

Work Plan:	Climate Change and Forest Carbon
Version:	2022-2024 Final
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OVERVIEW

The Oregon Board of Forestry (Board) directed the Department to pursue a wide array of issues relative to climate change and forest carbon. The issue-based work plan is coordinated by the Resources Planning Unit in the Planning Branch, and milestones outline the goals expressed by the Board.

Current Context:

Oregon's forests encompass 30 million acres, 47 percent of the total land area of the state. A variety of statutes and management objectives direct the management of our public and private forests. However, across these different mandates, one commonality exists: Oregon's forests are both an asset and at risk to a changing climate. The state's forests have faced other challenges. Policymakers passed the nation's first Forest Practices Act (1971) and land use protections (1974) to maintain Oregon's forests. Due to these actions, over 97% of Oregon's wildland forests present in 1974 remain forests today.

A changing climate in the state represents a new and different threat to the state's forest ecosystems and communities. We are already seeing examples of forecasted impacts of a warmer climate. In the past decade, large wildfires have shown to be more resistant to suppression actions and tree mortality and susceptibility to disease and insects have increased because of drought stress and extreme heat events. Oregon's economy and communities have been impacted as significant areas of the state have been inundated with unhealthy levels of smoke. These impacts increase the risks and costs to state agencies, communities, industries, and homeowners.

- Fire managers use the energy release component (ERC) as a strong predictor of heightened fire risk and severity. Since 1995, the percentage of the fire season above a critical threshold has risen from 3% to 33% of the season, staying above the critical ERC for 60 days in 2018.
- A direct result of increased wildfire, smoke intrusions into communities have caused health impacts to residents and economic harm to local businesses forced to alter work, cancel events, or evacuate the active fire areas.
- A "bathtub ring" of drought-induced mortality in Douglas-fir and true firs surrounds the Willamette Valley. These native species are on the fringe of their native ranges and exhibiting signs that they are maladapted to changing climate on a local level.

- Extreme heat events have resulted in damage to foliage across landscapes and many different ecotypes, from the coast to the mountains to the urban setting. The full impact of these heat events is still unclear but has a high damage potential.

While the most visible result of climate change at this time is an altered fire environment, there are many other impacts less well understood and studied. Many of these impacts are currently subject to research and monitoring, including species susceptibility to drought and the movement of tree species based on adaptive traits and environmental conditions.

Summary of Work to Date

Climate Change and Carbon Plan (2020-2021)

The Climate Change and Carbon Plan (CCCP) was initiated following a request by the Governor's Office that the department create a plan that would place it as a leader in climate-smart forestry in the region. Department staff initiated this work with the Board, the state forester, and the executive team with that direction. Throughout the waning months of 2020 and throughout 2021, staff have developed drafts of the CCCP and conducted public and stakeholder outreach efforts. Following a late summer Board workshop with the executive staff, the final edits were incorporated, and the plan was approved by the Board at the November 2021 meeting.

The plan intends to act as a visioning document, a road map, for the department as it implements the tenets of climate-smart forestry. This document will be utilized throughout the implementation and planning processes across all areas of the department. Being a living document, it will go through assessment and future revision (likely target of 2026 for revision approval). Incorporation of the CCCP will take place in processes like the Forest Management Plan, Implementation Plans, and also provide a guiding path for the Forestry Program for Oregon revision (in the Overarching Issues workplan).

Department of Justice Carbon and climate Statutory Authority Analysis (2020)

A request to the Department of Justice (DOJ) for legal analysis to inform the board of its statutory authority relative to forest carbon and climate interests, provided awareness and context for the extent to which board climate and carbon policy considerations can be made.

Oregon Forest Ecosystem Carbon Report (2019-2020)

The development of a forest carbon accounting framework for Oregon began with the first iteration of the Oregon Forest Ecosystem Carbon Report (FECR) in 2018. This work was developed in collaboration with the US Forest Service Forest Inventory Analysis (FIA), provided estimates of the stocks and flux of carbon in Oregon's forests, and is compatible with California and Washington for regional analyses. This work will be updated regularly with the continuous remeasurement of FIA field plots and provides a mechanism for monitoring the rate of carbon sequestration in Oregon's forests that is fundamental to evaluating forest conditions and trends, the effect of current forest practices, and potential policy options for forest carbon mitigation.

Oregon Harvested Wood Products Carbon and Oregon Sawmill Energy Report (2020-2021)

The analysis in the Oregon Harvested Wood Products Report which is called for in the work plan along with the Sawmill Energy Report provides the carbon-in-wood-products dimension of Oregon's forest carbon accounting framework. A significant portion of the flux in forest carbon occurs through the removal and production of forest products, which can retain carbon for long periods of time. This report provides an evaluation of how much carbon is stored in wood products, in landfills, or has been emitted back to the atmosphere and will be updated regularly. The Sawmill Energy Report (2021) is based on a survey of Oregon's sawmills and provides estimates of the energy use and production at those mills along with the amount of associated emissions. Like the Forest Ecosystem Carbon Report, this report will continue iteratively as it was designed to utilize fixed data collection conducted by the USDA every three to four years and will be updated on a four-to-five-year basis to reflect new data and improved methodologies. Together with the Forest Ecosystem Carbon Report these reports provide:

1. A framework for evaluating how Oregon's forests and wood products are contributing to carbon sequestration; and
2. A foundation of information for understanding the dynamics of the forest carbon, and baseline to compare the effect of management practices or potential carbon mitigation policies.

Temperate Forest Climate and Carbon Memorandum of Understanding and Regional Collaboration (2019-2020)

Forest Carbon and Climate Change are shared interests not limited by borders. Neighboring states initiated an evaluation of forest carbon and flux and became aware of complementary interests and needs. States formalized a working and knowledge-sharing relationship with the Temperate Forest Climate and Carbon Memorandum of Understanding (MOU). The MOU and regional collaboration allow broader and more robust coordination and accountability relative to the evaluation of forest carbon, flux, accounting, and mitigation interests, opportunities, and challenges.

WORK PLAN ITEMS

Topic A: Climate Change and Carbon Plan Tracking

With the approval of the Climate Change and Carbon Plan at the November 2021 Board meeting, various divisions, and programs have begun working on the implementation of the goals and supporting actions. The Planning Branch intends to bring an informational item to the Board with an update on the progress made on that implementation and two years following the plan approval. This will help the board to know how the Department is doing in relation to its goals and what adjustments should be made to work plans and policy direction moving forward.

TOPIC B: Framework for Climate Change Assessment

1. ***Develop a framework the Department can utilize to conduct analysis of policy changes, rule development, or rule revisions and their interaction with climate change related variables.*** This work plan item includes the creation of a policy analysis tool to look at proposed or current statutes and rules to assess the impacts of climate change relative to achieving desired outcomes of those policies. Ideally, this would allow any facet of the Department to utilize the framework to identify the costs, benefits, and trade offs of the proposed actions as well as the potential
2. ***Identify social interactions with climate change assessments.*** This work plan item follows part 1 (above) and would be sequenced with that analysis. The goal is to identify how climate-impacted communities are specifically affected by a policy or rule development or revision with future projections.

TOPIC C: American Forests – Carbon & Climate Change Modelling

1. ***In July of 2021, ODF entered into a partnership with American Forests to use the Carbon Budget Model (CBM) to simulate baseline and alternative forest management scenarios for carbon mitigation in Oregon.*** Results will be consistent across the Pacific Coast states because this research project will be conducted simultaneously with California in a partnership with CalFire and American Forests. The project will include technical collaboration with the Forest Inventory and Analysis program and British Columbia Forest Service and continue the stakeholder engagement process used to produce the Forest Ecosystem Carbon Inventory 2001-2016 and the Harvested Wood Products Carbon Inventory 1906-2018.

Research to simulate the carbon consequences of forest management scenarios is complex and requires numerous decisions at each phase of the process which includes: 1) development of region-specific forest growth and yield data, 2) identifying baseline and alternative scenarios of forest management, 3) parameterizing the model, 4) running the scenarios with the CBM forest simulator, 5) interpretation of results and 6) producing a final report. Results of the modeling will track carbon from the atmosphere through harvested wood products and will be followed by an economic analysis. Updates on significant progress will be provided on a regular basis to the Board of Forestry and stakeholders. Final results and a presentation to the Board of Forestry are expected by June 2023.

Topic D: Participation in the Temperate Forest MOU and Work with the USFS PNW Research Station on Forest Carbon Co-Production efforts

1. ***The Department has been working with the other Pacific states and British Columbia on the Temperate Forest MOU.*** This work plan item continues this focus and highlights the important role that cross-agency/cross-border work is for fully understanding the

impacts of climate change and its influence on the forest environment, harvested wood products, and the flow of wood fiber across the region.

2. ***Additional work has been taking place with the Research Station to assess research and models related to carbon flux in forests.*** This will continue and will include work on social dimensions as well as the influence of fire regime shifts (particularly west slope Cascades fires).
3. ***Enhanced forest change awareness, Changes in Forest Composition, and model improvement stemming from ongoing work related to the carbon accounting framework (2020-2021).*** Stemming from ongoing work related to developing the carbon framework, climate change is predicted to cause changes in the current geographic distribution of trees and other forest plants. We are currently collaborating with the US Forest Service Forest Inventory and Analysis (FIA) and Groom Analytics to use the remeasured FIA plots to evaluate how the distribution of forest species may be affected by changes in climate or other controlling factors. This project is expected to be completed before June 2023 and will result in a peer-reviewed article published in a leading scientific journal. This research will represent the first statistical analysis of the FIA remeasurement data to understand the effect of climate change on forest species geography.

Topic E: Estimation of the Department Greenhouse Gas footprint

1. ***The Resource Planning Program of the Planning Branch will undertake a third-party assessment of the agency's greenhouse gas footprint.*** This effort will include a holistic look at the department's operations and include emissions attributable to energy use, fossil fuel usage for daily operations, emissions from forest management activities as best can be captured, among other sources of emissions. While there is a statewide effort being led through a centralized process, the operations that the Department is engaged with are beyond the scope of that effort and warrant a deeper dive. Work to establish this baseline of emissions and footprint were identified as needs in the Climate Change and Carbon Plan for the agency.

Climate Change Work Plan	2022							2023							2024	
	Jan	Mar	Apr	Jun	Jul	Sep	Nov	Jan	Mar	Apr	Jun	Jul	Sep	Nov	Jan	Mar
Topic A: Climate Change and Carbon Plan Tracking																
<i>Milestones</i>																
❖ Tracking of CCCP adoption and progress							i								i	
TOPIC B: Framework for Climate Change Assessment																
<i>Milestones</i>																
❖ Develop a framework the Department can utilize to conduct analysis of policy changes, rule development, or rule revisions			i		d				D							
❖ Climate change assessment of rule development or revision following the above framework											TBD →					
TOPIC C: American Forests – Carbon & Climate Change Modelling																
<i>Milestones</i>																
❖ Complete scenario modeling and project work											i					
Topic D: Participation in the Temperate Forest MOU and Work with the USFS PNW Research Station on Forest Carbon Co-Production efforts																
<i>Milestones</i>																
❖ Work with other Pacific states and British Columbia on the Temperate Forest MOU		TBD →														
❖ Carbon flux in forests		TBD →														
❖ Enhanced forest change awareness											i					
Topic E: Estimation of the Department Greenhouse Gas footprint																
<i>Milestones</i>																
❖ Estimation of the Departments GHG footprint											i					

Matrix Key:

TBD – To be decided

i– Informational item

d – Preceding Decision item

D – Final Decision item