Elliott State Research Forest

THE NEXT CENTURY

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Public Values

- Public Ownership and Access
- Working Forest Values
- Workforce and Local Economic Benefit
- Conservation Values
- Tribal Engagement
Research Framework for the Elliott State Research Forest

Katy Kavanagh, Associate Dean of Research, OSU College of Forestry
**Exploratory Committee, OSU College of Forestry, and others...**

- **Katy Kavanagh** – Associate Dean of Research
- **Matt Betts** – Landscape ecologist (emphasis on biodiversity)
- **Ashley D’Antonio** – Recreational ecologist (emphasis on managing environmental consequences of nature-based recreation)
- **Shannon Murray** – Continuing Education Program Coordinator
- **Klaus Puettmann** – Silviculture (focus on forest ecology)
- **Meg Krawchuk** – Landscape ecologist (fire and conservation science)
- **John Sessions** – Forest Engineer (forest operations planning and management)
- **Ben Leshchinsky** – Geotechnical engineer (focus on forest road design, hydrologic process, landslides and slope stability)
- **Jennifer Bakke** – Wildlife biologist (Environmental Services Manager with Hancock Natural Resource Group)
- **Gordie Reeves**
- **Geoff Huntington**
- **Deanne Carlson**
- **Native American Tribes**
- **Peers**
- **DSL Advisory Committee**
- **Land Board**
- **Oregonians**
Overarching Research Theme

Systems-level understanding of synergies and tradeoffs for conservation, production, and livelihood objectives on a forested landscape within a changing world.
Conceptualizing the Elliott State Research Forest as a Social-Ecological System
ESRF: The Next Century

OSU College of Forestry

Multiple Value Management

Extensive
(Multiple Values: Social, Economic, Conservation)

Multiple Value Management

Plantations
(Primary focus: Economic)

Protected Areas
(Primary focus: Conservation)

Single Value Management
Goal of Research
Platform

Use a systems-based approach to investigate the integration of intensively managed forests, forest reserves, dynamically managed complex forests and the aquatic and riparian ecosystems that flow within them.
Research Treatments

- **Intensive:** Fiber production-oriented research treatments (19%)
- **Reserve:** Research treatments focus on conserving unmanaged forests and restoring intensively managed lands (61%)
- **Extensive:** Explore a new set of alternatives in a continuum between intensive and reserves (20%)
- **Riparian Areas:** Test our ability to maintain and restore vital aquatic ecological processes using an outcome-based approach

Percentage of area allocated to proposed experimental treatments on the proposed Elliott State Research Forest. The reserve treatments are a combination of a large approximately 35,000 acre area and several thousand smaller pieces ranging from 20 to 800 acres. Intensive will be primarily even age plantations and Extensive will be dynamically managed for age and species complexity. The riparian areas are contained within each of these treatments for this analysis.
**Draft**

**Stand Level**

**Treatment Allocations**

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**Figure 14.** Draft allocation to illustrate one potential suite of allocations on the Elliott State Research Forest. This is primarily to serve as an example of our goal to find a suite of forest management approaches that integrate fiber production, biodiversity, recreation and aesthetic objectives.
TRIAD Design Concepts

Percentage of reserve, intensive and extensive stand-level treatments in the TRIAD sub-watershed framework

**KEY**

- **Extensive**
  - 0% Reserve, 100% Extensive
- **TRIAD-E**
  - 20% Reserve, 20% Intensive, 60% Extensive
- **TRIAD-I**
  - 40% Reserve, 40% Intensive, 20% Extensive
- **Intensive**
  - 50% Reserve, 50% Intensive
- --- Equal wood supply
Elliott Forest
Age Pattern

Age distribution on the Elliott State Forest by age class as of 2020.

Under 65 years of age are forests that regenerated following a clearcut.

Stands over 65 years of age regenerated naturally primarily from wildfire.
Percent of watershed area less than (lighter) and greater than (darker) 65 years old
Draft Watershed Level Treatment Allocations

Figure 13. Draft allocation to illustrate one potential suite of sub watershed treatment allocations on the Elliott State Research Forest. This is primarily to serve as an example of our goal of a landscape approach to integration of multiple values and testing of approaches. “Partial” describes watersheds that are less than 400 acres or are partially located outside of state forest boundary.
Figure 14. Draft allocation to illustrate one potential suite of allocations on the Elliott State Research Forest. This is primarily to serve as an example of our goal to find a suite of forest management approaches that integrate fiber production, biodiversity, recreation and aesthetic objectives.
Age distribution in the June 2020 draft research allocations on the Elliott State Forest by age class as of 2020. Under 65 years of age are forests that regenerated following a clearcut. Stands over 65 years of age regenerated naturally primarily from wildfire.
Adaptive Management
Adaptive Management Approach to Research Design and Implementation
Benefits of adaptive approach

- Increased engagement from public and science community
- Higher quality data available for future treatment assignments
- Develops comprehensive, on-the-ground understanding of elements within the system
Watershed 111
West Fork Millicoma River • Triad-I • 1,375 acres

<table>
<thead>
<tr>
<th></th>
<th>111</th>
<th>Acres</th>
<th>Percent of Total Acres</th>
<th>Percent Net of GRCA</th>
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<tbody>
<tr>
<td>Reserve</td>
<td>485</td>
<td>35%</td>
<td>40%</td>
<td></td>
</tr>
<tr>
<td>Intensive</td>
<td>485</td>
<td>35%</td>
<td>40%</td>
<td></td>
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<tr>
<td>Extensive</td>
<td>242</td>
<td>18%</td>
<td>20%</td>
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<tr>
<td>GRCA</td>
<td>163</td>
<td>12%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1,375</td>
<td>100%</td>
<td>100%</td>
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Draft 3/12/2020

ESRF: The Next Century
OSU College of Forestry
Watershed 111

Wood Recruitment

Rhombus Reach • Triad-I • 1,375 acres
Example of the first step in integrating riparian and upslope treatments along the West Fork of the Millicoma River on the ESRF. The goal is to ensure the presence of large trees where wood recruitment is most likely to occur from riverside to headwall. The current percentage of each riverside riparian treatment is listed in table below.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Percent bordering river</th>
<th>Proposed riparian conservation area width (ft)</th>
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<tbody>
<tr>
<td>Extensive</td>
<td>26%</td>
<td>200</td>
</tr>
<tr>
<td>Intensive</td>
<td>6%</td>
<td>200</td>
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<tr>
<td>Reserve</td>
<td>68%</td>
<td>NA</td>
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</table>
Buffer width configurations and percent of area allocation to riparian buffers under each configuration to achieve approximately 70% wood yield.

<table>
<thead>
<tr>
<th>Scenario</th>
<th>NFB buffer width (ft)</th>
<th>FB buffer width (ft)</th>
<th>Percent of Area</th>
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<tbody>
<tr>
<td>A</td>
<td>50</td>
<td>120</td>
<td>32.5%</td>
</tr>
<tr>
<td>B</td>
<td>120</td>
<td>120</td>
<td>25.5%</td>
</tr>
<tr>
<td>C</td>
<td>100</td>
<td>150</td>
<td>21.7%</td>
</tr>
<tr>
<td>D</td>
<td>50</td>
<td>200</td>
<td>20.9%</td>
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Adaptive Management
Approach to Research
Design and
Implementation

Landscape analysis

- Identify criteria for allocation
- Adapt research plan based on triggers

Monitor and adapt

Implement treatments
Outcomes relating to species recovery
Creating Older Forests for the Future

• In 50 years, ~60,000 acres (73%) of the forest will be older than 100 years, an almost 50% increase in the amount of older forests relative to today.

Age distribution on the Elliott State Forest by age class as of 2020. Allocation based on June 2020 DRAFT treatment allocation. Under 65 years of age are forests that regenerated following a clearcut. Stands over 65 years of age regenerated naturally primarily from wildfire.
The forest will get older.

- Future age class distribution on the Elliott State Research Forest under a draft research design starting in 2020. Note, that the extensive stand treatments will be multi-age so a single age is not representative. Riparian management areas will also be multi-aged but their oldest cohorts should persist until a natural disturbance occurs. Natural disturbance may result in additional younger or multi-age stands within any treatment.
Large reserve network divided by the Umpqua River

Left: Size of the four largest wilderness areas in the Oregon Coast as compared to the Conservation Research Watershed. The CRW and Devil's Staircase Wilderness Area are nearly adjacent and represent a 66,492 acre reserve, the largest in the Oregon Coast Range.
Guiding Principles for Research

- **Research**: Advance and sustain transformational research
- **Enduring**: Remain relevant across many years, generations, and social, economic and environmental contexts
- **At Scale**: Leverage the unique opportunity the forest offers for experiments at large spatial and long temporal scales.
- **Tailored to the Landscape**: Will be tailored to the Elliott based on existing biological, physical, social, and economic conditions
- **Practical, Relevant and Collaborative**: Programs conducted on the forest must be relevant to forestry issues and challenges
Overarching Research Theme

Systems-level understanding of synergies and tradeoffs for conservation, production, and livelihood objectives on a forested landscape within a changing world.
Thank You