DNR’s Climate Resilience Strategy

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Board of Natural Resources
September 1, 2020
Safeguarding our Lands, Waters, and Communities

DNR’s Plan for Climate Resilience

Board of Natural Resources
September 1, 2020
2.1 M acres of **forested land**
1.1 M acres of **ag and grazing land**
161,000 acres in 93 **natural area sites**
13 M acres of **wildfire suppression**
2.6 M acres of state-owned **aquatic lands**
Over 100 **urban and commercial** properties
**Forest Health** (statewide)
**Forest practices rules** (statewide)
**Urban forestry assistance** (statewide)
**Geological Survey** (statewide)
**Energy and communications** site leases
To advance climate resilience...

- Within DNR
- Throughout the natural resource sectors in which we work
- Among our partners throughout the state, including tribes, cities, counties, stakeholders, and other state agencies
What is Climate Resilience?

*Being prepared for, and adapting to, current and future climate-related changes*

- For lands and waters, this means increasing the health and integrity of our natural systems and enhancing their ability to absorb and recover from disturbance.

- For people and institutions (i.e., DNR and partners), this means planning for change and projected impacts in order to maintain basic functions, minimize harm, respond effectively when impacts occur, and quickly recover to resume services following disturbances.

- This also means reducing atmospheric GHG concentrations (through reduced emissions and carbon sequestration) to prevent further escalation of climate change impacts.
2014-2016
• Phase I: Climate Risk Assessment
• Expert Council on Climate and Environmental Change

2017-2018
• DNR strategic plan: Resilience Goal

2018-2019
• Phase II: Develop and assess responses
• Staff workshops and engagement
• Meetings with Climate Resilience Advisory Council

Summer 2019:
• Interviews and workshops with 150 experts and partners from universities, tribes, state and federal agencies, businesses, and non-profits

Fall 2019
• Program work to confirm highest priority program-specific responses

February 2020
• Finalize content and release
What are the high-priority climate-related risks to DNR’s mission, responsibilities and operations?
Phase I: Assessing Risks

- Risk to DNR mission & responsibilities
- Focus on higher risk items:
  - Red: High risk
  - Yellow: Medium risk
  - Green: Low risk

<table>
<thead>
<tr>
<th>Consequence to DNR Mission</th>
<th>Likelihood of Climate Impact</th>
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<tbody>
<tr>
<td>Low</td>
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</tr>
<tr>
<td>Medium</td>
<td>Medium Risk</td>
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<tr>
<td>High</td>
<td>High Risk</td>
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Consequence to DNR Mission:
- High
- Medium
- Low

Likelihood of Climate Impact:
- Low
- Medium
- High
Phase II: Developing Responses

How do we continue to fulfill our mission and responsibilities – and take advantage of opportunities – under changing climate conditions?
# Identifying Response Options

<table>
<thead>
<tr>
<th>Tweak Current Activities, Policies, etc. (Mainstreaming)</th>
<th>Do New Things</th>
<th>Learn More (Study &amp; Monitor)</th>
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<tbody>
<tr>
<td>Forest Roads and Culverts</td>
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<td>• Size culverts for future flows</td>
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  • Authorities?  
  • Responsibilities?  
  • Approaches?  
  • Partnerships?  
  • Studies or special projects?  
  • Communications/ public awareness  
  • Others?? | |
## Identifying Response Options

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<td>• What would we need to know to make informed decisions?</td>
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<td>• Others???</td>
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What's in the Plan?
Reversing GHG Trends

• Goal of 500 MW of new solar under lease
• Agency-wide emissions reduction plan
• Support energy efficiency and sustainability of materials for construction and renovation
• Explore carbon sequestration
  • Forests, harvested wood products, avoided conversion, ag & soils, geologic, aquatic
  • 2019 Budget Proviso: Carbon Sequestration Advisory Group
What's in the Plan?
Examples of Program-based Responses

• Forest Management & Uplands Leasing
  – Develop climate-resilient seed management and reforestation approaches.
  – Address forest health and increased wildfire risk on eastern Washington forestlands.
  – Design and maintain forest roads to be resilient under current and projected climate conditions.
  – Promote climate-suitable strategies for at-risk species.
  – Develop post-wildfire recovery and restoration strategies.
  – Enhance watershed health and forest drought mitigation.
  – Advance clean energy and carbon sequestration on DNR-managed lands.

• Natural Areas & Natural Heritage
  – Assess vulnerability and enhance monitoring of Natural Areas.
  – Incorporate climate change considerations into Natural Areas site prioritization, selection, and design.
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<td>DNR Agency-Level Responses</td>
<td>Initiate Responses that can be implemented within DNR’s Authorities and Resources</td>
<td>i. Acknowledgments.</td>
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<td>5. References.</td>
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**WASHINGTON STATE DEPARTMENT OF**

**NATURAL RESOURCES**
1. Incorporate climate resilience into authority structures
   • Issue Commissioner’s Order
   • Integrate climate change into legal, policy and guidance documents.
   • Complete program-specific Climate Resilience Strategies

I hereby direct Department leadership and all staff to take all practicable steps within our existing authorities and as guided by DNR’s Plan for Climate Resilience to incorporate climate change considerations into all relevant decisions, policies, procedures, and operations including, where relevant, into legal, policy, and guidance documents.”

- Commissioner Hilary Franz
February 20, 2020
2. Enhance capacity to address climate risks and resilience opportunities

3. Incorporate climate resilience into knowledge and learning structures

4. Incorporate climate resilience into motivation and accountability structures

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Statewide Systems-Level Responses

1. Establish an interagency climate resilience leadership structure
2. Provide state-endorsed climate impacts projections to support risk assessment, planning, and regulatory systems
3. Establish mechanisms for funding and financing resilience investments
4. Support and facilitate community-level resilience planning and implementation
5. Enhance education, outreach, and engagement on resilience needs and opportunities
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Implementing the Plan

- Initiating actions that can be implemented with existing resources and authorities
  - Program-specific
  - Agency-wide
- Developing legislative asks for 2021
- Identified resilience “shovel ready” projects for potential stimulus funding
- Including DNR priorities in state’s Climate Resiliency Account list
Thank You
Potential Impacts of Climate Change to Forests in WA

- Increased wildfire potential across the state
- Potential increased damage from insects and pathogens
- Potential seed and reforestation challenges
- Potential increases in conditions triggering landslides & debris flows
- Potential changes in forest productivity
- Potential forest road damage
- Potential impacts to at-risk species
Climate-Resilient Seed Management and Reforestation Approaches

Priority Responses:

- Identify resilient seed sources, genotypes, and species
- Plant operational trials to evaluate seed sources over a variety of environments
- Increase seed storage capacity
- Ensure ongoing diversity of seeds and species collected, stored, and managed by DNR
- Study natural regeneration following wildfire
Addressing Forest Health and Increased Wildfire Risk in Eastern WA Forests

Priority Responses:

- Use natural regeneration where feasible on low-productivity lands
- Promote more drought, disease and fire-resilient species
- Use alternative funding mechanisms to treat low-value stands
- *Maintain stands at lower density to reduce stress
State Lands Strategy for Improving Forest Health

- Manage for trust benefit (realize current value, create future value)
- Manage stands to minimize risk of disturbance and loss
- Invest appropriately based on site productivity
- Manage for long-term
Variability of Eastern Washington Forests

<table>
<thead>
<tr>
<th>Moisture Stress</th>
<th>Vegetation Ecotypes</th>
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<tbody>
<tr>
<td>Low</td>
<td>Subalpine</td>
</tr>
<tr>
<td></td>
<td>Cool Moist Mix Conifer</td>
</tr>
<tr>
<td></td>
<td>Warm Moist Mix Conifer</td>
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<tr>
<td></td>
<td>Dry Mix Conifer</td>
</tr>
<tr>
<td></td>
<td>Ponderosa-Douglas Fir</td>
</tr>
<tr>
<td>High</td>
<td>Ponderosa</td>
</tr>
<tr>
<td></td>
<td>Non-Forest</td>
</tr>
</tbody>
</table>

DIFFERENT FOREST TYPES = DIFFERENT MANAGEMENT STRATEGIES
Prioritizing Treatments in Critical Landscapes

**Legislative intent:**
- Reduce wildfire hazards/losses
- Reduce insect infestation & disease
- Improved forest health & resilience at landscape scale

**Prioritization based on value of:**
- Timber or other commercial forest products
- Public infrastructure
- Recreation and tourism
- Ecosystem services, such as water quality
### Mean annual acres treated on forested DNR trust lands by landscape priority - 2011-2020

<table>
<thead>
<tr>
<th>Treatment Type</th>
<th>High</th>
<th>Medium</th>
<th>Low</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial</td>
<td>3,500</td>
<td>3,600</td>
<td>1,800</td>
<td>9,000</td>
</tr>
<tr>
<td>Non-commercial</td>
<td>6,300</td>
<td>6,300</td>
<td>4,500</td>
<td>17,000</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>9,800 (38%)</strong></td>
<td><strong>9,900 (38%)</strong></td>
<td><strong>6,300 (24%)</strong></td>
<td><strong>26,000</strong></td>
</tr>
</tbody>
</table>

*Note: The landscape treatment prioritization wasn't completed until fall of 2018.*
Research and Monitoring: Post-Wildfire Recovery and Climate Impacts to Washington Forests

- Post-wildfire natural regeneration research
- Studies on post-wildfire seedling planting strategies
- Climate change, wildfire, and vegetation shifts
- Western versus eastern WA forests & climate adaptations
Thank You
Developing climate-resilient seed management and reforestation approaches

What do we think about from a reforestation viewpoint?

What are we doing about it?
Matching seed source to environment

Right plant, right place
Seed source & climate change

Shift from geographic variation to temporal variation
Engaging with regional projects

- Seed source movement trial
- Oregon drought study
- Seedlot Selection Tool
- DNA markers
Developing information that we need to make decisions

- Cooperative testing and evaluation
- Measure adaptive traits (cold, drought tolerance)
- Operational seed source trials
Putting structure in place to facilitate adaptation to the future

- Land management database (LRM) structure
- Westside ponderosa pine orchard and eastside seed production areas
- Include wood stiffness in our selection criteria
- Choose trees with stable performance across environments
Same seed source, different environments