USDA Northwest Climate Hub
U.S. DEPARTMENT OF AGRICULTURE

Adapting Industrial Forestry to Climate Change in the Northwest

The future health of forests in Idaho, Oregon, and Washington depends on our ability to adapt to climate change. Sustainable forest management that considers climate change is crucial for maintaining a robust timber industry, protecting ecosystems, and supporting rural livelihoods in the Northwest.

To address challenges associated with climate change, the Sustainable Forestry Initiative (SFI) and the USDA Northwest Climate Hub identified key climate vulnerabilities for Northwest forests, as well as adaptation strategies to increase the resilience of industrial forestry practices.

Key climate vulnerabilities and adaptation strategies for industrial forestry practices in the Northwest

Extreme events (e.g., floods) could increase road washouts and maintenance costs, potentially limiting access to forest resources.

- **Adapt**: Increase culvert sizes, design roads for runoff, monitor road conditions, stabilize slopes, and create emergency route plans.

Increases in fire area burned could reduce commercially important timber output and cause economic losses for operations.

- **Adapt:** Create post-fire salvage plans, reduce hazardous fuels, install fuel breaks, increase fire readiness, control public access to reduce ignitions, maintain roads for fire control, support interagency cooperation, and use technology for fire detection and response.

Higher temperatures could decrease the growth rates of certain tree species and increase drought stress.

- **Adapt:** Maintain genetic diversity, plant drought-tolerant species, consider lower planting densities, and monitor local effects.

Lower soil moisture in spring and summer could lead to increased tree mortality, reduced growth rates, and reduced reforestation success.

- **Adapt:** Design clearcuts to increase shaded areas, alter planting timing to maximize survival, use drought-tolerant genotypes and species, thin stands to lower densities than in the past, control competing brush, and restore meadows.

Increases in insect pests and forest pathogens could reduce growth rates and forestland productivity, increase tree mortality, and increase costs to operations.

- **Adapt:** Increase monitoring, create salvage plans, thin stands to lower densities than in the past, consider alternative species that are resistant to pests and pathogens, prune trees to prevent pathogens, implement harvest-timing restrictions to slow spread of pathogens, and use Integrated Pest Management.

Changes in forest composition can lead to reforestation challenges and reduce the growth of species on the edge of their range (e.g., Douglas-fir in southwest Oregon).

- **Adapt:** Maximize species diversity, consider genotypes that are adapted to current and future climates, maintain pockets of advanced regeneration, support ongoing research, and increase seed collection efforts.

Invasive species can reduce growth rates and the productivity of forestland while increasing tree mortality and costs to operations.

- **Adapt:** Implement early detection and rapid response, increase monitoring, collaborate on best practices, use aggressive treatment plans, and plan operations to reduce spread.

Higher rainfall intensity can increase the likelihood and costs of road washouts, potentially limiting access to harvestable timber.

- **Adapt:** Implement best management practices to protect riparian areas, monitor precipitation and road conditions, increase culvert size, and adjust water diversions.

To learn more about adapting industrial forestry practices to climate change in the Northwest, visit the Northwest Climate Hub website:

https://www.climatehubs.usda.gov/hubs/northwest/topic/adapting-industrial-forestry-practices-climate-change-northwest

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