Climate Change Policy and Business Practices within ODF Divisions

4 September 2019

Board of Forestry Public Meeting

Board of Forestry

Background

- Climate change included in the current FPFO (2011)
- Adopted a set of recommendations regarding climate change in 2015
  - When updating or adopting policy: expand, modify or leave as is.
  - Explicitly consider available climate change science in regular business.

Private Forests

- Landscape Scale Assessment of Forest Health:
  - Collaborative data collection
  - Forest health assessment
  - Technical advice and training

- Seed Orchard and Seed Bank
  - Climate and condition adapted tree species
  - Adaptive evaluation and species development
  - Rapid response to changing conditions
  - Operate in a collaborative network

Drought Stress in Conifers

Forest Health Fact Sheet

February 2019

Drought damage in Western redcedar near Willamette Valley pine

Droughts can take a huge toll on Oregon's conifer trees. Often, it is the primary cause of dead branches, tree tops or whole trees. Trees may also respond to drought stress by reducing root and stem growth, dropping more needles, or by producing an abnormally high number of cones ("stress crop"). Symptoms of summer droughts are not typically visible until the following spring, although recent droughts have been severe enough for symptoms to appear in late summer or fall. Many trees being affected have survived previous droughts, even on marginal sites, but past stresses and increasing water requirements due to their large size have reduced their resiliency. **Drought stressed trees are often subsequently attacked by secondary agents such as insects and pathogens.**

Drought is a period with reduced precipitation and above average temperatures. Across all Oregon counties, 2013-2015 proved to be record drought years. Although these may be peaks in a drought cycle, trends show increasing average temperatures and decreasing average precipitation. In addition, winter snowpack has been disappearing earlier in the year and the duration of summer weather has been extended.

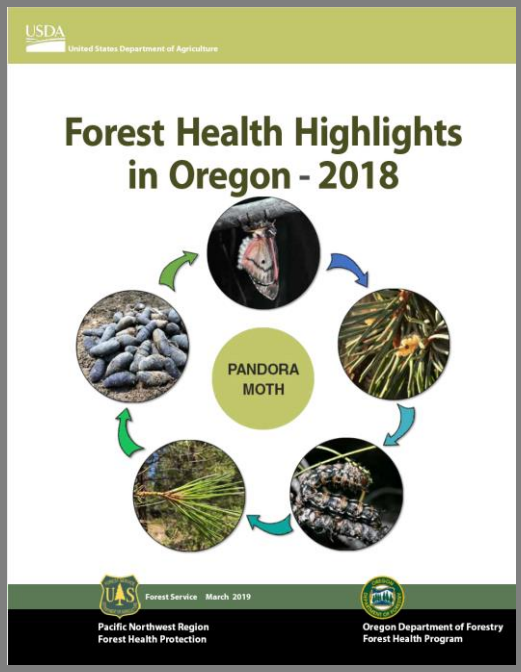
Drought conditions create water stress inside the tree and can reduce growth or cause mortality. Tree water stress is an internal shortage of water that occurs whenever water loss exceeds uptake long enough to cause plant damage or disturb physiological processes.
Drought damage in trees is due to one or all of the following factors:

- Lack of available soil moisture due to reduced precipitation, evaporation and/or runoff, poor water storage properties of soil (e.g., shallow soil, high rock or sand component) or competing vegetation.
- Reduced uptake by roots and translocation throughout the tree due to damage to roots or water-conducting tissues from mechanical equipment, compaction, diseases, etc. Poorly aerated or waterlogged soils can starve roots of oxygen and also decrease water uptake.
- Increased water loss due to exposure to wind (particularly easterly winds) and sun (particularly southern exposures), which increase transpiration and evaporation rates.

Damage typically is most severe on the fringe of forested areas, and on shallow, rocky, or droughty soil types. Trees growing near roads, ditches, pastures, or in areas of soil disturbance or abundant competing vegetation are most frequently affected. Symptomatic trees often occur in groups in close proximity to one another, which reflects similar soil and moisture conditions rather than contagion by canker pathogens.

Trees growing beyond their natural range or from non-local seed sources generally have greater risk of drought damage than locally adapted trees. Damage from drought stress can be difficult to diagnose because the symptoms are similar to other stressors that damage roots and inhibit water uptake, such as root disease, waterlogging, mechanical damage and compaction. Water stress from winter events is also common. Low temperatures, especially following a warm period, can damage sapwood and impair water transport to branches and foliage. Severe foliage desiccation and drop, especially in areas such as the Columbia River Gorge, occur when slow water movement in cold soil combines with dry, east winds and sunny weather to increase water loss.

Severe water stress can directly damage or kill trees, but also predisposes trees to attack by insects and pathogens. Many insects such as bark beetles are secondary, meaning that they can only contribute to mortality in already stressed trees. Similarly, several stem canker fungi often are latent in a tree and capable of causing disease only when the tree is stressed. Healthy trees are able to produce physical and chemical defenses that can either prevent entry from invading insects and diseases, or create an inhospitable environment barring their development or proliferation. If the production and



USDA United States Department of Agriculture

Forest Health Highlights in Oregon - 2018

PANDORA MOTH

Forest Service March 2019

Pacific Northwest Region
Forest Health Protection

Oregon Department of Forestry
Forest Health Program

State Forests

- Greatest Permanent Value
  - Operations:
    - Inventory and stocking relative to species adaptability and resilience
    - Reforestation planning for composition and landscape diversity
    - Directed fuels reduction in climate stressed regions
    - Monitoring to identify stressors, inform management, and evaluate operational hypotheses
    - Assess waterway sensitivity
  - Policy and planning work:
    - FMP process and elements
    - Guiding Principle: Climate change is an active element of operational planning as it relates to GPV

08/02/2017

DEPARTMENT OF FORESTRY

Swiss Needle Cast
Strategic Plan

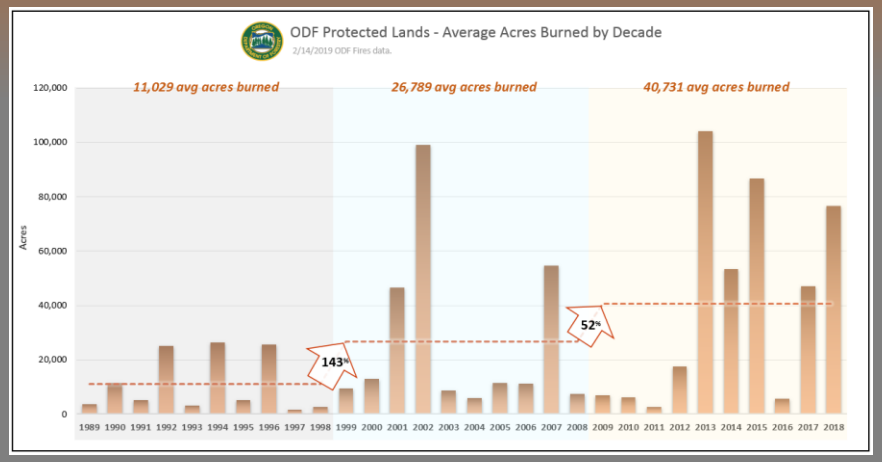
State Forests Guidance Document

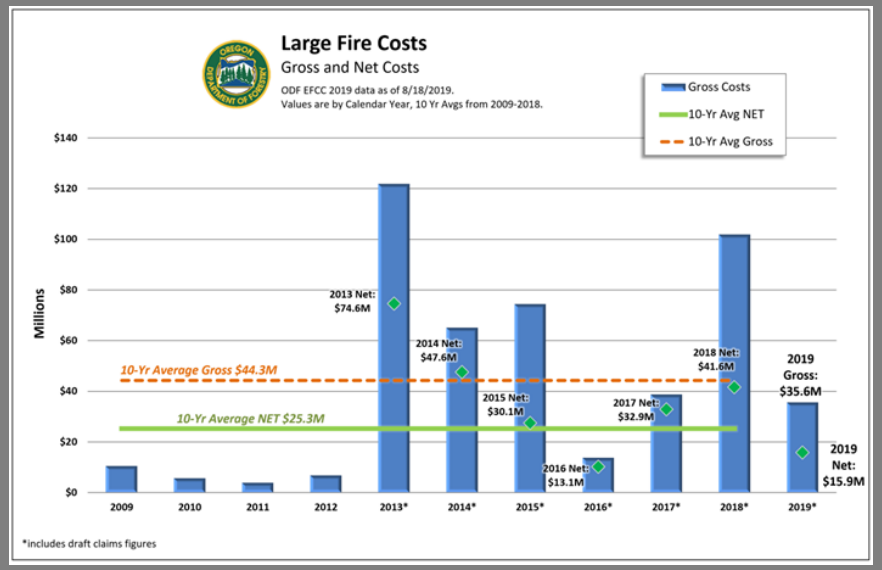
08/02/2017

This is a 2017 update of the State Forests Division Swiss needle cast Strategic Plan. It is implementation of Forest Health Strategy 5 of the Northwest Oregon State Forests Management Plan (April 2010): Revise the Swiss needle cast strategic plan as needed to incorporate new information. Guidance developed by: Rosemary Mannix, Alan Kanaskie, Sarah Navarro, Robbie Lefebvre, Don Kaczmarek, with field review.

Protection

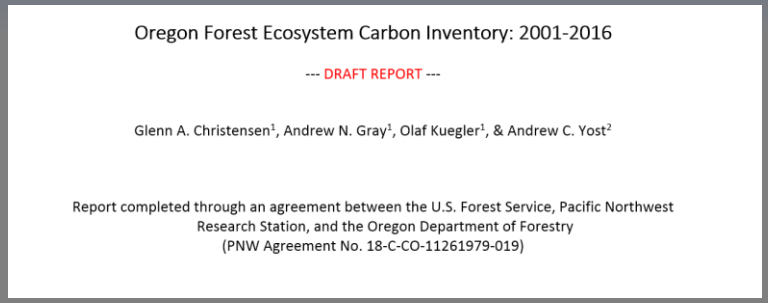
- Adapting to environmental change is a guiding mission of Protection.
- Planning and Budgeting Adaptation
- Monitoring of fire risk, severity, and duration
- Coordination across agencies, universities, and federal partners
- Mitigation and management to restore landscapes
- Sustainable organization





Partnership and Planning

- Cooperation and Collaboration with Research Partners
- Forest Carbon Ecosystem Report
- Harvested Wood Products Report
- Track legislative actions and participate in interagency planning efforts

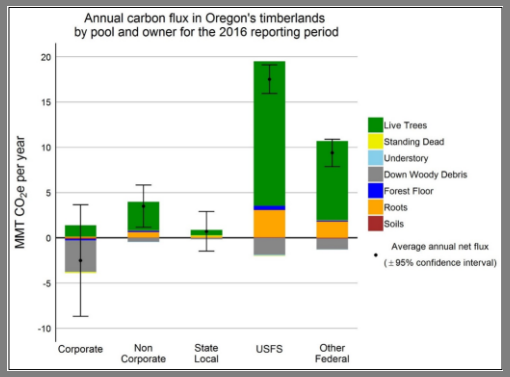


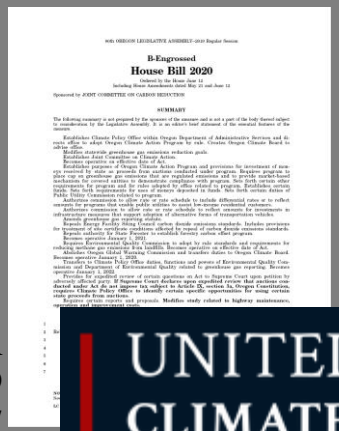
Oregon Forest Ecosystem Carbon Inventory: 2001-2016

--- DRAFT REPORT ---

Glenn A. Christensen[1], Andrew N. Gray[1], Olaf Kuegler[1], & Andrew C. Yost[2]

Report completed through an agreement between the U.S. Forest Service, Pacific Northwest Research Station, and the Oregon Department of Forestry (PNW Agreement No. 18-C-CO-11261979-019)

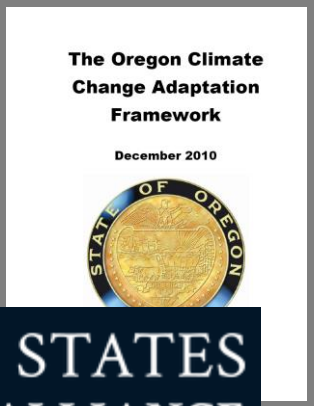




B-Engrossed

House Bill 2020

SUMMARY



The Oregon Climate Change Adaptation Framework

December 2010

UNITED STATES CLIMATE ALLIANCE

Next Steps

- Further information sharing and discussion at the:
  - October 9th BoF Planning Retreat
  - November 7th BoF Workshop