



***Spartina* Control Progress in the San Francisco Estuary**

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What is invasive *Spartina*?

Spartina is a cordgrass that grows in salt marshes, mudflats and brackish channels

Four introduced species of *Spartina* invading San Francisco Bay



Spartina alterniflora
and hybrids



Spartina densiflora



Spartina anglica



Spartina patens



One native species (*Spartina foliosa*) occurs in San Francisco Bay marshes

Occupies specific niches in the marsh, balanced with the other important parts of the ecosystem (unvegetated mudflats, healthy channels, pickleweed mid-marsh, etc.)



Fremont Shoreline, Alameda County

Point Reyes National Seashore, Marin



The Invasive Spartina Project

Created in 2000 by the California Coastal Conservancy and the U.S. Fish and Wildlife Service to help coordinate Estuary-wide Spartina control efforts

Composed of Monitoring and Mapping as well as Control Programs

Funding from the Conservancy is directed to grantees spread around the Estuary

Grantees implement Spartina control plans produced with the ISP, and according to programmatic environmental permitting and documentation

Short-term goals at inception: identify scope, map, acquire permits, propose pilot project sites to test stakeholder involvement and funding mechanisms.

Longer term goals: implement an Estuary-wide Spartina control effort aimed at arresting the spread of, and eventually eradicating (eliminating) non-native Spartina from the San Francisco Estuary.



Bay Edge, North of Alameda Flood Control Channel Mouth, Fremont



Oro Loma Marsh, Hayward Regional Shoreline

2006 Treatment Season Goals

Utilize early season treatment windows

Refine treatment methods, and herbicide application techniques

Treat all non-native *Spartina* in the Estuary

Maintain and enhance partnerships

Streamline paperwork burden for grantees

Maintain consistent reporting protocols

Maximize Site-Specific oversight of control work



Ground/Water Based Treatments

Truck Mounted

Backpack

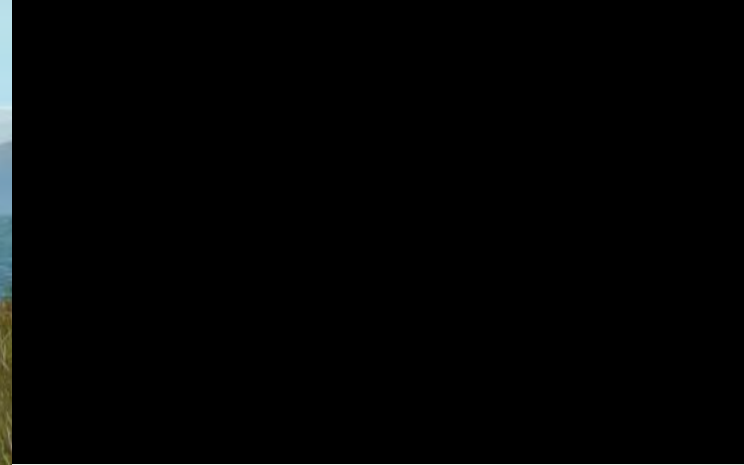
Airboat

Hovercraft

Outboards

Tracked amphibious vehicles

Digging (Corte Madera Creek)



**MarshMog Tracked
Amphibious Vehicle at
Elsie Roemer Bird Sanctuary,
Alameda**





Helicopter Boom Applications

July 17, 24 & 25, 2006

August 9-11, 2006

Over 1,350 acres Bay-wide





Seal Slough, City of San Mateo



Arrowhead Marsh, San Leandro Bay

Spray Ball Directed Aerial Application Trials, Don Edwards NWR





Spray Ball Applications

Isolated, extremely difficult to reach clones

Remnant patches within previously treated marshes

Early season aerial treatments without boom











Don Edwards SF Bay NWR

2006 Preliminary Treatment Summary

107 of 135 sites treated

Roughly 94% of Bay-wide acreage

Pre-September 1 treatments represent majority of acres treated

Over 1,350 acres treated aerially

Over 400 acres treated on ground/water

Early season treatments showing very high efficacy (60-95%)

Chemical costs will exceed \$500k

Labor costs will exceed \$200k





Arrowhead Marsh, San Leandro Bay



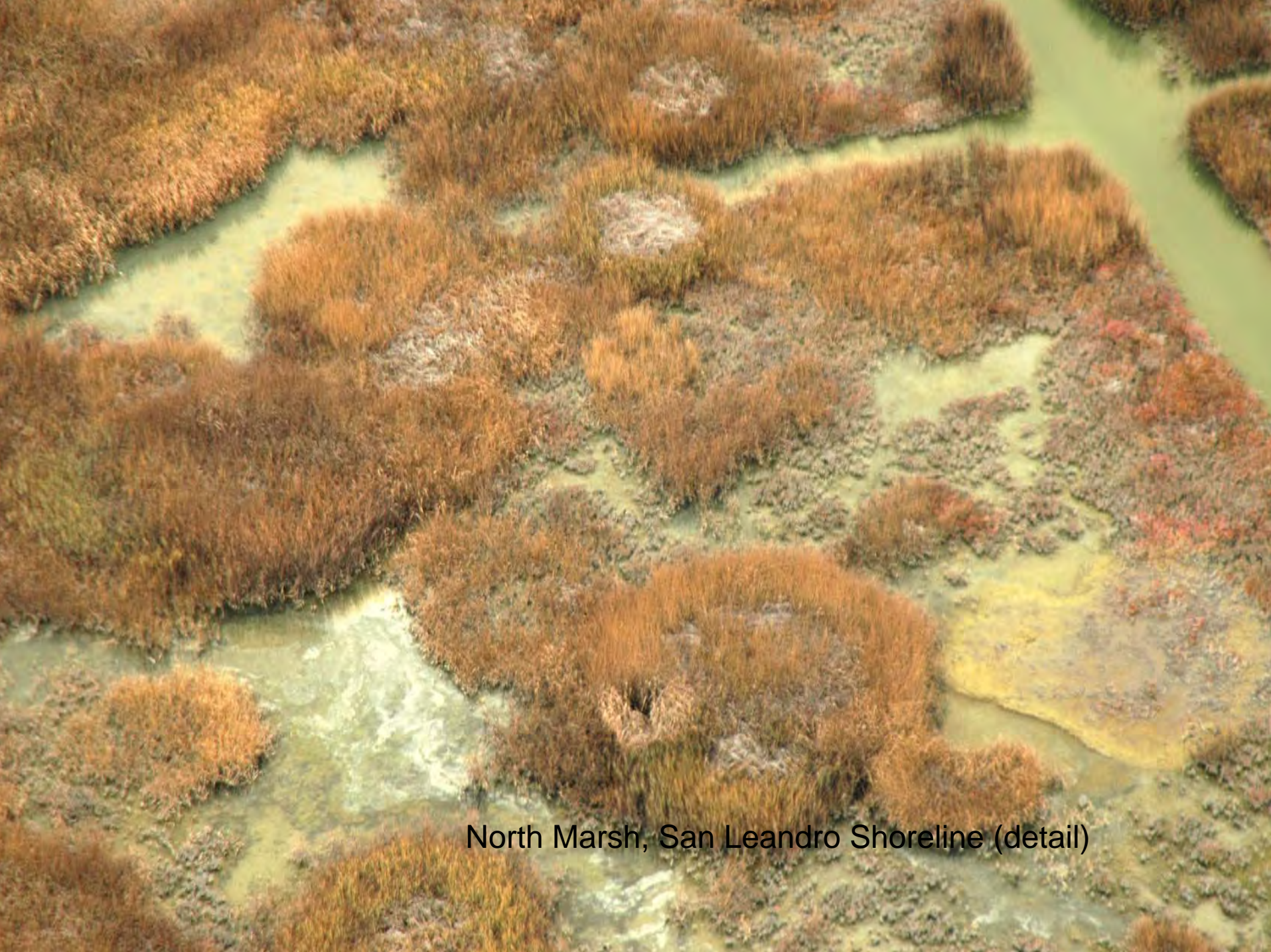
Robert's Landing, San Leandro Shoreline

Elsie Roemer Bird Sanctuary, Alameda





North Marsh, San Leandro Shoreline



North Marsh, San Leandro Shoreline (detail)



Cogswell Marsh, Hayward Regional Shoreline



Cargill Mitigation Marsh, Union City



Cargill Mitigation Marsh,
Union City (detail)

2007 Treatment Season

Aim for treatment of all non-native *Spartina* sites in the Estuary

Follow-up treatments on all sites

Refine all treatment methods

Explore revegetation techniques in treated marshes

Develop 'hand-off' protocols for post-ISP *Spartina* maintenance

Develop Site-Specific Control Plans for 2008-2011

THANK YOU

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and

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