

# DNR Natural Areas Program Forest Restoration Treatments

Presented March 5, 2014, to:  
Natural Heritage Advisory Council  
Olympia, WA

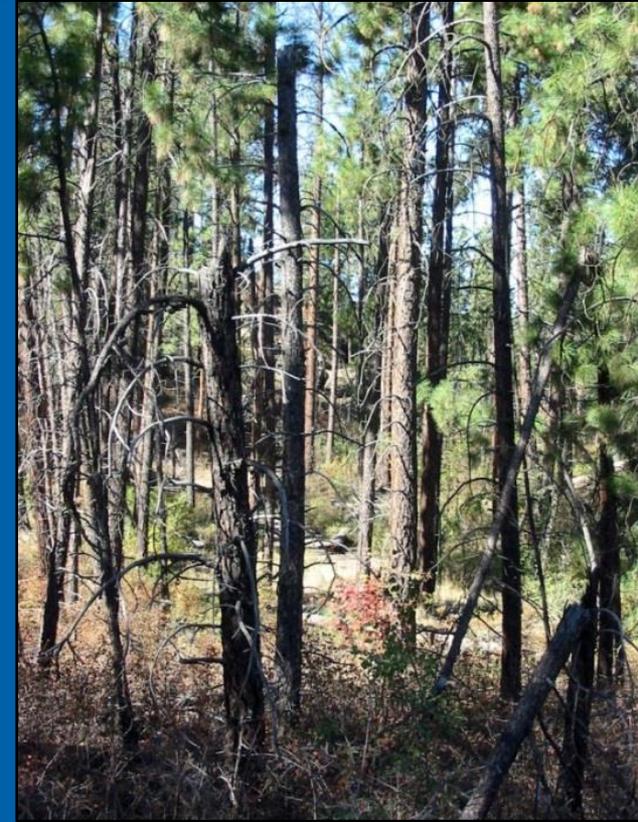


WASHINGTON STATE DEPARTMENT OF  
**Natural Resources**  
Peter Goldmark - Commissioner of Public Lands

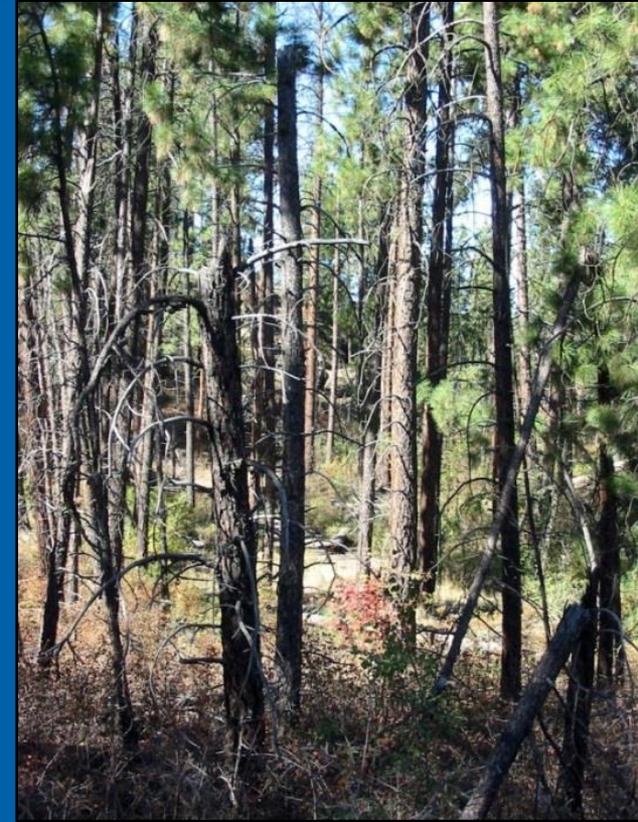
# Presentation Outline

1. Overview of the Issue and Natural Areas Program Direction
2. Pause for Clarifying Questions
3. Example of the Current Elk River NRCA Forest Restoration Project
4. Council Discussion of Natural Areas Program Direction

- Need for forest restoration on DNR-managed natural areas
  - 20 westside sites include significant stands of re-planted or naturally regenerated plantation forest
  - 8 eastside sites include either significant acreage of reprod forest stands or fire-suppressed stands
- Traditional treatments in natural areas have focused on defense and restoration of balds, prairies and meadows



- Urgency is building for restoration of forest ecosystems
  - Habitat for rare species, such as marbled murrelet or northern spotted owl
  - Habitat diversity for forest biota associated with various successional stages
  - Increased resilience to natural disturbances, such as wind or fire
  - Benefits to riparian, estuarine and other aquatic systems



# 2013-2015 Biennium Elk River NRCA Forest Restoration Project



- **Legislative Funding**
- Elk River: ESSB 5035 – \$345,000 – “The reappropriation is provided solely for ecological restoration of the upland buffer areas within the Elk River natural resources conservation area.”

- Representative Brian Blake, chair of the House Agriculture and Natural Resources Committee, has been briefed on the Elk River NRCA forest restoration project

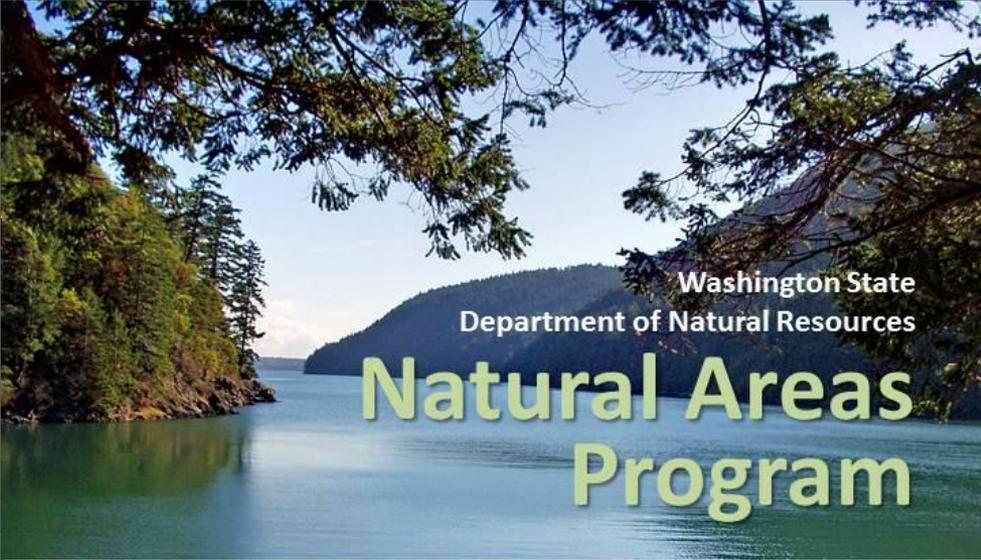
# Discussion Paper and Program Direction for DNR Natural Areas Program Forest Restoration Treatments

## *Summary*

- Conceptual framework for evaluating potential restoration projects and determining best course of action
- Not intended to establish department policy or budget directives/priorities
- All restoration projects are analyzed with site-specific considerations, in the context of program priorities statewide, and in light of available resources

# Why Should Altered Stands Within Forested Natural Areas Be Actively Restored?

- *Natural Areas Program mission includes restoration of degraded areas and improvement of landscape-level ecological functions.*



Washington State  
Department of Natural Resources

## Natural Areas Program

**Conserving Washington's native species and ecosystems, today and for future generations**

<b>Healthy Ecosystems</b> Keeping habitats and ecosystems healthy through science-based management and restoration	<b>Biodiversity</b> Protecting Washington's native biodiversity and our most vulnerable plant and animal communities	<b>Valuing Nature</b> Strengthening public appreciation of nature by promoting environmental education, exploration and scientific research on natural areas	<b>Fostering Partnerships</b> Creating innovative ways to care for natural areas through community engagement and partnerships
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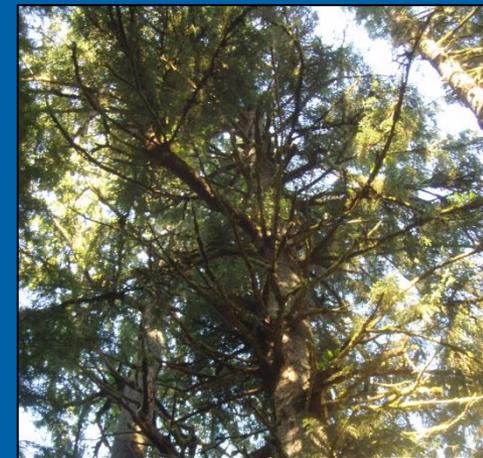
Photo of Eagle Harbor at Cypress Island Natural Resources Conservation Area, by Christ Thomsen, DNR

# Why Should Altered Stands Within Forested Natural Areas Be Actively Restored?

- *Many managed forest stands are significantly altered or on an unnatural successional trajectory*
- Loss of key habitat types (old growth, fire-maintained)
- More vulnerable to natural disturbances (wind, insects, fire)
- Loss of habitat features associated with young stands after natural disturbances (snags, “legacy trees”, down wood)



- *Restoration or enhancement used to achieve various goals*
  - Achieve more naturally-functioning forest habitats
  - Improve habitat conditions for particular species or suite of species
  - Reduce the risk of forest degradation & loss
- *Silvicultural restoration techniques can direct and accelerate development of natural conditions*
  - Tree density and species composition
  - Large trees, snags, down woody debris
  - Influence understory growth patterns, species and structural diversity
  - Smaller-scale habitat features for particular species
- *Opportunities for research*



# Why Should Restoration Treatments Not Be Carried Out In Some Forested Natural Areas?

- *Limited resources & other natural areas management priorities*
  - Treatments likely have a net cost
  - Significant time investment for natural areas staff and potentially other DNR staff
- *Potential negative effects of restoration actions, such as invasive species, increased windthrow, conflict with rare species*
- *Long-term effects of manipulations are unclear – some stands may not require human intervention*
  - “Naturally regenerated” stands less likely to need restoration treatments



# When and Where Should Forest Restoration Treatments Be Considered?

- *When protecting biodiversity or restoring ecosystem function*
  - Conservation objectives clearly defined and costs and benefits of such actions clearly evaluated
  - How would restoration benefit or impact the natural features of the site?
  - Risk of not taking action
- *Following scientifically based decision making*
- *Analysis of competing priorities and resource allocations within the Natural Areas Program*
  - Priority in terms of element rank, threat, and benefits of successful restoration



# How Will the Natural Areas Program Approach Restoration Projects in Forested Areas?

- *Highest priority projects with clearly identified outcomes*
- *Identify project funding strategy, including program budget, grants, operating partnerships, perhaps funds contributed from the treatment*
- *Two distinct tracks:*
  1. Small-scale treatment of very young stands
  2. Larger-scale and/or older stands



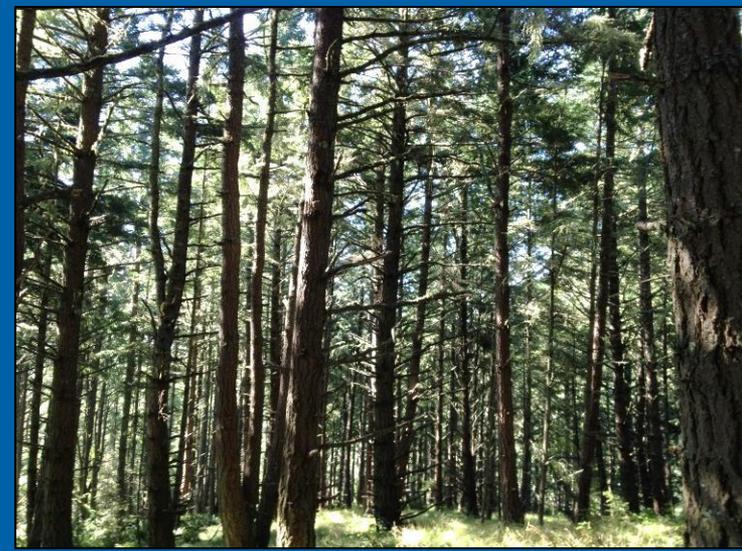
# Track 1 - Rapid Assessment and Treatment of Very Young Stands

- Typically young plantations or fire-suppressed
- Small-scale, simple treatments
- No or minimal permitting requirements
- No access improvements necessary
- Typically completed within <1 year



## Track 2 - Baseline Assessment and Implementation of Restoration Prescriptions in Established Stands

- Typically older stands (>20 years), planted, “natural” regeneration, or fire-suppressed
- Planning requires more intensive data collection and stand assessment (such as Ecological Integrity Assessments / EIAs)
- Larger-scale and more complex treatments
- Greater permitting requirements
- Access improvements may be necessary
- May involve research or intensive monitoring component
- Typically will require 2+ years for completion

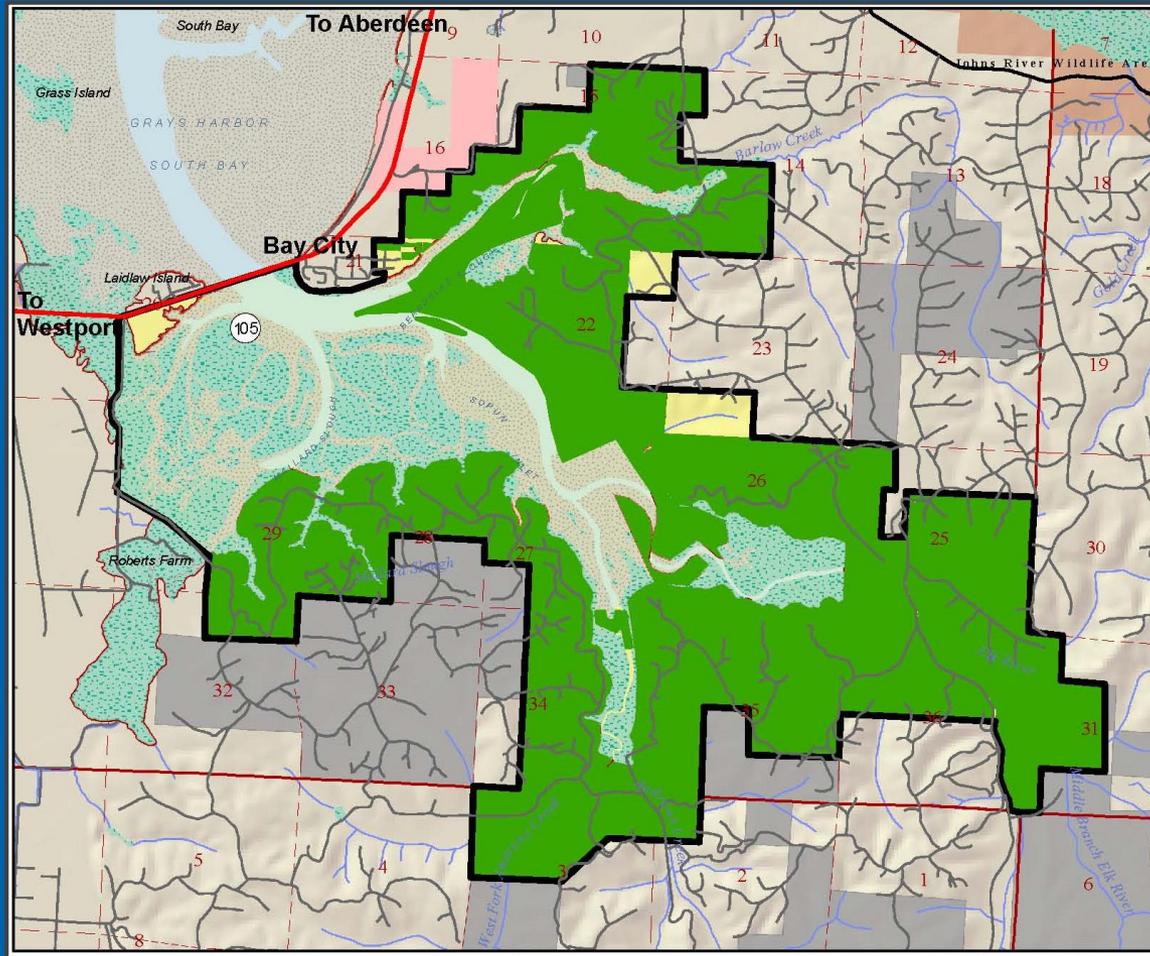


# Pause for Clarifying Questions

- Questions about the Discussion/Guidance Paper?
- Council thoughts for the “parking lot” to discuss after the Elk River example?



# 2013-2015 Biennium Elk River NRCA Forest Restoration Project



Project Goal: Accelerate development of late successional coastal forest conditions in previously harvested forest stands to benefit wildlife habitat and ecosystem processes.

# Elk River Site Conditions Prior to Logging

- Dominated by coastal Sitka spruce, western red cedar and hemlock forests
- Primary natural disturbance is wind
- Very old, large cedars were common throughout site
- Remnant old growth site supports massive spruce, hemlock and cedar
- Goal: Diverse forest dappled with light patches, understory plants, and range of tree ages, large downed logs



# 90-120 Year Old Second Growth

This site illustrates the defined goal



# Logging History

- Logging was primarily in two waves, beginning in late 1800s through the early 1900s
- Second growth cutting started in 1960s (to present)
- Early timber harvest was followed by naturally seeded western hemlock stand establishment – often very dense
- Douglas-fir plantations were planted beginning in 1960s, often with dense hemlock recruitment



Blurry – because it's dark in there!



- 25-30 year old planted stand; dense hemlock and Douglas-fir
- Poor crown-to-height ratio makes thinning risky
- Treatment could be to create gaps

# Planted Douglas-fir with Dense Hemlock Regeneration



Road abandonment project

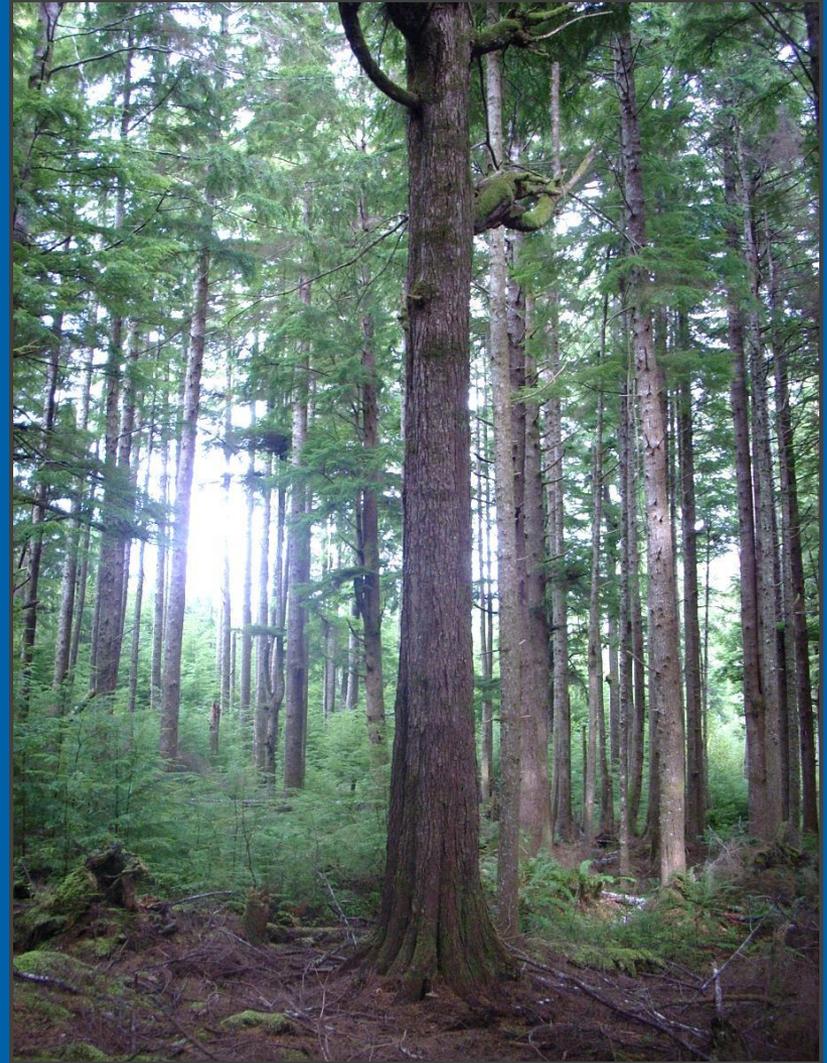
# 40-60 Year Old Pure Hemlock Stand

- Low diversity
- Tend to be tall and weak
- Likely high wind throw risk with substantial thinning
- Propose very light treatment, or no treatment
- Create snags, drop trees for downed wood, plant cedar



# 40-60 Year Old Nearly Pure Hemlock Stand

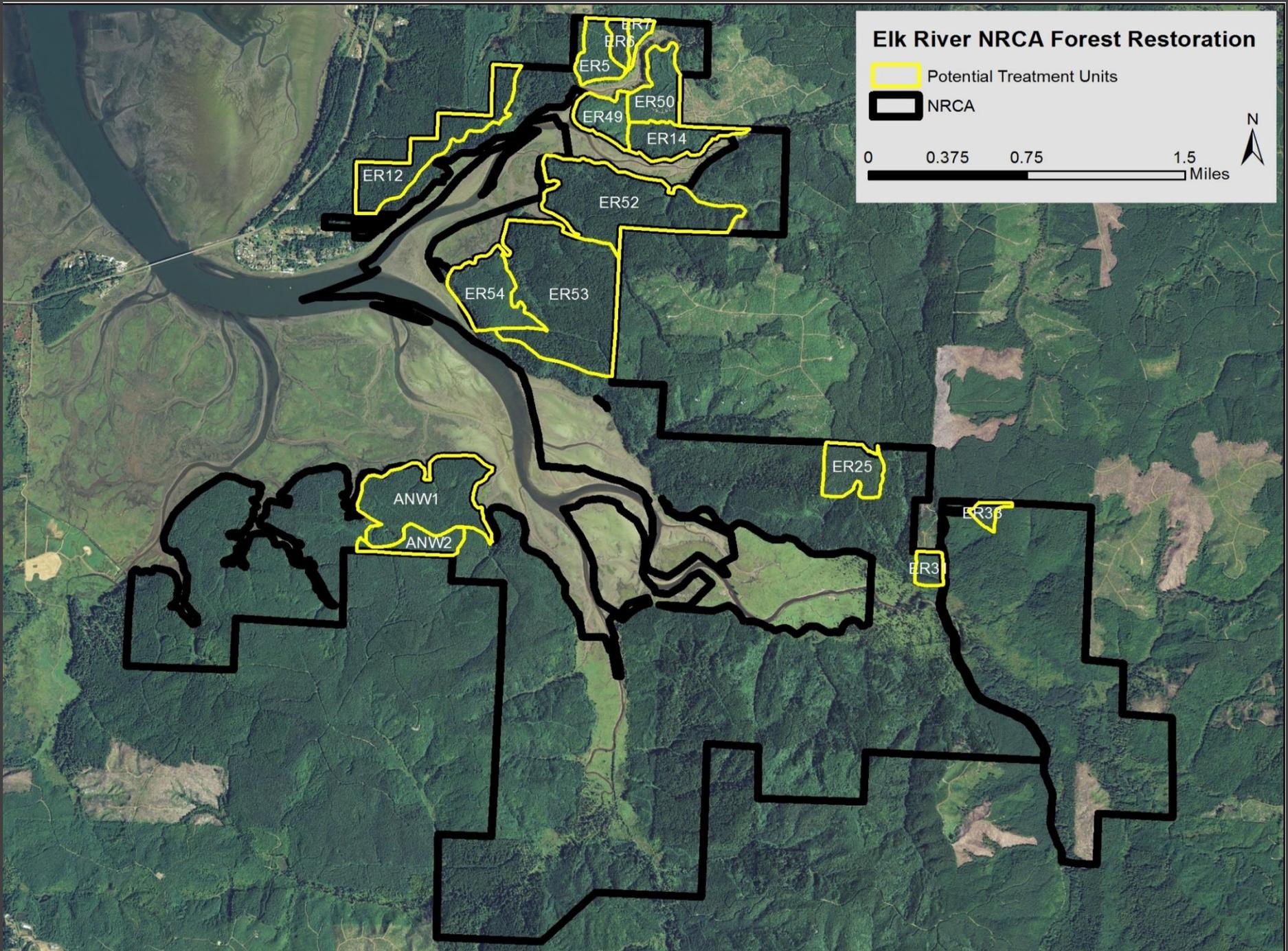
Other Examples



# Elk River NRCA Forest Restoration

 Potential Treatment Units

 NRCA



# Council Discussion

- Questions or Comments about the Discussion/  
Guidance Paper
- Questions or Comments about the Elk River Project
- Council Direction or Suggested Follow-up on this  
Topic (no formal council action is required)