

Oregon *Spartina* Summary (as of July 25, 2005)

Two novel populations of invasive *Spartina* were recently discovered during routine early detection surveys in the Coos Bay and Siuslaw River estuaries. Prior to last month, the only known infestation within the state was that of *S. patens* – at the Nature Conservancy’s Cox Island Preserve on the Siuslaw River estuary. At these new locations, no fresh or remnant inflorescences were present at either site and morphological characteristics of the vegetative portions did not lead to a conclusive species identification. Samples from both sites were sent to UC Davis for genetic tests and the results confirm that both populations are *S. alterniflora*.

The Oregon State Weed Board has listed all four invasive *Spartina* species as priority noxious weeds (“T”-designated). The Oregon Department of Agriculture (ODA) Noxious Weed Control Program is the lead agency dealing with weeds that pose an economic and/or ecological threat. At ODA’s request, Portland State University’s Center for Lakes & Reservoirs (PSU – CLR) wrote the Oregon *Spartina* Response Plan (Pfauth *et al* 2003). This statewide plan provides a summary of the biology and history of west coast *Spartina* populations and outlines the process to follow when infestations are found.

On July 14th, a meeting was held in Charleston to discuss the Coos Bay site. Present at the meeting were: Ken French (ODA); Vanessa Howard (PSU – CLR); Sally Hacker (Oregon State University) and Mike Graybill, Steve Rumrill, Craig Cornu, Sue Powell and John Bragg of South Slough National Estuarine Research Reserve (NERR). Much of the site history and priorities identified herein arose from that meeting, as well as in discussions with other involved individuals at both locations.

The purpose of this summary is to:

- Coalesce the current knowledge about these two sites
- Address the possible links between the two sites
- Identify near and long term survey priorities and control strategies
- Outline opportunities arising from these recent findings

1. Infestation locations

Barview Site

▪ History: This population is located on an ODOT compensatory mitigation site, just to the east of the Charleston marina. The coordinates are: N 43.34401 W 124.31633 (WGS 1984). The area is a former dredge disposal site for material removed from navigation channels of Coos Bay during the 1960’s and 1970’s. The property was originally owned by the State Department of Parks and acquired by ODOT for mitigation purposes. The ODOT mitigation project involved grading the site down to tidal elevations with the goal of creating a salt marsh habitat. Because the dredge spoils consisted exclusively of sand, topsoil was brought in and spread over the site. The topsoil originated at the Catching Slough Bridge in the East Coos Bay area. Sandy sediments accreted in the

bayside portion of the marsh, which limited surface water outflow from the eastern portion. This resulted in the formation of a small pond (approximately 45 x 75 meters) on the east side of the site which is fresh water dominated except at extreme high tide or storm events, when high salinity water from the adjacent bay inundates the area. *Typha* and *Salix* edge the pond on the north and eastern margins, indicating the pond is largely freshwater-influenced. There are no surface water inlets to the pond, so inflow is probably groundwater dominated.

The most recent mitigation work was completed in 1993. No plugs or seed was introduced to the site at the time of this mitigation work; rather seed recruitment was anticipated from surrounding marshes. A few years later, ODOT secured funds to transplant plugs of native plant material (*Carex lyngbyei* and *Scirpus maritimus*) to the site. ODOT created a five-year monitoring program in conjunction with South Slough staff. Both Craig Cornu and Lucinda Tier carried out monitoring of vegetation and topography during the period of 1994-1998.

In reviewing photos from the monitoring of the Barview site, Cornu believes plants were first visible in 1995. In 1996, there were two distinct patches that reached heights of approximately two meters. Since the plants were spreading aggressively, Cornu sent samples to OSU for identification. The plant was tentatively identified as *Phragmites australis*. In 1998, under Cornu's supervision, a crew from the Oregon Youth Conservation Corps (OYCC) dug both patches out by hand, disposing the material high on the banks around the pond. The patches measured approximately 10 meters across at the time of this initial control effort. Remaining rhizomes grew back in the following years. In 2003, another OYCC crew worked for six days to remove the re-growth. Another one and a half days of digging removed the remnant plants in 2004.

- Current Infestation: As of July 14th, the net area infested is approximately 26 m², within a gross area of 0.40 acres. Plant height averages 1.2 m and stem density is approximately 101 culms per square meter. Many of the taller culms have very large diameters, with some nearing 3 cm at the base. Stem coloration ranges from green to purple. There are approximately 58 distinct clones.

Port of Siuslaw Site

- History: This population is located to the eastern side of the city of Florence, near the Port of Siuslaw marina (N 43.96941 and W 124.09686). It seems that the property is adjacent to Port of Siuslaw property, but is actually owned by a Mr. Don Saxon of Florence, Oregon.

In the 1970's, Wilbur Ternyik, a Florence-based wetlands consultant, transplanted *S. alterniflora* from a Georgian salt marsh into two test plots at the Port of Siuslaw property. This was prior to *Spartina* being identified widely as problem species. As knowledge of the potential problems associated with this species grew, ODA emphasized the need to control the plant before it spread to other areas. At the time that control efforts were initiated in the early 1990's, the

total acreage was approximately one acre. A combination of chemical treatment and manual digging efforts were completed in 1994. Subsequent monitoring for the following three years detected no re-growth and the population was declared eradicated in 1997.

Additional surveys of this area were completed nearly every year and no re-growth was detected until this 2005. In speaking with Ternyik and ODA staff that participated in the control efforts at this site, this *S. alterniflora* population grew vigorously, had wide culm diameters, and never produced inflorescences.

- **Current Infestation:** There is currently only one clone present at this site, consisting of five culms with a maximum height of just over one meter. The clone is surrounded by dense marsh vegetation (*Deschampsia cespitosa*, *Grindelia integrifolia*, and *Distichlis spicata*) in an area with a sandy substrate.

2. Potential Vectors

Barview: The most likely transport mechanism to this site seems to be unintentional transplantation with native plant plugs sourced at the Port of Siuslaw site. Ternyik recalls recommending plant materials and specifications for the Barview site and that the plant material was dug from the Port of Siuslaw site by one of his former employees, a Mr. John Evanow.

Details of the harvest and transplantation of native plant material from the Port of Siuslaw site are unclear at this time. However, it seems to have taken place towards the end of the eradication efforts at the Port of Siuslaw site (around 1994). Viable rhizomes of *S. alterniflora* probably remained in the soil without apparent aboveground growth.

Port of Siuslaw: This single clone is likely re-growth and not a new introduction since it is in the same location and has the same vegetative characteristics as the previous infestation.

Other potential vectors are discussed at length in the *Spartina* Response Plan.

3. Survey Priorities and Control Strategies

Barview: Areas immediately adjacent to this site have been surveyed and no additional *Spartina* has been detected. However, there is ample acreage susceptible to invasion in the numerous sloughs and inlets around the Coos Bay estuary. Based on the current information, priority areas should focus on mitigation and dredge material sites, as well as other areas with disturbances such as dike breaches. Targeted surveys of high priority areas will be taking place in early August with collaborative efforts between ODA, the Center for Lakes and Reservoirs at PSU and the South Slough NERR.

With permission from ODA, PSU plans to remove plants for greenhouse propagation and possible future study. Under Craig Cornu's supervision, the OYCC crew will dig out all remaining plants in mid to late August of this year. Removal of any re-growth will occur on an annual basis.

Port of Siuslaw: The marsh immediately adjacent to this site has been surveyed extensively by ground and no additional plants have been located. Additional ground and boat surveys of the marshes on the south side of the river and in the south inlet were performed on July 19, 2005. Searches in this estuary also emphasize searching for *S. patens*, due to the proximity of the Cox Island infestation that is currently under management by the Oregon Nature Conservancy.

Manual removal at this site will be fairly simple since it is only one clone in an easily accessible area. The property owner has requested to meet on-site before we take any action, but did not seem opposed to control measures.

4. Opportunities for improved detection and education/outreach

Unintentional translocation from previously infested sites is a vector that should be considered in future risk assessments and early detection efforts. It appears that the Port of Siuslaw site harbored viable rhizomes for over ten years after the last control efforts. Therefore, the viability of *S. alterniflora* rhizome material should not be underestimated and long-term monitoring of all previously infested sites (for a minimum of ten years) should be explicitly addressed in any control program.

Large populations of *Spartina* remain in Washington and California, creating yearly seed banks that are likely to lead to another Oregon infestation. Early detection efforts will be aided by having more people in the field informed and familiar with what *Spartina*'s appearance and susceptible habitat. We would therefore like to utilize the Barview infestation as an opportunity to give first-hand identification skills to land managers, consultants, researchers and private property owners. We are planning on having a training session to address detection of the four invasive *Spartina* species as well as a field trip to the Barview site. This training session is tentatively planned for August 5th, 2005.

Note:

- ❖ This summary and photographs of both sites are available at: <http://web.pdx.edu/~vhoward/spartina/>.
- ❖ People interested in the training session should contact Vanessa Howard (email: vhoward@pdx.edu; phone: (503) 725-9076) for details.

References

Pfauth, M., M. Sytsma and D. Isaacson (2003). Oregon *Spartina* Response Plan. Portland State University, Portland, Oregon (<http://www.clr.pdx.edu/publications/files/SpartinaPlan5-8.pdf>)