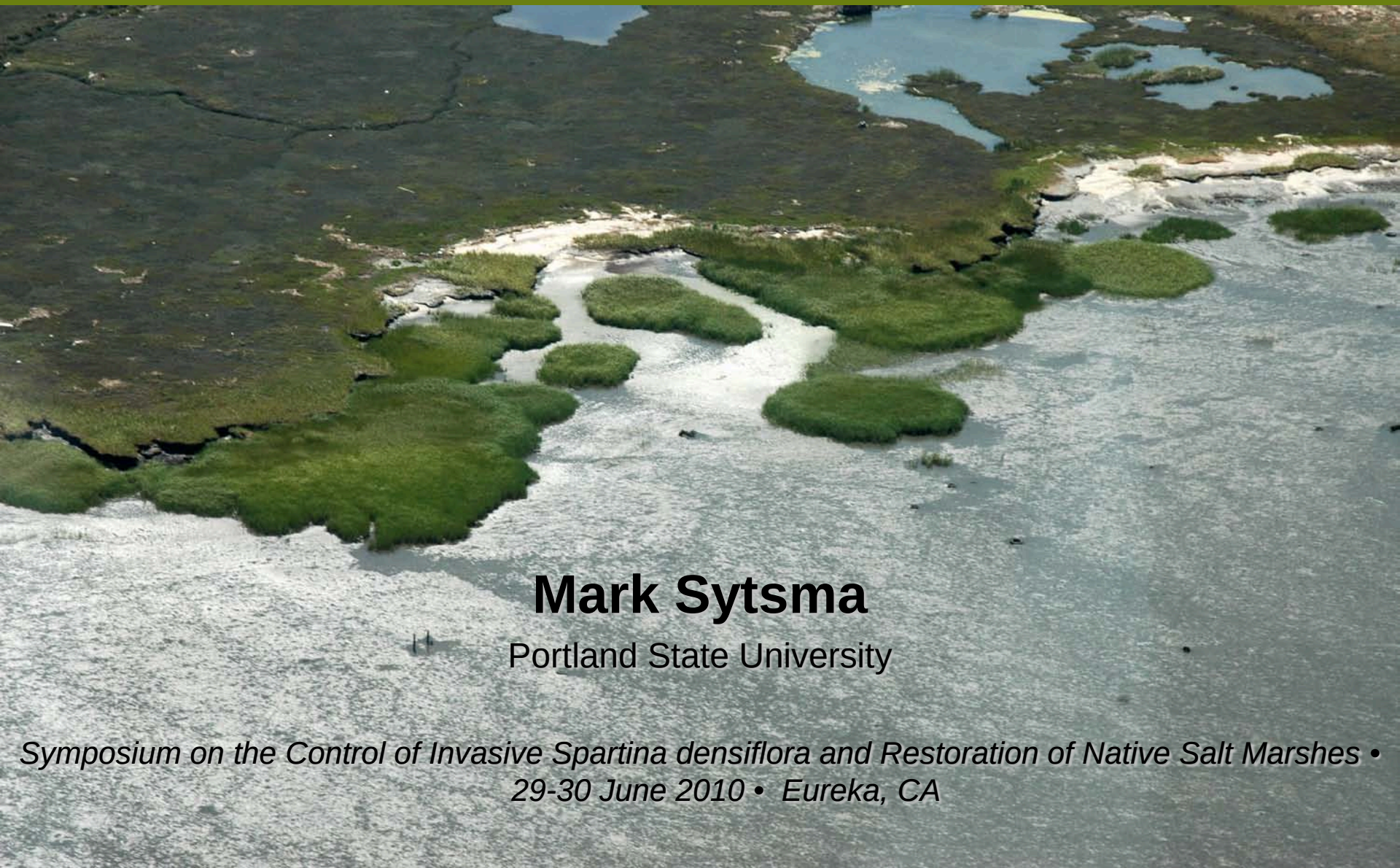
Spartina Early Detection in Oregon

Rapid Response and Management



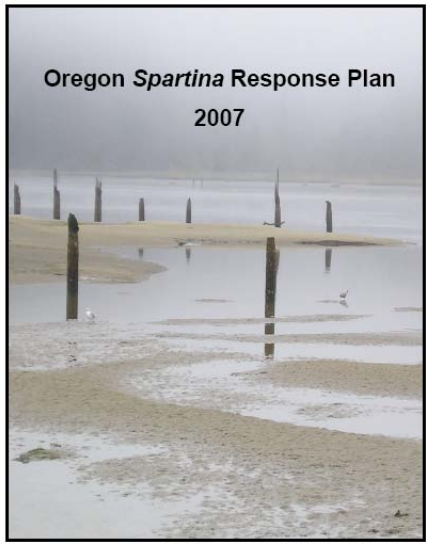
Mark Sytsma

Portland State University

Symposium on the Control of Invasive Spartina densiflora and Restoration of Native Salt Marshes • 29-30 June 2010 • Eureka, CA

Oregon Spartina Response Plan

- Outlines biology & ecological effects
- Historical & current information on west coast populations
- Outlines strategies to prevent, detect, identify & eradicate
- Emphasis on
  - early detection and rapid response
  - education & outreach
- First written in 2003; revised 2007



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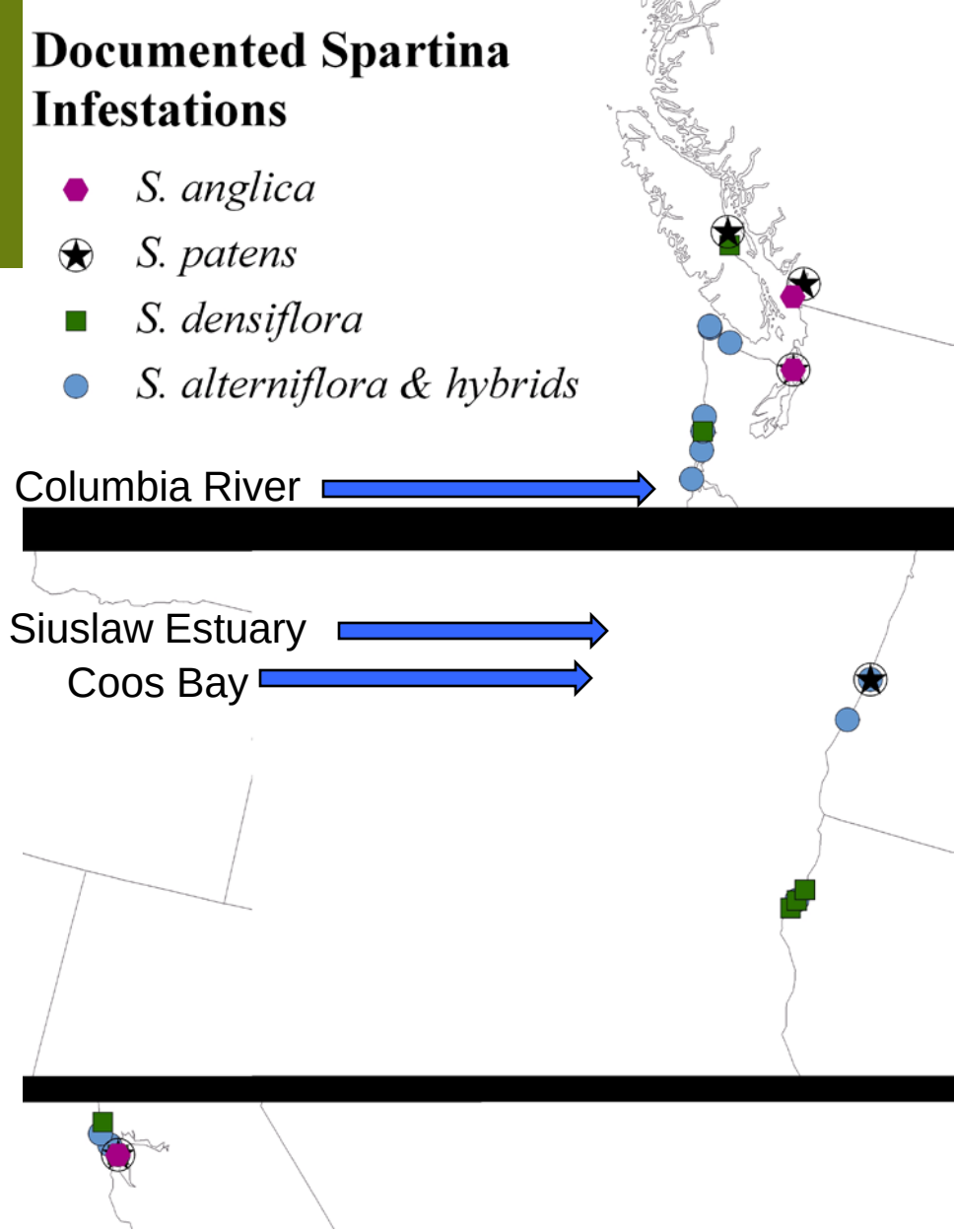
Active surveillance

- **Searchers whose assigned duty is the detection of *Spartina* to the exclusion of any collateral assignment**
- **Boat, aerial (+ follow-up), ground**
- **Critical component to have dedicated, experienced staff**

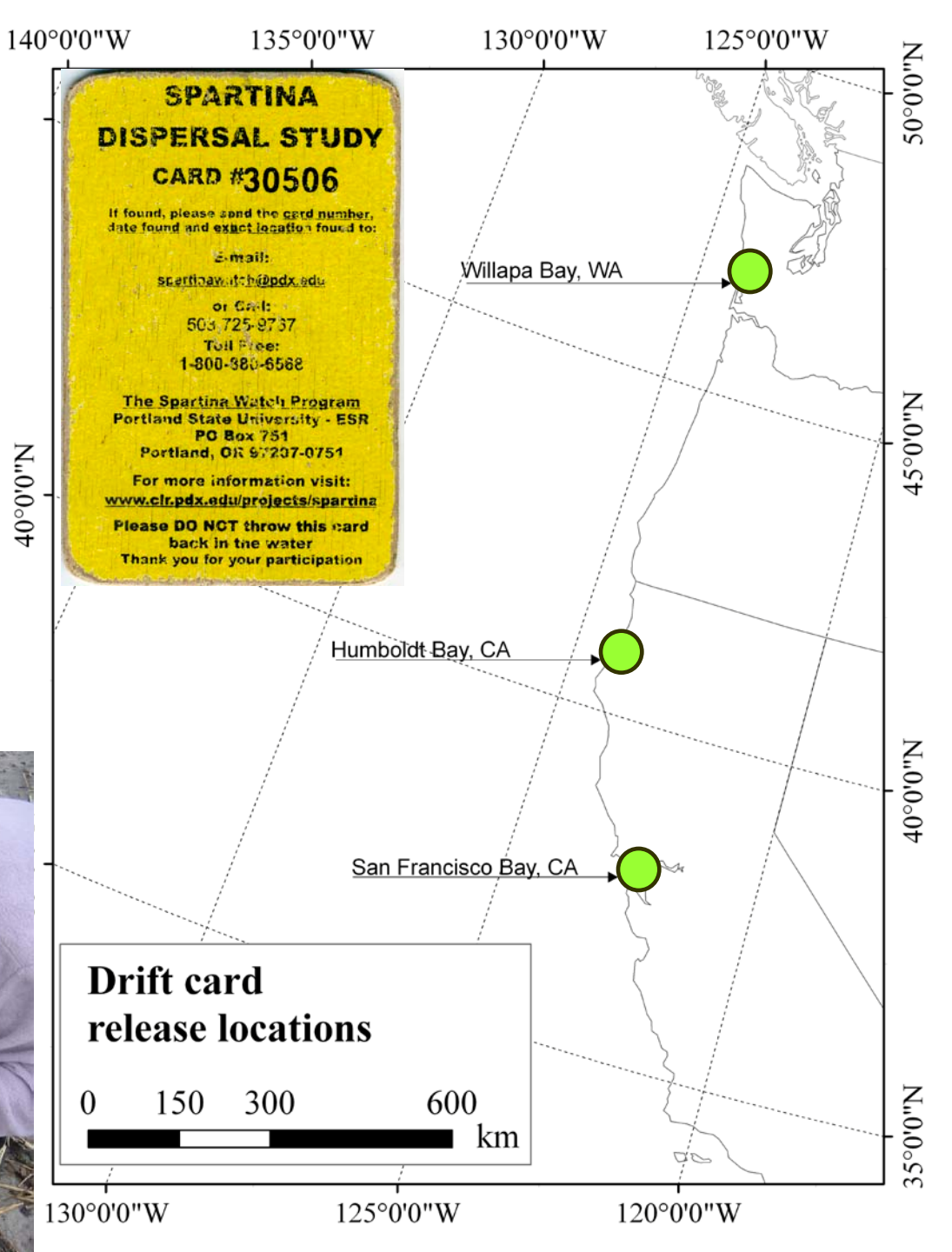
Known Infestations

Comox Harbor, BC
Fanny Bay, BC
Boundary Bay, BC
Puget Sound, WA
Gray's Harbor, WA
Willapa Bay, WA
Siuslaw River, OR
Coos Bay, OR
Humboldt Bay, CA
San Francisco Bay, CA

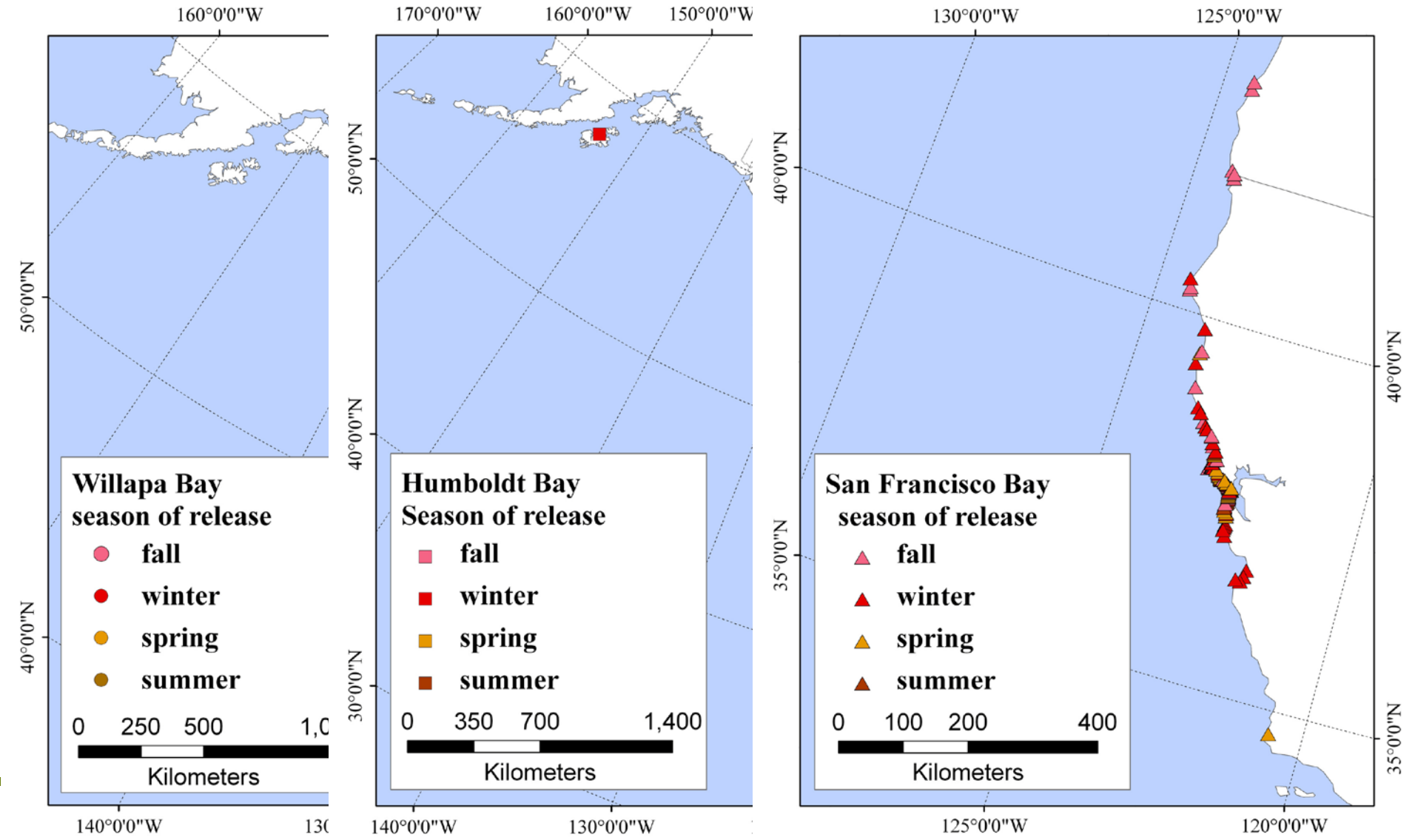


Dispersal study

- buoyant biodegradable drift cards
- monthly releases 2004-2005 (Bill Pinnix, USFW)
- voluntary reporting by variety of beach-goers



Drift card recovery locations (by bay and season of release)

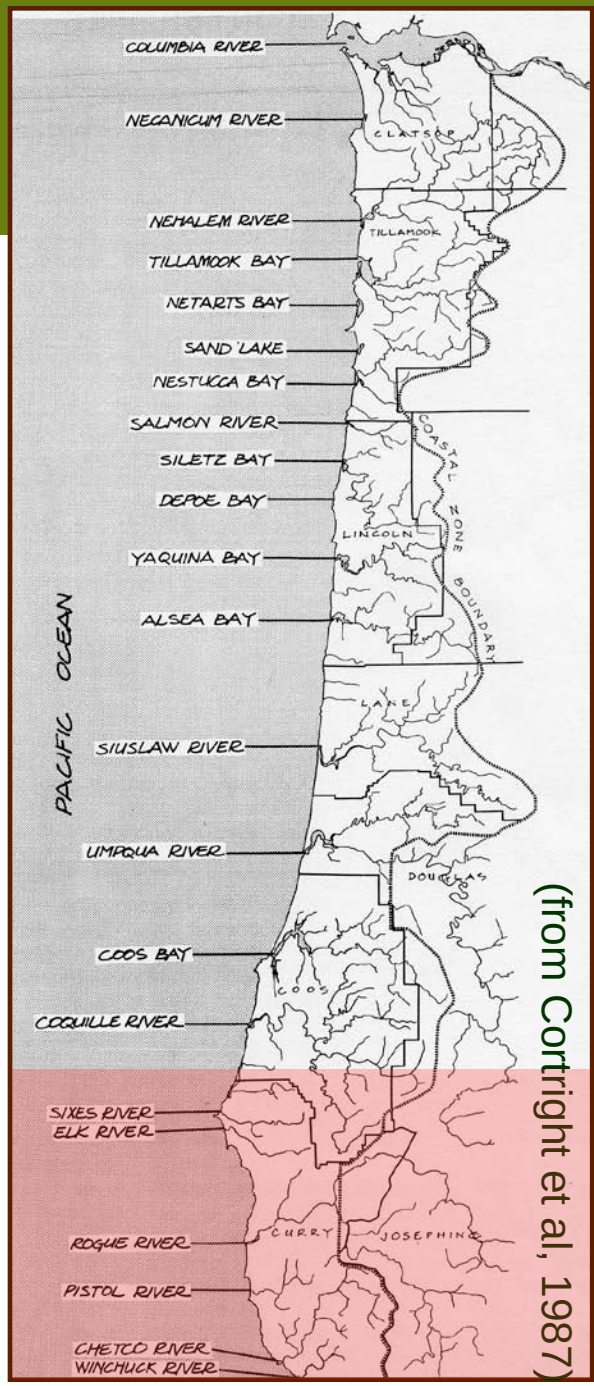


Priority Areas

- Coquille River to Columbia River
- Physical characteristics
  - low gradient
  - wave-protected
  - open substrate
    - intertidal flats and aquatic beds
    - disturbed areas in existing marsh

High Risk

Low Risk



(from Cortright et al, 1987)

S. densiflora in BC

- Reports of *S. densiflora* growing on open coast and on a variety of substrates suggests a wide distribution on the West Coast is possible

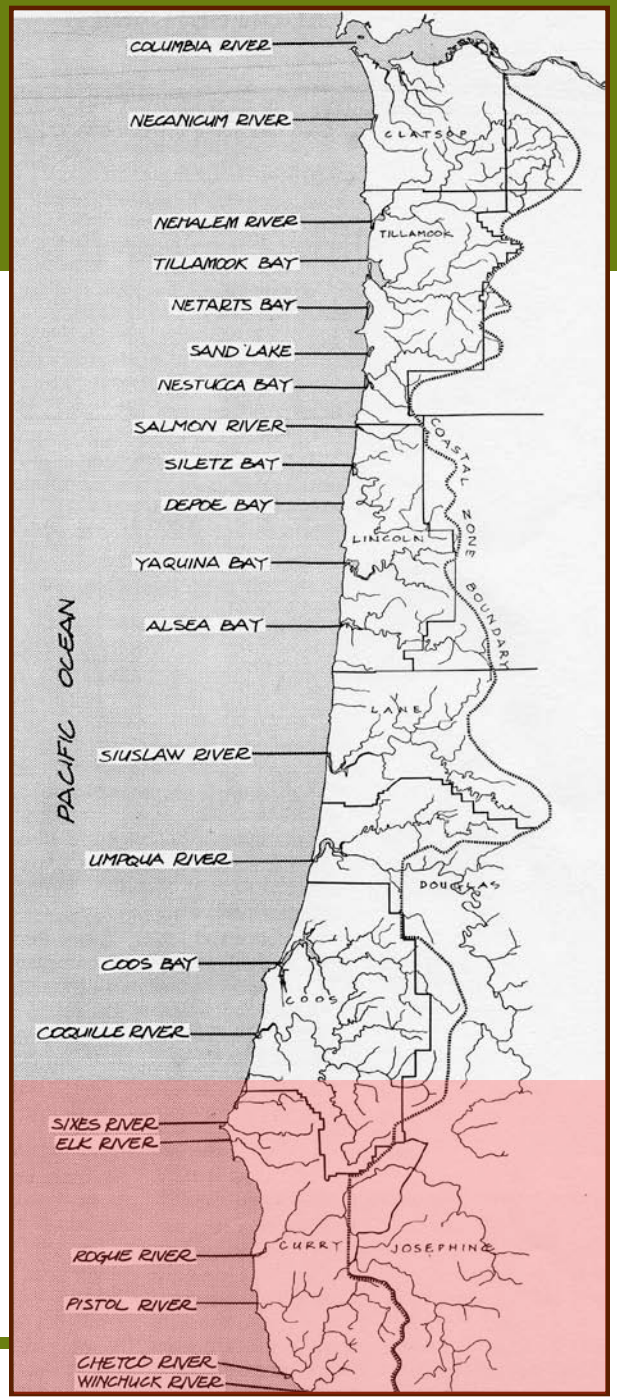
Oregon Survey Cycle

Year 2: ground/boat surveys

Year 3: aerial surveys

Year 1: ground/boat surveys

Winter densiflora surveys



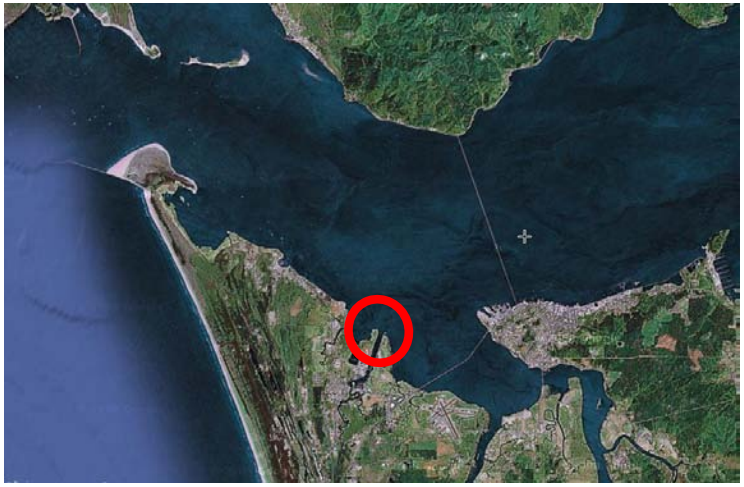
(from Cortright et al, 1987)

Oregon Early Detection

Late summer survey of Columbia R. Estuary

Field verification on September 19th, 2008

Single clone of *S. alterniflora* (75 m^2)



Oregon Rapid Response

- Treated following week
  - Seed heads trimmed
  - 6 pints imazapyr
  - 2 gallons of aquatic glyphosate
  - 1 gallon of Competitor as a surfactant
  - Colorant
  - 100 gallons per acre

Three weeks post-treatment

Good efficacy with late season spray
A few remaining plants were retreated in 2009

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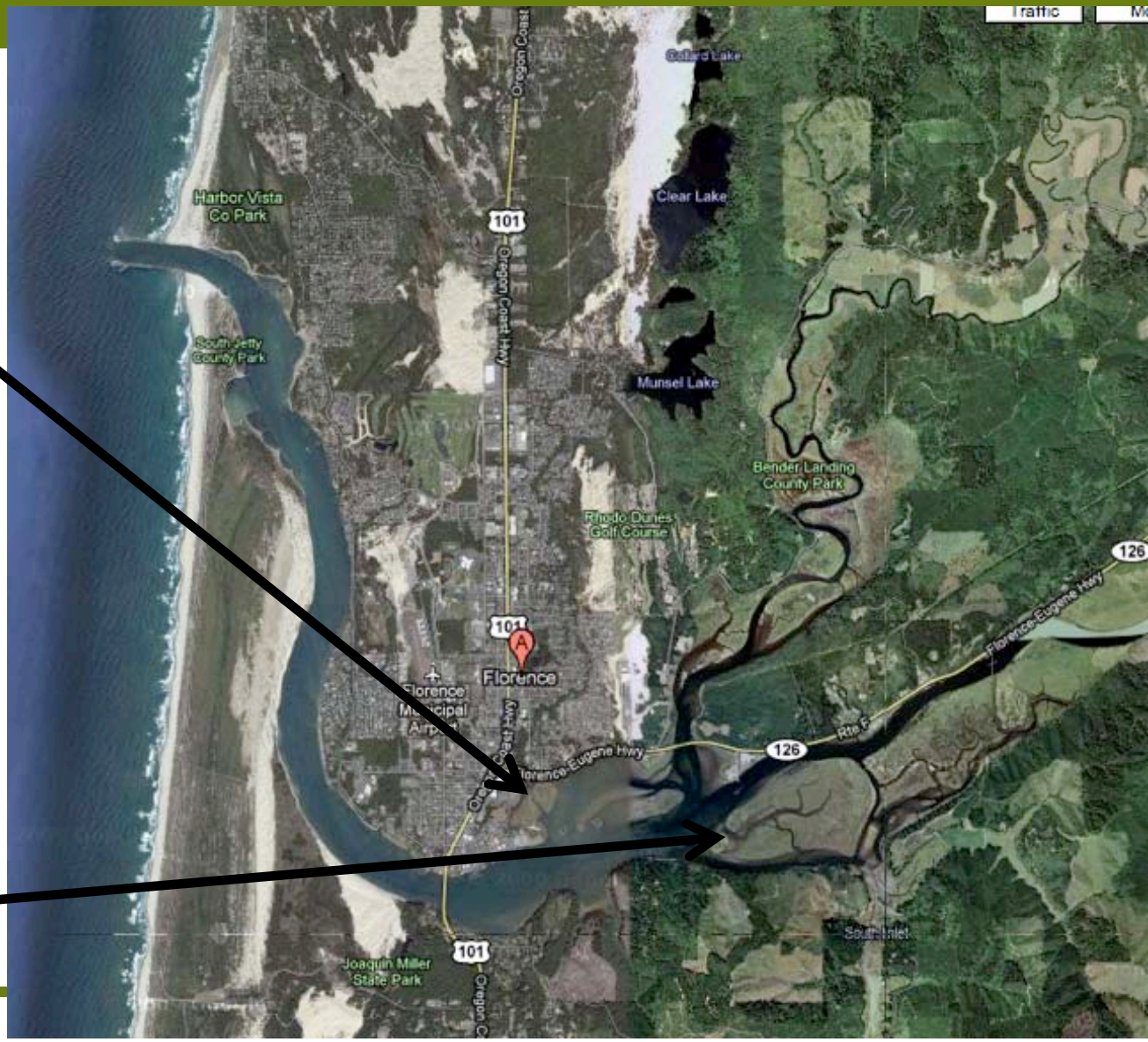
Siuslaw Estuary

“Old Port Site”
S. alterniflora

Cox Island Site
S. patens



Old Port of Siuslaw Site History & Characteristics

- Previous infestation:
  - Originally intentionally introduced into two test plots during the 1970's. Grew to ~ one acre by early 1990's
  - Noted as never producing inflorescences & "growing like corn"
  - Last control work completed in 1994
- 2005 find seems to have been regrowth (same morphology & location) possibly following disturbance
  - Individual plant
  - Sandy substrate and sharp gradient

Rapid Response

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Coos Bay *S. alterniflora*

- Discovered by us during ground survey
- Misidentified by local herbarium
- Was being treated as invasive Phragmites by South Slough NERRS staff

Coos Bay Site History & Characteristics

- ODOT mitigation site, monitored 1994 – 1998
- Freshwater pond
- Suspicious plants noted in 1995
- No inflorescences produced, tall thick culms

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Cox Island S. patens

Covering Cox Island, Siuslaw Estuary, OR

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S. patens Prior to Covering

Debbie Pickering, TNC

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Cover After Two Years

Debbie Pickering, TNC

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Immediately After Cover Removal

Debbie Pickering, TNC

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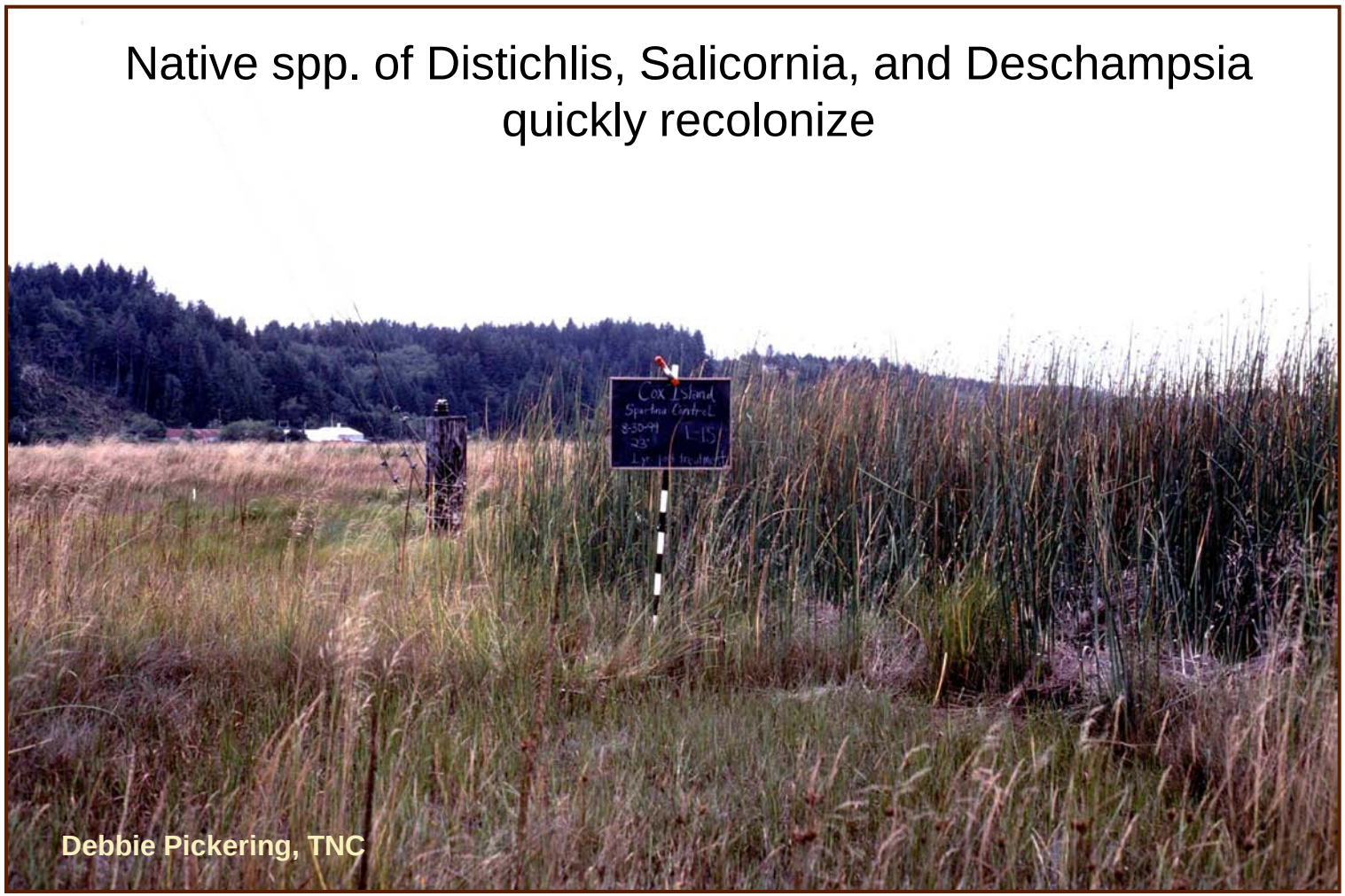
One Year After Cover Removal

Native spp. of Distichlis, Salicornia, and Deschampsia quickly recolonize



Debbie Pickering, TNC

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S. patens in Oregon

- 2009 survey of Siuslaw Estuary

	Cox Island	Other Marsh Habitat	Total
Area surveyed (acres)	74.7	59.2	133.9
# clones found	126	2	128
Average clone size (m^2)	0.71	2.4	0.73
Net infestation (m^2)	88.9	4.8	93.7
Survey time (hrs)	107	43	150

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Critical components

- Clearly identified lead agency (ODA)
- Investing in regular surveys
  - high priority areas
  - active surveillance
  - variety of methods based on area and available resources
- Recognizing differences in each species
  - likely habitat
  - survey technique
- Education & outreach (1-866-INVADER) - using passive surveillance to augment active searches
- Tools (shovel? Herbicide?)
- Realistic timeframe for eradication

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Further Information

www.clr.pdx.edu/publications

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