

WASHINGTON COAST RESTORATION INITIATIVE 2017 - 2019 BIENNIUM

Pulling Together in Restoration Project Summary

Project Description

The Pulling Together in Restoration Project (PTIR) is a pilot invasive species program working across jurisdictions in six coastal watersheds to prevent the spread of invasive species into sensitive habitats. Through cost-effective containment, community-based education and engagement, the program focuses local crews to work on a short list of invasive species that cause significant harm to forest health, agriculture, and habitat for fish and wildlife; and not effectively covered by other programs or projects.

Which species and why?

Knotweeds, Scotch broom, reed canarygrass, herb Robert, everlasting peavine and other several other noxious weeds eliminate habitats by replacing important functions of native plants including food, structure, and shade. These particularly aggressive non-native species form 'monocultures' which arrest the growth of other plants; affecting forests, rivers, food crops and forage for livestock and wildlife. Knotweed is the focus of many projects and funding through WSDA, but the other species are widely distributed across some parts of the state, where they become infeasible to control. On the coast, many invasive species are not present or are have not yet formed dense populations.

Scotch broom (SB) is a good example. SB is present over perhaps 10% of coastal watersheds at present. A SB monoculture grows to ten feet tall, producing 12,000 seeds per plant per year, which may remain viable for 80 years. SB is shown to arrests native forest succession through a variety of influences, replacing early successional native willow, alder, and in time, the conifer forests providing forage, shade, nutrients, and other services including large woody debris, bank stability and sediment filtration to keep streams and rivers and forests naturally healthy. SB alters the composition of several important soil nutrients, and reportedly disrupts the mycorrhizal fungi critical to healthy forest growth¹. It is mildly toxic to grazers, which avoid it. Containing volatile oils, it is also more flammable than native plants.

Although SB poses significant ecological impacts, it is allowed to proliferate because control is assumed to be unnecessary – i.e. it will be 'shaded out' by the successive conifer forests. Not so! Not only does SB impede the growth of conifer and other forest species; with an 80-year seed bank and 30 to 50-year harvest rotations, SB is one of the earliest species to establish in new harvest units.

With local jobs and training, SB can be reduced and even eliminated, saving the public millions of dollars of long-term impact and control costs (State of Oregon reports 34:1 cost/benefit analysis², the State of Washington reports \$142.8 million in annual impacts³). Early and persistent action is key to protecting our landscapes and resources from invasive species.

¹ Grove et al. (2012) Direct and indirect effects of allelopathy in the soil legacy of an exotic plant invasion. *Plant Ecol* 213:1869–1882

² <http://www.oregon.gov/oda/shared/documents/publications/weeds/ornoxiousweedeconomicimpact.pdf>

³

https://invasivespecies.wa.gov/council_projects/economic_impact/Invasive%20Species%20Economic%20Impacts%20Fact%20sheet%20Jan%202017.pdf

How will this project make a difference?

This project represents an important investment in local environmental and economic health, by training local crews in Early Detection and Rapid Response (EDRR) methods, and conducting on-the-ground control, stitching up gaps in prevention and protection across jurisdictional boundaries. Contributing to existing projects and programs conducted by agency, tribal, and local partners, these teams work along connecting pathways including roads and rivers along which millions of weed seeds and fragments move via tires, mowers, wind, and water into tributaries, pastures, and forest stands.

To improve the success of salmon recovery and restoration projects, we will continue to provide a field review of each of 300+ projects, and develop recommendations for invasive species management for each. Where time and capacity are available, we will provide control services. We are working with the Department of Natural Resources on an offender crew to be dedicated to roadside and gravel mine Scotch broom control. The crew will have a trained and licensed supervisor, and will be available to agency, tribal and non-profit landowners and partnerships for their services at a reasonable cost.

The program also provides detailed watershed-specific education and outreach to the public and other managers, and coordination and information sharing between all, encapsulated in a program platform focused on increasing prevention and control of damaging invasive species. With it, we will stem the rising tide of invasive species into vulnerable habitats on the coast; protecting investments in coastal restoration and economic vitality in forestry, fisheries, and tourism.

More details and current project work to date

The PTIR project evolved in response to expanding populations and impacts of invasive plants in forested and aquatic habitats, combined with insufficient funding and coordination necessary to effectively prevent and contain them. With changing climate, receding glaciers and unstable river channels, increasing traffic, rapid timber harvest, and billions invested in restoration for threatened fish populations, it's time to invest in preventing the spread of noxious invasive Eurasian plants so that habitats can be resilient to these impacts where protected and restored.

This program addresses the movement of invasive plants between multiple ownerships with differing capacity, interest, and legal authority or responsibility to reduce or control invasive species in each watershed on the coast. Layered on that ownership, rivers and roads connect between watersheds, and invasive species move down these pathways. Each entity does some weed control, but all lack sufficient resources and strategies to address species moving across their ownership boundaries via wind, water, construction, or traffic. When small Scotch broom, knotweed, everlasting peavine, and reed canarygrass sites are eliminated from roadsides, source populations are prevented from traveling down ditches and through culverts to streams, where water transports each seed to bare gravel and banks, the ideal environments for invasion.

Invasive species also degrade other categories of restoration. When constructing instream jams or restoring fish passage through a barrier, planning to treat existing invasives or to prevent the introduction of new ones is necessary to avoid inadvertent spread via construction, materials, and equipment. If the gravel for a forest road comes from a mine covered with Scotch broom or knotweed, seeds and fragments of these species become established in stands that were likely free of them, quickly growing and eliminating important habitats and ecosystem services ranging from carbon storage to air and water temperature attenuation. It's easy to prevent, but difficult to restore once established, when the cost of eliminating these species grows, and associated environmental impacts continue to spread.

Finally, most noxious weed control focuses only on Class A or B weeds⁴ – not the Class C weeds such as Scotch broom. SB is an issue of climate resiliency, riparian succession, and forest growth, and is being left to grow until it has inundated roadsides, harvest units, gravel mines, or pastures, and soil or gravel is contaminated with seeds lasting 80 years, continuing the spread. SB is a climate issue because it replaces the forest stands providing humidity and shade, and capturing fog drip, and highly flammable. Counties on the east side of the Olympic Peninsula with dense SB stands have a different fire response and management plan than we do on the coast at present.

90% of the Olympic Peninsula is NOT invaded YET, and all invasive species are preventable if we act upon them persistently – meaning EARLY and OFTEN. So, let's pull together!

Goals and objectives

The primary goals of the program are 1) Increased effectiveness of invasive species prevention and management across these coastal watersheds, addressing root causes and sources of invasions; 2) Employing, training and deploying a local workforce for local benefit; 3) Improving containment of invasives that affect forests and habitat creation; and 4) Public and agency education, engagement and empowerment.

Objectives are to 1) Decrease the costs of invasive species impacts and control, 2) Improve the success of restoration investments, 3) Develop a coastal coordinated weed management plan that is incorporated into Lead Entity Salmon Restoration Strategies and other relevant plans, 4) Decrease herbicide use across the coastal landscape, and 5) A final objective is to demonstrate the success of local jobs in invasive species prevention and control, to encourage the investment of dedicated funding to similar programs in every watershed.

How will the project have a direct positive benefit for the local ecosystem?

Native plants and their diverse communities are the foundations of coastal ecosystem food webs and terrestrial, riparian, and aquatic habitats. The project will provide a direct positive benefit to the local ecosystem through increased protection from degrading impacts of invasive Eurasian plants.

All life history stages of fish and aquatic organisms benefit by the continuous inputs of native plant materials they've evolved to use for creating pools, providing insect prey, and filtering sediment, providing bank stability through root structures, and maintaining nutrients in the soil and water that they're adapted to. A specific example has been reported by Amy Borde, Battelle Laboratory, from research on reed canarygrass (RCG) and native Lynbye's sedge: RCG significantly reduced the production of chironomids (black fly larvae) eaten by juvenile fish⁵, affecting their food web. Another example is the recent ESA listing of Oregon spotted frogs, which do not successfully breed in RCG.

All native animals, birds, amphibians, and insects benefit from healthy native plant communities. A specific animal example is Roosevelt elk, a keystone species in floodplain forests, which will benefit from fewer toxic plants (tansy ragwort, Scotch broom, and foxglove) and more high-quality native forage.

All native forest soil biota directly benefit from the prevention and removal of Eurasian allelopathic, acidic, or nutrient-impoverishing species including knotweeds, Scotch broom, and herb Robert.

⁴ RCW 17.10 – WA State Noxious Weed Law designates noxious weed species which are not widely established and are assumed to be able to be eradicated as Class A, and those which are still containable with action as B. Class C species are those which are considered to be widely established, even though they may not be in a particular location.

⁵ 2015. Borde, A. et al. *Phalaris arundinacea* vs. *Carex lynbyei*: a comparison of the food web contribution between non-native and native wetland species. Pacific NW National Laboratory. Society of Wetland Scientists, PNW Chapter Meeting, October 7, 2015.

Aspects of life in the local community that will benefit from the project

The local community will benefit through healthier forests growing faster (less competition from Scotch broom, herb Robert, and blackberry) and cleaner (i.e. less herbicide application – benefiting all species and people), fish and wildlife for recreational, commercial, and subsistence harvest, hiking and nature experiences in native plant communities, supporting native biodiversity and the Olympic Biosphere Reserve. Fewer resources will have to be allocated and spent on fire suppression (from SB and due to healthier forests), as well as weed control in restoration and road management.

Project partners

- Olympic National Park (ONP) – Upper Queets Invasive Plant Control Project, others TBD
- Olympic National Forest (ONF) – ONF Invasive Plant Control Projects – Queets, Sol Duc
- Tribes: Quileute, Hoh, Queets, and Quinault – Knotweed and other weed projects, boat cleaning stations
- WA Department of Transportation – IVM Control Program, Adopt-a-Highway Program
- WA Department of Natural Resources – Access to all state lands sites, forest road and gravel mine invasives prevention and control, sites for signage, participation in weed-free seed mix use
- WA State Parks - Partner on control at Bogachiel State Park, possible site for signage
- Counties: Clallam, Jefferson, Grays Harbor Weed Boards – Contribution to protocol development, partner on roadside control, participation in weed-free seed mix use
- County Parks and Rec Sites: - Allow access for treatment and educational outreach
- County Road Departments – partner in control and prevention activities on county roads
- City of Forks – Roadside weed control collaboration, opportunities for community outreach, possible pilot weed disposal site or processing facility
- Nonprofits: North Olympic Land Trust, Jefferson Land Trust – educational outreach, practice methods
- Pacific Coast Salmon Coalition – Partner and crew for Hoh, Queets, Clearwater projects
- The Nature Conservancy – Partner in Hoh, Queets, and Clearwater invasives control
- Recreational groups: Guides Association – Partner in education/outreach to river guides
- Olympic Correction Camp – Partner in developing and deploying a dedicated Scotch broom control crew
- Private residential landowners – Partners in preventing and controlling ornamental and other invasives.

Update on current project activities and achievements

25 restoration technicians trained and employed

800 miles of roads surveyed and pulled, cut, treated

Two tons of seeds collected and disposed of

Contract crews from Hoh, Queets, Chehalis and Elma

Partnerships expanded with ONP and ONF

Bio-control releases with WSU

Outreach and education to resource professionals and community members

Quinault Nation

Hoh Indian Tribe

City of Forks

Local Schools, Forks and Sequim

Olympic Natural Resources Center

COAST

North Pacific Coast Lead Entity

North Pacific Coast Marine Resources Committee

Washington State Salmon Recovery Conference

Scotch broom

Forks Community Garden

Hoh, Queets, Quillayute and Clearwater Rivers
Residential outreach

Reed canarygrass

14 miles Snahapish River, Year 1
13 of 26 miles Clearwater, Year 6
8 miles Goodman Creek, Year 1
7 miles Queets River and Estuary, Year 5
1 mile Thunder Road/Meadow
Leyendecker Boat Launch, Year 1
Eagle Springs Off-Channel Spawning and Rearing Pond, Year 2

Tansy ragwort and St. John’s-wort

SR 101, 109, 110
Clallam, Jefferson, and Grays Harbor county roads
Biocontrols with WSU

Herb Robert

Jefferson County roads
Olympic National Forest
Olympic National Park

Knotweed

City of Forks
Bogachiel River
SR 101
Clearwater

In summary, without early and effective action, the unique biodiversity of the Olympic Peninsula will quickly be overwhelmed, more restoration will be required, but with exponentially higher costs and reduced opportunity for long-term success. Based on achievements in the Hoh, Queets, and Clearwater rivers, we can already demonstrate there’s a significant benefit in acting early to prevent the spread of these plants. Data analysis on the costs of control, effectiveness of actions, estimated numbers of invasive species stopped from invading specific places, and economic inputs to the local community will be provided in year-end reports.

Why the project is a good fit for WCRI funding

WCRI is the only non-salmon funding source focused on coastal restoration issues with sufficient funds to add significantly to the resolution of ongoing restoration needs, especially with regard to invasive species impacts, which are some of the most important restoration issues for coastal counties, and the lowest priority in all other resource or infrastructure management programs.

Funding for invasive species prevention and control is extremely limited, and requires yearly application and reporting. WSDA is the sole reliable funding for knotweed control, but has much less funding than is needed. The State Department of Transportation’s Integrated Vegetation Management Program is also underfunded relative to need, and lacks the ability or authority (state or county weed board-mandated) to work on SB. The State Salmon Recovery Funding is not intended to fund repeat projects (they term these ‘programs’) – which invasive species require.

It is also the only program available to non-profit organizations, focused on local jobs and therefore local expertise and knowledge. Empowering communities, local youth, agencies and tribes in protecting and maintaining local ecosystems and the forestry, fisheries, and clean water, air, and soil that all rely on is

really what coastal restoration is about; modeling how it can become locally-owned and operated. Added to that, it's funding the current PTIR program, saving the public, agencies, private industry, and tribes lots of money in the future by doing the work to end the destructive cycles of constant and costly habitat degradation resulting from invasive species.

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