MORNING SESSION 1

Overarching Strategy

Purpose

In January 2019, Governor Kate Brown tasked to the Council on Wildfire Response to review Oregon's current model for wildfire prevention, preparedness and response, analyzing whether or not the current model is sustainable given our increasing wildfire risks.

Summary of Recommendations

Executive Order 19-01 established Oregon Wildfire Response Council in January 2019 and directed the Council to evaluate Oregon's wildfire systems to discern sufficiency and sustainability and, where needed, to render recommendations. The following summarizes the Council's findings.

Maintain and Monitor

1. Property insurance access and affordability
2. Oregon Department of Forestry (ODF) "militia system" (all employees prioritize suppression during fire season)
3. Rangeland Fire Protection Association (RFPA) model of independent landowner suppression associations, with support from ODF
4. ODF contract with the Bureau of Land Management (BLM) to provide fire suppression services on BLM's Oregon and California lands
5. Lloyd's of London insurance policy against large wildfire suppression costs

Moderate Course Correction Needed

1. Public engagement to reduce accidental ignitions, educate communities, enable prescribed burning and train landowners
2. Baseline fire protection on croplands and other unprotected or "under-protected" lands
3. Federal suppression capacity
4. Health systems, particularly in response to smoke exposure, but also potential water contamination from mudslides
5. Disaster recovery systems fully considering wildfire
6. Property insurance incentives to landowners (e.g., defensible space, hardening homes, water sources, access)
7. State-federal interagency collaboration during "unified command" (joint decision authority)
8. Workforce development for fuel treatments and firefighting
9. Governance, strategic planning and comprehensive budgeting for wildfire
10. Coordinated wildfire research

Significant Course Correction Needed

1. Utilities wildfire mitigation plans
2. Land use planning for wildfire (zoning, building codes, defensible space, access)
3. Fuel treatments
4. Suppression capacity on state-protected lands
5. Overall funding capacity
6. ODF financing facility (invoicing, receivables from suppression)

Call to Action

Wildfire has been and will remain a permanent part of life in the West. But fundamental shifts in wildfire behavior in Oregon and other western states have produced record fire losses, costs and damage to communities. Over a century of land management practices and changing policy, starting with the removal of tribal communities and the loss of their controlled burning practices, followed by widespread fire suppression and shifts in land use, has enabled fuels to accumulate far beyond historic conditions. Population growth has increased human-caused ignitions, putting people and developments in harm's way. And fire seasons have become longer, drier and hotter, owing to climate impacts.

The effects in Oregon have been profound. Air quality has suffered in fire-prone regions like central and southwestern Oregon and in Portland and the Willamette Valley as well. Whether in urban or rural areas, fire frequently affects Oregon's most vulnerable populations. Recent power outages in California, driven by increased wildfire risk, are powerful reminders of the breadth and reach of wildfire's impacts and its particular threat to vulnerable populations.

Wildfire is a natural force on the landscape and in some regions a necessary catalyst for balance and resilience. But current conditions are out of balance and demand a swift and enduring response. Oregon must enact a cohesive strategy encompassing communities, natural landscapes and effective wildfire response, combining immediate investments and policies to address the symptoms of uncharacteristic and harmful wildfire, with long-term investments to help Oregon adapt to a new wildfire reality.

The Evidence is Compelling

Three graphs are provided, at the end of this *Call-to-Action* section that illustrate the history of wildfire here in Oregon. Several points are noteworthy. First, significant decade-to-decade increases in burned acres have occurred on both ODF-protected land, and all Oregon lands. Second, for each of the past three decades, 92-93% of all burned acres occurred on land outside ODF jurisdiction, namely federal land, which comprises 60% of forested land in Oregon. Any call-to-action in Oregon must involve federal management in a meaningful way, as will be discussed throughout this report. Third, direct suppression costs for large fires on ODF-protected land grew six-fold over the past seven-year period, when compared to the prior seven-year period.

Several studies, however, indicate direct suppression costs represent just a fraction of the true costs of wildfire. Headwaters Economics, a Montana-based non-profit specializing in landscape economics, estimates suppression costs, on average, represent just 9% of total wildfire costs, which include numerous effects that take years to fully manifest.[1] The Federal Reserve Bank of Minneapolis states "Estimates of the total cost of large wildfires to landowners, investors and taxpayers range from 10 to 50 times the cost of fire suppression.[2]" In 2018, combined state and federal suppression costs were estimated at $533 million in Oregon. Should the 9% average cited by Headwaters apply, the true loss to Oregon would total $6 billion from 2018 alone.

The following table includes short-term expenses and long-term damages cited in the Headwaters report, along with less quantifiable human loss and other costs experienced in Oregon and across the West.

Short-Term Expenses	Long-Term Damage	Other Human Loss
Suppression Costs – federal	Public Finances -foregone tax revenues, siphoning of general fund toward suppression and away from other public services	Human Lives
Suppression Costs – state	Ecosystem Services including Habitat Loss (e.g., spotted owl, sage grouse)	Respiratory and Cardiovascular health
Home and Property Loss	Depreciated Property Values	Mental health
Immediate Road & Landscape Stabilization	Natural Resource Loss -timber, crops, livestock forage, livestock, wine quality	Cultural Resources for Tribal Communities
Aid & Evacuation Relief	Tourism & Recreation (e.g., Shakespeare Festival, Cycle Oregon, Sisters Folk Festival)	Family Dislocation
	Other Business Loss, Risk of Insolvency	Job Disruption
	Energy Infrastructure	Athletics / Outdoor Activities
	Water Infrastructure, Mudslides, Contamination	Community Vitality
	Transportation Infrastructure	
	Long-term Landscape Rehabilitation, Invasive Species Management	
	Insurance Premiums	

[1] Headwaters Economics. 2018. https://headwaterseconomics.org/wildfire/homes-risk/full-community-costs-of-wildfire/

[2] https://www.minneapolisfed.org/publications/fedgazette/counting-the-full-cost-of-wildfires?sc_camp=16C883BC3D314E2E899021FBD04A7AF9

Of note, according to the Headwaters study, while federal and state agencies incur the majority of direct suppression costs, the bulk of long-term damage and human loss is borne by local communities where wildfire occurs. Further, these impacts are often most pronounced with *vulnerable populations*, including communities of color, the elderly and disabled, children, and renters lacking home insurance. Recent tragedies in California, including the historic Camp Fire and devastation to the small community of Paradise, demonstrate the difficulties in evacuating disabled and elderly citizens, and reuniting children with families.

> "Certain life stages and populations may be at greater risk of experiencing health effects, including people with respiratory cardiovascular diseases, children and older adults, pregnant women, people of lower socioeconomic status, and outdoor workers."[3]
>
> - Environmental Protection Agency

California Power Outages up the Stakes

It is estimated that 2 million people experienced power outages in California in early October, owing to high wind conditions and elevated fire risk. Disruptions to families and business were ubiquitous, but most acutely felt by vulnerable populations who lack resources for generators or solar panels with battery backup power. Among the most affected are those requiring reliable electricity to power life-support systems.

A 2009 expert study of fires in Southern California dating back to 1960 found that, power line fires are, on average, 10x larger than other fires[4]. In California, of the top 20 most destructive wildfires in state history, 8 were power line fires, including the deadly Camp Fire, and 6 of these occurred between 2015-2017.[5] In response, California utilities have supplemented other risk mitigation measures (vegetative fuel removal, equipment upgrades) with forced power outages. Proactive power outages substantially elevate the costs of wildfire to include costs to avoid *potential* wildfire, in addition to costs incurred from actual wildfire.

As California is witnessing, despite the public outcry for action in the aftermath of the Camp Fire tragedy, there are limits to the public appetite for change. One clear lesson for Oregon is the need to prioritize: as with all wildfire policies, there is a finite amount of *political* capital, along with financial capital, at policy-makers' disposal.

Core Causes Trending in the Wrong Direction

The comprehensive costs of wildfire described above are symptoms of larger problems, which are trending in the wrong direction. In March 2018, Oregon State University hosted the inaugural Fire Summit in Portland, which included approximately 30 scientists, land managers and forest policy experts from five states and British Columbia. The Summit report concluded:

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[3] Environmental Protection Agency. 2019. https://www3.epa.gov/airnow/wildfire-smoke/wildfire-smoke-guide-revised-2019.pdf

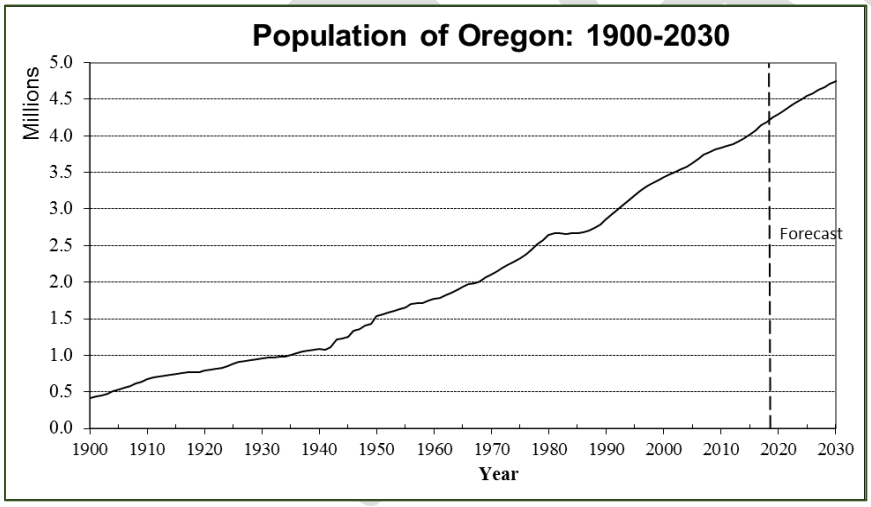
[4] Mitchell, Joseph W; Power Lines and Catastrophic Wildland Fire in Southern California; Fire & Materials 2009, San Francisco CA, Jan 26, 2009

[5] California Public Utilities Commission. 2019. https://www.fire.ca.gov/media/5511/top20_destruction.pdf

"We live in unprecedented conditions; the forest landscape neither looks nor functions as it did 200 years ago. The landscape contains more biomass, and thus more fuel, than ever before. The fuel base is more contiguous and more homogenous. Furthermore, greater numbers of citizens are more closely connected to forests in communities that have an extended area of wildland-urban-interface. Meanwhile, the climate is warming and the forests are becoming drier making fire seasons longer and stretching resources further."[6]

Over a century of fire suppression, changes in land use, and resource management policies have combined to alter landscapes and grow fuels hazardous for wildfires. The accumulation of fuels on fire-prone federal forests is particularly impactful to Oregonians, as 92-93% of burned acres occur on federal lands, as described previously.

As referenced above, population growth increases the risks of accidental human-caused fires, and new development places additional values at risk, requiring greater protection. Oregon's population has approximately doubled over the past 50 years, with much construction occurring before fire-resilient materials and designs were broadly implemented. As these structures continue to age, and nearby fuel loads accumulate, fire risk rises absent meaningful risk mitigation. At the same time, an additional half-million people are expected to call Oregon home over the next decade, growing from 4.2 million in 2018 to 4.7 million in 2030, as Oregon ranks among the fastest growing (11th) populations in the country.[7] Much of this growth will occur in Oregon's wildland-urban-interface (WUI), where the number of homes expanded by 41% from 1990-2010.[8]



Source: U.S. Bureau of Census; Oregon Office of Economic Analysis.

[6] Oregon State University Fire Summit. 2018. https://www.forestry.oregonstate.edu/sites/default/files/firesummitreport.pdf

[7] Oregon Department of Administrative. 2019. https://www.oregon.gov/das/OEA/Documents/forecast0519.pdf

[8] US Forest Service Research Data Archive. 2017. https://doi.org/10.2737/RDS-2015-0012-2

Climate change is increasing wildfire incidence, and is projected to drive further increases in the decades ahead, as described in the following two excerpts from reports published by the Oregon Climate Change Research Institute:

> "The most obvious impact of climate change in the West has been fire. Recent catastrophic fires in California and major wildfires in Oregon highlight the vulnerability of the state to increasing wildfire in a warming climate. The Eagle Creek Fire September 2017 closed I-84, a crucial transportation corridor between western and eastern Oregon. Fire risk is projected to increase across the entire state by mid-century, with the largest increases in the Willamette Valley and eastern Oregon. The associated wildfire smoke creates a health hazard for vulnerable communities, especially outdoor laborers and children, who may be exposed to poor air quality."[9]
>
> - Oregon Climate Change Research Institute

> The lengthening of the fire season is largely due to declining mountain snowpack and earlier spring snowmelt. In the Pacific Northwest, the fire season length increased over each of the last four decades, from 23 days in the 1970s, to 43 days in the 1980s, 84 days in the 1990s, and 116 days in the 2000s.[10] Recent wildfire activity in forested ecosystems is partially attributed to human-caused climate change: during the period 1984–2015, about half of the observed increase in fuel aridity and 4.2 million hectares (or more than 16,000 square miles) of burned area in the western United States were due to human-caused climate change.[11, 12]
>
> - Oregon Climate Change Research Institute

The frequency of lightning is likely to increase with rising temperatures. The November 13, 2014 edition of *Science* cites a study by Romps et al. predicting lightning rates will increase 12% per every degree Celsius rise in global temperatures.[13] If accurate, this could mean a 50% increase in lightning activity by 2100 across the globe. For perspective, in 2018, Oregon experienced 686 wildfires initiated by lightning, or 35% of total wildfire ignitions.[14] Historically, lightning-induced wildfire is associated with larger wildfires, as human-caused wildfire is more quickly detected and proximate to suppression resources.

Business-As-Usual Scenario is Not Sustainable

Many of Oregon's systems for mitigating the impacts of wildfire were designed for another time: before fuel accumulations; before rapid population growth particularly in the WUI; before the spate of tragic power line fires in California; and before climate change began to intensify and extend fire seasons across the West. Contributors to wildfire are projected to worsen in the years ahead. Business-as-usual practices portend greater threats to human life, ballooning suppression costs, increased smoke and related health ailments, and further ecosystem degradation and long-term economic damage.

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[9] Oregon Climate Change Research Institute. 2019. http://www.occri.net/media/1095/ocar4full.pdf
[10] Westerling, A. 2016. https://doi.org/10.1098/rstb.2015.0178
[11] Abatzoglou, J. and Williams, A. 2016. https://doi.org/10.1073/pnas.1607171113
[12] Oregon Climate Change Research Institute. 2017. http://www.occri.net/media/1049/5ocar3_final_forest.pdf
[13] Romps et al. 2014. https://science.sciencemag.org/content/346/6211/851
[14] Bureau of Land Management and USDA Forest Service. 2018.
https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd611322.pdf

A Cohesive Response is needed

Oregon is not alone recognizing the shifts in wildfire behavior and the need for change.

The National Cohesive Wildland Fire Management Strategy was launched in 2014, with input from leading fire experts across the country and research drawn from across the globe. It sets forth best practices, based foremost on the assumption that communities must learn to live with wildfire, which is a natural component of ecosystems that should be aligned with community objectives. The three primary components of the strategy are:

Questions Informing an Oregon Wildfire Strategy

1. With recent summers dominated by smoke in many parts of Oregon, what can be done to prevent catastrophic fires, and to help communities respond during extreme fire events?
2. How should communities approach prescribed burning, both in tribal communities but more broadly, while managing health impacts from smoke exposure?
3. How can Oregon prevent water contamination from wildfire and mudslides, and protect other critical infrastructure built during a lower-fire era?
4. What is the right policy mix to protect Oregon's most vulnerable communities, including health care, emergency response and disaster recovery, employment and progressive taxation?

5. To reduce fire risk within the Wildland Urban Interface, stemming from (a) fuels within defensible space and home ignition zones; (b) non-resilient building materials and design; and (c) development within high fire-risk zones, what is the appropriate partnership between the State and Counties?
6. How can Oregon prevent catastrophic power line failures as seen in California?
7. To restore fire-resilient landscapes, what is the optimal strategy including (a) mechanical thinning; (b) managed wildfire; and (c) suppression? How much should the State allocate its limited resources toward fuel treatments versus suppression?
8. To fund forest restoration projects, what is the appropriate role of State investment, federal investment and the private sector including timber and non-timber markets?

9. What is the best approach to build upon the success of collaboratives and the Federal Forest Restoration Program, to implement forest restoration projects, at the required pace & scale?
10. With Oregon's natural landscapes mostly owned by federal agencies, where decision authority resides outside the state, what is the optimal form of partnership to meet State and national objectives?
11. What is the comprehensive wildfire approach to climate change?
12. Overall, how should the State allocate its limited resources, including financial capital, political capital and public goodwill? How should it define its objectives, measure uplift, and set priorities to generate return-on-investment for public resources?
13. How should the State engage the public, as wildfire has become a **statewide** issue? How to bridge urban-rural and cultural divides?
14. Who in the state should wake up every morning thinking about a long-term cohesive wildfire strategy, encompassing health care, emergency response, disaster recovery, land use, the power grid, forest management, fire suppression? How should this be governed?

Many Pieces in Place in Oregon

While Oregon faces substantial wildfire challenges, there is a strong foundation upon which to build:

Public Engagement	Effective communications underlie all elements of the Cohesive Strategy. Oregonians self-identify with forests and rangelands, and Oregon has a history of adopting public policy to protect its natural assets. There is also a well-established network of forest and fire educators including Keep Oregon Green (established 1941), the World Forestry Center, and numerous school and other public programs.
Collaboratives	Oregon's leadership with forest collaboratives has created a national model for local, community-based project planning and restoration. At present, approximately two dozen collaboratives are active across the state bringing diverse stakeholders together in the interest of resilient natural landscapes.
Land Use Systems	Oregon's nation-leading land use systems have limited the impact of sprawl within the WUI to an extent not possible elsewhere. Headwaters Economics emphasizes the importance of land use throughout its reports.
Fire Suppression Systems	The Cohesive Strategy asserts that suppression of non-desired wildfire will remain integral to the overall strategy. Oregon's Complete and Coordinated Wildfire Protection System remains one of the most highly-regarded systems in the nation for putting out fires.
Wildfire Research	Oregon State University is home to the top-ranked forestry school in the US, with wildfire-related research including ecology, climate change and forest products (e.g., mass timber) needed to fund restoration work. Federal agencies including the US Forest Service and Bureau of Land Management conduct extensive research on wildfire science and have developed advanced technology spanning most aspects of wildfire. The

	Nature Conservancy and other NGOs have focused heavily on wildfire ecology and landscape restoration.
Forest Products Industry	As other states, including California and Arizona, are seeking to re-attract industry investment, in order to fund restoration treatments, Oregon retains an industry foundation upon which to build. Of note, Oregon's industry in the fire-prone regions of central and eastern Oregon has experienced significant attrition, given shortages in wood supply, and supporting the remaining infrastructure is a high priority.
Federal Partnership	Oregon is a national leader in its partnerships between state and federal agencies, as evidenced by collaborative work though the Federal Forest Restoration Group, the Good Neighbor Authority, stewardship contracts and, most recently, the Shared Stewardship Agreement.
Leadership	Perhaps more than virtually any other state, Oregon's federal / state / county / city / civic leadership prioritizes natural resources, mirroring the public's identification with this rich state tradition. The degree of engagement, and diversity of participation, on the Wildfire Council itself reflect leadership's desire to take action.

An Improved Public-Private-Partnership Reoriented toward Wildfire

The scale of Oregon's wildfire challenge – including community adaptation, fuel treatments and wildfire response – is beyond the capacity of any individual organization or sector. The power of public-private-partnership, oriented toward wildfire solutions, is needed. While public and private resources are currently addressing Oregon's wildfire challenges, the State must better leverage these resources toward further alignment, optimization and coordination around a common cohesive wildfire strategy.

Oregon Wildfire Response Council Recommends Specific Changes and a New Approach

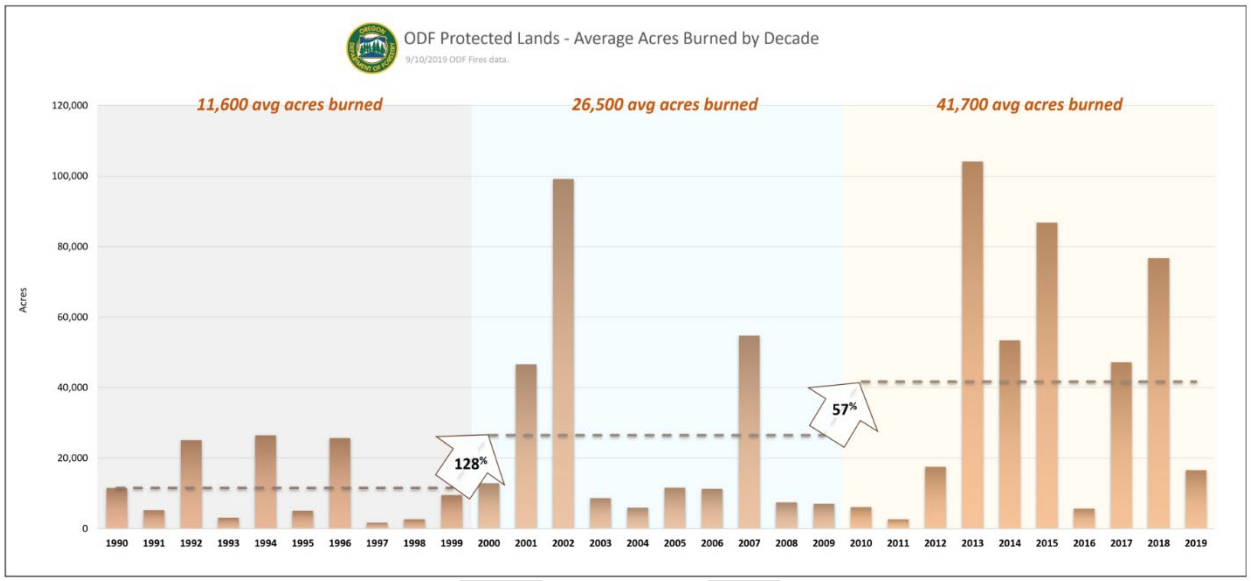
The Oregon Wildfire Response Council was established by Governor Kate Brown on January 30, 2019 via Executive Order 19-01. The Council was directed to evaluate Oregon's systems related to wildfire to determine their sufficiency and sustainability given current and expected demands from wildfire. To the extent systems were not deemed sufficient or sustainable, the Council was directed to deliver recommendations.

The Council assembled a diverse array of leaders from across Oregon, mirroring the variety of Oregonians affected by wildfire. In addition to forestry, agriculture and conservation interests, the Council recruited leaders from tribal communities, fire fighters, Oregon counties and cities, tenants' rights advocacy, Medicaid recipients, outdoor workers, power utilities, transportation, property insurance and roofers. Ex-Officio and committee leaders were sought to bring specific expertise in wildfire, state and federal forestry, agriculture, health care, tourism, economic development, academic research and numerous other areas. Likewise, the Council sought federal and state legislative leadership, and invited four state legislators as well as staff from the Oregon federal delegation. In generating this report, the Council met on nine occasions from March-November 2019, in addition to dozens of meetings and calls between three main committees, three additional sub-committees and numerous smaller initiatives.

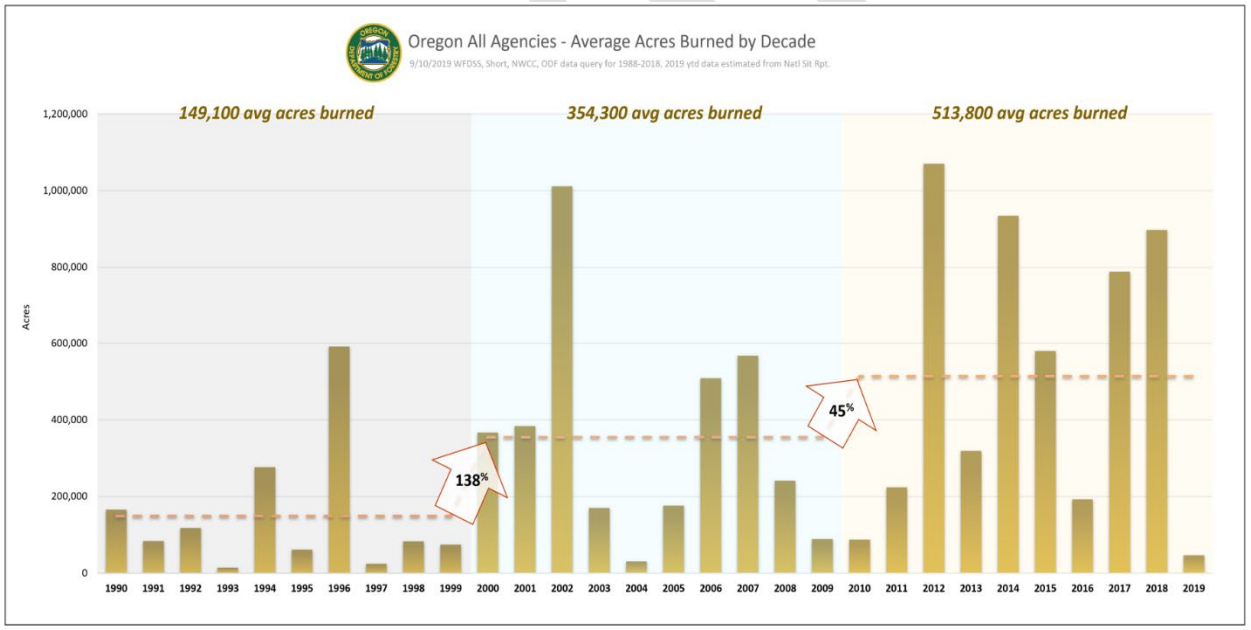
The Council is pleased to deliver this initial set of recommendations, which are intended to be actionable, providing both immediate and long-term benefits to all Oregonians. The Council further wishes to reiterate that wildfire is a permanent aspect of life in Oregon, and the importance of wildfire is growing with a changing climate and growing population. Yet, at present, wildfire-related policies are siloed, scattered, and incongruent. Such an approach may have been adequate for another era, but must now be reconsidered. An enduring and cohesive strategy and governance structure are warranted, given the new realities of wildfire evident in Oregon today.

November 2019

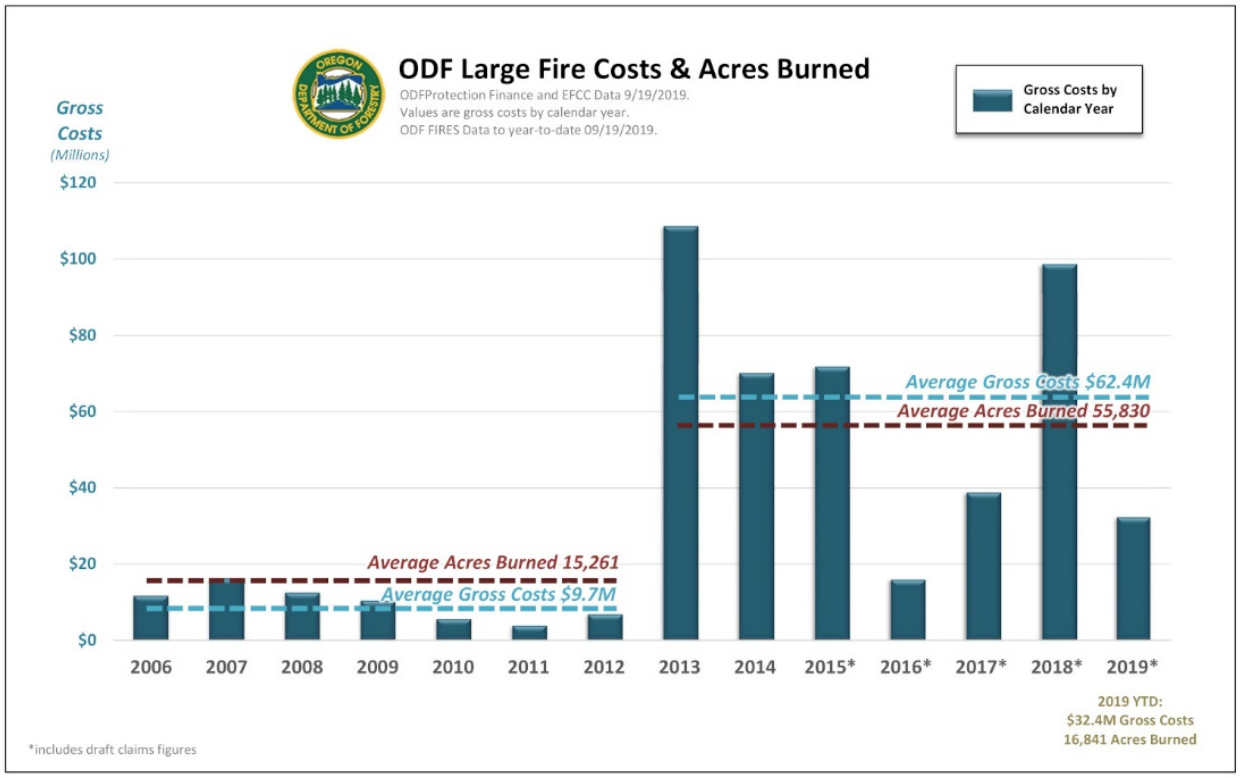
ODF Protected Lands Average Acres Burned by Decade



Oregon Statewide – All Agencies Average Acres Burned by Decade



Large Fire Costs and Acres Burned



Overarching Strategy

NATIONAL VISION	*Safely and effectively extinguish fire when needed; use fire where allowable; manage our natural resources; and, as a nation, live with fire.*
GOALS	• Fire Adapted Communities • Restore and Maintain Landscapes • Wildfire Response
CHALLENGES	• Homes, Communities and Values at Risk • Human-caused Ignitions • Vegetation and Fuels

Regional Context: Wildfire Issues Confronting Western States

- Increased wildfire incidence and suppression costs
- Vegetative growth and landscapes outside historic norms
- Population growth
- Development inside the wildland-urban-interface
- Climate change

Oregon Context

- Significant federal ownership (60% of forestland[15], 53% of total[16])
- High fire incidence on federal lands (92-93% of burned acres over past three decades)
- Complexity of managing federal-state-county partnership (including county timber payments)
- Strength of state land use systems provides protections
- Small economy limits public finances (43% of Washington state GDP[17])
- Large land area to protect (44% larger than Washington state, source[18])
- Large land area requiring fuel treatments (Mitigation Committee had identified 5.2 million acres of Oregon forest and rangeland needing treatment, Washington has identified 1.25 million acres of forest[19]; rangeland unknown)
- Strong forest products industry creates funding options for fuel treatments and job opportunities, expectations for timber-dependent communities
- Leadership in forest collaboratives
- Strong academic, non-profit research network

[15] https://oregonforests.org/faq
[16] https://time.com/4167983/federal-government-land-oregon/
[17] https://www.bea.gov/
[18] https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk
[19]

Strategic Objectives for Oregon

> "Reducing long-term risk requires prioritization of investment and use of resources, acceptance of increased short-term risk, and greater collective investment."
>
> -National Cohesive Wildland Fire Management Strategy

Strategic Objective 1: Prioritize Allocation of Limited Resources

The State should prioritize limited financial and political capital toward areas of greatest need (**utilities risk management, fuel treatments, suppression capacity on state-protected lands, overall funding capacity**) and opportunity (**land use systems**).

Strategic Objective 2: Expand Available Resources through Public-Private-Partnership

The State should "grow the pie" and leverage its own investments with (a) federal investments; (b) other investments including conservation finance; and (c) timber and non-timber monetization.

Strategic Objective 3: Leverage Natural Systems (e.g., wildfire) to Manage Fuels

The State should leverage wildfire to strategically reduce fuels in a safe and cost-effective manner consistent with community objectives and tolerance for health and asset risk.

Strategic Objective 4: Adjust Investments over Time

The State should eventually seek to adjust investments downward, as possible, as benefits of long-term investments are realized.

Strategic Objective 5: Support Cohesive Strategy with Communications, Collaboration, Alignment

The State should engage communities to (a) adapt to wildfire; (b) reduce accidental human ignitions; (c) align wildfire strategies with community input.

Goals & Strategies

"By itself, wildfire is simply an event. It can be described by its location, intensity, duration, extent, or other characteristics, but it has no normative value—it is neither good nor bad. However, the consequences, both negative and positive, matter. For example, wildfire is considered to be 'bad' or even catastrophic, whenever homes and other structures are involved; economically valuable timber is lost; critical wildlife habitat is degraded; or other values are lost depending on the location, extent, and intensity of the wildfire. In contrast, wildfire can also be 'good' and have positive effects, particularly environmental, such as creating an environment for fire-dependent or fire-tolerant plant and animal species to flourish; burning plant litter to limit the intensity of future wildfires; or destroying harmful pathogens."

-National Cohesive Wildland Fire Management Strategy

Introduction

This section seeks to align goals identified through the National Cohesive Wildland Fire Management Strategy – Create Fire-Adapted Communities, Restore and Maintain Resilient Landscapes, Respond Safely and Effectively to Wildfire – with specific strategies for Oregon. Major elements for each strategy are then identified, which will inform Recommendations.

Goal 1: Create Fire-Adapted Communities

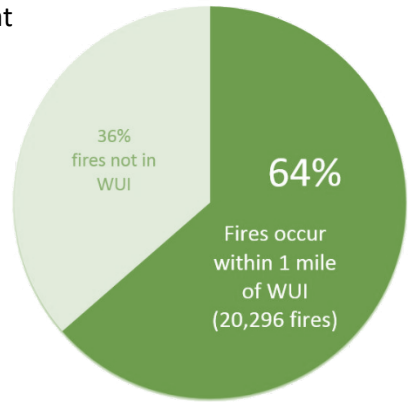
National Cohesive Strategy Insights

> "California, Oregon and Washington experienced extensive housing growth during the 1990s, particularly in the Wildland Urban Interface (WUI). Of all new housing built in these three states in the 1990s, 61 percent were located in the WUI. These findings portend challenges for fire hazard mitigation, fire protection and resource management."
>
> -International Journal of Wildland Fire

The Cohesive Strategy recognizes that fire is a natural part of the landscape, particularly in the West, and that our current trajectory of more frequent, larger, more costly and more destructive wildfires is likely to continue. No area provides greater risk from fire to human life than the wildland urban interface, where combustible homes meet combustible vegetation. Threaded through the Cohesive Strategy are approaches for helping communities adjacent to wildlands adapt to a more complex fire environment, from building codes to growth and planning considerations, from public engagement and education to air quality monitoring and reporting mechanisms for health effects. On a positive note, the strategy recognizes that new construction offers risk-mitigation opportunities that may not be available elsewhere, if communities can adapt their policies and practices.

Oregon Context

In 2010, the U.S. Endowment for Forestry and Communities estimated that more than one-third of all Oregonians lived in communities and areas at high risk to wildfire—more than 1.2 million people—in more than a half-million homes, 45,000 of those being seasonal homes.[20] Since then, in-migration to Oregon, a strong real estate and construction market, and the expansion of developed areas has produced a further increase in the number of homes and people living at risk of wildfire. While there's no current data quantifying Oregon's total wildland urban interface values at risk, recent trends and incidence of evacuations, losses and wildfire occurrence clearly indicate the magnitude of the problem in Oregon.



Dozens of communities across the state are working with their citizens and local cooperating public safety agencies to create Community Wildfire Preparedness Plans which help communities prepare for and adapt to fire risks. Some communities have identified specific areas for restricting growth. Other communities have adapted their local land use planning and building codes to increase readiness for fire. As awareness grows about the hazard—and as risks increase—more communities and individuals have been motivated to take local action. All wildland fire agencies, from city and rural fire districts through federal land management agencies, are engaging with homeowners, landowners and citizens. But there is more work to do, greater opportunities for innovation and engagement, and a seemingly unending need to help communities adapt to fire.

[20] US Endowment for Forestry and Communities. 2010.
https://www.arcgis.com/apps/MapJournal/index.html?appid=82c9a07d6a7147a98b4efbe68428defb

Strategy 1: Invest to Reduce Accidental Human-Caused Ignitions

Element 1. Public Engagement
Element 2. Electric Utilities

Strategy 2: Diminish Wildfire Risk through Land Use

Element 1. Defensible Space
Element 2. Building Codes
Element 3. Land Use
Element 4. Property Insurance (as a tool for fire prevention)

Strategy 3: Invest to Limit Loss When Wildfire Does Occur

Element 1. Health Systems
Element 2. Disaster Recovery
Element 3. Property Insurance (access & affordability)

Goal 2: Restore and Maintain Resilient Landscapes

National Cohesive Strategy Insights

> "The forest and rangeland health problems in the West are widespread and increasing, affecting wildlife habitat, water quality and quantity and long-term soil productivity, while providing conditions for uncharacteristically large, severe, and costly wildfires, with increasing threats to human life and property."
>
> -National Cohesive Wildland Fire Management Strategy

The Cohesive Strategy recognizes the tension inherent in complex landscape ownership patterns and management policies that often direct federal and non-federal land managers and fire managers in opposite directions. On one hand, the selected use of planned and unplanned fire as a tool, under certain conditions, may help address longstanding ecological goals and reduce fuel treatment and suppression costs. On the other hand, that same willingness to utilize fire as a tool can be seen as transferring risk to adjacent landowners whose management objectives may be more focused on timber production and economic values. Health concerns, stemming from both smoke exposure and potential water contamination from mud slides, have grown across the West in recent years.

The national strategy emphasizes the notion of fuels management to create more resilient landscapes through a variety of means, including managed wildfire and introduction of prescribed fire, and through commercial and non-commercial harvest, particularly in regions that still maintain sufficient wood products infrastructure that can utilize large amounts of fiber resulting from fuels reduction – and partially offset treatment costs. The strategy also emphasizes that not every fuel reduction strategy will be acceptable in every locality, and introduces the notion of "where allowable," which enables local agencies, communities and collaboratives to determine what is most appropriate.

Oregon Context

A crucial piece of context for Oregon's forested landscapes relates to landownership: more than 60 percent of Oregon's forests are owned and managed by the federal government under authorities, budgets and policy direction set at the national level. The U.S. Forest Service, Bureau of Land Management, National Park Service and U.S. Fish and Wildlife Service are predominantly situated in the Oregon Cascades, central Oregon, the Siskiyou region and the Blue Mountains of northeast Oregon. These higher elevation forests present significant ecological, scenic, and social/recreational values and are managed primarily around objectives related to restoration and conservation. Adjacent and typically lower elevation lands are owned by a wide range of private landowners whose objectives are frequently different than the federal land management agencies. Harmonizing common fire policy across these distinct ownerships—whether about use of fire as a tool or about smoke, suppression or salvage—has presented historic challenges.

Related, the impact of fuel treatment methods on public finances has significant political implications. Given the high costs of fuel treatments (estimated to total $4 billion across Oregon, as presented in the Mitigation Committee report) reasonable questions persist about the role timber harvests may play in defraying treatment costs, while also creating jobs and revitalizing rural communities. Where timber harvests are appropriate, the structure of timber sales is equally important, as counties receive significant proceeds from traditional timber sale contracts, whereas stewardship contracts reinvest timber proceeds in other forest restoration. Compared with other western states, Oregon's relatively robust forest products industry presents options for fuel treatments often not existing elsewhere. Capitalizing on this advantage in an ecologically appropriate – and socially acceptable – manner presents both an opportunity and a challenge for Oregon.

Finally, forest collaboratives represent a critical component of Oregon's context. Oregon was a pioneer in the development of collaboratives, and remains a national leader. Collaboratives continue to inform restoration projects, to incorporate local input and generate local support. Leveraging this success to increase the pace-and-scale of restoration treatments remains a critical objective. The Shared Stewardship Agreement recently executed between Oregon and the US Department of Agriculture was intended to help prioritize limited resources across the state, aligning public policy with public support.

Strategy 1: Prioritize Limited Resources According to Risk, Probability of Success

Element 1. Twenty-Year Fuel Treatment Program: Acres, Costs, Pace and Scale
Element 2. Phase One: Years 1-2
Element 3. Phase Two: Years 3-5

Strategy 2: Increase Communications & Collaborative Engagement

Element 1. Local-level
Element 2. State-level
Element 3. Regional and Federal-level

Strategy 3: Increase State Investment and Federal Investment

Element 1. Shared Stewardship Agreement
Element 2. Goals and Metrics
Element 3. Monitoring & Accountability

Strategy 4: Leverage Public Investment through Timber and Non-Timber Markets

Element 1. Opportunities and Barriers: Timber
Element 2. Opportunities and Barriers: Non-Timber

Strategy 5: Build Capacity to Implement Fuel Treatments

Element 1. State and Federal Capacity
Element 2. Workforce Capacity
Element 3. Community Capacity (Local, State)

Goal 3: Respond Safely and Effectively to Wildfire

National Cohesive Strategy Insights

> "Response is the last line of defense and action, coming after fires have started and there is little recourse. As with any large, complex endeavor, there are opportunities to increase efficiency. Preparedness does not come cheap; Federal suppression response expenditures along in 2005 to 2012 exceeded on average $1.5 billion dollars per year."
>
> -National Cohesive Wildland Fire Management Strategy

This area of focus is the highest priority within the National Cohesive Strategy, in part because response is within the direct purview of the cooperating agencies. At the same time, the Cohesive Strategy recognizes that the increasing risk of wildfire due to worsening fuel conditions, climate change and population growth cannot be addressed solely by adding more resources for preparedness, and suppression response.

The Cohesive Strategy emphasizes the importance of preparing for large, costly and long-duration wildfire in those areas most likely to experience them; prioritizing suppression resources toward protecting structures and communities; reducing accidental ignition in high priority landscapes; and empowering and enabling all fire protection jurisdictions to increase their level of coordinated response.

Oregon Context

The State of Oregon provides fire suppression on 16 million acres of forest and range, including private land, state-owned land and by agreement federal Bureau of Land Management lands in western Oregon. Unlike other western states where general funds provide the lion's share of financial resources for firefighting, Oregon's private landowners provide half of the funding for the state's wildland fire suppression system. Federal land management agencies provide fire suppression—and funding—on the remainder of the federal estate in Oregon.

Multiple wildland fire agencies and private forest landowners make up Oregon's "complete and coordinated system," a highly interdependent network of public and private resources that can be called upon to mobilize and work together even across multiple jurisdictions representing different land management objectives. The system is characterized by frequent cross-jurisdictional training and high level of communication among leadership particularly regarding pre-planning, a willingness and interest in adapting emerging technology, and strong working relationships.

Historically, the human resources needed to operate Oregon's complete and coordinated system have been maintained in agencies and organizations as employees who have primary duties during most of

the year that are not related to fire. During fire season, they are available to be called up to assist the effort. This "militia" approach has been cost effective, and has been bolstered over the years by the addition of seasonal firefighting employees and by the use of private contract crews. An increase in wildfire frequency and complexity in Oregon has strained the militia approach and the existing funding structures that support it.

Strategy 1: Prepare for Large, Long-Duration Wildfires

Element 1. ODF Financing Facility
Element 2. Expansion of Protected Areas
Element 3. Organizational Model to Flex with Wildfire Fluctuations
Element 4. State-Federal Interagency Performance
Element 5. Large Wildfire Suppression Insurance
Element 6. Wildfire Protection Contract with Bureau of Land Management
Element 7. Risk Management: USFS Lands & ODF-Protected Lands

Strategy 2: Invest to Build Capacity in Fire Response

Element 1. State Suppression Capacity
Element 2. Federal Suppression Capacity
Element 3. RFPA Suppression Capacity