Urban and Community Forestry Assistance Program Updates

"The Legend of Giants" mural. Painted 2013
Artist: Natalia Rak. Location: Bialystock, Poland

Presented to the
Oregon Board of Forestry

By
Kristin Ramstad
Urban and Community Forestry Assistance Program Manager

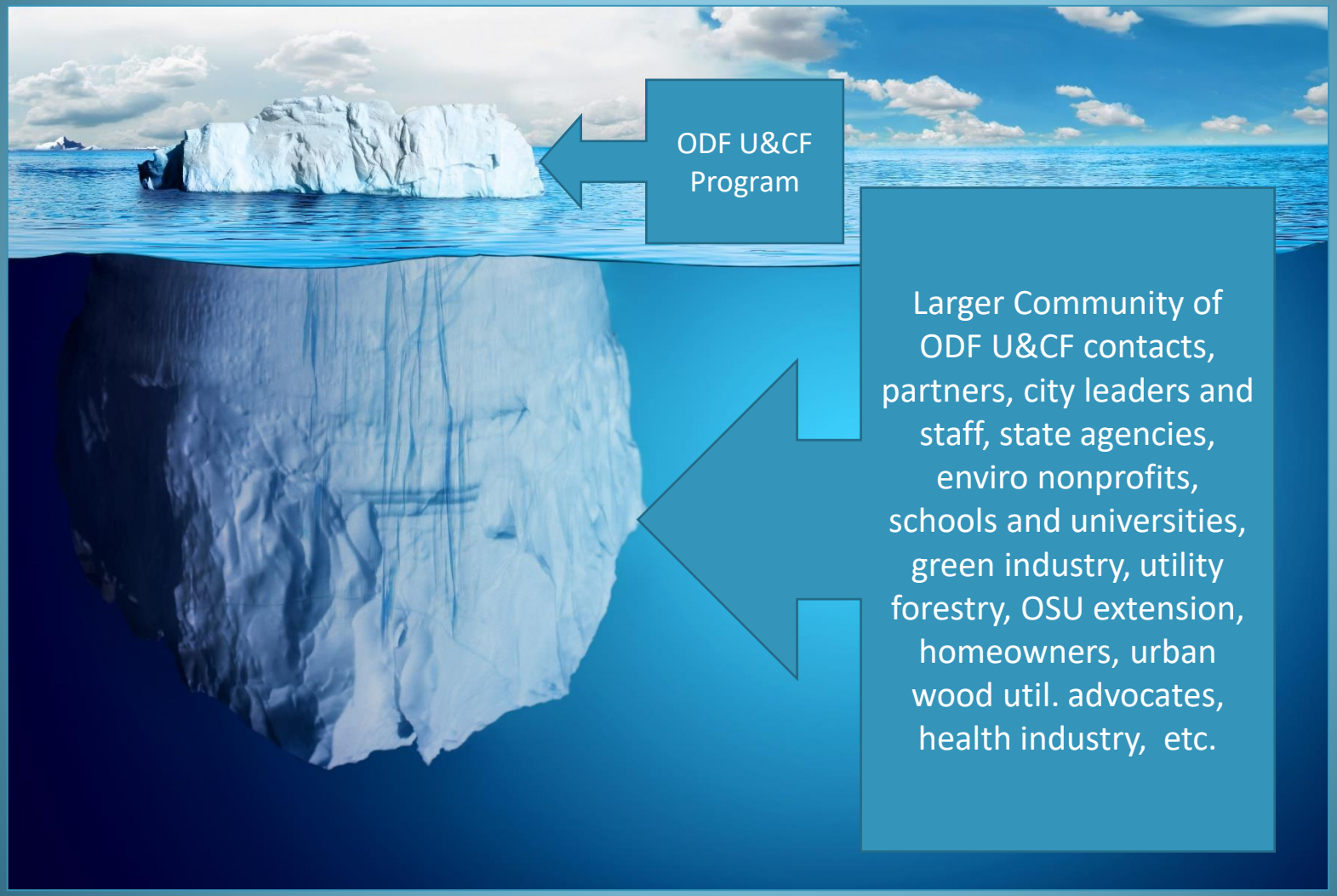
Katie Lompa
U&CF Program Community Assistance Forester

Samantha Wolf
Oregon Community Trees President

November 3, 2021

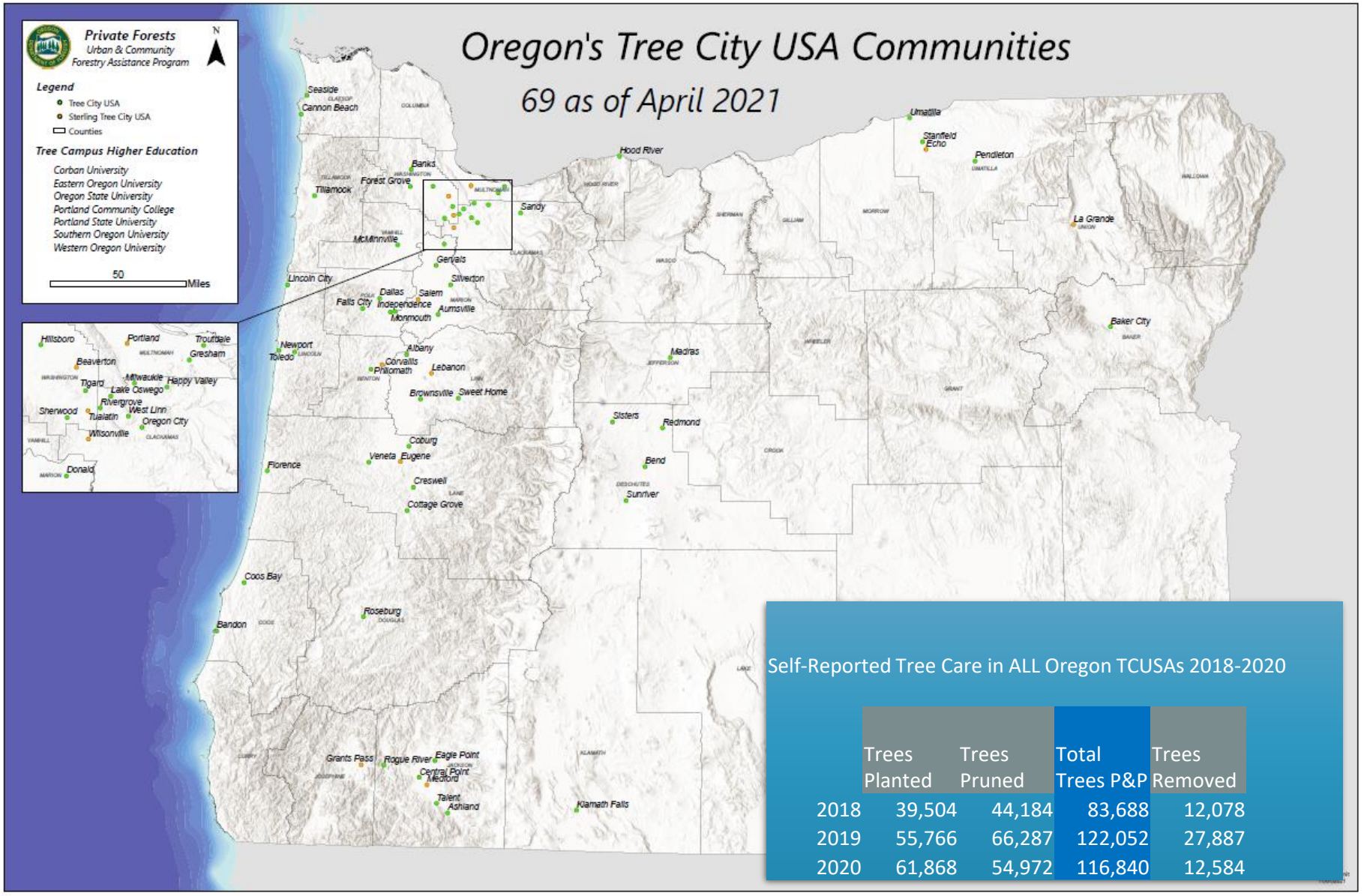
Doing Right by Urban Trees

Small Program, Wide Outreach



Program Highlights

- The Governor proclaimed April as Arbor Month
- UCF program staff made over 350 assists this past year
- Despite the pandemic, we celebrated our largest number of Tree Cities - 69



Self-Reported Tree Care in ALL Oregon TCUSAs 2018-2020

	Trees Planted	Trees Pruned	Total Trees P&P	Trees Removed
2018	39,504	44,184	83,688	12,078
2019	55,766	66,287	122,052	27,887
2020	61,868	54,972	116,840	12,584

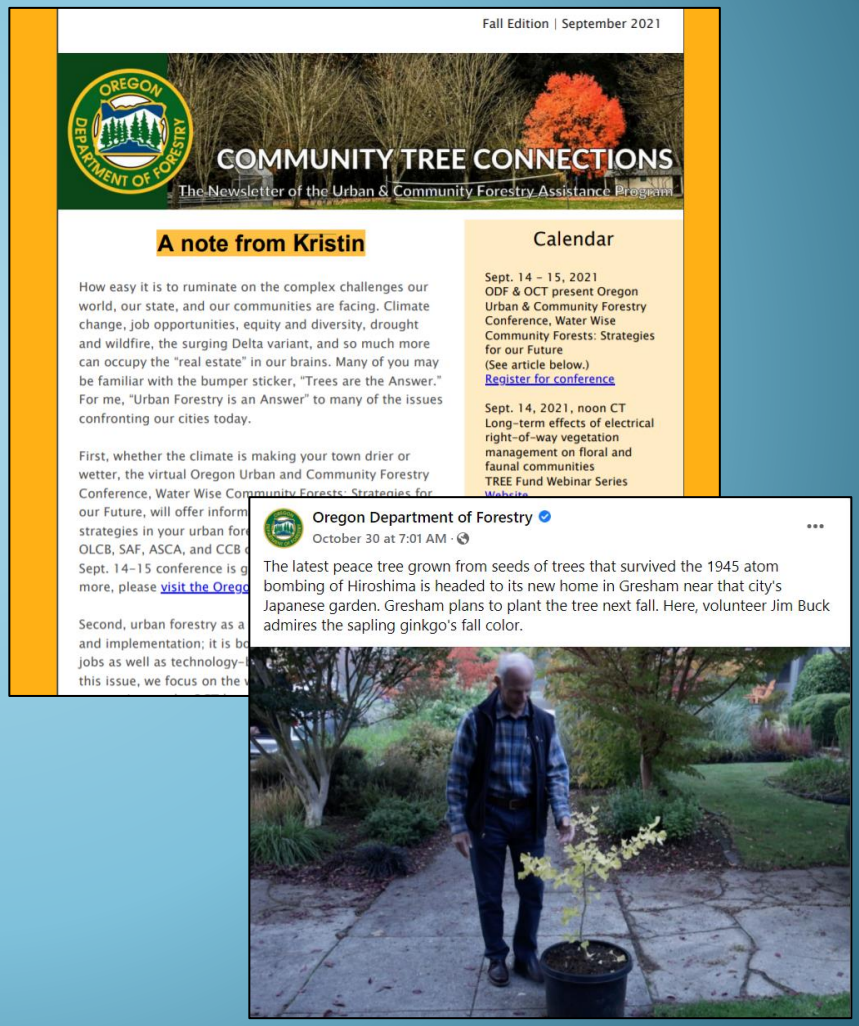
Program Highlights

- **With OCT, we cohosted our first virtual UCF conference.**
- **Both U&CF Program staff attended an intensive training in Environmental Justice, sponsored by the Alliance for Community Trees**

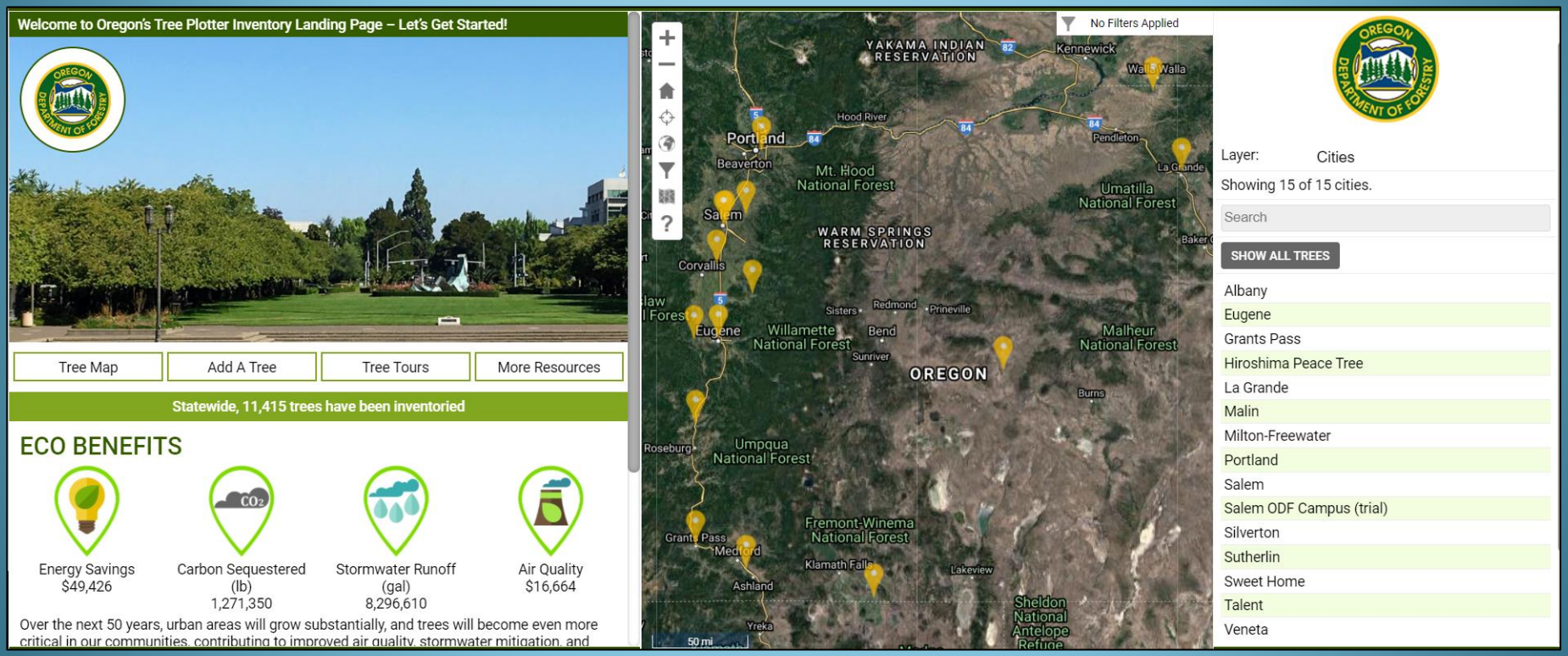
The 2021 Urban Forestry Conference focused on water-wise tree care strategies for cities

Program Highlights

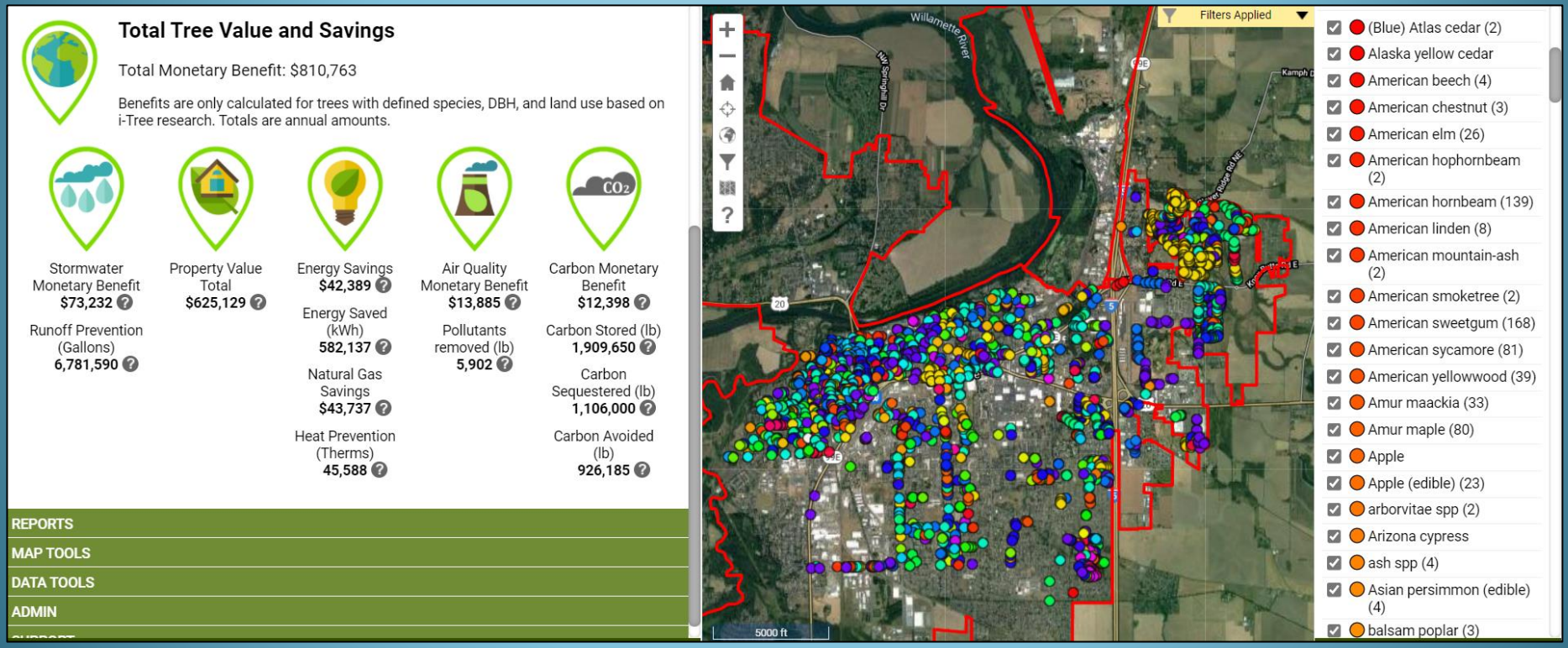
- **Webinar on “Trees in a Climate of Change”**
- **Our program newsletter is reaching more people than ever.**
- **We have doubled the number of communities engaged with Tree Plotter Inventory**



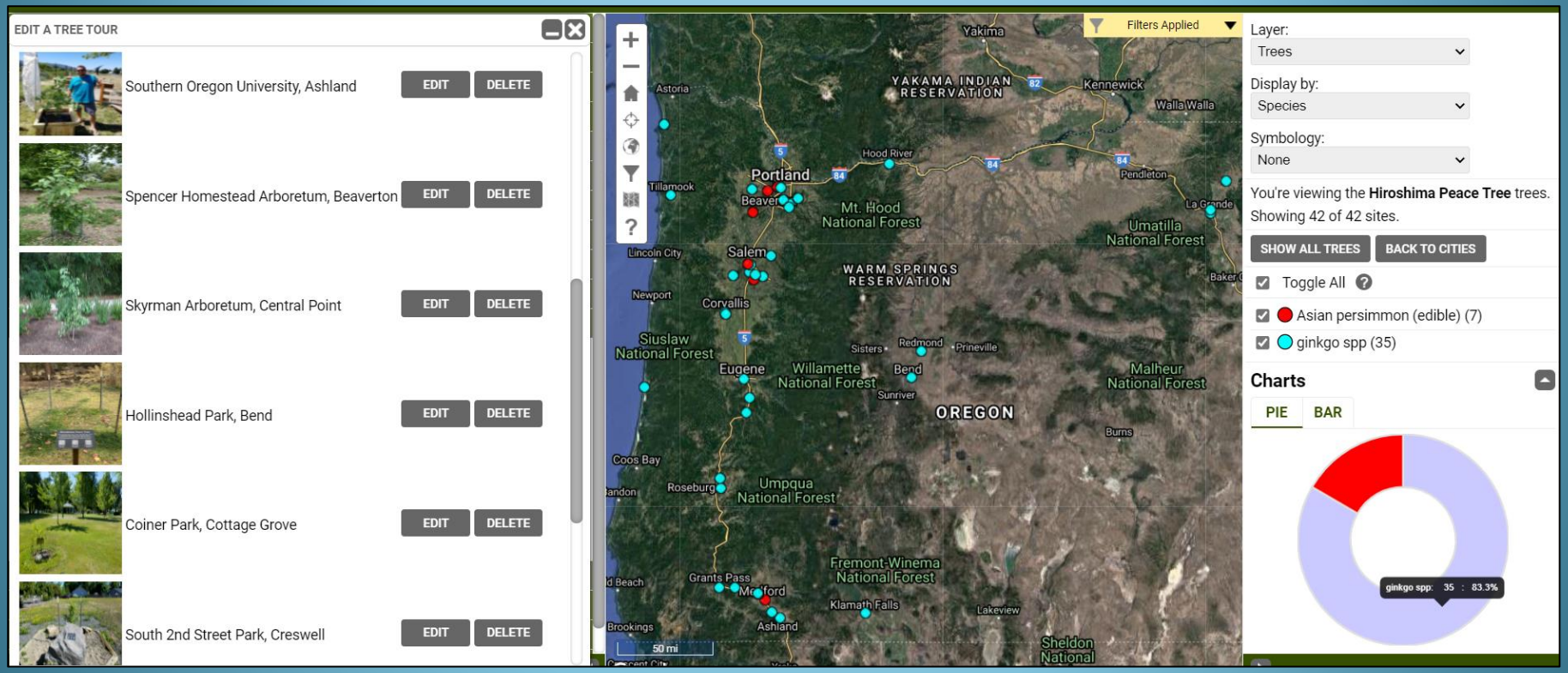
Oregon TreePlotter™ Inventory



Oregon TreePlotter™ Inventory



Oregon TreePlotter™ Inventory



Oregon TreePlotter™ Inventory

Local and State Level Value

Foundation of urban forest management

Improve emergency preparedness

Develop tree equity plans

Inform decision makers and community

OCT Directors tour downtown Albany

OREGON COMMUNITY TREES

OREGON COMMUNITY TREES

Presented by

Samantha Wolf, President

OREGON COMMUNITY TREES

Partners in Urban Forestry

Education

- Annual Conference
- Workshops

Awareness

- Awards
- Grants

Advocacy

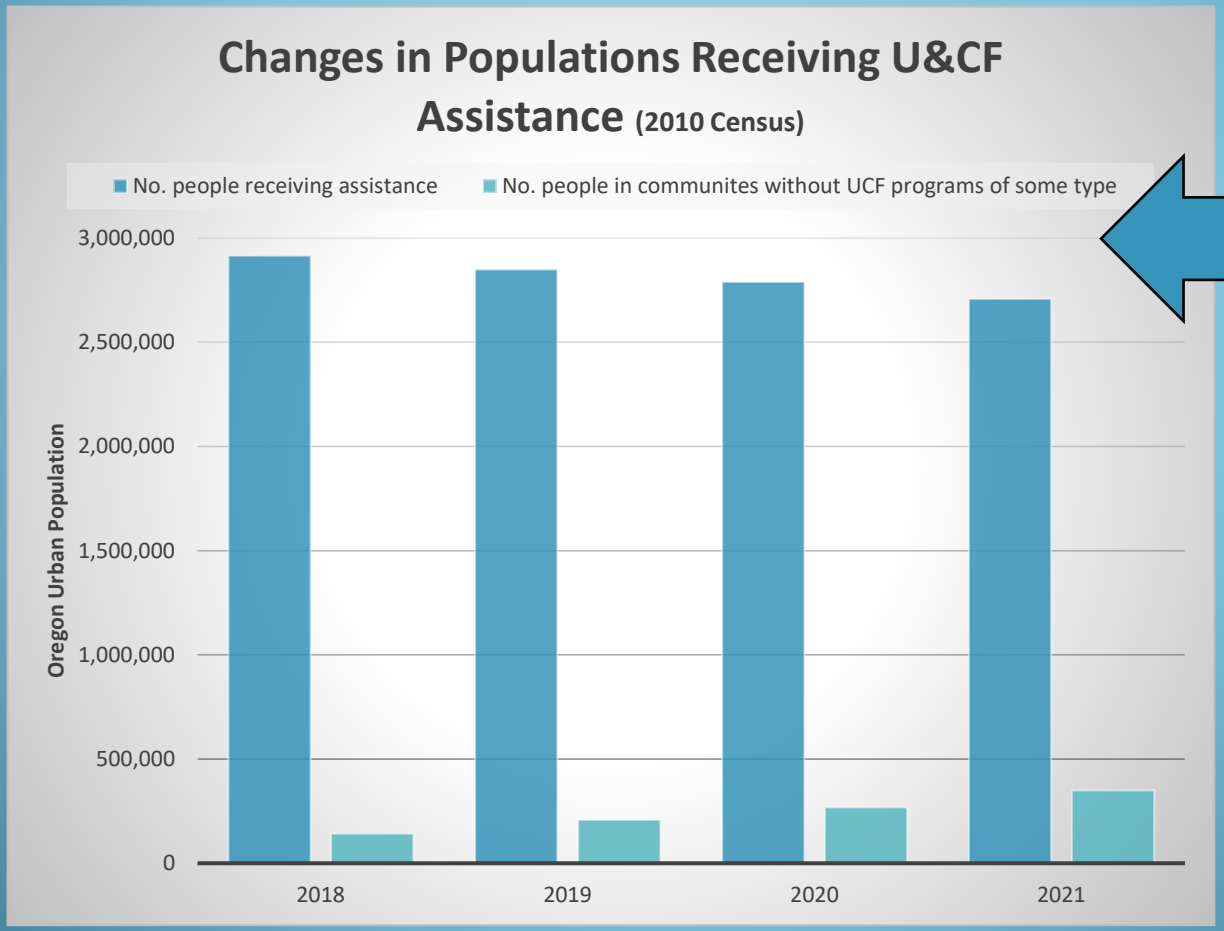
- Arbor Day Proclamation
- Professional Development

COLLABORATION & PROGRESS

ODF-UCF Staff: expertise, sponsorship, webinars, national connections

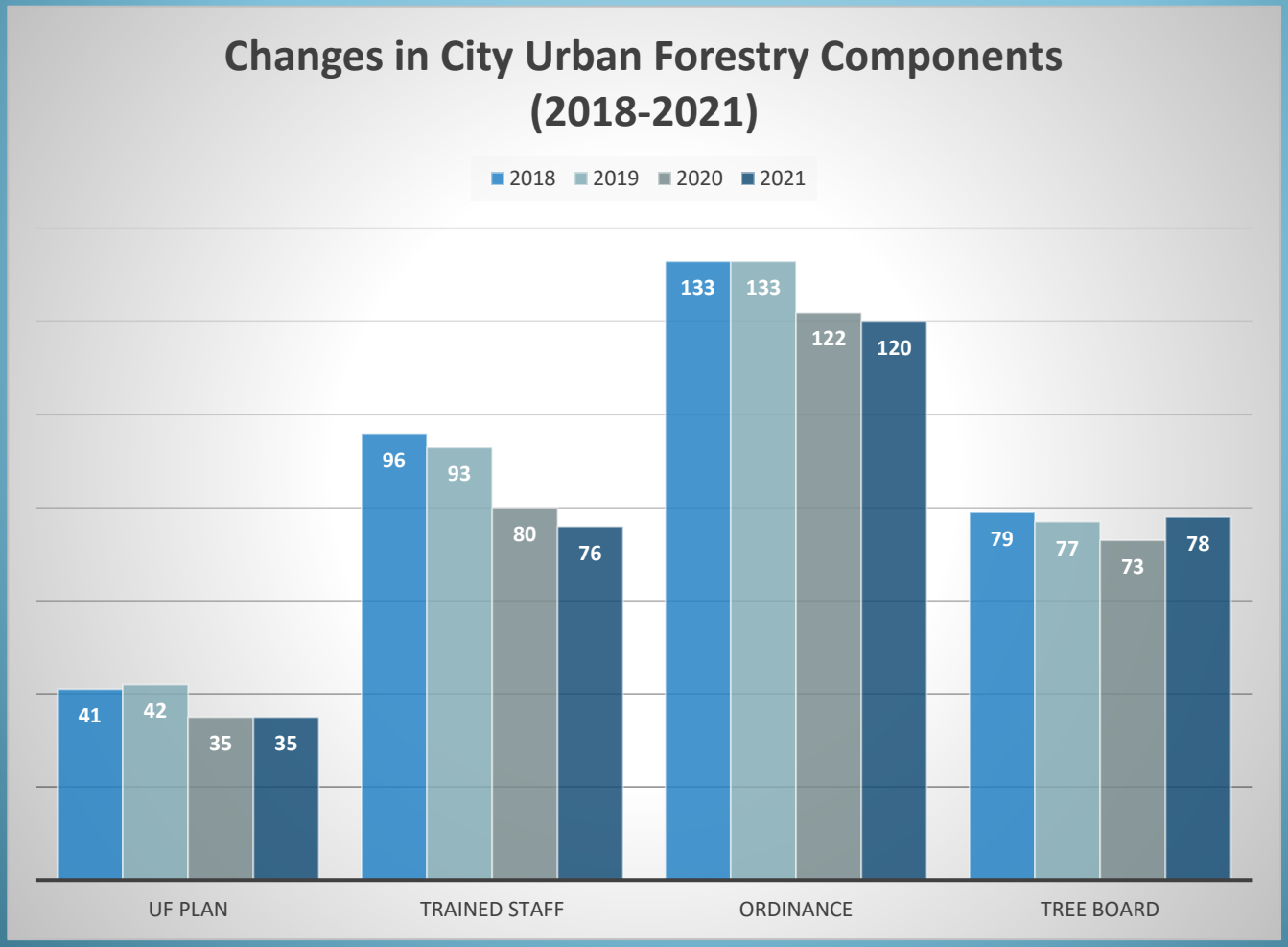
OCT: stakeholder input, helping hands, outreach, advocacy

Urban Forestry Program Trends – Population Receiving U&CF Assistance



3 million = urban population able to benefit from U&CF outreach

Urban Forestry Program Trends – City Urban Forestry Components



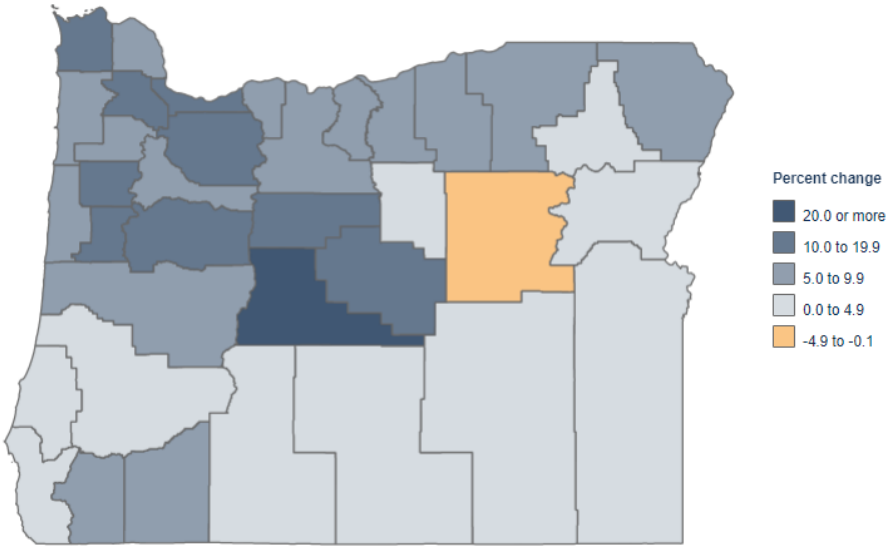
Change in Oregon Population (2010-2020)

Oregon

Click a value to the right to change the map and table.

Total Population (2020):	Numeric Change in Population (2010–2020):	Percent Change in Population (2010–2020):
4,237,256	406,182	10.6%
Housing Units (2020):	**Housing Unit Vacancy Rate (2020):**	**Percent Change in Housing Units (2010–2020):**
1,813,747	7.8%	8.2%

Percent Change in Population for Oregon Counties: 2010–2020

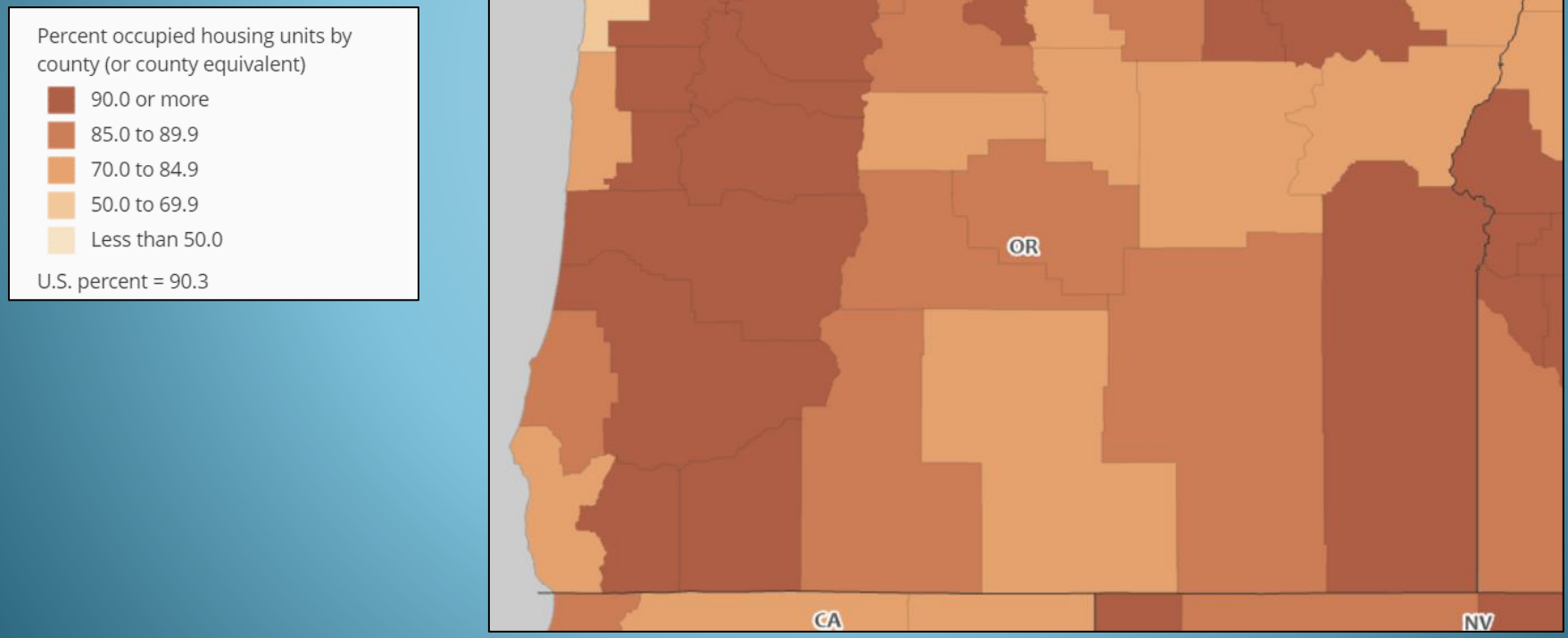


Oregon Counties
(Ranked by percent change in population, 2010–2020)

1.	Deschutes County	25.7
2.	Crook County	17.9
3.	Polk County	16.0
4.	Washington County	13.3
5.	Jefferson County	12.8
6.	Clackamas County	12.1
7.	Benton County	11.2
8.	Multnomah County	10.9
9.	Clatsop County	10.9
10.	Linn County	10.2
11.	Jackson County	9.9
12.	Marion County	9.7
13.	Lincoln County	9.5
14.	Morrow County	9.1

Source: 2020 Census Demographic Data Map Viewer, U.S. Census Bureau

Percentage of Occupied Housing Units (2020 Census)



Source: 2020 Census Demographic Data Map Viewer, U.S. Census Bureau

Sustainable Forestry Initiative – Urban and Community Forest Sustainability Standard

This new standard has been built on 5 Principles:

Urban forests and trees ...

1. are vital for community well-being, health, resiliency, and sustainability.

2. require proper planning, care, and management to optimize benefits and minimize risks.

3. depend upon understanding, awareness, appreciation, and engagement from people to thrive in communities.

4. and their associated benefits should be accessible and available to all.

5. are nature-based solutions to pressing issues and essential green infrastructure

Optimizing Carbon in Urban Forests

Cambium Carbon Pilot Project
Eugene Oregon

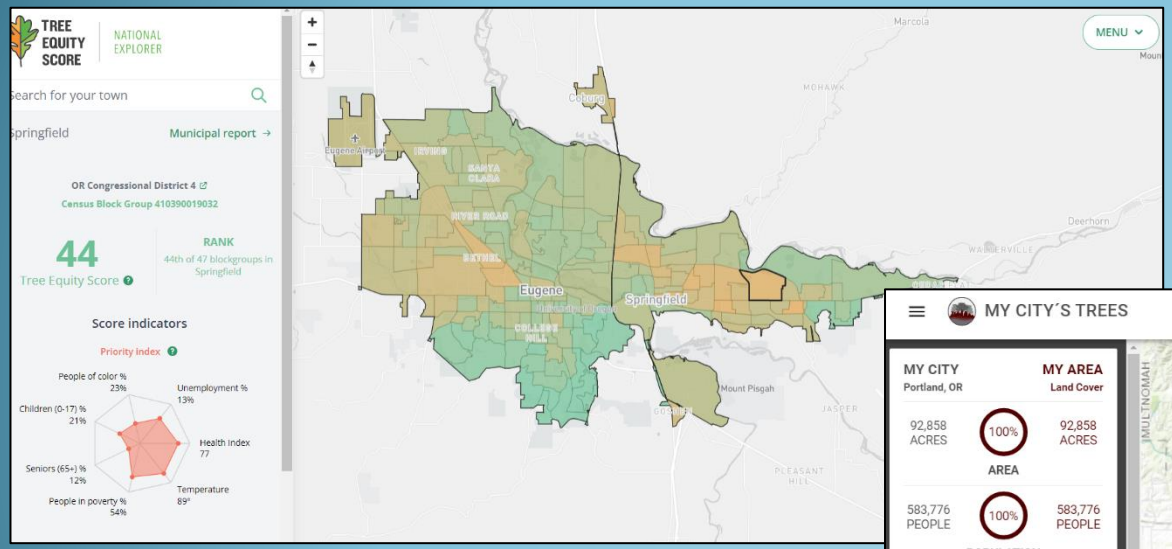
Four key stages of a regenerative "Reforestation Hub" model:

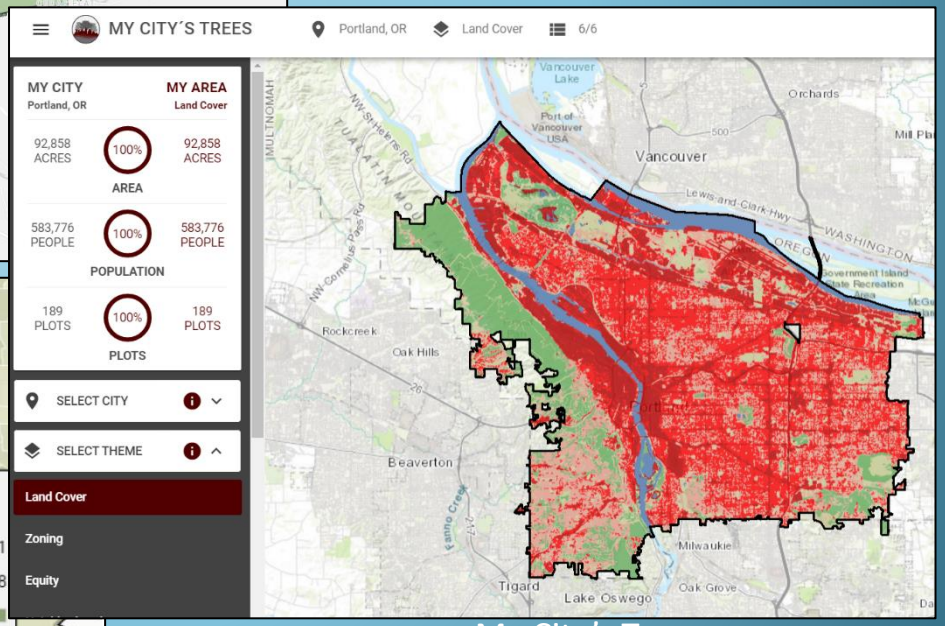
1. Forest Management & Data Collection
2. Urban Wood Salvage
3. Connecting Urban Wood to the Market
4. Strategies for Canopy Restoration

Urban lumber with defects shows character and increases its interest and value in certain markets.

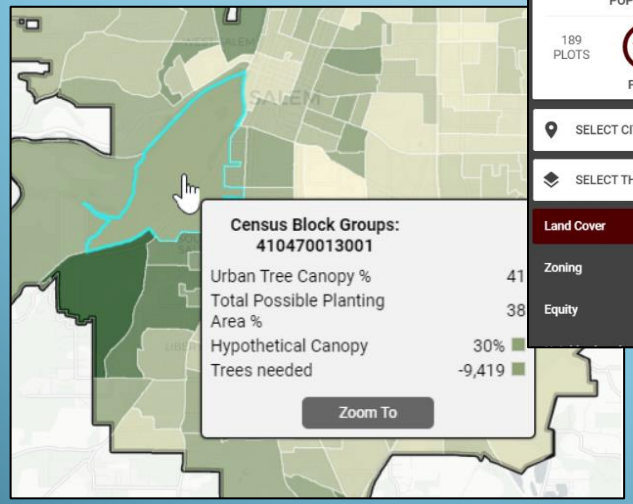
New Data Analysis Tools

American Forests' Tree Equity Score





My City's Trees



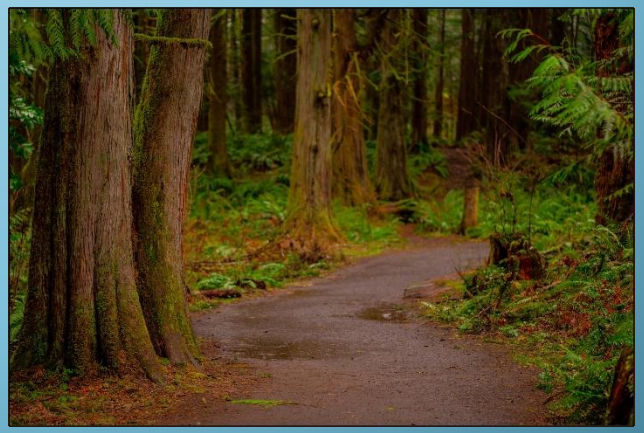
TreePlotter™ Canopy

What Lies Ahead

Wilsonville

McMinnville

Lincoln City



Sandy

Annual Forest Practices Monitoring Update

Board of Forestry Meeting

November 3, 2021

Terry Frueh
Monitoring Coordinator, ODF

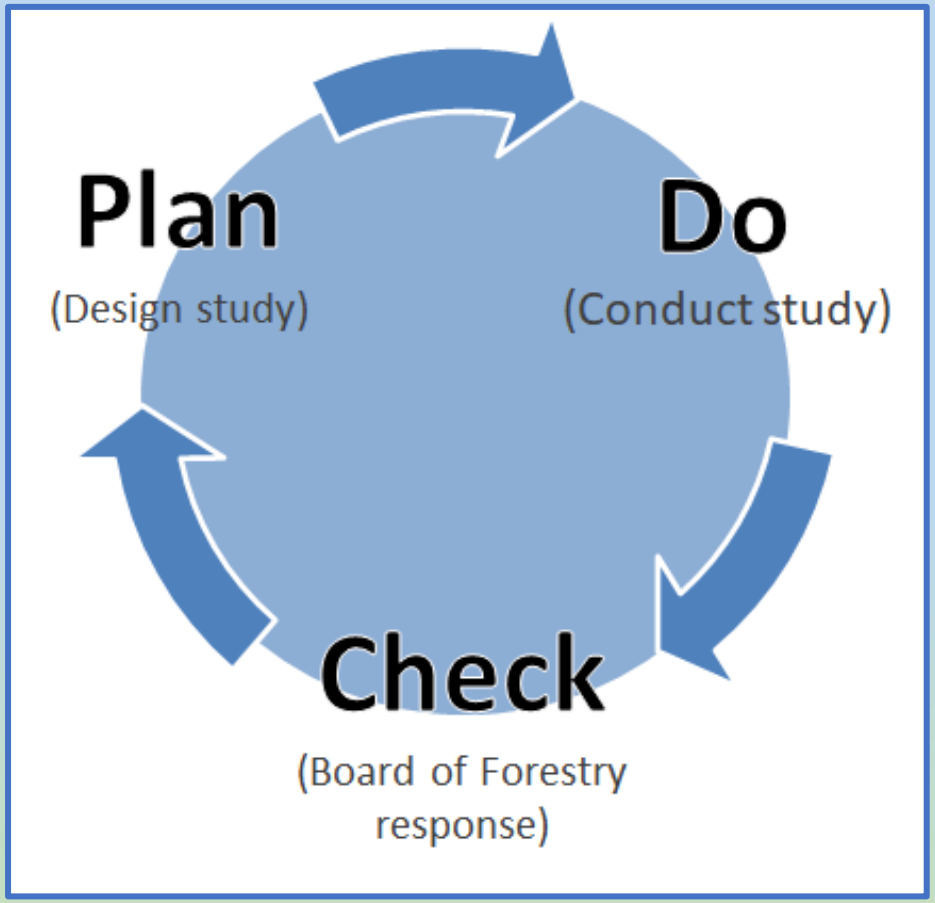
Adam Coble
Forest Health and Monitoring Manager, ODF

Josh Barnard
Interim Private Forests Division Chief, ODF

Outline

1. Monitoring Unit
2. Annual Update
3. Mount Hood Environmental – presents their work
4. ODF response

Why Monitor?



- **Expectations**
  - Statute, Rule, Policy
  - Agency best practice
- **Emphasis**
  - Collaboration
  - Continuous learning
  - Adapting to new science
  - Rules

ODF Monitoring

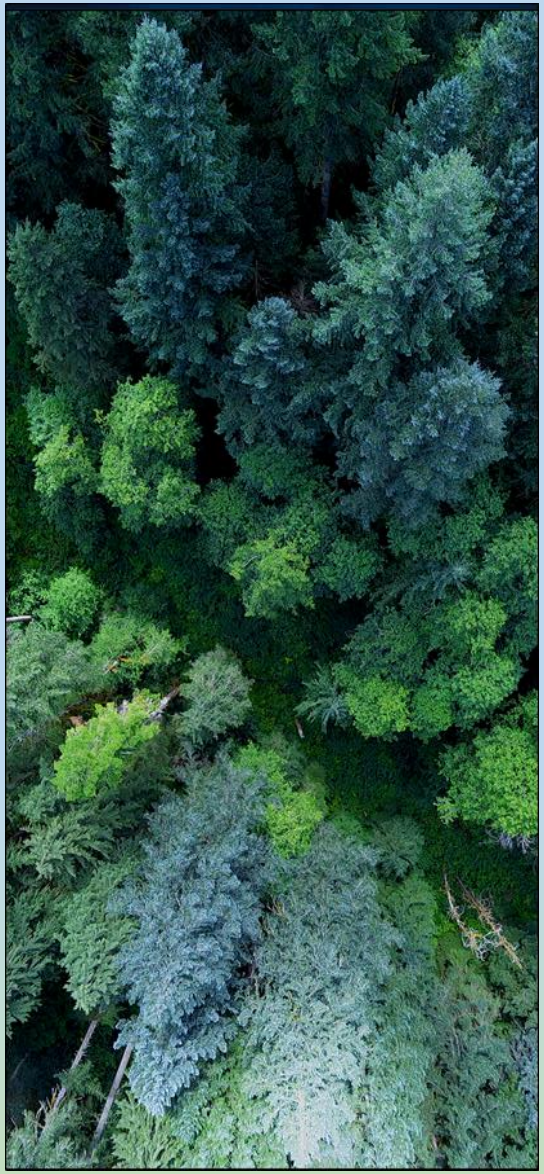
- Monitoring began in 1994
- Strategy revised in 2016 (5th ed.)
- Effectiveness and Implementation
- Monitoring Priorities

DEQ-ODF Memorandum of Understanding

- Collaborative work and mutual understanding
- MOU public comment & responses
- MOU revisions nearly completed
- Joint BoF – EQC Meeting: November 17, 2021

Western Oregon Streamside Protections Review

1. Field Study and Data Analysis - <u>'RipStream' study</u> *(completed)*
2. Literature Reviews (DFC and Large Wood)
3. Modeling Analysis and/or Field Data Collection



Implementation Study

Reforestation Pilot Study

- Recommendations from Mount Hood Environmental
- Input from external review team
- Collecting field data

Past and Future Implementation Studies:

- Mount Hood Environmental (presenting today)

Oregon Forest Practices Act Implementation Study: Review and Recommendations

Kevin Ceder
Quantitative Silviculturist, Woodland Creek Consulting

Mark Teply
Senior Forestry Scientist, Mark Teply Consulting

Mark Roes
Statistician, Mount Hood Environmental

Tara Blackman
Senior Biologist, Mount Hood Environmental

MOUNT HOOD
ENVIRONMENTAL

Background: Compliance Monitoring

Monitoring provides information about compliance with Oregon's forestry laws

- Provide generalizable data
- Provide information about which rules have low compliance
- Focus outreach and education to improve compliance
- In Oregon, compliance monitoring is NOT used for enforcement

Background: Compliance Monitoring

Other U.S. states

- Forest Best Management Practices exist in almost every U.S. state
- Compliance programs vary substantially among states
- Some of the issues we assessed are not unique to Oregon (e.g., landowner access)

Background: Implementation Monitoring

2013–2017 study was designed to address Agency goals:

1. **Provide data for annual reporting to the Oregon Legislature.**

2. **Verify implementation of forest practices on private property, for potential use in third-party certification systems (e.g., Sustainable Forestry Initiative).**

3. **Provide an informed and systematic basis for targeted training efforts by both ODF and forest industry to increase compliance with rules.**

4. **Improve the public's trust in both ODF, and those it regulates.**

5. **Provide data to the Board of Forestry regarding ODF's efforts to administer the FPA.**

6. **Provide for efficient use of state resources and corresponding workload in monitoring unit capacity.**

Background: Implementation Monitoring

Implementation Monitoring Study

Collected and reported data on rule and unit-level compliance

Critiques summarized in Groom (2020)

Critiques related to study design, analysis, and results reporting

Review

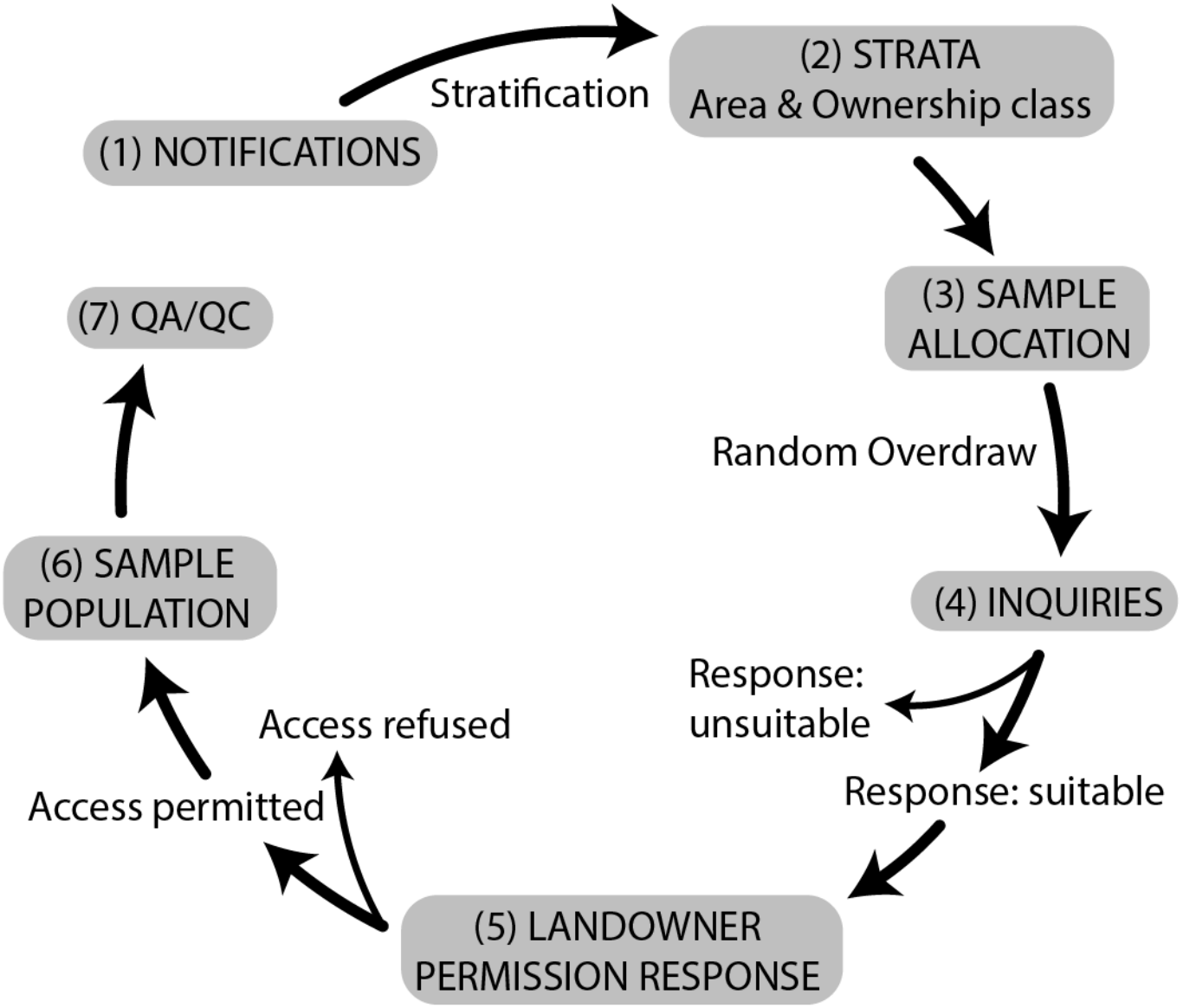
MHE independent review of the 2017 Implementation Study and assessment of critiques

Recommendations

MHE proposed solutions for future implementation monitoring

Review: Implementation Study Design

1. Harvest units drawn from harvest notifications

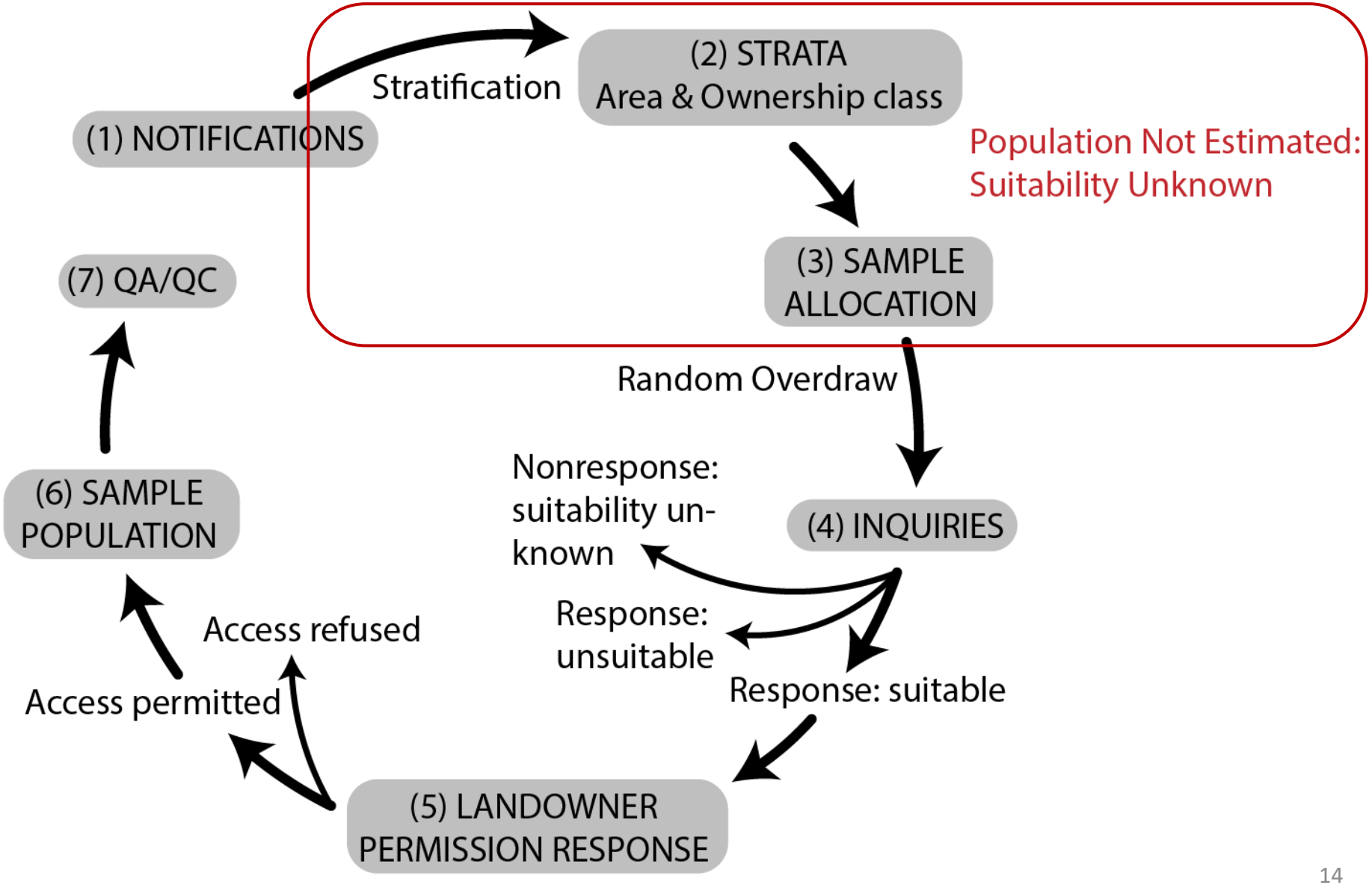


2-3. Units are drawn based on region and landowner type

4-5. Landowners contacted and asked to participate in the study

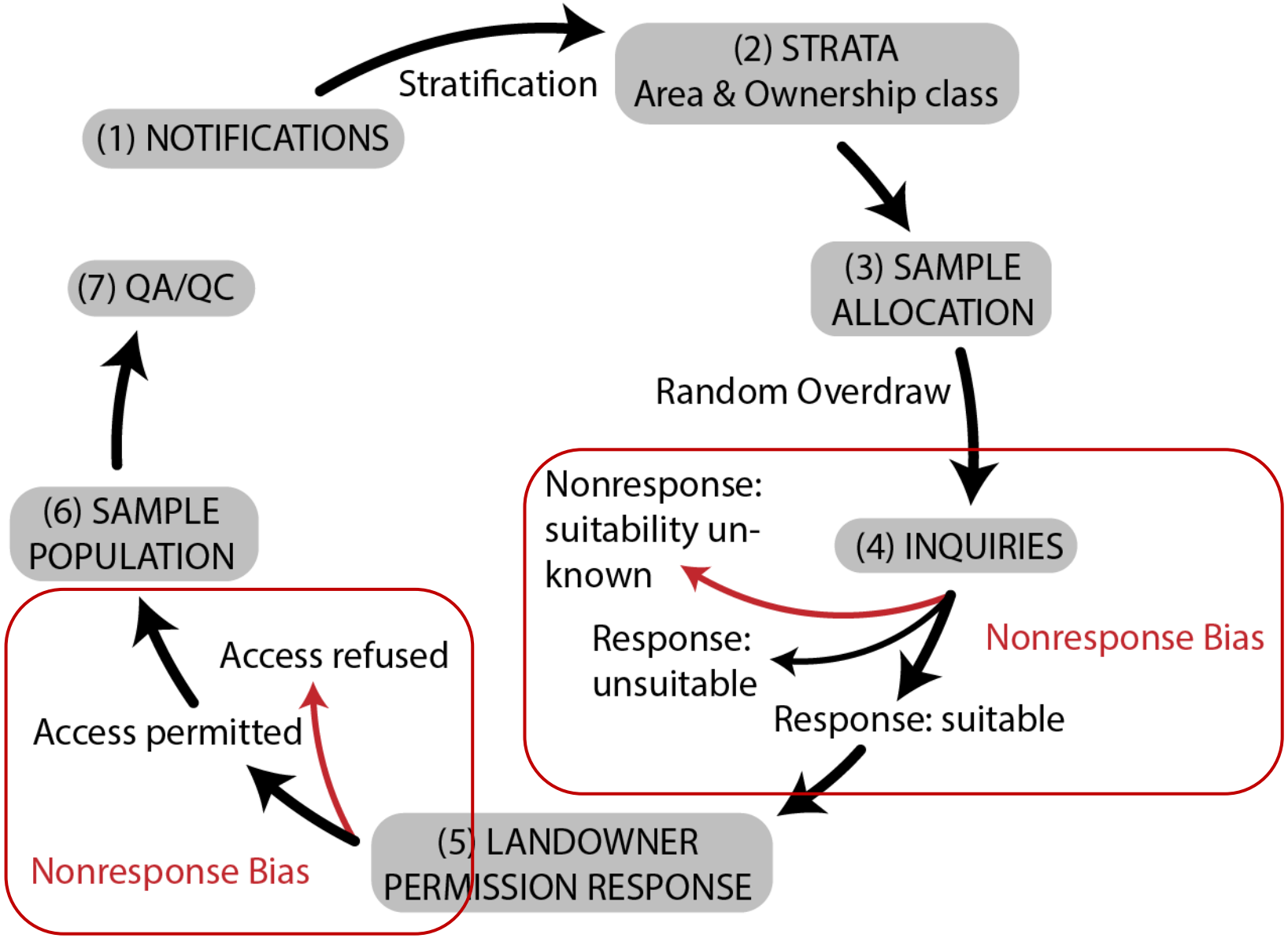
6. Harvest units surveyed for compliance with subset of forestry laws

Review: Assessment of Critiques



Red = Impacted Results

Review: Assessment of Critiques



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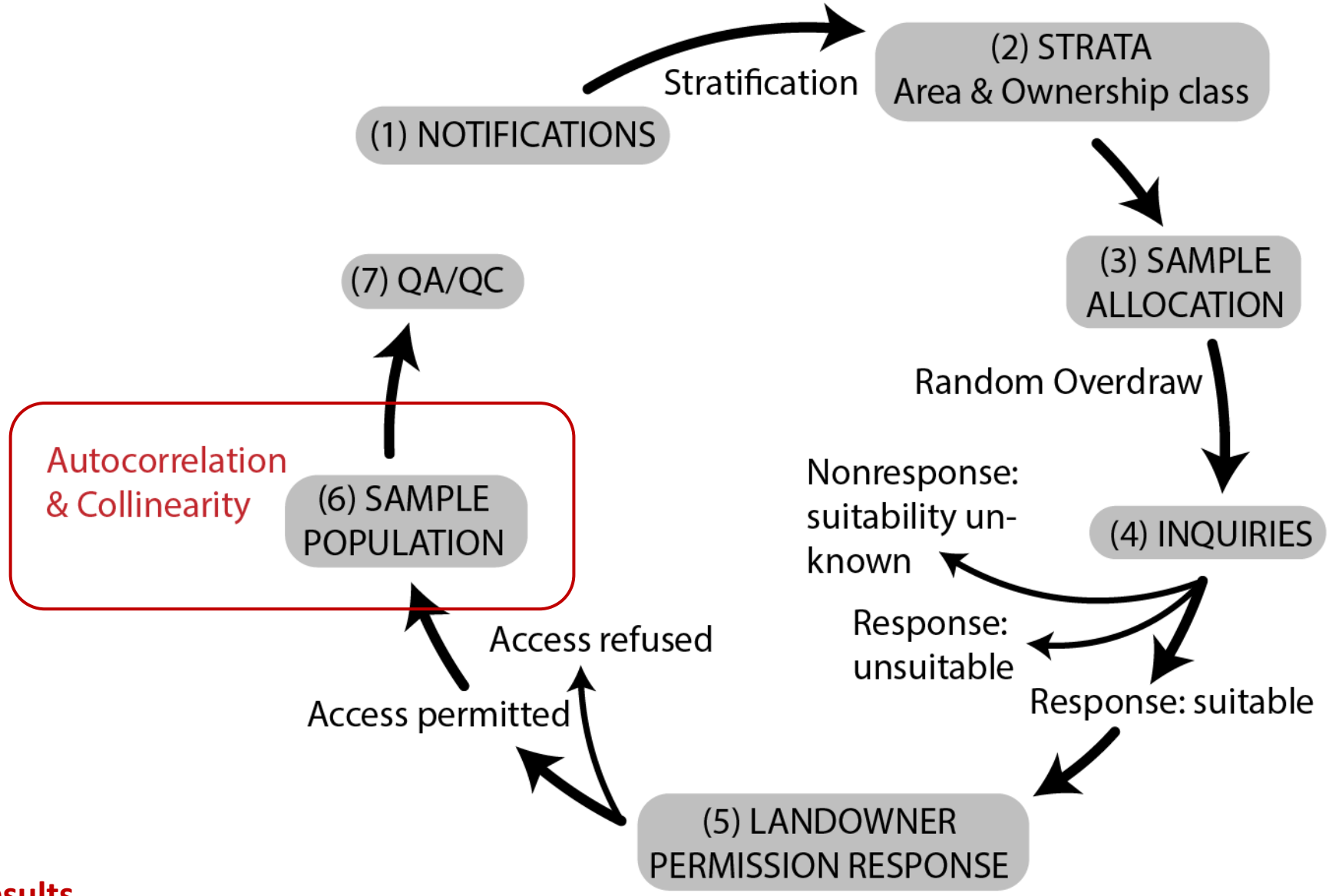
Review: Assessment of Critiques



Red = Impacted Results

Review: Assessment of Critiques

- **scientifically defensible arguments; impacted results**
- **scientifically defensible arguments; impact to results unknown**
- **miscommunication, omissions; no impact or irrelevant to results**

CRITIQUE THEME	IMPACTED RESULTS	IMPACT UNKNOWN	NO IMPACT OR IRRELEVANT
Unknown population	✓		
Nonresponse	✓		
Autocorrelation & collinearity	✓		
Compliance calculation	✓		
QA/QC		✓	
No confidence intervals/error		✓	
Reporting critiques			✓
Study intent			✓

Review: Assessment of Critiques

- Unknown if bias and error influenced high level decision-making

  E.g., Rules identified for education

- Anecdotal findings have been useful to ODF

  E.g., Photo documentation

Agency goal	Basic	Sub-basic	Unknown
1. Provide data to legislature	✓		
2. Inform third-party certification systems		✓	
3. Systematic basis for training & education	✓		
4. Improve public trust		✓	
5. Provide data to Board of Forestry	✓		
6. Efficient use of resources			✓

Recommendations: Existing Data

- **Amending results through an analysis of 2013-2017 data is not recommended. It could not:**
  - Expand scope of inference
  - Determine if bias influenced results
  - Produce reliable confidence intervals

- **However, existing data can inform future monitoring by:**
  - Accounting for landowner nonresponse and harvest completion
  - Increasing program efficiency

Recommendations: Prospective Monitoring

Primary assumptions:

1. Utilize Implementation Study infrastructure
2. Landowner participation is voluntary
3. Harvest completion unknown during sample draw

Primary foci:

1. Address agency goals
2. Account for nonresponse
3. Reduce potential for error and bias
4. Increase efficiency

Recommendations: Prospective Monitoring

1. Explicitly define all sampling elements
2. Narrow research questions to address agency goals
3. **Quantify the population**
4. **Account for nonresponse bias**
5. Reduce potential for systematic error with standardized training and QA/QC protocols
6. Include large harvests with a sub-sampling protocol
7. **Apply within-unit stratification for roads and streams to mitigate autocorrelation and increase sampling efficiency**
8. Determine sample size using power analysis or a similar approach

Recommendations: Prospective Monitoring

- **Rule-level compliance**
- **Results by ownership type**
- **Meets agency goals**
- **Within ODF current resource budget**
- **Flexible approach**
- **Leverages prior Implementation Study data**

Recommendations: Conclusion

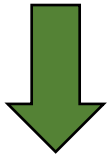
Implementation Monitoring Study

Provide insight to better "protect, manage, and promote stewardship of Oregon's forests[1]"

Critiques summarized in Groom (2020)

Review

Issues limited the utility of results



Recommendations

Address critiques and produce statistically rigorous results

ODF Response Plan

Summary

- **8 recommendations**
- **Reforestation pilot study**
- **Third party review**

Recommendation	ODF Will
1. Define sampling elements	-Elements easily described -Number of notified units
2. Questions address agency goals	-Explicitly address agency goals -Statistical analysis
3. Quantify Target Population	-2013-2017 data -Remote sensing
4. Account for nonresponse bias	-Extra effort -Remote sensing -Nonresponse model -Sensitivity analysis

Recommendation	ODF Will
5. Standardized training, QA/QC	Training & QA/QC on field methods
6. Include large harvests	Thinning harvests
7. Apply within-unit stratification	Apply stratification, subsample (linear features)
8. Sample size: power analysis	2013-2017 data: future sample size

Recommendations: ODF Response Plan

- **Incorporates all recommendations**
- **Addresses relevant critiques**
- **Statistically rigorous**
- **Results with known reliability**

Western Douglas-fir working forest
Photo credit: Oregon Forest Resources Institute

MOUNT HOOD ENVIRONMENTAL

Thank you

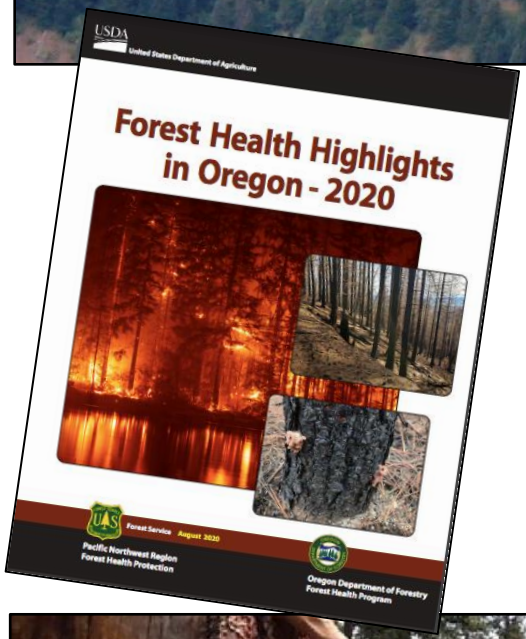
2021 Forest Health Report Oregon Board of Forestry

November 3, 2020

ODF Forest Health Unit

What we do

- Cover all public and private landowners statewide
- Assist all divisions of ODF
- Provide diagnosis and management guidance for forest health issues
- Develop response and recovery plans for disturbance and impending risks
- Monitor, detect and collect data on abiotic and pest damage
- Conduct research projects
- Assist landowners with cost-share funding
- Assist with eradication and mitigation efforts



Resources

Forest benefits

Forest benefits › Forest health

Forest health

The Forest Health Program helps maintain and improve the health of Oregon's private and state-owned forests.

Our forest health professionals conduct aerial and ground surveys to monitor forest insects and tree diseases. They provide technical advice and training in the use of integrated pest management principles to help professional foresters and landowners meet their management goals and objectives.

Stewardship foresters, urban foresters, forest entomologists and pathologists can help landowners identify forest pest problems and develop strategies to manage pests. Contact a stewardship forester or the Forest Health Program for more information.

Factsheets & information

Drought impacts on forestry survey
Sudden oak death: Economic impact assessment

- Insects +
- Diseases +
- Invasives +
- Other +

Maps & data

- Statewide insect & disease aerial surveys +

Resources

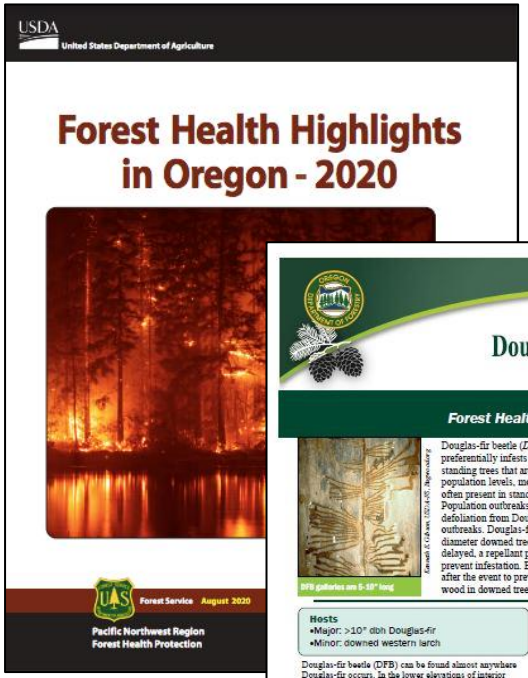
- 2019 Forest Health Highlights report
- Forest Health Highlights (Joint product of ODF and the USFS Region 6)
- Aerial insect & disease survey GIS data
- Invasive species online hotline
- Oregon forest pest detector
- Forest Insect and Disease Leaflets (FIDLs)
- Grants and incentives

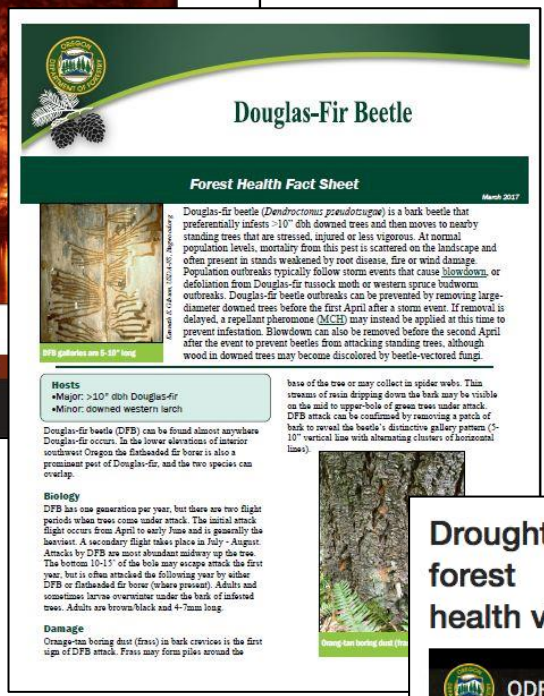
Organizations

- Oregon Bee Project +
- Oregon Invasive Species Council +

Contact

Forest Health Program
Private Forests Division
2600 State Street
Salem, OR 97310
503-945-7395
Email





Aerial Detection Surveys (ADS)

- Broad scale issue detection and trend monitoring
- Cooperative with the USDA Forest Service
- Annual since 1947 *(longest in nation)*
- Over 35 million acres surveyed each year
- Provide data input into:
  - Risk models
  - Planning efforts
  - Prioritization (e.g. suppression/prevention projects)
  - Direction of Federal funds nationwide

climate change monitoring

Aerial survey process

Constraints

- Ongoing budget, staffing and aircraft shortages
- ODF plane not carded for USFS staff use
- Poor visibility due to weather or smoke
- Timing of signatures
- FLIR takes up 4th “training seat”
- TFRs

Aerial Detection Survey Status

2020:

- *Not flown* due to COVID-19
- Utilized new Scan and Sketch method on select priority areas
- Ground checks and communication with the field continued

2021:

- Imagery for Scan and Sketch unavailable
- Late start but most of the state *flown* despite ongoing COVID-19

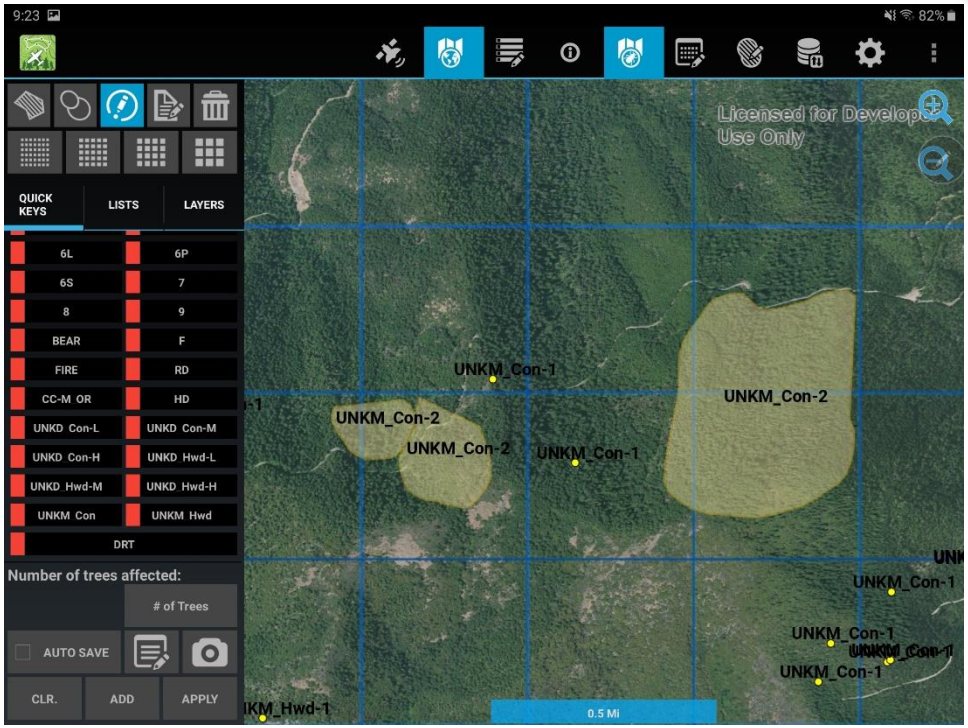
Outcome of disruption:

- Gap in long-term data
- Scan and Sketch results are not directly comparable to past aerial data
- Miss unknown outbreaks (unlikely with boots on ground and predictive reports from monitoring software)
- Reduced gauge of overall conditions

Scan and Sketch method

Same tablets and mapping software is used.

High resolution imagery is loaded onto our tablets and sections of the state are scrolled through while visually scanning for damage which is marked as normal.



Scan and Sketch method

Pros

- More accurate georeferencing
- Can be conducted at any time, no travel/logistics required
- Aircraft not needed
- No weather or smoke delays
- Optimal personnel safety

Cons

- Less accurate agent or host identification
- Requires high resolution imagery collected around springtime
- Outbreaks may be missed if not all areas are covered

The future of aerial survey…

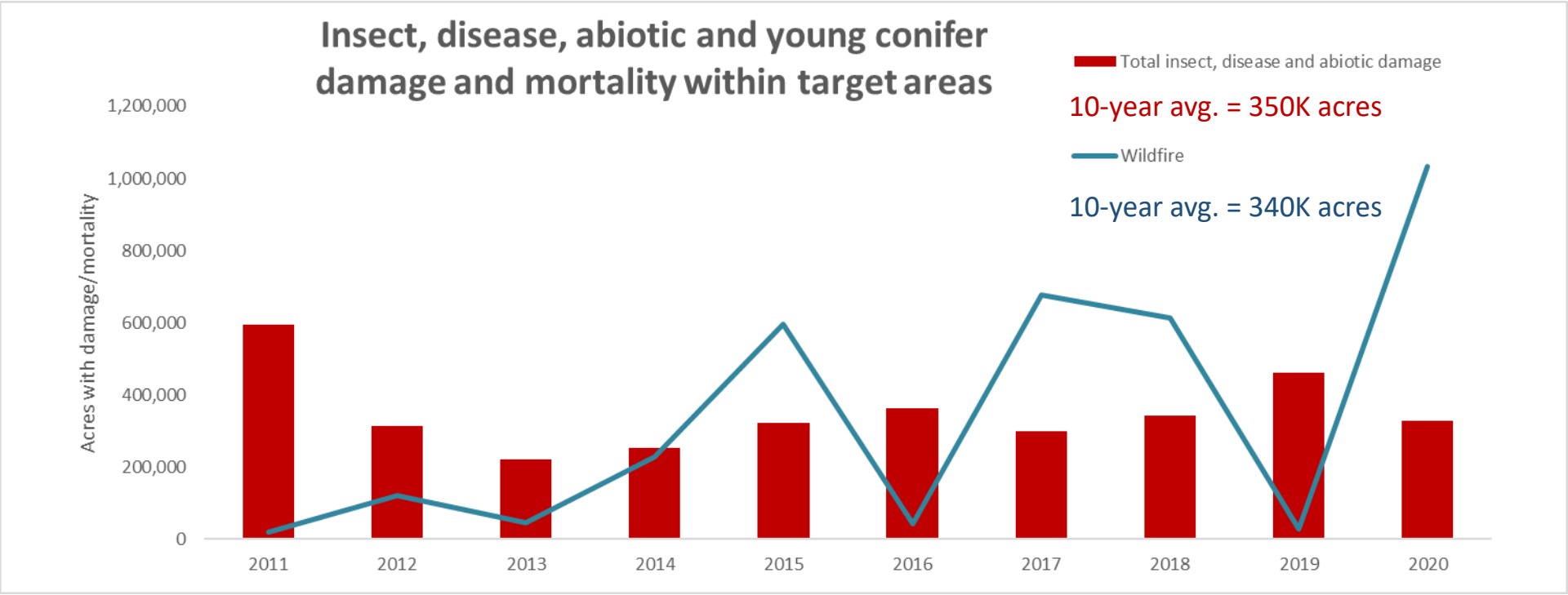
- **Staffing issues:** lack of trained surveyors, lack of seats in ODF plane to train more surveyors
- **Aircraft issues:** ODF aircraft prioritized for wildfire during aerial survey season, USFS staff cannot fly in ODF plane, normal aircraft servicing down time, unexpected repairs
- **Incorporate Scan and Sketch and/or change detection software** as a supplements or replacements for aerial survey data collection as technology improves

Survey results

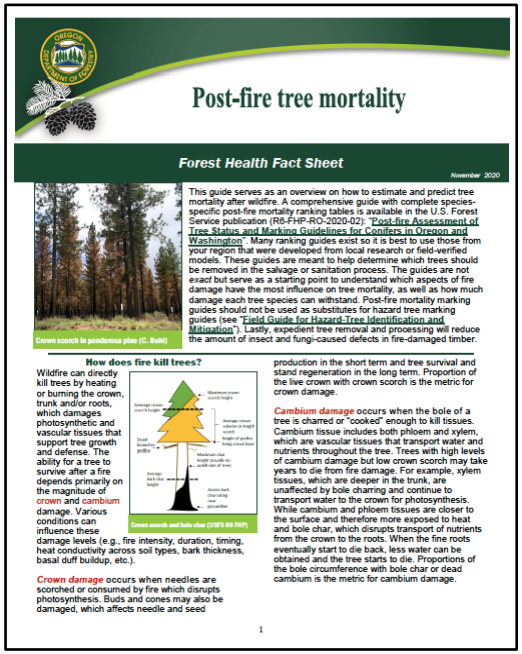
- Survey coverage area reduced from ~35 million to 11.2 million acres
- Priority areas are known outbreak and heavy drought areas

Survey results

Below is annual combined damage from all abiotic, insect and disease agents (with 10-year average) versus wildfire within only the 2020 priority areas from the last 10 years.



Wildfire support



Post-fire tree mortality

Forest Health Fact Sheet

November 2020

Crown scorch in ponderosa pine (C. Buhl)

This guide serves as an overview on how to estimate and predict tree mortality after wildfire. A comprehensive guide with complete species-specific post-fire mortality ranking tables is available in the U.S. Forest Service publication (R6-FHP-RO-2020-02): "Post-fire Assessment of Tree Status and Marking Guidelines for Conifers in Oregon and Washington". Many ranking guides exist so it is best to use those from your region that were developed from local research or field-verified models. These guides are meant to help determine which trees should be removed in the salvage or sanitation process. The guides are not exact but serve as a starting point to understand which aspects of fire damage have the most influence on tree mortality, as well as how much damage each tree species can withstand. Post-fire mortality marking guides should not be used as substitutes for hazard tree marking guides (see "Field Guide for Hazard-Tree Identification and Mitigation"). Lastly, expedient tree removal and processing will reduce the amount of insect and fungi-caused defects in fire-damaged timber.

How does fire kill trees?

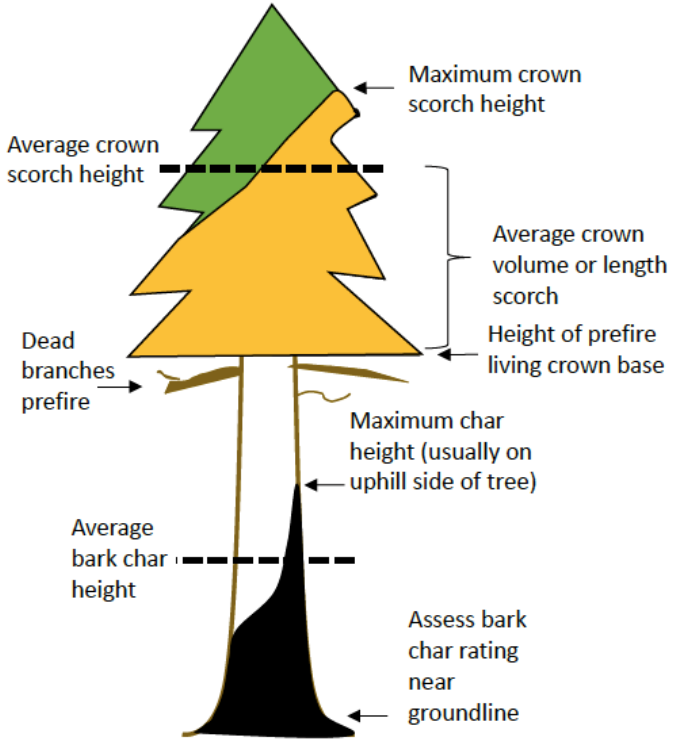
Wildfire can directly kill trees by heating or burning the crown, trunk and/or roots, which damages photosynthetic and vascular tissues that support tree growth and defense. The ability for a tree to survive after a fire depends primarily on the magnitude of crown and cambium damage. Various conditions can influence these damage levels (e.g., fire intensity, duration, timing, heat conductivity across soil types, bark thickness, basal duff buildup, etc.).

Crown scorch and bole char (USFS R6 FHP)

Crown damage occurs when needles are scorched or consumed by fire which disrupts photosynthesis. Buds and cones may also be damaged, which affects needle and seed production in the short term and tree survival and stand regeneration in the long term. Proportion of the live crown with crown scorch is the metric for crown damage.

Cambium damage occurs when the bole of a tree is charred or "cooked" enough to kill tissues. Cambium tissue includes both phloem and xylem, which are vascular tissues that transport water and nutrients throughout the tree. Trees with high levels of cambium damage but low crown scorch may take years to die from fire damage. For example, xylem tissues, which are deeper in the trunk, are unaffected by bole charring and continue to transport water to the crown for photosynthesis. While cambium and phloem tissues are closer to the surface and therefore more exposed to heat and bole char, which disrupts transport of nutrients from the crown to the roots. When the fine roots eventually start to die back, less water can be obtained and the tree starts to die. Proportions of the bole circumference with bole char or dead cambium is the metric for cambium damage.

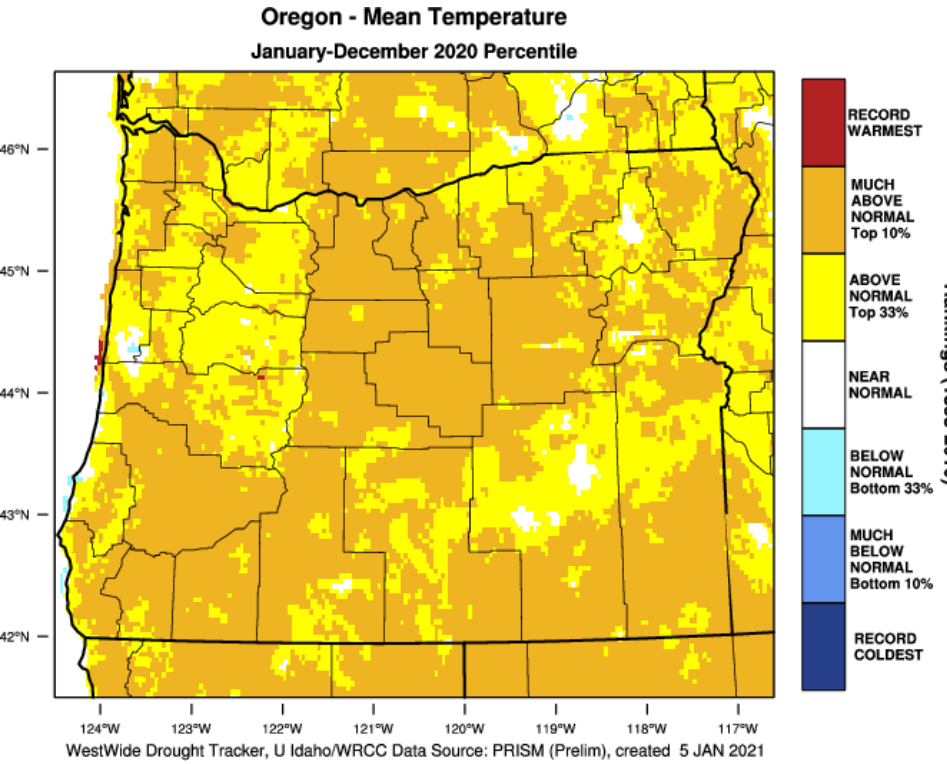
1

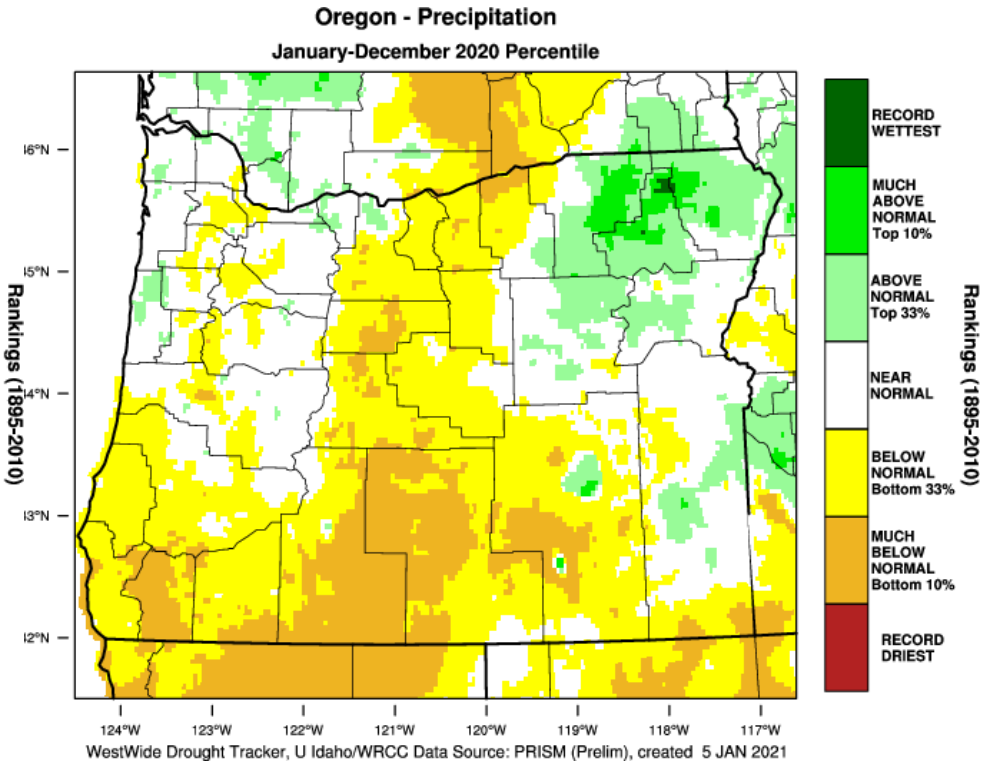


Species	Criteria	Diameter Class		
		5 – 11.9"	12 – 20.9"	21"+
PSME: Douglas-fir	Crown scorch	> 65% crown volume		
	Bark char	> 50% deep char	> 75% deep char	

Primary cause of tree mortality

Ongoing hot, droughts





2021 heat event

June 26 = 108°F
June 27 = 112°F
June 28 = 116°F

- Compounded ongoing droughts
- Trees didn’t have time to adjust
- Most intense along roadsides, south & west aspects, branch tips
- Buds and older foliage less impacted
- Unknown how vascular tissues and roots were impacted

Climate change example: western redcedar dieback

2020 ODF/USFS monitoring project in Oregon and Washington:

- Map location and distribution
- Single tree data collection and monitoring to detect patterns to guide management decisions
- Collaboration with researchers for more in-depth measurements
- Large community response
- Sign of range reduction for WRC

Primary insect issues

- Bark beetles specifically attacking droughted true fir and Douglas-fir, storm damaged trees, and overstocked pine statewide
- Recent cyclic defoliator outbreaks are finally collapsing in NE Oregon
- Long-established, sap-sucking insect continues unchecked mortality of high elevation true fir.

Invasive species & Oregon's forests

Consequences of invasive species

1. High costs of control, losses to industry, increases in wildfires.

   Scotch broom and Himalayan **blackberry:** **$80 million/year** in OR

2. Increased pesticide use

3. Human health concerns

   Cardiovascular disease, depression

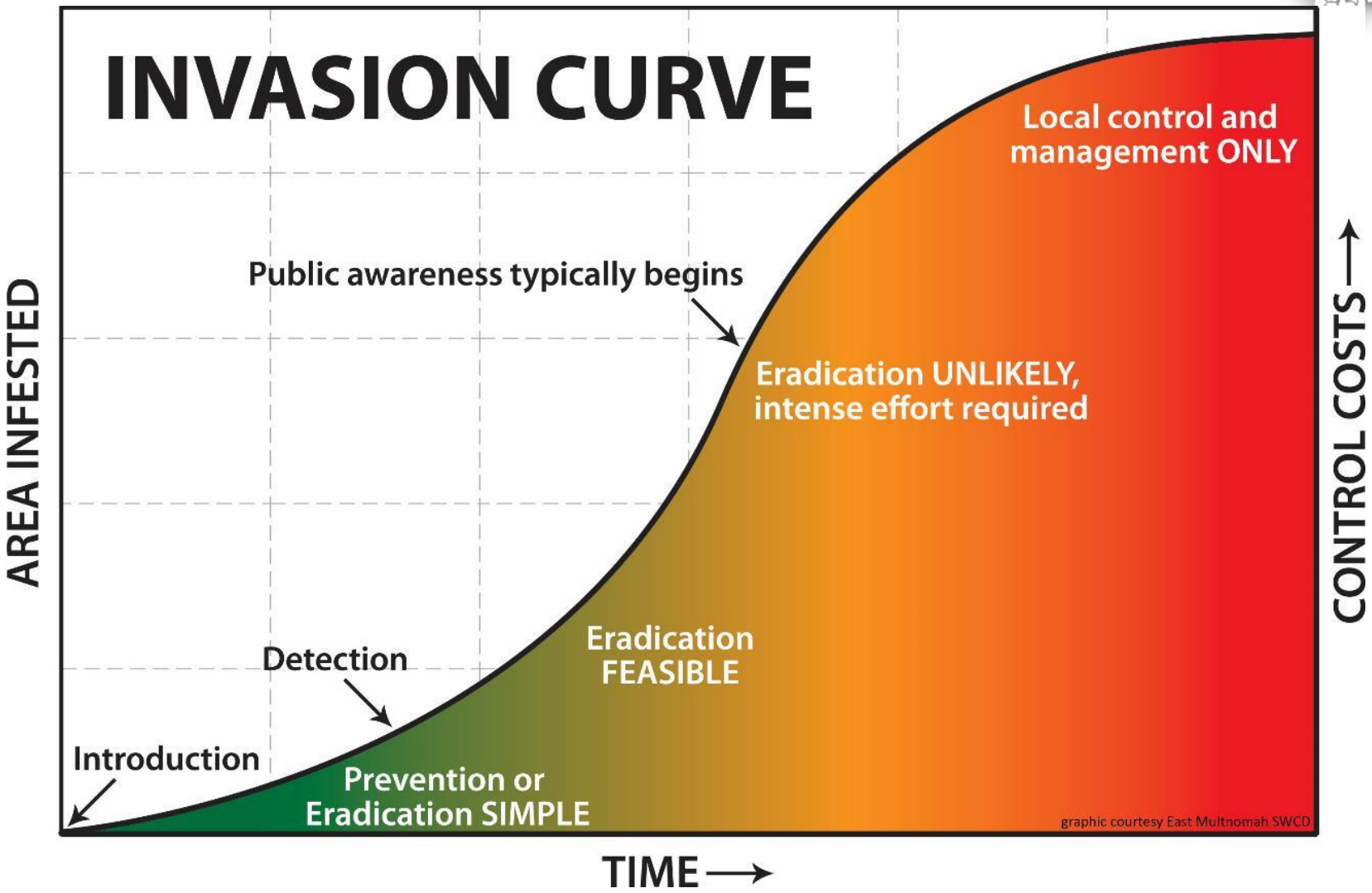
4. Species extinctions

The <u>effects</u> of nonnative species ***threaten our way of life*** *& entire economies*

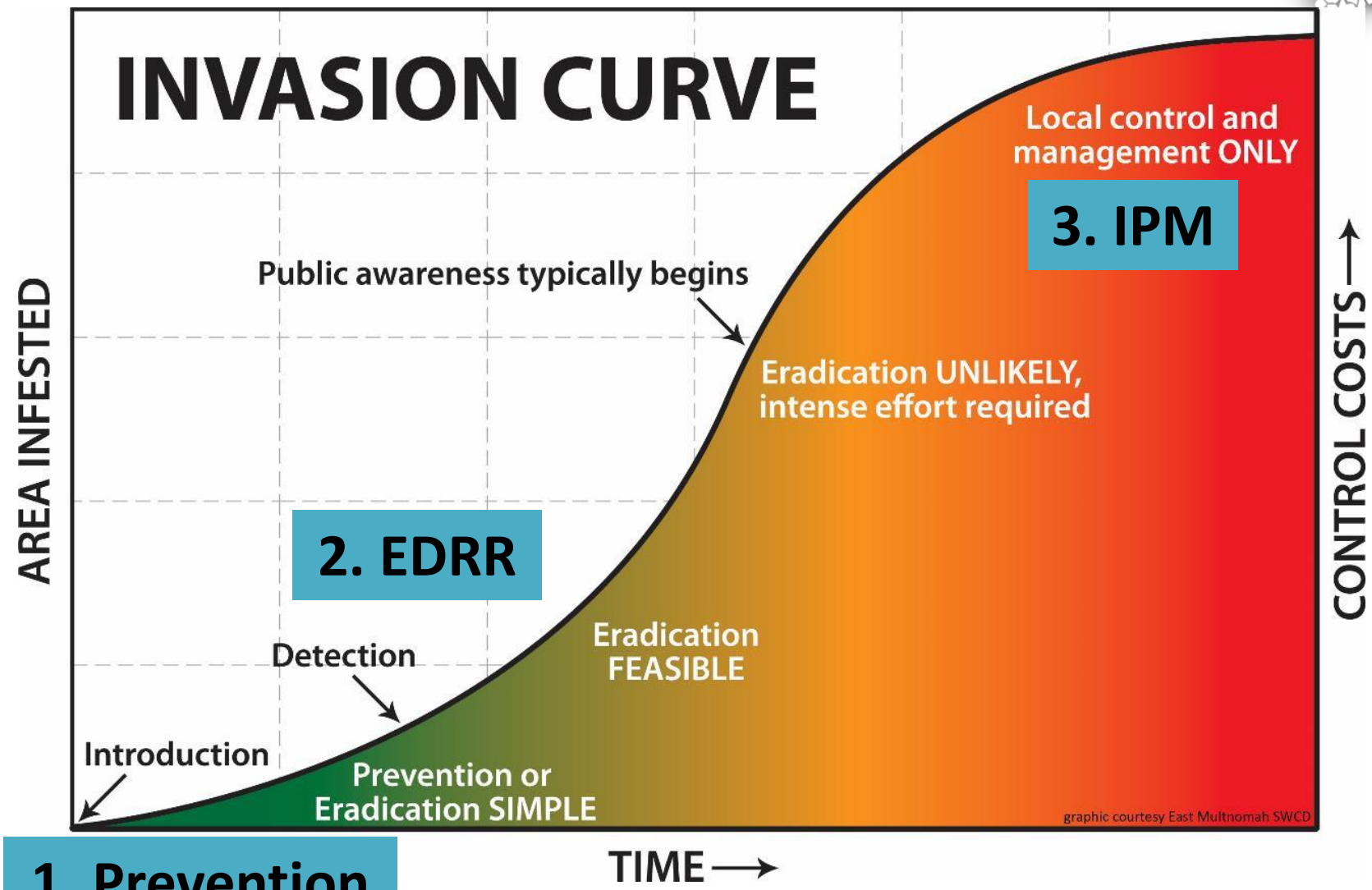
Scotch broom invasion

Cheatgrass-fueled fire

Prevention & early detection are key



Prevention & early detection are key



Notorious invaders in Oregon's forests

White pine blister rust

- Introduced **1910** in Oregon
- "Five-needle" pines

Balsam woolly adelgid

- Introduced **1930** in Oregon
- "True firs" in Cascades, X-mas trees

Port-Orford-cedar root disease

- Introduced **1952** in Oregon
- Caused collapse of Asian export market

Sudden oak death

- Detected **2001** in Oregon
- Tanoak in Curry Co.

Which invasive species concern ODF?

ODF's Top Unwanted
Forest Invasive Species List

- **10 Pathogens**
- **28 Plants**
- **37 Invertebrates**
- **1 Vertebrate**

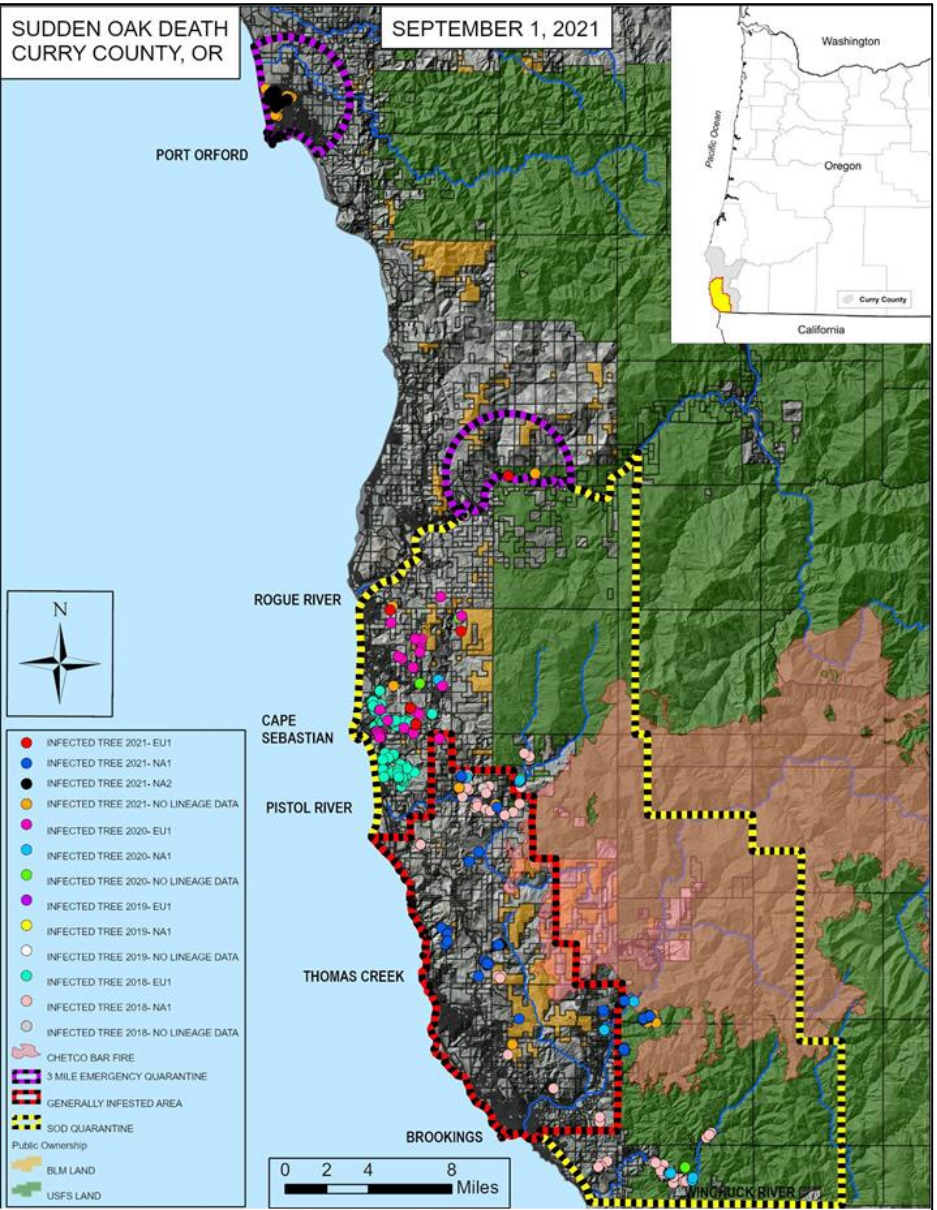
Total: 76 species

ODF's Most Damaging
Forest Invasive Species List

- **4 Pathogens**
- **29 Plants**
- **2 Invertebrates**

Total: 35 species

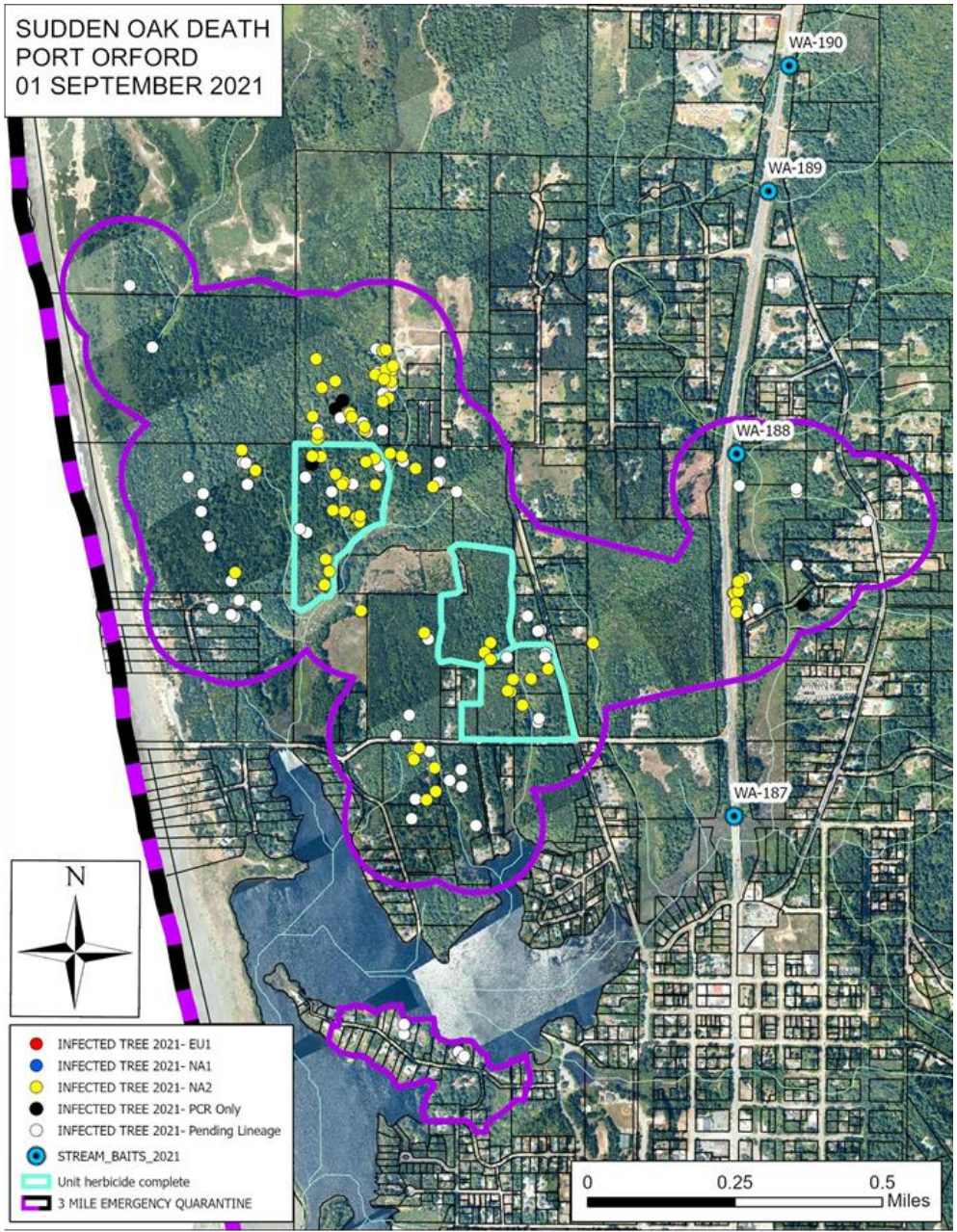
Sudden Oak Death in Oregon



Updates

- The interagency slow-the-spread program continues
  - Treated: 7,821 acres
- Agency received $1.7 mil for FY21/23
- 2 detections of SOD outside state quarantine:
  - Port Orford
  - Rogue river

SOD in Port Orford



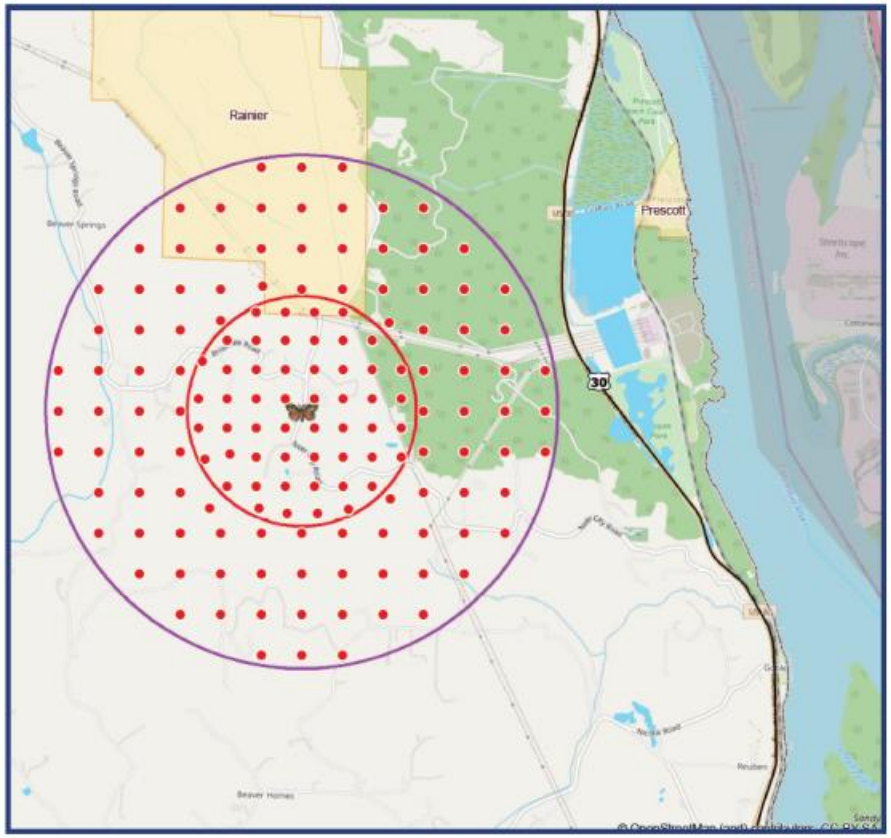
- Two tanoaks positive for *P. ramorum*
  - Sampled by OSU on 4/27
  - Noticed red and dying trees along Hwy 101
  - OSU confirmed *P. ram* on 5/10
  - ODA established emergency 3-mile quarantine
  - NA2 lineage

Gypsy moth (*Lymantria dispar*)

100% success in detecting and eradicating GM!
Interagency cooperation, ODF IMT involvement!

- 500+ host species
- Preferred food: oaks, alder
- Others: hemlock, fir

2021 delimitation trapping European GM (Rainier)

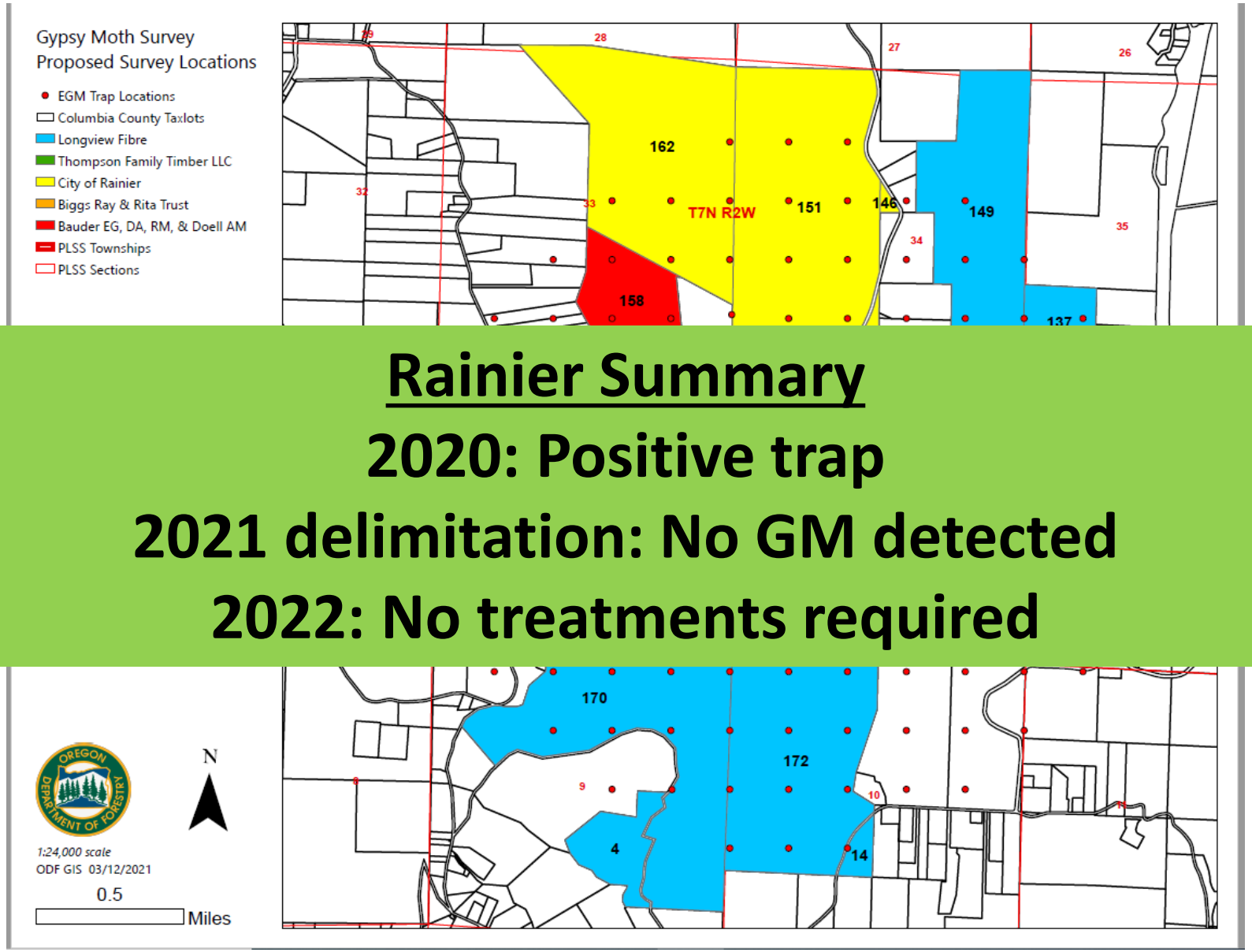


EGM Delimitation Trapping Plan Rainier

- Positive EGM Trap
- EGM Delimitation Trap
- 1 square mile: 49 traps per square mile
- 4 square miles: 25 traps per square mile

OREGON DEPARTMENT OF AGRICULTURE

Mark Reed, ODF Columbia City, providing local knowledge to ODA
Carl Swanson, ODF Salem, GIS support



Rainier Summary

2020: Positive trap

2021 delimitation: No GM detected

2022: No treatments required

Emerald Ash Borer (EAB)

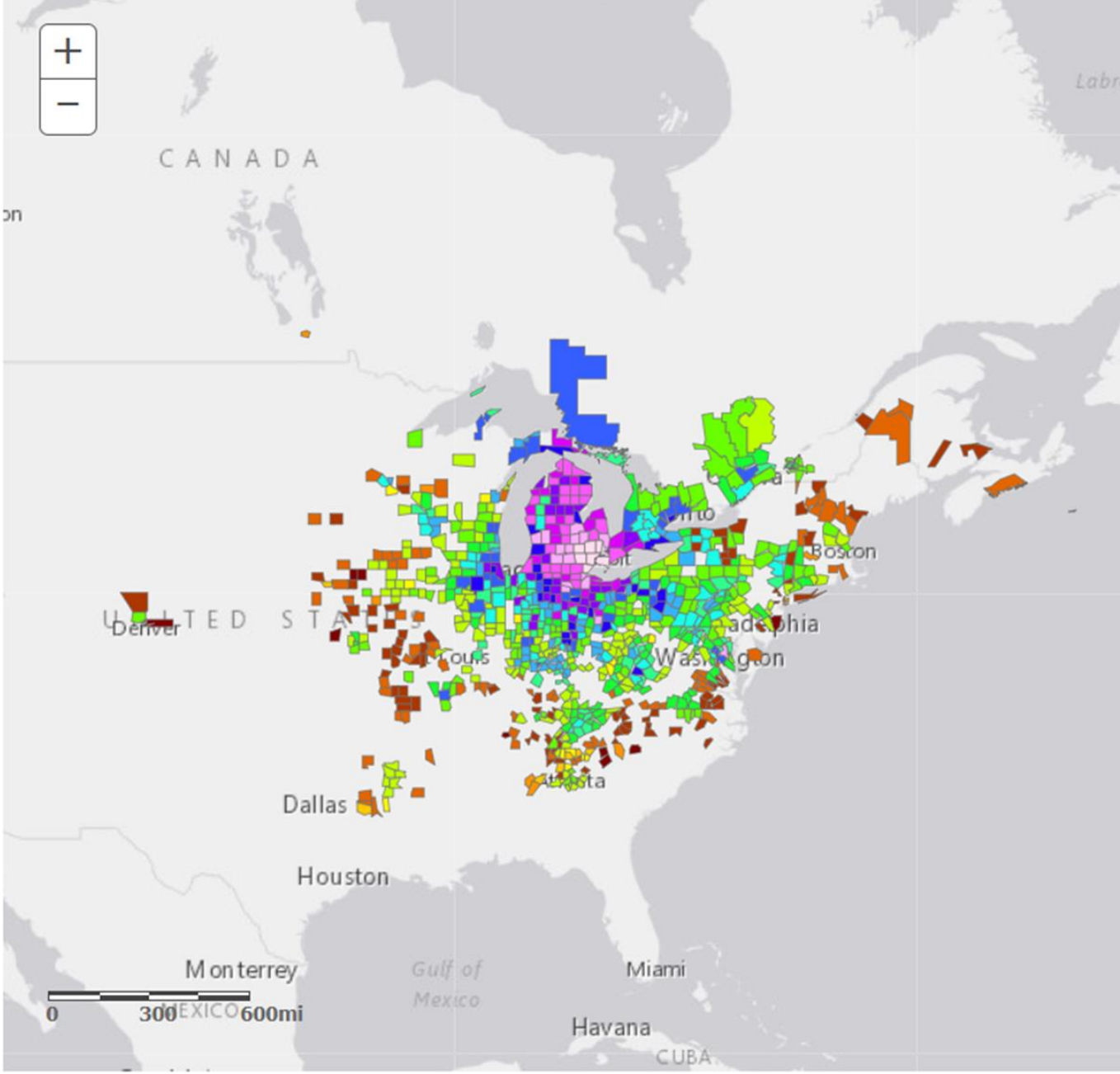
- First detected in U.S., 2002
- 100+ million trees killed in 30 states since 1990s
- Costs >$1.7 billion in U.S.*

*Aukema et al. 2011. Economic impacts forest invaders in the U.S. PLoS one.

Legend

U.S. and Canada EAB Detections, 2020

- 2002
- 2003
- 2004
- 2005
- 2006
- 2007
- 2008
- 2009
- 2010
- 2011
- 2012
- 2013
- 2014
- 2015
- 2016
- 2017
- 2018
- 2019
- 2020

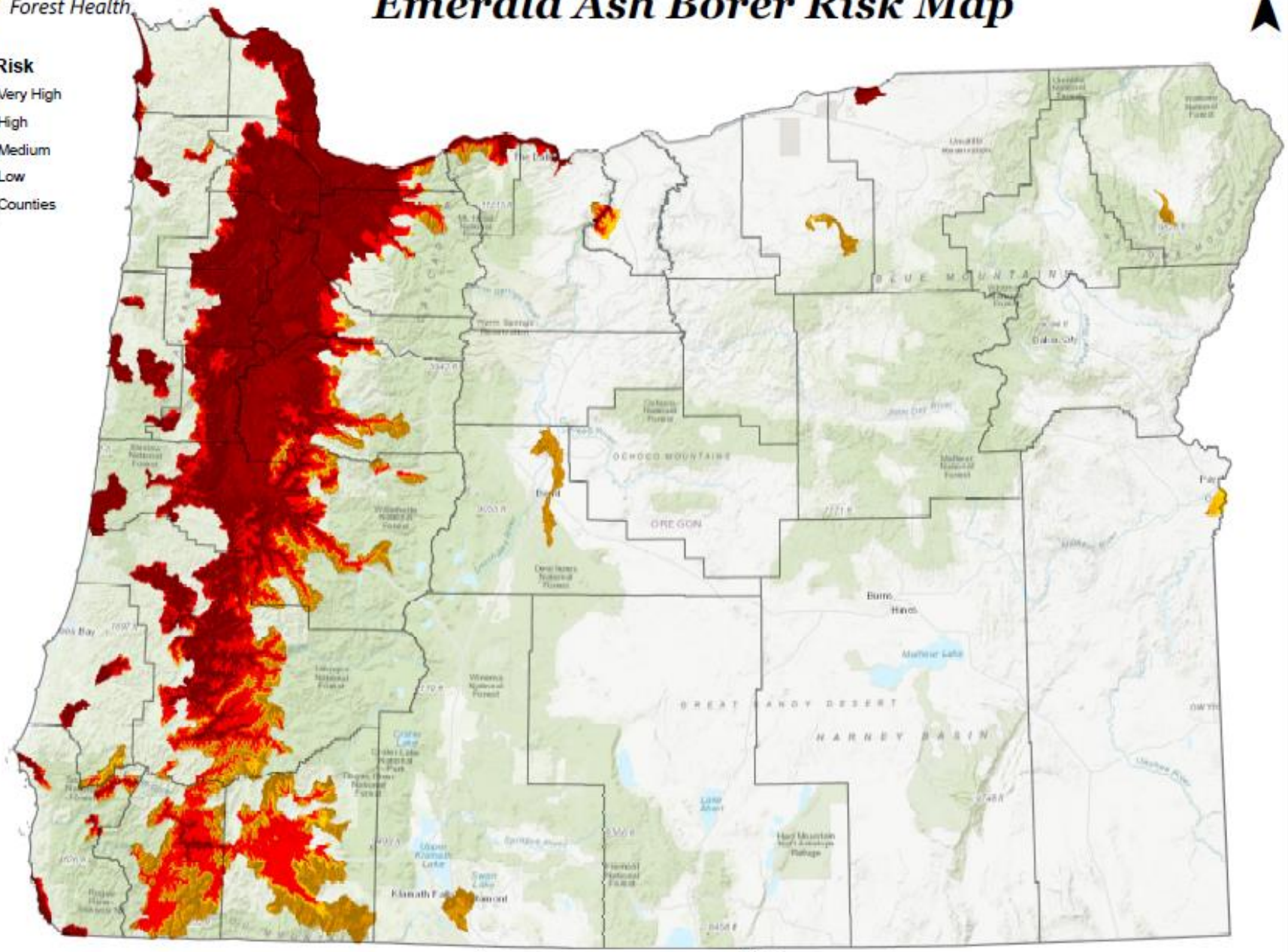


Private Forest Program
Forest Health

Emerald Ash Borer Risk Map

N

EAB Risk
- Very High
- High
- Medium
- Low
- Counties



0 10 20 40 60 80 Miles

Date: May 2018

Oregon Ash – a widespread and common tree in Oregon, California, and Washington.

Oregon ash in riparian area

Hold onto your Ash!
High cost of EAB in urban forestry

City of Portland
Street Tree Inventory

4.8% or 72,000 public ash

$21M removal ($290/tree)
$28M replacement ($387/tree)
$49M total cost to PDX

Photo: Dan Herms

Photo: Dan Herms

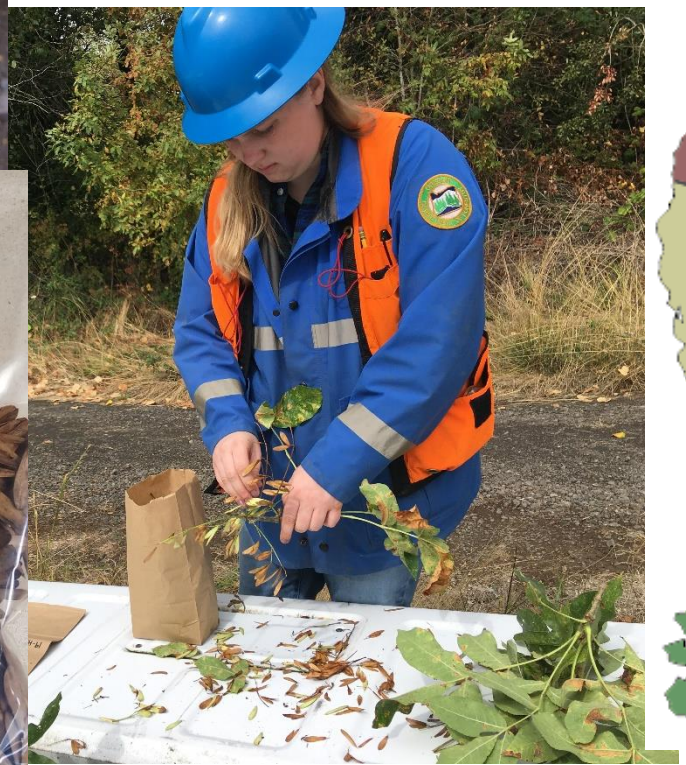
What has ODF done to prepare?

1. Led and coordinated ***statewide EAB surveys***
   - Since 2013, nearly 1,000 traps placed
2. Started the ***Oregon Forest Pest Detector*** program
3. Led the effort to develop ***Statewide EAB Preparedness Plan*** in 2018
4. In 2019, began project to ***collect 1 million seeds*** for genetic conservation

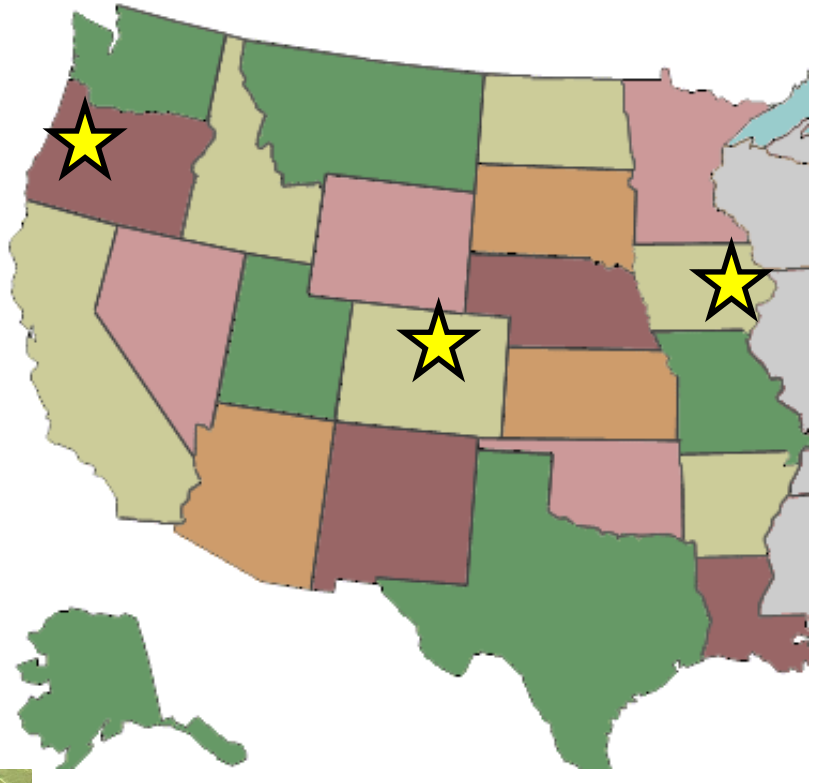
Planning for the inevitable

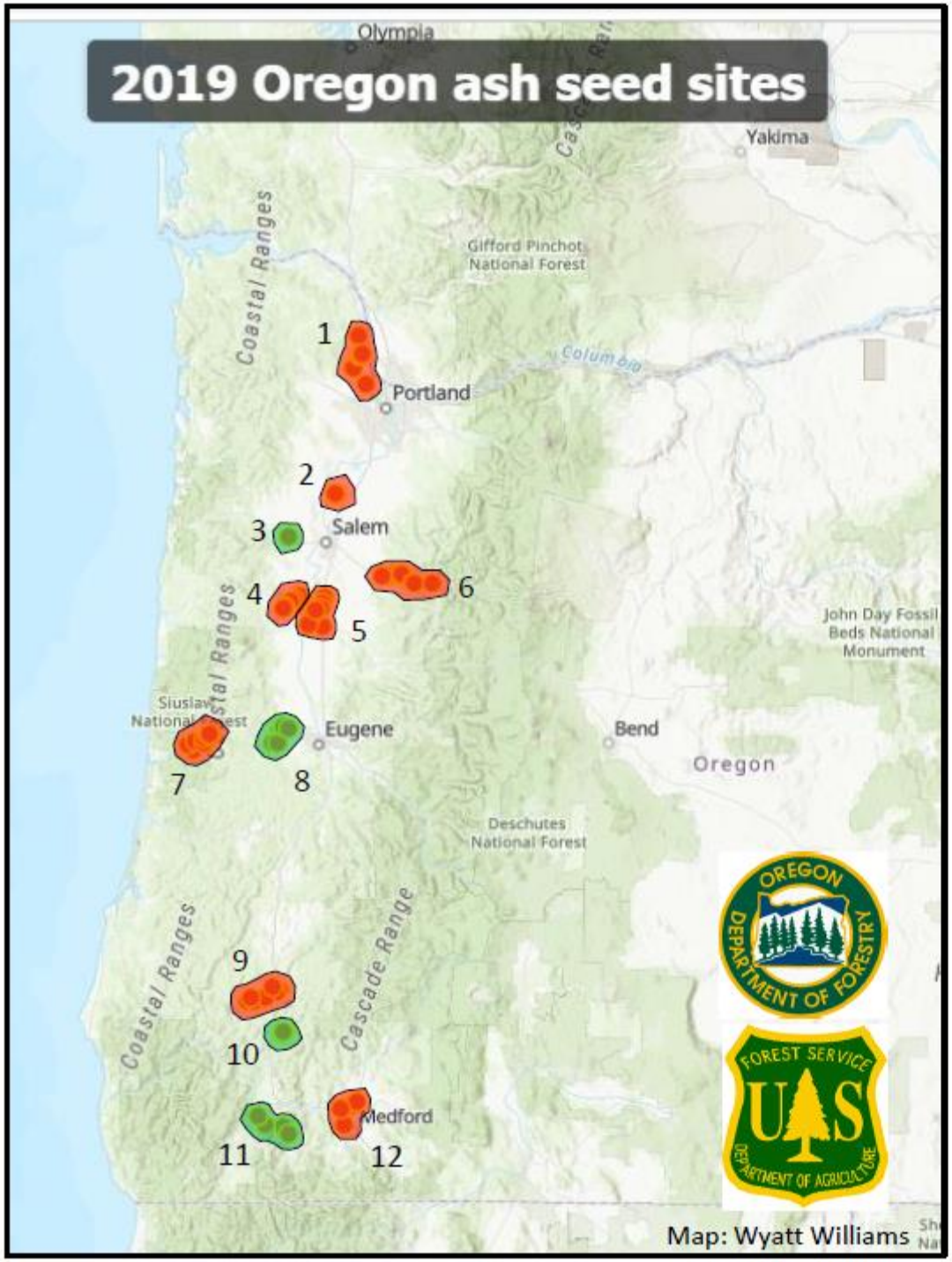
Oregon's Plan for EAB, released May 2018:
http://www.OregonEAB.info/

ODF is leading effort to protect Oregon ash



1. USFS Dorena Genetic Resource Center, OR
2. National Center for Genetic Resource Preservation, Fort Collins, CO
3. USDA-ARS National Plant Germplasm System, Ames, IA





Legend

= complete

= partial

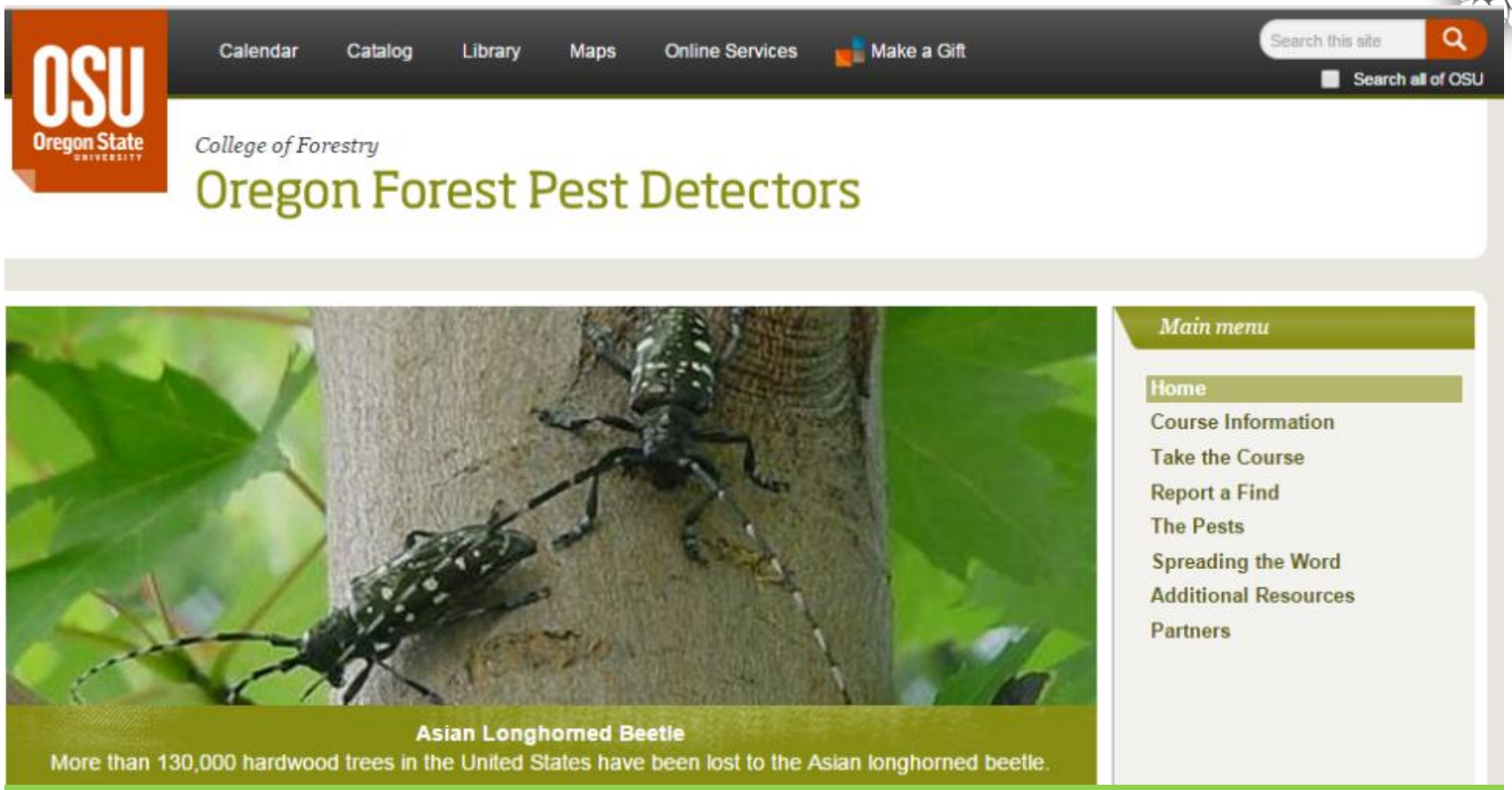
= mother tree

1. Sauvie Island – Columbia River
2. JE Schroeder Seed Orchard
3. Baskett Slough Wildlife Refuge
4. OSU Soap Cr. – EE Wilson WA
5. Albany – interstate sloughs
6. North Santiam River
7. Siuslaw River – Mapelton
8. Fern Ridge Lake
9. Cow Creek – Riddle
10. South Cow Creek
11. Applegate River
12. Rogue River – JH Stone Nursery

2019 collection summary:
343,00 seeds from 103 mother trees across 12 populations

2019-2020 project goal:
1 million seeds from 300 mother trees across 30 populations

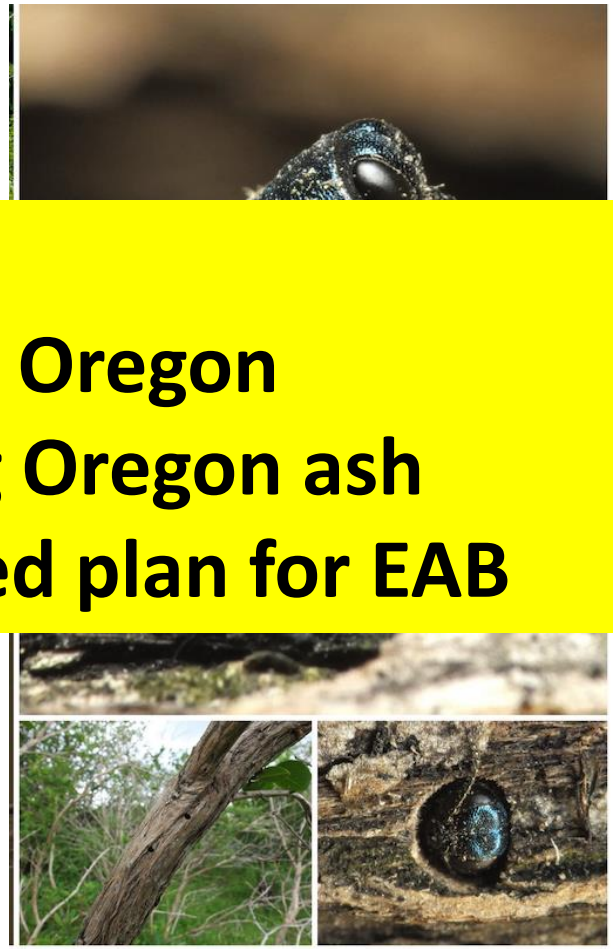
Oregon Forest Pest Detectors



- Goal: Train <u>professionals</u> who work around trees how to identify key invasive forest pests
- Early detection = better chance of eradication or containment

In 2019, Oregon Forest Pest Detectors report <u>new exotic species</u>! *Agrilus cyanescens*

Twinberry (*Lonicera involucrata*) with dieback



Agrilus cyanescens

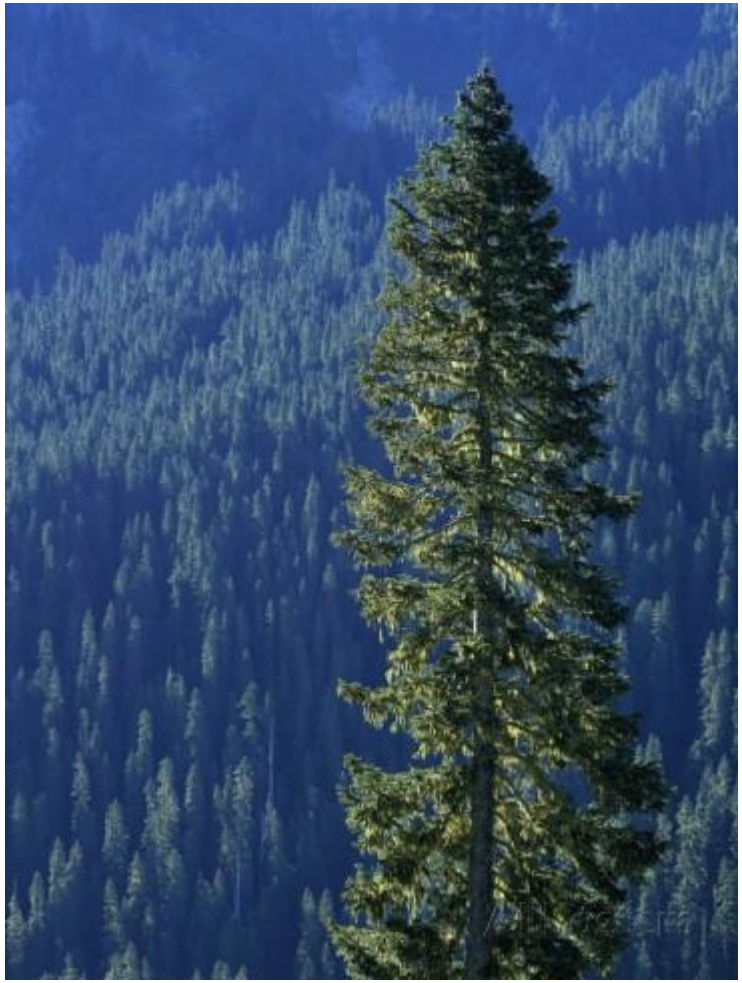
<u>EAB Summary</u>

No detections to date in Oregon

ODF is a leader in protecting Oregon ash

State agencies have coordinated plan for EAB

Forestry: $5.2 billion GDP in Oregon
Let's be ready for next invasive species



Paul Sauders

Thank you for your attention.

Forest Health Unit
Oregon Dept. of Forestry

State Forests Metrics Update

November 3, 2021

Board of Forestry meeting

Performance measures (PM)

- Last formal reports to Board 2008-2013 with 9 PMs
- Today: updates on 6 PMs and carbon storage
- PM development and ongoing planning efforts

2013 Performance Measures and *Updates*

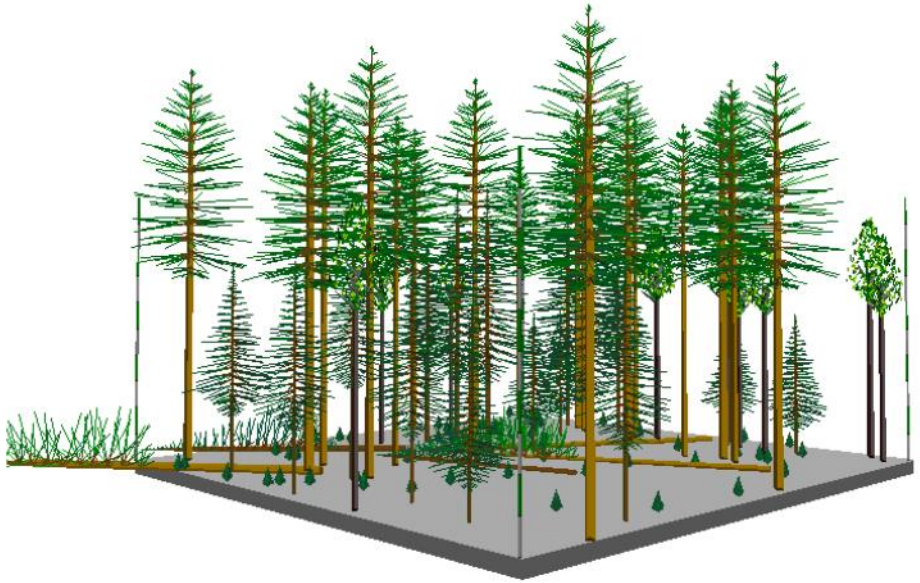
1. Financial sustainability of forest management
2. Net return on asset value
3. Forest health
4. Water quality
5. Quantity of habitat
6. Community support
7. Local and state government support
8. Recreation
9. Public support of management

Draft: Carbon storage in live trees and harvested wood products

Forest Performance Measures

- Forest health: area affected by invasive species, pests, disease, fire
- Quantity of habitat: ***stand structure type***, legacies (leave trees, snags, and downed wood)
- ***Draft: Carbon storage in live trees and harvested wood products***

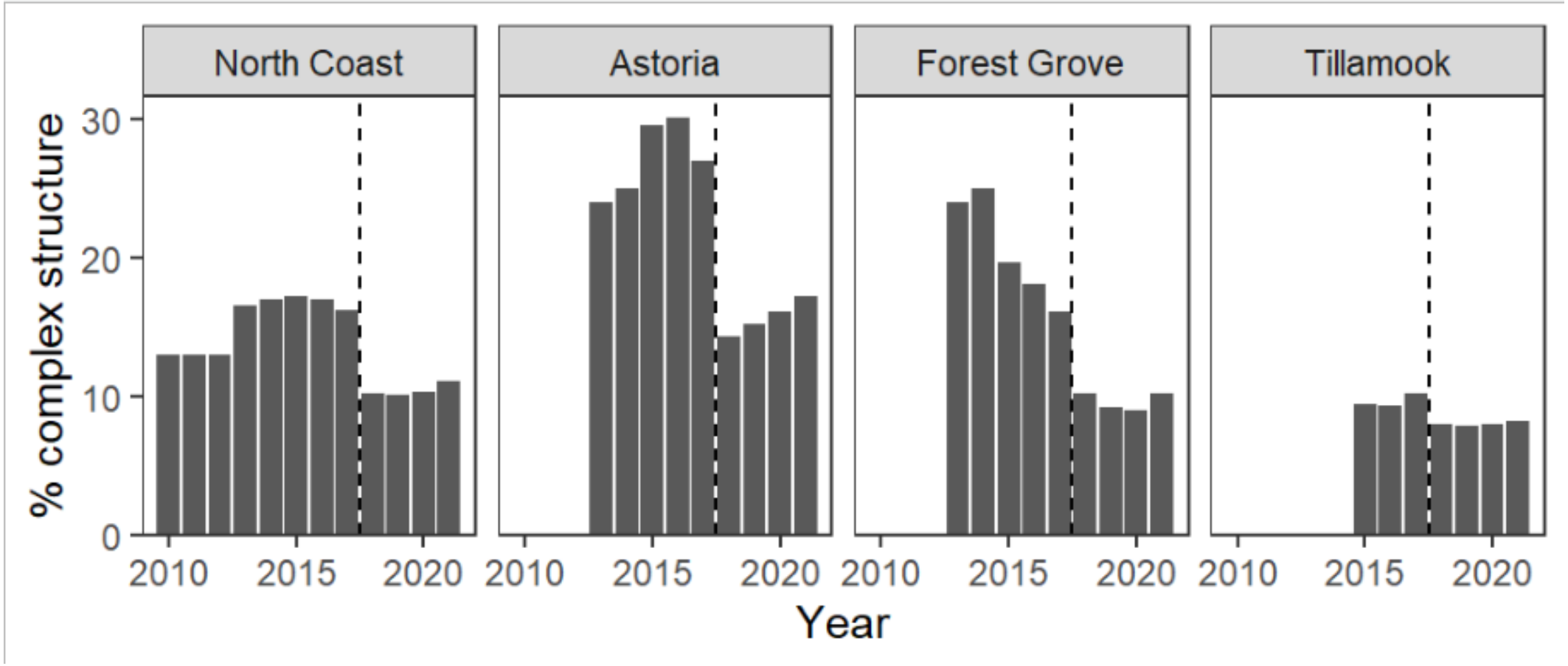
Understory



Layered

Stand Structure Type

Percent complex stand structure (Layered or Older Forest Structure)
Growth model change after 2017 (dashed line)



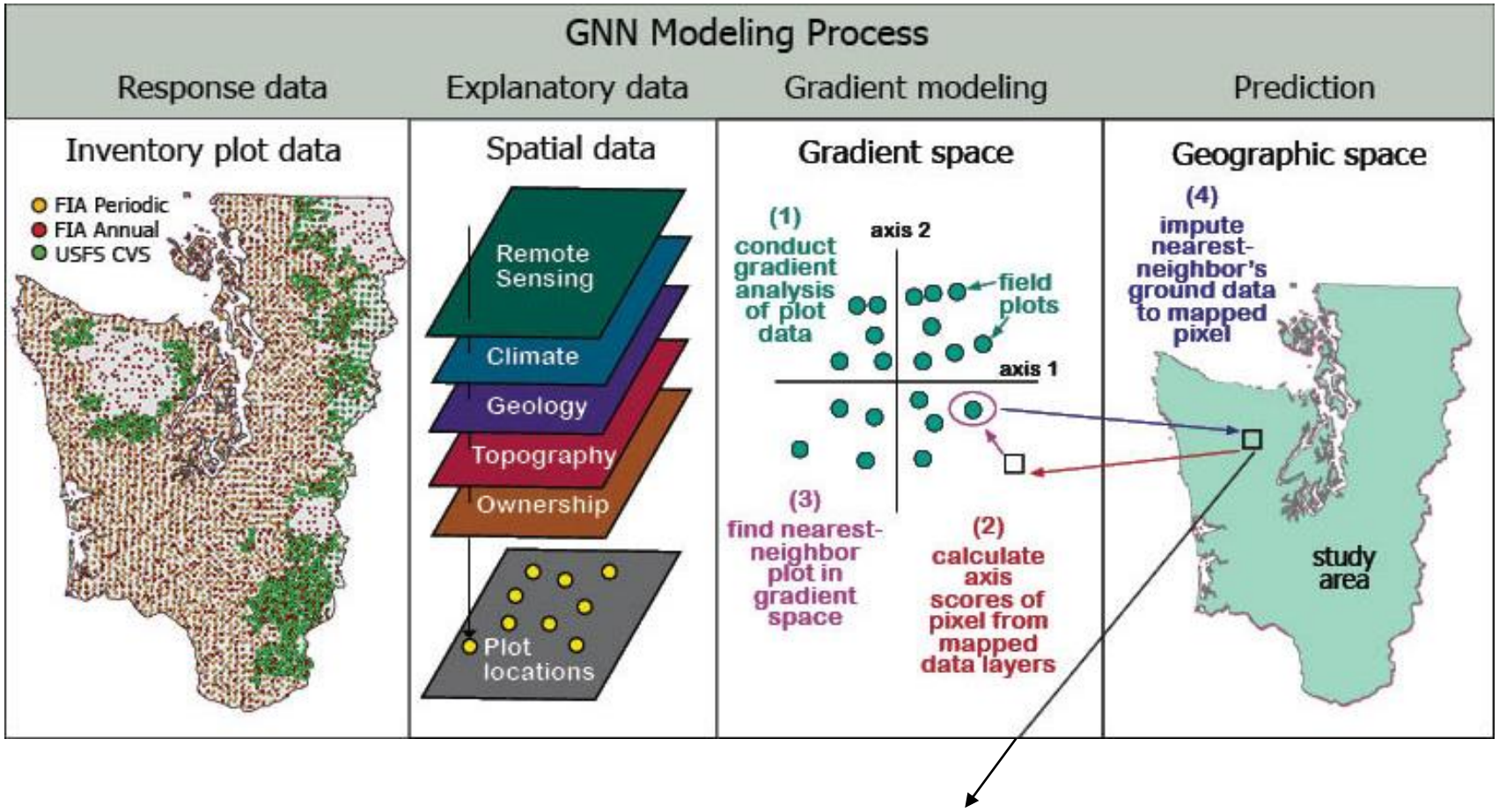
Carbon Storage: Methods

Independent dataset by LEMMA (Landscape Ecology, Modeling, Mapping, and Analysis) group

Carbon stored in live trees from Gradient Nearest Neighbor model[1]

+

Carbon stored in harvested wood products (HWP) for each State Forest District[2]



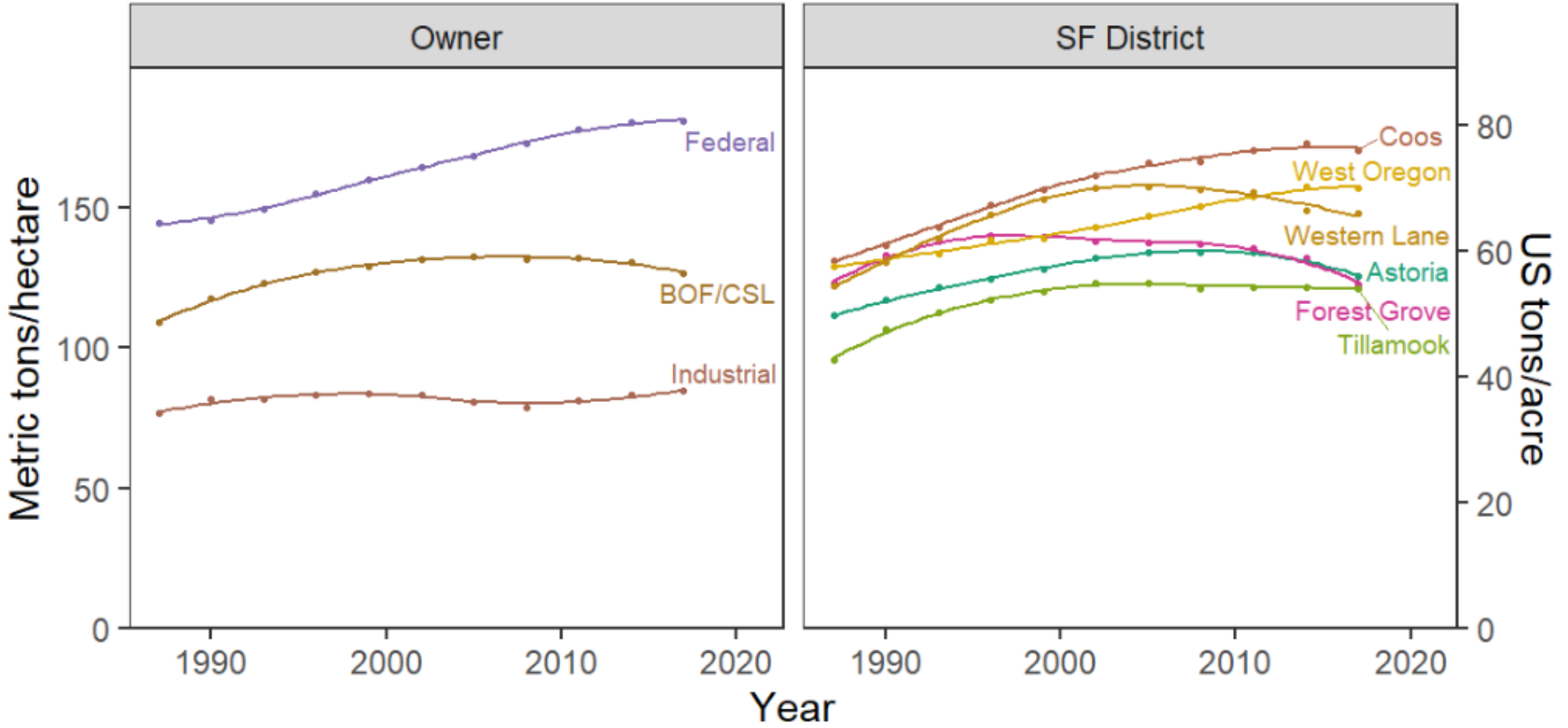
Predictions for each 30x30m pixel

[1]*Ohmann & Gregory (2002), Data: lemma.forestry.oregonstate.edu*

[2]*Morgan et al. (2021), www.oregon.gov/odf/forestbenefits/Documents/oregon-harvested-wood-products-carbon-inventory-report.pdf*

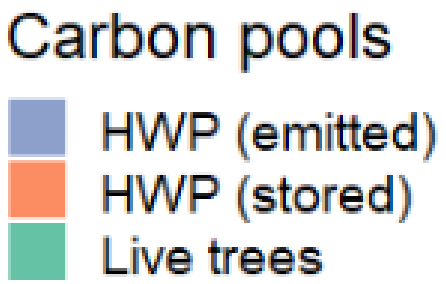
Carbon Storage

Average live tree carbon in Oregon Coast Range (1987-2017 LEMMA model)

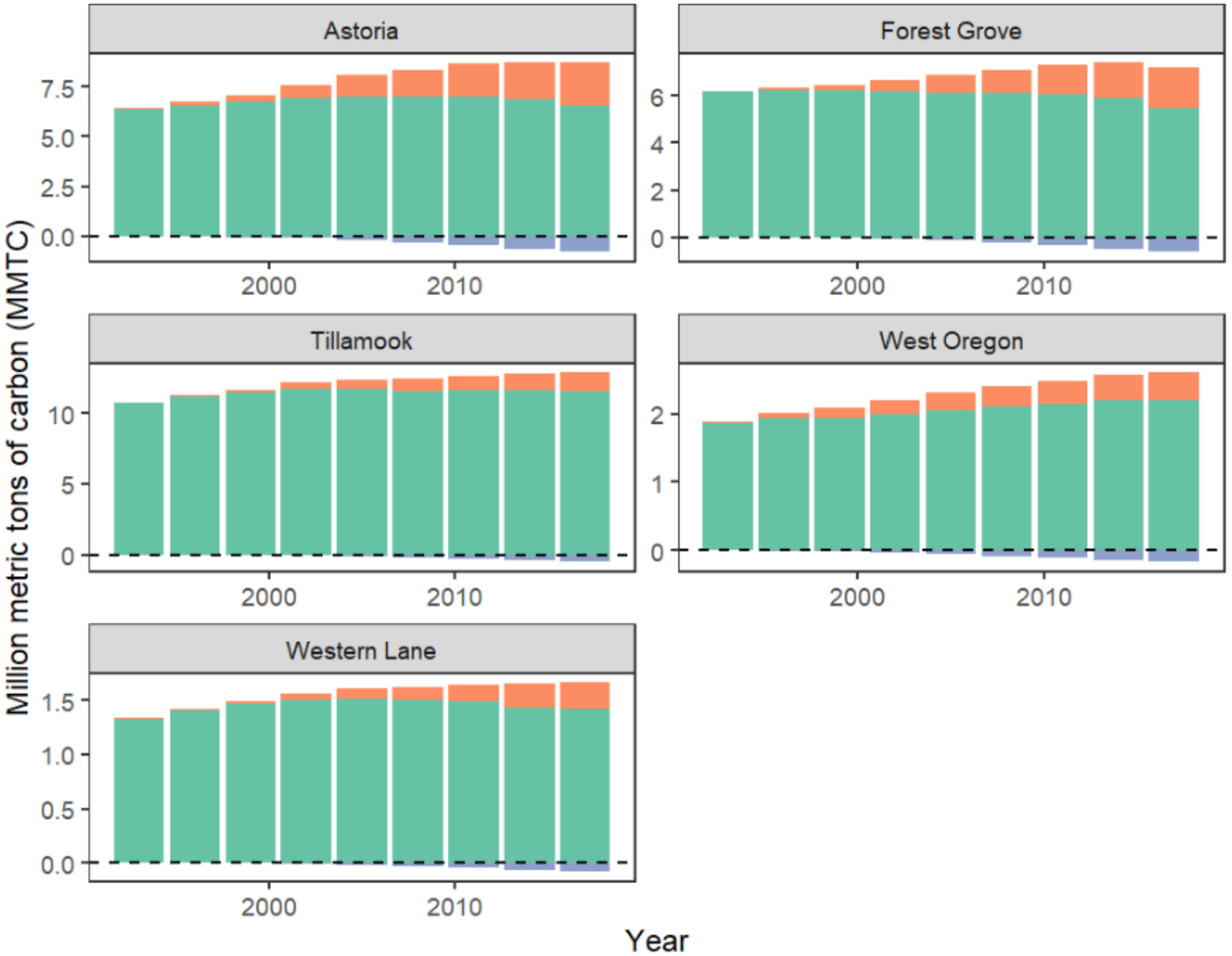


Carbon Storage: Live Trees + Harvested Wood Products

Modeled carbon pools 1991-2017



Does not include:
-carbon in soils, legacies
-emissions from management or manufacturing
-substitution for nonrenewable products



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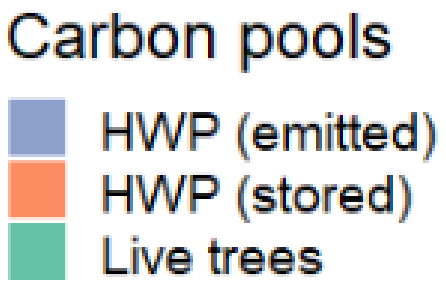

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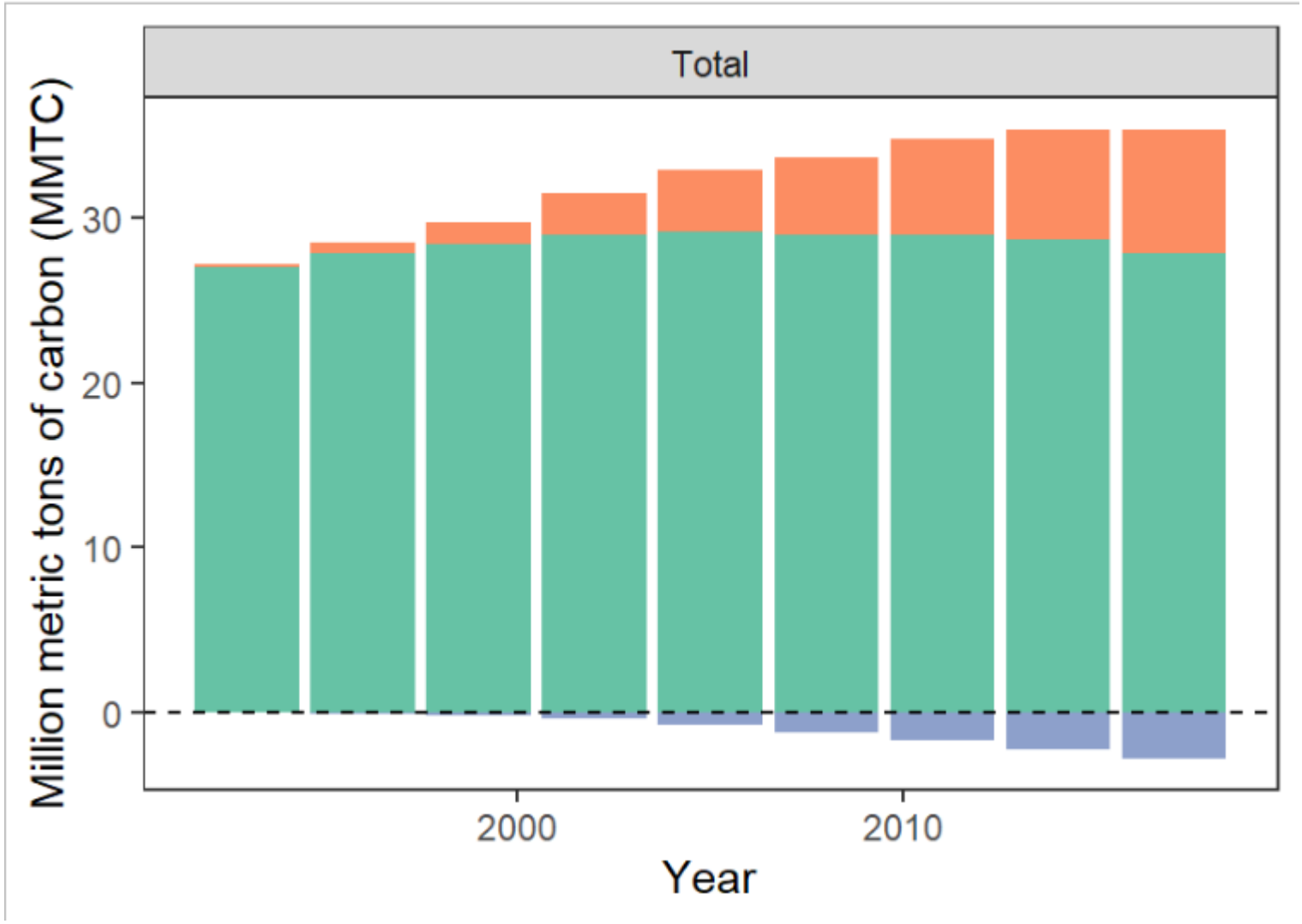
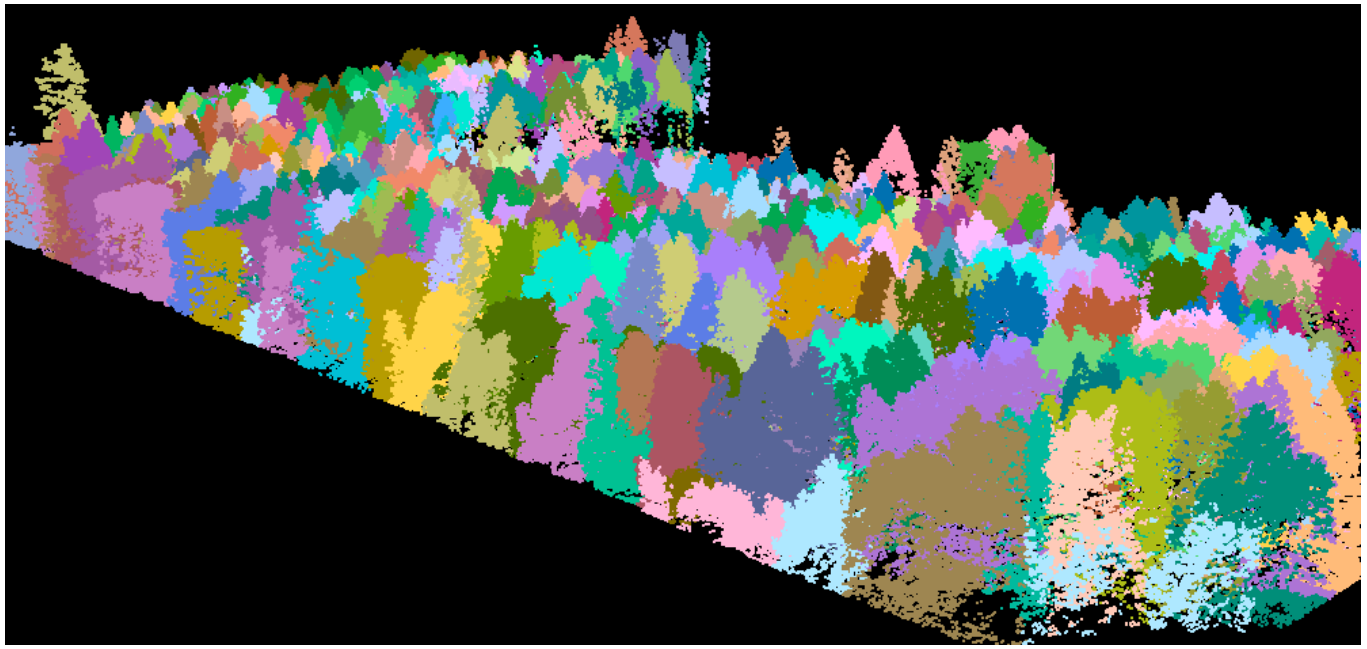
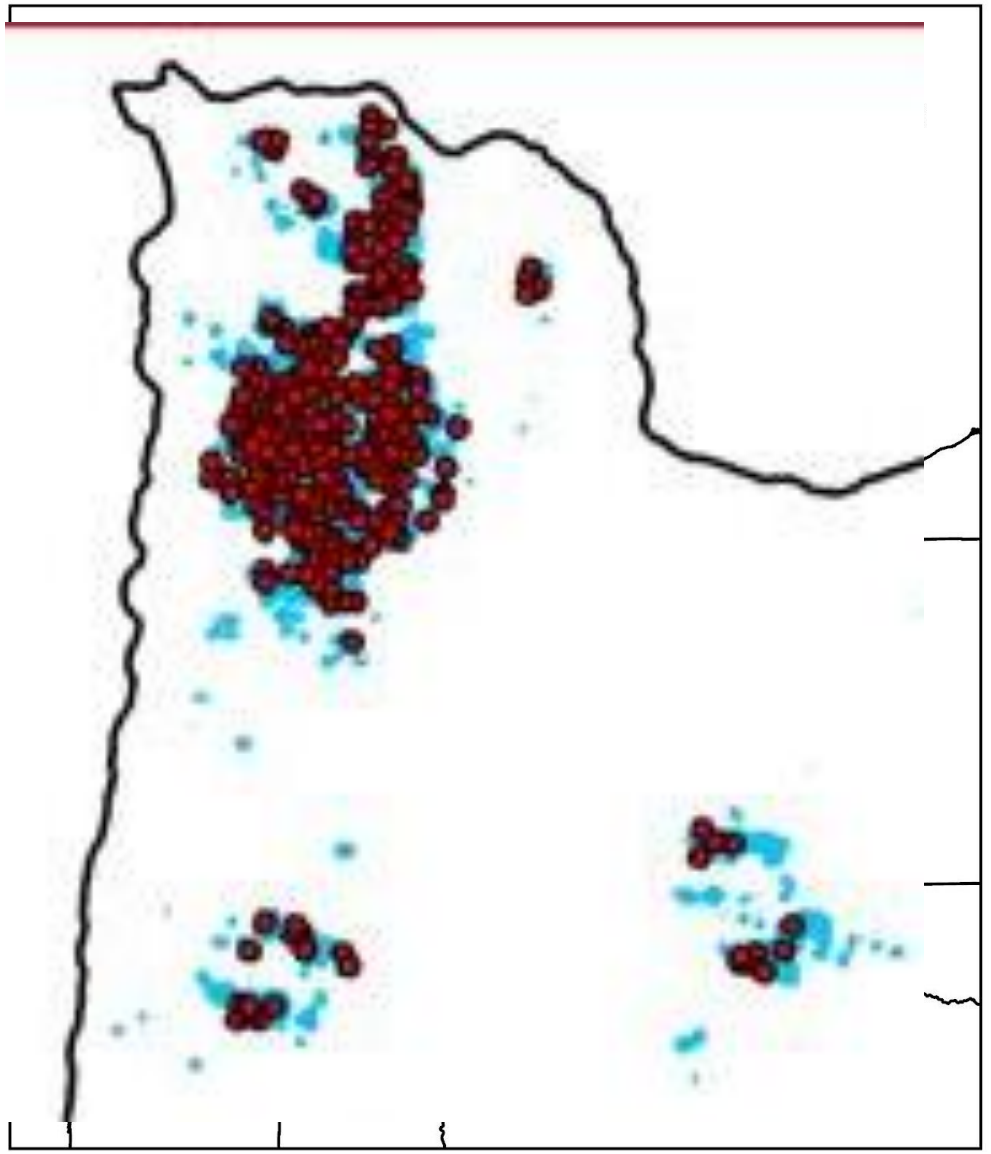


Forest: Future Directions

- Strategic inventory investment
  - Triple # of FIA plots paired with Lidar
- FMP, CCCP, and HCP impacts on performance measures





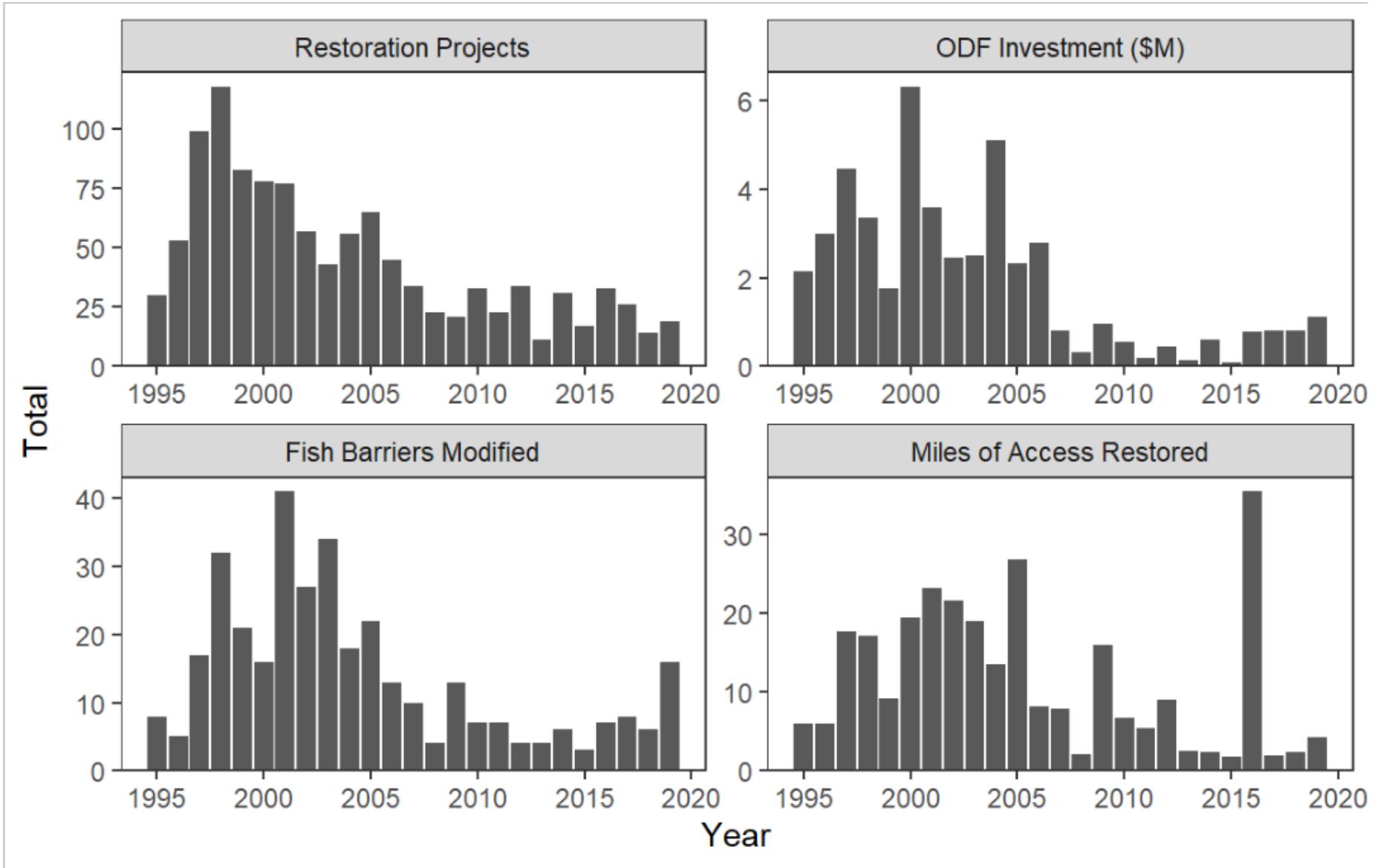
Water Performance Measures

- Water quality (hydrologically connected roads, ***fish passage barriers***)

Beaver dam analog

Restoration Activities

Reported to Oregon Watershed Enhancement Board



Water: Future Directions

- Effectiveness monitoring in addition to implementation monitoring
- Riparian monitoring in Santiam State Forest
- FMP, HCP, and policy impacts on performance measures

Post-fire canopy cover

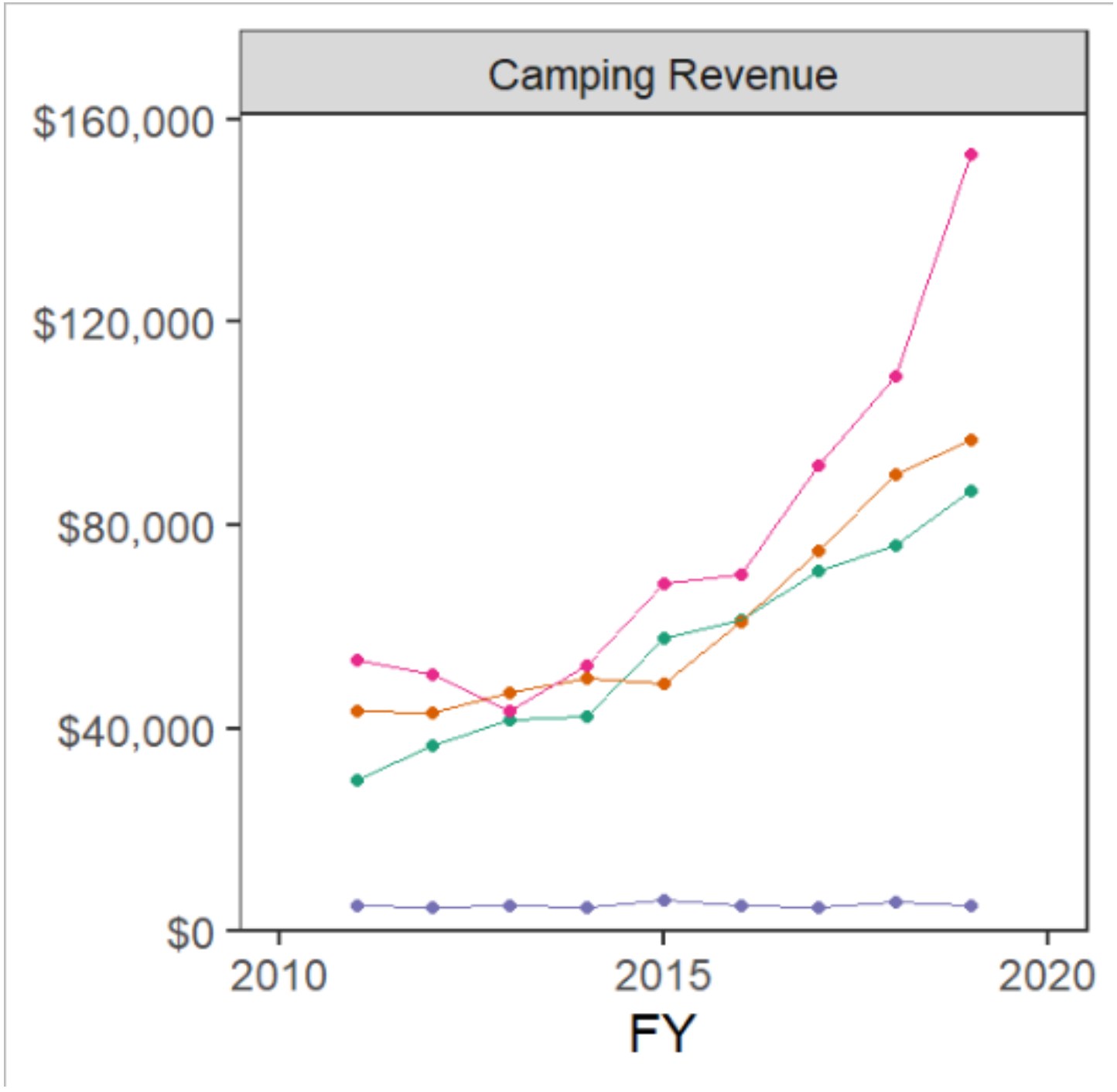
Social Performance Measures

- Recreation (***availability***, quality, and ***public use***)
- Public support of management

Photo: Lailani Buchanan

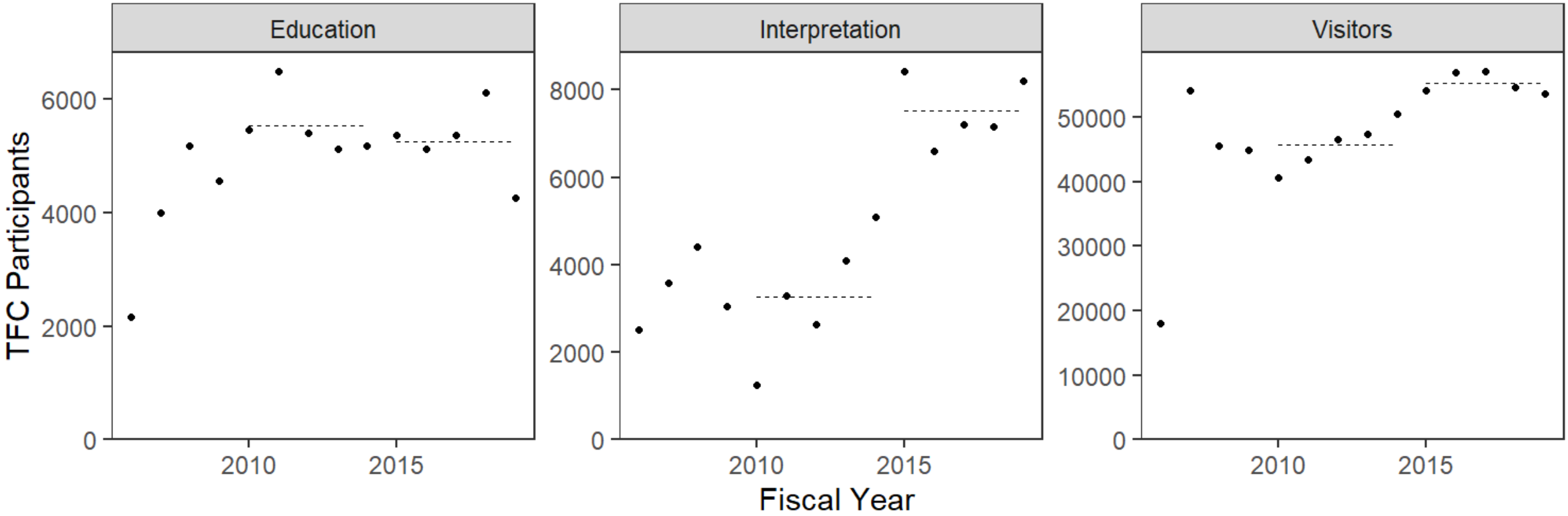
Recreation

- Funded primarily by timber revenue
- Varies by district
- More difficult to track trail use



Tillamook Forest Center

Growing audience pre-pandemic (2006-2019)



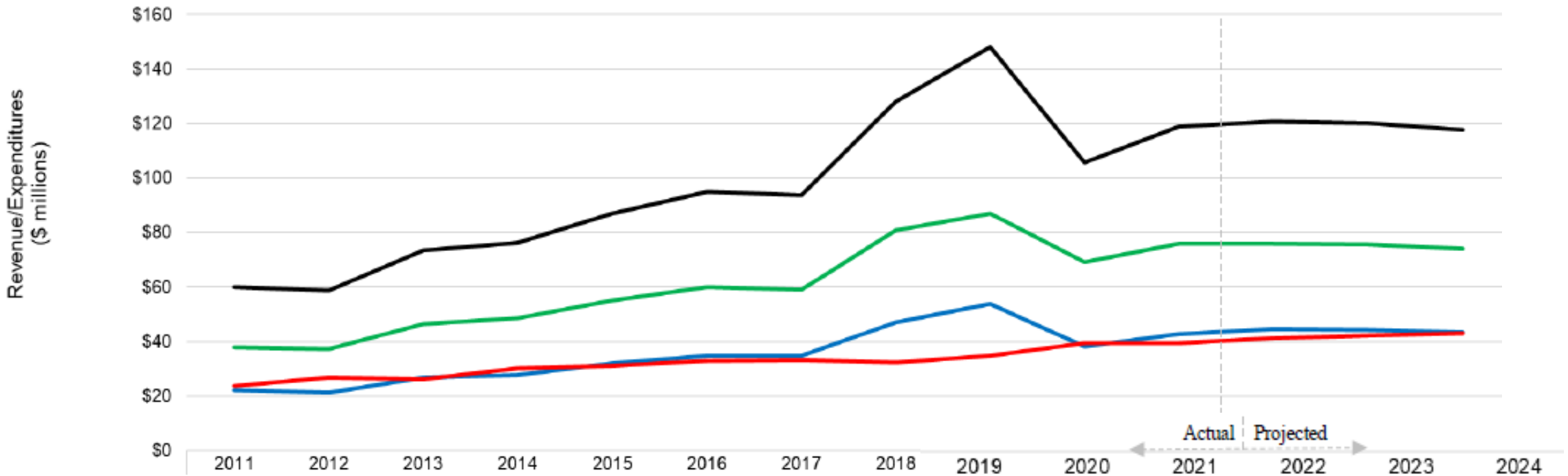
Social: Future Directions

- Visitor use data and survey methodology as a next step for monitoring visitor use levels
- Strategic planning impacts on performance measures

Economic Performance Measures

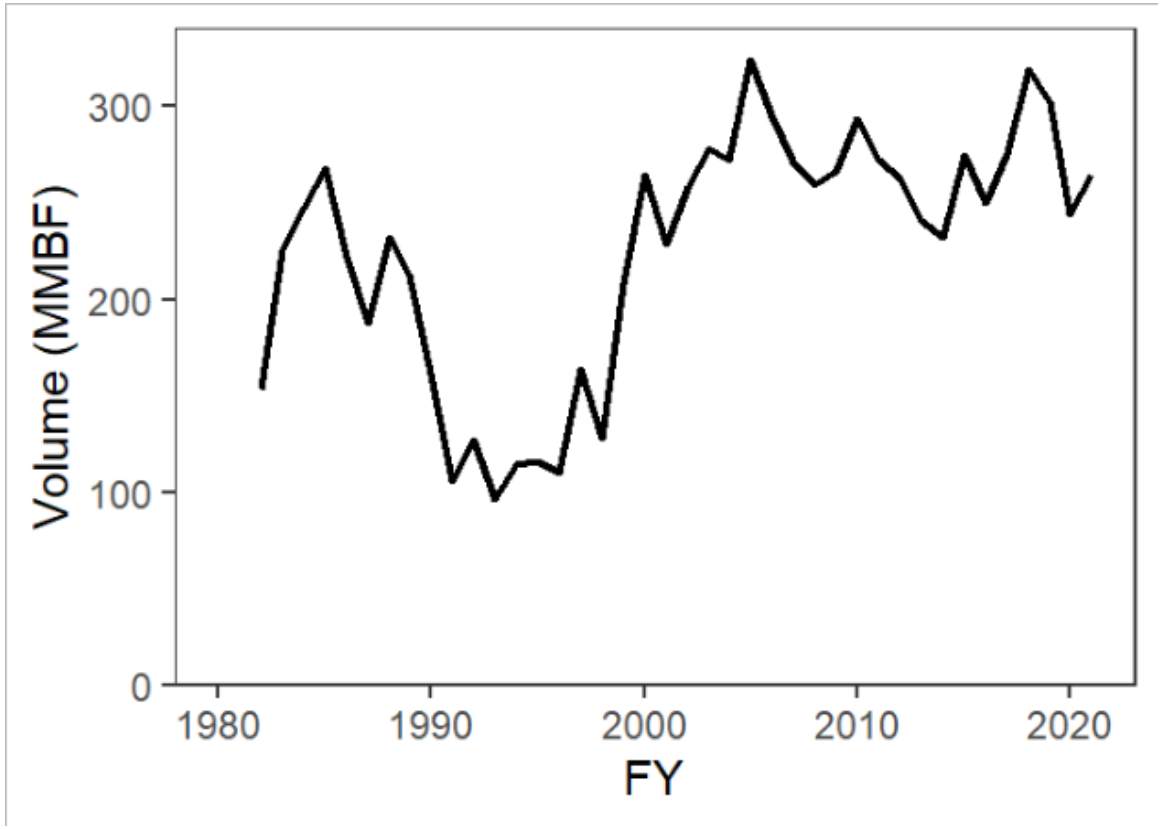
- Financial sustainability of forest management (***costs, revenue, revenue forecast***)
- Net return on asset value
- Community support (***direct*** and indirect ***financial contributions***)
- Local and state government support (***direct*** and indirect ***financial contributions***)

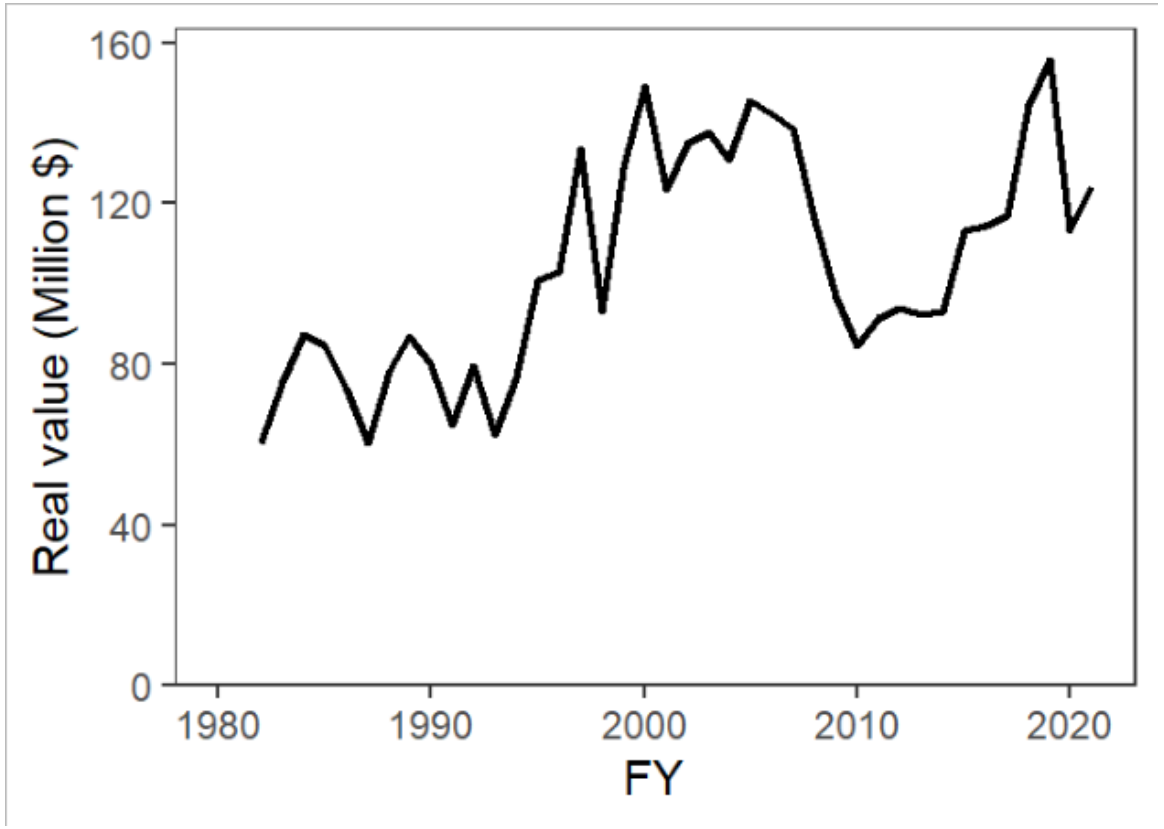
Costs, Revenue, Revenue Forecast



	2019	2020	2021	2022	2023	2024
Total Revenue	$147.9	$105.7	$119.0	$120.7	$120.2	$117.6
County Revenue	$86.9	$69.2	$75.8	$76.1	$75.7	$74.1
ODF Revenue	$53.8	$38.3	$42.9	$44.6	$44.5	$43.6
ODF Expenses	$34.7	$39.3	$39.5	$41.4	$42.3	$43.2
Net Operating Income	$19.1	-$1.0	$3.3	$3.2	$2.2	$0.4

Annual Timber Harvest





Direct Financial Contributions

County payments and harvest volumes reported annually

County	5-year Avg	10-year Avg
Benton	$1,199,473	$767,975
Clackamas	$456,423	$491,587
Clatsop	$24,459,623	$19,120,245
Columbia	$1,448,596	$832,663
Coos	$7,186	$32,132
Douglas	$471,725	$330,835
Josephine	$117,002	$61,515
Klamath	$1,383,667	$1,388,379
Lane	$3,746,861	$3,223,293
Lincoln	$2,062,138	$1,593,377
Linn	$3,970,225	$3,318,421
Marion	$2,734,486	$1,944,003
Polk	$145,805	$156,492
Tillamook	$19,501,907	$15,536,989
Washington	$9,515,791	$9,342,588
Total	**$71,220,909**	**$58,140,495**

Economic: Future Directions

- Community wellbeing and other indirect impacts
- FMP and HCP impacts on performance measures

Questions?

Riparian monitoring in Santiam State Forest, September 2021

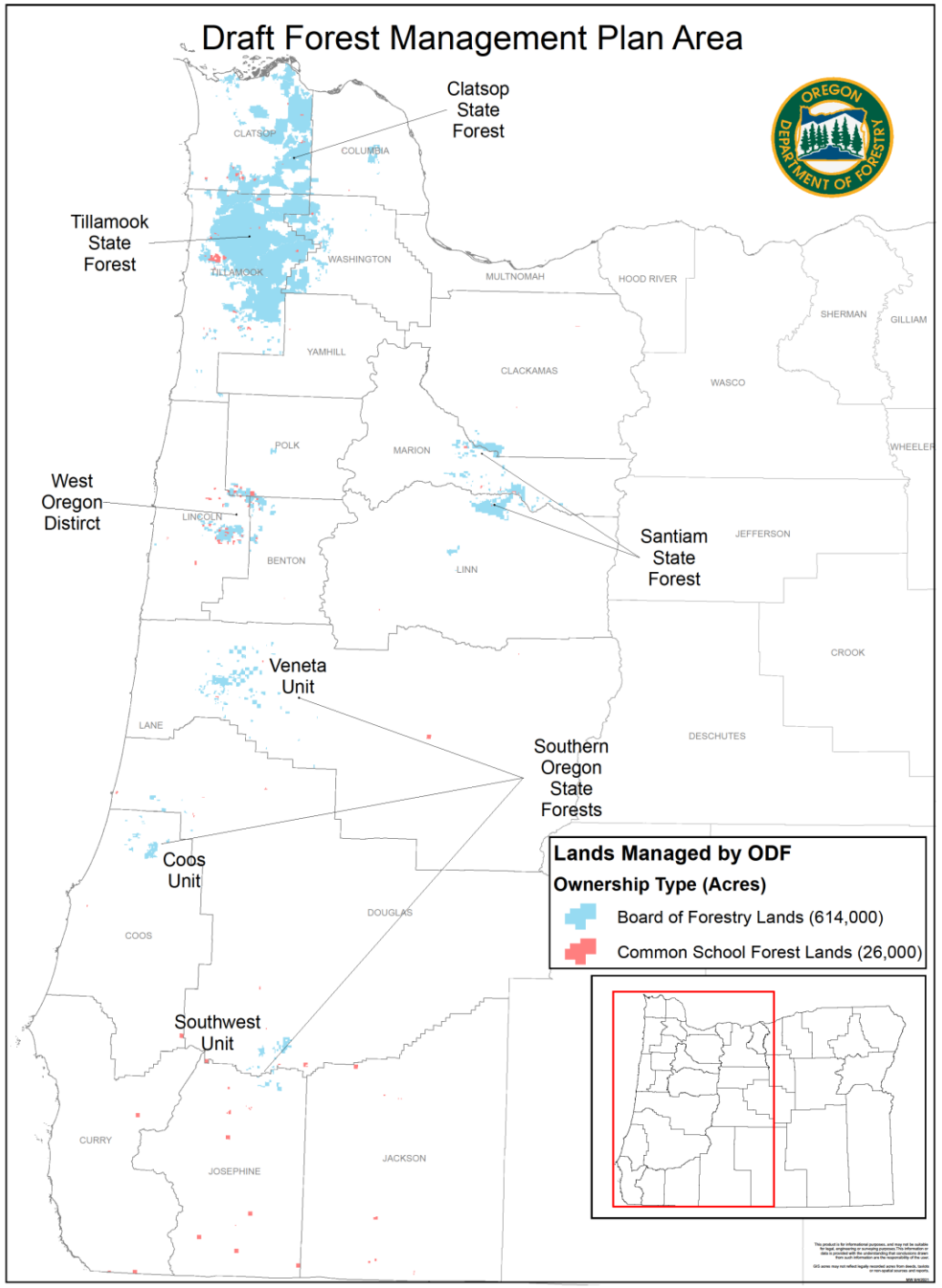
Western Oregon State Forests Forest Management Plan and Habitat Conservation Plan Update

November 3, 2021 | Board of Forestry Meeting

AGENDA

1. Update on Western Oregon State Forests Management Plan
2. Updates on the Western Oregon Habitat Conservation Plan (HCP) and NEPA Process
3. Summary and Next Steps

PROEJCT ORGANIZATION



- 614,000 acres Board of Forestry Lands
- 26,000 acres Common School Forest Lands

PLANNING LEVELS

FMP & HCP

Adopted by Board of Forestry

- The FMP provides overall high-level forest management goals & strategies.
- HCP provides biological goals and objectives for covered species.

IPs

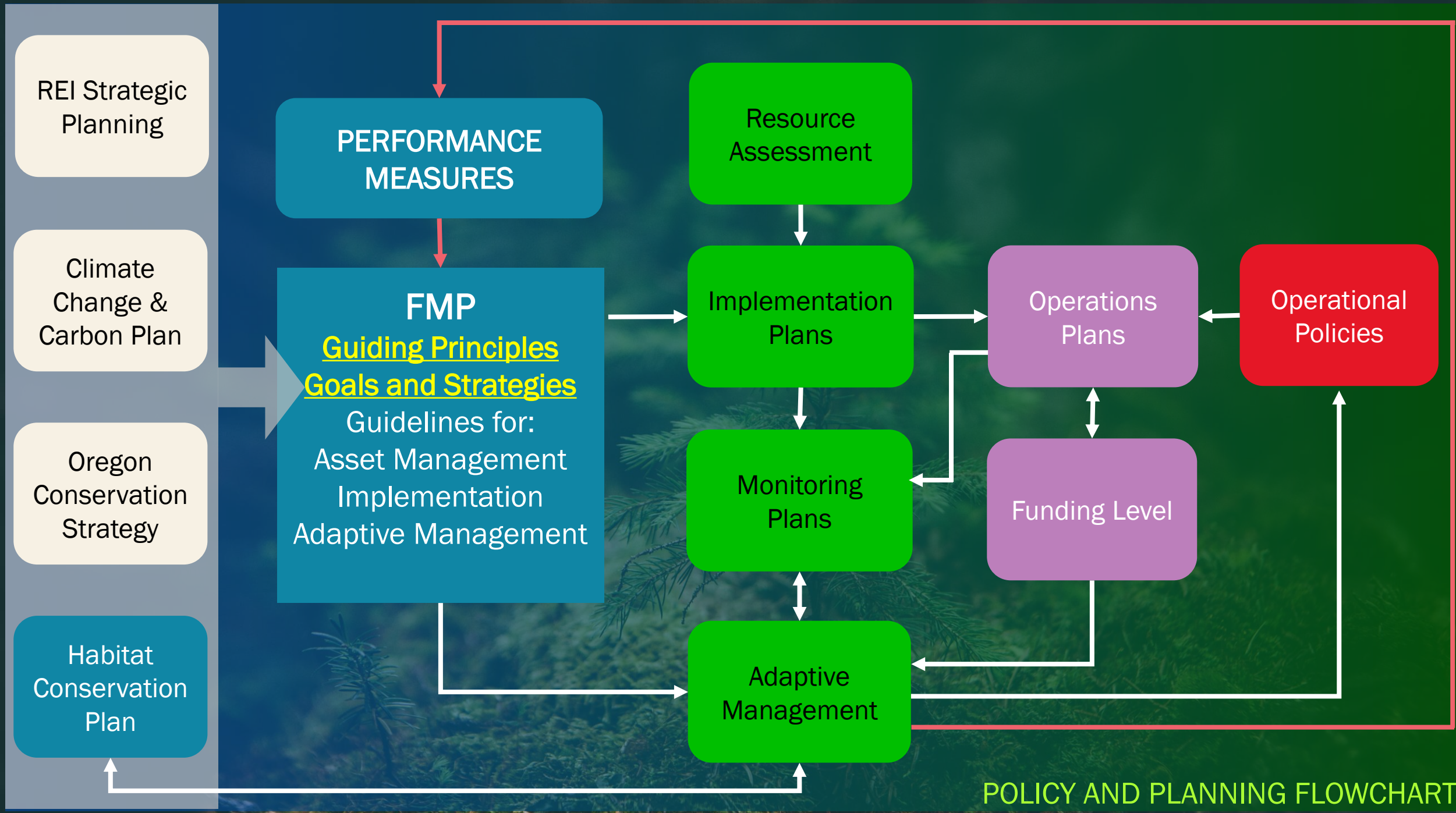
Approved by State Forester

- Sub geographic plans with mid-level objectives.

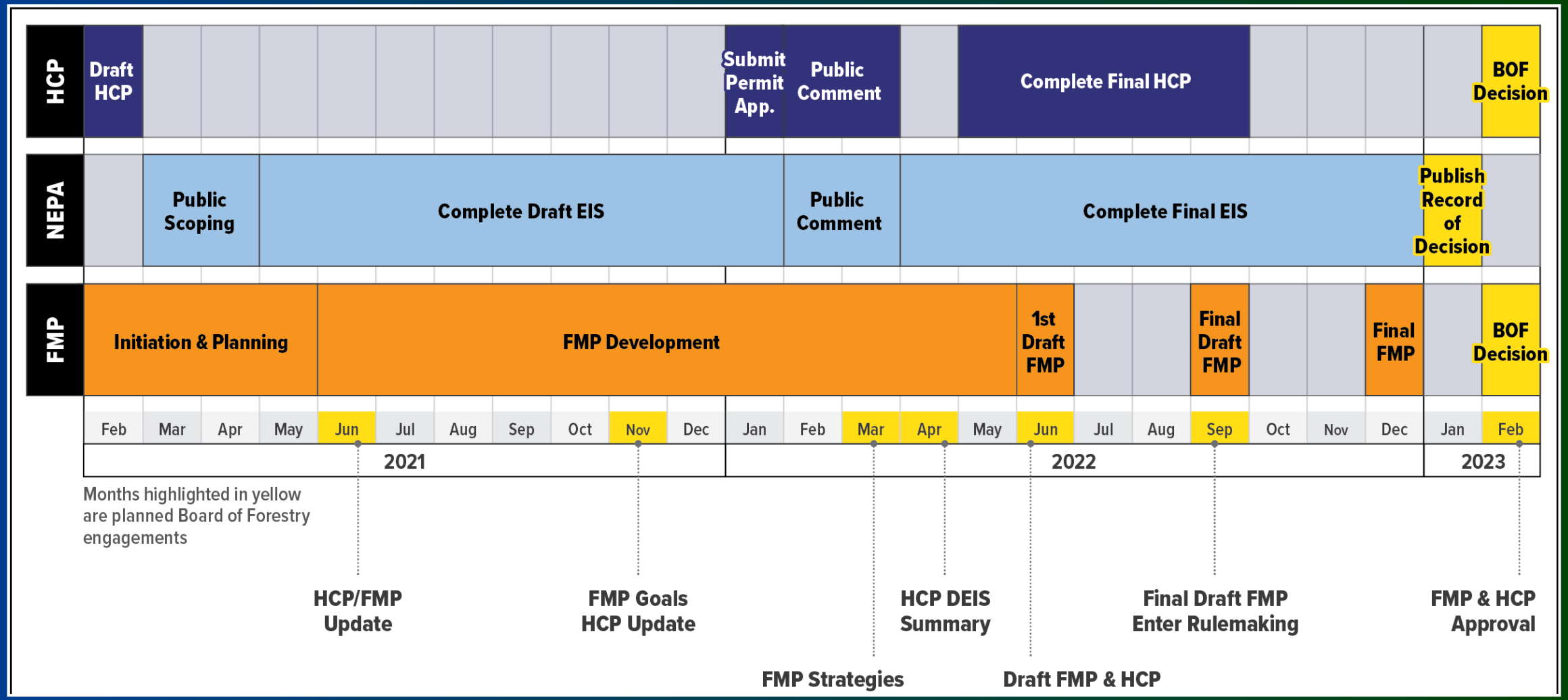
AOPs

Approved by District Forester

- Plan with operational & project level detail.


REI Strategic Planning
Climate Change & Carbon Plan
Oregon Conservation Strategy
Habitat Conservation Plan
PERFORMANCE MEASURES
FMP
Guiding Principles
Goals and Strategies
Guidelines for:
Asset Management
Implementation
Adaptive Management
Resource Assessment
Implementation Plans
Monitoring Plans
Adaptive Management
Operations Plans
Funding Level
Operational Policies
POLICY AND PLANNING FLOWCHART

Anticipated Timeline



ENGAGEMENT PROCESS

Internal Drafting & Review
- ODF Project Team & State Partner Agencies

Released for External Review
- Board of Forestry
- Forest Trust Lands Advisory Committee
- State Forests Advisory Committee
- Public

Key Engagement Points (Early August through October)
- Meetings Open to the Public
- Stakeholder Meetings
- FTLAC meetings

Summary of Input & Partial Revisions - TODAY
- Seeking Board Feedback

Revision will continue throughout FMP development

GOAL FEEDBACK

Forest Trust Lands Advisory Committee

- Overarching themes
  - Overall disagreement with the purpose of Board of Forestry Lands
  - Misalignment of draft goals with GPV

- Specific feedback
  - Timber Production
    - Revenue for public services
    - Timber for jobs, economic opportunity
  - Carbon
    - Storage in harvested wood products
    - Substitution of wood for steel & concrete
  - Community wellbeing

GOAL FEEDBACK

Federally Recognized Tribal Governments

- Cultural Resources Coordination: Government to Government Process
  - Draft FMP Cultural Resources Goals and Strategies Workgroup
    - Representatives Cultural and Natural Resources Clusters
    - Workgroup Mtg #1: Sept. 20th 2021
    - Workgroup Mtg # 2: Nov. 5th 2021
  - Anticipated Cultural Resources Goals and Strategies: Winter 2021/22
  - Continued engagement at all State Forests planning levels

Communities of Interest & Communities of Place

- Communities and cultures with ties to the forested landscape will be considered and represented

GOAL FEEDBACK

Public & Stakeholders

- General support for goals overall
- Wide range of individual comments
- Overarching themes
  - “Resource Types”
  - Too many goals
  - Strong focus on drinking water
  - Concern over chemicals
  - Focus on communities and equity
- Additional goal suggestions

GOAL FEEDBACK SUMMARY

>= 80% Strongly or Somewhat Support

- Overarching Goals: Key to Achieving Other Goals
  - Climate Change – Adaptation, Mitigation
  - Forest Health – Healthy, Sustainable, Resilient
  - Wildfire – Community and Landscape Resilience, Reduce Risks
- Specific Resource Goals:
  - Wildlife – Maintain, Protect, Enhance, Variety of Habitat Types
  - Aquatics & Riparian – Maintain, Protect, Restore, Dynamic & Resilient
  - Drinking Water – Quality, Quantity
  - Pollinators & Invertebrates – Habitat, Maintain or Enhance
  - Plants – Diverse, Native, Across Seral Stages
  - Air Quality – Maintain& Protect
  - Soil – Maintain, Protect, Enhance
  - Recreation, Education, Interpretation – Foster Appreciation & Understanding
  - Recreation, Education, Interpretation – Environmentally Sustainable, Minimize Impact

Yellow indicates required resource per OAR Chapter 629, Division 35

GOAL FEEDBACK SUMMARY

>= 70% Strongly or Somewhat Support

- Forest Carbon – Contribute within State Forests Lands
- Transportation System – Facilitate Activities, Protect Resources, Efficient, Safe
- Scenic – Visually Appealing Forested Settings
- Special Forest Products – Provide Opportunities to Obtain

>= 60% Strongly or Somewhat Support

- Timber Production– Sustainable production for jobs and revenues (BOFL)
- Timber Production– Long-term revenue to Common School Fund (CSFL)

< 50% Strongly or Somewhat Support

- Mining, Agriculture, Administrative Sites & Grazing – As compatible with other resources

Yellow indicates required resource per OAR Chapter 629, Division 35

GOAL REVISIONS

Goal Revisions

- Revised 10 draft goals based on feedback
  - Clarifying language
  - Shifting of focus

- Two new goals
  - Community Wellbeing
  - Forest Restoration

Board Discussion and Feedback

- Do the goals support the range of benefits expected from these forests?
  - Additional resources
- Is there anything that needs additional work?
  - Terminology
  - Clarity and intent
  - Consolidation, gaps, or deletions
- Context?
  - Wildfire, Forest Health, Climate Change
- What is your perception of the public engagement process?

Draft Strategies

Upcoming Key Dates

- December 3 | FTLAC
- December 7 | Meeting Open to the Public
- December 9 & 13 Joint Stakeholder Meetings
- March | Board of Forestry

FMP Next Steps

March 2022

- Revised Goals
- Draft Strategies
- Draft Performance Measures

Summer 2022

- 1st Complete Draft FMP

Western Oregon State Forests Habitat Conservation Plan

KEARNS WEST

ICF

HCP Updates

- Overview of review process and changes
- Updates to Covered Activities
- Updates to Conservation Actions

Summary of HCP Updates since June 2021:

https://www.oregon.gov/odf/aboutodf/pages/hcp-initiative.aspx

Revised Administrative Draft

- Changes are the result of operation review by ODF and additional review by Scoping Team
- Revised to provide more clarity during implementation and consistency across the document
- Revised to better align with intended outcomes of Scoping Team discussions and document text
- Moved conservation commitments from Chapter 3, Covered Activities to Chapter 4, Conservation Strategy

Covered Activities

Herbicides

- Herbicide application removed as a covered activity
- Updated Covered Activities and Effects Analysis accordingly

Roads

- Pulled landings and water drafting and storage under roads
- Updated description of landings to include roadside turnouts

Quarries

- Updated definition to Quarries, Borrow Sites, and Stockpile Sites

Water Drafting

- Revised language on water drafting to make it clear when and how water drafting would occur

Recreation Infrastructure

- Updating information in HCP to include best management practices
- Ongoing discussions internally and with Scoping Team

Conservation Actions

Conservation Action 8 – Outside HCAs

- Updated definition of NSO dispersal habitat
- Clarified requirements for leave trees, snag, and downed wood retention (Table 4-12)

Conservation Action 10 – Operational Restrictions

- Created clarity between requirements inside HCAs and outside HCA
- Clarified requirements for NSO, MAMU, and RTV outside of HCAs –seasonal restrictions apply during breeding season for known nest locations

Schedule

- November/December: Finalize Public Draft HCP
- December 7: Meeting Open to the Public
- December/January: Submit permit application to USFWS and NOAA Fisheries

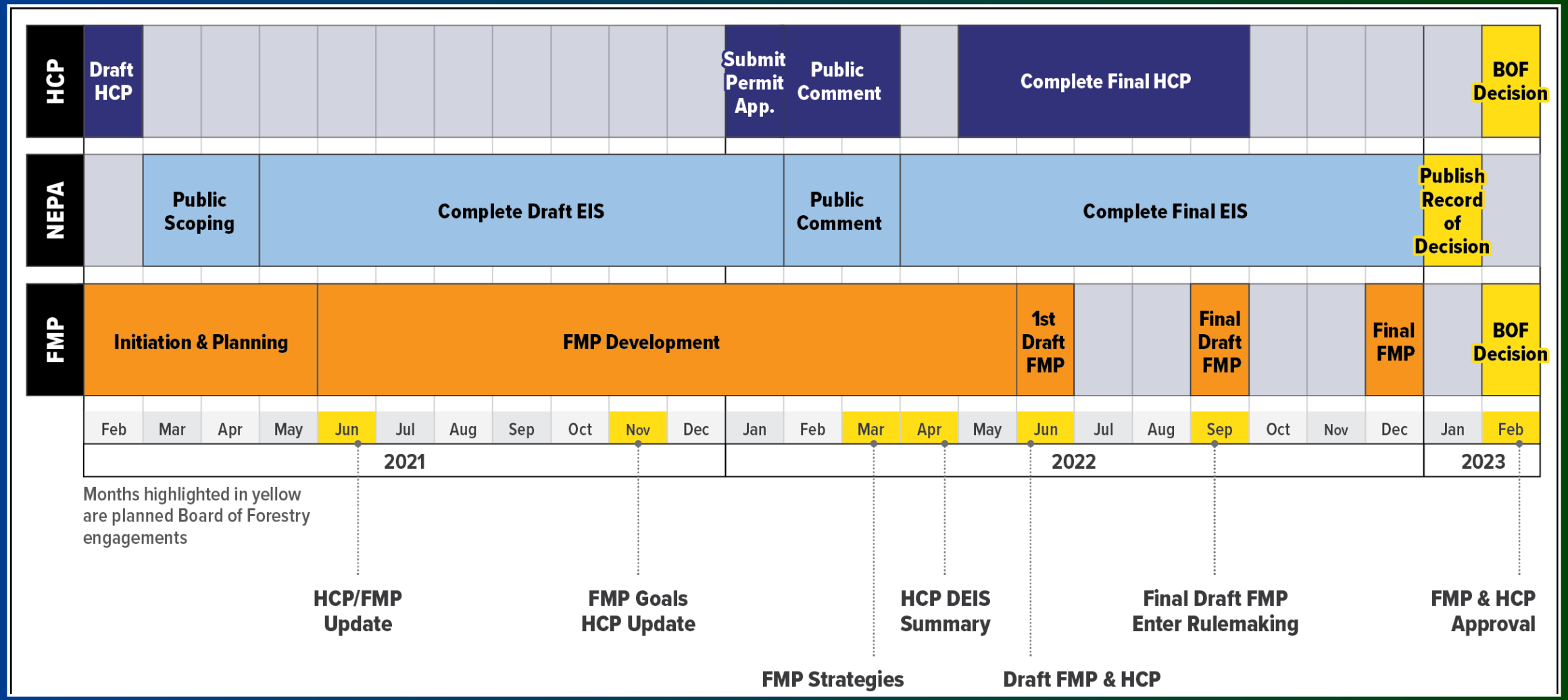
Western Oregon State Forests Habitat Conservation Plan

NEPA Update

Tere O'Rourke
Oregon Branch Chief
NOAA Fisheries
Oregon/Washington Coastal Area Office

NOAA FISHERIES

Anticipated Timeline




Questions

Next Steps: Board of Forestry Engagement

2022

- March : FMP Strategies & HCP Update
- April: HCP Update – Summary of DEIS Results & Feedback
- Summer: FMP & HCP Outcomes Analysis
- Fall: Final Draft FMP – Enter Rule Making & HCP Update

2023

- Feb: Final FMP & HCP Presented for Board Decision

BOARD OF FORESTRY

NOVEMBER 3RD, 2021

REVIEW AND APPROVAL RECOMMENDATION

OREGON DEPARTMENT OF FORESTRY

CLIMATE CHANGE AND CARBON PLAN

Overview

Today we will be providing:

- Overview of process and changes made since the September meeting

-Recommendation for approval

-Next steps related to the plan

More information, documentation, and the draft plan are available at:

www.oregon.gov/odf/forestbenefits/Pages/climate-change.aspx

Commitment to Public Process

DEPARTMENT OF FORESTRY STAFF HAVE BEEN AND CONTINUE TO BE COMMITTED TO UTILIZING AN OPEN AND TRANSPARENT PUBLIC PROCESS IN WORK ON CLIMATE CHANGE AND PLANNING. TO THAT END IT LOOKS TO:

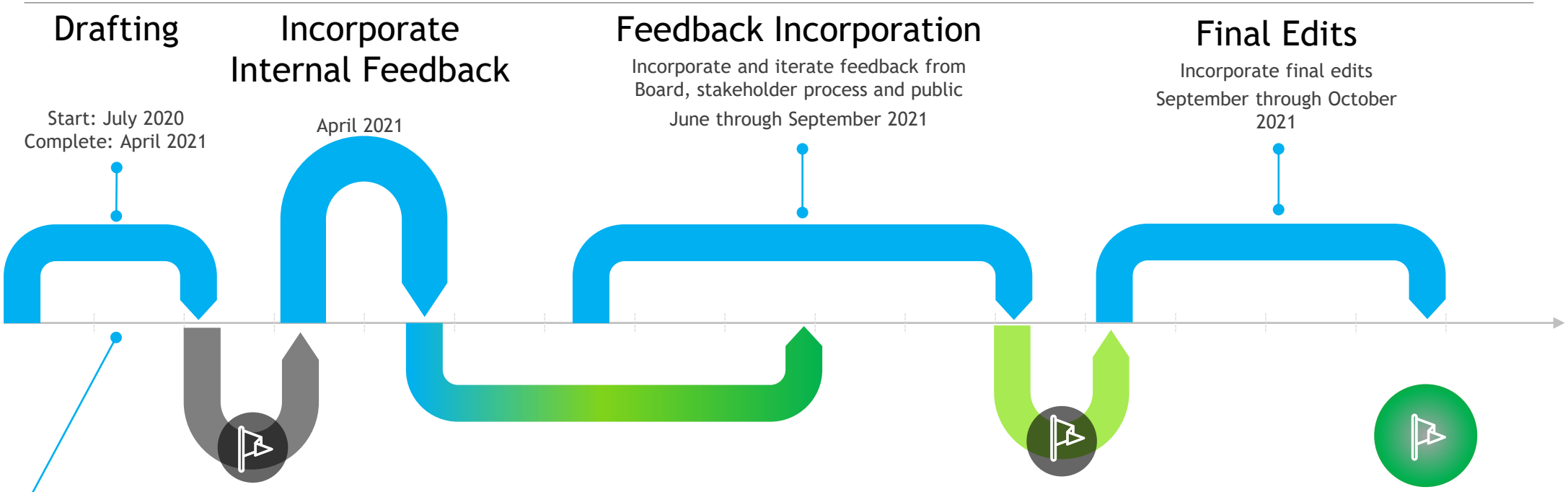
Include all voices

- Climate impacted communities
- Tribal
- BIPOC
- Populations with intergenerational poverty
- Rural and natural resource dependent communities
- Others

Provide ample opportunities for input and feedback:

- At Board meetings
- Through public information sessions and in workgroups
- Through group assessment processes
- With written and oral feedback
- Available to those that wish to engage in the conversation
- By being open and honest with all interested parties

Timeline



Goals Presented to Board
January 2021

ODF BOF/ET Review
April 2021

Stakeholder, partner and public outreach
May through August 2021

Pre-decision Workshop
September 2021

Plan Approval Recommendation
November 2021

Forestry Climate Action Goals

1. Climate-Smart Forestry in Silviculture
2. Fire Management, Response and Fire / Smoke Adapted Communities
3. State Forests Management
4. Forestlands Climate Resilience and Ecological Function Restoration
5. Urban and Community Forests
6. Reforestation and Afforestation
7. Maintain and Conserve Forests
8. Research and Monitoring

Changes Since September Board Meeting

- Refinement of definitions for clarity and understanding.
- Recognize that Oregonians living through intergenerational poverty and in rural communities are explicitly included.
- Inclusion of water issues as related to drought and climate impacts.
- Commendation for the wood products industry for reduction in emissions and increasing efficiency since the 1970s.
- Highlight role of Board work plans in implementation.
- Inclusion of commitment to public process.

Additional Changes

- Included alternative species and mixed conifer-hardwood stands as potential wildfire risk mitigation measure.
- Included incentives to avoid forest conversion more explicitly.
- Inclusion of monitoring for unintended consequences to communities and rural economies for adaptive planning and management.
- Inclusion of additional supporting actions to provide technical assistance and support for longer term storage in wood products and biochar.
- Inclusion of facilities actions related to EO 20-04 and previous direction as well as the most current Sustainability Report as an appendix.

Department Recommendation

The Department is recommending that the Board approve the Climate Change and Carbon Plan.

Alternatives:

- The Board can decline to approve the CCCP and the Department will continue to work towards an approval through further revision of the plan.
- The Board can decline to approve the CCCP and direct the Department to stop work on a climate change plan.

Next Steps with Approval of the Plan

- The Department will work to integrate the Climate Change and Carbon Plan into its planning, implementation, and operationalization including work plans and budget development processes.

- The Department will work with the Board to begin the update process of the Forestry Program for Oregon, using the vision of the CCCP as the foundation for the revision.

Questions and Resources

Danny Norlander

Forest Carbon and Forest Health Policy Analyst

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503-945-7395

ODF Climate Change Page: www.oregon.gov/odf/ForestBenefits/Pages/Climate-Change.aspx

Board of Forestry Page: www.oregon.gov/odf/board/Pages/default.aspx

Governor Brown's Climate Policy Office: www.oregon.gov/gov/policy/Pages/energy_climatechange.aspx

OGWC website: www.keeporegoncool.org/about-the-commission