18 July 2012

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Subject: *Mission Bay Park* Project Quarterly Report

Dates Reporting: April 6th-July 6th, 2012

Project Summary: The project is moving along at a steady pace and no major changes or adjustments have been needed. All necessary pre-project monitoring was completed on schedule. By the end of summer, we anticipate removal of invasive species from a total of 5 acres (35% of our 14 acre target over three years). Restoration will begin in the fall.

Progress by Task

Task 1: Mission Bay Habitat Assessment and Conservation Action Plan (Matching Funds)

In August and December of 2011, the San Diego Audubon Society—in collaboration with Audubon California—hosted two conservation planning workshops based on the Conservation Measurement Partnership's (CMP's) *Open Standards* and *Miradi* software. CMP's *Open Standards* was the ideal framework for conservation planning in Mission Bay because it brought together key land managers, regulators, funders and other actors to strengthen working relationships by sharing opinions and expertise.

Workshop participants chose seven targets for the Mission Bay IBA: CA Least Tern; Light-footed Clapper Rail; Salt Marsh; Coastal Dunes/Sandy Beach; Nuttall's Lotus; Migratory Birds/Mud Flats; and Eelgrass. In August, participants began to identify Key Ecological Attributes (KEAs) for each target. KEAs are attributes that, if missing, indicate a particular target is in danger of loss over time. Participants then identified practical and measurable indicators of KEAs that could be used to track the health of each target. Finally, participants identified major threats to each target and ranked each by scope, severity and permanence. Information produced at the August workshop was entered into the *Miradi* software to create conceptual models and a Threats Assessment Matrix. Key unknowns remaining are the current status of KEA Indicators (which should be ranked as either Poor; Fair; Good or Very Good) and a set goal or desired rating for each.

In December, the group reconvened and reviewed the *Miradi* reports and made manual adjustments, as warranted. The participants then broke into smaller working groups and began to rank conservation strategies and objectives by potential impact and feasibility. As a result of this analysis, the top three ranked conservation strategies were: removal/control of invasive plant species; establishing better habitat for dunes and snowy plovers; and predator control and removal.

This July and August, we will begin establishing smaller working groups focused on the targets that received the most interest by the group: CA Least Tern, Light-footed Clapper Rail and Nuttall's Lotus. The groups will assess the current status of each KEA indicator and create goals for each target. After goals are set, groups will review relevant conservation strategies and begin to draft action plans that include specific objectives, timelines, and budgets. Once action plans are drafted, we will use these action plans to help guide our restoration in Mission Bay.

Task 2: Pre-project monitoring (Matching Funds)

We have been working with Catherine Tredick, Doug Deutschman and Rebecca Lewison of SDSU's Institute of Ecological Monitoring and Management to create a monitoring protocol for vegetation at three California Least Tern Nesting sites in Mission Bay (Mariner's Point, Stony Point and North Fiesta Island). We have been working with Betsy Miller to obtain aerial imagery and annual monitoring numbers of Nuttall's Lotus at South Shores. We have also worked with Phil Roullard to train volunteers on photo monitoring techniques and have collected baseline photo documentation of the Nuttall's Lotus site. Nearly 200 hours have been donated by more than 49 volunteers to complete the various pre-project monitoring tasks outlined below.

Mariner's Point

Using the new 20m square grids established by the San Diego Mission Bay Park Rangers, we selected 16 10m squares to test treatment options for our adaptive management study. Because the city does not currently treat Mariner's Point, no control plots were selected for this site. The vegetation monitoring of the 16 plots was completed on April 5th by 23 volunteers and SDSU students. The attached Vegetation Monitoring Key includes a site map with named plots.

Stony Point

Similar to Mariner's Point, we selected 16 10m square plots for our study. However, because the City currently conducts herbicide spray treatments and mechanically scrapes this location, we selected four random control plots to compare "sprayed and scraped" with our treatment plots as our study progresses. Vegetation monitoring of the 20 plots was completed on April 12th by 6 IEMM staff, who donated their time to SD Audubon. The attached Vegetation Monitoring Key includes a site map with named plots.

North Fiesta Island

Similar to Stony Point, 16 plots and 4 control plots were selected for the study at this location. Due to the larger size of this site, plots were increased to 20m square (instead of the 10m size used at Mariner's and Stony Points). Vegetation monitoring of the 20 plots was completed on April 5th and 12th by more than 20 volunteers and SDSU students. The attached Vegetation Monitoring Key includes a site map with named plots.

South Shores

We worked with City of San Diego Intern Dana White to establish an initial boundary for the site. Upon further site visits, we realized the boundary included mulched areas, so the boundary was adjusted to exclude this area from our study. In February, 23 volunteers, including Point Loma Nazarene students, flagged Nuttall's Lotus (pictured left), so our herbicide contractor, Mike Kelly, would have a visual aid of areas to avoid mass spraying. Three volunteers enrolled in a National Science Foundation-funded citizen science project participated in additional monitoring efforts, including soil sampling of the seed bank (all results showed non-native sprouts) and photo monitoring of the site from the perimeter so we can visually gauge progress once we begin removal.

A panoramic photo of South Shores taken during Photo Monitoring in June 2012 by volunteers.

Task 3: Restoration and enhancement of priority coastal dune habitats in Mission Bay Park

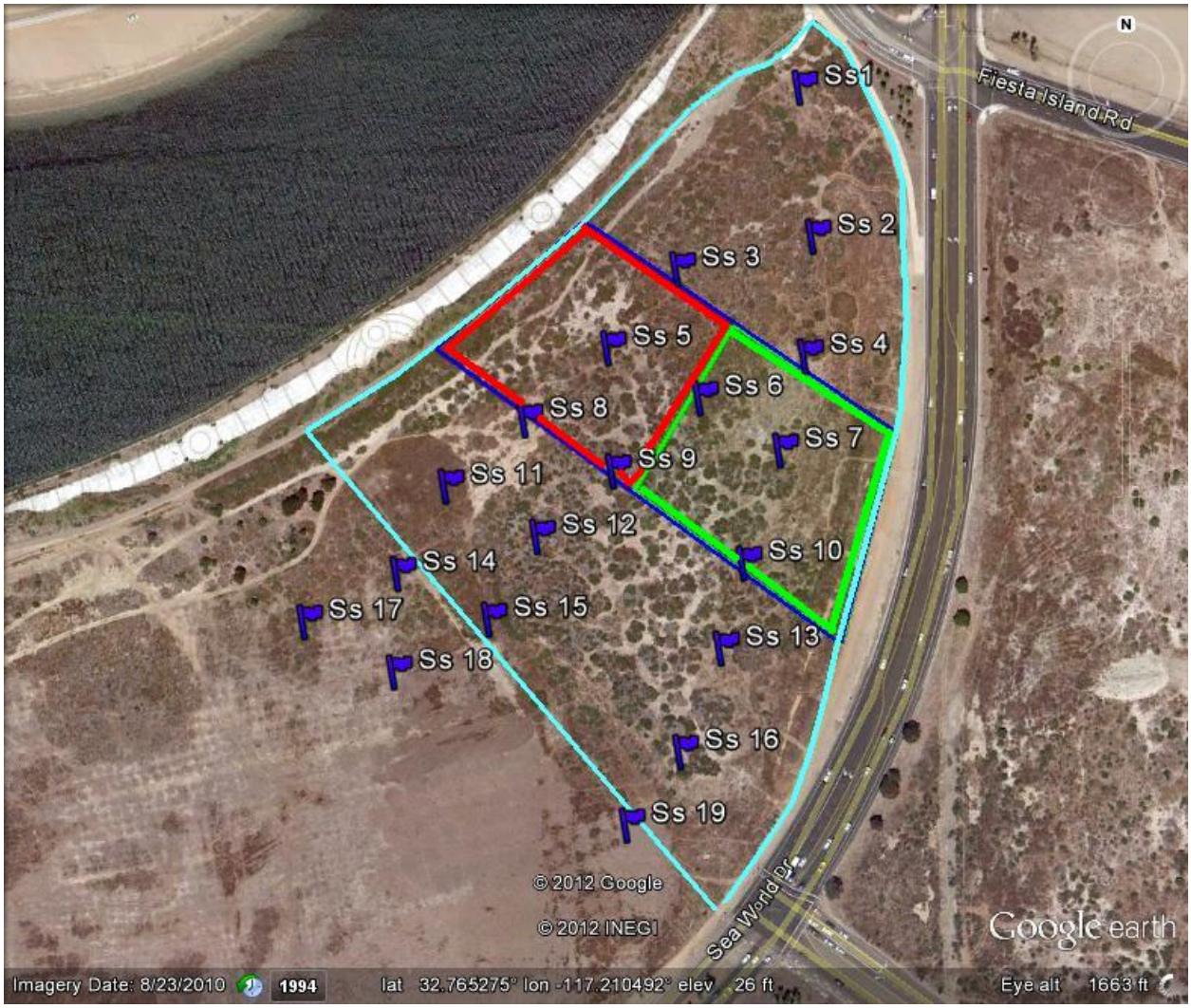
3.1: Invasive Plant Control

Invasive plant control at the CA Least Tern Nesting sites (Mariner's Point, Stony Point and North Fiesta Island) will commence after the nesting season ends in mid-to-late September.

We have been communicating with Mike Kelly regarding spraying the iceplant at South Shores and have also sought advice from experts at the Soil Ecology and Restoration Group on best practices for iceplant removal. Opinions differ on the most effective protocol to remove iceplant. Hand removal of iceplant when the plant is still green reduces the amount of decomposition and thus is expected to reduce the input of nutrients into the soil that favor invasive plants over native dune species. Green iceplant also does not break apart as much as dead iceplant when hand-pulled. However, herbicide application is more effective in killing the entire plant and it is expected that less viable root material is left in the ground. Dead iceplant is also lighter in weight and thus easier to pull and remove by hand.

In order to test both protocols, we divided the site into thirds and will treat the first one-third using both methods to test which provides the best result at our restoration site. This summer, we plan to treat an approximately 5 acre plot (35% of our total 14 acres of restoration). On August 3rd, over 40 volunteers will assist in pulling green iceplant on 2.5 acres and the City of San Diego will provide a dumpster for our work event and dispose of the iceplant. Mike Kelly anticipated initiating spraying 2.5 acres in July, but is awaiting final approval from Betsy Miller on whether it is safe to spray based on where the Nuttall's Lotus are in their lifecycle.

Once we determine which removal technique is most appropriate and effective for our site, we will continue with that course of action for the remainder of the South Shores Site.



South Shores site. Turquoise indicates project boundary, blue flags indicate where soil samples were taken to test the seed bank, blue outlines indicate the 5 acres we will treat this summer, red indicates the area that will be sprayed and bright green indicates the area that will be hand-pulled.

3.2: Community Based Habitat Restoration

We have been working with Carolyn Leiberman of U.S. Fish and Wildlife Service to finalize a study design of restoration actions/treatments that will be applied to restore a coastal dune habitat

at the Least Tern Nesting sites. The restoration will begin after the nesting season ends in September.

Similarly, we will be working with the Nuttall's Lotus working group (derived from the Assessment Workshops mentioned above) to devise a plan to restore a coastal dune habitat at South Shores. Restoration will begin in mid-to-late fall.

3.3: Post-Project Monitoring

Post-project monitoring is set to begin in October of this year. We will monitor the Least Tern Nesting sites as soon as the birds leave, and we will monitor South Shores in January to compare which iceplant removal technique was most effective.

Attached, you will find a PDF entitled "Vegetation Monitoring Key" that shows maps for Mariner's Point, Stony Point, and North Fiesta Island.

Please let me know if you have any further questions.

Sincerely,
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