

Port Orford Cedar Technical Team Meeting

May 17-18, 2011, South Slough National Estuarine Research Reserve Interpretive Center

Training needs assessment – introduction

On May 17-18, 2011, South Slough National Estuarine Research Reserve (SSNERR) hosted a meeting of Oregon's Port Orford cedar technical advisory team to discuss aspects of South Slough's forest management plan that relate to management of Port Orford cedar and an associated infectious agent, *Phytophthora lateralis*, an invasive pathogen responsible for high mortality among Port Orford cedars (POC).

Briefly, South Slough NERR proposes to identify individual cedars or populations of cedar growing on the reserve which exhibit resistance to the pathogen. Staff is working with the advisory team, which includes Forest Service, Bureau of Land Management and private timber management firms, academics, research stations and others, to conduct a series of tests using strains of POC that have shown some resistance to the infection and growing them in isolated plots in the South Slough watershed.

Coastal training staff participated in the meeting to evaluate options for managing POC in alignment with the Reserve's forest plan with the following objectives:

- 1) Introduce the NERRS Coastal Training Program to members of the technical team,
- 2) Identify gaps in knowledge, audiences, or previously-unconsidered factors that need to be addressed in SSNERR's implementation of the forest management plan, and
- 3) Recommend audiences, outreach objectives and training strategies, as appropriate, related to the lessons to be learned through managing Port Orford cedar and *P. lateralis* within the reserve.

Port Orford cedar is one of several species forming a unique forest assemblage that includes Sitka spruce, western hemlock, Douglas fir and shore pine. In summers lack of rainfall can limit the establishment of new cedar saplings, although less so in Coos County than elsewhere in the range. Overall, POC distribution does not affected by temperature or the amount of rainfall, but it is limited by geology and soil chemistry.

Port Orford cedar (*Chamaecyparis lawsoniana*) is also known as white or Oregon cedar, ginger-pine, or Lawson cypress. It is widely known and recognized for its horticultural uses and the quality of its wood. Port Orford cedar ranges from Coos Bay to Humboldt County, California, and in isolated populations east to Oregon Caves National Monument and Mount Shasta. The Oregon Coast Range of Coos and Curry counties have the largest stands of Port Orford cedar (Lang, 2008).

Inland, Port Orford cedar grows in the margins of fens and riparian zones with serpentine soils. Coastal populations grow in deep soils with a variety of other conifers. It is not unusual to find charcoal on the bark of large old trees indicating that they survived many fires.

In 1923 *P. lateralis*, appeared on nursery plants near Seattle. The disease slowly advanced south in running water and soil contaminated with fungal spores on construction and logging machinery, vehicles, shoes, and livestock until it reached the cedar's native range in the mid-1950s. Mortality has been high in areas infected ten years or more. Sanitation, quarantine, and encouraging the growth of resistant trees are the only defense (Lang, 2008).

The POC technical team

Oregon's Port Orford cedar technical team is the state's primary organ for addressing the *P. lateralis* infection. Members represent the US Forest Service, Bureau of Land Management, Oregon State University Department of Forest Ecosystems and Society, OSU Extension Service, University of Oregon Climate Leadership Institute, University of Washington Climate Impacts Group, Washington State Department of Natural Resources, US Forest Service Pacific Northwest Research Station, and professional foresters (See Appendix A).

The team, composed of forest management, ecology and other technical specialists, provides an extensive resource of skilled researchers with many years of experience working with POC and the root disease. The membership of the team is sufficient to provide the kinds of technical expertise and range of knowledge needed to advise SSNERR on the application of its forest management plan as it regards POC.

As the SSNERR develops a strategy for the forests within the SSNERR administrative boundary, it is appropriate to consider other audiences and the cultural, socio-ecologic and community outreach roles they may play in developing strategies for controlling *P. lateralis*.

Table 1 presents a summary of outreach, training or technical assistance needs identified during the workshop, and likely target audiences as well.

Need	Audience
Preserve Port Orford cedar genetic collection, possibly by funding or relocating an existing Forest Service POC gene bank that is no longer being funded.	Oregon tribes Academic researchers Federal forest managers.
POC data collected by Powers Ranger District shows positive resistance results.	Oregon State Parks Small woodlot owners Watershed councils and associations
Preserve the continuity of the POC research .pdf library	Researchers Students
Best management practices	Seed growers Seed distributors
Training in the use of PRISM (Parameter-elevation Regressions on Independent Slopes Model) climate mapping tool developed by USDA using the highest-quality spatial climate	Researchers Students

data sets currently available.	
GIS training and resources, e.g., Model Builder	Researchers, Watershed associations
Risk analysis: <ul style="list-style-type: none"> As applies to activities in the reserve that may exacerbate the spread of <i>P. lateralis</i> (e.g., cedar bough-picking, trail planning and construction); identify areas where POC may be viable some day; Identify biologically important stands of POC. Analyze catastrophic fire risks associated with stands of dying and diseased POC in the SSNERR. 	Researchers, Watershed associations Small woodlot owners
Analysis of temperature trends for next 50 years (supporting climate for POC is expected to vanish in southern Oregon by 2070.	Researchers, Watershed associations Small woodlot owners
Conduct pollen and seed movement studies	Researchers
Demonstrate that resistance to <i>P. lateralis</i> exists	Researchers
Explore use of prescriptive fire to control or reduce spread of the pathogen	Researchers

Table 1. Needs and audiences, POC outreach

Discussion

The technical team met May 17 at the SSNERR Interpretive Center and spent the day discussing a number of issues related to management of POC and *P. lateralis*. Hans Klausner presented an overview of the reserve's whole watershed approach to restoration and the relationship between estuarine restoration and upland habitat restoration and protection. He was followed by Don Zobel, emeritus, of OSU discussing implications of historic timber cruise data for future planting of POC.

Frank Betlejewski, chairman of the technical team, discussed the use of GIS tools to streamline ROC risk analysis. Geneticist Rich Cronn presented on genetic variation in POC. Other discussions focused on monitoring POC recovery following the Biscuit Fire, disease eradication, *P. lateralis* resistance, and reforestation using resistant stock.

On May 18 the team toured a section of SSNERR woodlands to view and discuss POC in a variety of habitats. From the discussion came several key points important to remember as SSNERR begins to craft outreach strategies for POC management:

- Eliminating POC from SSNERR lands is not a realistic management alternative. The infection is too broad, too deep, and the woods in such poor health, that infection is probably endemic.
- SSNERR should consider ways to protect uninfected groves of POC and reduce or eliminate the movements of people from infected areas to uninfected areas.
- Trail management, use and traffic flow should be re-evaluated to reduce the risk of spreading POC from infested areas to disease-free areas of the reserve.
- SSNERR should consider using a significant portion of POC-infected habitat (e.g., Middle Fork trail) as a teaching forest for adaptation studies related to POC disease management.
- SSNERR should use POC-infected stands as a tool to teach general management practices to raise awareness of problems related to invasive species.