

**Coal Oil Point Reserve
Devereux Slough North Shore Margin Restoration
Monthly Updates Submitted with Invoices**

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For Santa Barbara Audubon Society
To Wetlands Recovery Project, Small Grants Program
Project begun September 2002, completion expected September 2004.**

Restoration Update. June 6, 2004.

The persistent non-native blackberry was targeted, with manual removal and glyphosate treatment with a surfactant registered for use near water. Weeding of berm eastern portion accomplished, with fraternity community service participants and restoration interns. Last workday of the quarter, 6/5, removed Harding grass from around shrubs west end of road berm, cut and bagged seedheads in preparation for black plastic treatment to kill Harding grass.

The Restoration Intern completed her hours, and recruitment began for a summer (final) intern for the project. A new Restoration Assistant was hired, Julie Love, who previously completed a Restoration Internship and has been subsequently hired by the Coal Oil Point Reserve as the part-time Reserve Steward. She will bill Audubon when working on this project site, and bill COPR when working on other parts of the Reserve.

Restoration Update. May 10, 2004.

Progress Report has just been submitted, per request. The Third Monitoring Report is attached, assessing the success of the restoration effort.

A tour of the site was given to about 20 community members attending a Water Awareness Day at nearby Girsh Park, sponsored by the Goleta Water District. The trolley ride to the site was popular, and allowed us to outreach to members of the public not usually involved in restoration. See enclosed flyer.

Restoration Update. April 6, 2004.

Outplanting of first plants propagated in new propagation bed—Suaeda, which had been difficult grow, and important plant of transitional habitats near the estuary. Interns completed their hours, including the WRP-funded intern, who is working as the Reserve Steward at Coal Oil Point Reserve, and as a Restoration assistant on several other projects.

Volunteers working on the site included Family School, 28 young children on 3/3/04, doing plant maintenance on the berm while interns cleared around the Ventura milkvetch before seedlings emerge. Santa Barbara City College Field Studies class, 8 students plus instructor, planted and did weed control on the site. Parish's glasswort and the Suaeda mentioned above.

Weed control is underway; much less intensive than last year, given prior efforts to reduce the seedbank and rainfall pattern for the year.

New intern has been recruited for Spring Quarter, to start next week.

Restoration Update. February 29, 2004.

The plant propagation bed is in use, with some of the plants intended for outplanting this season already potted up in small containers, and still in the propagation bed. No volunteer workday this month, as we wait for plants to be ready for outplanting. Intern Workday 2/4, interns assisted with plant propagation.

The site looks good, with some weed control planned for the coming week with interns. The CaDFG is expecting seedlings any time from the Ventura milkvetch; we will do a careful weeding before they emerge in the plots. Recent rains will assist with plant establishment and a flush of weeds are expected which will need to be removed.

Restoration Update. February 5, 2004.

The plant propagation bed has been substantially completed, and its use initiated 1/30/04 with cuttings for one species to date. We had difficulties with the solar controller for the misting system, and the owner of the company of the unit brought a third unit and installed it 1/24/04.

Our Volunteer Planting Day on January 24 had 30 *volunteers/interns*! Three groups were represented, UCSB CalPIRG 10 students; YMCA Adventure Guides 5 10-year old boys and 3 accompanying dads; and 7 members of the new Santa Barbara High School Green Club with one mother. Also assisting were community volunteers, and a UCSB student who is on the Shoreline Preservation Fund board. We planted 59 plants, and direct seed of two species, and lots of weed control.

There are 4 Restoration Interns this quarter; returning intern Julie Love for the WPR internship (Bren School graduate), and three COPR interns funded by SPF. One of the COPR interns is a Geography Grad student and on the UC Reserve Advisory Committee; having hands-on experience in the Reserve is very valuable.

Restoration Update. December 19, 2003.

The plant propagation bed has its main structure completed and moved to COPR, with current work on the misting system. It should be completed soon and in use.

Our first planting of the season occurred on December 1, a field biology class of Santa Barbara City College, taught by a former Audubon Restoration Intern; 20 students assisted with the infill planting. A Volunteer Planting Day as held on Saturday, December 6, with 11 hours of volunteer time contributed by 4 community volunteers, and two SPF interns completing their hours. No other UCSB students participated, as it was finals.

Additional planting is planned when the propagation bed produces plants from cuttings of Suaeda, and the seedlings get larger. We await the "spring flush" of weeds which has begun. We have had successful trials with the use of household vinegar (5% acetic acid) to kill young weed seedlings. Successful for our dominants of thistle and mustard, without disturbing the soil, which triggers the germination of the next crop of weeds.

Restoration Update. November 29, 2003.

The restoration has successful establishment of planted native species, and expansion of existing rhizomatous wetland species with weed control. Please see attached Monitoring Report.

In addition to the plant establishment success, we have recent sightings of Wandering Skipper butterfly in the wetland area. With our plantings, weed control, and trail closure, *Distichlis spicata* has expanded in this area, which is the host plant for this marsh-dependent butterfly. See attached photos.

Plant propagation is underway. We have designed a plant propagation bed for cuttings, and two volunteers are constructing it for the Reserve. We will use it for this project, for difficult species such as Suaeda and Santa Barbara honeysuckle; it will be available in the future for other COPR restoration projects. We hope the main construction will be completed this week.

Our first planting of the season is scheduled for December 1, a field class of Santa Barbara City College. About 20 students will assist with planting. We will also plant at the Volunteer Workday on Saturday, December 6.

The interns, three funded by Shoreline Preservation Fund, and the one funded by WRP will be completing their hours this week (1 is finished). This has been a compatible and effective group, working on this site and other COPR restoration sites. Approximately 27 hours of intern time was spent on this site, but only 15 hours funded by this grant. We also had about 12 hours of volunteer time on the site this month.

Restoration Update. October 30, 2003.

The site is looking very well, with plants flourishing and weeds under control. Removing black plastic used as "tarping" to control annual weeds around native plantings. Awaiting rains and new flush of weeds anticipated. Extensive natural recruitment of *Cressa truxulensis* along former trail in wetland after

black plastic removed. Major efforts to remove non-native blackberry from willow woodland. More yet present, and roots not completely removed due to dry soil and poor access within native vegetation. Continued follow-up planned.

Plant propagation is underway, with plants in leach tubes of 6 species after seed collection of several species in seed now: CA sagebrush, Seacliff buckwheat, CA sunflower. We also began cuttings of Alkali ryegrass.

We are investigating construction of a propagation bed for cuttings, and have looked at the units at the Santa Barbara Botanic Gardens (two set-ups) and at the University of California main campus greenhouses. Neither the UC greenhouses or nearby Devereux School greenhouse have suitable space for a propagation bed for our use. We have selected a site at Coal Oil Point near the greenhouse/tool shed where water and power is accessible, and have recruited two volunteers to construct the propagation table. We have borrowed catalogs of nursery equipment for bottom heat cables and timer for mister, the two main requirements. We hope to get this constructed in the next month, for propagation of plants for this winter's planting.

September 13 was the United Way "Day of Caring" volunteer day, with over 1000 volunteers in the community at some 30 non-profit sites. We had 40 volunteers, employees of Cottage Hospital, at COPR. 30 of these worked on our restoration site with two areas of concentration: annual weeds shading wetland plants on the slough side of our planting area, and blackberry removal. Another 10 volunteers worked on a nearby site in the reserve removing Cape ivy.

New interns were recruited and weekly intern workdays are in progress, with one intern funded by WRP and 3 funded by Shoreline Preservation Fund (SPF). About 1/2 of their time is currently spent on the north shore site, and 1/2 time on other restoration sites on the Reserve.

Restoration Monitoring. August 27, 2003.

Monitoring of restoration progress was aided by the 7th grade science camp last month. The data for the 1-meter plots was compiled, and the nine plots in the upland margin yielded predominantly native cover. Seven of the nine plots had predominantly native cover. The protocol for each plot was as follows. One meter plot markers had cords dividing each into 9 subplots. Each plot marker was centered on one of the native plants installed last winter. Students learned the species of the native and non-native plants in "their" plot, with 2-3 students working together with the biologist, project assistant or restoration intern. Within each subplot, the group designated:

- 0 = non-native
- 1 = bare ground
- 2 = native plant

Whatever cover was *more than 33%* was given the value for that subplot. The group agreed upon a value for each subplot. These nine values were averaged (sum/9). For any value >1 dominant cover was native, for any value <1, dominant cover was non-native.

After the monitoring was completed, the students removed the weeds from their plot. It would have been interesting, but not done, to re-evaluate the plots after the weeding. In some plots, significant bare ground remained after weed control. Each group of students did one or two plots. A sample data sheet used by the students is attached.

Students next compared the survival and reproductive status of two populations of the endangered Ventura Milkvetch, *Astragalus pycnostachyus* var. *lanosissimus*. Two groups of container plants were installed in February 2003, with a seedbed of approximately 1/2 meter in each of two soil types in the seasonal wetland. One is sandy loam, the other clay soil of slightly lower elevation. Students created their own data sheets. In the drier site (sandy loam) survival was 100% (5/5 plants); flowers were observed on 100% (5/5) and seed pods were forming on 80% (4/5) of the plants. The seedlings were dense, approximately one foot tall, and two plants were flowering. In the wetter site (clay soil), 33% survived (1/3), which exhibited buds. No seedlings survived, although students were told that earlier in the spring there were two seedlings that germinated but subsequently died. Students were able to assist with the scientific inquiry, as scientists are trying to determine habitat requirements of the species, which is unknown. Students were given colored photos, enclosed, for their notebooks, as they could not take

samples of the endangered plant, to see what the site looked like less than one year ago, and to understand some of the goals of the project in improving habitat value for wildlife.

General Update. August 27, 2003.

Plant establishment has been good, and the weed cover is getting under control. The endangered Ventura milkvetch is flowering and beginning to form fruits on some plants—even two of the plants begun from seeds planted in February are flowering. We continue to use black plastic for weed control in some areas between planted natives (with cutouts for desired plants).

We participated as community partners providing hands-on restoration for 7th grade low-income students attending a science camp sponsored by the UCSB Gevirtz Education Center; the students did percent cover of natives and non-native plants in 1-meter plots. When analyzed, this data will be submitted for assessment of the success of the restoration. We have signed up as a host site for United Way “Day of Caring” with community volunteers to work on projects for non-profits; we have requested 20 volunteers for this site on September 13. Cottage Hospital staff has requested to volunteer at our restoration site.

We are investigating construction of a propagation bed for growing plants from cuttings that we cannot propagate from seed. This will include the Santa Barbara honeysuckle, with only a few plants at COPR, *Suaeda taxifolia*, and Wood mint. To this end, we visited the Santa Barbara Botanic Garden, and received a tour of the propagation facilities, to see if we can design a simple system within our budget for the COPR.

The Shoreline Preservation Fund (SPF) awarded a restoration grant to the COPR aided this project with restoration interns and some of the project management time—for a Community Volunteer Workday and one intern workday on site. The Restoration intern hired under the WRP completed his 30-hour commitment. There are currently no interns until the Fall quarter begins the end of September.

Restoration Update. July 30, 2003.

Plant establishment has been good, and the weed cover is getting under control. The endangered Ventura milkvetch is flowering and beginning to form fruits on some plants—even two of the seedlings are flowering. We continue to use black plastic for weed control in some areas between planted natives (with cutouts for plants).

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Shoreline Preservation Fund (SPF) awarded a restoration grant to the COPR. Three Restoration interns were hired and two completed their 30-hour commitment today. About ½ of their time was spent on the WRP site; the remainder at other project sites on the Reserve. Their restoration experience included plant propagation for this winter’s planting, and construction of a shade structure for plant propagation. The intern funded by WRP grant worked with the group, for more efficient supervision of intern activities. The SPF grant also funds some of the project management time, which was short of funds, so you will note that only 3 hours of my time were charged to this grant for the month, although we continued to have weekly restoration activities. We have also had regular volunteer assistance at the site.

Restoration Update. June 24, 2003.

Plant establishment has been good, with vigorous growth of many plants. California sunflower, beeplant and even the endangered Ventura milkvetch planted this winter are in bloom; Saltgrass is also flowering. We are also finding natural recruitment of natives such as *Cressa truxulensis* and spreading Jaumea, Frankenia, and Saltgrass, especially where the trail has been relocated out of the wetland, but also up the bank where competing weeds have been controlled. We removed a section of black plastic from the trail area last week, and saw etiolated plants, unsure of the species; that section of trail is now

covered with small *Cressa*! Much of the trail tread is not filled in with native wetland species. The spring flush of weeds is starting to be controlled. We planted some additional Quail bush today (6 plants), as the previously late-planted Quail bush has grown vigorously, and this species tends to do poorly in the greenhouse and containers. We continue to use black plastic for weed control in some areas between planted natives (with cutouts for plants).

The Transect Data Analysis is enclosed. Unfortunately, this did not prove very useful in assessing the progress of the site, due to poor data collection protocol for baseline data. We will plan to use the second data set for comparison for the subsequent transect census periods. The next is planned for late September/early October.

We are planning to be a host site for United Way "Day of Caring" with community volunteers to work on projects for non-profits; this will be September 20. We will also have 7th grade low-income students attending a science camp sponsored by the UCSB Gevirtz Education Center; Audubon is a community partner and kids will participate in hands-on restoration and data collection to assess the success of the restoration over 2 days at the Reserve. Three Restoration interns began today, a fourth begins tomorrow; one is funded by this grant, the others funded by a Shoreline Preservation Fund to the COPR. The interns will work as a group at this restoration site and other restoration and weed control projects on the Reserve. We also have some regular volunteers, which is great, especially since summer volunteer workdays are generally lower in attendance.

The SPF grant will also fund some additional time for the Project Manager, since this budget category is rapidly being depleted. The original proposal would have the Reserve Manager manage the grant, with myself as consulting biologist. With the grant awarded to Santa Barbara Audubon instead, I have been managing the grant and the overall project as well, with no additional funding. This supplemental funding will put the project on a sounder basis.

Restoration Update. May 21, 2003.

Plant establishment has been good, with vigorous growth of many plants. California sunflower planted this winter is in bloom. We are also finding natural recruitment of natives such as *Cressa truxulensis* and spreading Jaumea, Frankenia, and Saltgrass, especially where the trail has been relocated out of the wetland, but also up the bank where competing weeds have been controlled. The spring flush of weeds is starting to be controlled. On 5/6 four elderberry seedlings were plants, donated by the Reserve; even though late in the season, only one elderberry direct cutting has shown new leaf growth, and soil was moist from late rains; all doing well 5/20. We continue to use black plastic for weed control in some areas between planted natives (with cutouts for plants).

This month our planned outreach to the general community via "Water Awareness Day" sponsored by the Goleta Water District was cancelled 5/3 due to rain. We had a booth planned and a shuttle tour of the restoration site and the local Growing Solutions Native Plant Nursery in Isla Vista. Since the event was at Girsh Park, it was very close to the project site.

The project is progressing well. We had three volunteers on our community workday, plus interns. The intern funded by WRP completed her 30 hours on 5/20; this was our first Westmont College restoration intern for Audubon. The interns funded by Shoreline Preservation Fund still have hours to complete. We had a group of six 9- and 10-year old girls help with restoration on 5/19, as part of a Girls, Inc. class in Environmental Earth Action. They were very interested in removing the weeds competing with the native plants for water and light. One volunteer from Santa Barbara City College has been coming regularly, including intern workdays.

Restoration Update. April 30, 2003.

This month our community work day was cancelled due to rain, but we held two intern work days. The plant census along 4 transect lines was taken on April 15, to compare project progress with baseline data taken approximately 6 months before (9/23/02). The data is currently being analyzed. We have begun intensive weed control and plant maintenance, given the completion of planting for the season.

The berms where we killed Harding grass with black plastic have surprisingly little Harding grass seedling growth—however intense sweetclover (*Melilotus* sp.) seedling cover, especially in the areas uncovered earliest for planting. We have hand weeded around some of the installed plants, and recovered some areas with black plastic with cutouts for the native plants. This technique of using black plastic for weed seedlings has been used effectively by the UCSB Museum of Systematics on their restoration site at Manzanita Village, even in winter time. Much more weed control is needed.

We are monitoring the Ventura Milk vetch. The mature plants appear healthy. Of the two areas were seeded, the drier site has many vigorous seedlings, but the wetter site still has only one milkvetch seedling which looks stunted. Per request, we are no longer watering the milkvetch, but continue weed control around the plants and are monitoring for snails.

The project is progressing well. We have three interns this quarter who began on April 8 (one funded by this grant, and two funded by the Shoreline Preservation Fund). One is our first intern from Westmont College. We will have a booth on 5/3 at Water Awareness Day, sponsored by the Goleta Water District, which will include a trolley tour to the restoration site and fliers to recruit community members as volunteers—on outreach to another part of our community. We hope not to be rained out.

Restoration Update. March 27, 2003.

This month we had one community work days for planting, weed removal, and plant maintenance held on March 8; we had a fraternity, CalPIRG students, two students from a sorority, and general community members. On March 14, we had a City College Environmental Field Studies class participate in planting and site maintenance. This was the first time this course had done hands-on restoration; most of the field visits are tours only of natural areas. We completed planting of all of this season's plants on March 14, followed by a 4-inch rain the following day. A total of 132 hours of volunteer time were contributed, plus the Restoration Interns. A total of 171 plants installed this month.

Weed control requirements are extensive. The black plastic seemed effective in killing existing harding grass plants, and so far the grass seedlings are not major. However, other weed seeds, especially sweetclover and bristly ox tongue have germinated and are intensive. Now that planting is completed, we will next repeat our transect data collection and intensify weed management.

We now have an endangered plant on our project site. California Department of Fish and Game were looking for potential planting sites for Ventura Milk vetch for container plants grown from seed of the populations in Oxnard discovered after the plant was thought to be extinct. The biologist thought our cleared wetland site looked promising. Eight plants were planted February 22, and have now put on new growth. Two areas were seeded, and one has numerous seedlings germinating, the other wetter site has only one milkvetch seedling. We have watered and weeded around the plants and are monitoring for snails.

The project is progressing well. Our interns have just completed their 30-hours (one funded by this grant, and two funded by the Shoreline Preservation Fund). We have just recruited a new group of interns to begin in April.

Restoration Update. February 28, 2003.

This month we had three community work days for planting, weed removal, and plant maintenance at Volunteer Restoration Workdays were held on 2/3, 2/8 and 2/27. In order to meet our goal of installation of all of this season's plants by March 31, we are working intensively. We met a Wetland Recovery Project goal of recruiting participants not usually involved in these kinds of projects. One workday was arranged with a group of homeschooling families called the Homesteaders. A second brought an UCSB fraternity to assist with fence removal and site preparation, meeting their new community service hour commitment (a second fraternity is scheduled during March). The final community workday was the 8th grade class of Dunn Middle School (18 students & 3 teachers). A total of 120 hours of volunteer time were contributed. Interns provided 27 hours of labor (about 12 hours funded by this grant source).

The black plastic has been removed, and plants installed in all original areas solarized; new areas covered. Good control; awaiting germination of seedbank as rains trigger seedlings. The Infra-Red Weed

Eliminator was effective for young seedlings, without herbicides or soil disturbance; trial continues. A total of 232 plants installed this month.

Restoration Update. January 28, 2003.

This month we had two community work days for planting, weed removal, and plant maintenance. Volunteer Restoration Workdays were held on 1/11 and 1/20. 36 hours of volunteer time were contributed.

Plant propagation continued, with Mugwort and Quail bush propagated.

Department of Fish and Game were on the Reserve with Director Cris Sandoval last week to plant a new population of the endangered Milk Vetch. They looked at our seasonal wetland site and thought it would be suitable. So 8 plants from containers were planted and marked; we will water as needed. These will be monitored by the Reserve Director and CaDFG.

We slowed planting due to lack of rain, but will resume and water as needed, as our deadline is plants for this season installed by 3/31. Two large groups are scheduled to assist with planting and fence removal.

An Infra-Red Weed Eliminator was purchased with tool/supply funds to treat dense seedlings without herbicides or soil disturbance. Trial underway.

Restoration Update. December 27, 2002.

This month we had our first major planting, at Volunteer Restoration Workday on 12/14. Volunteers included 6 teens from Zoo Explorers group, neighbors, UCSB students, and community members. We had a total of 33 volunteer hours.

We planted 66 leach-tube containers of seedlings of 6 species on the embankment, removing two sections of black plastic. We also translocated 44 plugs of *Distichlis* and *Jaumea* in the seasonal wetland. Annual weeds were removed from the planting sites prior to planting. Rain fell the night of planting, watering the new plantings in well.

Plant propagation continued, with cuttings and plugs of *Sambucus* and *Mulefat*—in aerated water to stimulate root growth—wood mint rooted cuttings, and Santa Barbara honeysuckle cuttings.

Progress Report. November 25, 2002.

This month focused on plant propagation including cutting collection for *Suaeda*. The seedlings of 6 of seven species will have some plants ready for transplant in December. Good control of Pampas grass, Tamarisk, *Myoporum* and *Melaleuca* is noted. The first significant rain of the season has sprouted many annual weeds. A Volunteer Restoration Workday was held 11/16/02, with additional site preparation and planting of Parish's glasswort plants available on the reserve. Volunteer labor contributed this month was 15 hours. In addition, Restoration Interns funded by sources other than this grant provided 12 hours.

Restoration Update—missing digital file. For October 2002.

Restoration Update. September 20, 2002.

The Final Work Plan has been submitted, with some changes in project area and restoration treatments in response to comments by wetland scientists at the WRP Task Force. The Project Assistant and Restoration Interns (1 funded by WRP) began on site 9/23/02 upon receipt of Insurance Certificates. Baseline plant transects and photo documentation were accomplished. The first Volunteer Restoration Workday was held 9/28/02, with site preparation initiated. The upland margin was weedwhacked, and black plastic installed in ½ the margin for weed control; Pampas grass plumes were cut and bagged. Tools, plant propagation supplies, and fliers display boxes have been ordered.