

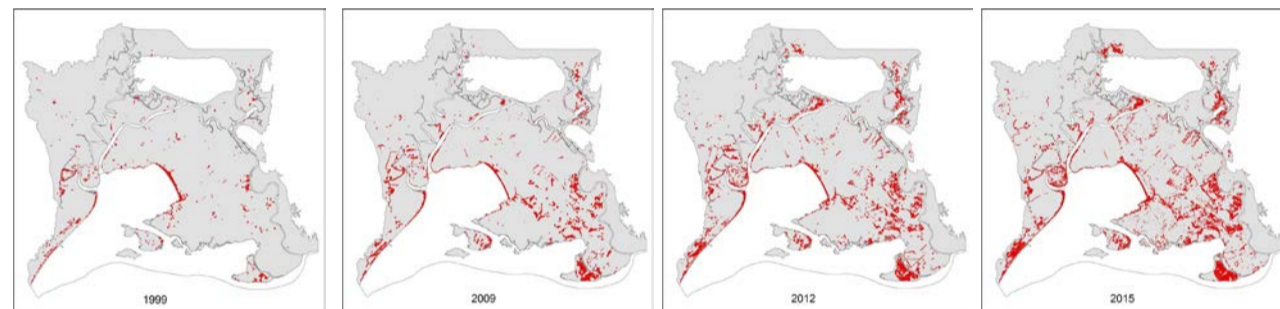
PROACTIVE PLANTING TO PRECLUDE PERSISTENT PEST PLANTS



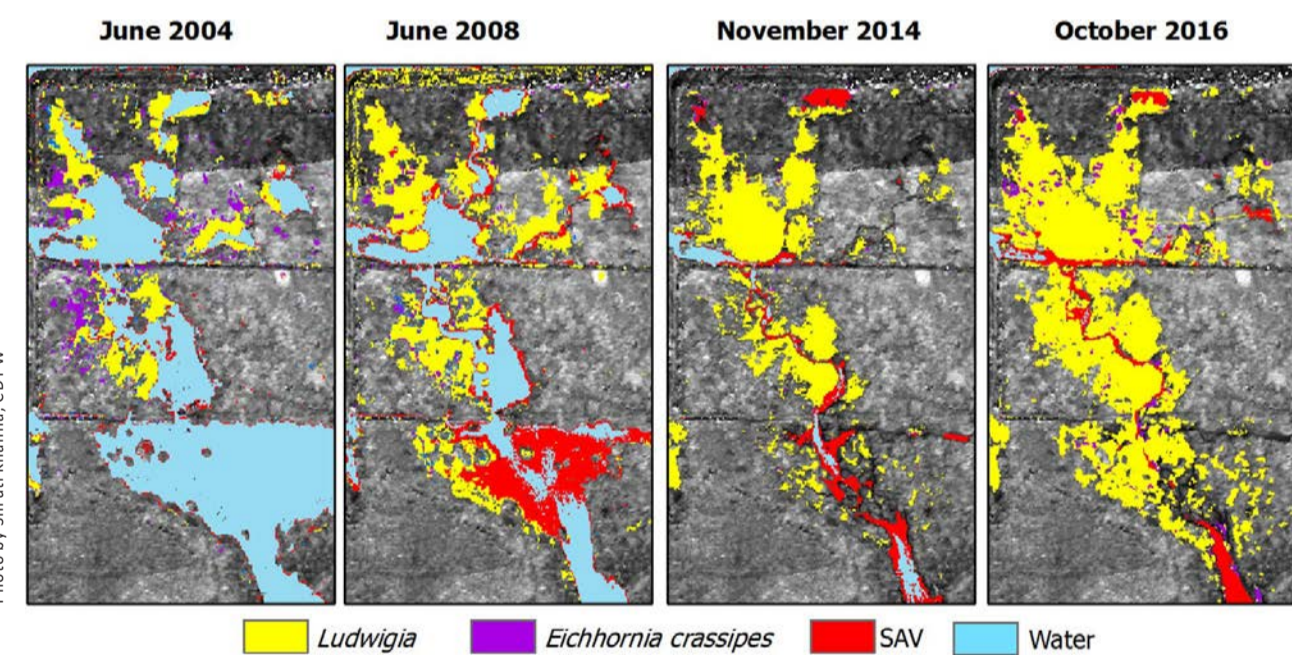
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Introduction

Dominant invasive plant establishment is a major stressor on tidal wetlands and may result in significant changes to native plant community structure and the potential decline of other organisms in these habitats. Typically, habitat restoration projects include initial invasive plant removal and rely on passive revegetation to facilitate native species recovery. Studies looking at active revegetation techniques to manage aquatic or semiaquatic invaders in the San Francisco Bay estuary are scarce. **Our hypothesis is using active revegetation with native plant species can effectively inhibit invasive plant species establishment.**



Phragmites australis temporal distribution throughout Suisun Marsh

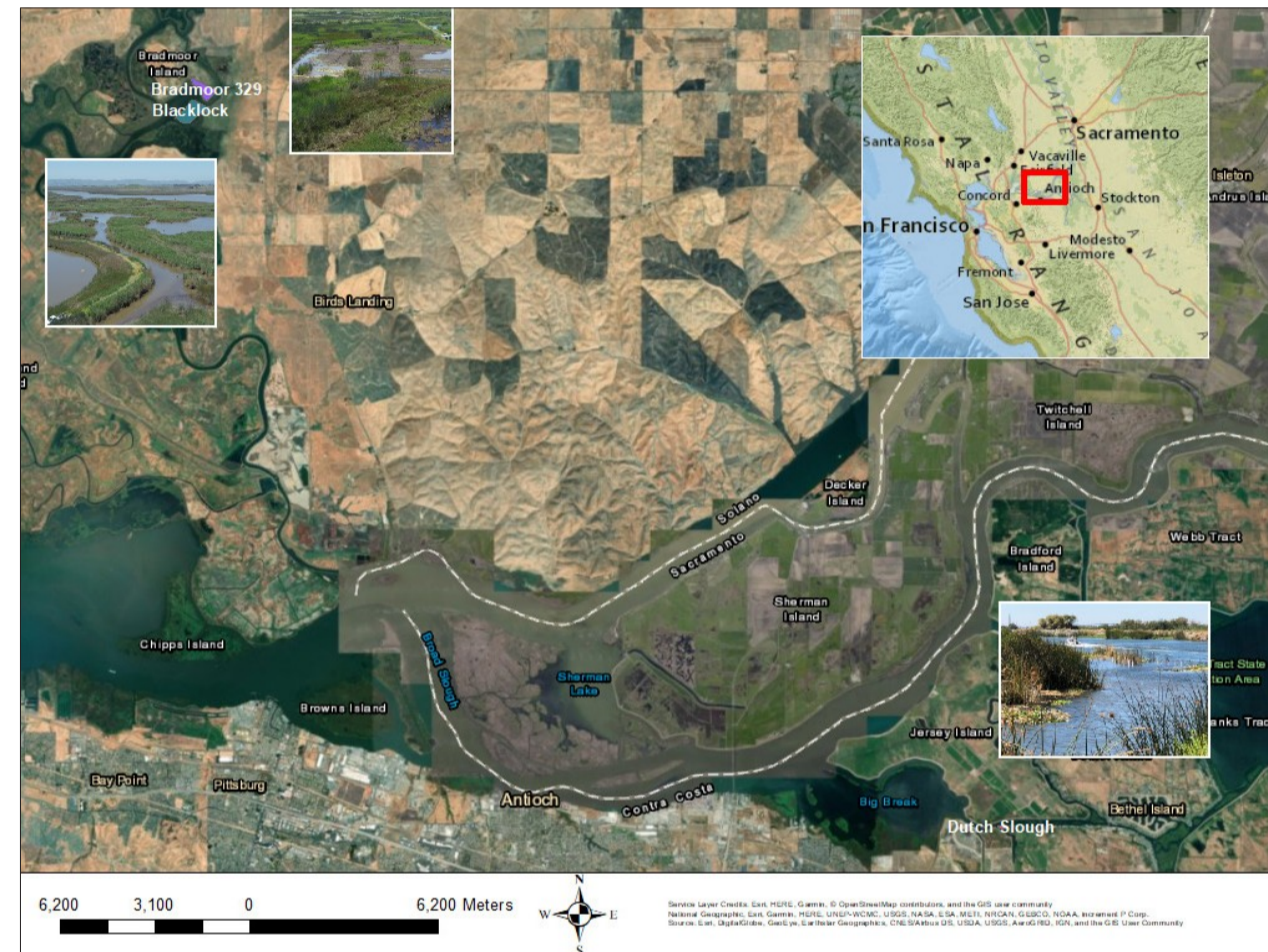


Ludwigia spp. temporal distribution throughout the Delta.

Invasive plant species can:

- » Decrease native plant biodiversity
- » Reduce habitat quality for wildlife
- » Disrupt biogeochemical cycles and other ecosystem functions and services
- » Causes increases in management costs

Methods



Overview map of the study sites: Bradmoor Island and Dutch Slough is a tidal wetland in the Delta.

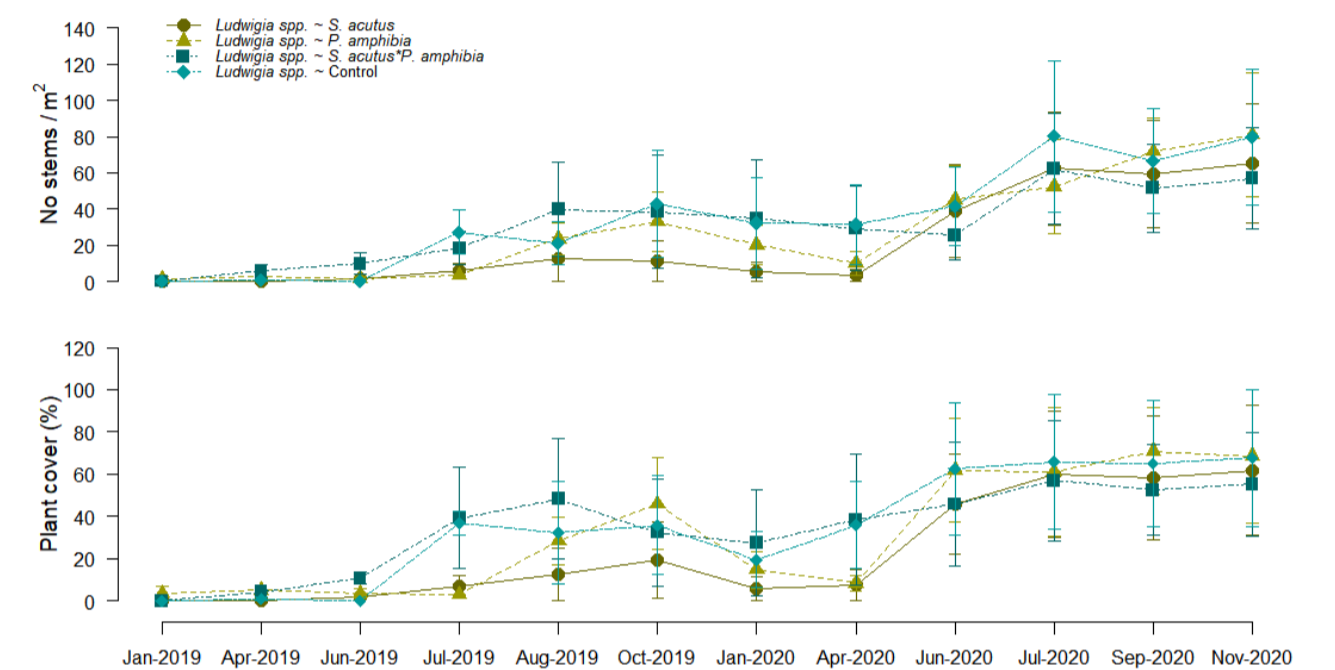
For Dutch Slough we used adult plants whereas for Bradmoor we used three plant stages: seeds, rhizomes and adults. Existing plants were mechanically removed and native species were planted in 4x4m treatments using randomized block design (3 replicates) and split plot block design (4 replicates) respectively.

Monitoring is conducted in two 1x1m quadrats within each 4x4m treatment. Data collected includes:

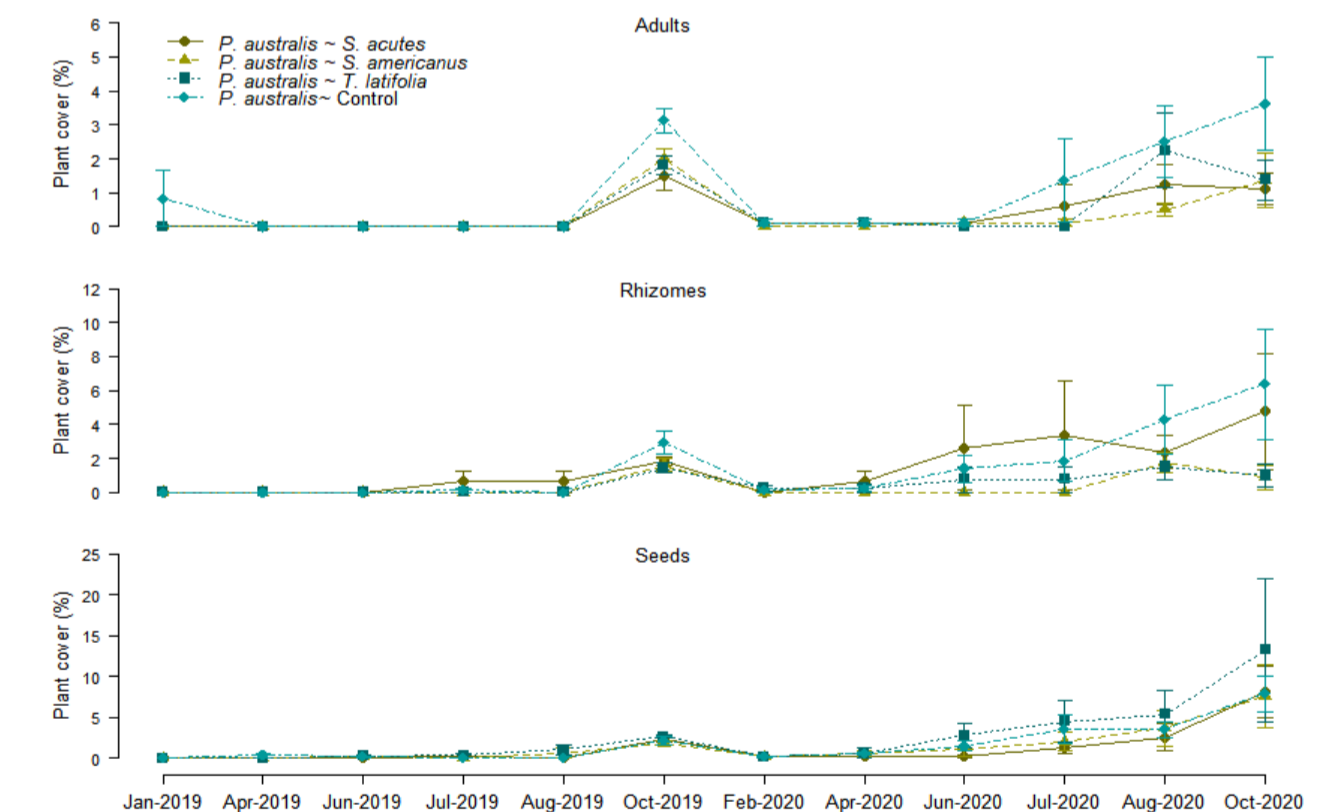
- » Species richness
- » Species abundance
- » Percent cover
- » Soil core samples
- » Sediment characteristics



Results and Discussion



Abundance and plant cover of the invasive *Ludwigia* spp. over time at Dutch Slough. Points represent the average (\pm standard error) of growth parameters among revegetation treatments.



Plant cover of the invasive *P. australis* over time at Bradmoor Island. Points represent the average value (\pm standard error) of plant cover among revegetation treatments.

The project aims to provide restoration strategies that inhibit invasion of vulnerable tidal wetlands. These methods could be implemented by DWR in the planning of restoration projects and may spread to other agencies as well. Email Gina.Darin@water.ca.gov for the associated Wetland Management Recommendations document.