

# **Eradicating Small Patches of Knotweed Without Herbicide**

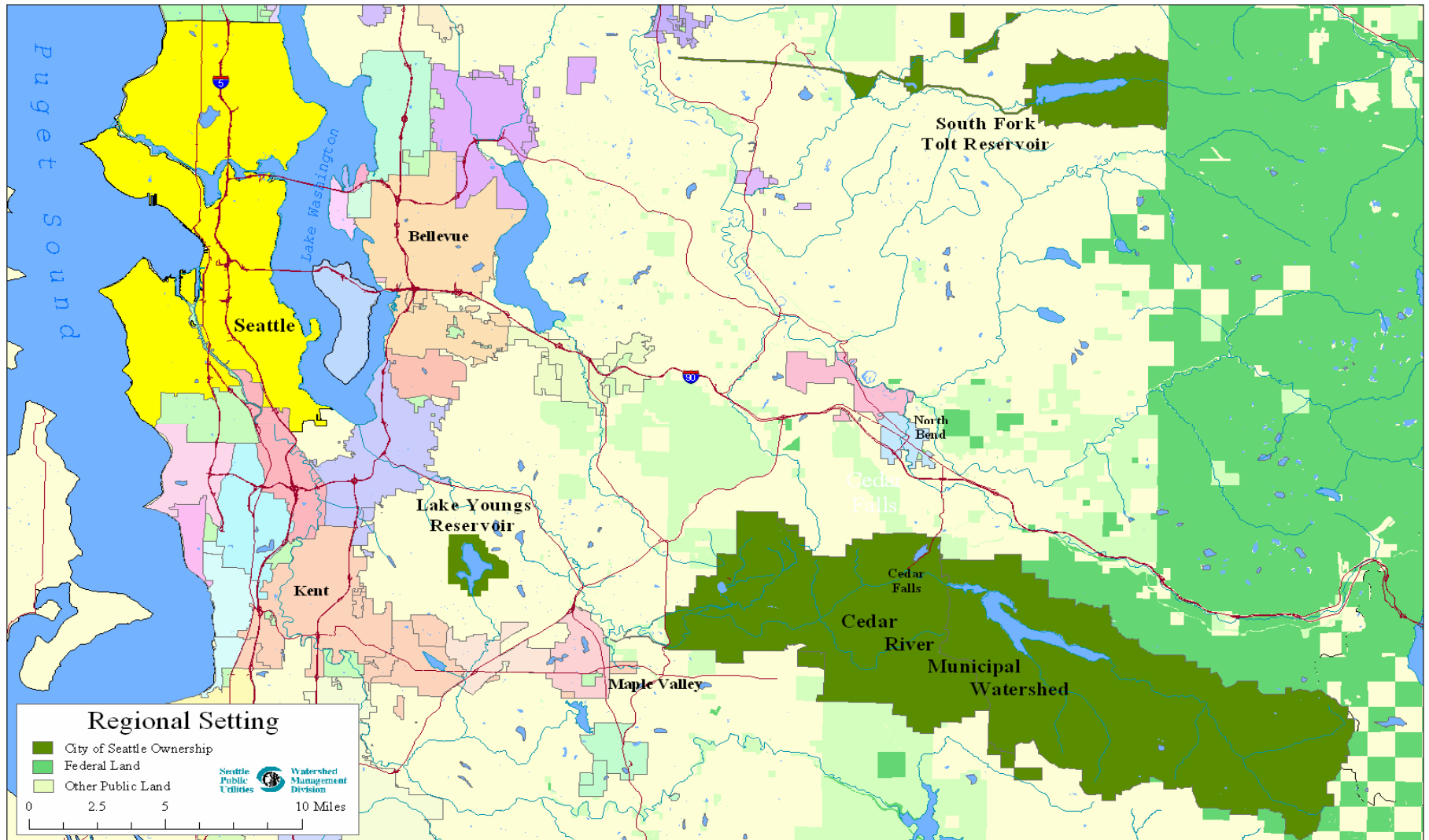
**Sally Nickelson**

**Wildlife Biologist/Watershed Ecologist**

**Cedar River Municipal Watershed**

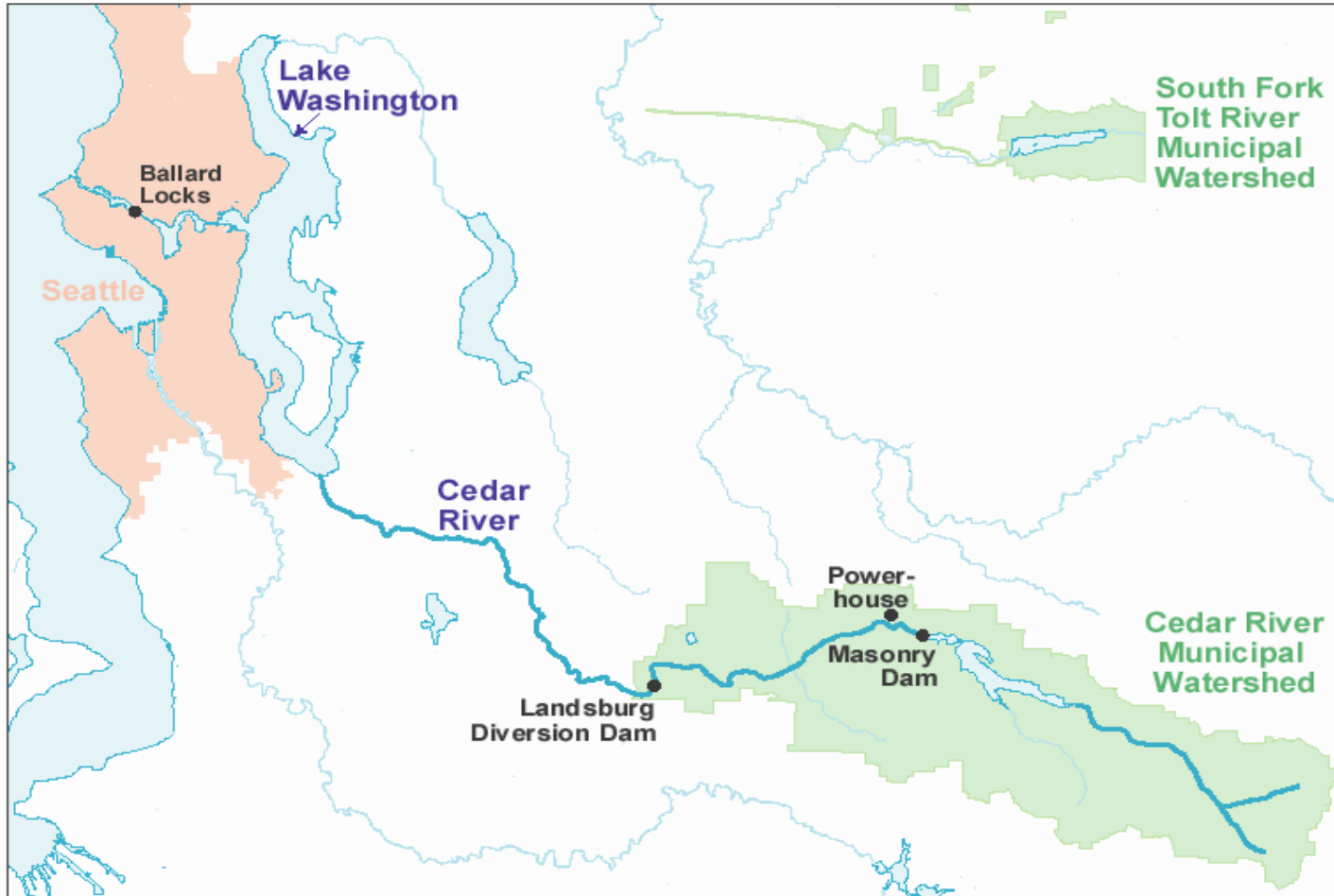
**Seattle Public Utilities**

# Seattle's Municipal Watersheds



# Cedar River Municipal Watershed

## Watershed Management Division



# Cedar River Municipal Watershed Facts

- **>91,000 acres (141 square miles)**
- **Elevation: 538 - 5,447 feet**
- **Annual Precipitation: 57-140 inches**
- **Supplies 100 million gallons of water daily to 850,000 customers**
- **<20% of the annual flow is diverted**
- **Closed to public access**



# Cedar River Municipal Watershed Facts

- 85% of the land was logged 1880-1994
- ~14,000 acres of old-growth forest
- ~70,000 acres of second-growth forest
- 642 miles of road, 105 decommissioned
- 9,400 years of human occupation:  
tribes, homesteaders, railroad, logging,  
mining, towns



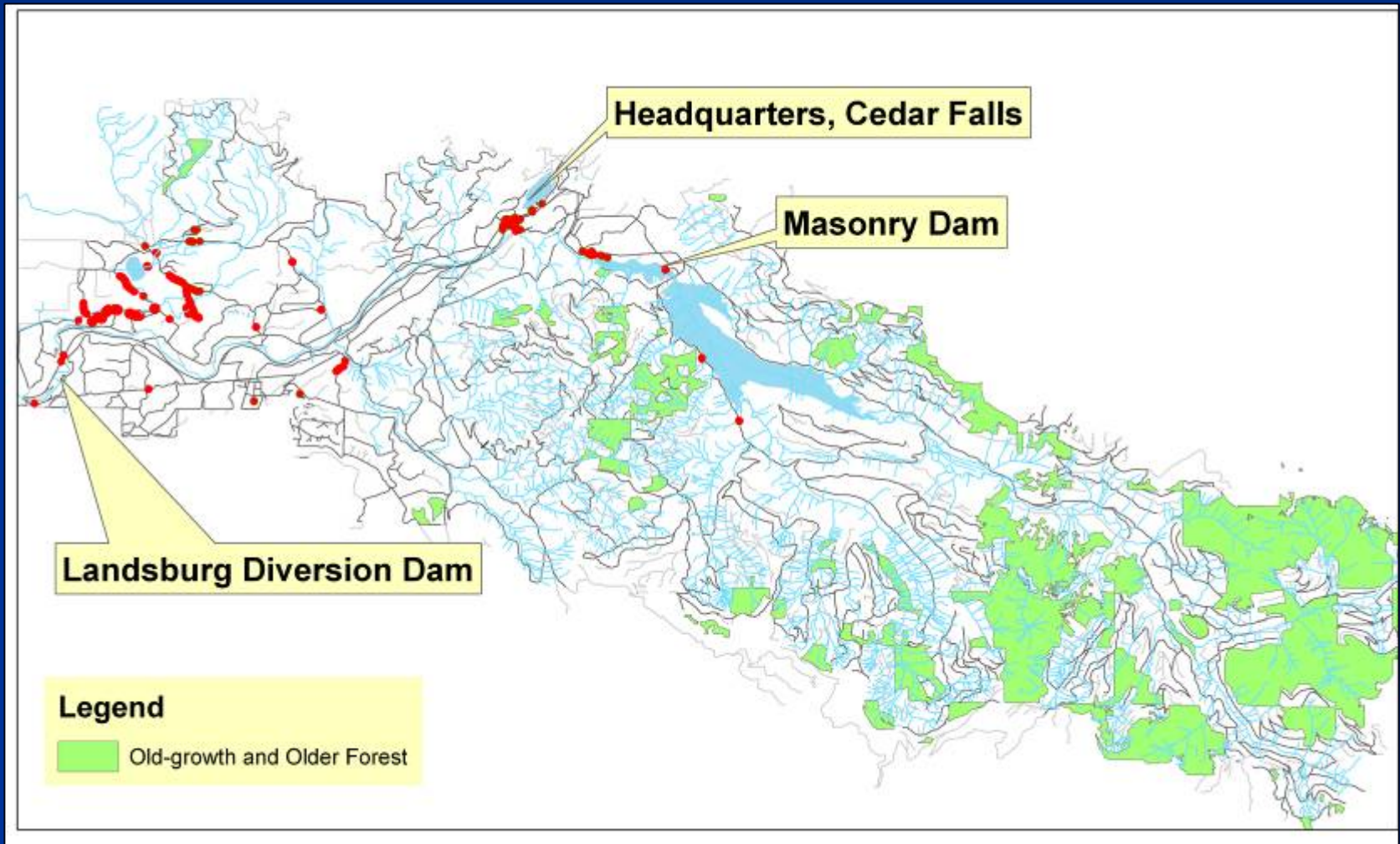
# Cedar River Watershed Habitat Conservation Plan, 2000-2050

- **Management Objectives**
  - Clean water
  - Fish & wildlife habitat
  - Foster native biological diversity
- **Restoration Projects**
  - Restore, enhance fish & wildlife habitat
  - Restore natural processes
  - Accelerate late-successional forest conditions
- **Invasive species**
  - Herbicide prohibited





# Bohemian Knotweed Distribution Cedar River Municipal Watershed



# First Knotweed Control Project Rock Creek Wetland



# Rock Creek Wetland



# Road through Rock Creek Wetland



# Knotweed Infestation Prior to Road Removal



# Controlling Knotweed

## Rock Creek Wetland, Fall 2002

- Road deconstruction
- Excavate roots
- Bury roots off-site
- Planted conifers on road bed



# Controlling Knotweed Rock Creek Wetland, 2003

- May and July - volunteers pulled plants
- Infestation area >> than before road deconstruction



# Controlling Knotweed Rock Creek Wetland, 2004

## ➤ Spring

- Installed >31,000 ft<sup>2</sup> fabric
- Installed around planted conifers
- Leave wildlife travel corridors uncovered
- 3 types of fabric





# Heavy Black Plastic



# Woven Geotextile Fabric



# Non-Woven Geotextile Fabric



# Geotextile Fabric Statistics

## Layfield Geosynthetics

Type	Roll Size	Weight (lb)	2007 Cost pre-tax
Woven LP200	15' x 360'	205	\$354
Non-Woven LP6	15' x 300'	202	\$346
Non-Woven LP7	15' x 300'	250	\$379

# Controlling Knotweed Rock Creek Wetland, 2004

- **Throughout Growing Season**
  - Maintain/monitor every 2 weeks
  - Stomp growth under fabric
  - Pull starts in wildlife travel corridors



# 2004 Costs

- **Materials - \$1,050**
- **Installation - 12 person days**
- **Maintain/monitor - 8 person days**



# Controlling Knotweed

## Rock Creek Wetland, 2005-2006

- Monitor every 3 weeks
- Little/no growth under fabric
- 2006
  - Uncover 3 small patches
  - Much less growth in travel corridor



# Install Fabric Very Loosely



**Loose Fabric - Allows Growth Underneath**



**Too Tight – Plants Break Through**



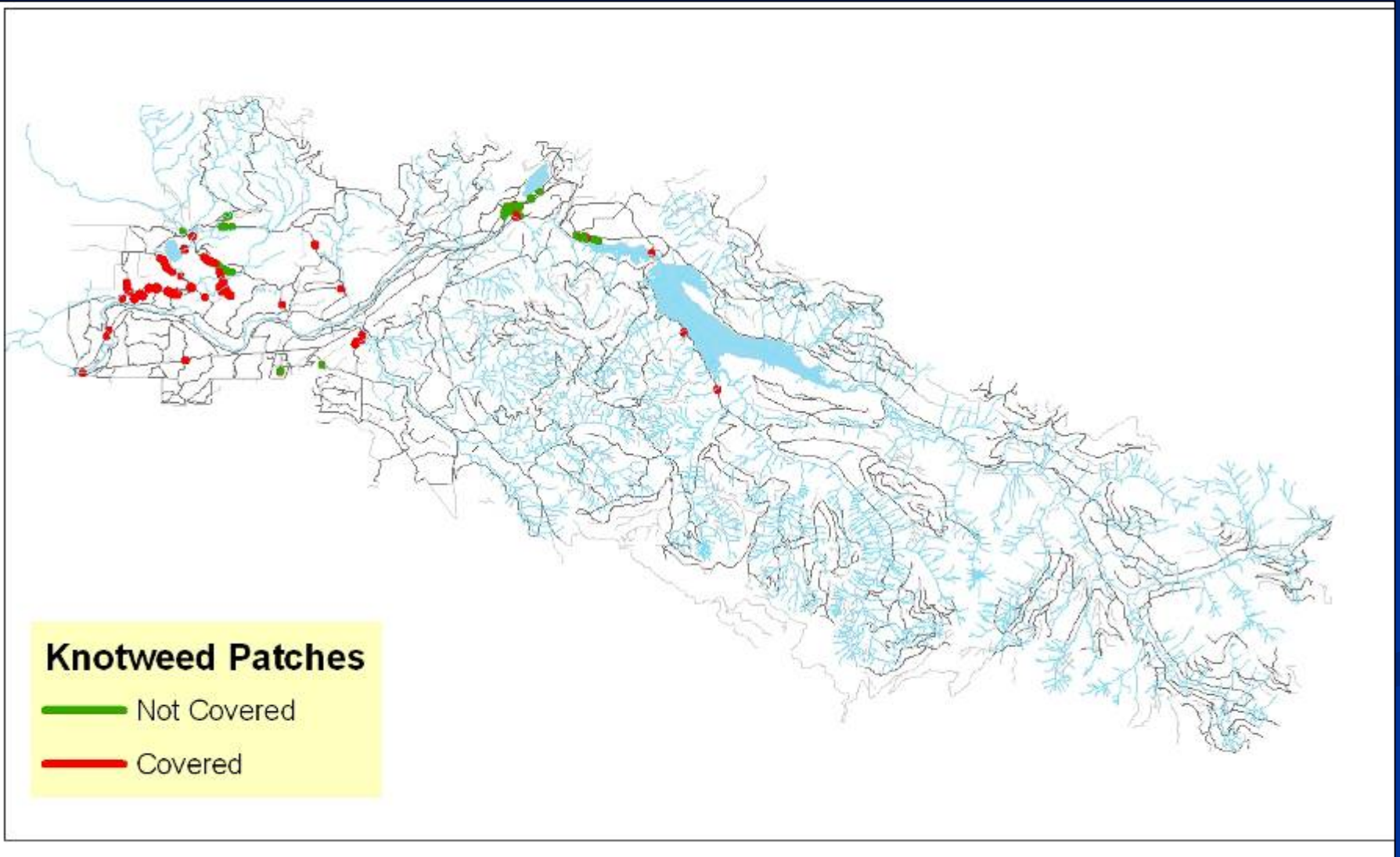
# Along Road Edges



# What Happens if Don't Maintain Fabric?



# Bohemian Knotweed Treatments, 2006



# Deconstructed Road Rock Creek Wetland, 2007

