Santa Cruz Countywide Partners in Restoration Permit Coordination Program

2006 Annual Report

Report prepared by
USDA – Natural Resources Conservation Service
and the Santa Cruz County Resource Conservation District

In fulfillment of terms of agreements with:

United States Army Corps of Engineers
United States Fish and Wildlife Service
United States National Marine Fisheries Service
California Department of Fish and Game
California Coastal Commission
Central Coast Regional Water Quality Control Board
County of Santa Cruz
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January 2007
Permit Coordination for Resource Conservation in Santa Cruz County

Summary

Seven projects were completed in 2006, the second year of the Santa Cruz County Partners in Restoration Permit Coordination Program. Three wildlife habitat improvement projects were implemented in the Soquel Creek Watershed. One of the projects was the second phase of projects that went through the program in 2005 and the other two will be implemented over a period of multiple seasons. A water quality improvement project was implemented in the Pajaro Watershed to capture nutrient laden sediment from an adjacent conventional operation. Three access road improvement projects were implemented in the San Lorenzo Valley Watershed. More detailed information about each of these projects is summarized in this report. Three projects, initially proposed for the 2006 construction season, were not implemented, due to permitting and landowner availability issues. These projects will be resubmitted for implementation in 2007.

The information contained in this report is provided to ensure compliance with the various approvals and agreements developed with the regulatory agencies for the Permit Coordination Program. These agencies and forms of approval are summarized in Table 1.

Table 1. Participating Agencies and Form of Agreement

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Summary of Projects Implemented in Construction Seasons 2006 and Updates on Projects Implemented in 2005 Under the Partners in Restoration Permit Coordination Program

The following information addresses the reporting requirements of the participating agencies listed in Table 1 above.
Projects Implemented in 2005

Project: Soq2

3535 Main Street, Soquel, CA 95073-2132

Assessor Parcel Number: 030-281-02

Culvert Extension and Arundo donax Removal Implemented in 2005

Site in 2006

Annual Monitoring of Project Site:

Restoration and Management of Declining Habitat

    Phase I of this project involved the initial treatment of Arundo utilizing the cut-stump method. The Arundo was 100% eradicated and no further treatment is needed. Permanent native vegetation was scheduled to be implemented in the 2006 permit coordination program. See 2006 Projects for Phase II update.
Structure for Water Control
   Rock at end of pipe was washed away last year due to unusually high flows. The energy dissipater was not replaced due to concern of future high flows this season. There is currently no sign of erosion at the culvert outlet, as it dissipates onto a cemented sandstone shelf. The project will be strictly monitored for potential erosion.

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**Project: Soq3**

No address- Vacant City Land, Capitola

Assessor Parcel Number(s): 035-011-07, 035-011-04

**Site after Ivy removal in 2005**

View of 4-acre areas of site from condominiums. Soquel Creek is in background

**Site in 2006**

View of site of 4-acre area of site from condominiums. Soquel Creek is in background
Annual Monitoring of Project Site:

Restoration and Management of Declining Habitat

Phase I of this project involved the removal of Arundo by hand digging out the root mass. The Arundo was partially eradicated and thus further treatment was performed during Phase II of this project. Ivy was removed from the ground utilizing goats and hand crews and from the trees by cutting and applying herbicide. Only a 30% reduction of this invasive species was maintained throughout the year. See 2006 Projects for phase II update.

Projects Implemented in 2006

Project: Soq 1

Address: 4516 Robertson Street, Soquel, Ca

Assessor Parcel Number: 030-021-38

Before

Arundo donax growing along Soquel Creek.
After

Area where Arundo donax was removed from along Soquel Creek.

Practice/Extent:
Restoration and Management of Declining Habitats (643), 10’ wide x 30’ long

Purpose/Goal of Project:
The goal of the project was the eradication of a 10’ x 30’ stand of Arundo which was weakening the integrity of the streambank and spreading downstream.

Area Affected: Stand of Arundo (10’ x 30’)

Conservation benefits
Colonization by Arundo donax results in the loss of riparian habitat and an increase in stream temperature, furthering the decline of special status species populations. Additionally, the presence of non-native invasive plants may destabilize the stream banks, compromising water quality through increasing turbidity and sedimentation that limit reproductive success and survival of the steelhead populations. The removal of Arundo Donax improves the environmental value of Soquel Creek by addressing these environmental impacts that result from colonization by this invasive species, and increases the enjoyment and understanding by the local community of a healthy, functioning stream corridor.

Volume of soil moved
0 cyd.

Wetlands/Waters
No impact to waters of the state and no net loss of jurisdictional waters or wetlands.

Final slope of project work (not to exceed 2:1).
Removal of Arundo donax occurred on the top of the bank. No grading or slope reshaping occurred.

Efforts to Control Non-Native Invasive Plant Species:
The primary intent of the project was the eradication of a 10 x 30 square foot stand of vegetation comprised solely of Arundo donax and some Cape ivy. Only these invasive species were removed from the site, as the project site is adjacent to an established, existing infestation that cannot reasonably be prevented from spreading on to the site without constant removal efforts. Success criterion at this project site will be constituted
by a 100% reduction in the percent of Arundo. The site will be monitored for 5 years to ensure no colonization of new exotic species.

**Revegetation Efforts:**
Eradication of the Arundo stand at this site will require work over at least two construction seasons under the Permit Coordination Program. Next year, if regrowth of Arundo occurs, a repeat cutting and herbicide application will be done to address any remaining Arundo present in the treatment area (100% removal). Following successful eradication of the Arundo, the site will be replanted with native shrubs from the list of plant species approved for use under the Permit Coordination Program. Hand control of the surrounding invasive plants (ivy) will be needed to allow successful establishment of the shrubs.

Following work this year, barley was hand seeded, covered with straw mulch, and secured with erosion control blanket in the disturbed area to prevent erosion and sedimentation into Soquel Creek.

**Special Status Species and Habitat in the Project Area and Protection Measures Implemented:**

Prior to project implementation, all project workers were given information on the listed species in the project area, a brief overview of the species’ natural history, the protection afforded the species by the Federal and California Endangered Species Acts, and the specific protective measures to be followed during implementation of the practices.

This project is determined by NRCS to be consistent with the Letter of Concurrence issued by NMFS on April 16, 2004 which confirmed that implementation of the practice: “Restoration and Management of Declining Habitats” was an activity that may affect but was not likely to adversely affect steelhead, coho, or the critical habitat for coho in Santa Cruz County (Consultation # 151422SWR04SR9197:BLS). This project is determined by NRCS to be consistent with the Biologic Opinion #1-8-0-4-F-01 issued on July 25th 2006. Consultation with the Fish and Wildlife Service occurred prior to project implementation and the project was determined to not adversely affect species.

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**Project: Soq2**

3535 Main Street, Soquel, CA 95073-2132

Assessor Parcel Number: 030-281-02

**Practice/Extent:**
Restoration and Management of Declining Habitats (643), 20’ wide x 40’ long

**Purpose/Goal of Project:**
The goal of the work this year was to plant native shrubs in the project area to provide bank stability, habitat cover and forage and “shade out” unwanted species. The planting has not been completed yet. The landowner at this site has grown elderly and so the RCD and NRCS are working with a new contact person to implement practices as listed in the Cooperator Agreement for the Master Permit. Project will be submitted under the 2007 Permit Coordination Program.

**Area Affected:** Top of bank (2’ x 40’)

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Project: Soq3

No address- Vacant City Land, Capitola

Assessor Parcel Number(s): 035-011-07, 035-011-04

30% reduction in ivy cover from 2005

View of 4-acre areas of site from condominiums. Soquel Creek is in background

After 2006 removal of ivy cover

View of 4-acre areas of site from condominiums. Soquel Creek is in background
Before ivy removal on 2-acre area

After ivy removal, seeding and mulching on 2-acre area

Before ivy removal on 2-acre area
After ivy removal, seeding and mulching on 2-acre area

Practice/Extent:
Restoration and Management of Declining Habitats (643), 150’ wide x 1000’ long (4-ac phase II and 2-ac phase I)

Purpose/Goal of Project:
The goal of the project is to restore a riparian community on a 6-acre parcel adjacent to Soquel Creek by eliminating the exotic ground cover and re-vegetating with native plants.

Area Affected: 6 acres

Conservation benefits
The 1000 foot riparian corridor restored for this project has remained relatively untouched by development, yet invasive plants especially English and Cape ivy which pose a noxious threat to Soquel Creek have carpeted the riparian corridor. The growth habits of these species crowd out native vegetation and contribute to bank instability, erosion, sedimentation and loss of native habitat. The English ivy has been established for decades and is smothering the native trees. Trees that are covered by ivy are less vigorous due to the shading effect of the ivy on the canopy and they tend to be more prone to wind-throw due to the excessive weight of the ivy on the tree. The on-going and increased likelihood of native tree mortality due to these invaders lead to increased erosion, creek blockage and flooding risks associated with the death of trees draped in ivy. Invasive species removed on this 6-acre site include Acacia trees, pampas, vinca, lilies, hemlock, English and Cape ivy.
The potential for sedimentation entering Soquel Creek is addressed by the revegetation and erosion control measures at this site. Planting of native plants and installation of erosion control practices on bare, highly erodible slopes and at entrances of urban runoff improve water quality by reducing the velocity of storm water runoff, providing stabilization of the stream bank, and filtering sediments entering streams and pollutants from urban sources. As a result water quality is improved, and erosion, sedimentation, and urban runoff pollution are reduced.

Volume of soil moved
0 cyd.
Wetlands/Waters
No impact to waters of the state and no net loss of jurisdictional waters or wetlands

Final slope of project work (not to exceed 2:1).
No grading or slope reshaping occurred.

Efforts to Control Non-Native Invasive Plant Species:
*Phase II- On the four (4) acre area- Subsequent hand removal on the four acres treated in 2005 was done to control the invasive groundcovers (English and Cape ivy and vinca). Additional removal of Arundo occurred. Other species, including pampas, vinca, lilies, and hemlock were also removed from the site by hand. Revegetation with native plants was completed as part of Phase II. Success criterion at this project site will be constituted by a 100% eradication of the Arundo donax, a 90% reduction in the percent of pampas, vinca, lilies, hemlock, and acacia, and an increase in native plant species of 75%. The site will be monitored for a period of 5 years to prevent infestation of the site by new exotic species.

*Phase I-On the two (2) acre area- Hand removal on the two acre area was done to control invasive groundcovers. Other species, including, pampas, vinca, lilies, and hemlock were also removed from the site by hand. 4 acacia trees were removed. These trees were replaced at 3:1 ratio with native trees. Twelve (12) native trees were planted in place of the four (4) Acacia trees removed. Native trees and shrubs that currently stabilize steep, highly erosive banks on the two acre area were protected by eradicating the ivy. This was completed by cutting the bottom two feet of the ivy roots around trees and painting the bottom section of the cut roots with pre-approved herbicide (Rodeo glyphosate). Success criterion at this project site will be constituted by a 90% reduction in the percent of pampas, vinca, lilies, hemlock, and acacia. The site will be monitored for a period of 5 years to prevent the infestation of the site by new exotic species.

In Phase II (2007), subsequent hand removal by the NREP crews will be done to control the invasive groundcovers (English and Cape ivy and vinca). Phase II will also include re-vegetation with native plants.

Revegetation Efforts:
Phase II on the 4 ac Area - Native plants were planted in the 4-acre area where invasive groundcover was removed for Phase II (See following list). Re-vegetation of the site with native plants will provide habitat cover and forage and “shade out” unwanted species. Success criterion at this project site will be constituted by a 90-95% survival rate. Replanting will occur as needed to meet success criteria of the project.

The following native plants have been pre-approved by an NRCS biologist or were included on the list of approved plant species for use under the Program:

Planted this year
*Lonicera hispidula Var. Vacillans*
Hairy honeysuckle
*Woodwardia fimbriata*
Giant chainfern
*Polystichum munitum*
Swordfern
*Juncus patens*
Common rush
*Artemesia douglasiana*
Dougla Sagewort
*Mimulus guttatus*
Yellow monkey flower
Asarum caudatum
    Wild ginger
Acer macrophyllum
    Big leaf maple
Acer negundo
    Box elder
Populus balsamifera spp. Trichocarpa
    Black cottonwood
Umbellularia californica
    California bay
Sambucus Mexicana
    Blue elderberry
Holodiscus discolor
    Cream bush
Rosa californica
    California Rose
Ribes menzeisii
    gooseberry
Ribes sanguineum
    Red-flowering Currant
Scrophularia californica
    Bee plant

Common barley was used in combination with straw mulch to provide adequate ground cover for temporary erosion control. Straw wattles and erosion control blankets were used in select locations on site where the slope required additional erosion control.

Special Status Species and Habitat in the Project Area and Protection Measures Implemented:

Prior to project implementation, all project workers were given information on the listed species in the project area, a brief overview of the species' natural history, the protection afforded the species by the Federal and California Endangered Species Acts, and the specific protective measures to be followed during implementation of the practices.

This project is determined by NRCS to be consistent with the Letter of Concurrence issued by NMFS on April 16, 2004 which confirmed that implementation of the practice: “Restoration and Management of Declining Habitats” was an activity that may affect but was not likely to adversely affect steelhead, coho, or the critical habitat for coho in Santa Cruz County (Consultation # 151422SWR04SR9197:BLS). This project is determined by NRCS to be consistent with the Biologic Opinion #1-8-0-4-F-01 issued on July 25th 2006. Consultation with the Fish and Wildlife Service occurred prior to project implementation and project was determined to not adversely affect species.

Project: Soq5
Address: 2425 Porter Street, Soquel, Ca
Assessor Parcel Number(s): 030-211-21
Before

Before ivy removal from trees

After

After removal of ivy from trees

Before

Before removal of tarping (used to eradicate Arundo) and revegetation with natives
After removal of tarping (used to eradicate Arundo) and revegetation with natives

**Practice/Extent:**
Restoration and Management of Declining Habitats (643), 20’ wide x 600’ long

**Purpose/Goal of Project:**
The goal of the project is to restore a riparian community along Soquel Creek by eliminating the exotic groundcover (mainly English and Cape Ivy) on the 1 acre parcel where exotic groundcover has infested and re-vegetating the cleared areas with native plants.

**Area Affected:** 1 acre

**Conservation benefits**
The 600 foot riparian corridor proposed for restoration has remained relatively untouched by development, yet invasive plants especially English and Cape ivy which pose a noxious threat to Soquel Creek have carpeted the riparian corridor. The growth habits of these species crowd out native vegetation and contribute to bank instability, erosion, sedimentation and loss of native habitat. The English ivy has been established for decades and is smothering the native trees. Trees that are covered by ivy are less vigorous due to the shading effect of the ivy on the canopy and they tend to be more prone to wind-throw due to the excessive weight of the ivy on the tree. The on-going and increased likelihood of native tree mortality due to these invaders lead to increased erosion, creek blockage and flooding risks associated with the death of trees draped in ivy. Invasive species on this 1-acre site include Arundo donax, vinca major, morning glory, poison hemlock, and English and Cape ivy.

**Volume of soil moved**
0 cyd.

**Wetlands/Waters**
No impact to waters of the state and no net loss of jurisdictional waters or wetlands

**Final slope of project work (not to exceed 2:1)**
No grading or slope reshaping occurred.
Efforts to Control Non-Native Invasive Plant Species:
During Phase I work focused on eliminating invasive groundcover (English and Cape ivy, vinca, morning glory, and poison hemlock) around five (5) areas where Arundo donax had previously been eradicated to create a defensible space for re-vegetation with native plants. Phase I also involved the removal of invasive ivy and morning glory from the tree canopy. Native trees and shrubs that currently stabilize steep, highly erosive banks were protected by cutting the ivy around the base of the tree trunk with either a chain saw or hand clippers, treating the lower portion of ivy with pre-approved herbicide (Rodeo glyphosate), and leaving the upper portion to die and fall off the trees. Phase II (2007) will involve the removal and control of remaining invasive groundcover and additional re-vegetation of the site with native plants. Success criterion at this project site will be constituted by a 90% reduction in the percent of English and Cape ivy, vinca, morning glory, and poison hemlock. The site will be monitored for a period of 5 years to prevent infestation of new exotic species.

Revegetation Efforts:
Native plants were planted in areas cleared of invasive groundcover. Success criterion at this project site will be constituted by an increase in native plant species of 75% and a 90-95% survival rate of these species. Replanting will occur as needed to meet success criteria of the project. The site will be monitored for a period of 5 years in order to meet the success criteria of the project.

These following native plants have been pre-approved by an NRCS biologist or were included on the list of approved plant species for use under the Program:

**Rubus parviflorus**
Thimbleberry

**Ribes sanguineum var. Glutinosum**
Red Flowering Currant

**Cornus californica**
Dogwood

**Salix lasiolepis**
Arroyo Willow

**Artemisia douglasiana**
Mugwort

Common barley was used in combination with straw mulch to provide adequate ground cover for temporary erosion control. Straw wattles and erosion control blankets were used in select locations on sites where the slope required additional erosion control. Revegetation efforts will be monitored for a period of 5 years following planting to ensure successful establishment and to prevent infestation of new exotic species.

Special Status Species and Habitat in the Project Area and Protection Measures Implemented:
Prior to project implementation, all project workers were given information on the listed species in the project area, a brief overview of the species’ natural history, the protection afforded the species by the Federal and California Endangered Species Acts, and the specific protective measures to be followed during implementation of the practices.

This project is determined by NRCS to be consistent with the Letter of Concurrence issued by NMFS on April 16, 2004 which confirmed that implementation of the practice: “Restoration and Management of Declining Habitats” was an activity that may affect but was not likely to adversely affect steelhead, coho, or the critical habitat for coho in Santa Cruz County (Consultation # 151422SWR04SR9197:BLS). This project is determined by NRCS to be consistent with the Biologic Opinion #1-8-0-4-F-01 issued on July 25th.
2006. Consultation with the Fish and Wildlife Service occurred prior to project implementation and project was determined to not adversely affect species.

Project: **PAJ 1**

137 Kerr Rd, Watsonville, CA 95076

**Assessor Parcel Number(s):** 051-201-21

**Before:**

![Photo Point 1](image)

Photo Point 1. Looking northeast at the existing organic buffer strip. The photograph was taken from below the location where the outlet of the proposed sediment basin will be constructed. The staging area will be located to the left of the buffer strip.
After:

Photo Point 2. Looking northeast at outlet of sediment basin.
Photo Point 3. Looking southwest from location where the inlet to the sediment basin.
After:

Sediment Basin Downstream Outlet Structure

Sediment Basin Upstream Outlet Structure
**Practice/Extent:**
Sediment Basin (350) and Structure for Water Control (587), 76’ wide x 245’ long
Critical Area Planting (342) 24,125 sq ft

**Purpose/Goal of Project:**
The goal of this project is to capture sediment and associated pollutants from an adjacent berry operation.

**Area Affected:** 0.43 acres

**Conservation benefits**
The property on which the proposed project was implemented currently maintains an organic ranching operation. The east corner of the ranch receives an influx of sediment and runoff from the adjacent conventional agricultural berry operations. This influx of sediment contains adsorbed pesticides and nutrients that can impact and jeopardize the properties organic status. Furthermore, during storm events, surface runoff can easily transport the sediment into nearby drainages and downstream into Coward Creek and the Pajaro River which is 303d listed as an impaired waterbody for sediment. Thus, water quality issues stemming from the influx of sediment are a problem for both the organic ranching operation and water quality in the Lower Pajaro River Watershed

**Volume of soil moved:** 352 cyd

**Wetlands/Waters**
No impact to waters of the state and no net loss of jurisdictional waters or wetlands

**Final slope of project work (not to exceed 2:1).**
The final slope of the project does not exceed 2:1.

**Efforts to Control Non-Native Invasive Plant Species:**
The primary intent of the project was to capture sediment from the adjacent parcel. The site will be monitored for a period of 5 years to ensure no infestation of new exotic species.

**Revegetation Efforts:**
A percentage of the revegetation that took place was to provide temporary erosion control in an area that will be maintained and reseeded annually. For this purpose non-reseeding annual barley was used on the sediment basin for winter erosion control. Success criterion for the temporary erosion control will be based on its ability to provide adequate winter erosion control (60% cover). However, at the entrance to the basin, where disturbance will not reoccur, native red fescue ‘molate’ (Festuca rubra molate) was planted for long term stability. Success criterion for the native red fescue will be constituted by 90% cover. Replanting will occur as needed to meet success criteria of the project. For the revegetation of the existing access road and staging area the landowners used existing range seeding mix, as these areas will be forage sites into the future. Success criterion for the range seeding mix will be constituted by 90% cover. Replanting will occur as needed to meet success criteria of the project.

**Special Status Species and Habitat in the Project Area and Protection Measures Implemented:**
Prior to project implementation, all project workers were given information on the listed species in the project area, a brief overview of the species’ natural history, the protection afforded the species by the Federal and California Endangered Species Acts, and the specific protective measures to be followed during implementation of the practices.
The special status species of concern on this property were Santa Cruz Tarplant (Holocarpha macradenia) and California red-legged frog (Rana aurora draytonii). Based on a floristic survey of the area performed by the NRCS Conservation Planner, Santa Cruz Tarplant was not present on the site. Since suitable habitat for California red-legged frog was present, construction activities began after July 1 to avoid impacts to breeding adults or egg masses. In addition to appropriate timing of the construction season, a qualified individual approved by USFWS conducted a pre-construction survey within 48 hours of the start of construction activities. The approved individual determined that no California red-legged frogs were present at the site and no additional biological monitoring was needed during construction.

This project is determined by NRCS to be consistent with the Biologic Opinion #1-8-0-4-F-01 issued on July 25th 2006. Consultation with the Fish and Wildlife Service occurred prior to project implementation and project was determined to not adversely affect species.

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**Project: SLO 1**

This project is located on a rural private road in the Deer Creek watershed, a sub watershed of the Bear Creek watershed of the upper San Lorenzo River watershed; there is no residential address at the project location.

**Assessor Parcel Number(s):** 089-021-10 and 089-021-73
Properly aligned and sized culverts were installed in drainages to avoid erosion.

The installation of culverts at ephemeral stream crossings will properly channel stream flows as large as a hundred year storm event.

Front end loaders were used to contour sections of the road to best redirect water flowing down the road and sheet it into the heavily vegetated forest, dissipating its energy and avoiding erosion.

Outsloping requires contouring the road surface to a 4%-6% slope, removing the inboard ditch.
Practice/Extent:
Access Road (Improvement) (560) = 20 feet X 1,168 feet: 1,000 feet of the road was outslopen, 4 rolling dips were constructed, 170 feet of ditch was cleaned out, 195 cubic yards of road rock was applied to the road surface, and 3 critical rolling dips were constructed.

Structure for Water Control (587): 70 feet X 125 feet: 4 ditch relief culverts were installed, 4 ephemeral stream crossings were upgraded, and 32 cubic yards of riprap was used to armor outboard fill, downspout outlets, and inboard ditches.

Purpose/Goal of Project:
Reduce road erosion and sediment inputs into the Deer Creek watershed.

Area Affected: 0.22 miles

Conservation benefits
The objective of this project was to reduce sediment runoff from a steep unpaved portion of a private road in the Deer Creek watershed, a subwatershed of the San Lorenzo River watershed. Deer Creek is a tributary to Bear Creek, a major tributary to the San Lorenzo River. Bear Creek has been identified in the San Lorenzo River Salmonid Enhancement Plan (March 2004) as an important upper watershed tributary for juvenile salmonids (steelhead and coho) rearing. Due to its cooler temperature and lower gradient Bear Creek is one of the main San Lorenzo River tributaries that provides suitable habitat for coho salmon in addition to steelhead.

This project improved road drainage in order to decrease sediment runoff into Deer Creek and therefore improve steelhead spawning and rearing habitat. Previously the road eroded due to poorly constructed road drainage and therefore sediment runs off into Deer Creek.

Volume of soil moved:
Access Roads (Improvement 560) = 7 sites for this project = 210 cubic yds
Structure for Water Control (587) = 8 sites for this project = 703 cubic yds

Net Waters/Wetland loss
There was no net loss of jurisdictional waters or wetlands associated with this project.

Final slope of project work (not to exceed 2:1).
No grading or slope reshaping occurred.

Efforts to Control Non-Native Invasive Plant Species:
The primary intent of the project was to improve road drainage and reduce sediment inputs into adjacent streams. Follow up monitoring will be conducted for a period of 5 years to prevent infestation of new exotic species.

Revegetation Efforts:
The installation of four road drainage culverts required removal of a few ferns and one 8"dbh redwood tree. The reason for the tree removal was to properly align the new culvert with the natural channel grade to decrease erosion. There was no replanting with introduced nursery stock in order to avoid introduction of disease due to the existing natural conditions of the site. Some straw was used to protect soil from erosion where the duff layer was removed and cover was not available to protect from rainfall. All straw was placed on the upslope of roads in order to minimize the amount washed into the
creek. The project location is in a redwood forest and due to the prolific nature of this species the site is expected to naturally revegetate. Monitoring will be conducted for a period of 5 years to ensure that the effected areas are naturally revegetating or have naturally received cover from redwood duff.

Special Status Species and Habitat in the Project Area and Protection Measures Implemented:
Prior to project implementation, all project workers were given information on the listed species in the project area, a brief overview of the species’ natural history, the protection afforded the species by the Federal and California Endangered Species Acts, and the specific protective measures to be followed during implementation of the practices.

Marbled Murrelet:
The project area was visited by Gary Kittleson of Kittleson Environmental Consulting and based on these site visits, review of CNDDB data and other knowledgeable local sources including Bryan Mori, they determined that adverse impacts to marbled murrelets would not result from the proposed work. For precautionary measures, however construction was started after September 15th.

Steelhead:
The work associated with the installation of the culvert improvement which outlets into Deer Creek did not involve any work below the ordinary high water mark and did not require dewatering of the stream. Prior to construction the site was visited by John Ambrose and Howard Kolb. Construction at the site was supervised at least three times per week as requested by John Ambrose.

This project is determined by NRCS to be consistent with the Letter of Concurrence issued by NMFS on April 16, 2004 which confirmed that implementation of the practices: “Access Road improvement” and “Structure for Water Control” were activities that may affect but are not likely to adversely affect steelhead, coho, or the critical habitat for coho in Santa Cruz County (Consultation # 151422SWR04SR9197:BLS). This project is determined by NRCS to be consistent with the Biologic Opinion #1-8-0-4-F-01 issued on July 25th 2006. Consultation with the Fish and Wildlife Service occurred prior to project implementation and project was determined to not adversely affect species.

Project: SLO 2
This project is located on a rural private road in the Bear Creek subwatershed of the upper San Lorenzo River watershed; there is no residential address at the project location.

Assessor Parcel Number(s): 089-531-04, 089-041-93, 089-041-94 and 089-041-46
Before

Insloped road canalized water and created erosion.

After

Rolling dips allow water to sheet flow off the road.

Practice/Extent:
Access Roads (Improvement) (560) = 1,855 feet X 20 feet: 1,797 feet X 20 feet of road was outsloped, a total of 10 rolling dips were constructed, and approximately 307 cubic yards of road rock was applied to the road surface. Structure for Water Control (587) = 20 feet X 50 feet: 2 ditch relief culverts were installed, and 58 feet of ditch was cleaned out.

Purpose/Goal of Project:
Reduce road erosion and sediment inputs into the Deer Creek watershed.

Area Affected: 0.80 miles
Conservation benefits

The objective of this project was to reduce sediment runoff from a steep unpaved portion of a private road in the Deer Creek watershed, a subwatershed of the San Lorenzo River watershed. Deer Creek is a tributary to Bear Creek, a major tributary to the San Lorenzo River. Bear Creek has been identified in the San Lorenzo River Salmonid Enhancement Plan (March 2004) as an important upper watershed tributary for juvenile salmonids (steelhead and coho) rearing. Due to its cooler temperature and lower gradient Bear Creek is one of the main San Lorenzo River tributaries that provides suitable habitat for coho salmon in addition to steelhead.

This project improved road drainage in order to decrease sediment runoff into Deer Creek and therefore improve steelhead spawning and rearing habitat. Previously the road eroded due to poorly constructed road drainage and therefore sediment runs off into Deer Creek.

Volume of soil moved:
Access Roads (Improvement 560) = 10 sites for this project, 453 cubic yards
Structure for Water Control (587) = 2 sites for this project, 20 cubic yards

Net Waters/Wetland loss
There was no net loss of jurisdictional waters or wetlands associated with this project.

Final slope of project work (not to exceed 2:1).
No grading or slope reshaping occurred.

Efforts to Control Non-Native Invasive Plant Species:
The primary intent of the project was to improve road drainage and reduce sediment inputs into adjacent streams. Follow up monitoring will be conducted for a period of 5 years to ensure that there is not an infestation of new exotic species.

Revegetation Efforts:
No vegetation is being removed as a part of this project.

Special Status Species and Habitat in the Project Area and Protection Measures Implemented:
Prior to project implementation, all project workers were given information on the listed species in the project area, a brief overview of the species’ natural history, the protection afforded the species by the Federal and California Endangered Species Acts, and the specific protective measures to be followed during implementation of the practices.

Marbled Murrelet:
The project area was visited by Gary Kittleson of Kittleson Environmental Consulting and based on these site visits, review of CNDDB data and other knowledgeable local sources including Bryan Mori, they determined that adverse impacts to marbled murrelets would not result from the proposed work. For precautionary measures, however construction was started after September 15th.

This project is determined by NRCS to be consistent with the Letter of Concurrence issued by NMFS on April 16, 2004 which confirmed that implementation of the practice: “Access Road improvement” was an activity that may affect but was not likely to adversely affect steelhead, coho, or the critical habitat for coho in Santa Cruz County (Consultation # 151422SR004SR9197:BL). This project is determined by NRCS to be consistent with the Biologic Opinion #1-8-0-4-F-01 issued on July 25th 2006. Consultation with the Fish and Wildlife Service occurred prior to project implementation and projects were determined to not adversely affect species.
Project: SLO 3

This project is located on a rural private road in the Deer Creek watershed, a subwatershed of the Bear Creek watershed of the upper San Lorenzo River watershed; there is no residential address at the project location.

Assessor Parcel Number(s): 089-531-06 and 089-451-01

A total of 1526 feet of the road was outsloped to help shed water from the road surface.

Contouring Palm Road so that it sloped outwards at a 4%-6% slope was the primary erosion control technique.

A total of 10 rolling dips, or gradual dips in the road, were installed to help sheet water from the road surface and further protect it from erosion.

The newly contoured road surface was armored with approximately 241 cubic yards of 1.5” road rock to further protect it from erosion.

A total of 1,526 feet of the road was outsloped to help shed water from the road surface.
Practice/Extent:
Access Roads (Improvement 560) = 20 feet X 1658 feet: 1,526 feet of road was outsloped, a total of 10 rolling dips were installed, 132 feet of ditch was cleaned out, and approximately 241 cubic yards of road rock was applied to the road surface.

Purpose/Goal of Project:
Reduce road erosion and sediment inputs into the Deer Creek watershed.

Area Affected: 0.36 miles

Conservation benefits
The objective of this project was to reduce sediment runoff from a steep unpaved portion of a private road in the Bear Creek watershed, a subwatershed of the San Lorenzo River watershed. Bear Creek has been identified in the San Lorenzo River Salmonid Enhancement Plan (March 2004) as an important upper watershed tributary for juvenile salmonids (steelhead and coho) rearing. Due to its cooler temperature and lower gradient Bear Creek is one of the main San Lorenzo River tributaries that provides suitable habitat for coho salmon in addition to steelhead.

This project improved road drainage in order to decrease sediment runoff into Deer Creek and therefore improve steelhead spawning and rearing habitat. Previously the road eroded due to poorly constructed road drainage and therefore sediment runs off into Deer Creek.

Volume of soil moved:
Access Roads (Improvement 560) = 10 sites for this project = 414 cubic yards

Net Waters/Wetland loss
There was no net loss of jurisdictional waters or wetlands associated with this project.

Final slope of project work (not to exceed 2:1).
No grading or slope reshaping occurred.

Efforts to Control Non-Native Invasive Plant Species:
The primary intent of the project was to improve road drainage and reduce sediment inputs into adjacent streams. Follow up monitoring will be conducted for a period of 5 years to ensure that there is not an infestation of new exotic species.

Revegetation Efforts:
No vegetation is being removed as a part of this project.

Special Status Species and Habitat in the Project Area and Protection Measures Implemented:
Prior to project implementation, all project workers were given information on the listed species in the project area, a brief overview of the species’ natural history, the protection afforded the species by the Federal and California Endangered Species Acts, and the specific protective measures to be followed during implementation of the practices.

Marbled Murrelet:
The project area was visited by Gary Kittleson of Kittleson Environmental Consulting and based on these site visits, review of CNDDB data and other knowledgeable local sources including Bryan Mori, they determined that adverse impacts to marbled...
murrelets would not result from the proposed work. For precautionary measures, however construction was started after September 15th.

This project is determined by NRCS to be consistent with the Letter of Concurrence issued by NMFS on April 16, 2004 which confirmed that implementation of the practice: "Access Road improvement" was an activity that may affect but was not likely to adversely affect steelhead, coho, or the critical habitat for coho in Santa Cruz County (Consultation # 151422SWR04SR9197:BLS). This project is determined by NRCS to be consistent with the Biologic Opinion #1-8-0-4-F-01 issued on July 25th 2006. Consultation with the Fish and Wildlife Service occurred prior to project implementation and project was determined to not adversely affect species.