

# 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

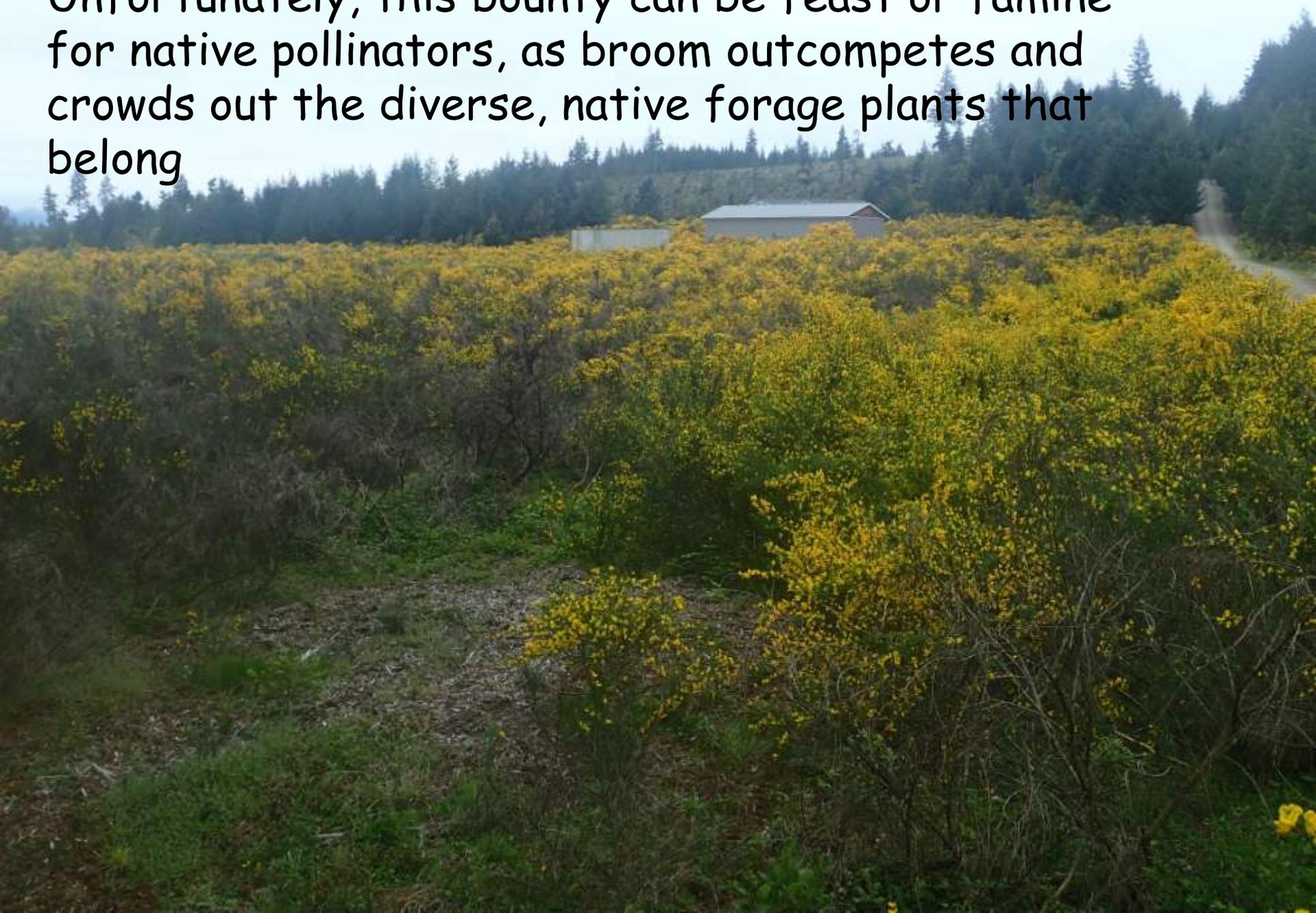


Native bees are often the best pollinators because they co-evolved with the plants they pollinate

A close-up photograph of a European honey bee on a bright yellow Scotch broom flower. The bee is positioned in the center-left of the frame, facing right towards the flower's center. The flower is large and vibrant yellow, with its petals clearly visible. The background is filled with many other similar yellow flowers, some in focus and some blurred, creating a sense of a dense field. The lighting is bright, highlighting the textures of the bee's body and the flower's petals.

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

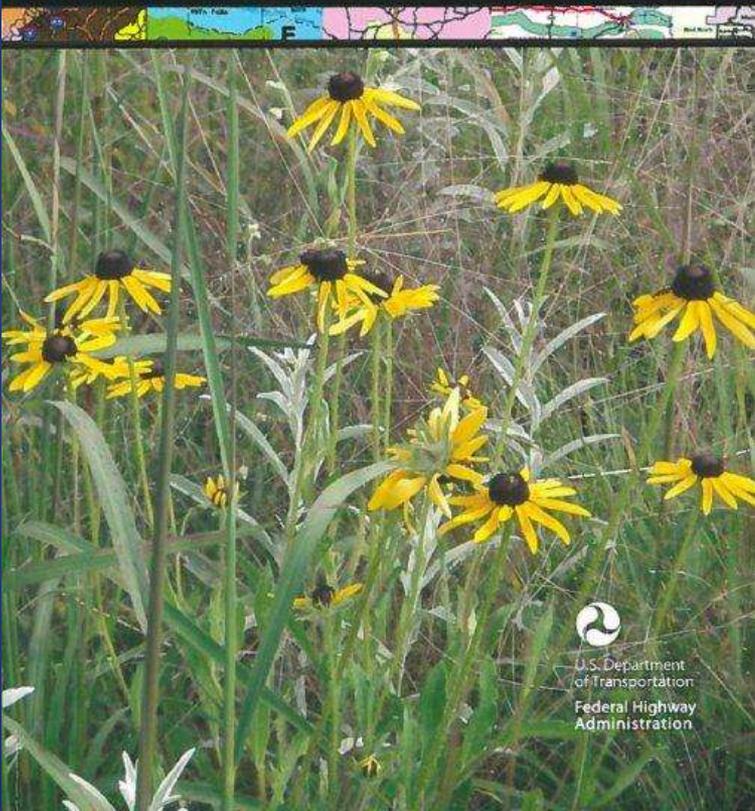
Unfortunately, this bounty can be feast or famine for native pollinators, as broom outcompetes and crowds out the diverse, native forage plants that belong



# 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

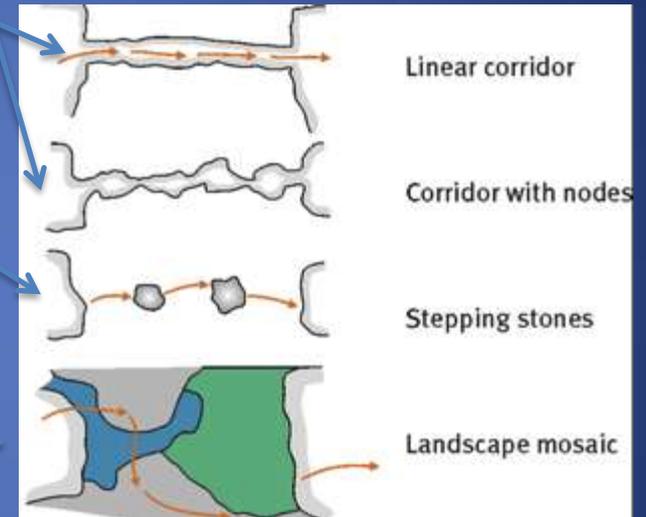
# Pollinators need connections

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.

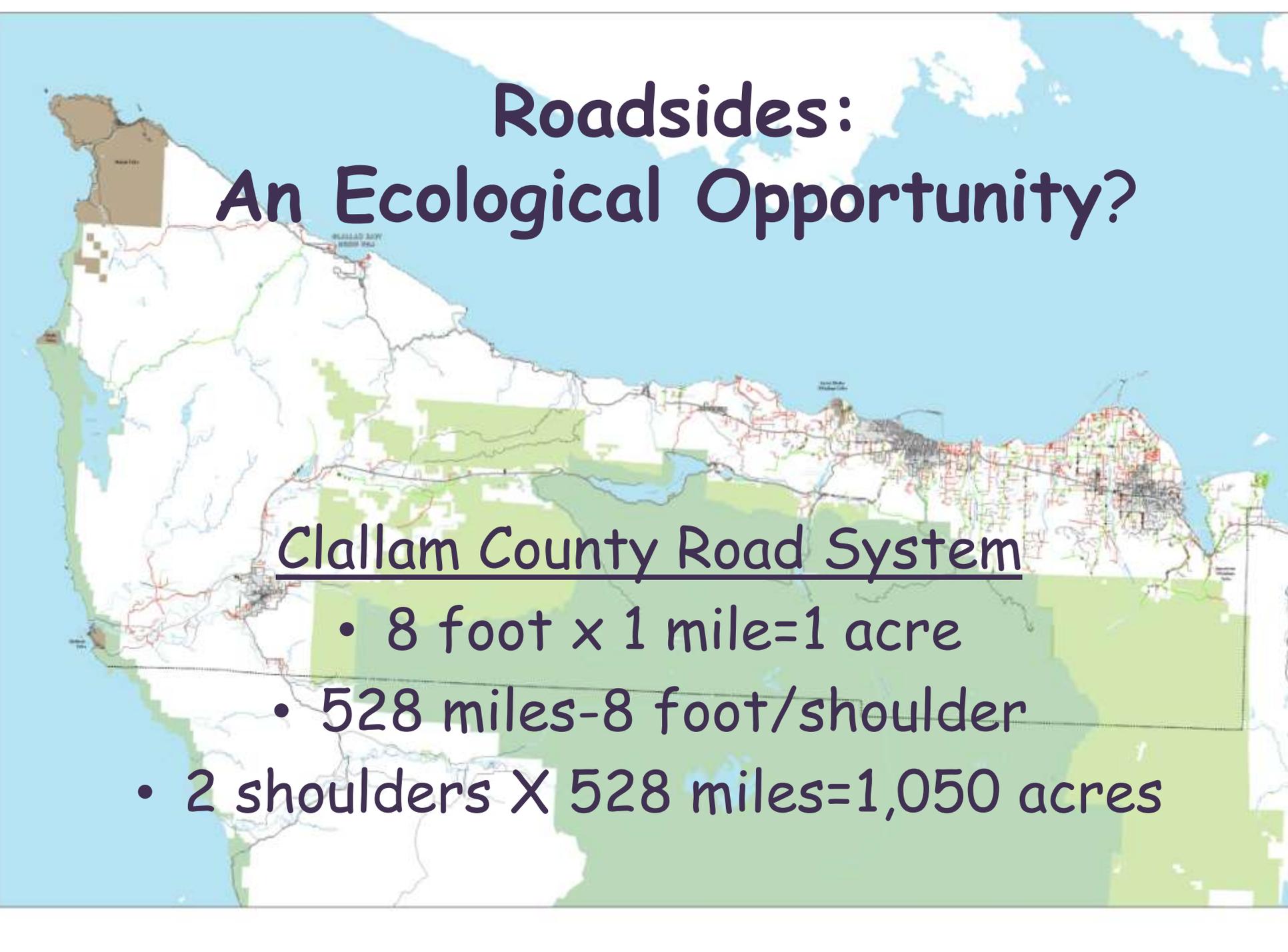


A photograph of a highway shoulder. In the foreground, there is a lush green field with purple wildflowers. A green highway sign on two metal posts reads "South Sound Speedway NEXT RIGHT". In the background, a road with several cars is visible, along with more greenery and a distant mountain range under a blue sky with light clouds.

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 and various colored regions. The title "Roadsides: An Ecological Opportunity?" is prominently displayed in the upper right. The text "Clallam County Road System" is underlined in the center. Below it, a list of statistics is provided: "8 foot x 1 mile=1 acre", "528 miles-8 foot/shoulder", and "2 shoulders X 528 miles=1,050 acres".

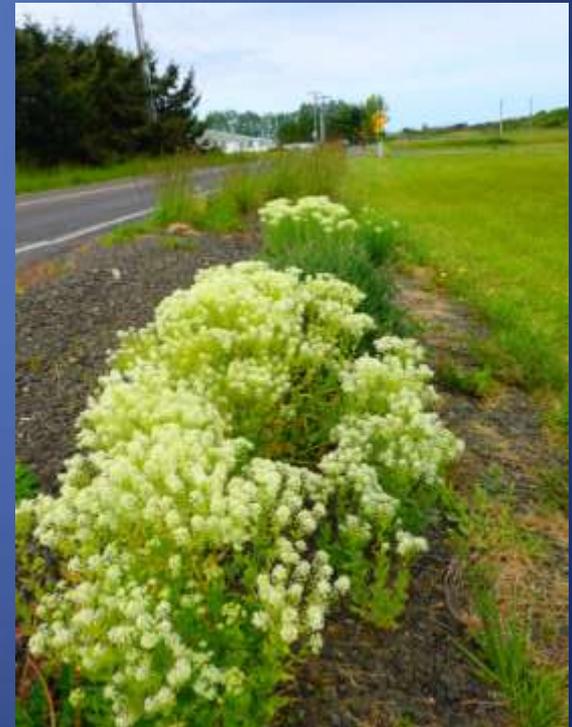
# Roadsides: An Ecological Opportunity?

## Clallam County Road System

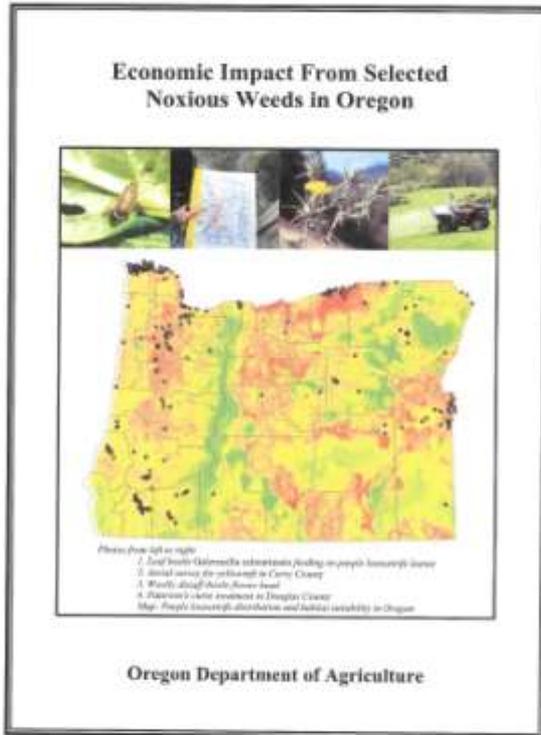
- 8 foot x 1 mile=1 acre
- 528 miles-8 foot/shoulder
- 2 shoulders X 528 miles=1,050 acres

# 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

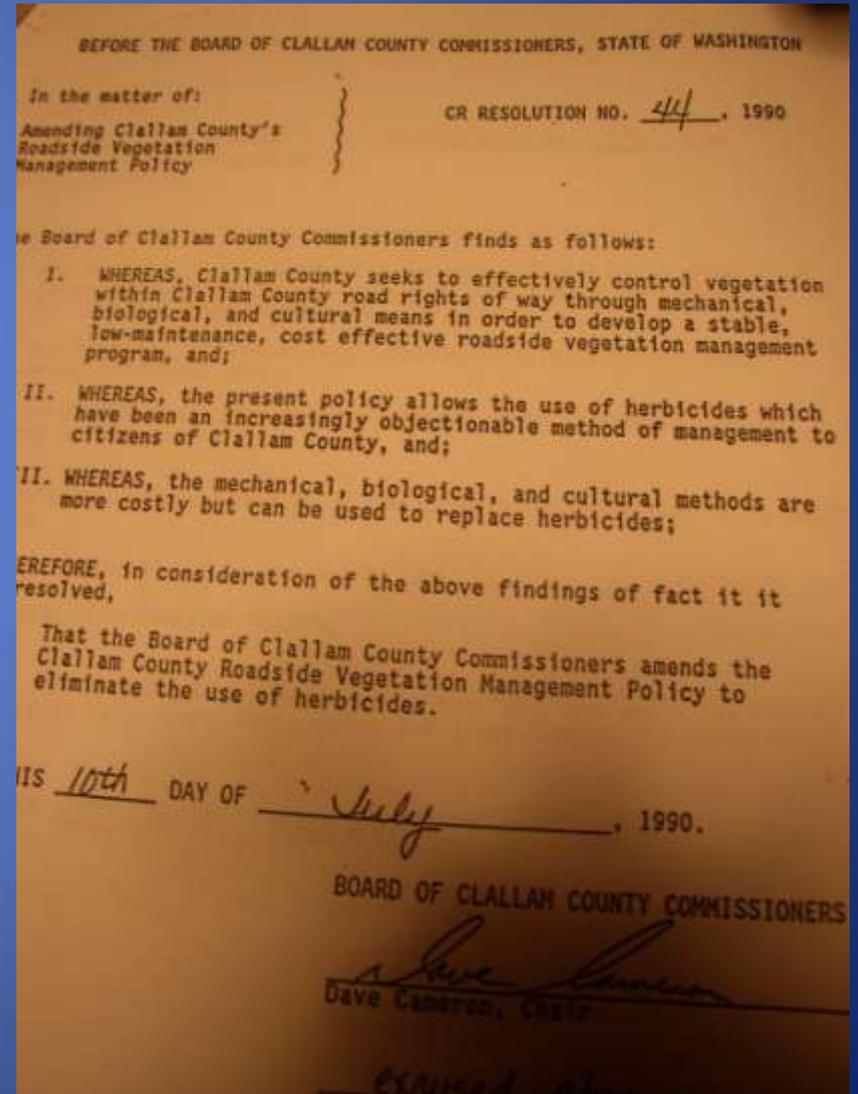


# Noxious Weeds Have Economic Impacts



- 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



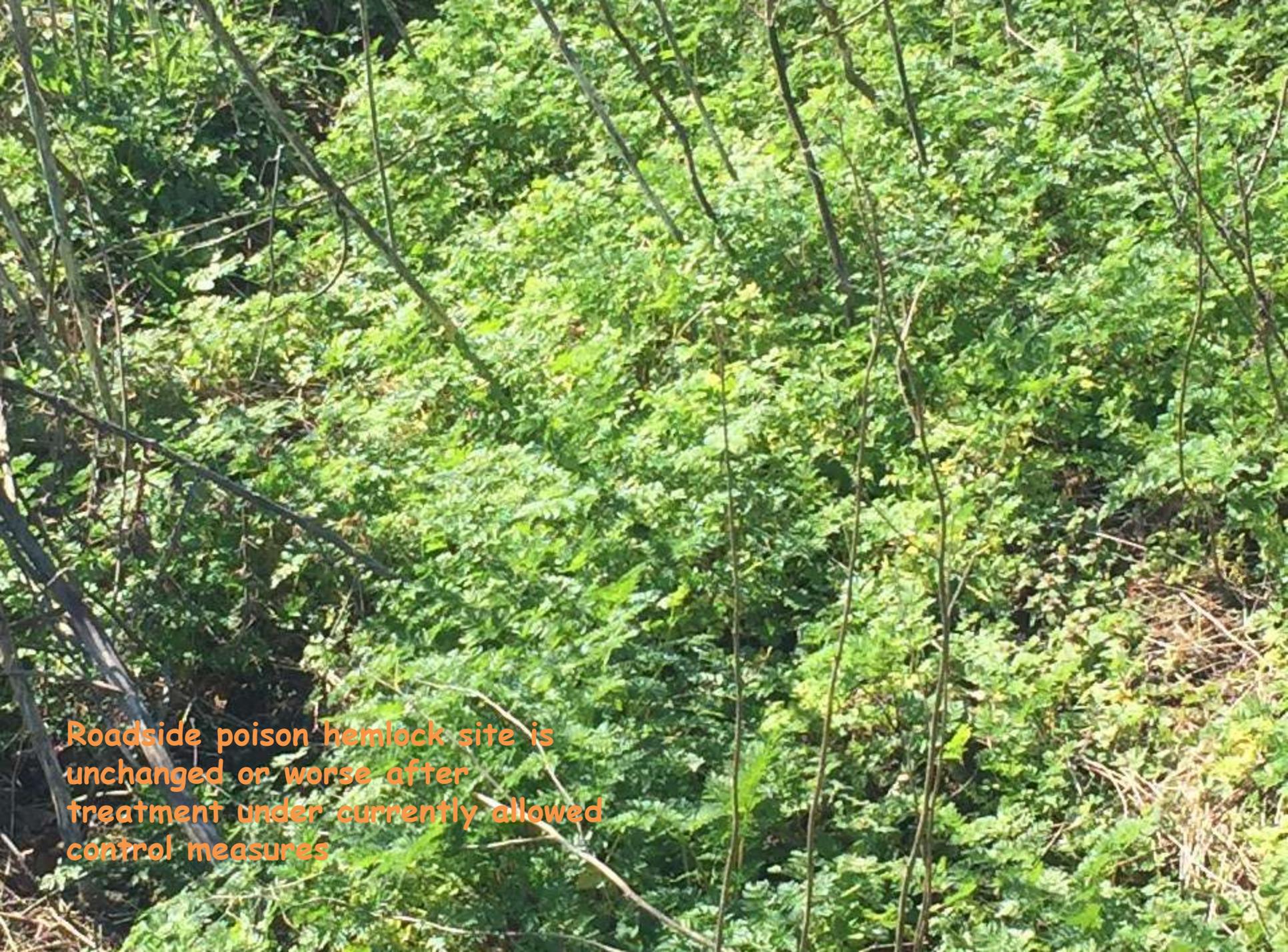
- 250 miles (528 miles)
- 16 high priority species-regulated or rare
- 793 points-(what makes a point?)
- Spread over 94.7 miles (**1/3** surveyed area)
- 4.28 solid acres across 500 acres **1%**
- Does not include most occurrences of common weeds

# 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

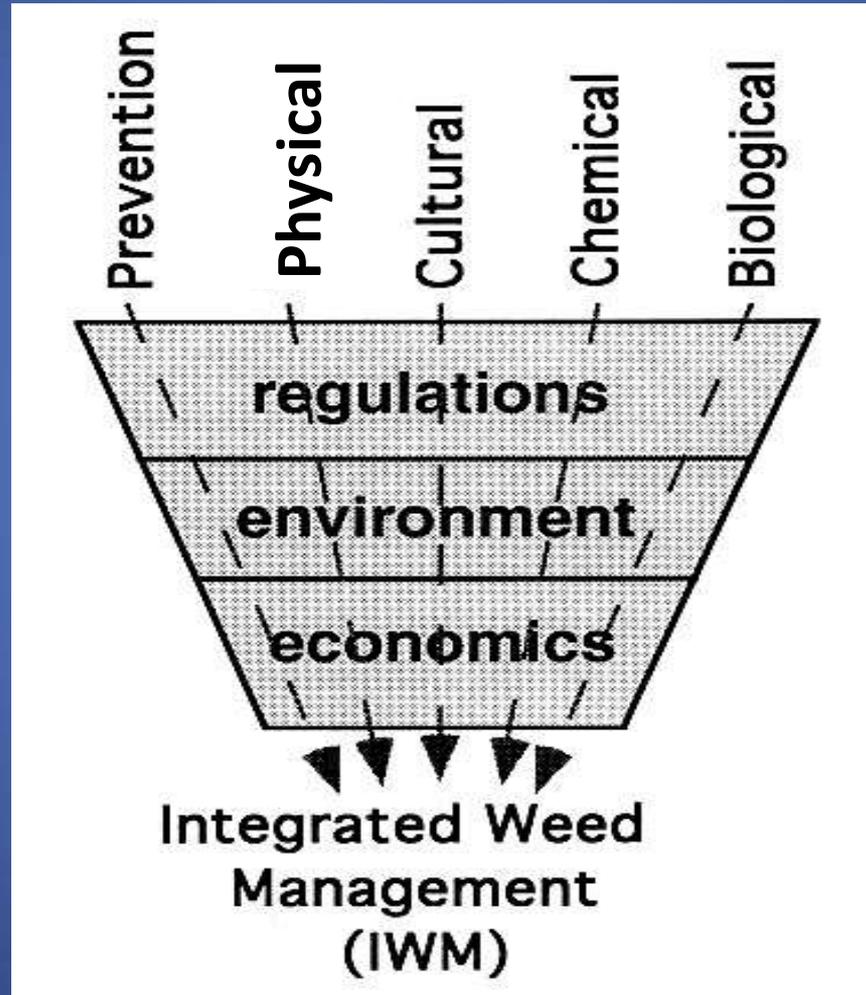
# GOALS-Long Term

- 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**

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**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

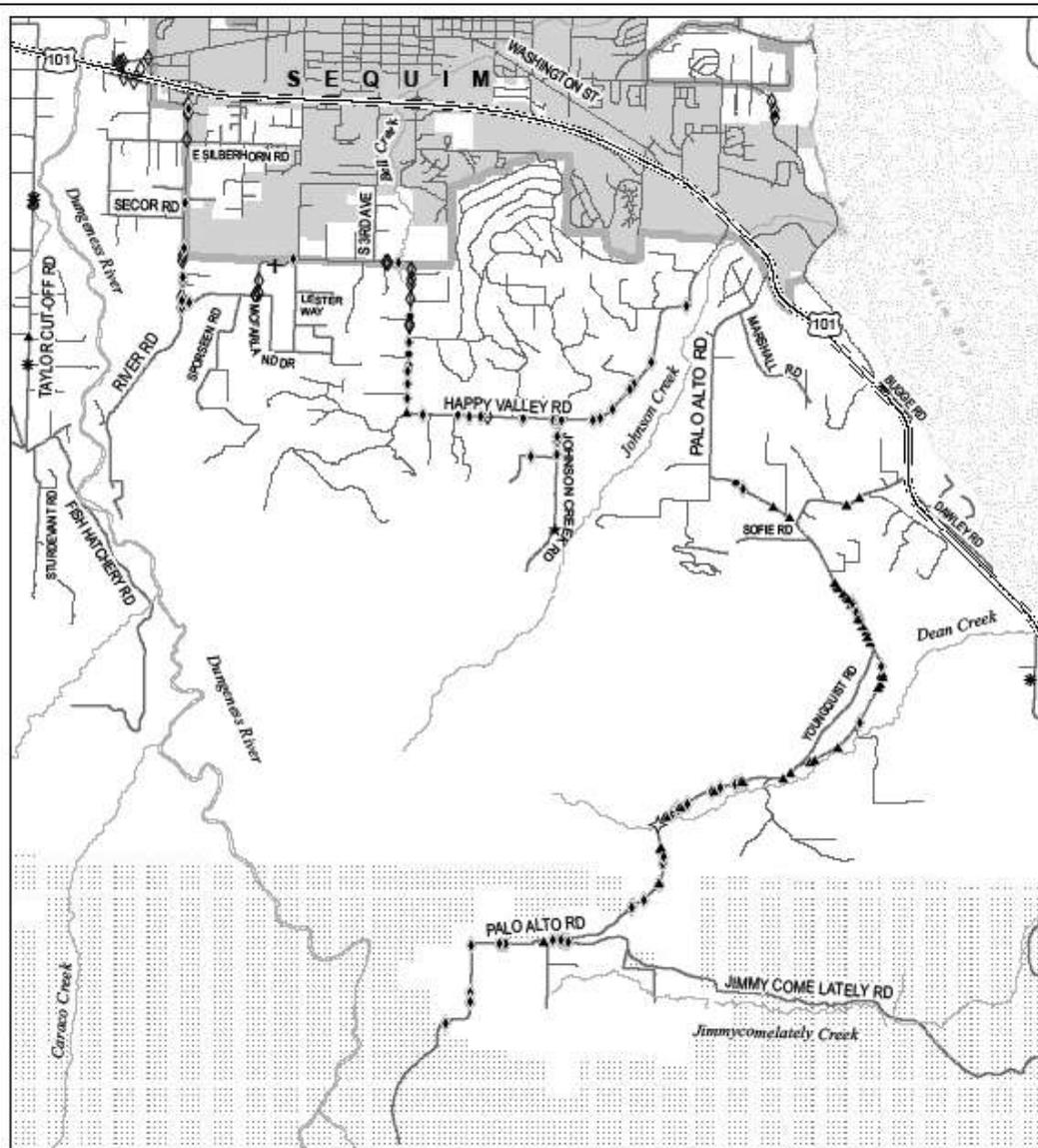
# What's New? **Integrated Strategy**

## **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



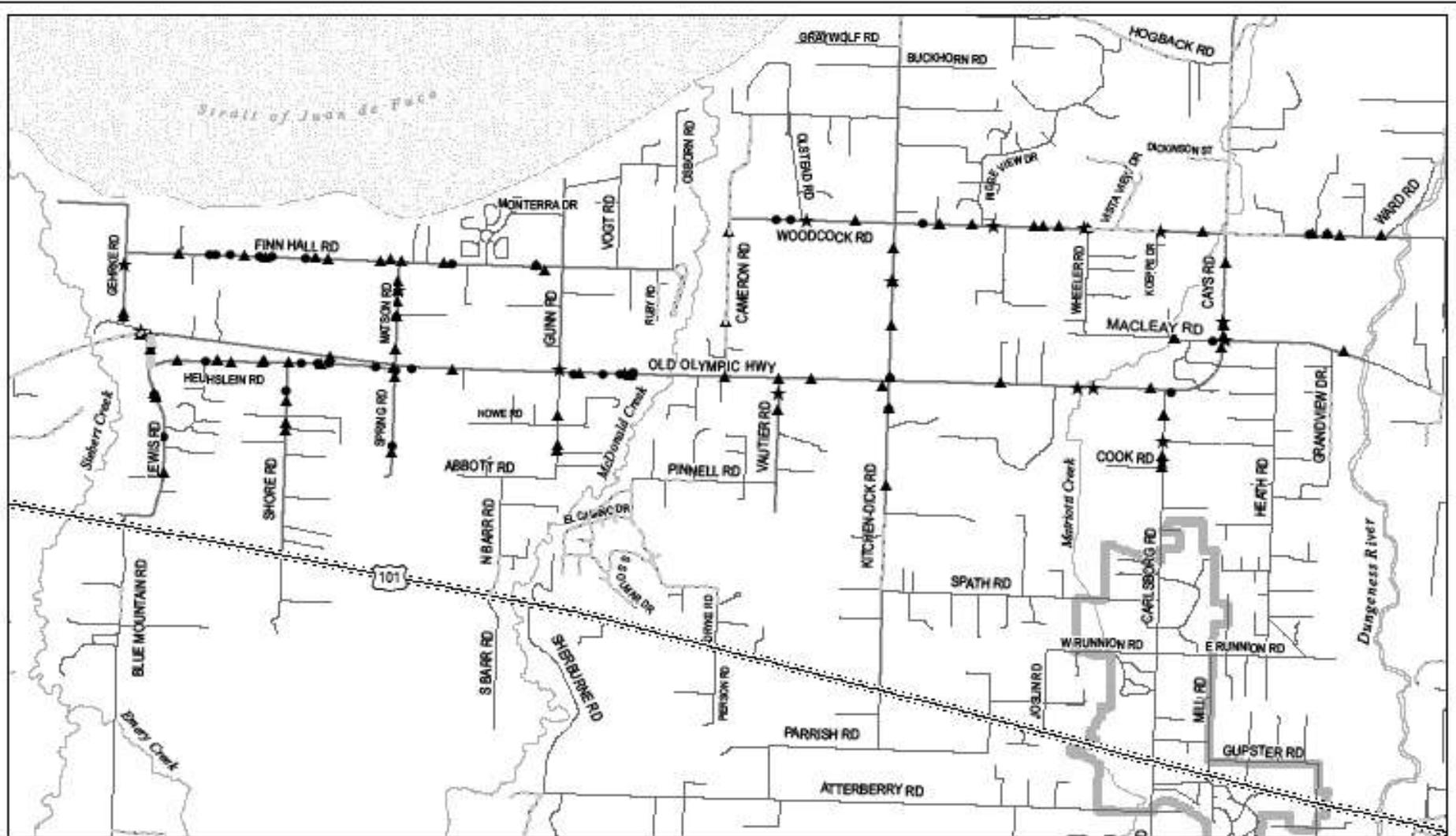
**HAPPY VALLEY/  
PALO ALTO ROAD  
FOCUS AREA**



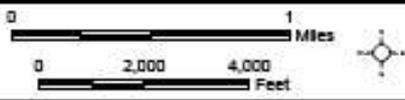
- ◆ Meadow Knapweed
- ◇ Spotted Knapweed
- Polson Hemlock
- Fuller's Teasel
- ▲ Tansy Ragwort
- ★ Yellow Archangel
- ✦ Scotch Broom
- ✦ Butterfly Bush
- ✦ Herb Robert
- Highway 101
- Streams
- Roads- Other
- Roads- County Jurisdiction
- Open Water
- City of Sequim
- Urban Growth Area
- Olympic National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



Map Created: October 23, 2015  
 Source: J:\awrc\clallam\clallam-county-road-department-focus-area-map\clallam-county-happy-valley-palo-alto\_f4.mxd



# THISTLE-SCOTCH BROOM DEMONSTRATION PROJECT FOCUS AREA



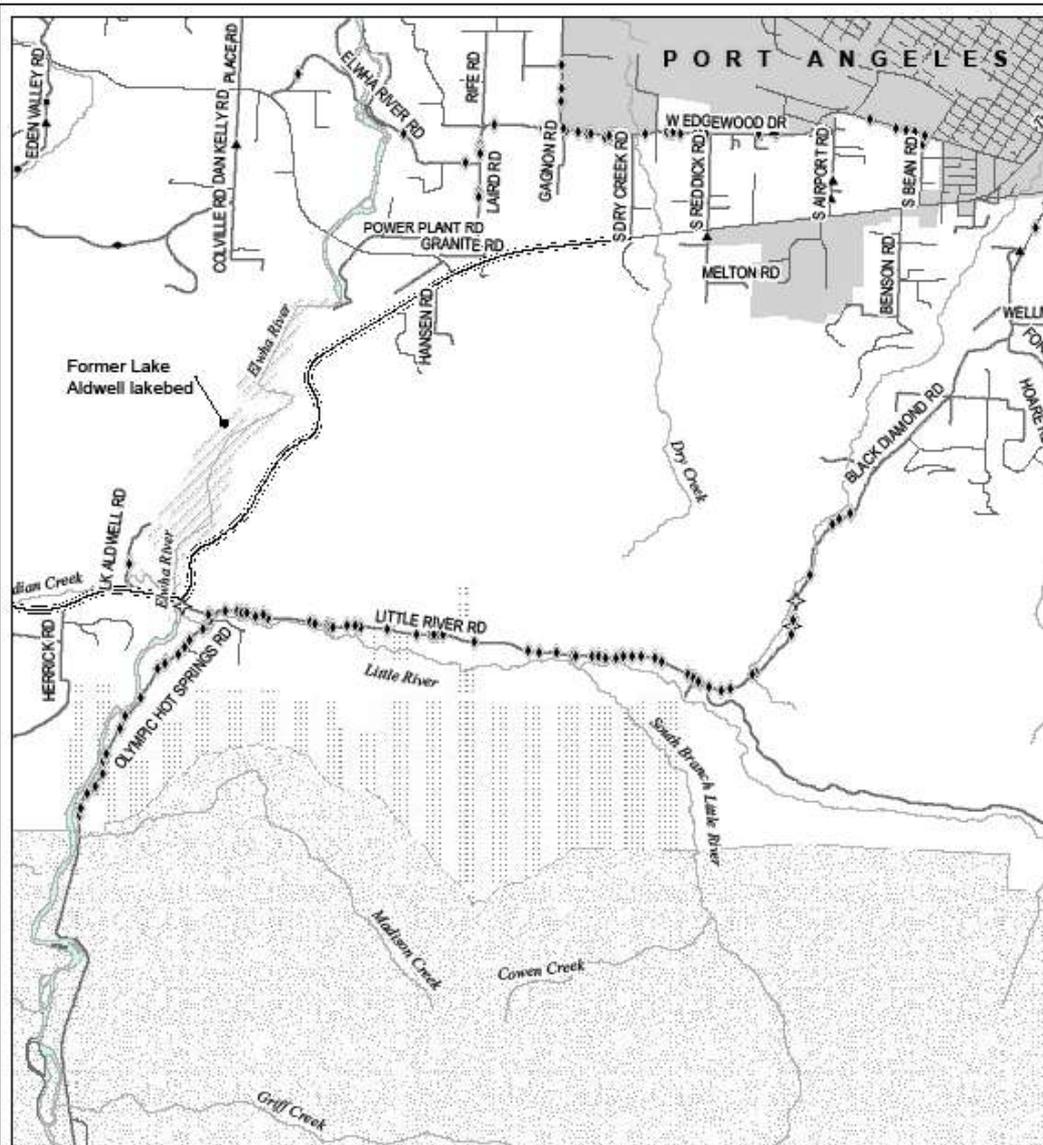
### Surveyed Noxious Weeds<sup>1</sup>

- Bull Thistle
- ▲ Canada Thistle
- ★ Herb Robert

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

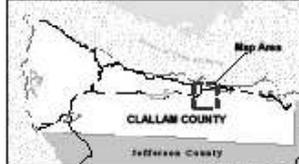
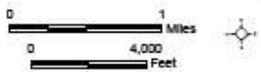
- Highway 101
- Streams
- Roads-Other
- Roads Surveyed
- Open Water
- Urban Growth Area



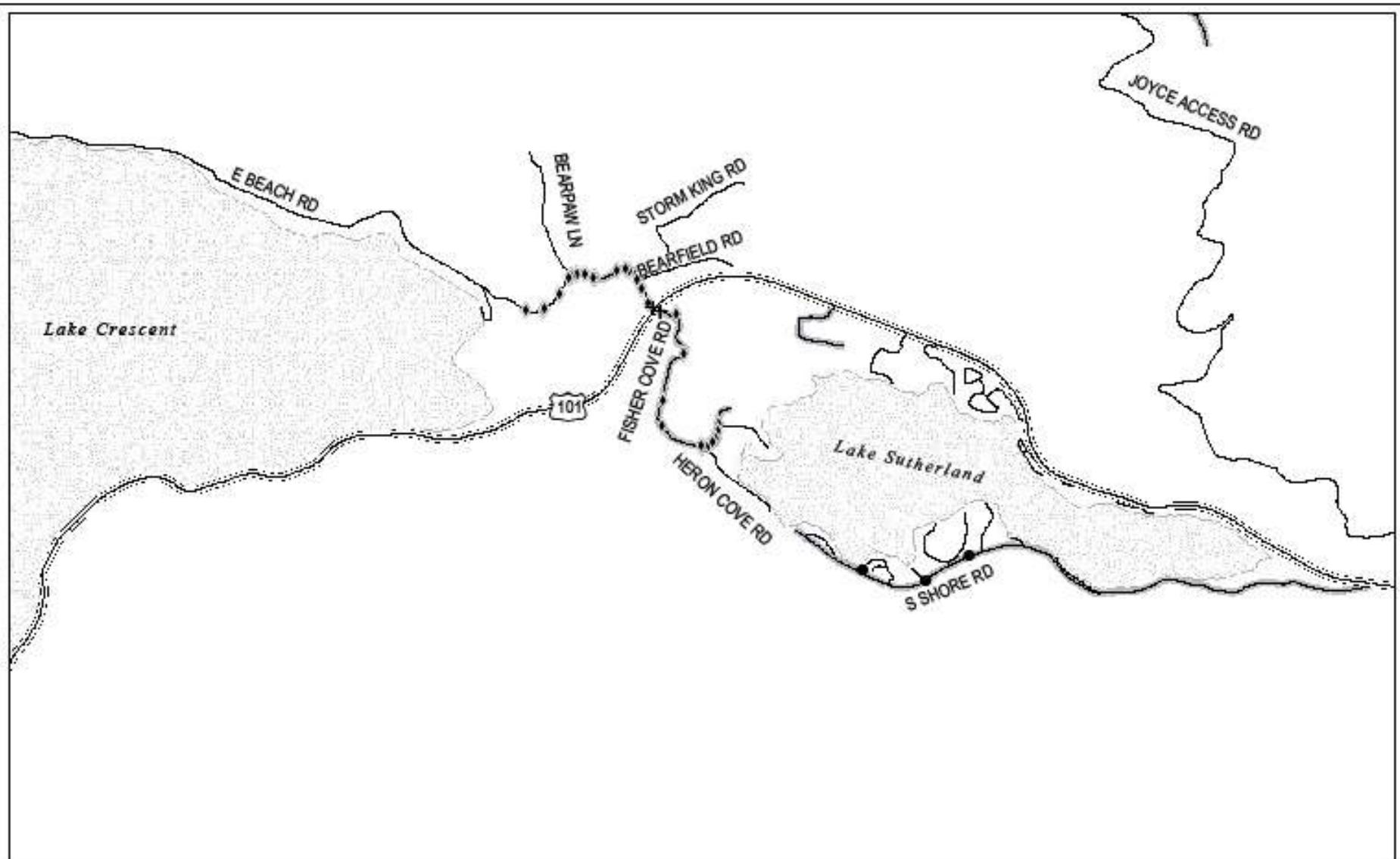


**BLACK DIAMOND/  
LAURIDSEN BLVD  
FOCUS AREA**

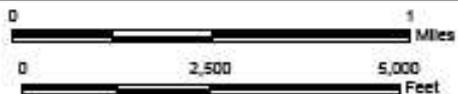
- ◆ Meadow Knapweed
- Bohemian Knotweed
- Fuller's Teasel
- ▲ Tansy Ragwort
- ★ Yellow Flag Iris
- ✦ Scotch Broom
- ◇ Herb Robert
- ▬ Highway 101
- ~ Streams
- Roads- Other
- ▬ Roads- County Jurisdiction
- ▨ Olympic National Forest
- City of Port Angeles
- Urban Growth Area
- ▨ Olympic National Forest



Map Created: October 26, 2015  
Source: J. Healdstrom/Clallam County Dept. of Planning & Growth Management  
Graphic: J. Healdstrom/Clallam County



## LAKE SUTHERLAND/EAST BEACH FOCUS AREA

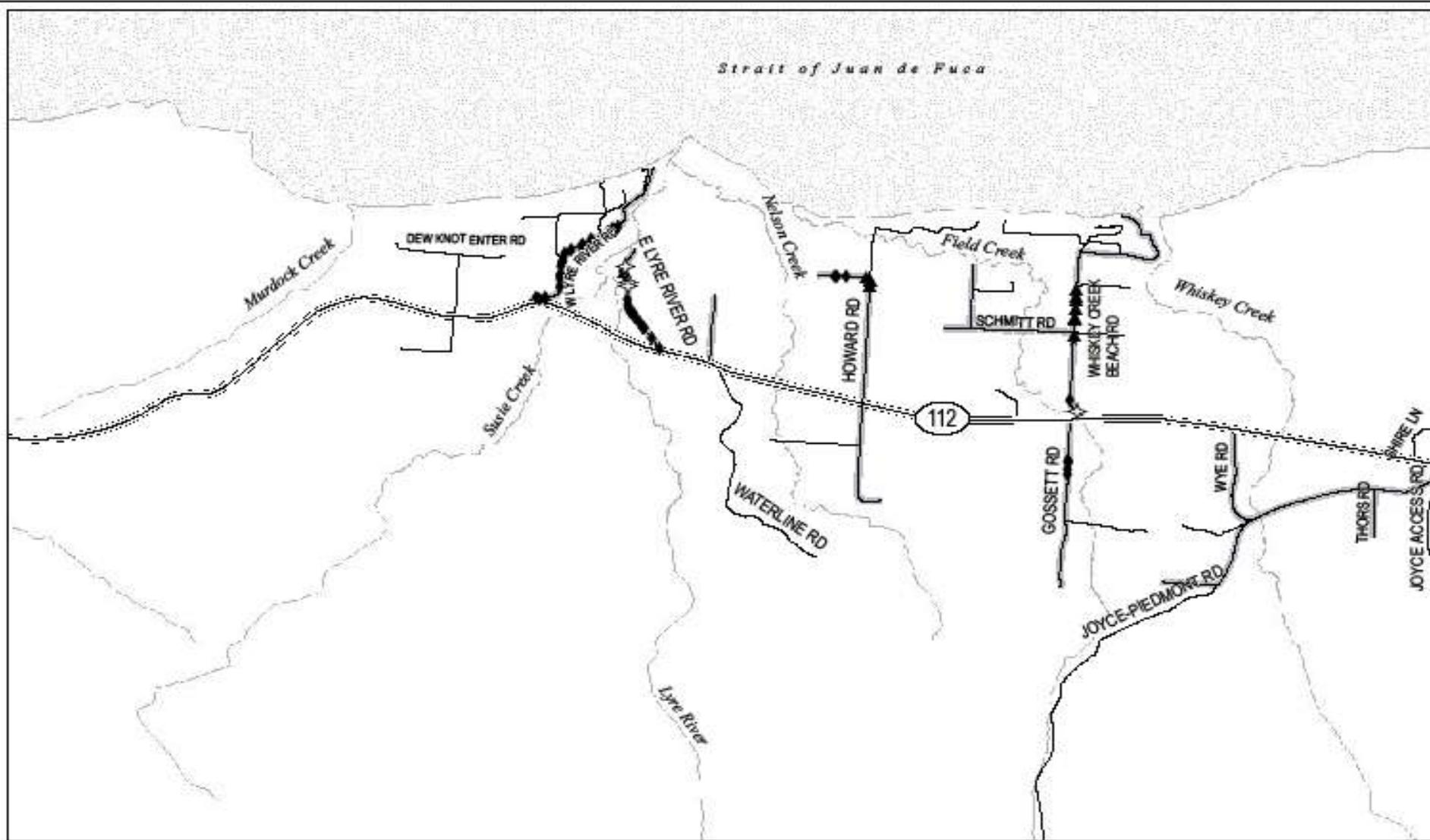


- ◆ Meadow Knapweed
- Orange Hawkweed
- + Scotch Broom

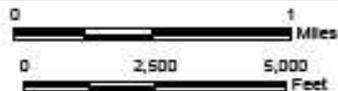
- ~ Streams
- Roads
- Roads- County Jurisdiction
- Open Water

Prepared October 21, 2010  
 Prepared by: Clallam County Department of Planning and Development  
 Project: Clallam County Invasive Species Management Plan





## WHISKEY BEND/LYRE RIVER ROAD FOCUS AREA

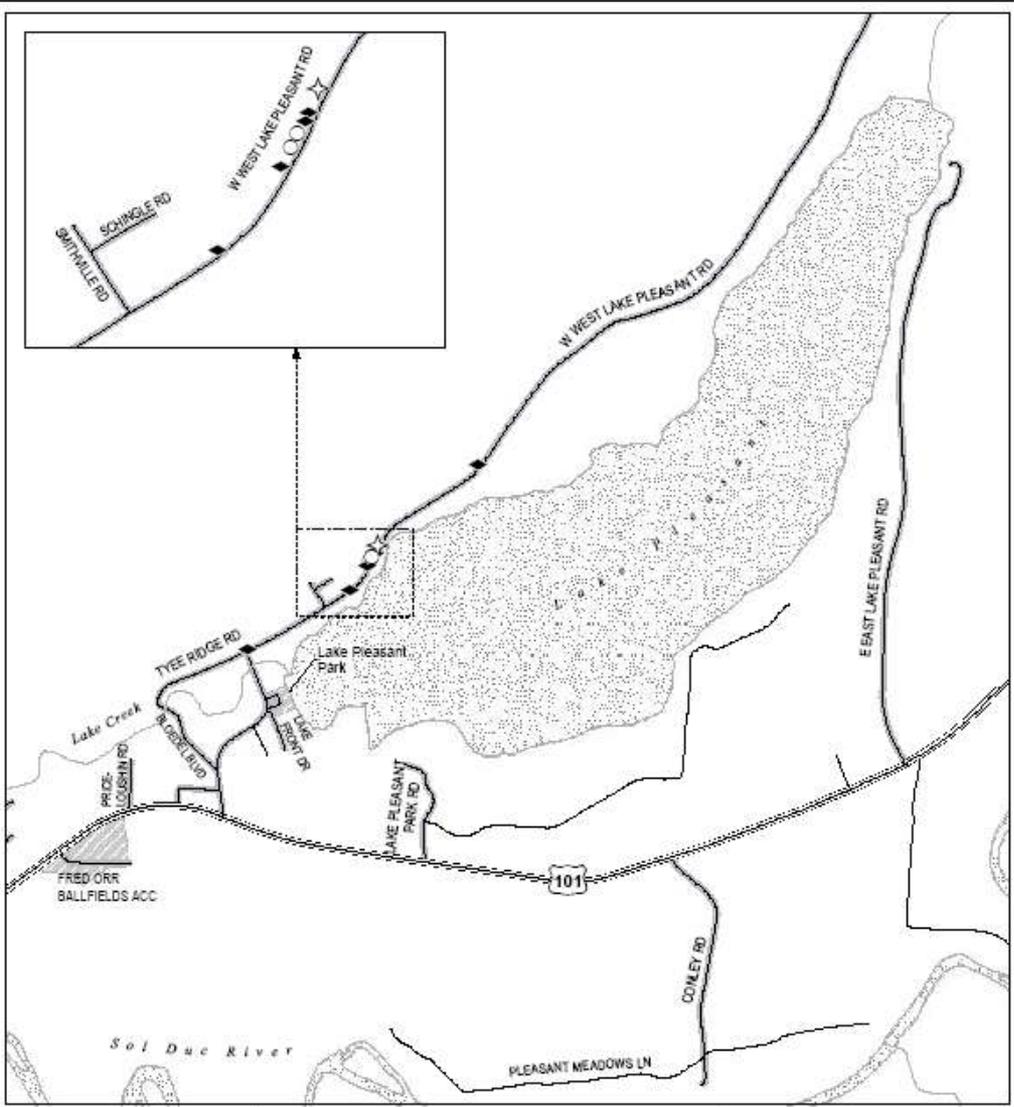


- ★ Yellow Flag Iris
- ◆ Meadow Knapweed
- ▲ Tansy Ragwort
- ◇ Herb Robert

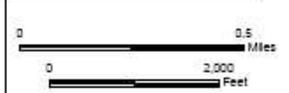
- Streams
- Roads
- Roads- County Jurisdiction
- Open Water

Map of Clallam County, WA, showing the location of the Whiskey Bend/Lyre River Road Focus Area. The map area is highlighted in black.

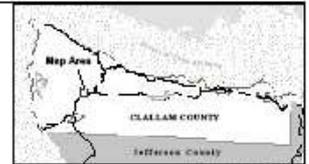




### LAKE PLEASANT FOCUS AREA



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



Map Created: November 20, 2015  
Source: Janssen/Klein/Clallam County Road Department  
FocusAreaMap\FocusArea\_Pleasant.mxd

# 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

The image shows a large quantity of black, corrugated pipes stacked in several rows in an outdoor setting. The pipes are arranged in a way that shows their circular ends and the ridged texture of their exterior. In the background, there is a dense green hedge. The foreground is filled with tall, green grass. A small, light blue object is visible among the pipes in the middle ground. The overall scene suggests a storage area for construction or agricultural materials.

# Prevention

Clean equipment

Prevention

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

Weed free erosion control materials and mulch.

6.2.13.1

# WWHAM

## Washington Wilderness Hay and Mulch

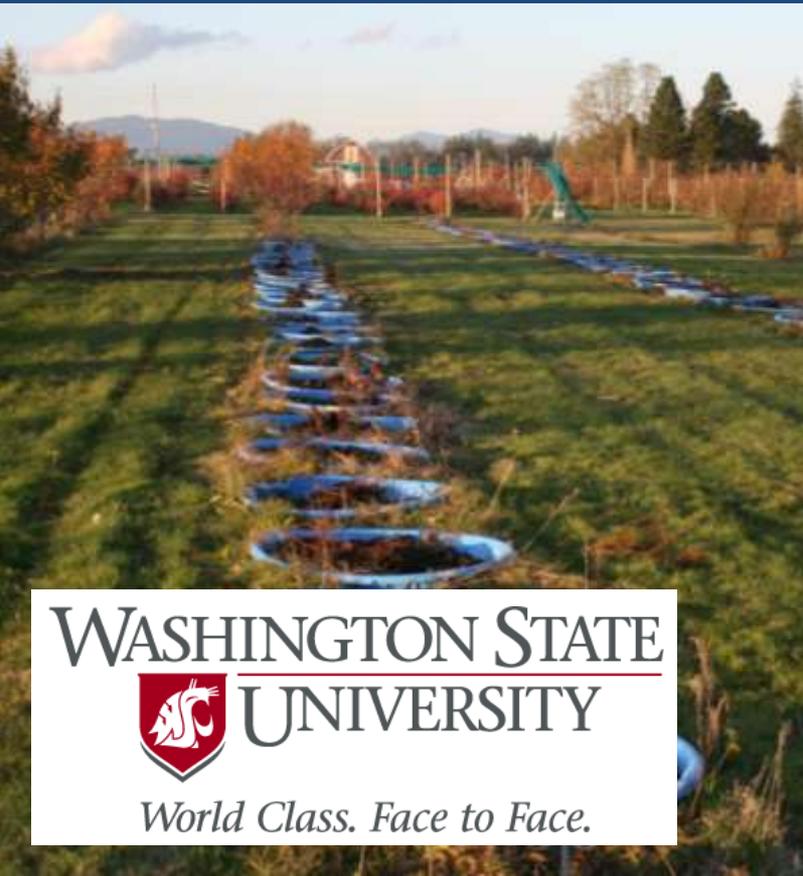


### Washington Wilderness Hay and Mulch (WWHAM):

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



# RESEARCH



WASHINGTON STATE  
UNIVERSITY  
*World Class. Face to Face.*

# 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!**



Sue Palmer  
2006





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



MAXIMUM  
40  
K.M.H.

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*

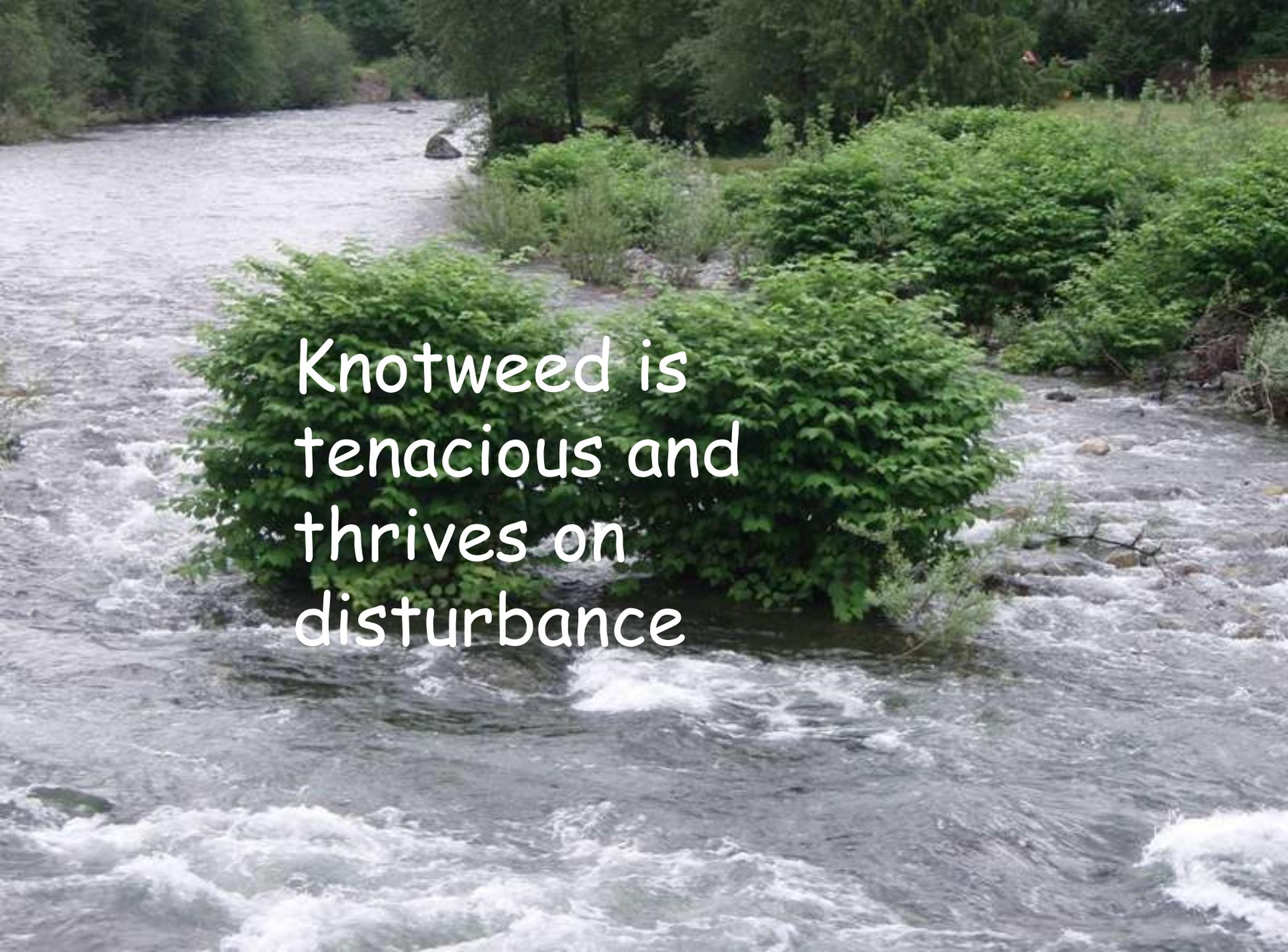




Knotweed can prevent natural succession processes in riparian areas



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 and white with foam. In the background, there are more rocks and dense green trees along the riverbank.

Knotweed is  
tenacious and  
thrives on  
disturbance



2007-Sekiu waterfront-pretreatment

2014-Sign of success!-Sekiu waterfront sans knotweed





20 10:31 AM

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



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

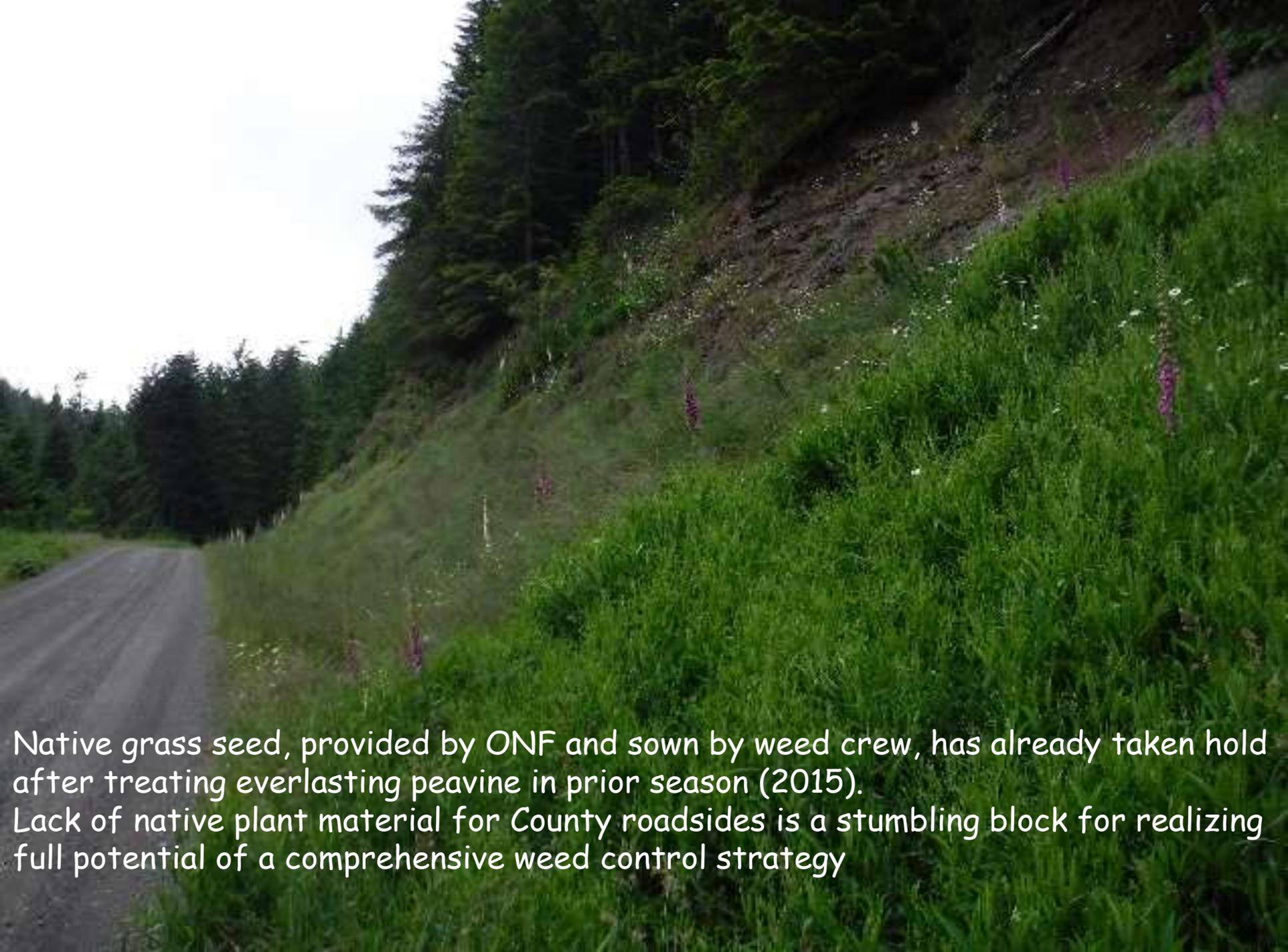
Q: How is the IRWM plan different from what we have now?

*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

