

WELCOME!

- Introductions/Overview-30 minutes
- Openhouse-70 minutes

3 Stations-handouts, maps, expert Q&A

Why/What? Weed Laws, Protect pollinators,
Promote native plant communities

How? Control measures, risk assessments

Where? Maps-Weed distribution

- Fill out comment/evaluation forms-10 min

1033 WEST
LAURIDSEN-BLVD

CLALLAM COUNTY
ROAD DEPT
PORT ANGELES
MAINTENANCE AND CONSTRUCTION

Bees, Weeds, and Beyond The Pavement Edge

Clallam County Integrated
Roadside Weed Management Plan

Honey bees: The value of pollinator services

The European honey bee is involved in \$15 billion in crop production annually



The European honey bee is in severe decline





Photo Lindsay Bourke

Honey bee hives moved in to pollinate a carrot seed crop.

Native pollinators like bumble bees
best for many North American berries species



Native pollinators:
4,000 native bee species alone, in North
America



Native bees are responsible for
approximately \$3 billion in crop
pollination annually

The health and well-being of flowering plants in natural areas are influenced by pollinators

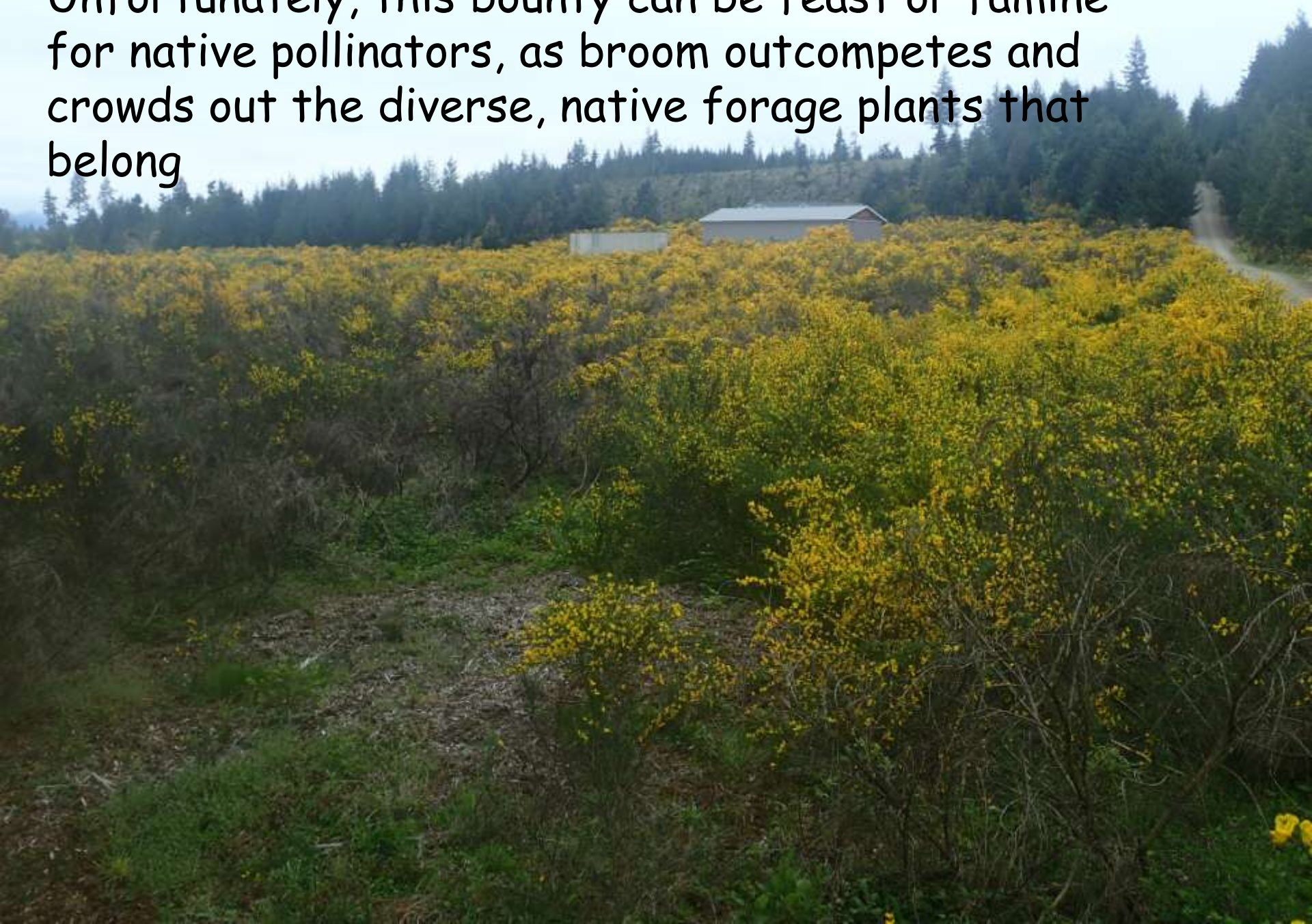


Native bees are often the best pollinators because they co-evolved with the plants they pollinate

A close-up photograph of a European honey bee (Apis mellifera) on a bright yellow flower, likely a Scotch broom (Spartanacium scoparium). The bee is positioned in the center-left of the frame, facing right, with its head buried in the flower's center. Its body is covered in fine hairs, and its wings are partially spread. The flower is large and trumpet-shaped, with a vibrant yellow color. The background is filled with many other similar yellow flowers and green leaves, creating a dense, natural setting. The lighting is bright, suggesting a sunny day.

It's no surprise that the European honey bee enjoys European plants such as Scotch broom, which can actually self-pollinate

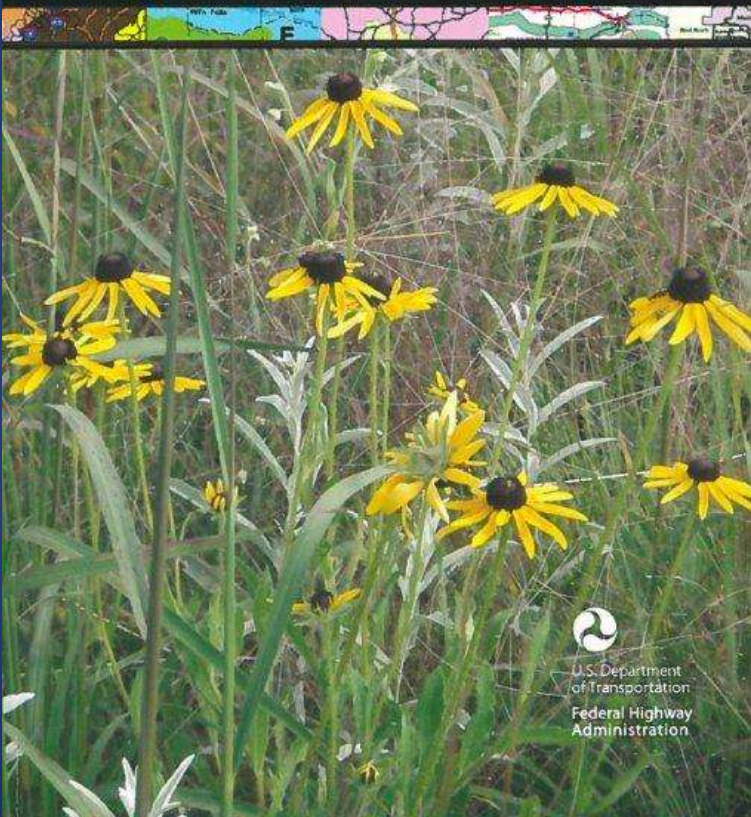
Unfortunately, this bounty can be feast or famine for native pollinators, as broom outcompetes and crowds out the diverse, native forage plants that belong



Diversity: Pollinator-friendly habitats provide nectar throughout the growing season



VEGETATION MANAGEMENT: An Ecoregional Approach



Pollinators and Roadsides: Best Management Practices for Managers and Decision Makers



January 2016



U.S. Department of Transportation
Federal Highway Administration

Pollinators and Roadsides: Best Management Practices for
Managers and Decision Makers

December 2015
Federal Highway Administration

- Federal Highway Administration guides

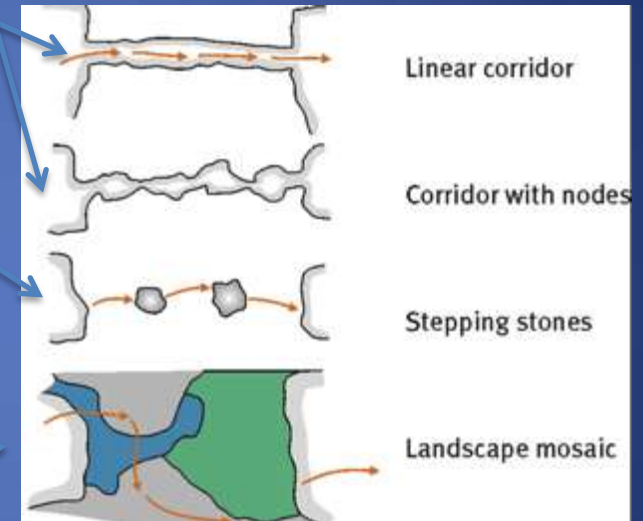
Pollinators need connections

Some pollinators are small, weak fliers or they crawl - they need continuous habitat at the right time of year. Roadsides fit here.

Other pollinators can fly moderate distances so they can take advantage of stepping stone type habitat creation. Roadsides fit here too.

Still others are strong fliers that can span distances between habitat locations.

We can improve roadsides habitat for pollinators. The more partners, the better.

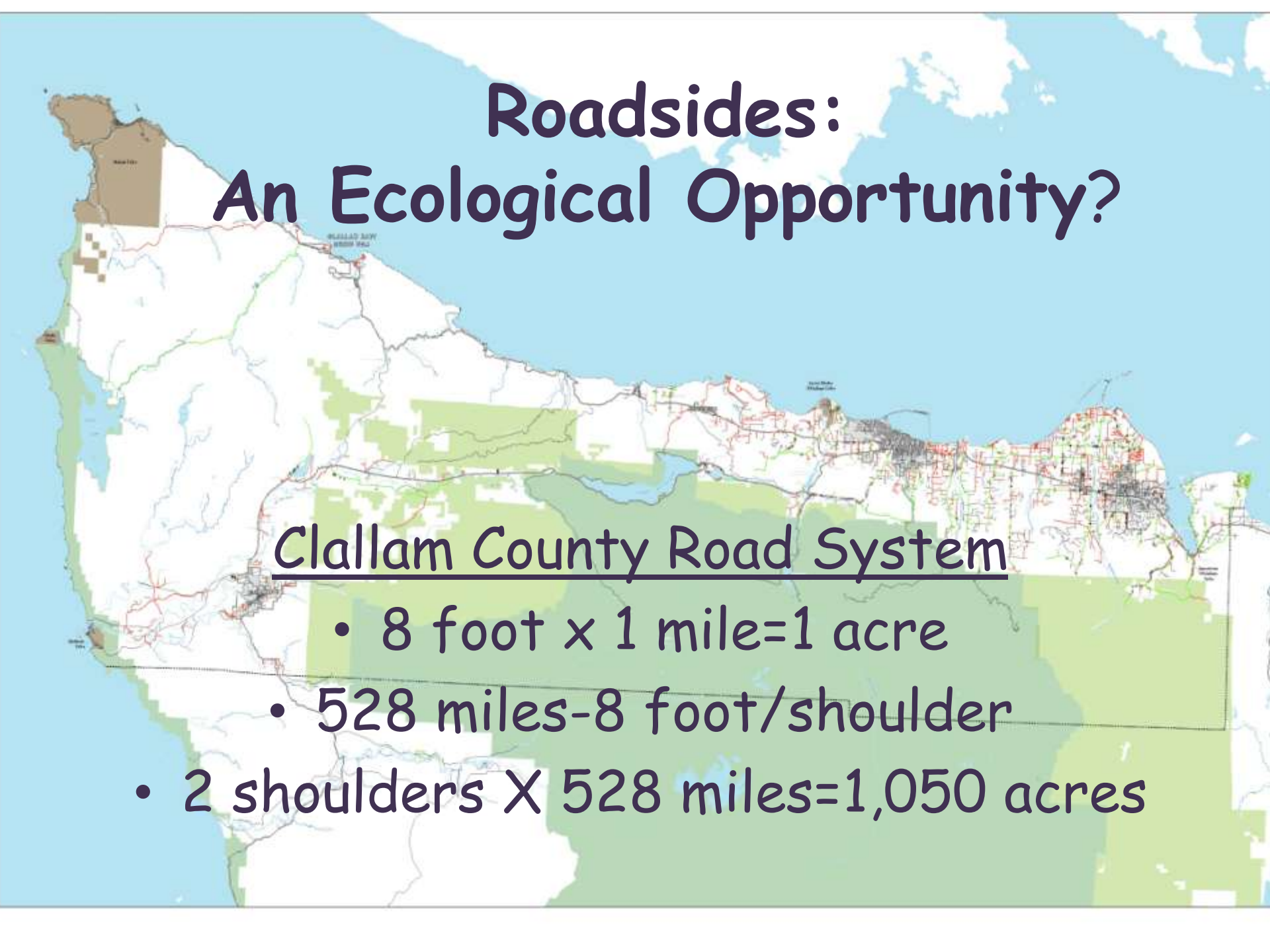


A photograph of a highway shoulder with a green sign that reads "South Sound Speedway NEXT RIGHT". The shoulder is covered in green grass and purple wildflowers. In the background, there are trees and a distant mountain range. A smaller green sign is visible further down the road.

South Sound
Speedway
NEXT RIGHT

Roadsides:
An Ecological Asset?

WSDOT manages 100,000 acres
Environmental Stewardship Goal
incorporates promoting pollinator habitat

A map of Clallam County, Washington, showing the road system and surrounding areas. The map is overlaid with a grid of green squares, representing the potential for roadside ecological opportunities. The title "Roadsides: An Ecological Opportunity?" is prominently displayed in the upper right. The text "Clallam County Road System" is underlined and positioned above a list of calculations. The list includes: "• 8 foot x 1 mile=1 acre", "• 528 miles-8 foot/shoulder", and "• 2 shoulders X 528 miles=1,050 acres".

Roadsides: An Ecological Opportunity?

Clallam County Road System

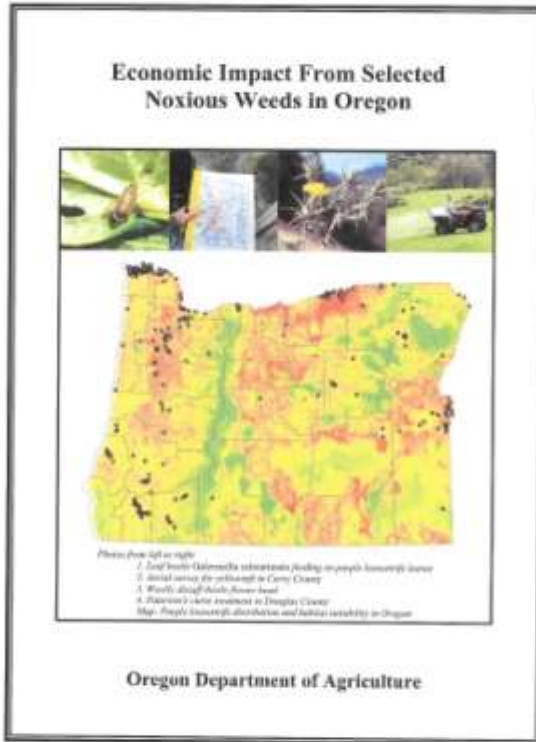
- 8 foot x 1 mile=1 acre
- 528 miles-8 foot/shoulder
- 2 shoulders X 528 miles=1,050 acres

Why Are Roadsides Significant For Noxious Weed Control?

- Disturbed and open ground-
Vulnerable to weed
invasions
- Act as a conduit and vector
for spread of weeds
- Cross and link many
properties and land uses

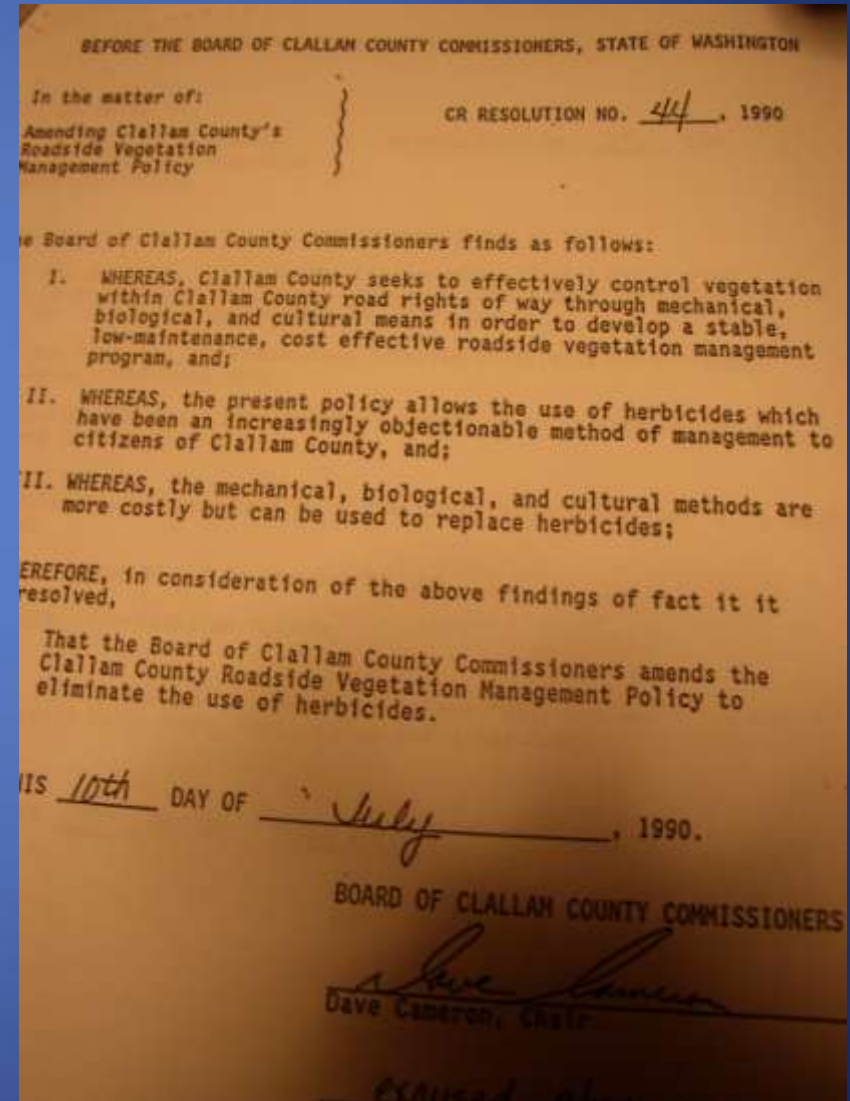


Noxious Weeds Have Economic Impacts



- 2000
- Cost \$83 million/yr-lost productivity, 1,900 jobs
- 2014
- Impacts stabilized-control measures taking effect
- \$1 control/\$13 productivity
- \$1 prevention/\$43 productivity
- Unchecked 1.8 billion/yr
- 40,800 jobs

1990-County Roadside Vegetation Management Policy is 25 yrs old



2015 Survey Results



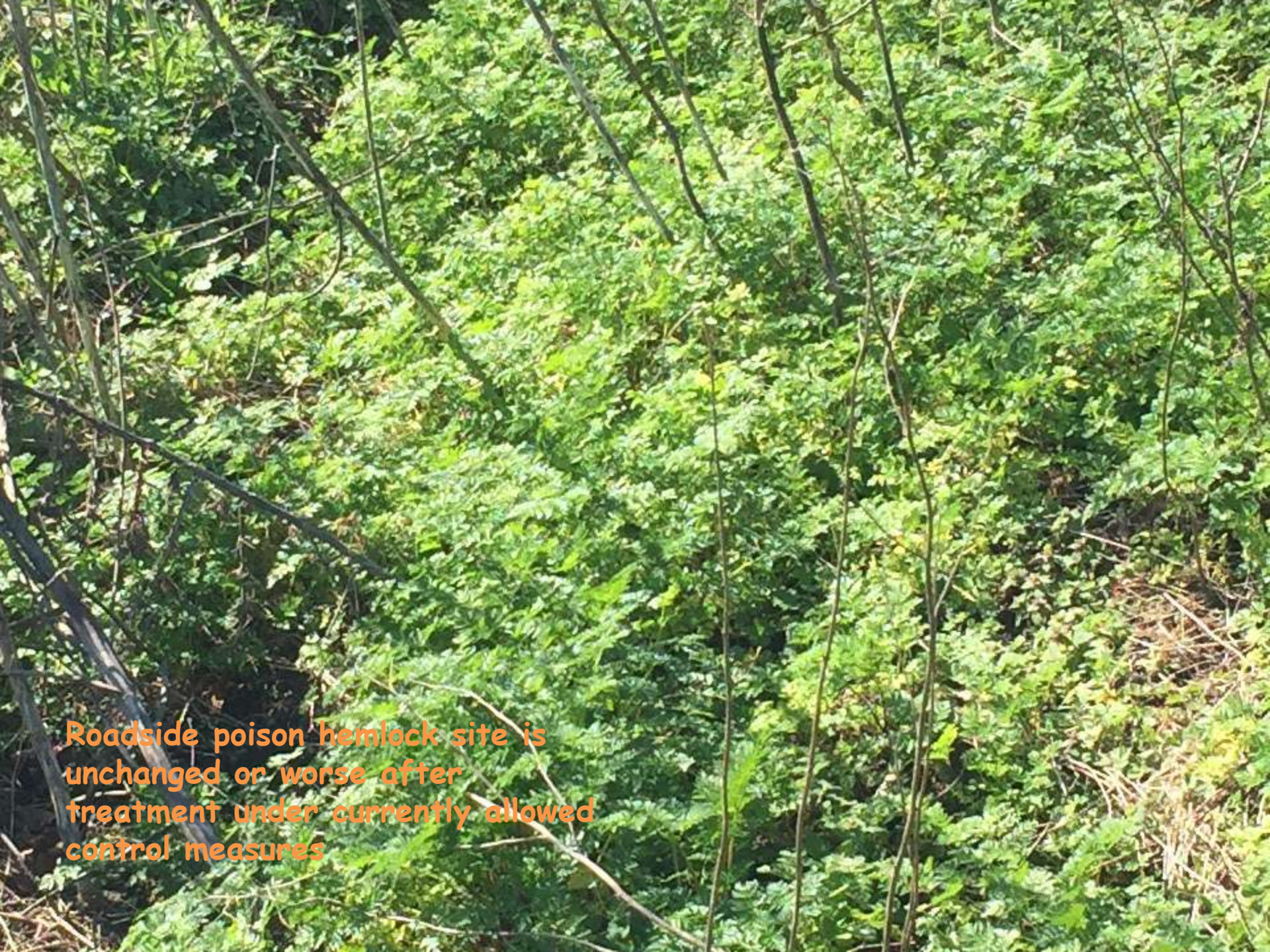
- 250 miles (528 miles)
- 16 high priority species-regulated or rare
- 793 points-(what makes a point?)
- Spread over 94.7 miles (**1/3** surveyed area)
- 4.28 solid acres across 500 acres **1%**
- Does not include most occurrences of common weeds

Why Are Clallam County Roadsides Significant For Noxious Weed Control?

- County is the single largest landowner of noxious weed infestations
- In comparison-WSDOT sites under IWM have greatly decreased during the same period
- Mowing ineffective against certain noxious weeds-scope, costs



Roadside poison hemlock site adjacent to un-infested pasture



Roadside poison hemlock site is
unchanged or worse after
treatment under currently allowed
control measures

RCW 17.10.154

-County weed boards may use their discretion and by agreement with owners of land, may propose and accept plans for prevention, control, and eradication that may be extended over a period of years.....

Why An Ordinance?

- Noxious Weeds know no boundaries
- State law requires control of noxious weeds on both public and private property
- County has not been able to achieve compliance on roadsides using all methods currently allowed
- Shows County's commitment

What's in the Ordinance?

1. Defines Integrated Weed Management as the use of all tools
Defines scope as noxious weeds, or weeds of special concern. (USDA, WSDA, Ecology or ISC)
2. Requires an annual work (IRWM) plan
3. Establishes process for "Owner Will Control" agreements.

What's the Plan?

CLALLAM COUNTY INTEGRATED ROADSIDE WEED MANAGEMENT PLAN

Plan Prepared By:
Cathy Lucero, Clallam County Noxious Weed Control Program
in consultation with
Dr. Harvey Holt, Professor Emeritus, Purdue University,
Green Systems Analytics, LLC

2016



40 Reviewers

Federal, State, Local,
Tribal, Non-profit, Private
regulators, land managers,
environmental affiliations

Meghan Adamire
Clallam Conservation District

Kevin Aitken
US Fish and Wildlife Service

Laurel Baldwin
Whatcom County Noxious Weed Control Board

Cheryl Bartlett
US Forest Service

Harry Bell
Green Crow

Jennifer Bond
Clallam Conservation District

Dan Campbell
National Park Service

Carl Chastain
Pacific Salmon Coalition

Janet Coles
National Park Service

Gretha Davis
Peninsula Trails Coalition

Cheryl Decker
National Park Service

Sarah Doyle
North Olympic Salmon Coalition

Frank Geyer
Quileute Tribe

Fred Grant
Water Users Group

Mike Hagen
Hoh River Trust

Alison Halpern
Washington State Noxious Weed Control Board

Marilyn Harbaugh
Streamkeepers

Greg Haubrich
Washington State Department of Agriculture

John Keller
Washington State Department of Natural Resources

Jenny Knoth
Green Crow

Dave Lasorsa
Clallam County Roads Department

Wendy McClure
Native Plant Society

Rob McCoy
Makah Tribe

Tim Miller
Washington State University Extension

Lorrie Mittman
North Olympic Land Trust

Tom Mix
Backcountry Horsemen Peninsula Chapter

Joe Murray
J. Murray Forestry

Michelle Myers
Hood Canal Salmon Enhancement Group

Clea Rome
Washington State University Extension

Jean Sigmar
Streamkeepers

Jill Silver
10,000 Years Institute

Lorenz Sollmann
US Fish and Wildlife Maritime Refuge System

Mary Porter-Solberg
Audubon Society (OPAS)

Jeanette Stehr-Green
Clallam Board of Health

Hilton Turnbull
Jamestown S'Klallam Tribe

Kirsten Whitworth
North Olympic Peninsula Beekeepers

Ray Willard
Washington State Department of Transportation

Kim Williams
Lower Elwha Klallam Tribe

Justin Zarzeczny
Washington State Department of Natural Resources

Work Plan

- Requires an integrated weed management approach to noxious weed control on county roads
- Requires the Road Department to develop an annual work plan-must include list of priority species, locations, and control method
- Requires the annual work plan be reviewed in a public process and approved by the Weed Board (regulatory body) before commencing any work

Integrated Weed Management

- Identifies long and short term goals
- Uses coordinated decision making process
- Identifies effective and feasible control methods
- Establishes environmentally and economically sound guidelines and practices
- Requires a monitoring and evaluation process for adaptation to changing conditions and new information
- Conducted by trained practitioners

Options

- Allows citizens to enter into "Owner Will Control" agreement with the County
- This option respects concerns of private property owners regarding potential County control methods
- Private property owners can use their preferred control method provided it effectively controls noxious weeds
- Opportunity for native planting

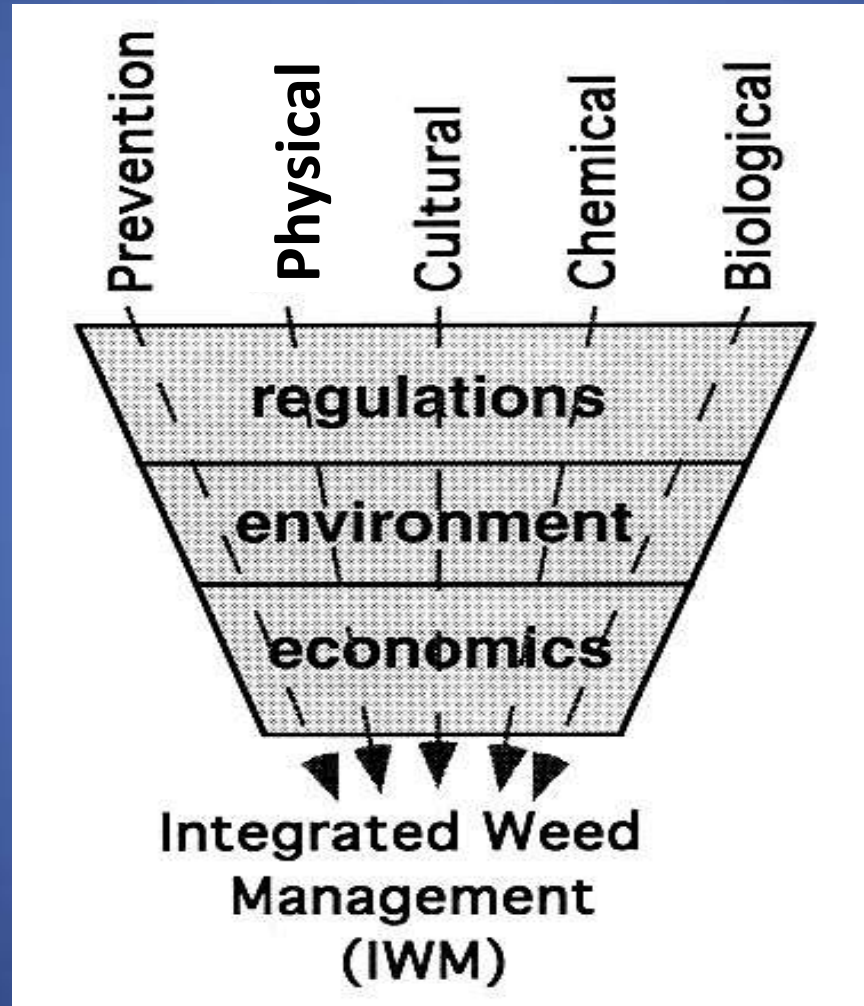
GOALS-Long Term

- Limit economic loss and adverse effects to agricultural, natural, and human resources due to the presence and spread of noxious weeds.
- Methodical reduction of public's top noxious weed issues
- Support a system of management practices intended to create naturally sustainable plant communities
- Reduce maintenance costs for weed control, while increasing environmental services
- Model good stewardship on County owned land-be a good neighbor to adjoining property owners

GOALS-Short Term

- Prioritize weed species and locations
- Create and implement annual work plan
- Communicate with and engage the public
- Coordinate efforts between county departments, public land managers, and affected public
- Build collaborative relationships

Control Options



Biological

- Foraging animals-hazard-not feasible for road
- Insects-all available agents deployed



Physical



Targeted weed control- NOT VEGETATION MANAGEMENT!

Goal is limited bare ground-weed resistant sustainable plant community

Mechanized methods remove only tops, great for general vegetation management-ineffective on deeply and/ or extensively rooted weeds

**MOWING HAS BEEN
TEMPORARILY
SUSPENDED FOR
NOXIOUS WEED
CONTROL**

LAKE WASHINGTON SCHOOL DISTRICT #414

Tansy ragwort responds to repeated mowing with more shoots.....



.....and more roots



What's left?

- Physical-hand-pulling



- Chemical

- Cultural



- Prevention

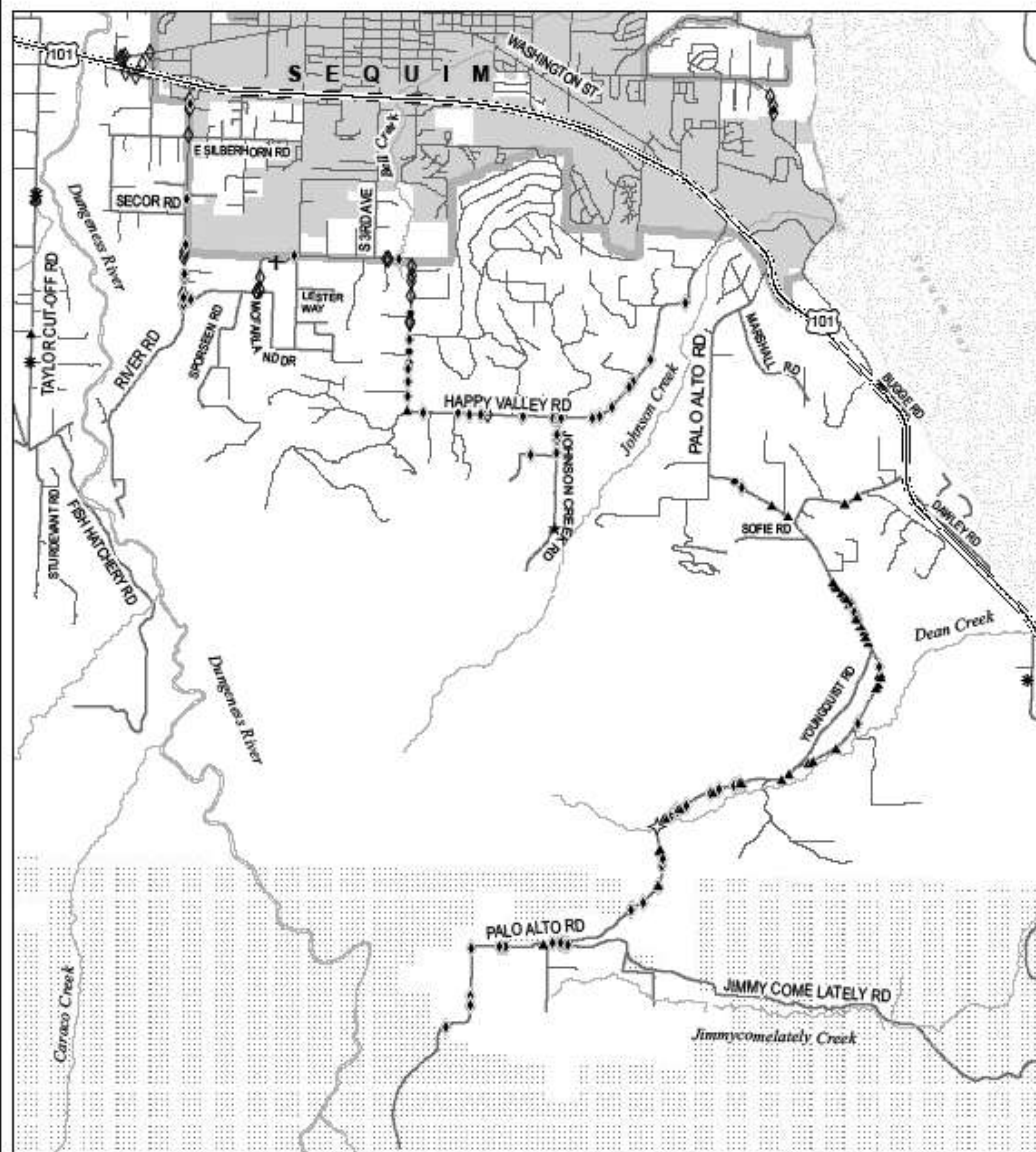
What's New? Integrated Strategy

Adds three control tools

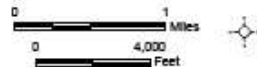
- On County roads, adds limited, spot use of herbicide to control noxious weeds and non-native, invasive plants of special concern ONLY
- Does Not Allow herbicide for general vegetation management
- Adds prevention implementation
- Adds cultural strategy

What's proposed?

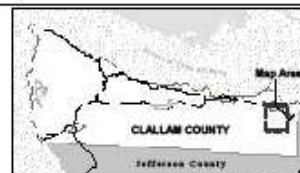
- Dedicated, trained (knowledgeable) personnel
- Pull small sites of non-creeping perennials, bagging seeding flower heads of late stage infestations
- Coordinate, oversee chain gang for larger sites of weeds suited to manual or cut stump treatments
- Targeted spraying in Focus Areas- hand held methods only. The most selective, environmentally sensitive but effective herbicide- six products
- Allows for citizen requested sites and DIY control
- Pilot project: Scotch broom, thistles
- Implement prevention practices
- Transition to self-sustaining plant community to increase resilience to weed invasion



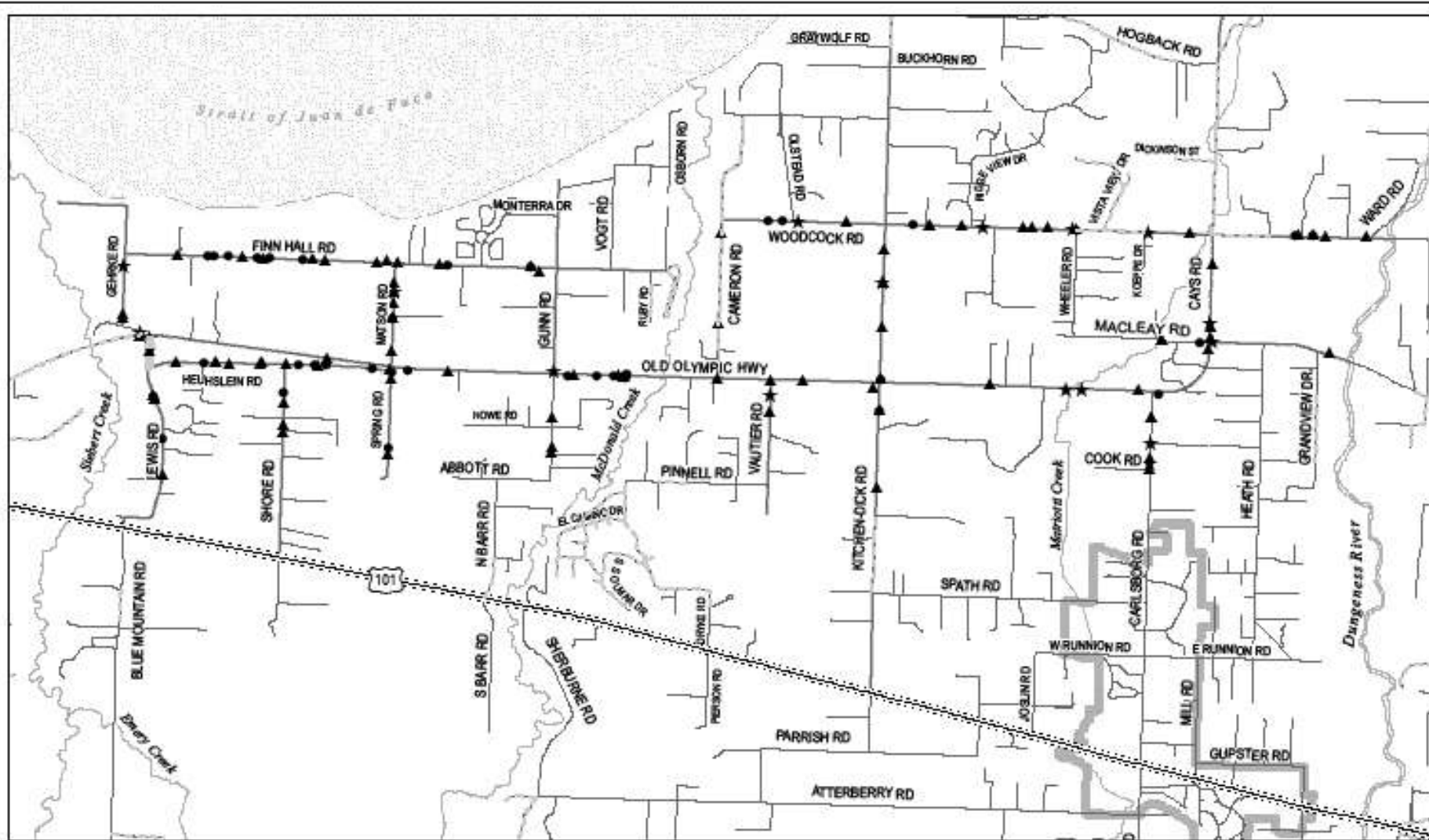
HAPPY VALLEY/ PALO ALTO ROAD FOCUS AREA



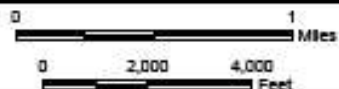
- ◆ Meadow Knapweed
- ◇ Spotted Knapweed
- Polson Hemlock
- Fuller's Teasel
- ▲ Tansy Ragwort
- ★ Yellow Archangel
- + Scotch Broom
- ◇ Butterfly Bush
- ◆ Herb Robert
- Highway 101
- Streams
- Roads- Other
- Roads- County Jurisdiction
- Open Water
- City of Sequim
- Urban Growth Area
- Olympic National Forest



Map Created: October 23, 2015
Source: Washington State Department of Transportation
Project: Happy Valley/Palo Alto Road



THISTLE-SCOTCH BROOM DEMONSTRATION PROJECT FOCUS AREA



Surveyed Noxious Weeds¹

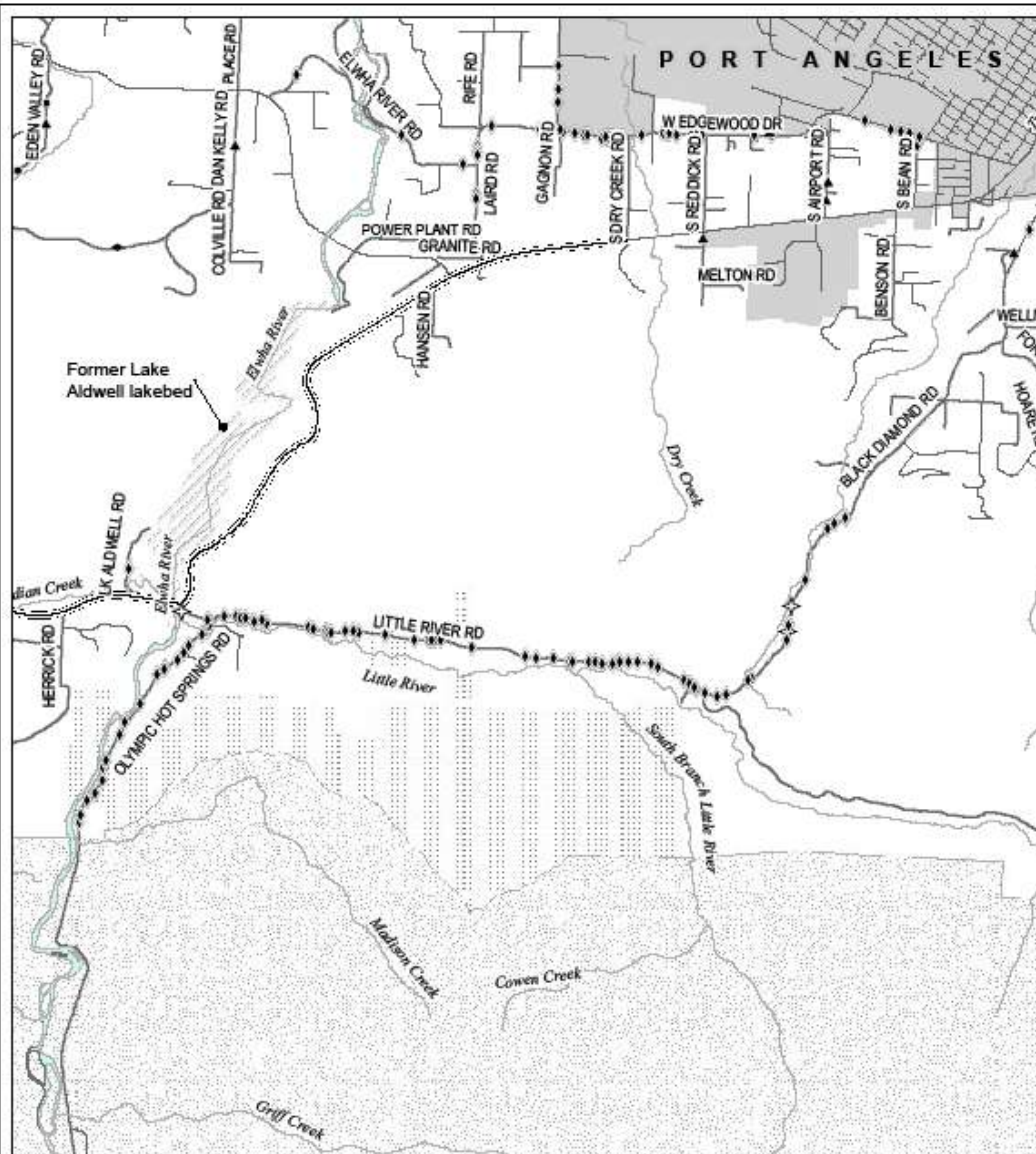
- Bull Thistle
- ▲ Canada Thistle
- ★ Herb Robert

¹ This map shows only Bull Thistle, Canada Thistle, and Scotch Broom identified in this project. Other noxious weed locations not shown.

- Highway 101
- Streams
- Roads- Other
- Roads Surveyed
- Open Water
- Urban Growth Area



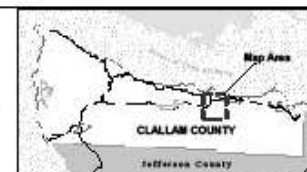
Map dated October 20, 2010
Source: Washington State Department of Ecology
Project: Thistle-Scotch Broom Demonstration Project



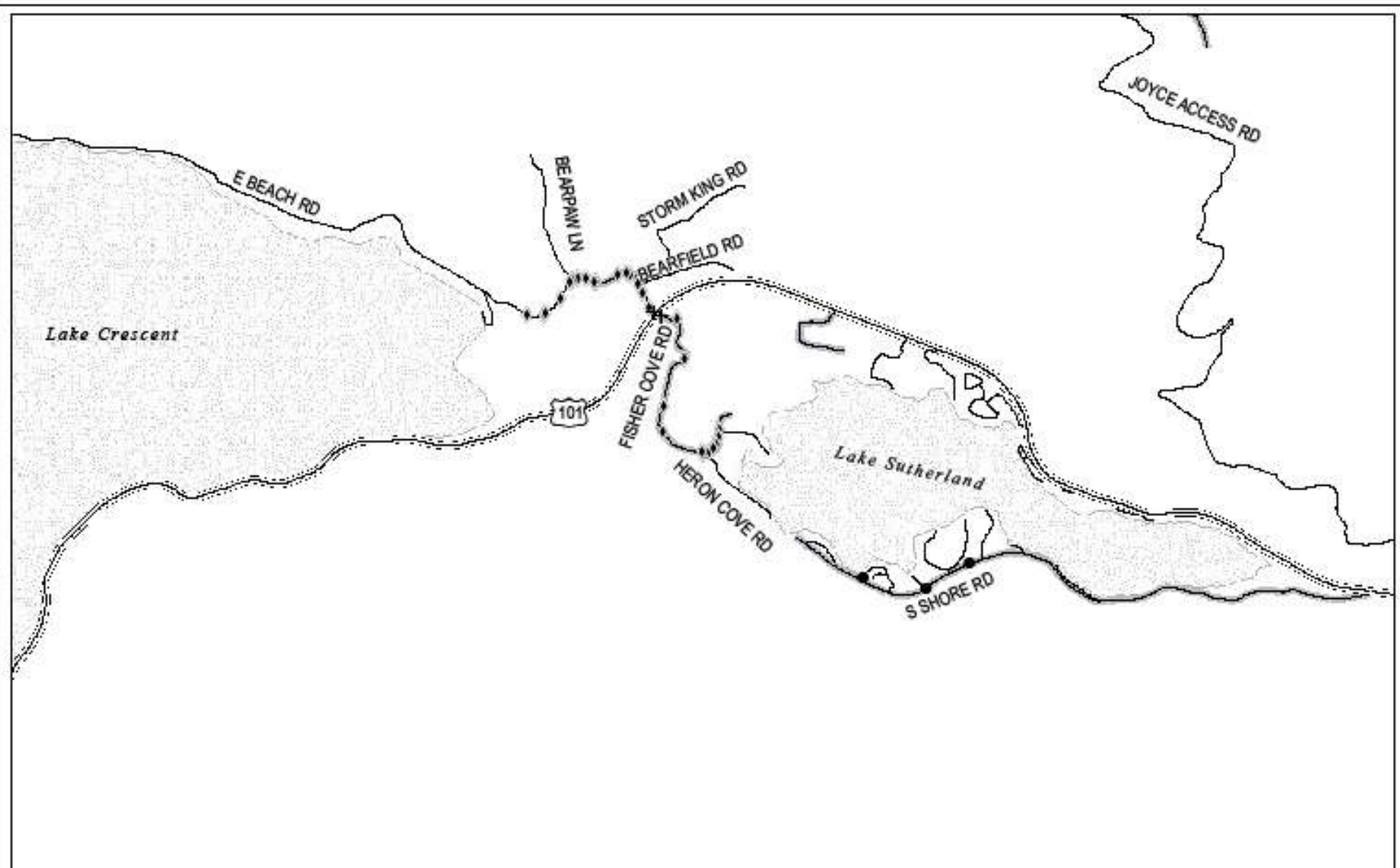
BLACK DIAMOND/ LAURIDSEN BLVD FOCUS AREA



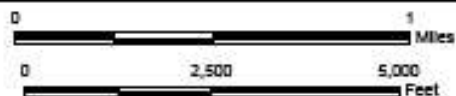
- ♦ Meadow Knapweed
- Bohemian Knotweed
- Fuller's Teasel
- Tansy Ragwort
- ★ Yellow Flag Iris
- + Scotch Broom
- ◇ Herb Robert
- Highway 101
- Streams
- Roads- Other
- Roads- County Jurisdiction
- Olympic National Forest
- City of Port Angeles
- Urban Growth Area
- Olympic National Forest



Map Created: October 26, 2011
Source: Jefferson County and Clallam County Road Department/Fish and Wildlife
Carter/C2/BlackDiamond/Lauridsen_Focus



LAKE SUTHERLAND/EAST BEACH FOCUS AREA

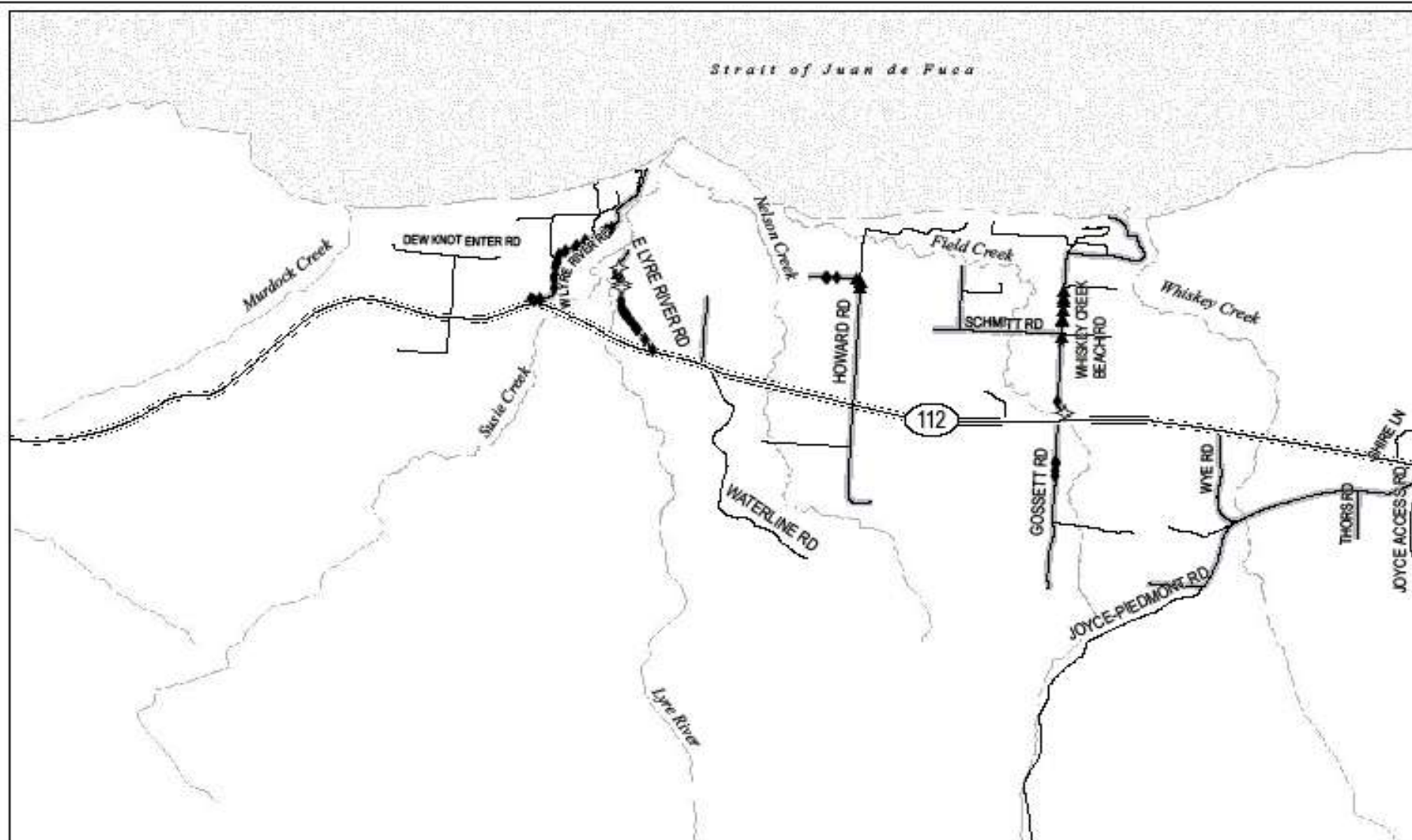


- ◆ Meadow Knapweed
- Orange Hawkweed
- + Scotch Broom

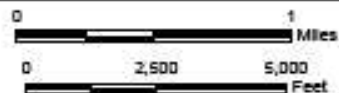
- ~ Streams
- Roads
- Roads-County Jurisdiction
- Open Water

Revised October 21, 2019
 Prepared by: Clallam County Department of Natural Resources
 Contact: 360.738.2200 or clallam@clallamcounty.org





WHISKEY BEND/LYRE RIVER ROAD FOCUS AREA

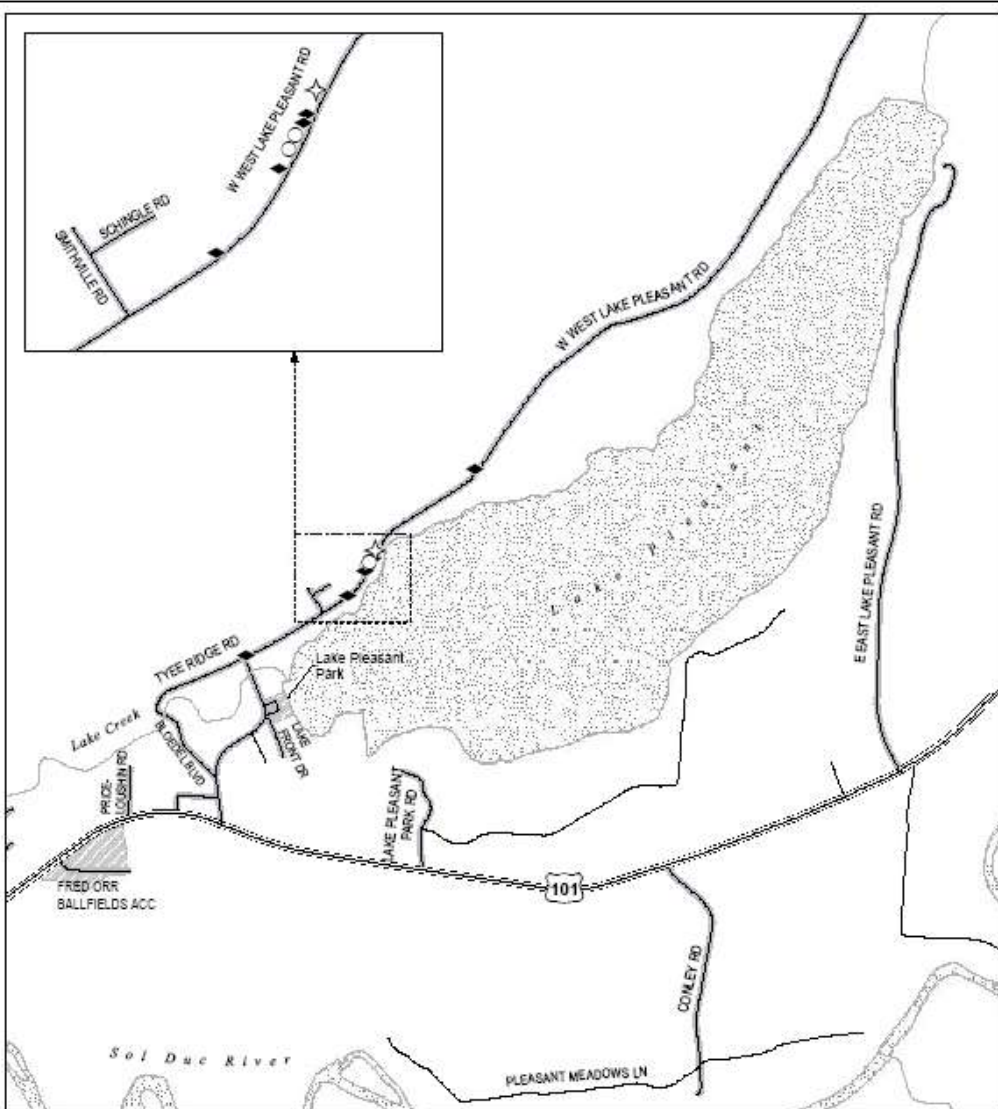


- ★ Yellow Flag Iris
- ◆ Meadow Knapweed
- ▲ Taney Ragwort
- ◆ Herb Robert

- Streams
- Roads
- Roads- County Jurisdiction
- Open Water

Map of Clallam County, WA, showing the location of the Whiskey Bend/Lyre River Road Focus Area. The map is based on data from the Clallam County Geographic Information System (GIS) and is not to scale.

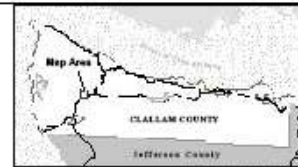




LAKE PLEASANT FOCUS AREA



- ◆ Bohemian Knotweed
- ◇ Herb Robert
- Yellow Flag Iris
- Highway 101
- ~ Streams
- Roads- Other
- Roads- County Jurisdiction
- ▨ County Parks



Map Created: November 20, 2015
 Source: Jurisdictional Clallam County Road Department
 Focus Area: Lake Pleasant Focus Area

Gallons and Gallons?

- 4-5 acres slated for herbicide control
- If all target sites treated with Milestone (aminopyralid)-Special rating by EPA for low impact- 7 fl oz./acre
- 4-5 cups, or a little over one quart per year!
 - This total does not include landowner/entity requested sites

Prevention

Clean materials





Prevention
Clean materials

Meadow knapweed

Prevention

Clean equipment



Prevention



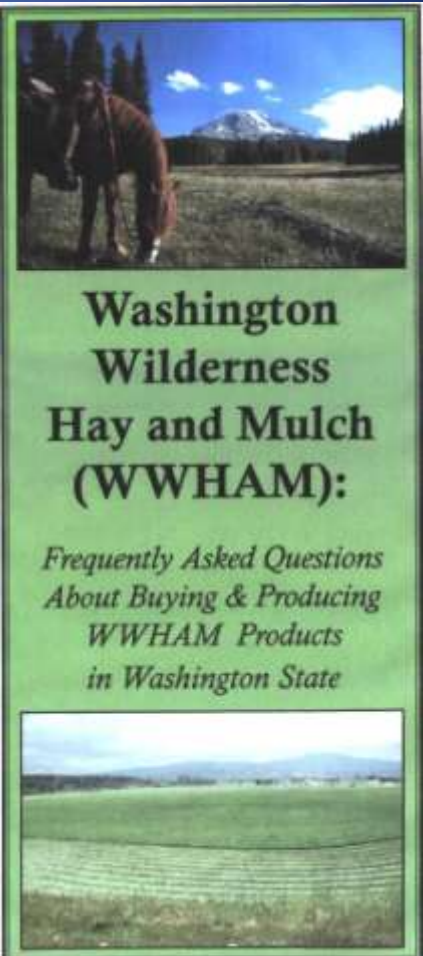
CERTIFIED WEED-FREE
STRAW & FEED REQUIRED
ON NAT'L FOREST LANDS

Weed free erosion control materials and mulch.

6.2.13

WWHAM

Washington Wilderness Hay and Mulch



**Washington
Wilderness
Hay and Mulch
(WWHAM):**

*Frequently Asked Questions
About Buying & Producing
WWHAM Products
in Washington State*

RESEARCH



Cultural



Designing & Maintaining for
a diversity of species

Pollinator-friendly roadsides provide larval food plants for butterflies



Ochre Ringlet



Grasses



Hoary Elfin



Kinnickinnick



Satyr
Angle



Nettles



Go native!





Bee-U-Tify pollinator friendly seed packets-a Campaign by State Weed Board is currently intended for gardens only because it contains non-native, but non-invasives flower seeds

Won't pollinators just get killed by passing vehicles?

- Some will, but the net result is still beneficial
- Measured mortality of butterflies in roadsides is less than 10% of populations
- Abundance and diversity of butterflies are not affected by traffic volume
- Frequent mowing increases butterfly mortality on adjacent road
- Richer roadside plant communities produce lower butterfly losses to traffic



For pollinators, the benefits of suitable native habitat along roadsides outweigh the risks



Daffies in Beacon Hill Park, BC

Native Bluebonnets in Texas





Native Coltsfoot on County road

Common Questions

Q: Are noxious weeds a real problem?
Isn't the problem so big, it's hopeless?

*A: Noxious weeds have real and significant costs
Consistency is key to success, we've had many
opportunities to prove it can be done*





Knotweed can prevent natural succession processes in riparian areas

A photograph showing a dense thicket of knotweed (Fallopia sp.) growing over a path. The plants form a tunnel-like structure with their arching stems and green leaves, creating a canopy over the path. The ground is covered with fallen leaves and twigs. The text "Knotweed prevents tree seedling recruitment and biodiversity" is overlaid in white at the bottom of the image.

Knotweed prevents tree seedling
recruitment and biodiversity

A photograph of a river with rapids. In the foreground, a large, dense, green knotweed bush is partially submerged in the water. The water is turbulent, with white foam and rapids visible. In the background, there are more green bushes and trees along the riverbank.

Knotweed is
tenacious and
thrives on
disturbance



2007-Sekiu waterfront-
pretreatment

2014-Sign of success!-Sekiu
waterfront sans knotweed





Space for native place that was previously
occupied by knotweed



20 10:00 AM



This site recovers quickly with native plants

2005 5 17

Mother and calf-Elk that had been absent for years,
now begin to use recovered site for calving



2009 6 9

Common Questions

Q: Why don't you just mow more?

A: Unfortunately mowing does not remove roots and most weeds just grow back. A heavy reliance on a single tool, mowing, has inadvertently resulted in spreading many of our noxious weeds.

Q: Why don't you use other methods? Herbicides need to be last resort.

A: We do use other methods. We have not updated our strategy for 25 years; we've reached the limits of current tools. We need to add more tools such as limited herbicide use, but also prevention and cultural-a mix of methods (Integrated Weed Management) will be most successful.

Q: Won't you harm our children, pets, wildlife, pollute water resources, and kill butterflies and bees if you use herbicides?

A: After considering these issues and assessing potential risks, products and application methods were specifically chosen for low toxicity, maximum applicator safety, and to minimize drift and exposure.

Elk Habitat Restoration



Single, hand-applied treatment of selective herbicide to meadow knapweed, shows precision, little to no drift to non-targets. Grass habitat rebounds, as intended.

Buckhorn Wilderness

Target-Heavy Canada thistle infestations that did not respond to repeated volunteer hand-pulling efforts over 10 years.



Single, hand-applied treatment of selective herbicide to Canada thistle



Same area when monitored the following year, shows release of native plants



Common Questions



Olympic Invasive Working Group

Q: Others don't spray, why should we?

A: Clallam County is one of two counties in WA that doesn't have at least a limited herbicide allowance for noxious weed control

Most entities in our county already use targeted herbicide applications as part of their strategy to control noxious weeds

Common Questions

Q: Why do we need an ordinance?

A: An Ordinance that spells out County responsibilities regarding weed management is an absolute necessity. It commits the County to an integrated strategy and limits how herbicides can be used. It would NOT overturn resolution banning herbicide use for general roadside vegetation management. It requires an annual IRWM plan review. The IRWM outlines a process for public review of plan of work before it commences.

Common Questions

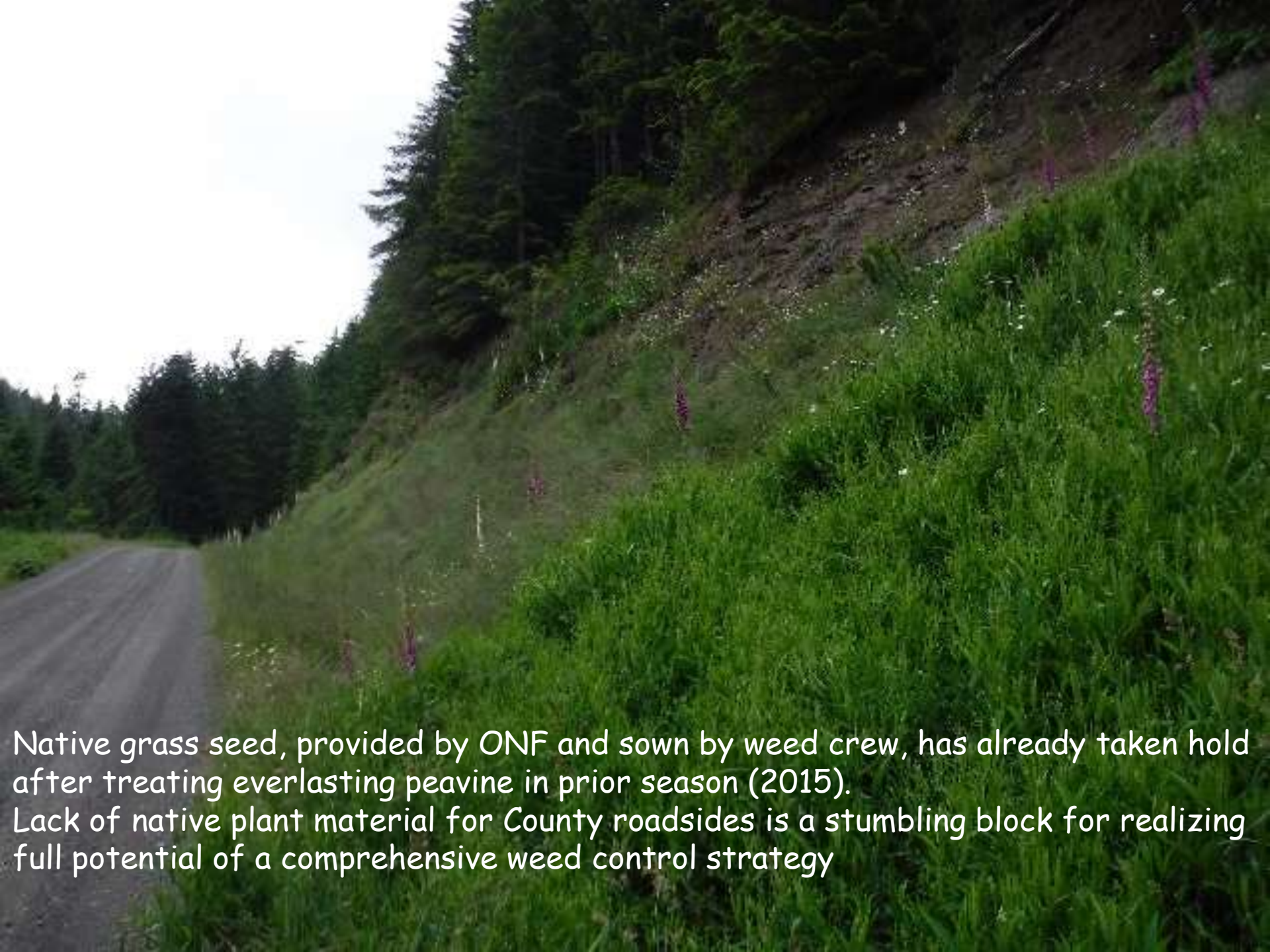
Q: How is the IRWM plan different from what we have now?

A: Views the roadside as ecological asset

- Detailed, strategic, weed and site specific*
- Weighs options, control methods minimize or limit potential negative impacts*
- EDRR provisions catches new invaders early*
- Provides for long term goal: weed reduction-sustainable, healthy plant communities*



Wild chervil on neighboring Jefferson County roadsides prior to treatment
In addition to hand-pulling, Jefferson County already allows for careful, limited use of herbicides to control noxious weed control on their roadsides. Jefferson County does not yet have a mechanism for the final step: to plant natives in place of weeds.



Native grass seed, provided by ONF and sown by weed crew, has already taken hold after treating everlasting peavine in prior season (2015).
Lack of native plant material for County roadsides is a stumbling block for realizing full potential of a comprehensive weed control strategy

Clallam County is Unique

- One of two counties in WA that have no exemption for noxious weed control
- IRWM plan applies to County right-of-way ONLY!
- Infestations are dispersed but not monolithic-YET
- No applications to food, side of road exposure minimal to non-existent
- Holds County accountable
- Establishes adaptable process
- Transparent, Responsive, Responsible
- Opportunities for resident involvement and control
- Weed Board oversight- focus, big picture, experience and proven track record

Self-sustaining, non-invasive plant
community is the goal

WHERE WE ARE NOW

- Hold public workshops
- Identify additional public concerns,
weed locations

WHAT'S NEXT

- Brief Commissioners
- Request public hearing for ordinance adoption, approval of IRWM plan



Ultimate Goal: Protect Land Uses and Values



Ultimate Goal: Protect Natural Resources



Cathy Lucero
Clallam County Noxious
Weed Control Program
360-417-2442
clucero@co.clallam.wa.us

NEVER GIVE UP RD

