Title
Upper Newport Bay Restoration Plan

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Upper Newport Bay Restoration Plan

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With assistance from members of the Newport Bay Conservancy's Restoration Committee

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I. Summary

The overall goal of this restoration plan is to assist stakeholders in matching restoration projects with funding opportunities in order to increase the overall health of the Upper Newport Bay. Specifically, this document aims to assess current health and quality of native habitats in and around the bay, and to identify areas needing restoration. We have compiled data on the ecology of the bay, including extent of non-native plant invasion, restoration history and progress, site accessibility, and presence of rare plant and animal species to enable prioritization of the sites we've identified as needing restoration or ongoing maintenance.

The current state of terrestrial habitats surrounding the bay was assessed through on-site evaluations. For ease of planning, we divided the bay into seventeen large regions (Figure 1). Upon visitation, each region was split into smaller sections based on changes in biotic community, topography, or extensive invasion by non-native species. In each section, the current habitat was compared to existing data, such as the NROC vegetation. Notes were taken to update the existing data, and photographs and GPS coordinates were taken at one site per section. Site evaluation forms were filled out describing the state of the current habitat.

After completing on-site visits, GPS coordinates of the photographed sites were entered into mapping software to pinpoint each of the sites onto the maps of the regions. Each section was then outlined and color coordinated in GIS with either green, yellow, or red colors to categorize the percentage of non-native invasion observed. The photographs and evaluations for each site were then compiled for every region along the Bay and placed into this document.

Based on the extent of non-native invasion, five total sections within the Bayview, West Bluff and San Joaquin regions were identified as high-priority sites needing restoration. Regions along sites B6 and B11 of Bayview (pg. 7), WB3 and WB6 of West Bluff (pg. 59), and SJ7 of San Joaquin (pg. 46) were

found to be the top sites of highest invasion and best accessibility to be restored. Several other regions fall within high priority in terms of invasion, but are less accessible. In addition, many regions observed to have low cover of non-native species may require on-going maintenance. We encourage other prioritization schemes, such as those based on restoring rare species and habitats (see Introduction), to develop alternate lists of areas to be restored.

II. Introduction

Upper Newport Bay Ecological Reserve (UNBER) was established by the Fish and Game Commission in 1975 for the purpose of preserving and enhancing this salt marsh ecosystem and its associated life forms. The California Legislature authorized the establishment of Ecological Reserves to protect rare and endangered wildlife, aquatic organisms, and critical habitat.

UNBER comprises 752 acres of lowlands, supporting mostly coastal salt marsh including mudflats, tidal channels, vegetated marsh and open water. The littoral zone of the marsh includes plants that are adapted to periodic exposure to air and inundation by tides. Dominant species include California cordgrass (*Spartina foliosa*), Saltwort (*Batis maritima*), Pickleweed (*Salicornia pacifica*), and Shore grass (*Distichlis littoralis*). The area immediately surrounding this, the maritime transition zone, is a narrow ecotone located between the littoral zone and the sandstone cliffs that surround the bay. Such transitional habitat provides a critical buffer for estuarine wetland ecosystems, yet is extremely rare in California, because most of the area once covered by this habitat type has been lost to development. Species found in this vegetation zone include dune species including Telegraph Weed (*Heterotheca grandiflora*), Sand Verbena (*Abronia maritima*), Silver Burr Ragweed (*Abronia chamissonis),* and bluff species including California boxthorn (*Lycium californicum*), Watson's saltbush (*Atriplex watsonii*), and Coastal Cholla (*Cylindropuntia prolifera*).

The County of Orange manages Upper Newport Bay Nature Preserve, consisting of approximately 135 acres of coastal sage scrub and grassland on the more mesic slopes and bluff tops on the upland fringes of the estuary. Dominant Coastal Sage Scrub species in these areas include California Buckwheat (*Eriogonum fasciculatum*), California Brittlebush (*Encelia californica*), and California Sagebrush (*Artemisia californica*); this vegetation type provides important habitat for Cactus Wren (*Campylorhynchos brunneicapillus*) and California Gnatcatcher (*Polioptila californica*). Native grassland species include the perennial bunchgrass (*Stipa pulchra*) and a huge diversity of native wildflowers including Clustered Tarweed (*Deinandra fasciculata*), California Poppy (*Escholtzia californica*), and Parry's Phacelia (*Phacelia parryi*). This more open vegetation type provides critical habitat for small mammals and the raptors that feed on them.

The City of Newport Beach owns approximately 55 acres in Big Canyon and is a cooperator in restoration efforts. Various private parcels touch the Reserve and Preserve. The combined open space lands of the UNBER and surroundings make up approximately 1,000 acres.

At the time of the establishment of UNBER, there were eight species classified by the State of California as rare or endangered residing in or near the bay including: the Light-footed Ridgway's Rail (LFR, *Rallus obsoletus levipes*); Belding's Savanna Sparrow (*Passerculus sandwichensis beldingi*); California Least Tern (*Sternula antillarum browni*); California Brown Pelican (*Pelicanus occidentalis californicus*); Peregrine Falcon (*Falco peregrinus*); Black Rail (*Laterallus jamaicensis*); Saltmarsh Bird's Beak (*Cordylanthus maritimus maritimus*): and Laguna Live-forever (*Dudleya stolonifera*). Since then the Brown Pelican and Peregrine Falcon have been delisted; Black Rails, formerly rare winter visitors, are now (possibly) extremely rare visitors; and a few new species should be added to the list of rare and endangered inhabitants of UNBER and the supporting upland ecosystem. These would include but not be limited to the federally threatened California Gnatcatcher; federally endangered Least Bell's

Vireo (*Vireo bellii pusillus*); along with other rare inhabitants including the Cactus Wren and perhaps the Yellow-breasted Chat (*Icteria virens*) and Yellow Warbler (*Setophagia petechia*). UNBER was established in part for the protection and enhancement of these rare and endangered species. Restoration and management efforts should focus on the enhancement of the local populations of these species, at least in part by improving upon the quantity and quality of their habitats.

Although coastal salt marsh with fringing brackish marsh dominates the wetland acreage, riparian habitat is also present at various points around the bay, with scattered trees where the dozens of neighborhood culverts drain into the salt marsh. The existing riparian zones within UNBER are dominated by non-native species. Existing native riparian species include California Sycamore (*Platanus racemosa*), several willow species (including *Salix lasiolepis* and *S. gooddingii*), Fremont's Cottonwood (*Populus fremontii*), and Mulefat (*Baccharis salicifolia*). The greatest extent of existing riparian woodland and potential future restoration sites are in Big Canyon, on the drain from Cherry Lake (23rd Street) into the Bay, and on the upper end of the Bay below Eastbluff. These are the areas where riparian woodland could be enhanced through restoration efforts including removal of non-native plants. Restoration of riparian areas should be done with careful consideration of the invasive beetle, Polyphagous Shot-Hole Borer (PSHB, *Euwallacea sp.*), and the fungus that it farms (*Fusarium*) which is fatal to sycamores and many other native riparian species. Monitoring and coordination with other agencies may be critical to developing native riparian habitat that is resistant to PSHB. All other lowland sites could be managed to maximize the salt marsh on edges now filled with weeds and scattered riparian and upland elements. Salt marsh habitat, including the fringe of brackish marsh, should be given high priority for restoration because of its importance for nesting of the Light-footed Ridgway's Rail; other wetland types are also priorities but secondary to the salt marsh. The marine environment should share equal importance but is not the subject of this plan.

The wetlands and uplands are intricately connected ecologically. Many of the mobile upland species venture into the salt marsh to forage; and reciprocally some wetland species depend on the uplands. For example, the endangered LFR will occasionally hunt grasshoppers, crickets, and even lizards in the uplands, and individuals often roost through higher tides perched under and even in the upland shrub above the edge of the wetland.

An essential ecological binder of the entire UNBER region is the role played by native top predators. The Bobcat, *Felis rufus*, and particularly the coyote, *Canis latrans*, inhibit mesopredator release, the food web collapse that can devastate ground-nesting species including endangered species (Zembal 1993). This food web association means that it is important to maintain wetlands at their maximal productivity, and to enhance connections between wetlands, uplands and much larger open spaces in order to help maintain consistent presence of coyotes and other predators. Furthermore, the most often observed aerial predator of the LFR is the Red-tailed Hawk (*Buteo jamaicensis*). The wintering population of Red-tails in the UNBER region is huge, and these birds are often seen taking waterfowl and occasionally rails. Hence, designing upland restoration to enhance populations of prey populations for these raptors would theoretically take some of the pressure off of the wildlife in the marsh.

Restoring coastal sage scrub all the way to the edge of the salt marsh is not recommended due to the narrowness of the upper marsh zone and the competition between Belding's Savannah Sparrows and Song Sparrows (*Melospiza melodia*), the most common resident bird in the Bay (Zembal et al. 2015). The proximity of Song Sparrow habitat precludes nesting by Belding's along much of the narrow marsh edge, particularly along Back Bay Drive. This would indicate the need to maximize the upper marsh belt along the edges of the Bay, particularly with pickleweed (*Salicornia virginica* or *S. subtermianlis*) and salt grass (*Distichlis spicata*) in which the Belding's will nest if not competing with Song Sparrows. Important opportunities for upper marsh restoration exist along much of the edge of Back Bay Drive on the marsh side; on the old salt dike,

particularly on the west side; and on the De Anza Peninsula, as soon as land ownership and jurisdictional questions have been answered.

Restoration that prioritizes salt marsh and the marsh inhabitants must include removal of non-native tree stands and scattered individual native trees, consolidating native riparian woodland in the most appropriate areas as mentioned above. The management of the non-native woodland below Eastbluff and in other areas will greatly reduce escape cover for Raccoons (*Procyon lotor*) to the benefit of nesting marsh birds including LFRs.

Many ecologists consider invasive species to be the single greatest environmental challenge in wildlife conservation today. The ultimate success of the restoration projects described in this plan will be defined in part by the challenge of constant combat with invasive species including the vigilance required to recognize substantive threats from new invaders. A case in point in the terrestrial realm would be Algerian Sea Lavender (*Limonium ramosissimum*). This salt marsh invader has become established in the far upper bay, and elsewhere in southern California has demonstrated the capability of carpeting the ground in replacing native salt marsh vegetation; so, it must be controlled before the destruction becomes irreversible. The goal with the proposed and ongoing restoration projects outlined herein is to establish interdependent native populations that can maximally withstand invasion and vigorously support local wildlife populations. Annual monitoring, invasive control efforts, and reporting must accompany these restoration efforts.

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III. Building the plan

Habitat around the Bay gradually transitions from one community-type into another, with a ring of urban areas (housing, roads, and parks) surrounding protected open space. The fact that the Bay consists of continuous habitat is what makes it so special, but it also makes it difficult to distinguish distinct prioritized areas for management. For the purposes of describing what has been done and what management remains to be done, we have developed a map with named "regions" (Figure 1). Within each region, sections have been established,

and finally specific sites are documented. At the end of this document, we provide a table of known rare species within each region (Table 1).

For each specified region of Upper Newport Bay a site assessment and qualitative analysis has been performed. The different sections within each region have been divided based on habitat type and the percentage of non-native cover. For each section a site was determined that provided a good visual representation of the section. At these sites pictures were taken, pinpointing the GPS location and direction of the photo.

Newport Back Bay

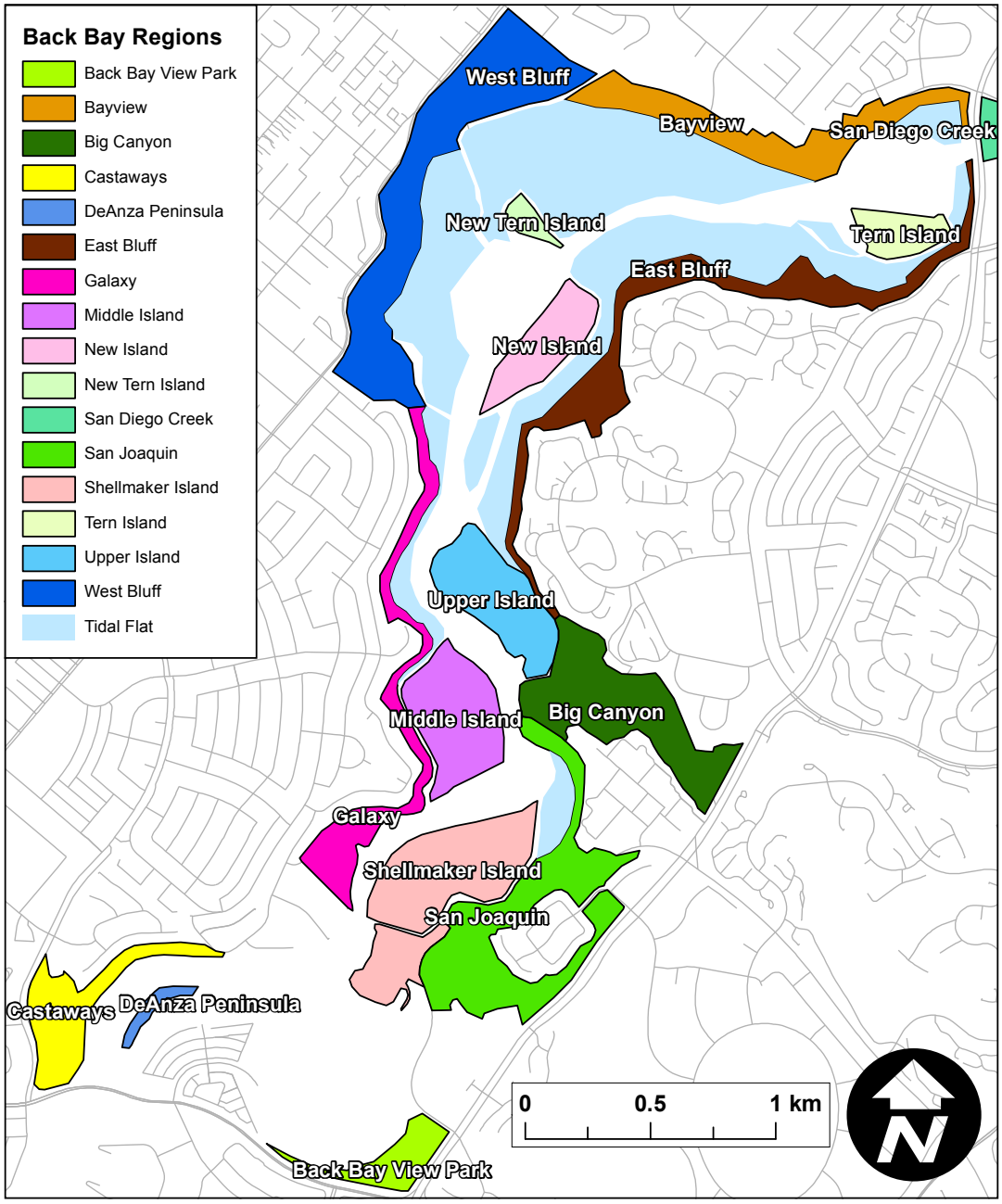


Figure 1: Map of the Upper Newport Bay, with names of regions given to facilitate restoration plan development and management.

This report includes the detailed site assessments, which were made using the following template:

Site Assessment Template

Name of site: Name

GPS Coordinates: Lat/long

Current land manager: manager

Existing native communities: CSS or GL or riparian or saltmarsh or marine

Dominant non-natives: non-natives

Percentage of Non-Natives: % cover

Accessibility: description

Rare Species: present rare species

Wildlife: present wildlife

Past Restoration (if any): list the name of the organization and dates of restoration

Management plan: Needs active restoration or removal of non-natives
Describe the desired habitat

Priority for future management: High, Med, or low

Notes: Add in additional notes about the site here.

In addition to filling out site assessment forms, the % cover of non-native species was visually assessed in the field and used to develop a map of heavily invaded sections of the Bay. This report includes summaries of all site assessments, including ordered lists of areas that should be restored depending on priorities, maps of regions, sections, and sites, including rare plant populations and amount of invasion, and detailed site assessments with photographs. The hope is that this plan will be regularly updated, providing information necessary to secure funding for future restoration projects and will be useful for all stakeholders.

IV. Suggested areas to be restored based on two different prioritization schemes

A. Terrestrial sites (or sections) that are most invaded and easily accessible:

1. Bayview 6 – currently dominated by mustard, accessible from path up a slope
2. Bayview 11 – currently dominated by mustard, accessible from path up a slope
3. San Joaquin 7 - currently dominated by mustard, accessible through shrubs in Newport Valley
4. West Bluff 3 & 6 - currently dominated by mustard, accessible by trails
5. Galaxy 6 - currently dominated by non-native trees, accessible from NAC

B. Sites that would provide habitat to the most rare species

1. Eastbluff, between Bayview Rd. and the bay – currently dominated by non-native trees with some CSS; could be restored to maritimal transition to salt marsh

2. De Anza Peninsula – removal of non-natives would increase habitat quality for nesting shorebirds

3. Galaxy 6 – riparian area and adjacent flatlands between the bay and the cliffs – should be restored to native riparian (currently invasive dominated) and restored to maritimal transition habitat

4. Westbluff 10, 11, 14 – currently dominated by mustard, could be restored to prairie (native CA grassland) to increase open habitat around bay

V. Detailed Site Assessments By Region

i. Back Bay View Park

The Back Bay View park region is located on the corner of Jamboree and the Pacific Coast Highway.

(Photo Orientation: 201.6)

Name of site: BB1

GPS Coordinates: 33° 36’ 48.5” N 117° 53’ 27.9” W

Current land manager: City of Newport Beach

Existing native communities: GL

Dominant non-natives: none

Percentage of non-natives: 0-25%

Accessibility: easily accessible, off street

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes: well maintained

(Photo Orientation: 149.3)

Name of site: BB2

GPS Coordinates: 33° 36’ 49.4” N 117° 53’ 29.6” W

Current land manager: City of Newport Beach

Existing native communities: CSS

Dominant non-natives: none

Percentage of non-natives: 0-25%

Accessibility: easily accessible, off street

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes: well maintained

ii. Bayview Region

The Bayview region includes the northwest side of the Bay, including the area around the Bayview Trail, from Jamboree and the San Diego Creek to the Delhi Channel (Figure 2).

Figure 2: Locations of competed site assessments within the Bayview Region.

(Photo orientation: 106° E)

Name of site: BV1

GPS Coordinates: 33° 39’ 0.6” N 117° 52’ 4.7” W

Current land manager:

Existing native communities: CSS

Dominant non-natives: Russian thistle

Percentage of non-natives: 0-25%

Accessibility: close to the road, flat w/ trails

Rare species:

Wildlife:

Past Restoration (if any): Currently active restoration

Management plan:

Priority for future management:

Notes:

(Photo orientation: 179° S)

Name of site: BV2

GPS Coordinates: 33° 39’ 6.4” N 117° 52’ 18.7” W

Current land manager:

Existing native communities: CSS (baccharis, mulefat)

Dominant non-natives: black mustard, grasses, Brazilian pepper tree

Percentage of non-natives: 25-50%

Accessibility: flat, close to the road

Rare species:

Wildlife:

Past Restoration (if any):

Management plan: volunteer restoration (hand weeding)

Priority for future management:

Notes:

(Photo orientation: 310° W)

Name of site: BV3

GPS Coordinates: 33° 39’ 7.5” N 117° 52’ 16.3” W

Current land manager:

Existing native communities: CSS

Dominant non-natives: black mustard

Percentage of non-natives: 0-25%

Accessibility: flat trail

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes:

(Photo orientation: 150° SE)

Name of site: BV4

GPS Coordinates: 33° 39’ 10.1” N 117° 52’ 6.4” W

Current land manager:

Existing native communities: riparian

Dominant non-natives: black mustard, fennel, artichoke thistle, Brazilian pepper trees (small patches)

Percentage of non-natives: 0-25%

Accessibility: roadside/downsloping hillside

Rare species:

Wildlife:

Past Restoration (if any):

Management plan: volunteer removal, active restoration

Priority for future management:

Notes:

(Photo orientation: 135° SE)

Name of site: BV5

GPS Coordinates: 33° 39’ 3.9” N 117° 52’ 21.4” W

Current land manager:

Existing native communities: CSS

Dominant non-natives: little to none

Percentage of non-natives: 0-25%

Accessibility: side of road/downsloping hillside

Rare species:

Wildlife:

Past Restoration (if any): “restoration in progress” signs present

Management plan:

Priority for future management:

Notes:

(Photo orientation: 166° S)

Name of site: BV6

GPS Coordinates: 33° 39’ 05.0” N 117° 52’ 40.8” W

Current land manager:

Existing native communities: CSS, riparian

Dominant non-natives: *Foeniculum vulgarae* (fennel), *Carpobrotus edulis* (ice plant), *Brassica nigra* (black mustard) small patches

Percentage of non-natives: 0-25%

Accessibility: side of the road

Rare species:

Wildlife:

Past Restoration (if any):

Management plan: hand weeding by volunteers

Priority for future management:

Notes:

(Photo orientation: 275° W)

Name of site: BV7

GPS Coordinates: 33° 39’ 07.5” N 117° 52’ 48.9” W

Current land manager:

Existing native communities: CSS

Dominant non-natives: small patches of black mustard

Percentage of non-natives: 0-25%

Accessibility: side of the road/hillside

Rare species:

Wildlife:

Past Restoration (if any):

Management plan: hand weeding by volunteers

Priority for future management:

Notes:

(Photo orientation: 21° N)

Name of site: BV8

GPS Coordinates: 33° 39’ 07.1” N 117° 52’ 45.1” W

Current land manager:

Existing native communities: CSS

Dominant non-natives: black mustard

Percentage of non-natives: 51-100%

Accessibility: roadside, moderate slope

Rare species:

Wildlife:

Past Restoration (if any):

Management plan: active restoration

Priority for future management:

Notes:

(Photo orientation: 7° N)

Name of site: BV9

GPS Coordinates: 33° 39’ 04.2” N 117° 52’ 38.6” W

Current land manager:

Existing native communities: CSS

Dominant non-natives: some black mustard

Percentage of non-natives: 0-25%

Accessibility: roadside moderate slope

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes:

(Photo orientation: 10° N)

Name of site: BV10

GPS Coordinates: 33° 39’ 03.2” N 117° 52’ 37.2” W

Current land manager:

Existing native communities: CSS

Dominant non-natives: black mustard, Russian thistle

Percentage of non-natives: 51-100%

Accessibility: roadside moderate slope

Rare species:

Wildlife:

Past Restoration (if any):

Management plan: active restoration

Priority for future management:

Notes:

(Photo orientation: 7° N)

Name of site: BV11

GPS Coordinates: 33° 39’ 01.5” N 117° 52’ 31.4” W

Current land manager:

Existing native communities: CSS to prairie (mulefat, cactus, *Isocoma menziesii*)

Dominant non-natives: some black mustard

Percentage of non-natives: 0-25%

Accessibility: roadside moderate slope

Rare species:

Wildlife: “crucial wildlife habitat” sign present

Past Restoration (if any): “revitalization in progress” sign present

Management plan: hand weeding

Priority for future management:

Notes:

Name of site: BV12 – Invasive Trees

Location Description: Along the bike path, between the Muth Center and Bayview

GPS Coordinates: 33º39'06.9"N,117º52'48"W

Current land manager: CDFW

Existing native communities: CSS

Dominant non-natives: invasive trees (Brazilian pepper, Myoporum). *Carpobrotus edulis* (iceplant) patches

Percentage of non-natives: 0-25%

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any): there has been occasional removal of invasives.

Management plan: Needs continued removal of non-natives

Priority for future management: Medium

Notes: *Foeniculum vulgare* (fennel) removal by county parks staff has taken place along the boardwalk. CDFW will need to hire contractors to coordinate removal of invasive trees (*Schinus terebinthifolius* (peppertree), Myoporum, etc.). Iceplant patches (such as the one at 33º39'06.9"N,117º52'48"W) are visible between the bike path and the Bay, and could be removed by volunteers.

Photographs of site:

Photo near Bayview1 – Invasive Trees. Note the *Nicottiana glauca* (tree tobacco) and other invasives choking out native *Encelia californica* (bush sunflower) and *Baccharis pilularis* (coyote brush).

Another photo near Bayview 1 –Invasive trees. Note the mustard in the foreground and the invasive trees in the background.

Name of site: BV13 - Cottonwood Tree

Location Description: Along Bike Path, before Bayview

GPS Coordinates: 33º39'02"N, 117º52'35"W

Current land manager: CDFW

Existing native communities: CSS or GL or riparian or saltmarsh or marine

Dominant non-natives: *Brassica nigra* (black mustard), lots of NI trees along bike path.

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any): Ongoing restoration began 12 years ago by ROOTS.

Management plan: Needs occasional maintenance

Describe the desired habitat

Priority for future management:

Notes: On-going maintenance, but nothing done in two years. Dominated by black mustard.

Cottonwood marks beginning of community-based restoration. Observed *Malva leprosa* (Malva with white flowers).

Name of site: BV14

GPS Coordinates: 33º39'06.1"N, 117º52'38.8"W

Current land manager: OC Parks

Existing native communities: CSS or GL or riparian or saltmarsh or marine

Dominant non-natives: *Brassica nigra* (black mustard), *Carpobrotus edulis* (iceplant), *Foeniculum vulgare* (fennel)

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any): since 2009, Second Sundays

Management plan: Needs active restoration or removal of non-natives

Describe the desired habitat

Priority for future management:

Notes:

An NBC volunteer has been restoring end of Bayview.

BAD mustard and iceplant patch = 33º39'06.1"N, 117º52'38.8"W

Also *Foeniculum vulgare* (fennel)

Name of site: BV15 - OCSCB Restoration

GPS Coordinates: 33º39'00.3"N, 117º52'29"W

Current land manager: CDFW land

Existing native communities: CSS and GL

Dominant non-natives: *Brassica nigra* (black mustard)

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any): OCSCB experiment with hand-removal vs. herbicide-removal of *Brassica nigra* (black mustard). Hand weeding was better than herbicide treatment in that it contained more natives. 2008-2012 = 1000 container plants

Management plan: Needs occasional fence repairs (due to vandalism). Also issue fence to clarify correct route for horses.

Priority for future management: low

Notes: This is a great example of a successful restoration project. It just needs some occasional maintenance.

Trail divides state and county land. Fenced area = GL first one near Muth wasn't planted, but others were.

Note *Encelia californica* x *farinosa* hybrids.

Name of site: BV16– Bayview 2014 Restoration Site

GPS Coordinates: Lat/long

Current land manager: OC Parks, CDFW

Existing native communities: CSS

Dominant non-natives:

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any):

Management plan: See Bayview Restoration Plan, to be completed by Endemic Environmental Services (Barry Nerhus)

Priority for future management:

Notes: Add in additional notes about the site here.

Name of site: BV17 – Former Cox Residence Restoration Site

GPS Coordinates: Lat/long

Current land manager: OC Parks, CDFW

Existing native communities: CSS

Dominant non-natives: mustard

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any): Supplemental irrigation, coupled with non-native removal by the Cox family has increased the cover of natives, especially *Dienandra fasciculata*, but also some CSS shrubs, including *Artemisia californica* and *Eriogonum fasciculatum*

Management plan: Reduce the amount of supplemental irrigation to wean natives off irrigated water

Priority for future management: Medium, given continued maintenance by residents

Notes: Add in additional notes about the site here.

iii. Big Canyon

Name of site: Big Canyon

GPS Coordinates: Lat/long

Current land manager: 60 acres of City of Newport Beach, ponds are CDFW

Existing native communities: CSS, riparian, saltmarsh

Dominant non-natives: *Atriplex amnicola* (Australian silver saltbush), *Limonium ramosissimum* (invasive Algerian sea lavender), *Myoporum laetum*, *Schinus terebinthifolius* (peppertree), *Brassica nigra* (black mustard), *Foeniculum vulgare* (fennel), *Chrysanthemum coronarium* (garland chrysanthemum)

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any): IRC (funded by City of Newport Beach) started restoration last summer, and there are plans to conduct much more restoration

Management plan: Active restoration plan in development

Priority for future management: High

Notes: 2-3 acres of CSS and GL restoration. Riparian area dominated by Pepper Trees and other non-native trees. Old plan to divert Back Bay Drive and turn area into salt marsh. Ponds constructed in the 1980's have problems with selenium. Naturally occurring selenium in the soil is exposed by excessive irrigation. Inside the Outdoors (with the agreement of the City and CDFW) uses the main trail. Weed removal was conducted by IRC-supervised agricultural field crew. Natives were planted with minimal irrigation and a plan to wean natives off irrigated water. High priority to change forest into natural riparian area. Dick Zembal suggests we girdle trees and add willows, cottonwoods, and sycamores.

Proposed bridge site, 2 acre wetland to collect selenium. Construction of Loop Trail

Name of site: Big Canyon Loop Trail

GPS Coordinates:

Current land manager: CDFW maintains trail

Existing native communities: CSS, riparian, saltmarsh, alkali heath. Natives include *Anemopsis californica* (yerba mansa) and *Frankenia salina* (alkali heath), and *Distichlis spicata*

Dominant non-natives: *Ricinus communis* (castor bean), *Mesembryanthemum* species (iceplant), *Schinus terebinthifolius* (pepper tree)

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any):

Management plan

Priority for future management:

Notes: Nearby, vector control siphons off water from ponds

iv. Castaways Region

(Photo orientation: 32° NW)

Name of site: C1

GPS Coordinates: 33° 37’ 13.0” N 117° 54’ 23.8” W

Current land manager: City of Newport Beach

Existing native communities: CSS

Dominant non-natives: N/A

Percentage of non-natives: 0-25%

Accessibility: Cliff side

Rare species:

Wildlife:

Past Restoration (if any): Signs indicating revegetation in region

Management plan:

Priority for future management:

Notes:

(Photo orientation: 111° E)

Name of site: C2

GPS Coordinates: 33° 37’ 12.5” N 117° 54’ 22.5” W

Current land manager: City of Newport Beach

Existing native communities: GL

Dominant non-natives: grasses

Percentage of non-natives: 0-25%

Accessibility: paths, flat ground

Rare species:

Wildlife:

Past Restoration (if any): restoration by the City

Management plan:

Priority for future management:

Notes:

(Photo orientation: 212° S)

Name of site: C3

GPS Coordinates: 33° 37’ 09.5” N 117° 54’ 21.0” W

Current land manager: City of Newport Beach

Existing native communities: CSS

Dominant non-natives: some grasses and mustard along paths

Percentage of non-natives: 0-25%

Accessibility: pathways, flat ground

Rare species:

Wildlife:

Past Restoration (if any): revegetation

Management plan:

Priority for future management:

Notes:

(Photo orientation: 70° E)

Name of site: C4

GPS Coordinates: 33° 37’ 11.8” N 117° 54’ 18.0” W

Current land manager: City of Newport Beach

Existing native communities: CSS, shrubs

Dominant non-natives: little to none seen

Percentage of non-natives: 0-25%

Accessibility: steep cliffside

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes:

Photo of oyster colonization structures with native Olympia oysters.

Name of site: C5 – CalState Fullerton (Danielle Zacherl) oyster restoration site

GPS Coordinates: Lat/long

Current land manager:

Existing native communities: Beach

Dominant non-natives: Non-native oyster

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any): Placed empty oyster shells to allow for colonization by native Olympia oysters

Management plan:

Priority for future management: High. Eelgrass beds in sub-tidal zone, and oyster beds above

Notes: Past dredging and channelization has destroyed natural pebble beaches. Rocky beaches were likely the primary habitat for native Olympia oysters. The loss of this habitat, combined with over-harvesting in the past, contributed to the decline in native oyster populations. Danielle's restoration efforts here have been highly successful, and could be expanded to other parts of the Bay.

v. DeAnza Region

(Photo Orientation: 149.4)

Name of site: DA1

GPS Coordinates: 33° 37’ 13.8” N 117° 54’ 1.4” W (149.4)

Current land manager: CDFW

Existing native communities: Coastal dune

Dominant non-natives: ice plant (only on center ridge)

Percentage of non-natives: 0-25%

Accessibility: not easily accessible, island

Rare species:

Wildlife:

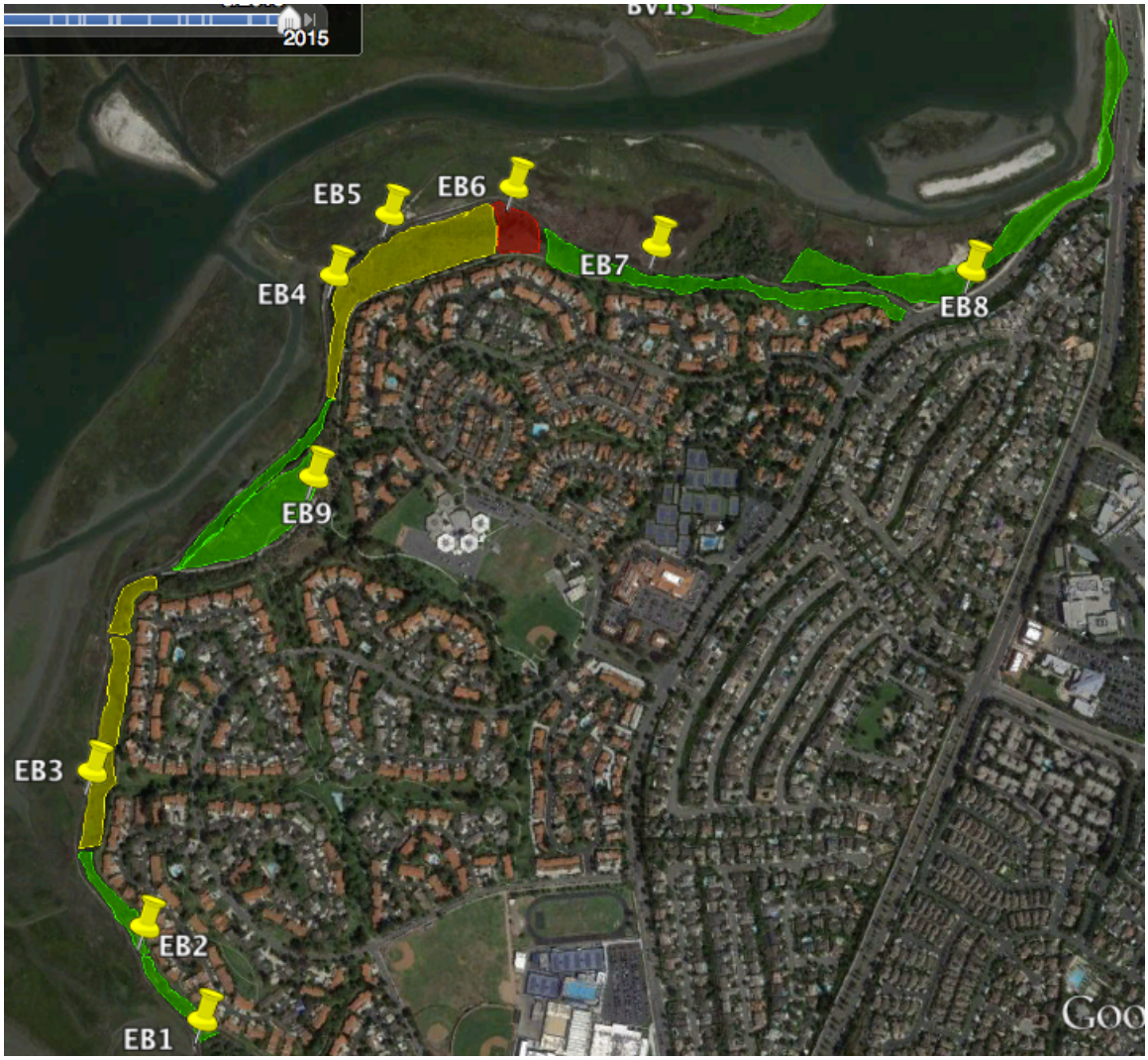
Past Restoration (if any):

Management plan:

Priority for future management:

Notes:

vi. East Bluff Region



Name of site: EB1

GPS Coordinates: 33° 38’ 0.6” N 117° 53’ 4.7” W

Current land manager:

Existing native communities: CSS/Riparian

Dominant non-natives: None

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes:

Name of site: EB2

GPS Coordinates: 33° 38’ 5.8” N 117° 53’ 8.7” W

Current land manager:

Existing native communities: CSS

Dominant non-natives: None

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes:

Name of site: EB3

GPS Coordinates: 33° 38’ 14.5” N 117° 53’ 12.5” W

Current land manager:

Existing native communities: Riparian

Dominant non-natives: Castor Bean, Celery, Pampas Grass (heavy)

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes:

Name of site: EB4

GPS Coordinates: 33° 38’ 42.4” N 117° 53’ 56.1” W

Current land manager:

Existing native communities: CSS

Dominant non-natives: None

Percentage of non-natives:

Accessibility:

Rare species: Centromadia parryi ssp. Australis (southern tarplant)

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes:

Name of site: EB5

GPS Coordinates: 33° 38’ 46.7” N 117° 53’ 52.4” W

Current land manager:

Existing native communities: Riparian

Dominant non-natives: Little to no invasion

Percentage of non-natives:

Accessibility:

Rare species: Centromadia parryi ssp. Australis (southern tarplant)

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes:

Name of site: EB6

GPS Coordinates: 33° 38’ 48.3” N 117° 53’ 43.7” W

Current land manager:

Existing native communities: Grassland (not positive)

Dominant non-natives: unsure

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes:

Name of site: EB7

GPS Coordinates: 33° 38’ 44.8” N 117° 53’ 33.7” W

Current land manager:

Existing native communities: Riparian

Dominant non-natives: Celery, Sweet clover

Percentage of non-natives:

Accessibility:

Rare species: *Centromadia parryi* ssp. *australis* (southern tarplant)

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes: Poison oak dominated hillside

Name of site: EB8

GPS Coordinates: 33° 38’ 43.3” N 117° 53’ 11.8” W

Current land manager:

Existing native communities: Riparian

Dominant non-natives: None

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes:

Name of site: EB9

GPS Coordinates: 33° 38’ 31.3” N 117° 53’ 57.4” W

Current land manager:

Existing native communities: CSS

Dominant non-natives: Black mustard (moderate invasion near trail, less away from it)

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes:

Photograph of Successful Vista Point restoration.

Name of site: EB10 - Vista Point

GPS Coordinates: Lat/long

Current land manager:

Existing native communities: Coastal Sage Scrub

Dominant non-natives: Pampas grass, Myoporum (at base of slope)

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any): 2006 CSS restoration, followed by 2008 landscaping after reconstruction of Vista Point.

Management plan: An NBC volunteer maintains this site once or twice a year, and that seems to work well. Future work could expand the restoration site into areas currently dominated by non-natives.

Priority for future management:

Notes:

Photograph showing the entrance to the "Glen" site, below Vista Point. There is a large number of non-native trees. The area could be restored to Coastal Strand.

Name of site: EB11 - Shady "Glen" below Vista Point

GPS Coordinates: Lat/long

Current land manager:

Existing native communities: Coastal Sage Scrub

Dominant non-natives: Pampas grass, Myoporum (at base of slope)

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any): 2005 iceplant removal.

Management plan: This area needs non-native removal, and could be restored to coastal strand

Priority for future management: high, due to rare native habitat

Notes:

Photograph of area along Back Bay Drive, below Vista Point, dominated by non-natives. This area has remnant native CSS species, and could likely be restored by volunteers.

Name of site: EB12 - Other side of Bayview below Vista Point

GPS Coordinates: Lat/long

Current land manager:

Existing native communities: Coastal Sage Scrub, some Toyon

Dominant non-natives: Pampas grass, iceplant, Eurasian grasses

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes:

vii. Galaxy Region


G5
G4
G3
G1
G12
G11
G10
G9
G7
G8
G6
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(Photo Orientation: 52.0)

Name of site: G1

GPS Coordinates: 33° 38’ 4.4” N, 117° 53’ 25.2” W

Current land manager:

Existing native communities: CSS

Dominant non-natives: Pepper trees, ice plant, pampas grass, fan palms

Percentage of non-natives: 51-100%

Accessibility: not easily accessible, steep cliff

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes:

Name of site: G2

GPS Coordinates: 33° 38’ 10.9” N, 117° 53’ 25.3” W

Current land manager:

Existing native communities: CSS

Dominant non-natives: pepper trees

Percentage of non-natives: 26-50%

Accessibility: not easily accessible, steep cliff

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes:

(Photo Orientation: 115.5)

Name of site: G3

GPS Coordinates: 33° 38’ 13.6” N 117° 53’ 24.0” W

Current land manager:

Existing native communities: CSS

Dominant non-natives: pepper trees, palms, ice plant

Percentage of non-natives: 51-100%

Accessibility: not easily accessible, steep cliff

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes:

(Photo Orientation: 95.7)

Name of site: G4

GPS Coordinates: 33° 38’ 16.5” N 117° 53’ 21.8” W

Current land manager:

Existing native communities: CSS

Dominant non-natives: ice plant, pampas grass

Percentage of non-natives: 0-25%

Accessibility: not easily accessible, steep cliff

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes:

(Photo Orientation: 101.3)

Name of site: G5

GPS Coordinates: 33° 38’ 20.1” N 117° 53’ 20.9” W

Current land manager:

Existing native communities: CSS

Dominant non-natives: pepper trees, palms, pampas grass, mustard, ice plant

Percentage of non-natives: 51-100%

Accessibility: not easily accessible, steep cliff

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes:

(Photo Orientation: 204.2)

Name of site: G6

GPS Coordinates: 33° 37’ 34.3” N 117° 53’ 37.5” W

Current land manager:

Existing native communities: Riparian

Dominant non-natives: grasses, pampas grass, pepper trees

Percentage of non-natives: 51-100%

Accessibility: Easily accessible, adjacent to NAC

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes:

(Photo Orientation: 309.7)

Name of site: G7

GPS Coordinates: 33° 37’ 35.0” N 117° 53’ 36.5” W

Current land manager:

Existing native communities: Coastal Dune

Dominant non-natives: grasses, pampas grass, pepper trees

Percentage of non-natives: 51-100%

Accessibility: Moderately accessible, through trees

Rare species: *Suaeda taxifolia* (woolly seablite)

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes:

Name of site: G8

GPS Coordinates: 33° 37’ 35.8” N 117° 53’ 26.6” W

Current land manager:

Existing native communities: CSS on slope and salt marsh at base of cliff

Dominant non-natives: Iceplant, Pampas grass

Percentage of non-natives: 0-25%

Accessibility: Not easily accessible, steep cliff

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes:

Name of site: G9

GPS Coordinates: 33° 37’ 44.6” N 117° 53’ 24.8” W

Current land manager:

Existing native communities: CSS on slope, salt marsh in lower region

Dominant non-natives: Iceplant, Mustard, Garden plants

Percentage of non-natives: 50-100%

Accessibility: Not easily accessible, cliff

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes:

Name of site: G10

GPS Coordinates: 33° 37’ 49.2” N 117° 53’ 28.2” W

Current land manager:

Existing native communities: CSS on slope, salt marsh in tidal region

Dominant non-natives: Myoporum

Percentage of non-natives: 50-100%

Accessibility: Not easily accessible, cliff

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes:

Name of site: G11

GPS Coordinates: 33° 37’ 48.7” N 117° 53’ 27.3” W

Current land manager:

Existing native communities: CSS

Dominant non-natives: Iceplant

Percentage of non-natives:

Accessibility: Not easily accessible, cliff

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes:

Name of site: G12

GPS Coordinates: 33° 37’ 53.4” N 117° 53’ 22.3” W

Current land manager:

Existing native communities: CSS

Dominant non-natives: Pepper tree, palms

Percentage of non-natives: 50-100%

Accessibility: Not easily accessible, cliff

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes:

Photograph of invasive sea lavender on salt flats.

Name of site: NAC Salt Flat

GPS Coordinates: Lat/long

Current land manager:

Existing native communities: Saltmarsh

Dominant non-natives: *Limonium ramosissimum* (invasive Algerian sea lavender)

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any):

Management plan: Remove sea lavender at low tide. Planned passive restoration by Early College High School

Priority for future management: High

Notes:

Photograph of riparian area by NAC, with all non-native vegetation.

Name of site: NAC Riparian

GPS Coordinates: Lat/long

Current land manager:

Existing native communities: Riparian, some willows

Dominant non-natives: Papyrus, Nasturtium, Oxalis, non-native trees, iceplant

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any):

Management plan: Remove ice plant and other invasives

Priority for future management: High due to educational activities in the area.

Notes: This area could be a place where different native plant communities are planted and used as demonstrations in educational programs

viii. Hot Dog Island

Name of site: Hot Dog Island

GPS Coordinates: Lat/long

Current land manager: City of Newport Beach

Existing native communities: Saltmarsh

Dominant non-natives:

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any):

Management plan: Needs removal of non-natives

Priority for future management:

Notes: Some eelgrass restoration conducted off the island by CalState Fullerton graduate student

ix. Least Tern Island

Name of site: Least Tern Island

GPS Coordinates: Lat/long

Current land manager: CDFW

Existing native communities: telegraph weed

Dominant non-natives:

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any): Occasional removal of telegraph weed to open space for tern nesting.

Management plan: Some dredging around this island would improve the habitat for terns. The island is currently accessible during low tides.

Priority for future management:

Notes:

x. New Tern Island

(Photo Orientation: 106.7)

Name of site: NT1

GPS Coordinates: 33° 38’ 51.2” N 117° 53’ 6.5” W

Current land manager: DFW

Existing native communities: Coastal Dune

Dominant non-natives: ice plant, white sweet clover

Percentage of non-natives: 51 - 100%

Accessibility: not easily accessible, island

Rare species:

Wildlife:

Past Restoration (if any): herbicide to kill white sweet clover

Management plan:

Priority for future management:

Notes: Telegraph weed a native but is also weeded to create habitat

(Photo Orientation: 90.2)

Name of site: NT2

GPS Coordinates: 33° 38’ 52.6” N 117° 53’ 9.1” W (90.2)

Current land manager: DFW

Existing native communities: Coastal Dune

Dominant non-natives: ice plant, white sweet clover

Percentage of non-natives: 51 - 100%

Accessibility: not easily accessible, island

Rare species:

Wildlife:

Past Restoration (if any): herbicide to kill white sweet clover

Management plan:

Priority for future management:

Notes: Telegraph weed a native but is also weeded to create habitat

(Photo Orientation: 118.7)

Name of site: NT3

GPS Coordinates: 33° 38’ 53.6” N 117° 53’ 10.5” W (118.7)

Current land manager: DFW

Existing native communities: Coastal Dune

Dominant non-natives: White Sweet Clover (Heavy)

Percentage of non-natives: 51 - 100%

Accessibility: not easily accessible, island

Rare species:

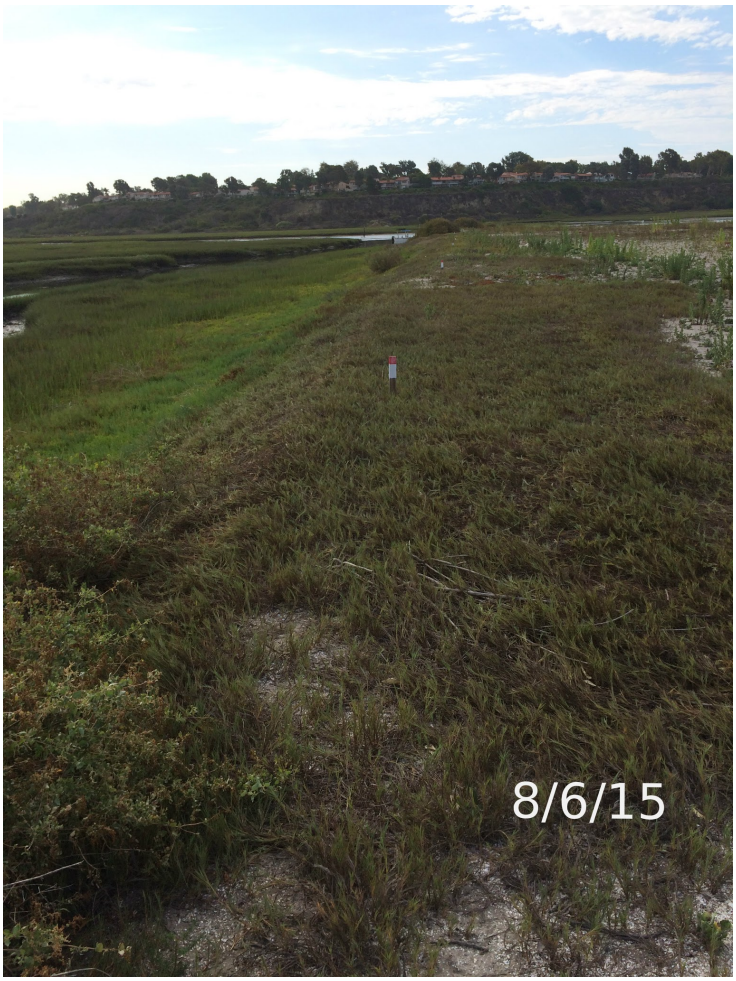
Wildlife:

Past Restoration (if any): was not treated with herbicide like NT1 and NT2, much more sweet clover

Management plan:

Priority for future management:

Notes: Telegraph weed a native but is also weeded to create habitat



(Photo Orientation: 317.2)

Name of site: NT4

GPS Coordinates: 33° 38' 54.8" N 117° 53’ 10.2” W (317.2)

Current land manager: DFW

Existing native communities: Salt Marsh

Dominant non-natives: Russian thistle

Percentage of non-natives: 0-25%

Accessibility: not easily accessible, island

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes: mostly salt grass

xi. San Joaquin


SJ9
SJ2
SJ1
SJ10
SJ3
SJ4
SJ6
SJ7
SJ8
SJ5

(Photo orientation: W270° DIRECTION)

Name of site: SJ1

GPS Coordinates: 33° 37’ 28.2” N 117° 52’ 57.5” W)

Current land manager:

Existing native communities: CSS

Dominant non-natives: brome grass away from path

Percentage of non-natives:0-25%

Accessibility: okay, dense shrubs but close to paved path

Rare species:

Wildlife: lizards, bees, rabbits

Past Restoration (if any):

Management plan: passive

Priority for future management:

Notes: dense shrub cover, appears maintained

(Photo orientation: S 165° DIRECTION)

Name of site: SJ2

GPS Coordinates: 33° 37’ 27.1” N 117° 53’ 01.2” W

Current land manager:

Existing native communities: CSS

Dominant non-natives: none are visible

Percentage of non-natives: 0-25%

Accessibility: okay, dense shrubs but close to paved path

Rare species: Suaeda Taxifolia

Wildlife: lizards, gnat catchers

Past Restoration (if any):

Management plan: passive

Priority for future management:

Notes: appears maintained, dense shrub cover

(Photo orientation: W 270° DIRECTION)

Name of site: SJ3

GPS Coordinates: 33° 37’ 22.1” N 117° 53’ 10.9” W

Current land manager:

Existing native communities: CSS

Dominant non-natives: black mustard

Percentage of non-natives: 26-50%

Accessibility: okay, dense shrubs

Rare species:

Wildlife: lizards

Past Restoration (if any):

Management plan: active; hand weeding black mustard. There is irrigation and signs of herbicide use on fennel. Actively maintained.

Priority for future management:

Notes: Mustard is near path, weeding can be done by volunteers.

(Photo orientation: E 33° DIRECTION)

Name of site: SJ4

GPS Coordinates: 33° 37’ 18.9” N 117° 53’ 16.5” W

Current land manager:

Existing native communities: CSS

Dominant non-natives: Black Mustard

Percentage of non-natives: 26-50%

Accessibility: moderate

Rare species: Suaeda Taxifolia (woolly seablite)

Wildlife: Northern Mockingbirds, lizards

Past Restoration (if any): Yes

Management plan: active

Priority for future management:

Notes:

(Photo orientation: W 237° DIRECTION)

Name of site: SJ5

GPS Coordinates: 33° 37’ 11.5” N 117° 53’ 10.6” W

Current land manager:

Existing native communities: Riparian

Dominant non-natives: not obvious, there is bristly ox-tongue, artichoke thistle and fennel present

Percentage of non-natives: 0-25%

Accessibility: moderate

Rare species:

Wildlife:

Past Restoration (if any): Yes

Management plan: active

Priority for future management:

Notes:

(Photo orientation: S 207° DIRECTION)

Name of site: SJ6

GPS Coordinates: 33° 37’ 19.0” N 117° 53’ 19.4” W

Current land manager:

Existing native communities: CSS

Dominant non-natives: black mustard

Percentage of non-natives: 0-25%

Accessibility: moderate-difficult

Rare species:

Wildlife: Northern Mockingbirds, lizards

Past Restoration (if any): Yes

Management plan: active

Priority for future management:

Notes:

(Photo orientation: E 126° DIRECTION)

Name of site: SJ7

GPS Coordinates: 33° 37’ 14.9” N 117° 53’ 18.7” W

Current land manager:

Existing native communities: CSS

Dominant non-natives: black mustard

Percentage of non-natives: 51-100%

Accessibility: moderate-difficult

Rare species:

Wildlife: lizards, California Gnatcatcher, funnel web spider

Past Restoration (if any):

Management plan: active

Priority for future management:

Notes:

(Photo orientation: NE 48° DIRECTION)

Name of site: SJ8

GPS Coordinates: 33° 37’ 13.3” N 117° 53’ 18.1” W

Current land manager:

Existing native communities: Freshwater Marsh

Dominant non-natives: *ask Matt

Percentage of non-natives: *0-25%

Accessibility: moderate-difficult

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes:

(Photo orientation: S 143° DIRECTION)

Name of site: SJ9

GPS Coordinates: 33° 37’ 31.7” N 117° 53’ 04.2” W

Current land manager:

Existing native communities: CSS

Dominant non-natives: black mustard

Percentage of non-natives: 0-25%

Accessibility: difficult- cliff face

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes: accessibility will make management challenging.

Name of site: SJ10 - John Wayne Gulch

GPS Coordinates: 33º37’22.3”N, 117º53’18.3”W

Current land manager: City of Newport Beach and The Irvine Company land(?)

Existing native communities: CSS, riparian, and saltmarsh

Dominant non-natives: *Foeniculum vulgare* (fennel), *Conium maculatum* (poison hemlock), *Centaurea melitensis* (tocalote)

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any): ongoing weed removal and planting of natives by CCC community-based restoration (includes NBC volunteers)

Management plan: Needs active restoration or removal of non-natives

Describe the desired habitat

Priority for future management: Medium, due to ongoing work at the site

Notes: Parked at Acacia Point. Nearby natives of interest include *Jaumea carnosa*, which does alright in brackish water. There is a nearby Indian burial site. City of Newport Beach mitigation project adjacent to site.

Name of site: SJ11 - Along Back Bay Drive

GPS Coordinates: Lat/long

Current land manager:

Existing native communities: CSS or GL or riparian or saltmarsh or marine

Dominant non-natives: Spanish Broom, white clover

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any): list the name of the organization and dates of restoration

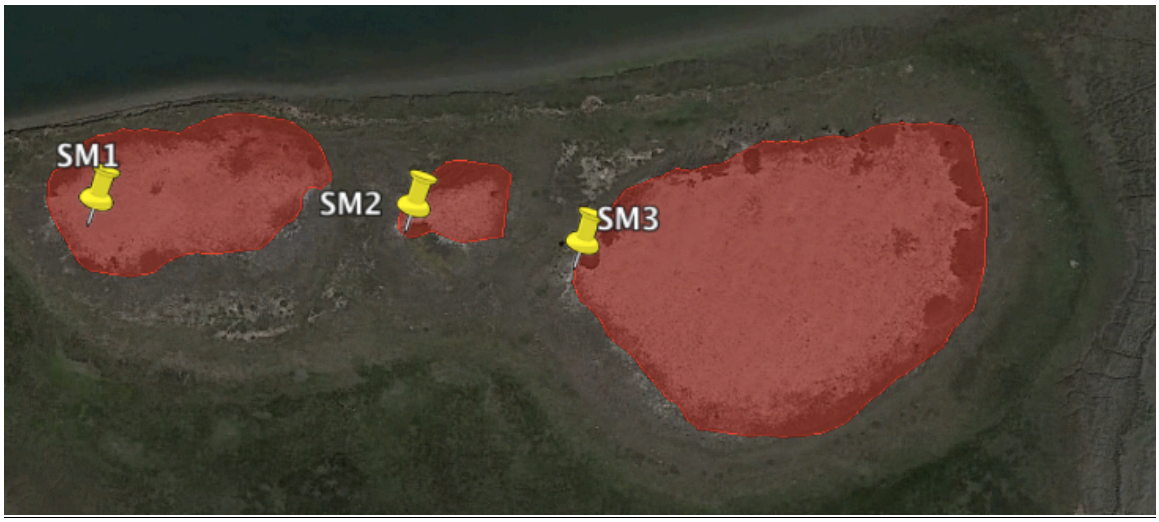
Management plan: Needs removal of non-natives

Describe the desired habitat

Priority for future management: High (Don Millar says high priority to remove white clover along Back Bay Drive)

Notes:

xii. Shellmaker Island



(Photo Orientation: 272.5)

Name of site: SM1

GPS Coordinates: 33° 37’ 33.4” N 117° 53’ 20.0” W (272.5)

Current land manager: CDFW

Existing native communities: Coastal Dune

Dominant non-natives: ice plant, sweet clover

Percentage of non-natives: 51-100%

Accessibility: not easily accessible, island

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes: after past ice plant was killed, sweet clover and telegraph weed moved in. Telegraph is native but weeded to create nesting habitat

(Photo Orientation: 288.1)

Name of site: SM2

GPS Coordinates: 33° 37’ 33.6” N 117° 53’ 16.5” W (288.1)

Current land manager: CDFW

Existing native communities: Coastal Dune

Dominant non-natives: ice plant (heavy),

Percentage of non-natives: 51-100%

Accessibility: not easily accessible, island

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes: Telegraph is native but weeded to create nesting habitat

(Photo Orientation: 241.9)

Name of site: SM3

GPS Coordinates: 33° 37’ 33.4” N 117° 53’ 14.6” W (241.9)

Current land manager: CDFW

Existing native communities: Coastal Dune

Dominant non-natives: pampas grass, iceplant (heavy)

Percentage of non-natives: 51-100%

Accessibility: not easily accessible, island

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes: Telegraph weed is native but weeded to create nesting habitat.

Name of site: Shellmaker Island, CSS area around building

GPS Coordinates: 33.621715ºN, 117.891850ºW

Current land manager: CDFW

Existing native communities: CSS, some coastal strand

Dominant non-natives:

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any): CSS by the building is used for teaching/volunteer training. These dunes by the building were planted with CSS by CDFW staff in 2007 as a mitigation project (mitigation for construction of building and parking lot). There is ongoing maintenance, including invasive plant and snail removal. Some dune species also survived in the area.

Management plan: Continued removal of non-natives (maintenance)

Priority for future management: Medium (due to ongoing maintenance)

Notes: Shellmaker Island was the site of a company making chicken feed from shells in the 1930s – 1970s. It has been suggested that the island was originally the site of an Indian midden. The dunes were constructed about 25 years ago. Landscaping with natives was conducted around the building.

Name of site: Shellmaker Island, protected beach area
GPS Coordinates: 33.621715ºN, 117.891850ºW
Current land manager: CDFW
Existing native communities: Coastal strand (protected beach area). Existing natives include protected *Nemacaulis denudata* (coast woolly heads)
Dominant non-natives:
Percentage of non-natives:
Accessibility:
Rare species:
Wildlife:
Past Restoration (if any):
Management plan: Dick Zembal suggests restoring to coastal strand by weeding non-natives and seeding natives such as sand verbena (*Abronia*), *Camissonia cheiranthifolia* (beach primrose), and *Calystegia soldanella* (beach morning glory), amongst other natives.
Priority for future management: Medium (due to ongoing maintenance) or High (for the protected beach area, if desire to restore coastal strand, a rare habitat).
Notes:

Name of site: Shellmaker Island, BBSC Saltmarsh. Jack calls this "the boat mooring restoration site"
GPS Coordinates: Lat/long
Current land manager: CDFW? Not in marine reserve, not clear who owns site

Existing native communities: Salt marsh

Dominant non-natives: *Limonium ramosissimum* (invasive Algerian sea lavender)

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any):

Management plan: Needs active restoration or removal of non-natives

Describe the desired habitat

Priority for future management:

Notes: The elevation was taken down here as part of restoration

Name of site: Newport Dunes

GPS Coordinates: Lat/long across from UCI Crew site

Current land manager: CDFW?

Existing native communities: Marine: native Olympia oyster beds

Dominant non-natives: Japanese oyster

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any): 2010-2012 mitigation by OC Parks

Management plan: Needs removal of non-natives

Desired state = Natural cobble beach for native oysters

Priority for future management:

Notes: Danielle Zacherl (CalState Fullerton) has studied the oysters here

xiii. West Bluff Region

The West Bluff region includes the west side of the Bay, including the area around the Muth Interpretive Center and along Irvine Ave., from the Delhi Channel to the end of the Bayview Trail at Santiago Rd (Figure 3).


WB1
WB3
WB12
WB2
WB11
WB4
WB5
WB6
WB7
WB10
WB8
WB9
WB13

Name of site: WB1

GPS Coordinates: 33° 39’ 13.2” N 117° 53’ 11.5” W

Current land manager: OC Parks

Existing native communities: CSS

Dominant non-natives: Black Mustard

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes: may have had past restoration

Name of site: WB2

GPS Coordinates: 33° 39’ 8.4” N 117° 53’ 13.0” W

Current land manager: OC Parks

Existing native communities: Riparian

Dominant non-natives: None

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes: Dense, had pipes and sandbags, irrigation?

Name of site: WB3

GPS Coordinates: 33° 39’ 11.4” N 117° 53’ 18.7” W

Current land manager: OC Parks

Existing native communities: Grassland (a few shrubs)

Dominant non-natives: Black Mustard

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes: Irrigated

Name of site: WB4

GPS Coordinates: 33° 39’ 2.7” N 117° 53’ 20.2” W

Current land manager: OC Parks

Existing native communities: CSS

Dominant non-natives: Black Mustard (more closer to the trail)

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes:

Name of site: WB5

GPS Coordinates: 33° 39’ 3.0” N 117° 53’ 21.2” W

Current land manager: OC Parks

Existing native communities: CSS/Saltmarsh

Dominant non-natives: Black Mustard, Algerian Sea Lavender (Neither greatly present)

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes:

Name of site: WB6

GPS Coordinates: 33° 38’ 56.0” N 117° 53’ 26.5” W

Current land manager: OC Parks

Existing native communities: CSS

Dominant non-natives: Black Mustard, Castor Bean

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes: Black mustard heavily prevalent

Name of site: WB7

GPS Coordinates: 33° 38’ 52.5” N 117° 53’ 26.1” W

Current land manager: OC Parks

Existing native communities: Saltmarsh

Dominant non-natives: None

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes: Majority of lower area is saltmarsh

Name of site: WB8

GPS Coordinates: 33° 38’ 38.6” N 117° 53’ 32.0” W

Current land manager: OC Parks

Existing native communities: Riparian

Dominant non-natives: Pampas grass, Iceplant (Neither extensively invading)

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes:

Name of site: WB9

GPS Coordinates: 33° 38’ 37.1” N 117° 53’ 31.9” W

Current land manager: OC Parks

Existing native communities: Marsh (not sure if salt, fresh, brackish)

Dominant non-natives: White Sweet Clover

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes: All invasion much closer to path

Name of site: WB10

GPS Coordinates: 33° 38’ 45.9” N 117° 53’ 33.4” W

Current land manager: OC Parks

Existing native communities: Grassland

Dominant non-natives: Black Mustard

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes: Many dead annuals, could not determine many at time of site visit

Name of site: WB11

GPS Coordinates: 33° 39’ 3.8” N 117° 53’ 26.4” W

Current land manager: OC Parks

Existing native communities: CSS

Dominant non-natives: Black Mustard (most), Fennel

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any):

Management plan:

Priority for future management:

Notes: Heavy Invasion

Name of site: WB12 - Muth Center

GPS Coordinates: 33º39’11.3”N, 117º53’5” W

Current land manager: OC Parks

Existing native communities: CSS around building and in parking lot, sandy wash habitat on rooftop of Muth

Dominant non-natives: *Brassica nigra* (black mustard)

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any): Much of the area around the Muth Center was seeded in 2000s as mitigation for the construction of the building. The seeding was contractor-based restoration. The area has been maintained through ongoing community-based restoration (OC Parks volunteers working on second Sundays). Much of this maintenance involves ongoing mustard removal.

Management plan: Needs continued removal of non-natives

Priority for future management: Low, due to the continued action of volunteers through 2nd Sunday restoration activities

Notes: Flags are sometimes used to show volunteers which plants are native, especially during clean-up day. Rabbits eat native *Stipa pulchra* (purple needlegrass) plants.

Name of site: WB13 - Constellation

GPS Coordinates: 33º38”29.8”N, 117º53’33.8”W

Current land manager: Combination of OC Parks and CDFW

Existing native communities: CSS and saltmarsh

Dominant non-natives: *Brassica nigra* (black mustard), *Foeniculum vulgare* (fennel)

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any): Early College High School, in Costa Mesa, has been conducting ongoing restoration to CSS. Much of this restored habitat currently consists of high native cover and other areas need some maintenance

Management plan: Needs some ongoing maintenance (removal of mustard, small iceplant patch, and some other non-natives)

Priority for future management: Low (due to the ongoing efforts of Early College H.S.)

Notes: Nearby large patch of *Juncus acutus* (spiny rush) in burned area, many trapdoor spiders also nearby

Name of site: WB14 - Along Irvine

GPS Coordinates: Between Monte Vista and Santa Isabel

Current land manager: County Land

Existing native communities: Grassland

Dominant non-natives: *Brassica nigra* (black mustard)

Percentage of non-natives:

Accessibility:

Rare species:

Wildlife:

Past Restoration (if any): list the name of the organization and dates of restoration

Management plan: Needs active restoration

Potential GL/Prairie Restoration

Priority for future management: High

Notes: There appears to be an existing GL restoration project between the Muth Center and Santa Isabel (fenced area). On the other side of Santa Isabel (farther away from the Muth Center) is the large *Brassica nigra* (black mustard) field that could potentially be restored to GL/Prairie.

VI. Restoration Projects (New projects should be constantly added)

A. Bayview Restoration Project

   Dates of project, summary of project (by whoever is doing the restoration).

B. Big Canyon

VII. Current Feedback

ACTIONS NEEDED:

- *INFORMATION*:
    - Finish surveys & go back through old surveys to add new info.
    - Gain more information for desired species we'd like to be present or return to restored sites
    - Estimate of present endangered species population (so we can quantify the population benefits we will get from restoration)
    - Get soil and transect data from other agencies
    - Big Canyon → *Get rare species info from this year* (NBC, City of Newport Beach)
    - Eel grass area data → get info from OC Coastkeeper
        - NEED sediment info, shoreline type, water residence time)
        - DeAnza (high priority) → Need data on existing conditions
- *GIS*:
    - Total GIS areas which could be converted to a different plant community
        - Desired habitats/communities map
    - create separate map for tidal flats (not on the same map as terrestrial regions)

    - INCLUDE a HABITATS map (marine, intertidal zone, mudflats, riparian, coastal sagescrub, freshwater marsh/pond)
    - NEED map of tides
    - Get CAL-IPC data
        - Invasive plant GIS layers
        - Native vs. Non-native tree layers
    - Cost layer
- *NEW PRIORITY DETERMINANTS*:
    - Erosion levels per site
        - Affects sediment transport into the bay
    - Sea Level Rise and Fire Protection
        - consider low lying areas (Suggested by Bob Stein from CoNB)
    - Land Use History (LAYER → can look on Google Earth)
        - soil quality (ex: saltiness → could affect future restoration)
    - Recreation
        - *Need legal trail layer*
        - Bird watching boardwalk (make later)
    - Environmental Toxins & Urban Runoff
- Include Mike Bell's/NROC vegetation maps in draft

SUGGESTIONS:

- Explain the need/motivation for this comprehensive restoration plan. (Protect and promote bird populations, reduce erosion and improve Bay water quality, reduce vector problems (rats, mosquitos), increase educational opportunities.)
- Define a *vision*/*vision statement*
- Explain determinants of priority in the plan (why they're chosen/how we chose them)

- Focus on the productivity of wetlands and the benefits that can come with restoration
- Include ownership map
- List on-going restoration projects & organizations working on or with the plan
- Identify the limiting step/factors for restoration in each site/region
    - ex: Big Canyon → what is the limiting step towards restoration? → Pepper trees
- Increase the representation of rare communities
    - grasslands
    - alkaline
    - riparian
- Include UCI San Joaquin Marsh in the plan?
    - *Ask Peter Bowler*
- Have a review and approval process of the plan by NBC (detail that it's an ACTIVE document)

CONSIDERATIONS:

- Public vs. Private access & recreation (within Accessibility section)
    - Need to think about the public and people's enjoyment
        - This will encourage their participation in restoration projects
- Maps may differ from seasons, year to year, depending on tides/input, El Nino (may need to replicate yearly)
    - Ex: Bayview → need to take into account seasonality (Currently no invasive of white sweet clover, but will be abundant in later seasons)
- Drought (irrigation set up, timing of restoration → cost of water for restoration)
- East Bluff → vector control (funding costs)

- Are there any blockages for traveling species to make connections from place to place?
- When restoring: *take into consideration leaving open spaces* (can't over populate with shrubs) → needed for owls, hawks, etc. Use

FEEDBACK (CURRENTLY IN PROGRESS):

- GIS Layers
    - Bird/wildlife layers
        - Include rare species present at Hot Dog Island/Old Tern Island
            - eg: pond turtles, nesting birds
        - Getting info from Dick Zembal (birds)
    - Get layer of CNDDB (California Nature Diversity Database)
        - Rare species
        - Contact landowners for contracted reports
    - Accessibility
    - Acreage
        - Total invaded areas around the whole bay
            - split into two maps for terrestrial vs. aquatic
    - Illegal trails (Carla Navarro)
    - Tidal flats (we have the scanned file → need to turn it into GIS file)

VIII. Appendix

A. Table 1: List of rare plant populations in Regions of Figure 1 (page 4). The map showing exact locations is on page 109.

Bayview		**Islands and wetland areas**
Aphanisma blitoides		Atriplex coulteri

Atriplex serenana var. davidsonii		Atriplex pacifica
Centromadia parryi ssp. australis		Centromadia parryi ssp. australis
Suaeda esteroa		Chloropyron maritimum ssp. maritimum
Big Canyon		Cordylanthus maritimum ssp. maritimum
Centromadia parryi ssp. australis		Dudleya multicaulis
Suaeda taxifolia		Helianthus nuttallii ssp. parishii
East Bluff		Juncus acutus ssp. leopoldii
Centromadia parryi ssp. australis		Nemacaulis denudata var. denudata
Galaxy		Suaeda taxifolia
Suaeda taxifolia		Symphyotrichum defoliatum
San Juaquin		
Suaeda taxifolia		
Shellmaker Island		
Nemacaulis denudata var. denudate		
West Bluff		
Atriplex serenana var. davidsonii		
Centromadia parryi ssp. australis		

B. Table 2: Vegetation types in each region from Figure 1 (page 4)

C. Bayview
Anthropogenic Areas of Little or No Vegetation
Artemisia californica - Eriogonum fasciculatum Alliance
Artemisia californica Alliance
Central & South Coastal Californian CSS Group
Encelia californica Alliance

Intertidal mudflat
Introduced Trees, Shrubs (not in hierarchy)
Mediterranean CA Naturalized Annual and Perennial Grassland Group (Weedy)
Salix lasiolepis Alliance
Sarcocornia pacifica (Sarcocornia depressa) Alliance
Spartina foliosa Alliance
Streambed Mapping Unit
SW North American Salt Basin & High Marsh Group
Temperate Pacific Tidal Salt & Brackish Meadow GP
Typha (angustifolia, domingensis, latifolia) Alliance
Urban/disturbed Mapping Unit
Water body
Big Canyon
Artemisia californica Alliance
Central & South Coastal Californian CSS Group
Encelia californica Alliance
Intertidal mudflat
Introduced Trees, Shrubs (not in hierarchy)
Mediterranean CA Naturalized Annual and Perennial Grassland Group (Weedy)
Salix lasiolepis Alliance
Salt panne
Sarcocornia pacifica (Sarcocornia depressa) Alliance
Schoenoplectus californicus
Spartina foliosa Alliance
SW North American Salt Basin & High Marsh Group
Typha (angustifolia, domingensis, latifolia) Alliance
Urban/disturbed Mapping Unit
Water body
East Bluff

Anthropogenic Areas of Little or No Vegetation
Artemisia californica - Eriogonum fasciculatum Alliance
Artemisia californica Alliance
Bolboschoenus maritimus
California Annual and Perennial Grassland MG
Central & South Coastal Californian CSS Group
Encelia californica Alliance
Intertidal mudflat
Introduced Trees, Shrubs (not in hierarchy)
Mediterranean CA Naturalized Annual and Perennial Grassland Group (Weedy)
Salix lasiolepis Alliance
Salt panne
Sambucus nigra Alliance
Sarcocornia pacifica (Sarcocornia depressa) Alliance
Schoenoplectus californicus
Spartina foliosa Alliance
Temperate Pacific Tidal Salt & Brackish Meadow GP
Typha (angustifolia, domingensis, latifolia) Alliance
Urban/disturbed Mapping Unit
Water body
Galaxy
Anthropogenic Areas of Little or No Vegetation
Artemisia californica Alliance
Bolboschoenus maritimus
Central & South Coastal Californian CSS Group
Coastal Baja Calif Norte maritime succulent scrub Gp
Encelia californica Alliance
Intertidal mudflat
Introduced Trees, Shrubs (not in hierarchy)
Meadow (Carex - Juncus - Eleocharis) Mapping Unit

Mediterranean CA Naturalized Annual and Perennial Grassland Group (Weedy)
Rhus integrifolia Alliance
Salix lasiolepis Alliance
Sarcocornia pacifica (Sarcocornia depressa) Alliance
Spartina foliosa Alliance
SW North American Salt Basin & High Marsh Group
Temperate Pacific Tidal Salt & Brackish Meadow GP
Urban/disturbed Mapping Unit
Middle Island
Intertidal mudflat
Sarcocornia pacifica (Sarcocornia depressa) Alliance
Spartina foliosa Alliance
Water body
New Island
Intertidal mudflat
Salt panne
Sarcocornia pacifica (Sarcocornia depressa) Alliance
Spartina foliosa Alliance
Water body
New Tern Island
Anthropogenic Areas of Little or No Vegetation
Intertidal mudflat
Sarcocornia pacifica (Sarcocornia depressa) Alliance
Spartina foliosa Alliance
Water body
San Diego Creek
Baccharis salicifolia Alliance
Schoenoplectus californicus
Sparsley vegetated to non-vegetated
SW North American Salt Basin & High Marsh Group

Temperate Pacific Tidal Salt & Brackish Meadow GP
Urban/disturbed Mapping Unit
Water body
San Joaquin
Acacia (Cyclops) Semi-Natural Stands Alliance
Arid West Freshwater Emergent Marsh Group
Artemisia californica - Eriogonum fasciculatum Alliance
Artemisia californica Alliance
Baccharis pilularis Alliance
Bolboschoenus maritimus
Central & South Coastal Californian CSS Group
Coastal Baja Calif Norte maritime succulent scrub Gp
Encelia californica Alliance
Intertidal mudflat
Mediterranean CA Naturalized Annual and Perennial Grassland Group (Weedy)
Salix lasiolepis Alliance
Sambucus nigra Alliance
Sarcocornia pacifica (Sarcocornia depressa) Alliance
Schoenoplectus californicus
Spartina foliosa Alliance
Typha (angustifolia, domingensis, latifolia) Alliance
Urban/disturbed Mapping Unit
Shellmaker Island
Anthropogenic Areas of Little or No Vegetation
Artemisia californica - Eriogonum fasciculatum Alliance
Bolboschoenus maritimus
Central & South Coastal Californian CSS Group
Intertidal mudflat
Mediterranean CA Naturalized Annual and Perennial Grassland Group (Weedy)

Salt panne
Sarcocornia pacifica (Sarcocornia depressa) Alliance
Spartina foliosa Alliance
Temperate Pacific Tidal Salt & Brackish Meadow GP
Urban/disturbed Mapping Unit
Water body
Tern Island
Intertidal mudflat
Sparsley vegetated to non-vegetated
Spartina foliosa Alliance
Temperate Pacific Tidal Salt & Brackish Meadow GP
Water body
Tidal Flat
Anthropogenic Areas of Little or No Vegetation
Artemisia californica - Eriogonum fasciculatum Alliance
Artemisia californica Alliance
Bolboschoenus maritimus
California Annual and Perennial Grassland MG
Central & South Coastal Californian CSS Group
Distichlis spicata
Encelia californica Alliance
Intertidal mudflat
Introduced Trees, Shrubs (not in hierarchy)
Mediterranean CA Naturalized Annual and Perennial Grassland Group (Weedy)
Rhus integrifolia Alliance
Salix lasiolepis Alliance
Salt panne
Sarcocornia pacifica (Sarcocornia depressa) Alliance
Schoenoplectus californicus
Spartina foliosa Alliance

Streambed Mapping Unit
SW North American Salt Basin & High Marsh Group
Temperate and Boreal Freshwater Marsh Fm
Temperate Pacific Tidal Salt & Brackish Meadow GP
Typha (angustifolia, domingensis, latifolia) Alliance
Water body
Upper Island
Bolboschoenus maritimus
California Annual and Perennial Grassland MG
Central & South Coastal Californian CSS Group
Encelia californica Alliance
Intertidal mudflat
Salix lasiolepis Alliance
Salt panne
Sarcocornia pacifica (Sarcocornia depressa) Alliance
Schoenoplectus californicus
Spartina foliosa Alliance
Water body
West Bluff
Artemisia californica - Eriogonum fasciculatum Alliance
Artemisia californica Alliance
Baccharis pilularis Alliance
Bolboschoenus maritimus
Encelia californica Alliance
Intertidal mudflat
Isocoma menziesii Alliance
Meadow (Carex - Juncus - Eleocharis) Mapping Unit
Mediterranean CA Naturalized Annual and Perennial Grassland Group (Weedy)
Salix lasiolepis Alliance
Salt panne

Sarcocornia pacifica (Sarcocornia depressa) Alliance
Schoenoplectus californicus
Streambed Mapping Unit
SW North American Salt Basin & High Marsh Group
Temperate Pacific Tidal Salt & Brackish Meadow GP
Urban/disturbed Mapping Unit
Water body

Rare Plant Locations in the Newport Back Bay