01ihea Lange's Migrant Mother- taken from <a href="http://www.migrantgrandson.com">http://www.migrantgrandson.com</a>

Polirait of Captain Dana and Pacific Coast Railroad-Courtesy of the Olde Towne Nipomo Association

All other maps and photos - Bob Hill or Herb Kai1del, Land Conservancy of San Luis Obispo County

Page 1 JO

Appendix I

There are 24 different soil types found in the Nipomo Creek Watershed, according to the United State Department of Agriculture Soil Conservation Service's *Soil Survey of San Luis Obispo, Coastal Part* (1984). This text revealed the following characteristics for soils found in the watershed:

- Chamise Shaly Loam Permeability of this soil is very slow, and the available water capacity is very low or low. Surface runoff is medium, and the hazard of water erosion is moderate.
- Concepcion Loam Permeability of this soil is very slow, and the available water capacity is moderate to high. Surface runoff is slow, and the hazard of water erosion is slight.
- Corralitos Sand Permeability of this soil is rapid, and the available water capacity is low. Surface rw1off is slow. The hazard of water erosion is slight and the hazard of soil blowing is high.
- Cropley Clay-Permeability of this soil is slow, and the available water capacity is high. Surface rw10ff is slow or medium, and the hazard of water erosion is slight or moderate.
- Diablo Clay Permeability is slow, and the available water capacity is moderate to very high. Surface runoff is medium, and the hazard of water erosion is slight to moderate.
- Diablo and Cibo Clay- (See Diablo Clay above) The permeability of Cibo Clay soil is slow, and the available water capacity is very low to moderate. Surface runoff is medium, and the hazard of water erosion is moderate.
- Diablo-Lodo Complex (See Diablo Clay above) The permeability of Lodo Clay soil is moderate, and the available water capacity is low or very low. Surface runoff is rapid, and the hazard of water erosion is high.
- Garey Sandy Loam Permeability of this Garey soil is moderately slow, and the available water capacity is moderate. Surface runoff is slow or medium, and the hazard of water erosion is slight or moderate.
- Gazos-Lodo Clay Loam Permeability of the Gazos soil is moderately slow, and the
  available water capacity is low or moderate. Surface runoff is rapid, and the hazard
  of water erosion is high.
- Lodo Rock Outcrop Complex Permeability of this soil is moderate, and the available water capacity is very low or low. Surface runoff is medium or rapid, and the hazard of water erosion is moderate or high. The rock outcrop itself is hard sandstone, red rock, or shale.
- Lopez Very Shaly Clay Loam -Permeability of this soil is moderate, and the available water capacity is very low. Surface runoff is medium or rapid, and the hazard of water erosion is moderate or high.
- Marimel Silty Clay Loam, Drained-Permeability of this soil is moderately slow, and the available water capacity is high or very high. Surface runoff is slow, and the hazard of water erosion is slight.
- Macho Variant Fine Sandy Loam -Permeability of this soil is moderately rapid, and the available water capacity is low or moderate. Surface runoff is slow, and the hazard of water erosion is slight.

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- Nacimiento Silty Clay Loam Pe1meability is moderately slow, and the available water capacity is low or moderate. Surface runoff is rapid, and the hazard of water erosion is high.
- Oceano Sand Pe1meability of this soil is rapid, and the available water capacity is low. Surface runoff is medium or rapid, and the hazard of water erosion is moderate or high.
- Santa Lucia Shaly Clay Loam Pe1meability of this soil is very slow, and the available water capacity is low or very low. Surface runoff is rapid, and the hazard of water erosion is high.
- Santa Lucia Very Shaly Clay Loam Permeability of this soil is moderate, and the available water capacity is low or very low. Surface runoff is rapid, and the hazard of water erosion is moderate or high.
- Suey Silt Loam Permeability of this soil is moderate, and the available water capacity is high. Surface runoff is slow or medium, and the hazard of water erosion is slight or moderate.
- Tierra Sandy Loam Permeability of this soil is very slow, and the available water capacity is low or moderate. Surface runoff is slow or medium, and the hazard of water erosion is slight or moderate.
- Xererts-Xerolls-Urban Complex The Xererts of this complex are Cropley or Diablo soils. The Xerolls are mainly Concepcion, Los Osos, Marimel, and Salinas soils.
- Xerorthents, escarpment When the soil surface is bare, runoff is rapid, and the hazard of water erosion is high. Some areas of deep gullies.
- Zaca Clay Permeability of this soil is slow, and the available water capacity is high. Surface runoff is medium, and the hazard of water erosion is moderate.

Appendix II

	Precipitation, in	n inches		
	Precipitation, in	N (,,) (	.,.) D1	
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Appendix III

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## Dana Adobe

#### **Native Species**

Acer negundo (Box elder)

Artemisia californica (California sage brush)

Artemisia douglasiana (Mugwort)

Baccharis pilularis (Coyote brush)

Baccharis salicifolia (Mule fat)

Camissonia sp. (Sun cup)

Heterotheca grandiflora (Telegraph weed)

Jug/ans californica (California black walnut)

Juncus acutus (Spiny rush)

Juncus balticus (Baltic Rush)

Juncus phaeocephalus (Brown headed creeping rush)

*Mentha spicata* (Spearmint)

Oenanthe sarmentosa (Freshwater parsley)

Quercus agrifolia (Coast live oak)

Salix laevigata (Red willow)

Salix lasiolepis (Arroyo willow)

Scirpus microcarpus (Panicled bulrush)

Solanum douglasii (White flowered nightshade)

Toxicodendron diversilobum (Poison oak)

Typha latifolia (Cat tail)

Urtica dioica (Stinging nettle)

Verbena lasiostachys (Verbena)

#### Exotic species

Anagallis arvensis (Scarlet pimpernel)

Avenafatua (Wild oat)

Brassica nigra (Black mustard)

Bromus diandrus (Ripgut brome)

Carduus pycnocephalus (Italian thistle)

*Centaurea calcitrapa* (Purple star thistle)

Conium maculatum (Poison hemlock)

Cynara cardunculus (Artichoke thistle)

Ehrharta calycina (Veldt grass)

Erodium botrys (Long beaked filaree)

Euphorbia lathyris (Moleplant)

Euphorbia peplis (Purple Spurge)

Foeniculum vulgare (Fennel)

Geranium dissectum (Cutleaf geranium)

Hirsc feldia incana (Mediterranean mustard)

*Hordeum murinum* (Foxtail barley)

Lactuca serriola (Prickly lettuce)

Marrubium vulgare (Horehound)

*Medicago polymorpha* (Bur clover)

Melilotus alba (Sweet clover)

Phalaris aquatica (Bulbous canary grass)

Picris ecioides (Bristly ox tongue)
Rosa sp. (Rose)
Rumex acetosella (Common Sheep Sorrel)
Rumex crispus (Curly dock)
Schinus mollis (Peruvian Pepper Tree)
Senecio mikanioides (German Ivy)
Silybum marianum (Milk thistle)
Sonchus asper (Sow thistle)
Spergula arvensis (Com spurrey)
Vicia faba (Horsebean)
Vicia sativa (Garden vetch)
Vinca major (Periwinkle)

*Xanthium spinosum* (Cocklebur)

#### **Adobe Plaza**

Native species

Acer negundo (Box elder)

Artemisia douglasiana (Mugwort)

Baccharis pilularis (Coyote brush)

Quercus agrifolia (Coast live oak)

Salix lasiolepis (Arroyo willow)

Solanum douglasii (White flowered nightshade)

Toxicodendron diversilobum (Poison oak)

Urtica dioica (Stinging nettle)

#### Exotic species

Calendula arvensis ()

Conium maculatum (Poison hemlock)

*Cynara cardunculus* (Artichoke thistle)

Cyperus eragrostis (Umbrella sedge)

Euphorbia peplis (Purple spurge)

Foeniculum vulgare (Fennel)

Olea europaea (Olive)

Phalaris aquatica (Bulbous canary grass)

Picris echioides (Bristly ox tongue)

Polypogon monspeliensis (Rabbit's foot grass)

Rubus discolor (Himalayan blackberry)

Rumex acetosella (Common sheep sorrel)

Senecio mikanioides (German ivy)

*Silybum marianum* (Milk thistle)

Sonchus asper (Sow thistle)

Vicia sp. (Vetch)

Vinca major (Periwinkle)

#### Pasquini Property

Native species

Baccharis pilularis (Coyote brush)
Baccharis salicifolia (Mule fat)
Juncus phaeocephalus (Brown Headed Creeping Rush)
Rubus ursinus (Blackberry)
Salix exigua (Sandbar willow)
Salix laevigata (Red willow)
Salix lasiolepis (Arroyo willow)
Sci,pus microcarpus (Panicled bulrnsh)
Scirpus pungens? (Common three square)
Sparganium eurycarpum (Narrow leaf bur weed)
Typha latifolia (Cat tail)
Urtica dioica (Stinging nettle)
Verbena lasiostachys (Common verbena)

#### Exotic species

Avena barbata (Slender wild oats)

Avenafatua (Wild oats)

Bromus diandrus (Ripgut brome)

Carduus pycnocephalus (Italian thistle)

Cmpobrotus edulis (Ice plant)

Conium maculatum (Poison hemlock)

Cynodon dactylon (Bermuda grass)

Cyperus eragrostis(Vmbrella sedge)

Ehrharta calycina (Veldt grass)

Floating fern

Foeniculum vulgare (Fennel)

Geranium dissectum (Cutleaf geranium)

Lolium multiflorum (Wild rye)

*Medicago polymorpha* (Bur clover)

Melilotus indica (Sweet clover)

Phalaris aquatica (Bulbous canary grass)

*Picris echioides* (Bristly ox tongue)

Plantago major (Common plantain)

*Polypogon monspeliensis* (Rabbit's foot grass)

Raphnus sativa (Wild radish)

Rumex acetosella (Common sheep sorrel)

Rumex conglomeratus (Clustered dock)

Rumex crispus (Curly dock)

Sonchus asper (Sow thistle)

Veronica anagallis-aquatica (Veronica)

*Xanthium spinosum* (Cocklebur)

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BOTANICAL SURVEY
UNOCAL PIPELINE RENEWAL
NIPOMO CREEK

RENEWAL OF 12 INCH SANTA MARIA OIL PIPELINE
BETWEEN SANTA MARIA AND SUMMIT PUMP STATIONS
ORCUTT DISTRICT
ACROSS A PORTION OF LOTS 22 AND 23 OF RANCHO NIPOMO
WITHIN THE OLD PACIFIC COAST RAILROAD RIGHT OF WAY
PROJECTED SECTION 7, T11N, R34W

by

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Report submitted to
Mr. Frank Lee Nichols, Land surveyor
Northern California Division, Pipelines
UNOCAL corporation
P.O. Box 661
San Luis Obispo, CA 93406
(805) 543-2379 ext. 252

August 1991

## Table 1. Plant List, continued

Erodium botrys	*	cranesbill filaree
Erodium cicutarium	*	red-stem filaree
Eschscholzia californica		California poppy
Foeniculum vulgare	*	fennel
Gnaphalium bicolor		everlasting
Heterotheca grandiflora	*	telegraph weed
Hordeum murinum	*	foxtail
Hypochoeris radicata	*	hairy cat's ear
Juncus dubious		rush
Juncus leseurii		rush
Lactuca serriola	*	prickly lettuce
Lithrum hyssopifolia		loosestrife
Lolium multiflorum	*	ryegrass
Lotus humistratus		lotus
Lotus junceus		lotus
Luzula campestris		wood-rush
Madia gracilis	*	tarweed
Malva nicaensis	*	cheeseweed
Melilotus officinalis	*	sweet clover
Nasturtium officinale		water cress
Opuntia sp. [domestic, unde	etermine	d] cactus
Phalaris aquatica	*	Harding grass
Picris echioides	*	prickly ox-tongue
Plantago lanceolata	*	plantain
Plantago major	*	plantain
Polygonum arenastrum	*	knotweed
Polypogon interruptus	*	polypogon
Polypogon monspeliensis	*	rabbit-foot grass
Polypogon semiverticillatus *		polypogon
Raphanus sativa		
[pink and yellow varietie	es) *	wild raddish
Rumex angiocarpus		sheep sorrel
Rumex conglomeratus		dock
Rumex crispus		curly dock
Salsola kali	*	Russian thistle rush
Scirpus olneyi		mallow
Sida hederacea	*	
Silene gallica	*	windmill pink
Silybum marianum	*	milk thistle London-rocket
Sisymbrium irio	*	
Sisymbrium officinale	*	hedge mustard sow thistle
Sonchus oleraceus Sorghum halepense	*	Johnson grass
	*	sand spurry
Spergularia media Stellaria media	*	chickweed
Trifolium fucatum	*	clover
		cat-tail
Typha angustifolia Urtica holosericia		stinging nettle
Urtica urins	*	
OTTICA UTITIS		nettle

Ι

## **Preliminary**

# **Botanical Survey**

of the

# **Dana Adobe Site & Vicinity**

Nipomo, San Luis Obispo County, California

Prepared by

Linda Allen, M.S.

and

Michael Curto

650-A South Ninth St Grover Beach, California 93433-2734

November 2000

## Appendix 1. Plants of the Dana Adobe Site & Vicinity

SAND = Uplands with sandy soil; CLAY= Uplands with sandy soil;

RIP  $\equiv$  Riparian corridor along Nipomo Creek; SEEP  $\equiv$  Hillside Seep in clay soil southeast of Adobe A = Abundant; C = Common; D = near Dana Adobe structure; F = Frequent; I = Individual plant; L = Localized patch

FAMILY	/coMMON NAME	/sc1ENTtF1c NAME	SAND	CLAY	RIP.	SEEP
		Native Trees		•	•	
Aceraceae	Box-Elder	Acernegundo L. var. californicum (T. & G.) Sarg.			I	
Fagaceae	Coast Live Oak	Quercus agrifolia Nee	0	0		
Platanacae	California Sycamore	Platanus racemosa Nutt.		D		
Salicaeae	Red Willow	Salix laevigata Bebb			C	
Salicaeae	Arroyo Willow	Salix lasiolepis Benth.			С	
		Native Shrubs				
Adoxaceae	Elderberry	Sambucus mexicana C. Pres! ex DC.			I	
Anacardiaceae	Poison-Oak	Toxicodendron diversilobum (T. & G.) E. Greene	С		0	
Compositae	California Sagebrush	Artemisia californica Less.	C			
Compositae	Coyote Bush	Baccharis pilularis DC.		0		
Compositae	Coast Goldenbush	Jsocoma menziesii (Hook. & Am.) G. Nesom	C			
Compositae	California-Aster	Lessingiafilaginifolia (Hook. & Arn.) M.A. Lane	0			
Fabaceae	Silver Bush Lupine	Lupinus chamissonis Eschsch.	С			
	Nati	ve Perennial Forbs				
Compositae	Western Ragweed	Ambrosia psilosrachya DC.	I	С		
Compositae	Mugwort	Artemisia douglasiana Besser			С	
Compositae	Tarragon	Artemisia dracunculus L.			С	
Compositae	Telegraph Weed	Heterotheca grandiflora Nutt.			С	
Cruciferae	Water Cress	Rorripa nasturtium-aquaticum (L.)·Hayek			F	
Convolvulaceae	Morning-Glory	Calystegia macrostegia (E. Greene) Brummitt				0
Cucurbitaceae	CalabaziJla	Cucurbita foetidissima Kuoth		D		
Euphorbiaceae	Croton	Croton califomicus Muell. Arg.	С			
Polygonaceae	Long-Stemmed Buckwh	eat Eriogonum elongatum Benth.	F			
Scrophulariaceae	.Seep Monkeyflower	Mimulus guttatus Fischer ex DC.			0	
	Nat	ive Annual Forbs				
Boraginaceae	Fiddleneck	Amsinckia sp.	0			
Boraginaceae	Cleveland Cryptantha	Cryptantha clevelandii E. Greene	С	L		L
Cruciferae	Lacepod	Thysanocarpus curvipes Hook.	F			
Fabaceae	Miniature Lupine	Lupinus bicolor Lindley	С			
Fabaceae	Sky Lupine	Lupinus nanus Douglas ex Beath.	F			
Fabaceae	Nuttall Lupine	Lupinus tnmcatus Nutt ex Hook & Am	F			
Hydrophyllaceae	Douglas Phacelia	Phace/ia douglasii (Beath.) Torrey.	F			
Hydropbyllaceae	Tansy Phacelia	Phacelia tanacetifolia Benth.	0			
Onagraceae	San Luis Obispo Suncup	Camissonia campestris (E.Greene) Raven ssp. obispoensis Raven	F			
Polemoniaceae	Ball-Head Gilia	Gilia capitata Sims	С			
Polygonaceae	Willow Weed	Polygonum lapathifolium L.		С		

## Appendix 1. Plants of the Dana Adobe Site & Vicinity

SAND = Uplands with sandy soil; CLAY = Uplands with sandy soil;

 $RJP = Riparian \ corridor \ along \ Nipomo \ Creek; \ SEEP = Hillside \ Seep \ in \ clay \ soil \ southeast \ of \ Adobe$   $A = Abundant; \ C = Common; \ D = near \ Dana \ Adobe \ structure; \ F = Frequent; \ I = Individual \ plant; \ L = Localized \ patch$ 

FAMILY	jcoMMON NAME	SCIENTIFIC NAME	SAND	CLAY	RIP	SEEF	
	Native A	Annual Forbs (continued)					
Portulacaceae	Red Maids	Calandn"nia ciliata (Ruiz Lopez & Pavon) DC.	С	F			
Portulacaceae	Miner's Lettuce	Claytonia perfoliata Willd.				F	
Scrophulariace	ae Purple Owl's-Clover	Castilleja exserta (A. A. Heller) Chuang & Heckard		0			
Urticaceae	Western Nettle	Hesperocnide tene/la Torrey	F				
	Native Po	erennial Monocot Herbs					
Iridaceae	Blue-Eyed Grass	Sisyrinchium bellum L Watson		0			
Themidaceae	Goldenstar	Bloomeria crocea (Torrey) CoY		0			
Typhaceae	Broadleaved Cattail	Typha latifolia L.			L		
	Nativ	e Rushes & Sedges					
Juncaceae	Baltic Rush	Juncus balticus Willd.			0	L	
Juncaceae	Brownheaded Rush	Juncus phaeocephalus Engelm.				L	
Juncaceae	Toadrush	Juncus bufonius L.				С	
Cyperaceae	Umbrella Sedge	Cyperos eragrostis Lam.			0	0	
Cyperaceae	Spikerush	Eleocharis montevidensis Kunth			0		
Cyperaceae	Small-Fruited Bulrush	Scirpus microcarpus Pres!			0		
Native Perennial Grasses							
Gramineae	Saltgrass	Distichlis spicata (L.) E. Greene				С	
Grarnineae	Creeping Wild Rye	Leymus triticoides (Buckley) Pilger		С			
Gramineae	Purple Needlegrass	Massella pulchra (A. Hitchc.) Barkw.		L			

## Appendix I. Plants of the Dana Adobe Site & Vicinity

SAND = Uplands with sandy soil; CLAY = Uplands with sandy soil;

 $RIP = Riparian \ corridor \ along \ Nipomo \ Creek; \ SEEP = Hillside \ Seep \ in \ clay \ soil \ southeast \ of \ Adobe$   $A = Abundant; \ C = Common; \ D = near \ Dana \ Adobe \ structure; \ F = Frequent; \ I = Individual \ plant; \ L = Localized \ patch$ 

IFAMILY	/coMMON NAME	SCIENTIFIC NAME	SAND	CLAY	RIP	SEEI	
	Alien F	Perennial Monocot Herbs					
Araceae Calla Lily Zantedeschia aethiopica (L.) Sprengel							
Cannaceae	Canna Lily	Canna indica L.			I		
	Alie	n Perennial Grasses					
Gram.ineae	Bermuda Grass	Cynodon dactylon (L.) Pers.			0		
Grarnineae	Veldt Grass	Ehrharra calycina Smith	С				
Gramineae Perennial Ryegrass L.		Lolium perenne L.		С		С	
Graruincae	Harding Grass	Phalaris aquatica L.	I		С		
Gramineae	Water Bent	Polypogon viridis (Gouan) Breistroffer			С		
	Ali	en Annual Grasses					
Gramineae	Slender Wild Oat	Avena barbata Link		0		0	
Gramineae	Cultivated Oat	Avena sativa L.		С			
Gramineac	Ripgut	Bromus diandrus Roth		С		С	
Gramineae	Soft Chess	Bromus hordeaceus L.	С	С		С	
Gramineae	Poverty Brome	Bromus sterilis L.	С	С			
Gramineae	Mediterranean Barley	Hordeum marinum Hudson		С		С	
Gramineae	WaU Barley	Hordeum murinum L.		С			
Grarnineae	Cultivated Barley	Hordeum vulgare L.		0			
Gramineae	ftalian Ryegrass	Lolium multi/lorum Lam.	С	С	С	С	
Gramineae	Rabbitfoot Grass	Polypogon monspeliensis (L.) Desf.			С		
Gramineae Brome Fescue		Vulpia bromoides (L) S.F. Gray		С		С	
Gramineae	Rattail Fescue	Vulpia myuros (L.) KC. Grneli.u		С		С	

## Vascular Plant Flora Observed at the Biorn Asphalt Plant Site, San Luis Obispo County, California

ActJr negundo var. callfomicum	Box elder	Т	FACW Aceraceae
Amb[l)sia acanihicarpa	Annual bursage	BH	Asteraceaa
Artemisia douglasiana	Mugwort	PH	FAC+ Asteraceae
Astragalus sp.	Locoweed	PH	Fabaceae
Baccharls pllularls [8.p. var. consaguinea]	Coyote brush	S	Asteraceae
Baccharis salicifolia	Mule fat	S	FACW Asteraceae
Bromus diandrus•	Ripgut grass	AG	Poaceae
Bromus /1ordeaceus•	Soft brome	AG	FACU- Poaceae
Bromus madritensis ssp. rubens •	Red brome	AG	Poaceae
Centaurea solslitialis"	Yellow starthIstle	AH	Asteraceae
Conjum macu/atum·	Poison hemlock	BH	FAC Apiaceae
Conyza canadensis	Horseweed	AH	FAG Asteraceae
Crotoo californicus	California croton	PH	Euphorbiaceae
Cupressus macrocarpa••	Monterey cypress	T	Cupressaceae
Cynodon dacty/on•	Bermuda grass	PG	FACU Poaceae
Cylisus scoparius•	Scotch broom	S	Fabaceae
Datura wrightil	Jimsonweed	AH	Sofanaceae
Ehrharta ca/ycina•	Veldt grass	PG	Poaceae
Ericameria ericoides	Mock heather	PH	Asteraceae
Eucalyptus g/obulus•	Blue gum	T	Myrtaceae
Euphorbla esu1a	Leafy spurge	PH	Euphorbiaceae
FotJnicU/um vulgare •	Sweet fennel	PH	FACU- Apiaceae
Gnaphalium calitomicum	California everlasting	BH	Asteraceae
Gnaphalium canescens ssp. beneolens	Cudweed	BH	FAcu: Asteraceae
Helenium puberulum	Sneezeweed	AH	FACW Asteraceae
Heterotheca grandiflora	Telegraph weed	AH	Asteraceae
Hirschfeldia incana•	Summer mustard	BH	UPL Brasslcaceae
	Deerweed	PH	Fabaceae
Laius scoparius Lycoris squamigera•	Nekkid ladles	PH	Amarytlldaceae
Marrubium vulgare•	Horehound	PH	FACU Lamlaceae
Melilotus Indica•	Yellow starthistle	AH	Fabaceae
Melilotus alba"	White sweetclover	AH	FACU Fabaceae
Me/ilotus officinalis•	Yellow sweetclover	AH	FACU Fabaceae
Nicotiana g/auca•	Treetobacco	T	FAC Solanaceae
Picris echioides •	Bristly ox-tongue	AH	FAC Asteraceae
Pinus radiata••	Monterey pine	T	Pinaceae
Piptatherum miliaceum•	Smilograss	PG	Poaceae
Ricinus communis•	Castor bean	S	FACU- Euphorbiaceae
Rumex crispus•	Curly dock	PH	FACW- Polygonaceae
Salix uxigua	Narrow-leaved willow	S	FACW Sallcaceae
Salix lasiolepis	Arroyo willow	S	FACW Salicaceae
Senecio blochmaniae	Bfochman·s ragwort	S	Asteraceae
Tamarix ramosissima•	Tamarisk	Ť	FAC Tamaricaceae
Vulpia myuros var. hirsuta •	Foxtail fescue	AG	FACU Poaceae
Xanthium strumarium	Cocklebur	AH	FAC+ Asteraceae
Nanunani Suumanum	COCKIEDUI	AH	1,101 /101010000

September 13, 2004 Page 1

## Vascular Plant Flora Observed at the Biorn Asphalt Plant Site, San Luis Obispo County, California

Notes: Scientific nomenclature follows Hickman (1993). """ indicates non-native species which have become naturalized or persist without cultivation. ..... indicates species was planted as landscaping.

Habit definitions:

AF = annual fem or fernally.

AG = annual grass.

AH = annual herb.

BH = biennial herb.

PF = perennial fern or fem ally.

PG= perennial grass.

PH =perennial herb.
PV =perennial vine.

S = shrub.

T = tree.

Welland indicator status (Reed 1988): OBL = obligate wetland species, occurs almost alwaysIn wetlands (>99% probability)

FACW = facultative wetland species, usually found in wetlands (67-99% probability).

FAC = facultative species, equally likely to occur In wetlands or nonwetlands (34-67% probability).

FACU = facultative upland species, usually occur in nonwellands (67-99% probability). + or - symbols are modifiers that Indicate greater or lesser affinity for wetland habitats.

N = no indicator has been assigned due to a lack of Information to determine indicator status.

-= a tentative assignment to that indicator status by Reed (1988).

A period"." Indicates that no wetland Indicator status has been given in Reed (1988).

Pngc 2 September 13, 2004



Family Common Name	Scientific Name	Protected Status	Habitat Use
Common Name	INVERTEBRATES		
Monarch butterfly•	Danaus plexippus	SA	8/F
Crayfish-	Cambarus spp.		8/F
Brown garden snail•	Helix aspersa		8/F
	FISHES		
Salmonidae			
Southern steelhead ESU	Oncomynchus mykiss	FT, CSC	8/F
CyprinIdae			
Speckled dace	Rhinichthys osculus		8/F
Gasterosteidae			
Threespine stickleback	Gasterosteus aculea/us		8/F
Cottldae			
Coastal prickly sculpin	Coitus asper		B/F
Poecillidae			
Mosquitotish	Gambusia affinis		8/F
	AMPHIBIANS		
Plethodontidae			
Black-bellied slender salamander	Batrachoseps nign'ventris		8/F
Salamandridae			
California newt	Taricha torosa		8/F
Bufonidae			
California toad		8/F	
Hylidae			
Pacific treefrog	Pseudacris regil/a		BIF
Ranidae			
Bullfrog	Rana catesbeiana		B/F
Pelobatidae			
Western spadefoot	Spea <i>hammondii</i>		B/F
	REPTILES		
Emydidae			
Southwestern pond turtle	Clemmys mannorata pa/lida	FSC,CSC	B/F
IguanIdae			
Western fence lizard"	Sce/oporus occidentalis		8/F
Side-blotched lizard	Uta stansburiana e/egans		8/F
Anniellidae			
Silvery legless lizard	Annie/la p. pu/chra		8/F
ScIncidae			
Western skink	Eumeces skiltonianus		BIF
Teildae			
Western whiptail	Cnemidophorus tigris		B/F
Anguidae			
Southern alligator lizard	Elgaria mu/ticarinatus		B/F
Colubridae			
Striped racer	Masticophis lateralis		8/F
Pacific gopher snake	Pituophis melanoleucus ca/enifer		8/F
California kingsnake	Lampropeltis gatufus califomiae		8/F
Common garter snake	Thamnophis sirta/is		8/F



Family Common Name	Scientific Name	Protected Status	Habitat Use	
Night snake	Hypsiglena torque/a	-	B/F	
Terrestrial garter snake	Thamnophis e/egsns	_	8/F	
Aquatic garter snake	Thamnophis aqua/icus		_ B/F	
Viperidae	mannopino aquatodo		_	
Western rattlesnake	Crotalus vfridis	-	B/F	
A	BIRDS			
Anatidae Mallard	Anas p/atythynchos	M	8/F	
Ardeidae	Anas patytnynonos	141	3,1	
Great egret	Ardea alba	M	8/F	
Black-crowned night heron	Nyc/icorax nyclicorax	M	- 8/F	
Great blue heron	Ardes herodiss	M	8/F	
Snowy egret	Egret/a thufa	M	8/F	
CathartIdae	_g			
Turkey vulture	Cathartes aura	M	8/F	
Accipilridae				
White-tailed kite•	Elanus laucurus	M, FSC (nesting), FP	8/F	
Northern harrier	Circus cyaneus	M, CSC (nesting)	F	
Sharp-shinned hawk	Accipiter striatus	M, CSC (nesting)	F	
Cooper's hawk-	Accipiter cooperii	M, CSC (nesting)	B/F	
Red-shouldered hawk*	Buteo lineatus	M	B/F	
Red-tailed hawk'	Buteo jamaicensis	M	B/F	
Falcon!dae				
American kestrel'	Falco sparverius	M	B/F	
PhasianIdae				
California quail'	Callipep/a ca/ifomica	M	B/F	
Charadriidae				
Killdeer	Charadrius vociferos	M	8/F	
Columbidae				
Rock dove•	Co/umba livia	-	B/F	
Band-tailed pigeon	Columbia fesciata	M	B/F	
Mourning dove•	Zenaida macroura	M	B/f	
Tytonidae				
Barn owl'	Tytoalba	M	B/F	
Strigidae				
Great horned owl'	Bubo virginianus	M	B/F	
Caprlmulgidae	D		5.75	
Common poorwill	Phalaenoptilus nu/ta/li	М	B/F	
Trochilidae	Calinta anna		D.#	
Anna's hummingbird	Calypte anna	<b>M</b> M, FSC (nesting),	B/f	
Costa's hummingbird	Ca/ypte cos/ae	CSC (nesting)	8/F	
Black-chinned hummingbird	Archilochus alexandri	M	B/F	
Allen's hummingbird	Selasphorus sasin	M, FSC (nesting)	8	
Alcedinidae				
Belled kingfisher	Cery/e a/cyon	M	8/F	
Picidae				
Nuttall's woodpecker*	Pico/des nu/ta/lii	M	8/F	



Family Common Name	Scientific Name	Protected Status	Habitat Use
Downy woodpecker	Picoides pubescens	М	8/F
Tyrannidae	ricoldes pubescens	IVI	0/1
Western wood-pewee	Con/opus sordidu/us	M	8
Pacific-slope flycatcher	Empidonex difficilis	M	B.
Black phoebe	Sayomis nigricans	M	8/F
Say's phoebe•	Sayomis saya	M	F
Ash-throated flycatcher	Myiarchus cinerascens	M	В
Cassin's kingbird	Tyrannus vociferans	M	F
Hirundinidae			
Violet-green swallow	Tachycineta thalassina	M	B/F
Northern rough-winged swallow	Stelgidopteryx serripennis	M	В
Cliff swallow-	Hirundo pyrmonota	M	8
Barn swallow•	Hirundo ruslica	M	В
Corvidae			
California scrub-jay•	Aphe/ocoma califomica	M	B/F
American crow•	Corvus brachyrhynchos	M	B/F
Common raven	Corvus corax	M	B/F
Paridae			
Oak titmouse	Baeo/ophus inomatus	M	B/F
Chestnut-backed chickadee-	PoecHe rufescens		B/F
Aeglthalidae			
Bushtit"	Psaltriparus minimus	M	B/F
Troglodytldae			
Bewick's wren-	Thryomanes bewickii	M	B/F
House wren	Troglodytes aedon	M	6/F
Muscrcapidae			
Ruby-crowned kinglet	Regulus calendula	M	F
Blue-gray gnatcatcher	Polioptila caeru/ea	M	F
Swainson's thrush	Catharus ustulatus	M	В
Hermit thrush	Catharus guttatus	M	F
American robin	Turdus migratorius	M	8/F
Western bluebird	Sialia mexicana	M	F
Wrenlit	Chamaee fascia/a	M	B/F
MImidae			
Northern mockingbird-	Mimus po/yglottos	M	B/F
California thrasher	Toxostoma redivivum	M, FSC	BIF
3ombyclllldae			
Cedar waxwing	Bombycilla cedrorum	M	F
Sturnidae			
European starling•	Stumusvulgaris	-	B/F
/Ireonidae			
Hutton's vireo	Vireo huttoni	M	B/F
Varbling vireo	Vireo gilvus	M	·a
Parulldae			
Prange-crowned warbler	Varmivore celare	M	B/F
'ellow-rumped warbler•	Dendroica corona/a	M	F
Common yellowthroat	Geothlypis trichas	M	B/F



Family	Scientific Name	Protected Status	Habitat Use
Common Name			
Cardinalidae	Observations and below		
Black-headed grosbeak	Pheuc/icus melanocephalus	M	В
Blue grosbeak	Guiraca caerulea	M	B
Lazuli bunting	Passerina amoena	M	B/F
Emberizidae	D'alla ana anda tara		D/E
Spotted towhee California towhee	Pipilo maculatus	M	B/F
	Pipilo crissalis	M	B/F
White-crowned sparrow-	Zonotrichia /eucoph,ys	M FOO (see a time a)	F D/E
Lark sparrow	Chondestes grammecus	M,FSC (nesting)	B/F
Rufous-crowned sparrow	Aimophila ruficeps	M	8/F
Golden crowned sparrow•	Zonotrichia atricapilla	M	F
Dark-eyed junco	Junco hyemalis	M	B/F
Icteridae	A malaina mba amia ana		0/5
Red-winged blackbird•	Agelaius phoeniceus	M	8/F
Western meadowlark	Stumella neg/ecta	M	8/F
Brewer's blackbird-	Euphagus cyanocephalus	M	8/F
Brown-headed cowbird	Molothrus a/er	M	B/F
Bullock's oriole•	Jcterus bullockii	M	В
Hooded oriole	Jcterus cucullatus	М	В
FringillIdae	2		
Purple finch	Carpodacus purpureus	M	B/F
House finch	Carpodacus mexicanus	M	8/F
Lesser goldfinch•	Carduelis psaltria	M	8/F
American goldfinch• Passeridae	Carduelis tristis	M	B/F
	Passer domesticus		0/5
House searrow	MAMMALS	-	8/F
Didelphidae	MAMMALY		
Virginia opossum•	Didelphis virginiana	_	B/F
Vespertillonidae	Didolphis virginiana		D/1
California myotis	Mustic colifornious		0/5
Big brown bat	Myotis califomicus Eptesicus fuscus	-	8/F B/F
Red bat	Lasiurus borealis	_	8/F
Hoary bat	Lasiurus cinereus	_	8/F
Molossidae	Lasiulus Cilieleus		0/1
Pallid bat	Antrozous pal/idus	CSC	8/F
Brazilian free-tailed bat	Tadadda brasiliensis	030	8/F
Leporidae	i adadda bi asillerisis	-	O/F
Desert cottontail	Sylvilagus audubonii		0/5
Scluridae	Gylvilagus addubolili	-	8/F
California ground squirrel	Charmanhili ia haaaha ii	_	D/E
•	Spermophilus beecheyi		B/F
Western gray squirrel	Sciurus griseus	-	B/F
Geomyldae	Thomassus battar		0/5
Botta-s pocket gopher	Thomomys bottae	-	8/F
Heteromyidae	Dana was the way 1111	000	5.7
California pocket mouse	Perognathus californicus	CSC	B/F
Pacific kangaroo rat	Dipodomys agilis		B/F



Family Common Name	Scientific Name	Protected Status	Habitat Use
Crlcetidae			
	Deither dentemperature		B/F
Western harvest mouse	Reithrodontomys megalotis		
Deermouse	Peromyscus manicu/atus		B/F
Dusky-footed woodrat Arvicolidae	Neotoma fuscipes		B/F
California vole	Micro/us ca/ifomicus		B/F
Murldae			
House mouse	Mus musculus		B/F
Black rat	Rattus rattus		8/F
Canldae			
Coyote*	Canis /atrans		8/F
Gray fox	Urocyon cinereoargenteus		BIF
Domestic dog•	Canisfamiliaris		B/F
ProcyonIdae			
Ringtail	Bassariscus astutus		B/F
Raccoon-	Procyon Io/or		BIF
Mustelidae			
Long-1ailed weasel"	Mustela frenala		BIF
Striped skunk	Mephitis mephitis		B/F
Felidae			
Bobcat	Lynx rufus		BIF
Feral cat"	Fe/is catus		B/F
Cervidae			
Black-tail d deer•	Odocoileus hemionus		<u>8/F</u>

<sup>•</sup>observed during field surveys conducted by Padre (includes animal scat, tracks, nests, and den sites)

Habitat Use **B-Breeding** F- Foraging

Protected Status

FE - Federal-listed Endangered Species

FT - Federal-listed Threatened Species FSC - Federal Species of Concern FPT - Federal-listed Candidate Species

SE - State-listed Endangered Species

ST - State-listed Threatened Species

CP - Protected under California Fish and Game Code CSC - California Species of Special Concern

SA - California Special Animal

M - Migratory Bird Treaty Act Species

## Nipomo Creek Hydrologic Unit: 312 Waterbody List Waterbody Assessment Beneficial Use Municipal and Domestic Water Supply (1/90) Agricultural Supply (5/281) **Industrial Process Supply Industrial Service Supply** Groundwater Recharge Water Contact Recreation (21/61) Non-Contact Water Recreation (21/89) Aquatic Life (18/155) Wildlife Habitat Cold Freshwater Habitat (17/100) Warm Freshwater Habitat (17/100) Migration of Aquatic Organisms Spawning, Reproduction and/or Early Development Biological Habitat of Special Significance Rare, Threatened, or Endangered Species Estuarine Habitat Freshwater Replenishment Navigation Hydropower Generation Commercial and Sport Fishing Aquaculture (18/155) Inland Saline Water Habitat Shellfish Harvesting (20/27) Marine Habitat (5/67) Flood Protection Wetland Habitat Max Min Mean GeoMean Samples Hits First **CWA** Last Crit. Ref. Anau: te

% algal Cover, filamentous	90	1	38.7	17.5	15	0 1/1/2000 1/1/2003	I
% algal Cover, periphyton	100	1	64	53	9	0 4/1/2000 1/1/200	1
Air Temperature	33	16	22.4	21.8	27	0 1/1/2000 1/1/2003	1
Ammonia as N, Total	1.4	0.008	0.143	0.063	28	0 1/1/2000 3/1/2001	Miucim.um
Ammonia as N, Unionized	0.035	0	0.005	0.002	27	1 1/1/2000 3/1/2001	Basin Plan 0.025 General Objective
Bank Plant Cover	100	75	97	96	25	0 1/1/2000 1/1/2001	
Bio-stimulatory Risk	0.91	0.181	0.685	0.67	28	0 1/1/2000 1/1/2001	
Boron, dissolved	0.153	0.07	0.133	0.132	20	0 1/1/2000 3/1/2001	Basin Plan 0.75 Agriculture (Irrigation)
Calcium	121	50	99	98	28	0 1/1/2000 3/1/2001	
Chloride	184	50	151	148	28	0 1/1/2000 3/1/2001	
Chlorophyll a	16	0.1	3.1	1.8	28	1 1/1/2000 3/1/2001	North Carolina DENR, 2002 - Objective in streams
Colifonn, Fecal	9000	10	2786	1078	27	20 1/1/2000 3/1/2001	Basin Plan Water Body Contact Recreation
Coliform, Total	80000	790 1	14640	6738	28	9 1/1/2000 3/1/2001	Basin Plan Marine 10000 Water Contact Recreation
Conductivity(Us)	1830	750	1494	1474	33	0 1/1/2000 3/1/2001	Basin <b>Plan</b> Severe Problems for Ag
Dissolved Solids, Fixed	1348	360	820	807	27	0 1/1/2000 3/1/2001	
 Dissolved Solids, Total	1538	506	946	932	28	0 1/1/2000 3/1/2001	Basin Plan 1920 Severe Problems

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"]							for Ag
Dissolved Solids, volatile	240	42	155	139	28	0 1/1/2000 3/1/2001	
Hardness as CaCO3	625	242	525	513	28	0 1/1/2000 3/1/2001	
Magnesium	85	27.7	67.7	65.4	28	0 1/1/2000 3/1/2001	
Nitrate as N	6.3	0.043	4.803	4.65	28	0 1/1/2000 3/1/2001	Basin Plan Municipal 10 and Domestic Supply
Nitrate as NO3	28	0.2	21.4	20.7	28	0 1/1/2000 3/1/2001	Basin Plan Municipal 45 and Domestic Supply
Nitrite as N	0.066	0.005	0.041	0.036	28	0 1/1/2000 3/1/2001	EPA Primary 1 Max. Contaminant Level
Nitrogen, Total	8	0.6	6.088	6.012	18	0 4/1/2000 3/1/2001	
Nitrogen, Total Kjeldahl	2	0.25	0.896	0.82	28	0 1/1/2000 3/1/2001	
OrthoPhosphate asP	0.65	0.046	0.308	0.285	28	0 1/1/2000 3/1/2001	
OrthoPhosphate asPO4	1.97	0.14	0.934	0.863	28	0 1/1/2000 3/1/2001	
Oxygen, Dissolved	15.6	5.3	9.7	9.2	33	4 1/1/2000 3/1/2001	Basin Plan 7 Cold Water Fish Habitat
Oxygen, Saturation	163	55	104	97	33	12 1/1/2000 3/1/2001	85 Basin Plan General
рН	8.33	7.37	8.016	8.013	34	1 1/1/2000 3/1/2001	Basin Plan 6.5 Cold Water Fish Habitat
Phosphate, total asP	2.23	0.02	0.792	0.63	16	0 1/1/2000 9/1/2000	
Phosphorus, total	0.61	0.09	0.444	0.43	12	0 4/1/2000 3/1/2001	
Salinity	0.9	0.39	0.825	0.822	31	0 1/1/2000 3/1/2001	
Sodium	164	60	122	117	28	0 1/1/2000 3/1/2001	
Sulfate	260	120	232	230	16	0 8/1/2000 3/1/2001	
<b>'1</b>	:i:				*	100	to The state of the state of th

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Suspended   37   0.3   17.8   11.6   27   0   1/1/2000   3/1/2001	••••							
Suspended Solids, Total  Suspended Solids, Total  Suspended Solids, Volatile Turbidity(NTU) 65.2 0.4 20.4 15.2 28 0 1/1/2000 3/1/2001  Water 23.8 9.9 17.9 17.4 33 0 1/1/2000 3/1/2001			37	0.3	17.8	11.6	27	0 1/1/2000 3/1/2001
Suspended 40 2.8 11.9 8.7 28 0 1/1/2000 3/1/2001 Solids, Volatile Turbidity(NTU) 65.2 0.4 20.4 15.2 28 0 1/1/2000 3/1/2001  Water 23.8 9.9 17.9 17.4 33 0 1/1/2000 3/1/2001		Suspended	50	2.5	24.9	21.6	28	0 1/1/2000 3/1/2001
Turbidity(NTU) 65.2 0.4 20.4 15.2 28 0 1/1/2000 3/1/2001  Water 23.8 9.9 17.9 17.4 33 0 1/1/2000 3/1/2001		Suspended	40	2.8	11.9	8.7	28	0 1/1/2000 3/1/2001
			65.2	0.4	20.4	15.2	28	0 1/1/2000 3/1/2001
			23.8	9.9	17.9	17.4	33	0 1/1/2000 3/1/2001

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## **About the Summary Data Information**

Analyte: This is the name of what is being measured.

Min: This tenn refers to the minimum value measured at the site or waterbody.

**Mean:** *This* tenn refers to the mean average at the site or waterbody. **Median:** This term refers to the median value at the site or waterbody.

Geo: This term refers to the geometric mean average at the site or waterbody.

Samples: This term refers to the number of samples collected at the site or waterbody.

First: This term refers to the date of the first sample collected at the site or waterbody.

Last: This term refers to the date of the last sample collected at the site or waterbody.

**Hits:** This term refers to the number of times the water quality criteria was exceeded at the site or waterbody.

Crit: This term refers to the water quality criteria value used for screening purposes.

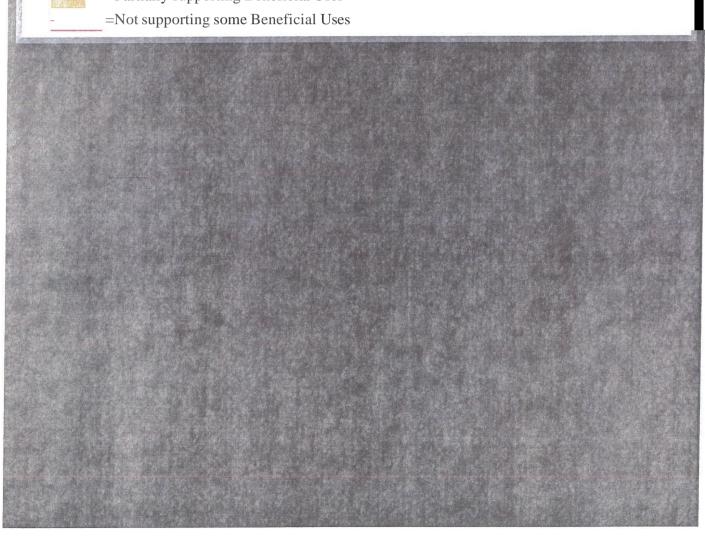
**Ref:** This term identifies the name of the water quality criteria being used for screening purposes.

1 Q: This is a 'report card' type Quality Rating

=Appears to fully support Beneficial Uses

=A single sample indicates cause for concern

=Partially supporting Beneficial Uses



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## Ranch Information/Management Practice Checklist Ranch Information: (please supply one of these forms for each ranch)

Ranch Name:					
Operator:				Phone: 1	
Operator Address:					
City:	-			State:! Zip Code:	
Please indicate the Public La	and Survey Syste	m section(s)_in whi	ch the ra_nch is loo		
County-Number	Range	Township	Section	Base Meridian	
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Land Owner(if different tha	n Operator)				
Owner:				Phone:r	
Address:				State: 🐧	
City:				Zin Code:	

Estimated acreage for each type of Crop	Conventional	Organic
Row Crops		
Orchard		
Vineyard		
Nw-sety		
Greenhouse		
Other:		
Other:		
Other:1		
Estimated acreage for each type of Irrigation:		Acres
Drip		
Sprinkler		<u></u>
furrow		
Other: <sup>1</sup>		
Other:!		
Other: <sup>1</sup>		
Total Jrrigated Acres for this ranch		
Estimated irrigated acreage generating each type of Discharge:		cres
Tailwater discharges off site	<del>-</del>	
<u>Tailwater discharges</u> to pond	_	
Tile drain discharges off site		
Tile drain discharges to pond	_	
Stom1 water discharge only	_	
Other:!	_	
	_	
Other:!	_	
Other::		

**Erosion Control** 

Eosion Control	Not applicable to operation	Practice in Place	Practice Planned within 3 Years	Definition / Menu of Practices
Practices are in place to manage sediment from upstream/upslope	•	r	r	Sediment Basin, Water and Sediment Control Basin, Diversion, Grassed Waterway, Lined Waterway, Open Channel, Strnctw-e for Water Control, Surface Drainage <i>Ditch</i> , Underground Outlet, Conservation Cover, Filter Snip, Tree/Shrnb Establishment
Fields are designed to minimize erosion potential	r	r	r	Contour Fanning, Row Arrangement, Access Road, Contour Buffe Sn·ip, Diversion, Land Smoothing
Bare fields are covered to reduce rainfall runoff potential	,-	ı	r	Conservation Crop Rotation, Cover Crops, Mulching, Residue Management, Contom- Buffer Strip, Critical Area Planting
IITigation water is managed to minimize erosion potential	r-	r	r	IITigation Water Management, Anionic Polyacrylamide (PAM), Deep Tillage, Soil Moisture Measurements, .Irrigation Land Leveling
Potential for wind erosion is managed	I	1	<u>-</u>	Hedgerows, Herbaceous Wind banier, WindbrealdShelterbelt Establishment, Conservation Crop Rotation, Cover Crop, Residue Management, Cross Wind Ridges, Surface Roughening, Access Road, Mulching
Roads are protected from concentrated flow of mnoff	r	r	, I	Access Road Cover Crop, Critical Area Planting, Mulching
Ditches and banks are protected from concentrated flow	r	r	r	Grassed Wate I way, Lined Channel, Grade Stabilization Stmcture, Open Channel, Structure for Water Control, Diversion, Cut Bank Stabilization
Soil is protected in non-cropped areas	,-	r	1	Mulching, Conservation Cover, Critical Area Planting, Filter stJ.·ip Hedgerow Planting, Range Planting, Tree/Shmb Establishment, Us Exclusion
Potential problem areas are regraded and protected	,-	r	r	Cut Bank Stabilization, Landslide Treatment, Critical Area Planting Grade Stabilization Strucnu-e, Strncture for Water ContJ.·ol
Water is diverted to a stable outlet	r	r	r	Diversion, Grassed Waterway, Lined Watelway, Open Channel, St:mcnu-e for Water Control, SubSttrface Drain, Smface Drainage Ditch, Underground Outlet, Roof Runoff Management
Eroded sediment is detained or filtered before leaving the operation	I	r	r	Diversion, Lined Wateiway, Open Channel, Structure for Water Control, Smface Drainage Ditch, Underground Outlet, Inigation System Tailwater Recovery, Sediment Basin, Water and Sediment Conn ol Basin, Conservation Cover, Filter Strip, Grassed Waterway
Other:	- r	r	r	
Other:	r	r	r	
Number of acres that h	nave all planned	erosion contro	l strategies in	acres
Number of acres that h in place Number of acres when	_			acres
not yet in place	e crosion contro	n strategies are	Pranned but	acres

Irrigation 1	Management
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Irrigation Management	Not applicable to operation	Practice in Place	Practice Planned within 3 Years	Definition/ Menu of Practices
llTigation system		,		llTigation Mobile Lab System Evaluation where available, krigation
efficiency is maximized	r		r	Water Mangement, Regular System Maintenance, llTigator/Foremar Training, Anionic Polyac1ylamide ( <i>PAM</i> ), Deep Tillage
llTigatio□ scheduling is optimized		r-	r	llTigation Scheduling (based on soil moisture monitoring ancVor crop evapotranspu·ation (ET) demand), irrigation Applications adjusted for leaching fraction ancVor system distribution unifo1mity, irligation records maintained
In-igation system design is optimized	i-	,-	r	llTigation System MicrollTigation, Irrigation System Sprinlder, Iriigation Water Management, migation Land Leveling, Il1igation Water Conveyance Pipeline, Il·ligation Regulation Reservoir, m·igation System Tailwater Recovely, Subsurface Drain, Well Decommissioning
Furrow or flood irrigation distribution unifol111lity (DU) is maximized and maintained	r	r	r	Surge inigation valves, lriigation Field Ditch, Managed Fmrnw Lengths, Alternate Row Inigation, migation Canal or Lateral
Sprinkler and m.icrosprinkler distribution unifotmity (DU) is maximized and maintained	r	r	r	System Equipment Maintenance, System Pressure Maintaince, Appropriate and Uniform Nozzle Sizes, Microsprinkler Low Pressure Shut-off Valves, Low Wind Conditions during Applications, Herbaceous Wind BalTier, Windbreak/Shelterbelt
Drip irrigation distribution unifo1mity (DU) is maximized and maintained	Ι	r-	r	System Equipment Maintenance, System Pressure Maintaince, Appropriate Tape/Emitter Application Rate, Pulse llTigation
Other:	5	V	r	
Other:	,-	r	r	
Number of acres that strategies <i>in</i> place	have all planned	irrigation mana	agement	acres
Number of acres that strategies in place	have some plann	ned irrigation m	anagement	acres
Number of acres whe planned but not yet i	-	agement strateg	ies are	acres

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Pesticide	Management
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Pesticide	Not applicable to	Practice in	Practice Planned	Defmition / Menu of Practices
Management	operation	Place	within 3 Years	Definition / Went of Fractices
Sire preparation and plant material promote crop health	1	r	r	Bedding, Inigation Land Leveling, irrigation Water Management, Resistant Varieties, Conservation Crop Rotation, Cover Crop
Pest and beneficial populations are monitored	Ι	r	r	UC <b>1PM</b> Pest Management Guidelines consulted, scouting for pest detection, pest records maintained
Cultural practices are used to reduce pest presstu-e	t	r	r	Sanitation, Dust Mitigation, Access Road, Mulching, Mechanical Weed Control, Physical or Environmental Pest Conu·ol, Pest Exclusion
Biological conu·ols are used where effective	r	r	r	
Efficient pest control decisions are made	,=	r	r.	UC1PM Pest Management Guidelines consulted, reduced-risk or selective pesticides used where effective, application decisions based on scouting data, pest threshholds and/or risk assessment models, pesticides selected for lower risk of nmoff or leaching where possible, hot spots selectively treated, pesticides applied at the lowest effective label rate
Pesticide handlers/applicators trained yearly	r	r	1*-	<del></del>
Pesticide label instructions followed	Ι	r	Ι	
Application equipment calibrated	F	,=	ı	
Appropriate disposal methods used	r	r	ľ	
Pesticide storage facilities include concrete pads and curbs for containment of spills	I	Ι	I	Agrichemical Handling Facility
Production wells are on elevated impetvious bases upslope of pesticide storage and handling facilities	r	r	r	

Pesticide Management	1"ot applicable to operation	Practice in Place	Practice Planned within 3 Years	Definition/ Menu of Practices
WeW1ead protection consists of an impermeable pad, sump, or buffer area of 100' around the wellhead	Ē	r	r	
Containment basins lined to prevent pesticide leaching	,-	, –	ľ	
Mixing and loading is performed on sites with low runoff hazard, over 100' downslope of well	r-	r <sub>I</sub>	r	
Field layout is designed to minimize pesticide movement	r	r	r	In igation Land Leveling, Land Smoothing, Contour Fanning, Row Arrangement
Fields are managed to reduce pesticide movement	r-	1-	r	Conservation Cover, Cover Crop, Vegetative Barrier, Mulching, Residue Management, Deep Tillage, Jn·igation Water Management, Contour Buffer Strip, Sediment Basin, Water and Sedin1ent Conn·ol Basin, Itrigation System Tailwater Recovery, Conservation Cover, Filter Strip, Grassed Waterway onto Constructed Wetland
Other:	_ j	r	r	
Other:	r	r	Î.	
Number of acres that strategies in place	have all planned	l pesticide mana	agement	acres
Nwnber ofacres that strategies in place	have some plann	ned pesticide ma	nagement	acres
Number of acres whe but not yet in place	re pesticide mana	agement sn-ateg	ies are planned	acres

Nutrient Management	Not applicable to operation	Practice in Place	Nutrient Practice Planned within 3 \'ears	Management  Definition / Menu of Practices
Niu·ogen (N) and Phosphorus (P) crop requirements are known	r-	,-	r-	
N and P sources for crop are known	r-	r	, –	
Well/irrigation water monitored for N and P levels	r	r	r	
Tissue analysis for crops with identified critical levels	7	r	r.	
Pre-sided.ress nitrogen tests are used	r	r	r	Soil Nitrate Quick Test, Soil Testing
Nutrient budget used in deterimi.ng fettilizer applications	r	,-	r	
Fertilizer application ti.ming is based on crop needs	,-	ſ	r	
Fertigation is used where appropriate	! –	r	r	
Cover crops are used to increase soil fertility and reduce fertilizer applications Irrigation is	,	r	r	Cover Crop
managed to avoid loss below the root zone	r-	r-	r	
Application equipment is calibrated regularly	r	!-	r	
Fertilizer handlers and applicators are u·ai.ned	I	<u></u>	r	

)	Nutrient Management	Not applicable to operation	Practice in Place	Practice Planned within 3 Years	Definition/ Menu of Practices				
)	Precision	•		1 cars					
}	placement is used to deliver nutrients efficiently	r~	1	r					
	Fertilizer storage facilities include								
)	concrete pads and curbs for	Ι	r	r					
)	containment of spills								
)	Mixing and loading is performed on								
)	sites with low runoff hazmd, over 100' downslope of well	r	r	r					
) 1	Septic systems are monitored and maintained	r 	r	r.					
	Other:	-	1-	r					
	Other:	r	r	r					
	Number of acres that strategies in place				acres				
	Number of acres that su-ategies in place	-			I acres				
	Number of acres wh but not yet in place	ere nutrient mar	nagement strate	gies are planned	I acres				
	accordance with a sy on my inquiry of the information submitte	e person or perso ed is to the best	o assure that quants who manage of my knowledge	alified personnel the system, or the ge and belief, tru	all attachments were prepared under my direction or supervision in properly gathered and evaluated the inf01mation submitted. Based nose persons directly responsible for gathering the information, the e, accurate, and complete. I am aware tl1at there are significant of fine and imprisonment for knowing violations.				
)				Pr	rint Name:				
				11	Title:				
	Signature)								

Day:! Year:!

Date: Month:!