

Weed Inventory of South San Francisco Bay, 2010

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In accordance with the South Bay Salt Pond Restoration Project and Don Edwards San Francisco Bay National Wildlife Refuge's Weed Management Plan, we conducted a weed inventory of the South San Francisco Bay during summer 2010. Our study area included Eden Landing Ecological Reserve and Don Edwards San Francisco Bay National Wildlife Refuge owned and managed lands, and was conceptually broken down into five Weed Management Areas for planning purposes (Figure 3). We mapped the distribution and abundance of the 27 most invasive weeds in the South San Francisco Bay; the selection of which we based on State, regional, local and Refuge informational sources (Figure 2). We also mapped any "suspicious" species, weeds on our own watch list, or plants on the Bay Area Early Detection Network's list, if we encountered them. We collected metadata for species, habitat type, phenology, area and density of weeds in upland, ecotone and upper marsh habitats (for complete protocol please contact Meg Marriott).

Figure 1. Weed point locations mapped during the 2010 Weed Inventory of South San Francisco Bay



Predicting that we would not complete the inventory in one season, we prioritized areas for mapping based on travel corridors (trails, roads, parking lots, etc.), and current and future restoration sites (Figure 3). In 2010, we were only able to map approximately half of the study area, and expect to complete the inventory in summer 2011. We mapped almost all priority sites within three management units, and collected over 4000 points and associated metadata. We are in the process of analyzing this data statistically and visually (Figure 4). This data serves as "close to pre-breach baseline" weed conditions for restoration sites, with which to track changes in future weed infestation parameters. This data is being used by Refuge staff to prioritize species, specific infestations, and locations for weed management, which will commence in March of 2011.

Invasive Plant Species for Mapping

- Perennial pepperweed (*Lepidium latifolium*)
- Stinkwort (*Dittrichia graveolens*)
- Pampasgrass/Jubatagrass (*Cortaderia sellanoa* and *Cortaderia jubata*)
- Thistles (Italian, Slenderflower, Milk, Bull, Purple starthistle)
- Poison hemlock (*Conium maculatum*)
- Yellow starthistle (*Centaurea solstitialis*)
- Iceplant spp. (a.k.a. Yellow sea fig or Hottentot fig and Pink sea fig) (*Carpobrotus edulis* and *Carpobrotus chilensis*)
- French broom (and all broom species) (*Genista monspessulana*)
- Slender leaved iceplant (*Mesembryanthemum nodiflorum*)
- Alkali Russian thistle (a.k.a. Glasswort, Opposite leaf Russian Thistle) (*Salsola soda*)
- Himalayan blackberry (*Rubus discolor/Rubus armeniacus*)
- Fennel (*Foeniculum vulgare*)
- Olive (*Olea europaea*)
- Australian saltbush (*Atriplex semibaccata*)
- Algerian sea lavender (*Limonium ramosissimum*)
- Black mustard (*Brassica nigra*)
- Wild radish (*Raphanus sativus*)
- New Zealand spinach (*Tetragonia tetragonioides*)
- Crimson fountain grass (*Pennisetum setaceum*)
- Malta Starthistle (a.k.a. Tocolote) (*Centaurea melitensis*)
- Myoporum (a.k.a. Ngaio tree) (*Myoporum laetum*)
- Acacia (*Acacia* spp.)
- Tasmanian blue gum (*Eucalyptus globules*)
- Spartina and hybrids (a.k.a. cordgrass) (*Spartina alterniflora*, *S. anglica*, *S. densiflora*, *S. patens*) * (Invasive Spartina Project mapping Spartina and hybrids)

Figure 2. Invasive Weed Species Mapped during Inventory 2010



Figure 3. Priority Areas for Mapping within Weed Management Areas



Figure 4. Close-up of Mayhews Landing (outlined in Figure 1, by a brown box) with Data Points Shown as Graduated Symbols. Symbols represent actual sizes of infestations (1, 2, 5, 10 or 50 meter diameters), and are assigned a color ramp scheme for percent cover class