

# *Sticks, Livestakes and Snails*

*Underwood Conservation District's  
Watershed Activities,  
from the Headwaters to the Columbia*

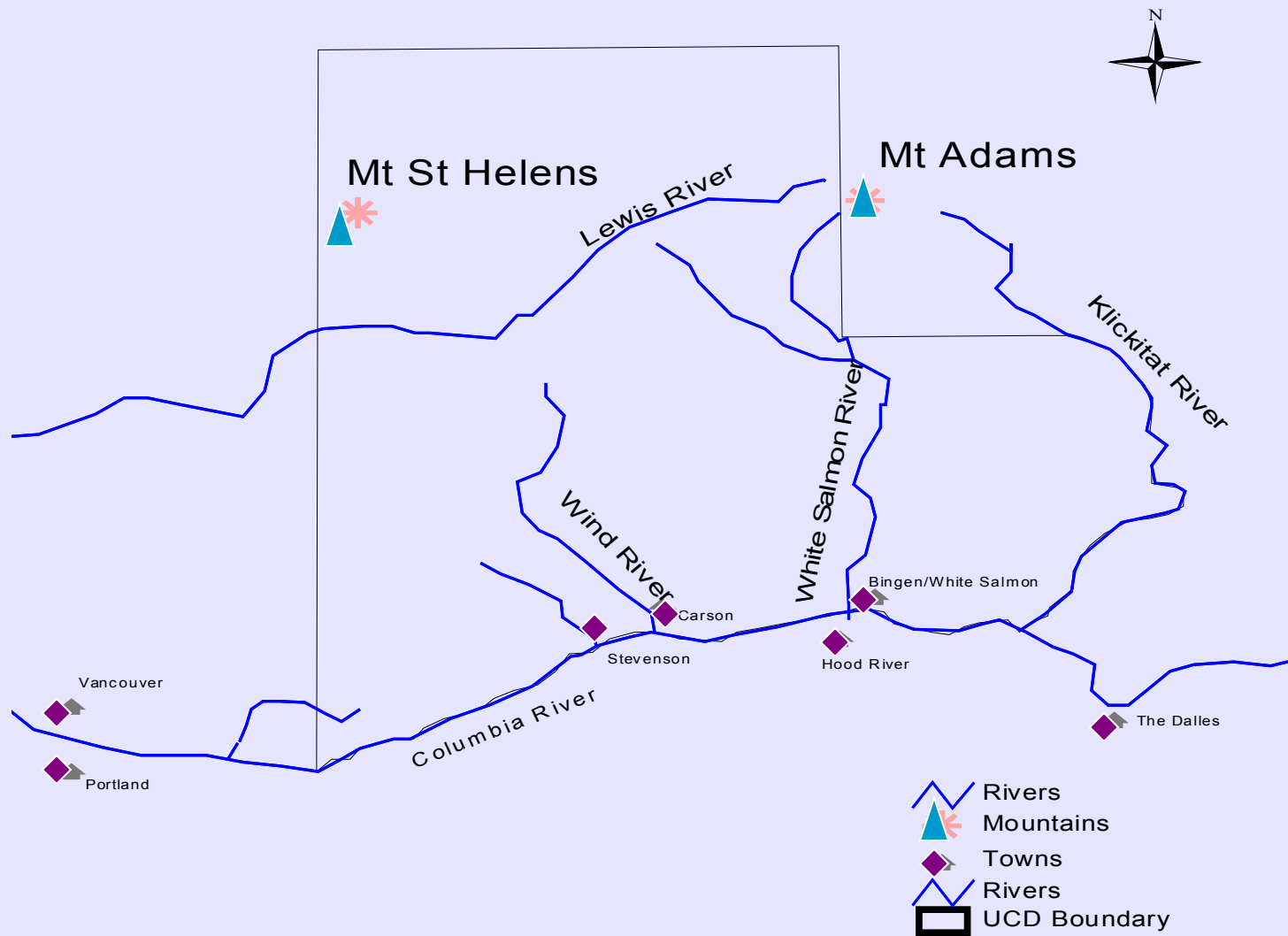
Tova Cochran, Manager  
& Jamie Gomez, Resource Technician

February 27, 2008

# What is Underwood Conservation District?

- A non-enforcement government agency.
- One of 47 in Washington State.
- Guided by the Washington State Conservation Commission.
- Closely tied to the Natural Resource Conservation Service (NRCS, formerly SCS).
- Designed to be a local source of conservation assistance to landowners in order to protect and enhance natural resources.

# Underwood Conservation District



# Major Activities of Underwood Conservation District

- Technical Assistance to Landowners
- Cost-share for Implementation of Conservation Practices
- Education
- Facilitation of Stakeholder Groups
- Native Plant Sale and Arbor Day Programs
- Water Quality Monitoring



# Conservation Practices



- Reforestation
- Bank stabilization/Erosion Control
- Fencing
- Other Water Quality Enhancements
- Fisheries Habitat Enhancement

# Who's in Charge?

A 5-person Board of volunteer Supervisors is responsible for district oversight.

- 3 Board members are elected, by registered voters in the District.
- 2 Board members are appointed by the Washington Conservation Commission.
- Serve 3-year terms.
- Associate Board members learn how the District operates and provide assistance.

# UCD Board

- Paul Newell, Underwood (Chair)
- Bill Schmitt, Appleton (Vice-chair)
- Sherry Penney, Snowden
- Jake Anderson, Northwestern Lake
- Don Gensler, White Salmon

# UCD Employees

- Tova Cochrane, Manager
- Ann Gross, Financial Manager
- Jamie Gomez, Resource Technician
- Adrienne Zuckerman, Americorps Intern






# Simmons Creek Restoration Project

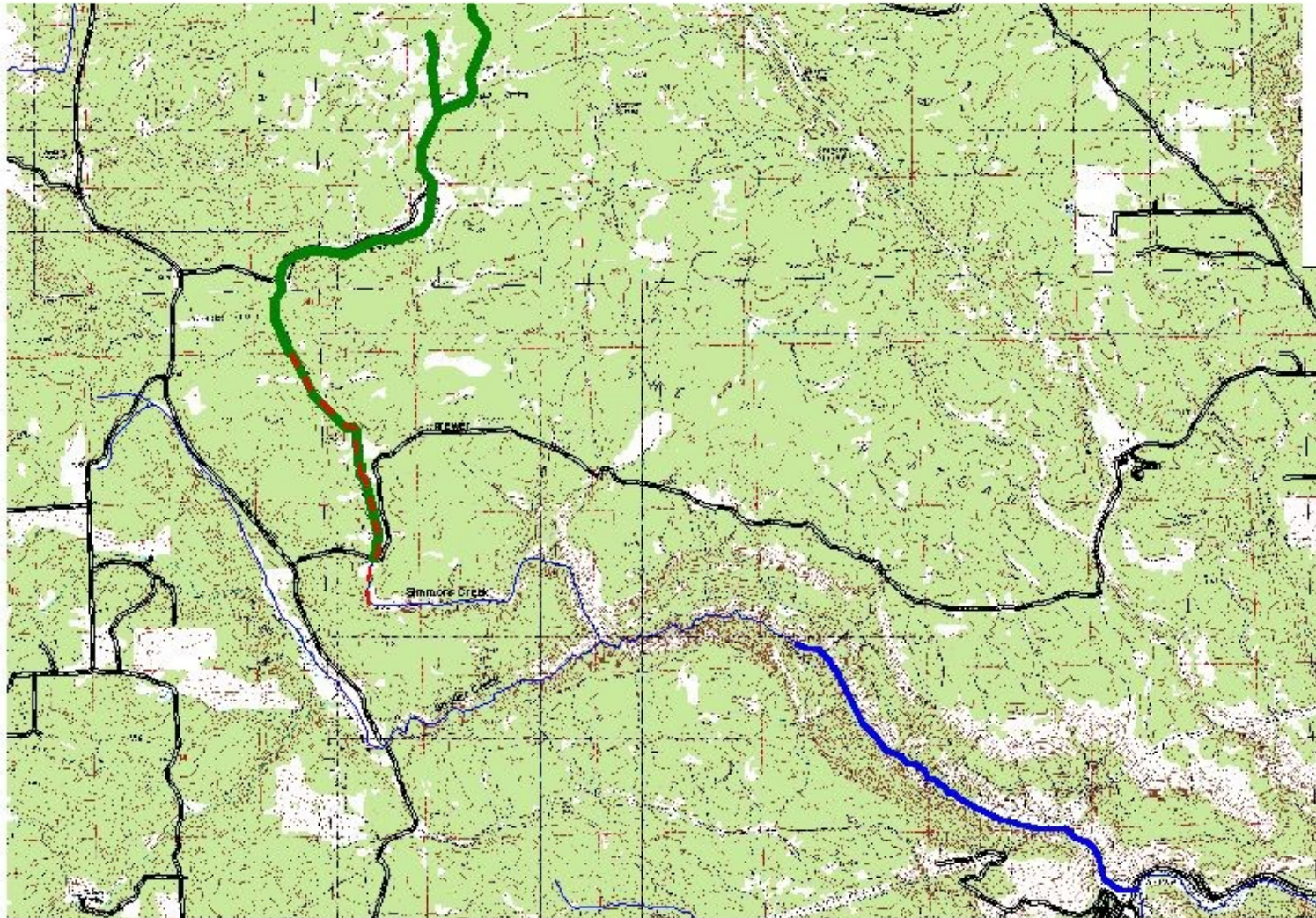
# Location and Ownership

- Simmons Creek is a tributary to Snyder Creek.
- Approx. 2 rivermiles from confluence with Snyder and 6 rivermiles upstream of confluence with Klickitat River.
- Hancock Forest Management manages forestland. John Stephens leases allotment for grazing cattle.



# Simmons Creek Restoration

-  Steelhead habitat
-  Simmons creek restoration area
-  Fenced stream
-  Streams
-  Roads



# Background

- Snyder Creek provides habitat for summer steelhead, winter steelhead and resident rainbow trout. Simmons Creek contributes to water quantity and quality of Snyder Creek, as well as Klickitat River.
- The Klickitat Mill site has undergone major restoration, but is limited by low water flow.
- 40 Acres of riparian pasture is fenced to protect Simmons Creek; this area still needs repair and cattle watering problem needs to be addressed.



# Problem

- Historic agricultural ditching and intensive grazing.
- Deep, fine soils erode easily; downcut and disconnected from floodplain.
- Winter storm flows drain watershed quickly, less water recharge to the aquifer.
- Low summertime water flows.

# Downcut Channel





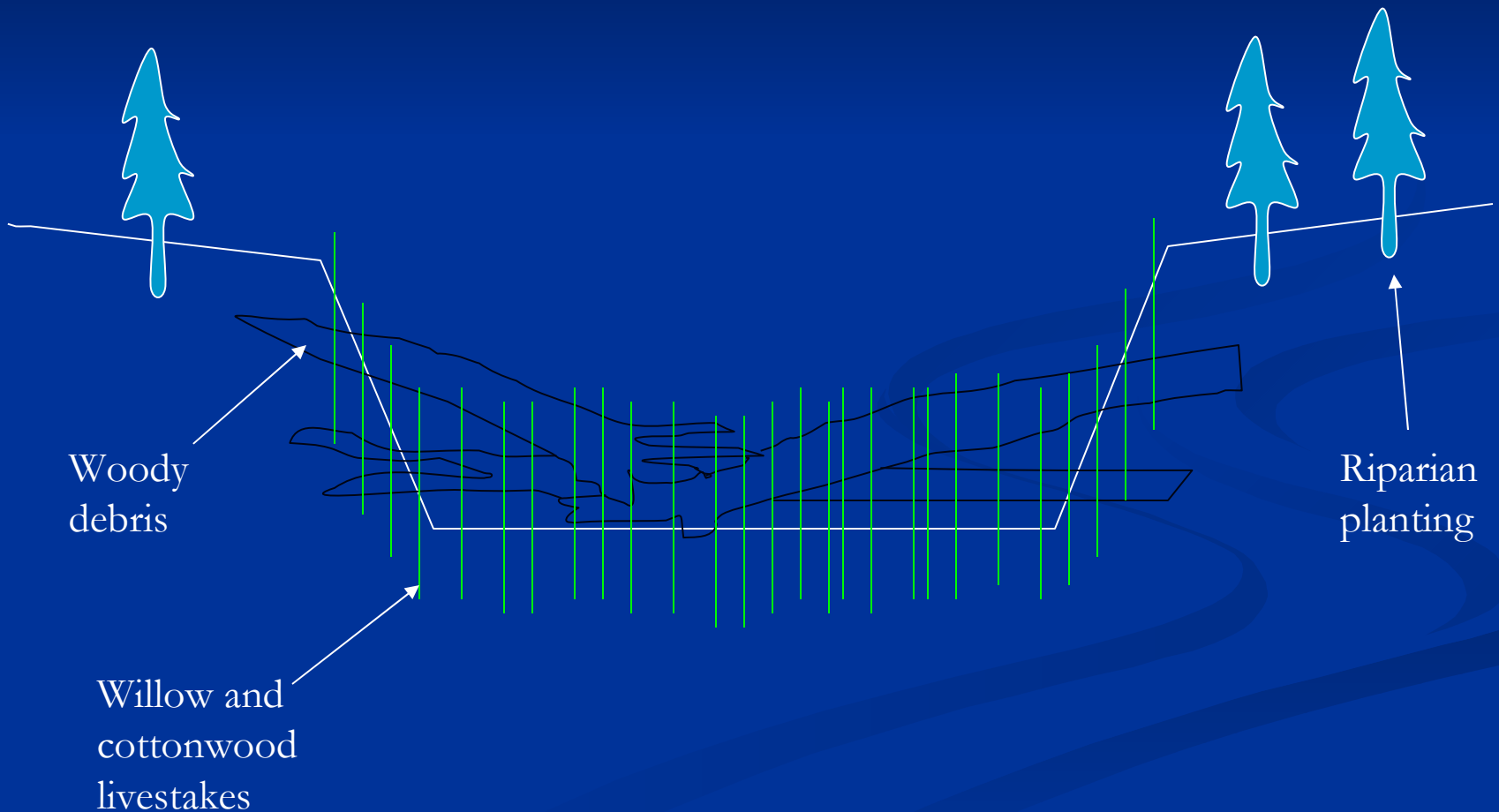
# Little/No Roughness



# Project Plan

- Build 40-50 channel roughness/sediment capture structures along 6,600 linear feet of Simmons Ck.
  - Channel-spanning woody debris and livestock fascines combined with dense livestock plantings, will create live checkdams.
  - Will stabilize eroding banks, capture sediment, increase groundwater recharge, and increase summer flows in downstream salmonid habitat.
- Install two off-stream watering facilities for cattle which are fenced out from 40 acres of riparian pasture.
  - Gravity-fed or solar-pumped watering stations, will locate upland and away from stream.
  - Will ameliorate need to let cattle into fenced area for occasional water and help protect the unfenced portion of stream from further degradation.

# Sediment Capture/Channel Roughness Structure Concept





# Project Objectives

- Add channel roughness
- Capture sediment
- Reduce erosion
- Increase groundwater recharge and storage
- Increase summer instream flow
- Reduce sedimentation of stream
- Provide off-stream watering sites to reduce cattle impacts to stream

And now for something completely different...

# AQUATIC NUISANCE SPECIES (ANS)

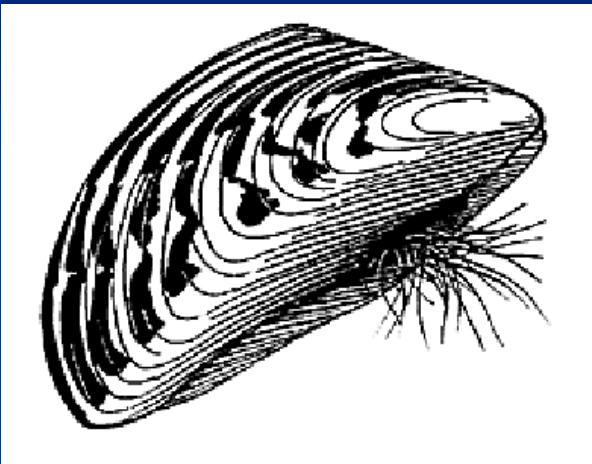
A species that is not native to a body of water but is introduced and causes ecological or economic harm.



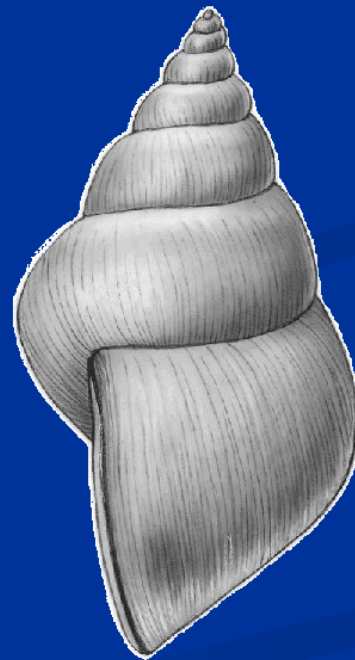
# AQUATIC NUSIANCE SPECIES

- Compete with native species
- Degrade habitat
- Alter food webs
- Introduce new diseases
- Affect water supply and quality
- Affect recreation
- Cost millions \$\$ annually
- Ecosystem wide changes

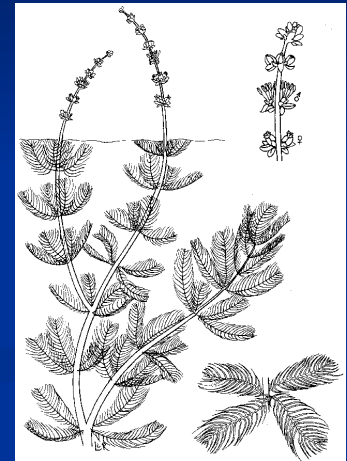
# WATCH OUT FOR THESE INVADERS



ZEBRA AND QUAGGA  
MUSSELS



NEW ZEALAND MUDSNAIL



EURASIAN MILFOIL

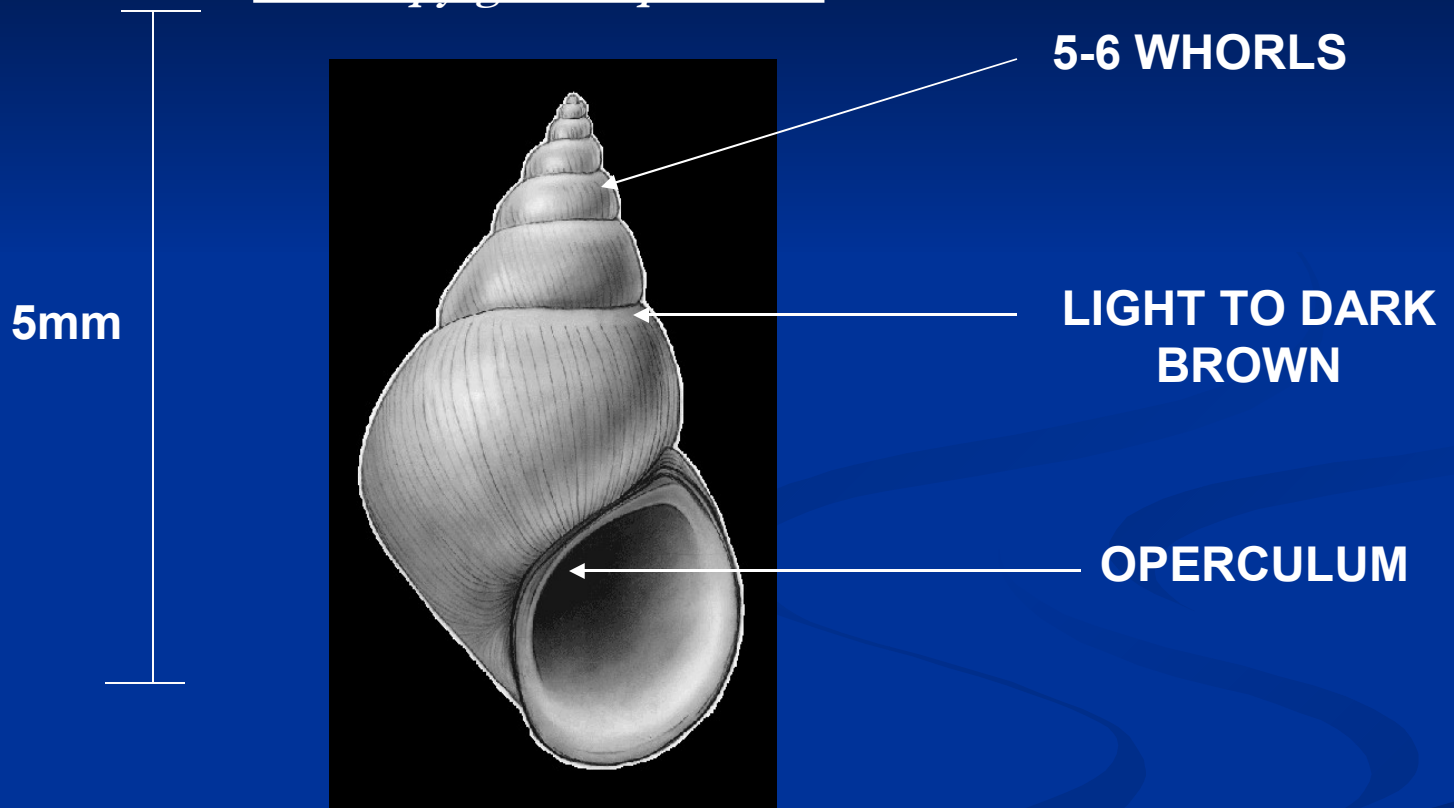




# How to identify

## NEW ZEALAND MUDSNAIL

*Potamopyrgus antipodarum*



To report a sighting, call

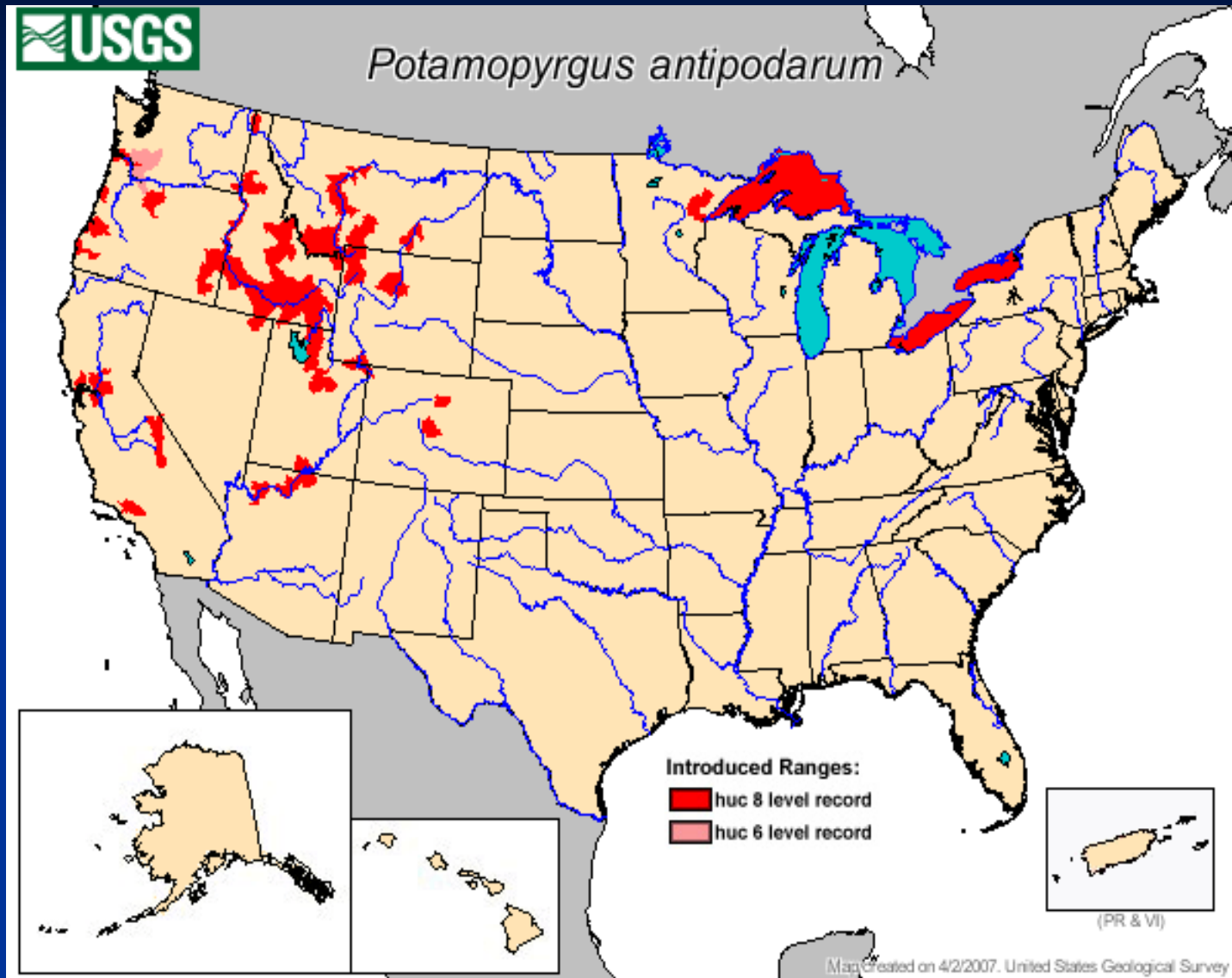
1-800-STOP-ANS

# **NEW ZEALAND MUD SNAIL**

## **ISSUES**

- **Parthenogenic**
- **High Density**
- **Poor Food**
- **No Removal**
- **Potential Negative Effects on Salmonids**
- **No Natural Predators**

# NEW ZEALAND MUD SNAIL





# New Zealand Mudsnail Distribution in the Pacific Northwest

- The Snake River
- The Deschutes River
- The Lower Columbia and Columbia Estuary
- Several Oregon Lakes: Devil's Lake, Coffenbury Lake, Garrison Lake & Floras Lake
- Lower Rogue River
- Lewis and Clark River

# Where did they come from?

- New Zealand
- Western & Eastern US
- Europe & Asia
- Easily transported on wading gear or any submerged hard surfaces



# Early Detection and Rapid Response

- An ounce of prevention....
- If you see an invasive species, report to local natural resource agency.

# Potential Human Mediated Vectors:

- Boats and trailers
- Live wells, motors, wheels and other undrained areas
- Wading gear
- Pets and aquariums
- Fish or live bait

What can I do?

**CLEAN**

**DRAIN**

**DRY**

**DISPOSE**

# What can I do?

- **CLEAN:** Remove visible mud, plants and rocks from all gear. Scrub between cracks and in tread as necessary. ANS can be present even if you cannot see them.
- **DRAIN:** Remove excess water from boats, equipment, live wells and waders. ANS can live in these spaces.

- **DRY:** Dry gear for 4-5 days between waterway visits. Freezing or soaking gear in hot water can work also.
- **DISPOSE:** Dump all aquatic material in either the same waters you were just immersed in, or in a safe dry location away from and other water body (e.g. a trash can).

*If traveling often between water bodies having different gear for each will prevent the spread of ANS*

# Important Contacts:

- **Klickitat County Noxious Weed Dept.** in Goldendale – Marty Hudson
- **Skamania County Noxious Weed Dept.** in Stevenson – Sarah Prince
- **WA Dept. of Fish and Wildlife**
- **Underwood Conservation District** in White Salmon
- **1-800-STOP-ANS** – National Reporting Hotline

# Thank you!

Further questions or comments?



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[w3.gorge.net/ucd/ucd.htm](http://w3.gorge.net/ucd/ucd.htm)

# Extra Info



# Recent Discoveries

On January 20<sup>th</sup> 2007 the Quagga Mussel was found on the Arizona side of Lake Mohave just north of Davis Dam in Lake Mead National Recreation Area.

Since then, they have been discovered in other lower Colorado River lakes that supply water to Southern California, Nevada and Arizona.

Quagga mussels were found in a Lake Mead hatchery that has shipped fish and water to northeast Nevada's Wild Horse Reservoir in the Owyhee River system at the edge of the Columbia River drainage.

Zebra mussels were found in May 2007 on two houseboats being transported through OR and WA to Canada.





**ZEBRA MUSSEL**





**QUAGGA MUSSEL**

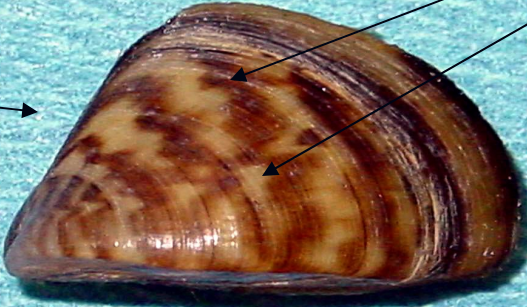


# How to identify

1/4 TO 1 1/2 IN

ZEBRA MUSSEL

ALTERNATING  
DARK AND  
LIGHT  
STRIPES



BROWNISH  
D SHAPED  
SHELL

QUAGGA MUSSEL

SLIGHTLY  
LARGER



LIGHTER IN  
COLOR

# ZEBRA AND QUAGGA MUSSELS

- Negative effects on waterways
  - Prolific breeders; females produce around one million eggs a year
  - Filter out plankton which provide food for other species
  - Clog water pipes, filters, screens, fish ladders, pumps, boat motors and intake pipes to dams
  - Easily transported on hard surfaces
  - Cost in the Great Lakes area: \$100-400 million per year



# WHERE DID THEY COME FROM?

- Native to Eurasia
- First discovered in the late 1980s in Lake St. Clair near Detroit, Michigan
- Have spread to Alabama, Arkansas, Illinois, Indiana, Iowa, Kentucky, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Ohio, Oklahoma, Tennessee, Vermont, West Virginia, and Wisconsin.

# Effects of Zebra and Quagga Mussels





# Zebra Mussels Distribution



# Recent Discoveries

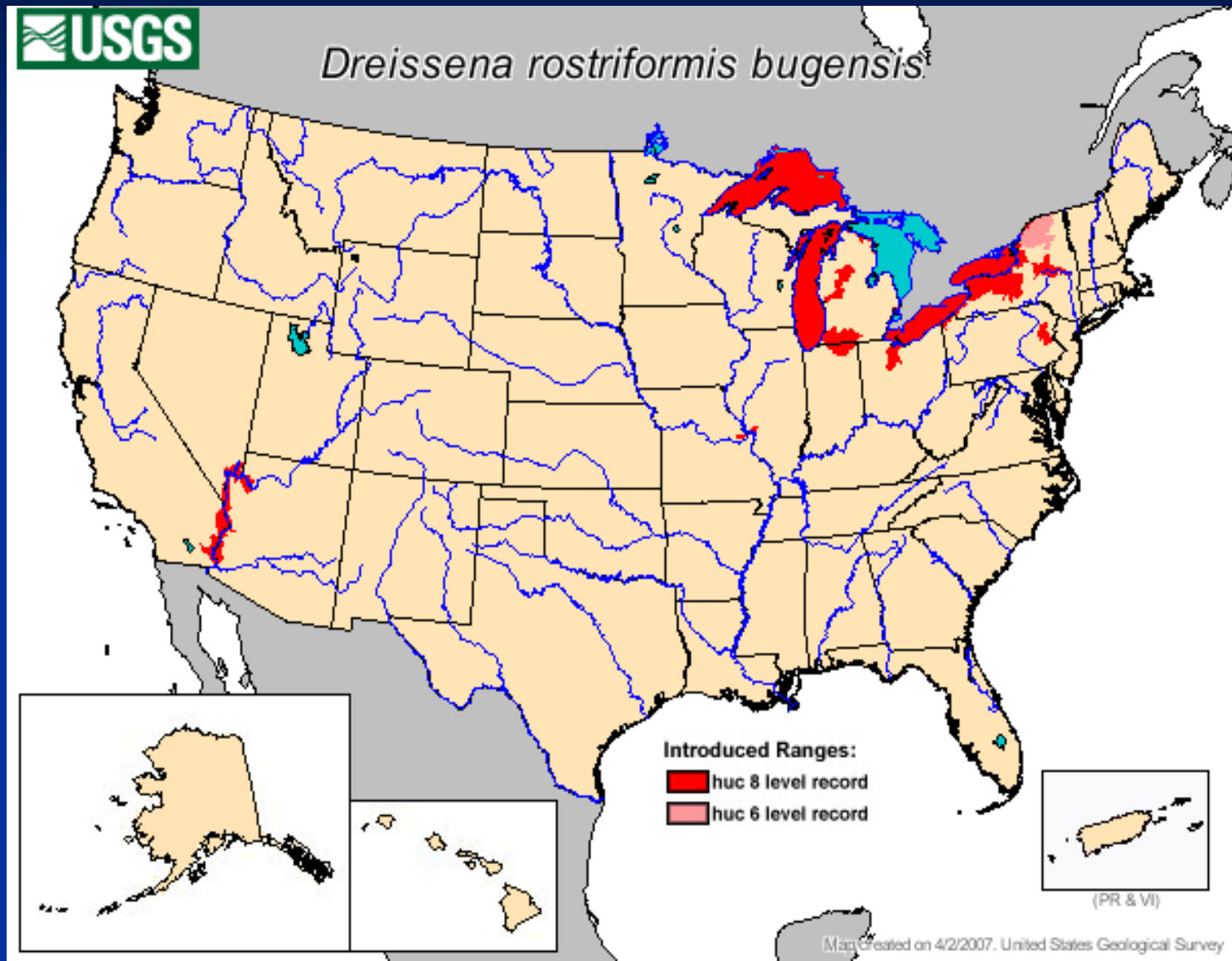
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# Quagga Mussel Distribution





# Technical Assistance

- Forestry
- Streamside Management
- Wildlife Enhancement
- Conservation Planning
- Livestock and water quality



# Education & Outreach

- Whitson Elementary in White Salmon
- Wind River Middle School in Carson
- Plant Identification Field Trips and other Landowner workshops
- Volunteer tree plantings



# Coordination & Facilitation of Stakeholder Groups

- White Salmon River Watershed Management Committee
- Wind River Watershed Council
- Jewett Creek Streamkeepers
- White Salmon/Wind River Technical Advisory Group





# Tree Sale & Arbor Day



- UCD sells 20,000-70,000 seedlings annually.
- UCD distributes about 2,000 free seedlings annually on Washington State's Arbor Day (2nd Wednesday in April).

# Similar “Checkdam” Work



June 1996





August 1997





June 2004

# Project Timeline

- **March '08-June '09** – Sediment Budget, MCRFEG Pilot Project Monitoring, Project Planning and Design
- **April '09** – Off-Stream Watering System Installation
- **June '09** – Project Layout and Preparation
- **July '09-Sept. '09** – Implementation
- **Oct. '09 and April '10** – Riparian Planting
- **Sept. '09-June '12** – Effectiveness Monitoring and Site Maintenance

# Budget

■ Riparian Plant Installation --	\$27,105
■ Riparian Plant Materials --	\$5,000
■ Woody Debris Placement --	\$26,015
■ Site Maintenance --	\$10,190
■ Livestock Water Supply --	\$17,800
■ Sales Tax --	\$2,460
■ Engineering/Administration --	\$17,218
<hr/>	
■ TOTAL --	\$105,788
■ SRFB Grant --	\$81,838
■ Match --	\$23,950

- Lead Entity Strategy Priority Action for Snyder Creek and Rationale: “Restore upper meadow areas and address continued grazing impacts... Improving water storage in the meadows areas has the greatest potential to increase baseflows in the lower basin.”
- Large restoration effort at mill site to open up habitat is still limited by inadequate flow: “Low baseflows through lower reach limit available summer and fall rearing habitat.”



# Salmonid Species and Habitat Factors Addressed

- Summer and winter steelhead and resident rainbow trout in Snyder Creek.
- Chinook and bull trout in the Klickitat River.
- Water quantity
- Channel, floodplain, riparian, and streambed sediment conditions
- Water quality

# Effects of ANS

- Reduce fish/native populations:
  - Directly kill native species, e.g. Sea Lamprey, whirling disease.
  - Reduce food sources, change the food chain by removing native food sources.
  - Negatively impact reproduction, such as feeding on eggs, degrading habitat.
  - Reduce water quality such as oxygen content of water bodies.
  - Degrade ecosystems.

- Reduce fish/native populations (cont'd):
  - Invasive species impact nearly half of the species currently listed as Threatened or Endangered.
  - Unchecked reproduction and lack of predators make large populations.
  - Diminish our nation's biological diversity.
  - Once ANS establish themselves, they are difficult or impossible to remove.
  - Once native species vanish they are difficult or impossible to reintroduce.

- Make lakes and rivers unusable by boaters and swimmers:
  - Ruin Boat engines. Clog water intakes, jam steering columns, attach to hulls, Propeller, all areas of the motor.
  - Choke out waters making it impossible to boat or swim.
  - Leave sharp-edged shells that cover beaches.





- Economic damages:
  - Dramatically increase the operating costs of drinking water plants, power plants, dams, and industrial processes.
  - Increase recreation costs.
  - Greatly impact economies of water-dependent communities.
  - Reduce property values.
  - Affect human health.

# Other ANS to watch out for



Didymo (Rock Snot)



Mitten Crab

© W. Lee Mecum, CDFG



Whirling Disease



Hydrilla infestation  
Wichaseechee River, Florida  
Photo by Brian Nelson  
Copyright 1997 Southwest Florida Water Management District

Hydrilla





# Terrestrial Invasives to look out for: Scotch Broom



CELEBRATING WILDFLOWERS  
*Cytisus scoparius*  
Scot's Broom or Scotch Broom



NOXIOUS W



# English Ivy



*Hedera helix*



