A LONG-RANGE CONSERVATION PROGRAM 2000-2010

**"PEOPLE HELPING PEOPLE
CONSERVE NATURAL RESOURCES"**

Prepared by the Staff and Directors of the
Santa Cruz County Resource Conservation District
In cooperation with the
USDA Natural Resources Conservation Service

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MISSION STATEMENT

The mission of the Santa Cruz County Resource Conservation District is to help people protect, conserve, and restore natural resources through information, education, and technical assistance programs.

RESOLUTION OF ADOPTION

This Long-Range Conservation Program was adopted by the Board of Directors of the Santa Cruz County Resource Conservation District at a regular meeting held on August 9, 2000.

Approved by:

_____ _____

James G. McKenna, President Sharon Corkrean, District Manager

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PREFACE

How are we going to meet the increasing demand for food, fiber, and energy in the years to come, when soil erosion and inadequate land management continues to be a serious problem? If we are to survive, we must look to the land and all natural resources with renewed interest and develop a program of conservation management.

For over sixty years, conservation districts across the country have helped people conserve natural resources. But the future demands extra effort. Consider the facts: in the next ten years, the population of Santa Cruz County is estimated to increase by 25%. We will need additional food and water from the land that serves us today. We will build housing for another 54,000 people and will continue to put pressure on the natural resources we all depend on. We must protect and enhance our resource base from irresponsible use and destruction and foster a land ethic that will encourage soil stewardship and conservation of the resources of our area.

The Santa Cruz County Resource Conservation District (SCCRCD) recognizes the need for an expanded program of soil and water management. This Long-Range Conservation Program updates the original document developed in 1980. We believe our program is consistent with new information, new opportunities, and changing attitudes, and will serve local needs.

This Long-Range Conservation Program will help our Directors and staff carry out an effective conservation program that will meet the needs of future generations and will insure the most responsible and most productive use of our resources. Implementing our conservation objectives will require a community-based approach.

GOALS

The quality of our soil and water depends on responsible use of these resources now and how well we plan for the years ahead. This Long-Range Conservation Program was developed by the Santa Cruz County Resource Conservation District with the help of cooperating agencies, organizations, local units of government and interested people, and will serve as a foundation for all conservation work to be done in the District. The Plan was originally developed in 1979 and was revised in 1999

This Long-Range Conservation Program includes an inventory of the area's natural resources; a description of District services and authorities; an inventory of resource problems, needs and opportunities; resource maps; and a plan that will help correct conservation problems and develop resources for productive and responsible use.

The District is charged with protecting our County's soil, water, and related resources and assuring the responsible use. The following goals will help to accomplish this charge.

1. Reduce accelerated erosion and sedimentation caused by land use.
2. Reduce the impact of non-point sources of pollution with the use of proper conservation practices.
3. Manage existing resources within their capabilities and protect them for future use.
4. Encourage decision-makers to guide and insure proper land use and care of our natural resources.
5. Protect important and prime farmlands from uninformed and improper use and urban encroachment.
6. Carry out an active information and education program consistent with local needs.
7. Concentrate conservation efforts in critical resource problem areas and areas with a high level of community support. Develop programs to solve the problems.
8. Cooperate with all assisting agencies, groups and units of government in sponsoring conservation workshops, meetings, training sessions and education events, and to coordinate efforts whenever possible.
9. Take an ecosystem approach in solving conservation problems considering natural resources, including but not limited to soil, water, air, wildlife, fish, plant, mineral, scenic, timber, historical, recreational, and geological.
10. Develop clear quantifiable objectives in Annual Work Plans.
11. Continue to foster and expand the Coordinated Resource Management and Planning (CRMP) Program's role in watershed enhancement and expand throughout Santa Cruz County.
12. Increase the District's role in water resource conservation and management.

These goals are designed to bring about a wider awareness that soil and water conservation is necessary and important for the protection of our resource base, the beauty of our environment, and prosperity of our County.

Many critical conservation problems challenge the Santa Cruz County Resource Conservation District but our most urgent concern is controlling accelerated erosion and sedimentation from human activities; such activities include using inadequate drainage plans and structures, major land use change, and erosion and reactivation of chronic landslide masses from landslides induced by human activities (as well as natural events). We also place high priority on issues and work dealing with the protection of prime and important farmland, and in areas where watershed groups (e.g. CRMPs) are active.

BACKGROUND

RCD History

The idea of forming local conservation districts was born in the early 1930s. Mounting soil erosion, floods, and sky blackening dust storms that swept across the nation aroused public concern. Congress passed Public Law 46 in 1935 declaring soil and water conservation and wise land use a national policy. The federal government began to formulate programs of technical and financial assistance. But more was needed – the informed participation and cooperation of local citizens. In 1937, President Franklin Roosevelt wrote to the governors of all the states recommending legislation allowing landowners to form Conservation Districts. Today more than 3000 Conservation Districts cover 97% of all agricultural land and are the main source of conservation assistance to landowners in 50 states, Puerto Rico, and the Virgin Islands. Resource Conservation Districts (RCDs) are public agencies organized under state law responsible for conservation work within their boundaries. The Santa Cruz County RCD is managed by seven non-salaried Directors who are landowners in the District and who are knowledgeable of local problems. Operating funds are mostly drawn from local taxes, grants, and fund-raising activities.

Local RCD History

Resource Conservation Districts have had a presence in Santa Cruz County since 1941, when the Pajaro RCD was formed in South County. Later, in 1978, the Redwood RCD was formed to serve the central portion of the County. As the County began to grow in population and development began to encroach on more mountainous and sensitive land, the need arose to address the resource issues beyond the present boundaries of the two districts. In 1978, the Directors of the Districts petitioned the Local Agency Formation Commission (LAFCO) to extend the District boundaries countywide, excluding the territories of the four incorporated cities. This new District was named the Santa Cruz County Resource Conservation District with a service of over 260,000 acres. The City of Capitola was subsequently annexed to the District in 1983, at the request of the City of Capitola.

The District has taken great pride in serving the agricultural community since its inception. As crops changed, so did tillage and irrigation methods and the District has been there to help farmers incorporate the latest conservation measures into practice. The District'' service has spanned the land use changes from rangeland to apples to berries, and from furrow to sprinkler to drip irrigation.

Because a major portion of the County is in steep terrain with unstable geology and high precipitation, there is the constant threat of erosion and sedimentation. The District has an innovative program that gives conservation assistance to road associations, timberland owners, environmental organizations, governmental resource agencies, and the general public through conferences, workshops, and demonstrations. Especially in times of storm, fire, or earthquake, the District has quickly responded to the public's need for emergency informational assistance.

A more recent endeavor of the District has been to assist various watershed groups in their dissemination of conservation information, and in their implementation of resource enhancement projects on the ground. This type of conservation assistance is very efficient with the District's limited budget. The District is able to help a large group of people at a time, and gets immediate response from the public as to the effectiveness of their services.

With a growing program, the District has always been aware of the need to seek a diverse source of funding for its programs and staffing. Initially, the District relied heavily on property taxes and the USDA Soil Conservation Service (Natural Resources Conservation Service). With the passage of Proposition 13, and the federal governments cutback in services to Districts, the District has sought and received other sources of funding. Public and private competitive grants now make up a large portion of the District's funding. The District has been successful in receiving these grants because we have addressed timely resource conservation issues that have met public need while collaborating other resource agencies and public interest organizations.

SANTA CRUZ COUNTY AGRICULTURE AND LAND USE -- PAST TO PRESENT

Santa Cruz County was first explored in 1769 by an expedition led by Don Gaspar de Portola. Father Crespi, a member of the expedition, was the first to discover the redwoods in the hills above the area that was to become Watsonville. The first settlers came with the founding of the Santa Cruz Mission in September 1791.

Farming was first practiced near the Mission. Wheat, corn, and barley were the principal crops. Surrounding the Mission was a ten-acre fruit orchard consisting mainly of pear and olive trees and a few grapevines. Raising livestock was also important. By 1800 the Mission was exporting breadstuff, hemp, cordage, hides, and tallow.

In 1820 Don Antonia Maria Castro requested the first land grant from the King of Spain. When Mexico gained its independence, all subsequent grants were Mexican. The early established ranchos were devoted almost exclusively to livestock grazing.

The United States acquired California in 1846. The County of Santa Cruz was organized in 1850, and Santa Cruz became the county seat. The population at that time was 643. Most residents lived in and about the Mission at Santa Cruz. In 1940 the population of Santa Cruz County was 45,057; in 1978, 171,000; in 1983, 200,000; and in 1990, 229,734 (U.S. Census Bureau, 1990).

Logging began in 1832 with Amesti's Whipsaw Mill on Corralitos Creek. Numerous new mills were built and by the turn of the century nearly all of the readily accessible timber had been harvested.

In tracing the history of farming in the Pajaro Valley, the major crops have gone from potatoes, grain and prunes to plums, apples, livestock and hops. In 1851 the first farmers settled in the Pajaro Valley. In 1858 the first commercial apple orchard was planted. In 1980 apples, strawberries, and a variety of row and specialty crops contributed more than $110 million to the local farm income. In 1996 agricultural production was up to $247 million; the top five crops by value were strawberries ($83.5 million), head lettuce ($23.9 million), landscape plants ($21.6 million), raspberries ($20.3 million), and timber ($11.5 million).

OPERATING POLICY – RULES OF PRACTICE AND PROCEDURE

District Authority

The Santa Cruz County Resource Conservation District is a public agency organized under Division 9 of the California Public Resources Code and is responsible for conservation work within its boundaries. Operating procedure shall be in accordance with this code.

Meetings

Regular meetings of the Santa Cruz County Resource Conservation District Board of Directors shall be held on the second Wednesday of each month at 7:00 PM (May – October) and 6:30 PM (November – April) at the RCD Office at 820 Bay Avenue, Suite 107, Capitola, California, unless otherwise posted.

Rules of Order

All meetings of the District shall be conducted in accordance with the current edition of "Roberts Rules of Order".

California Open Meeting Law

All meetings of the District shall follow the guidelines set forth in the "Ralph M. Brown Act".

Minutes

All official action, resolutions, and decisions of the Board shall be recorded in the Minutes. Meeting Minutes will be approved at all regular District Meetings.

Appointment of Directors

Since 1996, based on an agreement with the Santa Cruz County Board of Supervisors, RCD Board members are no longer elected. This measure was taken because the Directors and staff realized that the District's limited funds should not be taken from conservation uses to pay election costs, which would have been required if there were contested vacancies. The County Board of Supervisors now appoints District Directors for a four-year term. Appointment procedures conform to state law. The Board of Directors recommends potential appointees to the Board of Supervisors based on the "Director Policy" adopted March 12, 2000. Election years through 2010 and the number of Directors up for appointment are listed below.

Election Year	Appointments
2000	4
2002	3
2004	4
2006	3
2008	4
2010	3

A vacancy may also be declared if a Director is absent from three consecutive Board Meetings.

Select Committees

The President of the Board of Directors will appoint Directors to chair annual or bi-annual select committees. Committees will be set up in accordance with this Long-Range Conservation Program and the District's Annual Work Plan.

Board Authority

Board power and duties conform to Article 4, Chapter 3 of Division 9 of the California Public Resources Code. These functions include:

1. Managing Districts.
2. Conducting surveys and research, disseminating information
3. Accepting grants and gifts.
4. Establishing fees for services.
5. Employing agents, officers, employees, and contractors.
6. Acquiring lands, easements, and property.
7. Suing and being sued.
8. Contracting for and accepting and using contributions.
9. Making improvements and conducting operations on public and private lands.
10. Performing education, outreach, and demonstration projects.
11. Developing Annual Work Plans and Long Range Conservation Programs.
12. Accepting and managing projects within Districts.
13. Calling upon County District Attorney or County Counsel for legal advice.
14. Maximizing funding opportunities by working with Federal, State, and Private sources.
15. Cooperating with other Districts, an Association of Districts, or other Regional Area Groups to provide coordinated representation of Districts before Federal, State, and Local Governmental agencies.
16. Coordinating with other Districts, and Associations of Districts, or other Regional Area Groups on program planning, funding, and delivery of services.

Associate Director Authority and Appointment

Associate Directors shall have the same authorities in all areas of Board activities as officially designated for Directors except where limited under California State Law. Associate Directors are not voting members. The Board of Directors may appoint Associate Directors using the "Associate Director Policy" adopted March 10, 1999. Appointment of Associate Directors will be based on the following criteria:

1. Individual's application must be submitted to the District.
2. Attendance of three (3) or more District meetings in the preceding year prior to applying.
3. Emeritus former Directors and existing Associate Directors will qualify but in the future will need to participate in District meetings and events as will new Associate Directors.

Annual Work Plan

An Annual Work Plan will be developed each year by the Directors and will specify projects and work in detail for the year. This Annual Work Plan shall be consistent with current trends and needs of the District and reflect the conservation objectives of the Long-Range Conservation Program. The Annual Work Plan will be updated each year and referenced at regular District Meetings.

Long-Range Conservation Program Review

The Long-Range Conservation Program shall be subject to annual review for revision of priorities.

Election of District Officers

District Officers (President and Vice President) shall be elected for two-year terms with an election every election year. Officers may be re-elected and serve as long as they remain on the Board of Directors.

DUTIES AND RESPONSIBILITIES OF DISTRICT DIRECTORS

The primary duty of District Directors is to guide proper land use and management of natural resources within the District. In fulfilling this duty, Directors:

1. Provide local leadership in the field of resource conservation to District landowners, local units of government, and District staff.
2. Hold and attend regular meetings to determine local needs and to carry out active conservation programs.
3. Develop an Annual Work Plan and a Long-Range Conservation Program to be consistent with current trends and local needs.
4. Establish program priorities for resource conservation tasks.
5. Manage District finances, staff, and equipment.
6. Enlist and coordinate help on conservation programs with other agencies, groups, interested persons, organizations, and units of government.
7. Sponsor information and education events, training sessions, meetings, and workshops to make people more aware of the need to protect natural resources and to help landowners prevent or correct conservation problems.
8. Attend local, state, and national meetings to keep abreast with changing conservation techniques and resource issues.
9. Plan and direct a conservation program.
10. Serve as a community clearinghouse for resource conservation information and services.
11. Support Coordinated Resource Management and Planning effort activities.
12. Work with Natural Resources Conservation Service (NRCS) Area and State Conservationists to keep the local NRCS Office staffed to meet the District's need for NRCS assistance.

WORKING RELATIONS

Actively support the conservation efforts and programs of cooperating agencies and groups and work toward developing memoranda of understanding with other cooperating agencies, organizations, and units of government.

Strengthen Relationships With the Following:

1. Arana Gulch Watershed Alliance (AGWA)
2. Association of Monterey Bay Area Governments (AMBAG)
3. Cabrillo Community College
4. California Association of Resource Conservation Districts (CARCD)
5. California Coastal Commission
6. California Conservation Corps (CCC)
7. California Department of Fish and Game
8. California Department of Forestry and Fire Protection (CDF)
9. California Department of Parks and Recreation
10. California Native Plant Society – Santa Cruz Chapter (CNPS)
11. California Regional Water Quality Control Board (CRWQCB)
12. Central Coast Resource Conservation & Development (CCRC&D)
13. Coastal Watershed Council (CWC)
14. Community Alliance with Family Farmers (CAFF)
15. Corralitos Valley Watershed Committee (CVWC)
16. Ecology Action
17. Farm Services Agency (FSA)
18. Monterey Bay National Marine Sanctuary
19. National Association of Conservation Districts (NACD)
20. National Marine Fisheries Service
21. Natural Resources & Employment Program (NREP)
22. Pajaro River Watershed Council (PRWC)
23. Resource Conservation District of Monterey County (RCDMC)
24. San Lorenzo Watershed Caretakers
25. San Mateo County Resource Conservation District
26. Santa Cruz County Agricultural Commissioner's Office
27. Santa Cruz County Board of Supervisors
28. Santa Cruz County Environmental Health Department
29. Santa Cruz County Farm Bureau
30. Santa Cruz County Parks, Open Space, and Cultural Services
31. Santa Cruz County Planning Department
32. Santa Cruz County Public Works and Building Inspection
33. Scotts Creek Watershed Council (SCWC)
34. Soquel Watershed Group (SWG)
35. State Government Representatives (Congressman, Assemblyman, etc)
36. Soquel Creek Water District
37. United States Army Corps of Engineers
38. United States Department of Agriculture Natural Resources Conservation Service
39. United States Fish and Wildlife Service
40. University Cooperative Extension

Active Memoranda of Understanding and Agreements:

1. California Association of Resource Conservation Districts
2. United States Department of Agriculture Natural Resources Conservation Service

Professional Affiliations and Supporting Memberships:

1. Area V (Central Coast) Association of Resource Conservation Districts
2. California Association of Resource Conservation Districts (CARCD)
3. Central Coast Resource Conservation & Development (CCRC&D)
4. National Association of Conservation Districts (NACD)

INFORMATION AND EDUCATION POLICY

A successful RCD program is dependent on an effective information and education program and teamwork on the part of District Directors and staff, and cooperating agencies and individuals. "Visible" conservation begins with a visible Conservation District.

The Santa Cruz County RCD strives to keep landowners, agencies, organizations, units of government, and the general public informed about local conservation issues that affect Santa Cruz County. In order to carry out this policy the District will:

1. Carry out an active information and education program that encourages the responsible use of the County's natural resources, environmental education, proper land use planning, and sound land and water conservation practices on District lands.
2. Actively support the National Association of Conservation Districts (NACD) and the California Association of Resource Conservation Districts (CARCD) and encourage legislation that will aid in conservation education objectives.
3. Cooperate and/or enlist the help of cooperating agencies, groups, etc. in conducting field tours, demonstration projects, workshops, meetings, or other educational events.
4. Emphasize preventative conservation and a self-help system approach to solving soil and water conservation problems.
5. Carry out or sponsor the following information and education activities:
    a. Develop an Annual Work Plan. Review and note progress on a regular basis.
    b. Develop an Annual Report.
    c. Continue to sponsor Coordinated Resource Management and Planning efforts in watersheds throughout Santa Cruz County.
    d. Continue to work with the "Blue Circle" (a CRMP Advisory Team) at least three times per year.
    e. Sponsor workshops, training sessions, seminars, and meetings to further information and education objectives.
    f. Continue to offer Erosion and Drainage Control consultations. Look at ways to advertise/expand the program as necessary.
    g. Publish an annual Newsletter (Natural Resources).
    h. Establish a page on the World Wide Web (Internet).
    i. Continue to develop, up-date, and distribute information and education materials, brochures, and publications.
    j. Sponsor the Soil Conservation Class at Cabrillo Community College.
    k. Write and publish press releases to advertise events and local projects.

CONSERVATION OPPORTUNITIES

Land and water resources of Santa Cruz County will receive continuous pressure during the 2000s as our population continues to increase. It is estimated that the County's population of 229,734 (1990) will increase by approximately 25% in the next ten years, increasing the demand and need for proper resource management and conservation planning.

New ways of doing things and new opportunities must challenge our present approach to solving critical conservation problems if we are to live within the capabilities of our land and all its supporting resources. The Santa Cruz County RCD recognizes the need to be aware of changing attitudes, new approaches, and new opportunities in solving conservation problems in the coming decade.

It will be the policy of the District to investigate all available sources of funding, staffing, and supporting programs that will strengthen the District's role and best address land and water conservation problems and also protect land. The District will look to opportunities in the areas of land use planning, program support, and technical assistance in order to improve Long-Range Conservation Program effectiveness.

Land Use and Resource Planning Opportunities

1. Treat conservation problems on a group or community basis whenever possible. Since many conservation problems continue across property lines, a non-confrontational group approach is often the only approach that can yield a permanent solution. The RCD recognizes that collaborative solutions based on mutual respect are likely to outlast regulatory solutions.
2. Encourage people to help themselves as much as possible. Offer guidance and consultation.
3. Use an interdisciplinary approach to planning whenever there is an opportunity. Work closely with local specialists.
4. Keep cooperating agencies, groups, etc. informed of District activities and invite members of these agencies and groups to attend District meetings, become District Associate Directors, and/or assist with District programs.
5. Utilize the influence and resources of active community leaders/groups in getting conservation programs initiated and supported.
6. Establish demonstration projects to illustrate good conservation management.
7. Continue work with local government officials to encourage responsible resource and land use planning/development. Sponsor regular workshop/training sessions to educate people that influence land use decisions. Make a concentrated effort to keep decision-makers, politicians, and land use planners informed of conservation problems and opportunities.

Opportunities for Program Support Through Collaboration

1. Continue sponsorship of Central Coast Resource Conservation & Development (RC&D) projects.
2. Encourage legislators to support community-wide projects.
3. Continue to investigate new ways and other programs that will enable the District to help people solve problems more effectively.
4. Encourage landowners to supply field personnel to assist with surveys.
5. Serve on local committees. When committees look for a project, suggest/supply information. Encourage them to do the work.
6. Have low priority projects listed and ready for college and/or high school student term projects. Keep in touch with instructors.
7. Work with local agencies, clubs, and groups. Often they can supply people to power events of the District.

Technical Assistance and Human Resources

District employees and contractors, District Directors, Associate Directors, RCD volunteers, NRCS employees, and NRCS volunteers carry out most of the work of the RCD.

GENERAL RESOURCE INVENTORY

Geography

Santa Cruz County is located along the Central Coast of California at the northern end of Monterey Bay. It is bordered on the northwest by San Mateo County, on the east and northeast by Santa Clara County, on the southeast corner by San Benito County, on the south by Monterey County, and on the west by the Pacific Ocean.

Santa Cruz County contains 282,000 acres of land of which more than 25,000 acres are in State, County, and City Parks. Recreation and tourism is a multi-million dollar industry in the County each year.

The boundaries of the County are associated mainly with physical land features. The Pajaro River is the southern boundary, the crest of the Santa Cruz Mountains and the Pacific Ocean form the eastern and western boundaries.

Elevations drop from 3,200 feet on the crest of the Santa Cruz Mountains down to the ocean in a southwesterly direction. A series of narrow uplifted marine terraces extends along the Pacific Ocean and Monterey Bay coast. Most of the watersheds in the County are small and have very narrow alluvial flood plains. Approximately 15% of the Pajaro River basin lies within Santa Cruz County. (Parts of Santa Clara, Monterey, and San Benito Counties also lie within the Pajaro River Watershed.)

In the north County, the San Lorenzo River drains the 88,000-acre San Lorenzo River Watershed, the largest watershed that is completely within our County. Beyond it northwesterly are other large and smaller stream drainages. Locally-intensive development with forestland conversion to other uses, in addition to forestry and coastal agriculture are the major land uses in this portion of the County.

Historic and Scenic Areas

Santa Cruz County has a number of unique historic features that represent a larger County heritage. These historic and cultural resources serve as a physical link to our common origins and heritage; they also provide an aesthetically diverse environment and serve as architectural design guidelines for our modern development efforts. Historic sites occur in most areas of the County. However, the majority of sites are concentrated in areas where early settlements existed, such as Santa Cruz, the San Lorenzo Valley, and the Soquel and Aptos areas. Known prehistoric sites are catalogued by the Northwest Information Center at Sonoma State University.

Santa Cruz County is known for its outstanding scenic beauty. The densely forested Santa Cruz Mountains, rugged peaks and ridges, sandy beaches and shallow lagoons, coastal bluffs and cliffs, riparian corridors, undeveloped open spaces and expanses of agricultural land are all components of the County's visual amenities.

Climate

Santa Cruz County has warm summers and mild winters. Mean annual temperature in the County ranges from 54-58° Fahrenheit. In the coastal area, the mean daily temperature in July and August is about 50-55° minimum and 70-75° maximum. In inland areas that have a sunny exposure, the mean maximum daily temperature is often more than 80° because the overcast and fog disperse sooner than near the coast. The mean daily temperature in January is about 35-40° minimum and 57-62° maximum

A long growing season is characteristic of the County. The frost-free period throughout the County ranges from 220-275 days. It ranges from 220-245 days on the coast and in the Pajaro Valley. The average date of the first frost, 32 degrees, is early in November in the mountains and early in December in the area near Monterey Bay.

Precipitation is light in the lowlands in the southern part of the County to heavy in the mountains. The greatest amount is received on Ben Lomond Mountain in the Santa Cruz Mountains, where measured season totals average 60 inches. Mean annual precipitation of about 30 inches is typical of the Santa Cruz area, and 20-25 inches is typical of the Watsonville area. In the wetter years, more than 90 inches fall in parts of the Santa Cruz Mountains. See Appendix, Map of Seasonal Precipitation.

Snowfall is unusual and is most often limited to high points in the Santa Cruz Mountains, which receive less than five inches of snowfall. At lower elevations, snowfall is infrequent and of short duration.

The average relative humidity is 70-80% during the entire year along the coast and during the winter in the inland areas. Winds are usually light over most of the County, with occasional high winds, especially near the coast.

Woodland/Forestland

The Santa Cruz Mountains cover approximately 75% of Santa Cruz County. The County's timberlands are located predominantly on these steep slopes, ridges, and valleys, ranging in elevation from 100-3,000 feet.

The major commercial timber stands occur above Aptos, Corralitos, Soquel, Felton, Boulder Creek, the University of California, and along the major stream drainageways near the North Coast.

The main coniferous (redwood, Douglas fir and some pines) forest is limited in growth by the strong coastal influence, specifically wind and the transportation of salt, as far as five miles inland. The majority of the redwood forests are "second growth" stands, having been logged 50-100 years ago.

The County is a transitional zone from true timber types to lesser woody vegetation, and a few old-growth remnants of redwood can be found throughout the County. These are representative of some of the most southern extensions of these trees.

Soils best suited for timber production include those of the Baywood-Pfeiffer, Zayante, Ben Lomond-Felton-Lompico, Sur-Catelli-Ben Lomond, Nisene-Aptos, Aptos-Los Osos-Fagan, Maymen-Hecker, and Maymen-Santa Lucia-Bonny Doon units (Santa Cruz County Soil Survey, 1980).

The value of the County's timber harvest was $10,451,000 in 1997 (Santa Cruz County Crop Report, 1997). In addition to the commercial value of the County's timberlands, they also provide wildlife habitat and watershed protection.

The importance of the woodland/forestland resource in Santa Cruz County has changed in recent years. The rapid growth of population in the County has resulted in increased home site development on soils and in areas that were formerly used exclusively for timber production.

Mineral

The major mineral resources of economic value in Santa Cruz County consist of structural and industrial materials, namely sand, gravel, limestone (with siliceous shale), and crushed rock (mainly granite).

At present there are quarrying operations extracting each of the above minerals, and there are also known deposits of each which have not yet been mined. Most mined and potentially extractable mineral deposits are located in the northern half of the County; the exceptions are two locations in mid-County and one in South County. Current mineral resource extraction operations consist of four sand quarries, three aggregate rock quarries, two gravel quarries, and one limestone and one shale quarry. The projected life for these operations varies from 10-15 years to 150 years. See Appendix, Table 1. Several abandoned quarries exist within the County. These quarries are currently under consideration for alternative uses. Some petroleum (oil, gas) resources also may exist in the County but are not currently exploited.

Agriculture

Santa Cruz County, with 282,000 acres, is the second smallest County in California and the smallest agricultural County in California; yet it ranks 22nd out of 58 counties in gross value of crops and livestock (Santa Cruz County Agricultural Commissioner's Office).

Agriculture is limited to the marine terraces along the ocean and bay northwest of Santa Cruz, a section of coastal plain southeast of Aptos, the lower hills of the Corralitos-Watsonville area, and the rich alluvial soils in the Pajaro Valley. The Pajaro Valley comprises about 21,000.

The North Coast area has historically been farmed mainly with artichokes and Brussels sprouts, largely because of the cool damp climate. Recently, other crops, including strawberries, leeks, and mixed organic vegetables have also been successfully produced. The coastal plain from Aptos to west of Watsonville is devoted to Brussels sprouts, broccoli, strawberries, and flowers.

The Pajaro Valley is a diverse area. The top ten crops are strawberries, iceberg lettuce, landscape plants, raspberries, apples, roses, field flowers, nursery transplants, leaf lettuce, and bushberries (Santa Cruz County Crop Report, 1997).

Santa Cruz County's agricultural value in 1997 reached $278,718,000 (Santa Cruz County Crop Report, 1997). The County's agriculture plays an important role in statewide agricultural production, particularly in terms of specialty crop production.

Since the implementation of Measure J in 1978, little farmland within the District (which does not include the City of Watsonville) has been converted to urban use. There is, however, increasing pressure to urbanize agricultural lands.

Plant and Animal

Santa Cruz County has an abundance of plant and animal resources. Fifty-five species of land mammals occur here along with 35 species of reptiles and amphibians, 49 species of fish, and over 350 species of birds. The number of plant species occurring in the County has not been tabulated but is definitely over 1,000. Over one-half the County is forested, with 13 different biotic communities.

Native vegetation and wildlife offer many benefits to County residents, including fishing, hunting, wild food gathering (mushrooms, blackberries, etc.), bird watching, nature study, landscape painting, and nature photography. Natural vegetation beautifies the setting for all outdoor experiences. Vegetation also helps to prevent soil erosion and moderates local climatic conditions, as well as providing the needed food and cover for wildlife populations. In addition, vegetation and wildlife have an intrinsic value as part of the ecosystem that people share.

Vegetation and wildlife also provide economic benefits. The attractive natural environment in this area is the major selling point for the County's tourist industry. Redwood forests, marine life, and wildlife are all magnets that attract tourists to the area. The San Lorenzo River supports the largest steelhead fishery south of San Francisco. It is thus clear that vegetation and wildlife are not a luxury, but provide many benefits to County residents.

Recreation and Tourism

Recreation and tourism are important local industries along with agriculture and forestry. Santa Cruz County recreation spots receive the most use by visitors from the populated San Jose and San Francisco Bay Areas, which are within a one-day round trip distance. Probably the best known of Santa Cruz County's Parks is Big Basin State Park near Boulder Creek. Henry Cowell Redwood State Park and Sunset and Natural Bridges State Beaches are also favorite vacation stops. Santa Cruz County offers recreation enthusiasts and vacation seekers swimming, water-skiing, sailing, surfing, beach walking, hiking in the redwoods, rock climbing, hang gliding, fishing, and other warm season outdoor sports all year round, in addition to various nature study activities.

Santa Cruz County is an exciting, diversified area full of adventure and vacation thrills and will see more demand for recreational facilities in the years to come. Many local residents also engage in these recreational activities and indeed, it can be these opportunities which influence them to live here.

Soils and Geology

There are over 40 different soil types and 85 soil mapping units in Santa Cruz County. Soil is the most important natural resource in the County. It produces crops for food, and timber for construction, firewood and cover for wildlife habitat. Soil is also responsible for the green lush look of our County's landscape. See Appendix, General Soil Map of Santa Cruz County. Soils form on geologic "parent materials" which are the rocks and deposits that form the substrate of the County.

Santa Cruz County consists of many geologic formations that are made up of a wide variety of igneous, sedimentary, and metamorphic rocks, and younger, less consolidated sediments. The rocks differ greatly in age, hardness, and resistance to weathering. The differences in the rocks and also the younger sediments cause differences in the landscape, and they also affect the characteristics of the soils that form on them.

The geologic terrain, in terms of rock types and their ages, consists of metamorphic (= metamorphosed sedimentary rocks = metasedimentary) rocks of probable Paleozoic age (> 200 million years old), igneous intrusive rocks of Mesozoic age (granitic rocks intruded about 70 million years ago as molten magma into the older metamorphic rocks), and younger sedimentary rocks of Cenozoic age (sequentially deposited over the old, hard metamorphic and igneous "basement" rocks, mainly in ocean basins, ranging from 65 million years ago to about 2 million years ago). Younger geologic units, sediments of various sorts, are widespread but are too "soft" to be considered rock.

The metamorphic Sur Formation is not widespread, being found locally together with the more abundant granitic rocks which intruded it. Schist is the most common metamorphic rock; crystalline limestone or marble also occurs. Soils derived from schistose rocks have a loamy texture. Aptos, Nisene, Felton, and Lompico soils are soils which have in part formed on schist as parent material as well as more commonly on some other geologic units.

The oldest metamorphic and granitic rocks exposed on Ben Lomond Mountain were uplifted along the Ben Lomond fault which trends up the San Lorenzo Valley. The next-oldest rocks, the older sedimentary rocks, can also be found at the north end of Ben Lomond Mountain, in the

Boulder Creek area and up to and along the Summit. Thus, these older sandstones and mudstones tend to be at the northerly part of the "back" of Santa Cruz County.

Much of the core of Ben Lomond Mountain exposes the intrusions of granitic rock, and locally elsewhere creeks have cut down through the overlying sedimentary rocks to expose the granitic and metamorphic rocks. The soils that formed in material derived from these rocks have a loamy texture. However, geologic parent material is only one of the several "soil forming factors", so that the distribution of these soils may also relate closely to such factors as slope aspect (= facing direction) and insolation (= amount of sun exposure), and rainfall and some other conditions. The dominant soils are Ben Lomond, Catelli, and Sur.

Other younger sandstones and mudstones (different named formations) are found/mapped toward the ocean, getting younger oceanward. Then, in the South County, besides our youngest mapped sedimentary rock unit, various even younger sediments or deposits are found all around the Pajaro Valley. The rock and sediment formations of Santa Cruz County follow below (after the text on the geology), in ascending order of stratigraphic position and upward from oldest to youngest.

The sedimentary rocks occupy much of the mid and northerly portions of Santa Cruz County. They underlie the surface soils and some deposits, such as the widespread landslide deposits. (The area soils form both on the rocks and on the overlying deposits.) These sedimentary rocks represent nearly the full extent of Cenozoic time – from 65 million years ago up to roughly two million years ago. The overlying younger semiconsolidated and unconsolidated sedimentary deposits represent the last two million years immediately preceding the present.

The sedimentary rocks consist mainly of sandstones and siltstones and mudstones – which formed as lenses and beds or layers of sands, silts, and muds on the ocean floor in varying depths of water. Different sedimentary geologic units or formations formed over time – as conditions of erosion, transportation, and deposition or sedimentation changed and different parts of the Santa Cruz Mountains area experienced different conditions. Thus, no one or more of these sedimentary formations are seen throughout the area – as would be the case if we had "layer cake geology", as do some parts of the country. From area to area, sediments were laid down, then covered up by later deposits, first in one area, then another, then sometimes back to the first area. The weight/pressure and heat generated by overlying/upper sediments slowly and sequentially changed the lower sediments to sedimentary rock. When geologic maps are made, they depict the geologic formations or units which would be exposed at the ground surface if the covering soil were stripped off. This does not mean that these particular geologic units would be the *only* ones underlying the sites. There may also be some older rock units under the surface geologic unit -- which could be encountered by drilling downward (as for a water well).

As now, the area that is now the Santa Cruz Mountains and coast has been highly active tectonically throughout at least Cenozoic time. The area is cut by faults (San Andreas, Zayante, Butano, Ben Lomond, and others). Movement along the faults has been both horizontal and vertical, with northwesterly movement of the Pacific Tectonic Plate southwest of the San Andreas fault (which fault runs northwesterly through the "back" of the County from the County's southeast corner to just east of its northeast corner). There also has been tilting and periodic uplift (vertical motion) which has raised the Santa Cruz coast and mountains above sea level over time, producing the high ridgeline of the Santa Cruz Mountains and lower elevations oceanward. At the same time the streams and rivers have cut/eroded down through the terrain heading oceanward and landslides have occurred on the slopes. This has produced the terrain as we see it today; the process continues.

Cenozoic	Quarternary	Holocene	0-11 TYA	Various bodies of alluvium, colluvium, terrace deposits, mudslide deposits, beach sand, etc
		Pleistocene	11 TYA - 2 MYA	Aromas Red Sands (sand, silt, mud)
	Tertiary	Pliocene	2-5 MYA	Purisima formation
		Miocene	5-23 MYA	Santa Cruz mudstone Santa Margarita sandstone Monterey mudstone Lompico sandstone Lambert shale Vaqueros sandstone with mudstone interbeds
		Oligocene	23-35 MYA	Vaqueros sandstone San Lorenzo formation (Rices mudstone member) San Lorenzo formation (Twobar Shale member)
		Eocene	35-56 MYA	Butano formation, sandstone, siltstone, mudstone, and conglomerate
		Paleocene	56-65 MYA	Locatelli formation, sandstone, siltstone, mudstone, and conglomerate
Mesozoic			70 MYA	Granitic rocks -- Ben Lomond quartz diorite and others In other areas there are many other rock units of Mesozoic age
Paleozoic			> 200 MYA	Metamorphic Sur Series – schist, marble In other areas there are many other rock units of Paleozoic age

MYA = Million Years go
TYA = Thousand Years Ago

The soils which form on the various geologic "parent materials" do vary somewhat with the type of parent material. The largest variation depends on the content in the parent material of sand-sized quartz grains, which are very resistant to weathering and conversion to other minerals, versus other less resistant mineral grains. Grain size can thus be important (sedimentary grain sizes are boulder, cobble, pebble, sand, silt, and clay, in descending order). Yet, granitic rocks not only produce abundant sand-sized quartz grains but also abundant sand-sized feldspar grains, which weather and change to clay minerals and then break up to much smaller clay-sized grains. Many sandstones have similar compositions and behave similarly. These sandstones often were sediments derived rapidly off granitic terrain. Other sandstones are "cleaner" – i.e. have higher percents of quartz grains. They commonly represent shallower water marine sediments wherein the feldspar grains were chemically and mechanically destroyed and/or washed away as smaller particles, sometimes in more than one cycle of erosion, leaving the quartz sand.

"Loamy" soils or "loams" contain sand-sized and smaller grains, including very roughly half sand/half clay. Therefore they may form on rocks (or deposits) containing quartz sand grains and also clayey materials. These form some of the best agricultural and silvicultural soils, being richer in minerals than the more pure quartz-sand soils would be. "Dirty" or lithic or arkosic sandstone, schist, and granitic rock can provide loamy soils, with varying percents of sand and clay. Such soils are the Aptos, Nisene, Felton, Lompico, Ben Lomond, Catelli, Sur, and Pfeiffer. The less sandy of these soils can also form on mudstone (also known as shale). Such clay-rich soils as Los Osos, Fagan, and Diablo can form on mudstone, but particularly are found on low-lying deposits of finer-grained alluvium and related sediments and also uplifted coastal marine terrace deposits. The nearly pure quartz sand Zayante soils directly reflect their derivation from the very "clean" quartz-rich Santa Margarita sandstone.

Soil thickness and division into soil horizons are significant in soil classification. Thick horizonal soils, like the marine terrace soils, the Elkhorn, Watsonville, and Tierra, may have a very long time to develop or else they may just develop relatively rapidly. Other thick soils, like the Ben Lomond on steep forested slopes, may thicken but not develop horizons – because they are "colluvial" – that is they keep creeping downslope as they form, with individual particles moving.

Other soils can be thin, even to non-existent on some rock-faced slopes. This can relate to soil creep and landsliding on steeper slopes and to intense dryness and sun exposure, as along some ridgelines. Such a thin soil is the Maymen. In some cases, the composition of the parent material also relatively retards soil formation. Minerals that do not weather rapidly can be slower to make themselves available to the soil-forming processes of chemical and physical change. Highly siliceous materials such as quartz sand or diatomaceous mudstone are examples. The two main examples which are so linked are 1) the Zayante sands soil which is closely linked mechanically (sand grain size) and chemically (quartz-SiO_2) to its Santa Margarita sandstone parent, and 2) the Lucia siliceous loam which forms on the diatomaceous/siliceous fine-grained Santa Cruz mudstone. Yet, not many soils are closely tied to the chemical composition of the parent material.

The youngest geologic "parent materials" to the soils are the sediments formed in the past approximately two million years. The Pleistocene and Holocene deposits consist of semi-consolidated and unconsolidated sediments. The oldest of these deposits is the Pleistocene Aromas Red Sands found in the Aptos-La Selva Beach and lower Corralitos area and southeasterly on hills. The aeolian (wind blown dunes) part of this formation consists of partially consolidated, well-sorted quartzose, brown to red sand and some poorly sorted sand, with lenses of silt and clay. The fluvial (stream-laid) part of the formation tends to be finer-grained but also contains lenses of sand and gravel. Baywood soils form in the dune deposits as seen on low hills.

Coastal marine terraces are surfaced by up to 20 feet of near shore-on shore sediments over a bedrock platform. There are also stream terrace deposits of clayey, sandy, and gravelly alluvium which are (somewhat) similar. Soils formed on the terrace deposits tend to be "well developed"; that means they have had the opportunity to become thick and have distinct soil "horizons" with differing characters. As noted above, these soils include Elkhorn, Watsonville, Tierra, and Pinto, productive soils commonly used for row crops.

The very youngest geologic materials consist of late Holocene alluvium that eroded from the uplands north and east of Watsonville. These lie in the Pajaro Valley. The alluvium is mixed because there is a wide variety of rock and sediment sources. In the Pajaro Valley, the alluvial material that extends west from Salsipuedes Creek to the ocean is finer textured than the alluvium in the upper part of the valley. These deposits have been in place for so short a time that weathering and organisms have not had time to produce thick, well-developed soils locally. Soils include the widespread Conejo loam and also the Cropley silty clay.

Water

Water is one of the most important natural resources of the County. Santa Cruz County is one of the few California county that is not dependent on water sources from outside its boundaries. However, increased water demand has exceeded currently developed surface sources and depleted groundwater supplies. Saltwater intrusion has encroached into coastal wells. Water providers and managers are seeking ways to expand surface water capture and storage to conserve water, and to address saltwater intrusion problems.

Santa Cruz County receives some inflow of surface water from San Benito County via the Pajaro River and Pescadero Creek and perhaps some groundwater inflow from Monterey County. Otherwise, the County is isolated from all other areas by topographic barriers and fault lines. See Appendix, Watershed Map.

The North County depends on surface flow and wells for its water supply. The Central County depends on wells and Soquel Creek for its water needs. The South County including the agricultural area around Watsonville relies primarily on well water for domestic and agricultural uses.

Other important watercourses in Santa Cruz County include the following creeks.

Aptos Creek	Corralitos Creek	San Vincente Creek
Bean Creek	Kings Creek	Scotts Creek
Bear Creek	Laguna Creek	Valencia Creek
Branciforte Creek	Love Creek	Waddell Creek
Boulder Creek	Newell Creek	Zayante Creek
Carbonera Creek		

Major water bodies in Santa Cruz County include the following lakes and reservoirs.

College Lake	Freedom Lake	Rose Reservoir
Drew Lake	Loch Lomond Reservoir	Simal Lake

Kelley Lake Pinto Lake Tynan Lake

Important wetlands, sloughs, and lagoons to Santa Cruz County include the following.

Baldwin Creek Wetland	Lidell Springs	Scotts Creek Wetland
Corcoran Lagoon	Lombardi Gulch	Struve Slough
Gallighan Slough	Majors Creek Wetland	Watsonville Slough
Hanson Slough Moran Lake	Neary's Lagoon	Wilder Creek Wetland
Harkins Slough	Old Dairy Gulch	
Laguna Creek Wetland	Schwan's Lagoon	

LAND USE AREAS

This section covers conservation problems, solutions, and actions associated with the following land use areas.

Agriculture (including range and pasture)
Woodland/Forest
Fish and Wildlife
Urbanization
Recreation
Other (including mining and watersheds)

Agriculture

Conservation Issues

1. Mismanagement of irrigation water, including
   a. over-irrigation;
   b. improper timing;
   c. use of inefficient equipment.

   These practices are associated with:
   a. erosion;
   b. reduction to water resource reserves and water quality;
   c. accelerated runoff during storms due to an already saturated soil profile.
2. Lack of permanent or annual cover crops. The absence of a protective vegetative cover on area farms during high erosion hazard periods is associated with:
   a. severe rill, gully, and sheet erosion;
   b. reduced soil fertility and tilth;
   c. damage to crops or farmland from sediment and/or erosion;
   d. damage to adjacent properties;
   e. increased runoff of pollutants.
3. Inadequate or improper tillage and rotation practices including:
   a. over cultivation;
   b. the use of equipment up and down slopes;
   c. incorrect use of cultivation equipment.

   These practices are associated with:
   a. tillage hardpans and soil compaction problems;
   b. damage to soil structure;
   c. stream and waterway sedimentation from increased erosion;
   d. loss of fertile top soil;
   e. loss of soil fertility.
4. Inadequate management of marginal lands and agricultural use of land that should not be farmed has caused severe erosion problems on some hillsides and in the Santa Cruz Mountains.
5. Lack of conservation measures to reduce erosion hazards on existing farmlands. Erosion in areas of little or no use on ranches and farms may often be neglected because of the cost considerations. Preventative measures to control erosion and sediment are also not widely used.
6. Lack of maintenance of existing conservation systems. Maintenance of conservation practices such as removing sediment from grass-lined ditches, repairing leaking irrigation systems, and repairing cross-fencing or watering facilities on rangeland are all common problems to area farmers and ranchers.
7. Lack of coordination of local and state laws, ordinances, and permit procedures may cause burdens to area agricultural producers.
8. Urban encroachment on prime or important agricultural land in South Santa Cruz County is a recurring problem due to extreme population and development pressure.
9. Mismanagement of livestock in riparian areas.
10. Overuse of pesticides can be associated with:
    a. increased erosion;
    b. decreased soil health, tilth, and microbial activity;
    c. decreased biodiversity.

Solutions

1. Information and educational techniques.
   a. Work more closely with news media; prepare timely news releases and information on conservation items.
   b. Work more closely with agricultural groups, organizations, and committees. Keep them informed of District activities.
   c. Coordinate efforts with UC Extension Personnel.
   d. Develop and distribute informational materials, including a website with links to relevant resources, related to solving local agricultural problems.
   e. Sponsor workshops, meetings, and training sessions to bring about a wider awareness of conservation problems and solutions.
   f. Sponsor demonstration conservation projects.
   g. Provide soil and related resource information and assistance to agricultural producers during the planning stages of resource development and management.
2. Promote technical assistance through NRCS and other means in the development and application of the following high priority conservation

practices.

a. Irrigation Water Management.
b. Establishment of permanent and annual cover crops in area orchards and winter fallow farmland.
c. Conservation tillage.
d. Gully and erosion control.
e. Preventative conservation practices that will benefit agricultural land, such as grass roadways and sediment retention basins.

f. Range and pasture management practices to promote proper grazing.

3. Promote follow-up assistance to insure proper maintenance and safety.
4. Promote inventories and evaluations of resource management problems in agricultural areas.
   a. Conduct field investigations of critical areas.
   b. Provide an inventory and evaluation write-up for all requests.
5. Work closely with the Farm Services Agency (FSA) to develop and promote agricultural conservation cost-share programs to address the most critical problems.
6. Investigate holistic range and pasture management practices and promote them if appropriate.

District Priority Actions

1. Address recommended Long-Range Conservation Program solutions to conservation problems affecting farmlands in the District Annual Work Plan.
2. Enlist the help of interested persons, Associate Directors, cooperating agencies, and others to better serve the agricultural community and solve cropland conservation problems.
3. Become more visible in the agricultural community through a more active information and educational program, e.g., workshops, tours, publications.
4. Work in District-designated geographical priority areas whenever possible.
5. Involve UC Extension personnel in District activities.
6. Promote the establishment of demonstration projects and plant material field trials.
7. Improve District reference material on treatment of agriculture related problems.
8. Assist with the development and application of group conservation projects.
9. Investigate other sources of assistance, funds, and information to help farmers and ranchers.
10. Influence local decision-makers when necessary regarding the protection of our important and prime farmlands from urban encroachment. Review Environmental Impact Reports and subdivision proposals.
11. Promote organic, sustainable, and integrated pest management approaches to agricultural production.

Woodland/Forestland

Conservation Problems

1. Erosion and sediment control during rainfall on (identified) poorly managed timberland.
2. Control of invasive non-native vegetation species that compete with local woodland species.
3. Fuel loading in forested areas, especially where there is limited access, raising probability of fire.
4. Damage to logging road drainage facilities from trespass and off-road vehicle use.
5. All season use of seasonal roads, especially those with multiple owners.
6. Control of forest pathogens (for example, pitch canker, madrone blight, oak disease).
7. Urban encroachment on forested lands removes lands from timber production, adds constraints to adjacent timberlands, and puts additional pressure on remaining timber resources.

Solutions

1. Encourage landowners and managers to provide adequate fire access to their woodland/forest and to establish firebreaks and greenbelts where possible to help control wild fires.
2. Encourage sustainable harvest of area timber supplies.
3. Include considerations for wildlife habitat management with all woodland conservation practice recommendations.
4. Develop woodland conservation plans under Long Term Agreements with the local Farm Services Agency (FSA) standards.
5. Assist private landowners with erosion control and conservation recommendations on forestland according to RCD and USDA Natural Resources Conservation Service standards.
6. Provide information and education program in forestland communities.
7. Encourage private landowners to hire licensed private consulting foresters to develop long-term forest management plans.
8. Investigate certification of wood products as a self-regulatory approach to improving harvesting practices.
9. Develop road use and upgrade strategy for multi-owner roads.
10. Develop and distribute informational materials, including a website with live links to relevant resources, related to solving local forestland problems.

District Priority Actions

1. Develop information materials to distribute to woodland/forestland owners.
2. Provide conservation assistance to landowners in critical areas within the County's forestlands.
3. Work more closely with the California Department of Forestry and Fire Protection to provide information on the District's services.
4. Promote RCD Consulting Service to owners of forestlands.

Fish and Wildlife

Conservation Problems

1. Loss of locally rare and unique biotic communities (wetlands, old-growth redwood forest, native grasses, ponderosa pine forest, and riparian woodland) and endangered species of plants and animals, due to incompatible activities.
2. Loss of living space for wildlife, due to modification of wildlands by urbanization or other land uses.

3. Decreasing food and cover for wildlife on remaining wildlands, due to the invasion of exotic, competitive plants (such as pampas grass, acacia, blue gum eucalyptus, periwinkle, English ivy, Cape ivy, cotoneaster, castor bean, poison hemlock, and French broom).
4. Decreased water quality and quantity have deleterious effects on native fish populations, especially the anadromous steelhead, trout, and coho salmon, which are listed as threatened under the US Endangered Species Act.
5. Lack of adequate enforcement of point and non-point source pollution laws and inadequate mechanisms to preserve in-stream flows for aquatic life, riparian vegetation, and wetlands.
6. Need for more active and wide-spread wildlife management on private lands devoted to such potentially compatible uses as grazing, forestry, or recreation.
7. Invasion into and out-competition in habitats of native animal species by non-native species, e.g. pigs – which also damage water sources and cause erosion and sedimentation.
8. Lack of awareness of the need for fuel breaks and fuel management.

Solutions

1. Encourage property owners to base their land use decisions on environmental, as well as economic, factors. Inform landowners of the disastrous long-range consequences of sacrificing environmental values for short-term economic gain.
2. Actively solicit wildland landowners to participate in conservation planning for wildlife/fishery enhancement and the protection of rare and endangered plants and animals.
3. Incorporate habitat enhancement measures into all other conservation practices wherever wildlife habitat is involved.
4. Encourage projects that, by design, would consider the importance of fish and wildlife habitat or rare and endangered species of plants and animals.
5. Work more closely with the California Department of Fish and Game to protect and restore wildlife/fish habitat.
6. Encourage prescribed burning as a tool in appropriate wildlands as a natural fire substitute and to increase wildlife forage values, to perpetuate "fire-follower" plant species, and reduce the potential for catastrophic fire.
7. Encourage the use of silvicultural and agricultural practices that do not pollute streams or wetlands, and seek to eliminate off-site deleterious effect on fish or wildlife.
8. Work to facilitate legal management practices which will remove invasive, non-native animals.
9. Improve stream, lake, and wetland water quality by assisting private landowners with erosion control on critical areas.
10. Encourage users with stream water diversions to use best management practices.
11. Encourage landowners to manage wetland and riparian woodland areas for the purposes of water quality improvement and wildlife habitat. Promote grazing management that fosters the recovery of native vegetation.
12. Work with landowners to eradicate weedy, non-native vegetation that competes with native vegetation and degrades wildlife habitat.
13. Work to protect locally rare and unique biotic value.
14. Develop and distribute informational materials, including a website with live links to relevant resources, related to solving local fish and wildlife habitat issues.

District Priority Actions

1. Improve working relations with the California Department of Fish and Game and other resource agencies.
2. Develop educational materials on wildlife habitat improvement and preservation for distribution to wildland property owners. Special focus: endangered or special status species.
3. Include wildlife planning as a part of all conservation assistance given to landowners.
4. Educate property owners on the value of riparian woodland and wetland habitats and work with them to protect these ecologically important areas.
5. Provide erosion control assistance to landowners in critical areas, especially where the pollution of streams and degradation of wildlife areas are involved.
6. Educate public on the existence of cost-share, grant, and loan programs available to assist with wildlife conservation goals. Provide technical assistance, as requested.
7. Assist landowners to resolve issues of removal of invasive non-native animals which both destroy habitat and out-compete native animals.

Urbanization

Conservation Problems

1. Land converted to urban uses often increases erosion and sedimentation as a result of inadequate planning and implementation of erosion control measures.
2. Landsliding is a major occurrence in the Santa Cruz Mountains. Accelerated landsliding can occur with urbanization. See Appendix, Geological Hazards Map.
3. Inadequate site planning has caused serious soil and water related problems.
4. All phases of construction and other earth-moving activities take place all year without implementing appropriate erosion control measures during high erosion hazard periods.
5. New homeowners in erosion hazard areas are not properly informed on how to maintain existing conservation measures or to recognize and install practices that may be needed.
6. Lack of enforcement and legislative control of violations to the existing grading ordinance, as well as the lack of appropriate laws and/or ordinances limiting inappropriate/unsustainable use of Santa County lands.
7. Poor planning, installation, and maintenance of dirt roads and driveways is causing serious road erosion problems and sedimentation of nearby streams throughout many miles of the unpaved access in the County.
8. Improper subsurface drainage around homes is a common problem in almost every part of the County where there is high rainfall, poor surface drainage, and a poorly drained subsurface soil, and may contribute to slope instability.
9. Shoreline erosion caused mostly by ocean waves and winter storms along Santa Cruz County beaches.

Solutions

1. Provide technical assistance in the development and application of the following erosion control practices:

a. installation of sediment boxes and basins;
b. seeding (with an appropriate non-invasive, erosion control species), mulching, and fertilizing disturbed areas;
c. installation of drainage and sediment control measures (including, for example, grass-lined waterways and ditches, culverts, underground drainage systems, pipe drops, diversions);
d. procedures to properly stock pile and reuse top soil during construction operations.

8. Provide follow-up assistance to insure proper maintenance and safety.
9. Provide conservation planning assistance to builders, contractors, developers, planners, and/or landowners before construction begins.
10. Encourage Cities and the County to practice appropriate/sustainable land use planning.
11. Inventory the most critical existing problems in urbanized areas and treat on a priority basis.
12. Work with the local media and website to help communicate conservation messages to homeowners with soil and water-related problems.
13. Sponsor and support educational events to make landowners and developers more aware of proper land use planning in developing areas.
14. Review and comment on environmental impact reports, subdivision proposals, and land use developments.
15. Investigate and promote alternative technologies that may reduce impacts due to urbanization (e.g., permeable pavement, surface water and groundwater recharge).
16. Work with shoreline residents on ways they can best protect themselves from the eroding effect of waves and wind.
17. Provide conservation assistance and outreach on wind and wave erosion control to community groups in the Sand Dollar Beach area, Capitola, Pajaro Dunes, Santa Cruz, and other sensitive areas.

District Priority Actions

1. Encourage local planners and decision-makers to require an erosion control plan or provisions for erosion, sediment and drainage control in the site development plan on all new developments, including individual building sites.
2. Provide better information (brochures, publications, website and/or links) on soil and water conservation practices and landslide control for public distribution.
3. Assist homeowners and land users on a group or community basis whenever possible.
4. Sponsor erosion and sediment control workshops or other conservation related activities for developers, planners, building inspectors, groups, or interested persons to train and educate about the importance of conservation practices in urbanized areas.
5. Provide inventories and evaluations of potential soil erosion and sediment or landslide problems to landowners in critical erosion hazard areas.
6. Provide technical assistance to people in high erosion hazard areas first. Update treatment of critical erosion areas on a regular basis.
7. Provide technical assistance to the County in the environmental review of proposed projects and provide constructive comments and/or recommendations.
8. Work with the news media and other information and education channels in communicating the control of erosion and sediment in urbanized areas of the County.
9. Promote urban erosion control and "Winter Survival" in both rural and urban Santa Cruz County.

Recreation

Conservation Problems

1. Off-road vehicle use on unpaved (including logging, fire, and other private) roads during the rainy season is a source of serious erosion problems. The popularity of mountain bikes has added to this problem.
2. Vandalism and pollution are probably the most widespread problems in the County's park system.
3. The threat of wildfire in the County's woodlands is becoming more serious as fuels build up and these areas get more use. Increased mortality from pitch-canker and tan oak disease is accelerating fuel accumulation.
4. Improper development or management of horse boarding facilities can lead to erosion and nitrate pollution from horse manure.

Solutions

1. Work with, and provide information to off-road vehicle and mountain bike and motorcycle groups about erosion concerns. Develop strategies to control erosion with the help of private property owners and local user groups.
2. Assist the California State Parks and Recreation and the Santa Cruz County Parks and Recreation Departments with conservation recommendations aimed at solving critical erosion and sediment problems. Involve these agencies in RCD outreach activities.
3. Support and encourage efforts to manage fuel loads on State, County, and City park lands.

District Priority Actions

1. Develop brochure on controlling trail and unimproved road erosion.
2. Work with State, County, and City Park staffs to develop fire management strategies. Invite them to training sessions sponsored by the District.
3. Write timely feature articles for popular off-road and other user group vehicle magazines or local newspapers on the role of conservation in recreation.
4. Encourage park staff to include conservation education and activities in their park programs.
5. Make District and NRCS publications available at State, County, and City Park Offices.
6. Encourage private landowners, farmers, and ranchers to consider recreation in their land-use plans.
7. Provide guidance on minimizing negative impacts to wildlife habitat by recreational facilities (e.g., location, and orientation of buildings and lights), and various sorts of off-road vehicles and horses.

Other

Conservation Problems

1. Active and abandoned sand and gravel and other quarry operations throughout the County have left significant, disturbed areas unprotected for long periods of time resulting in excessive soil loss and sedimentation of nearby streams and rivers. Most active operations are required to have an approved drainage plan, but problems still exist.
2. Off-road vehicle use in areas where surface mines have been abandoned have damaged erosion and sediment control facilities, disrupted

natural drainageways, and accelerated erosion.

3. Natural and/or geological erosion is common in the Santa Cruz Mountains. Natural erosion can be accelerated by activities performed below a standard of quality in homesite and road building, timber harvests, and changes in land use.
4. County roads are a major source of sediment to local streams and rivers.
5. Inadequate maintenance and increased use of natural resources adds to pollution.

Solutions

1. Support local, state, or federal programs available to help private landowners install soil and water conservation practices in critical areas.
2. Develop cooperative relations with owners of land where sand and gravel and other quarry operations have been abandoned and are causing erosion problems. Assist with conservation and erosion control plans. Evaluate options for alternate uses of abandoned quarries.
3. Work with the County on areas where runoff from County roads are causing erosion problems. Involve the County in RCD outreach activities.
4. Provide information to County planners and decision-makers about critical erosion hazard areas to assist in the process of planning and approving land-use changes.
5. Encourage private landowners to restrict access of unauthorized vehicles and horses on their lands.

District Priority Actions

1. Review the San Lorenzo River Watershed Management Plan Update and assist the County with its implementation.
2. Provide resource conservation training and workshops to selected Santa Cruz County Government employees, AMBAG staff, District personnel, and others working to conserve the unique character and resources of the County's watershed lands.
3. Provide residential and commercial conservation education, e.g. low flow toilets and showerheads, water-efficient appliances, drought tolerant landscaping, insulating pipes to minimize "running time" to get hot water, etc.
4. Coordinate education and implementation of good management practices with local non-profit and CRMP groups working to address conservation problems.
5. Promote and publicize available cost-share programs.

APPENDIX

Resource Maps
Santa Cruz County, California

Resource Maps
Santa Cruz County Resource Conservation District