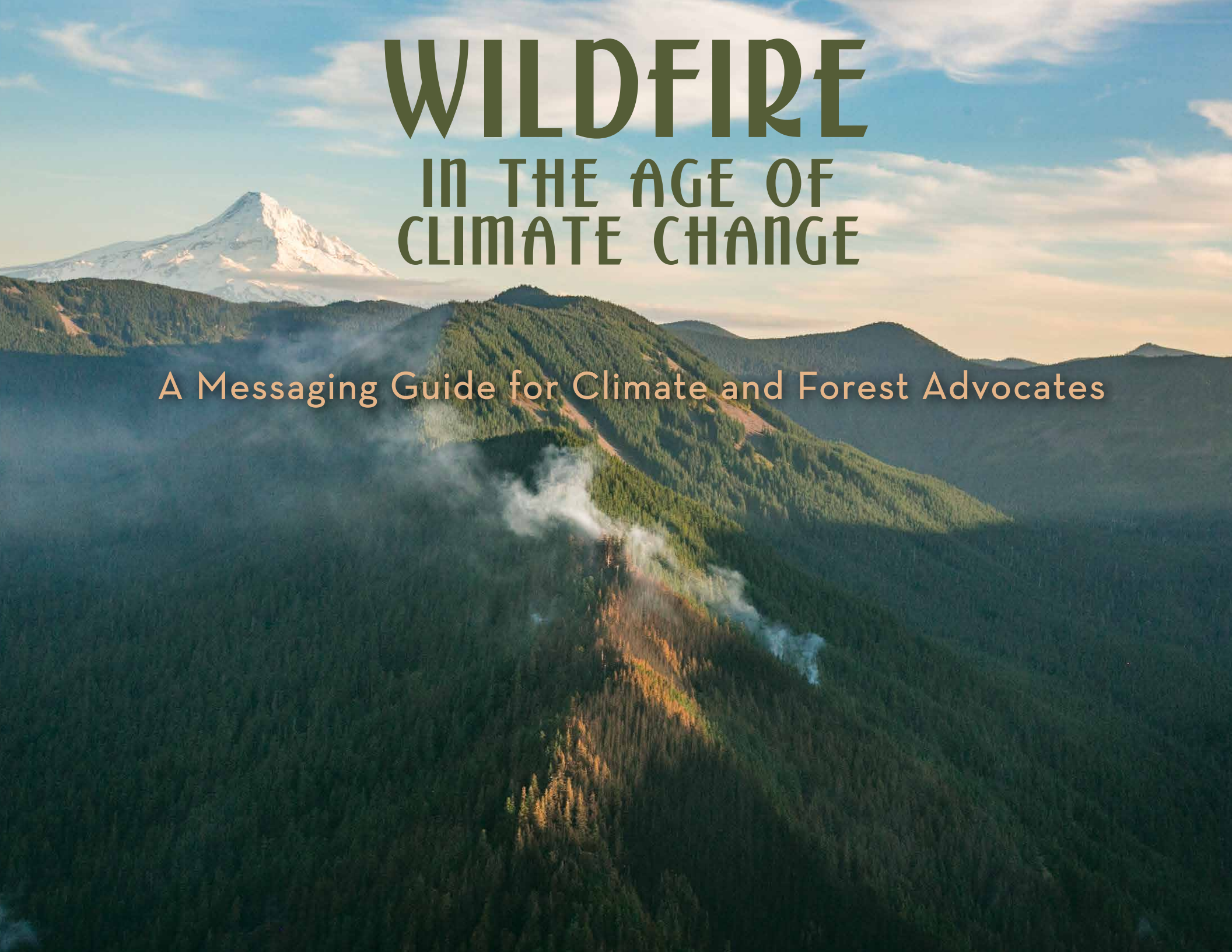

WILDFIRE
IN THE AGE OF CLIMATE CHANGE

A Messaging Guide for Climate and Forest Advocates

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Wildfire in the Age of Climate Change is a messaging guide meant to help advocates in the climate, conservation, and public health communities communicate about 21st century wildfires. The guide was developed collaboratively by over 40 professionals from various backgrounds such as forest conservation, wildfire ecology, wildland firefighting, climate advocacy, and public health. Our hope is that this document will help climate and forest activists understand the unique dynamics between forests, wildfire, and climate so we can collectively chart a new path towards community resilience to the impacts of climate change.

The following organizations contributed to, or supported, the creation of this guide:

Cascadia Wildlands – we like it wild.
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350Eugene
350PDX
Stop Fracked Gas - PDX
350 Clackamas
350 Seattle
Oregon PSR – Physicians for Social Responsibility
STAND
350 Deschutes
EPIC – Environmental Protection Information Center
KS Wild
Crag Law Center
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Our Forests
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Bitterbrush Chapter – Willamette Valley Chapter – Cascade Volcanoes

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Designed by Kaley CoslowSauer
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INTRODUCTION

Wildfire has been an integral part of western forests for thousands of years, but in recent decades conflicts between people and fire have increased dramatically. Climate change is bringing hotter, drier conditions to western forests, which is increasing fire activity, and scientists predict that this trend will continue as the planet heats up.

This guide is intended to help climate and forest activists understand the unique dynamics between forests, wildfire, and climate so we can collectively chart a new path towards community resilience to the impacts of climate change. By modernizing our wildfire policies, we can protect homes and communities while restoring the important role that fire plays in the forest ecosystems of the American West.

A Century of Fire Phobia

Wildfire has always been a necessary and vital part of the forest ecosystems of the American West, and the plants and animals that call these forests home have evolved to co-exist and thrive with all types of wildfire. The native peoples of the Northwest used fire for millennia to maintain food, medicine, and wildlife populations, but traditional burning was actively fought and suppressed upon the arrival of European settlers. Fire suppression grew to industrial proportions in the mid-20th century and was most effective during the cool, wet climate period from the 1940s to the 1980s.

Today, climate change is bringing hotter, drier conditions to these forests, leading to more fire activity and presenting numerous challenges to communities throughout the West. The media and many politicians often assert that climate change is causing "record wildfire seasons," which is only true when compared to the last few decades. In fact, ***western forests today actually burn far less than they did prior to the mid-20th century*** *(see FIGURE #1)*.

Even though fire has always been an integral part of these forests, 21st century wildfires pose unique challenges to communities as there are now over 40-million homes in fire-prone landscapes throughout the West. These challenges are very real and deserve thoughtful, science-based policy solutions; however, we must always keep in mind that even the largest and most intense wildfires are not "disasters" for forest ecosystems.

For nearly a century, our elected officials, the media, and timber interests have told us that fire destroys forests, kills wildlife, and endangers communities. Leaders from both political parties have responded to people's fear of fire by promising to reduce "catastrophic fire" through "hazardous fuels reduction*" and "active management*." This coded language often calls for aggressive logging far off in the backcountry, which, according to the best available science, does not improve the safety of our communities.

IN THE AGE OF CLIMATE CHANGE,
***we must* re-examine our relationship with fire**
and chart a new course towards *coexistence with fire* in wildlands.

Forest Solutions are Climate Solutions

In recent decades, scientists around the world have concluded that we must rapidly reduce fossil fuel emissions if we hope to prevent catastrophic climate change; however, scientists are also telling us that to effectively mitigate climate change we must also remove vast amounts of carbon from the atmosphere by better protecting forests. Forest ecosystems have helped regulate atmospheric carbon levels for thousands of years, and today they play an integral role in stabilizing the global climate. In fact, ***the forests of the Pacific Northwest are globally significant for their ability to sequester* carbon and keep it safely stored for centuries***, but only if protected from industrial logging* (e.g. clearcutting*, aggressive thinning*, post-fire logging*).

Here in the West, we have a unique opportunity to contribute to the global fight against climate change by managing local forestlands for carbon storage and climate resilience. Intact*, unlogged forests not only store vast amounts of carbon, but also help mitigate the impacts of a warming planet by providing cold, clean water for our communities, salmon, and other wildlife. Protected forests allow plants and wildlife to adapt to the impacts of a changing climate, and they buffer our communities from extreme weather events such as winter storms and summer droughts.

Often times, taking action on climate change can feel overwhelming. This guide seeks to provide a hopeful message about *how our forests can be an ally in the fight against climate change,* but only if protected from industrial logging and excessive firefighting.

Talking About Wildfire in the 21st Century

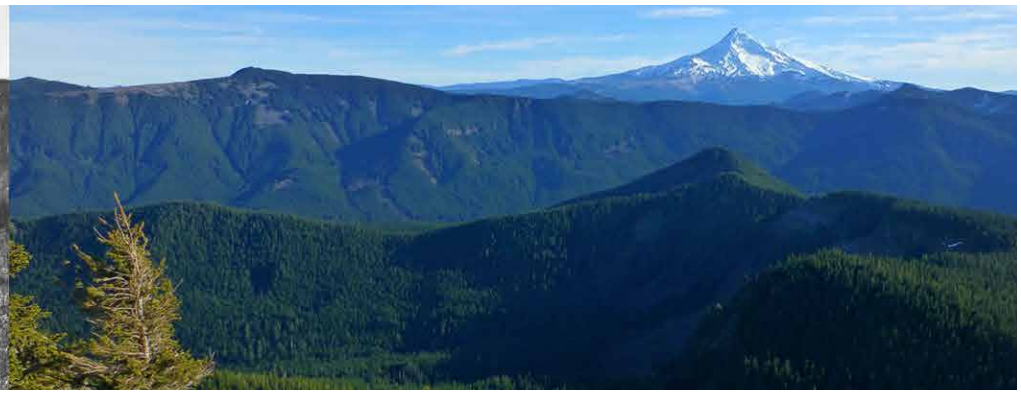
Climate leaders, forest conservationists, and scientists have worked together to craft this messaging guide and share their best thinking about forests, wildfire, and climate. The goal is to empower you to talk about fire with empathy, and to advance solutions that stabilize the climate and ensure the safety of our communities.

Here are a few *communications strategies* we recommend using when talking about wildfire and climate change:

DELIVER FACTS IN *PLAIN TERMS*. This guide seeks to distill the best available science into more accessible language, while maintaining scientific accuracy and acknowledging nuance where appropriate. The guide contains helpful graphics and imagery that you can use to show, not just tell, your base why these issues matter.

TALK ABOUT FIRE WITH *EMPATHY*. We highly recommend not to lead with science and facts, but instead to prioritize emotionally-intelligent ways to communicate these messages. Talking about fire with empathy is crucial to shifting our cultural understanding of wildfire, and that requires acknowledging people's lived experience and the challenges our communities face going forward.

MOTIVATE YOUR BASE WITH *HOPE, NOT FEAR*. As our communities continue to experience more extreme weather events, it's only natural to use these climate impacts to motivate our base and our leaders to take climate action. However, this guide intends to give advocates hopeful messages about solutions rather than fear-based messages that only increase our collective anxiety.



KEY MESSAGES

MESSAGE #1: Annual wildfire acreage has been increasing in recent decades largely due to climate change, but forests today still burn far less than in they did prior to the mid-20th century[1].

- Climate change is causing hotter, drier conditions in many western forests, which is increasing wildfire activity[2].
- Wildfire activity decreased in the 1940s and 1950s when a cool, moist climate period coincided with the introduction of mechanized firefighting *(see FIGURE #1)*.
- Since wildfire is primarily driven by weather conditions (i.e. drought, wind, etc)[3], we can expect more wildfire as climate change continues to heat up the planet[4].

MESSAGE #2: Fire is a vital and restorative force in western forests.

- Almost every forest in the West has burned at some point, but over the past century forests have been deprived of the fires they need to thrive.
- Fire helps rejuvenate forests by creating a diversity of forest structures like standing dead trees (snags) and sunny openings, which provide unique habitat for plants and wildlife[5].
- The plants and animals that live in these dynamic ecosystems have evolved to thrive with fire, and many native species actually depend on the unique forest habitat that fires create.

MESSAGE #3: Our #1 priority in wildfire policies should be to protect homes and communities by building resilience to wildfires and smoke *(see Solution #1)*.

- The most effective pathway to co-existence with wildfire is to fire-proof homes, prepare communities for fire, prevent human-caused fires during fire season, and limit new development in fire-prone areas[6].
- Invest in "fuels reduction activities" (e.g. thinning) where it is most effective (directly adjacent to communities, especially within 60-100 feet of structures), not in remote backcountry areas far away from communities[7].
- Help communities become more resilient to the impacts of wildfire smoke by building public smoke shelters, and work with homeowners and renters to install advanced air filtration systems.

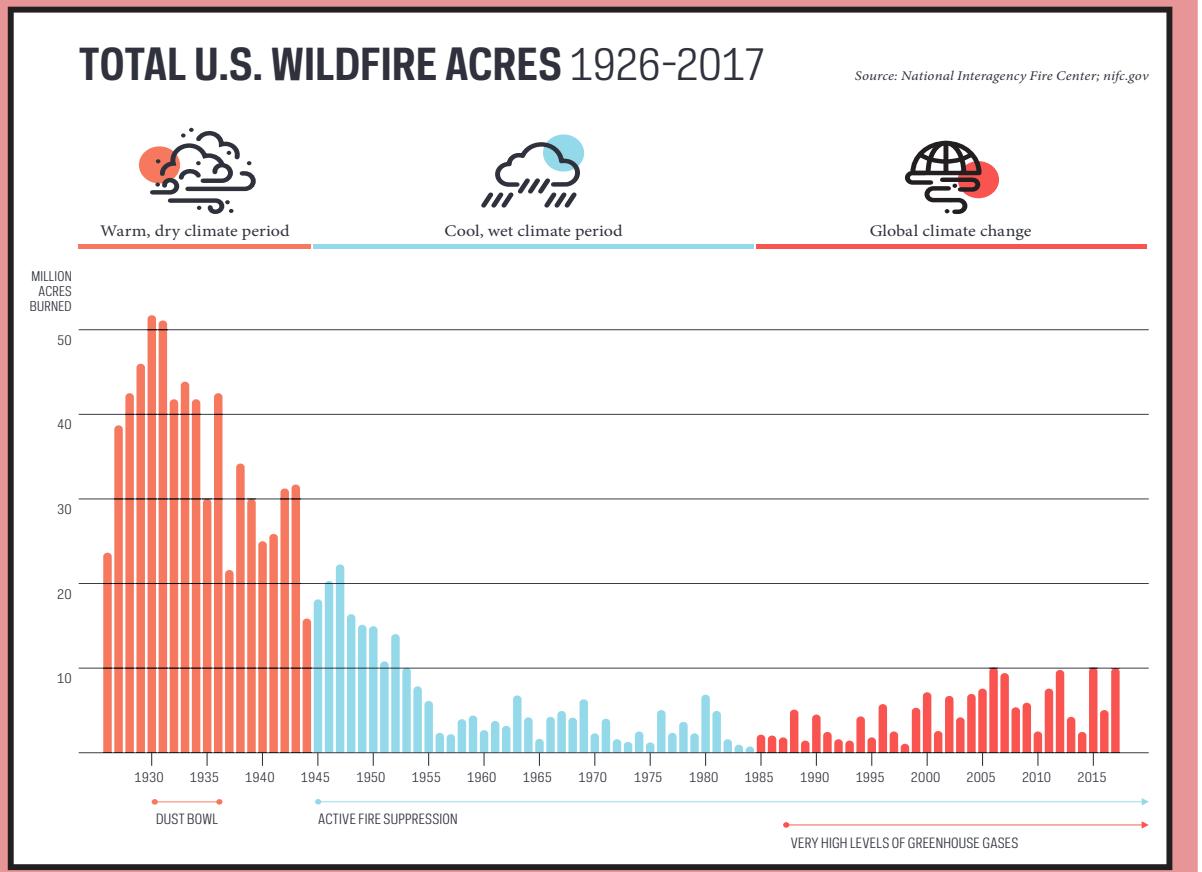


FIGURE #1 Climate trends from the 20th century provide us with numerous examples of how wildfires are driven by weather. From the 1900s through the 1930s, the West experienced drought, which led to wildfires covering tens of millions of acres. Then there was a cool, wet climate period spanning from the 1940s to the 1980s, which led to much less fire on the landscape. In recent decades, climate change has caused hotter, drier conditions, contributing to a sharp increase in fire activity throughout the West.

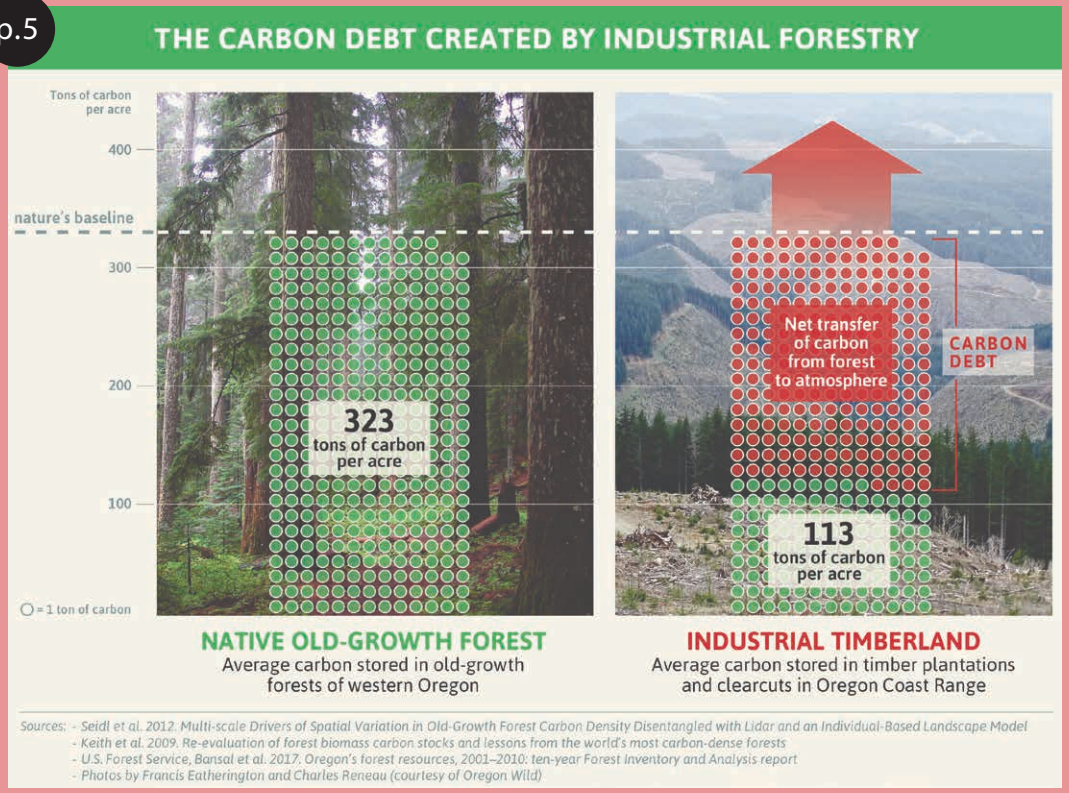


FIGURE #2 Before the arrival of western settlers, old-growth forests used to blanket the Pacific Northwest, but today less than 10% remain. Many of these forests were converted into industrial timberlands (plantations/clearcuts), which store about a third as much carbon as old-growth forests ("nature's baseline"). This conversion transferred massive amounts of carbon from the forest to the atmosphere, creating a carbon debt that we can begin to repay by increasing forest protection and adopting climate-smart logging practices (see *Solution* #5).

MESSAGE #4: Western forests can help us fight climate change by capturing and storing vast amounts of carbon, but only if protected from industrial logging (*see FIGURE #2*).

- Forests are among the largest stores of living carbon on the planet. In fact, the forests of the Pacific Northwest have a higher carbon density than almost any other forest type in the world![8]
- Unfortunately, destruction and mismanagement of these forests over the past century has released massive amounts of forest-carbon to the atmosphere, creating a "carbon debt"; however, we can begin to repay that carbon debt if we better protect our public forests and improve logging practices on state and private lands (*see Solutions #4 & #5*).
- Just as we must keep fossil-carbon in the ground ("keep it in the ground"), we must also keep as much forest-carbon in the forest as possible ("keep it in the forest").

MESSAGE #5: Climate-smart logging practices* increase carbon storage, protect water quality, and provide habitat for fish and wildlife (*see Solution #5*)[9].

- Since we all use paper and wood products, it's important to make sure these products come from sustainable sources.
- By supporting companies that have adopted truly sustainable logging practices, we can ensure that our forests provide multiple benefits such as clean water and carbon storage while also establishing the long-term viability of a wood-products industry in the West.
- We can also reduce our consumption by reusing and recycling wood and paper products, and by shifting to non-wood alternatives when possible.

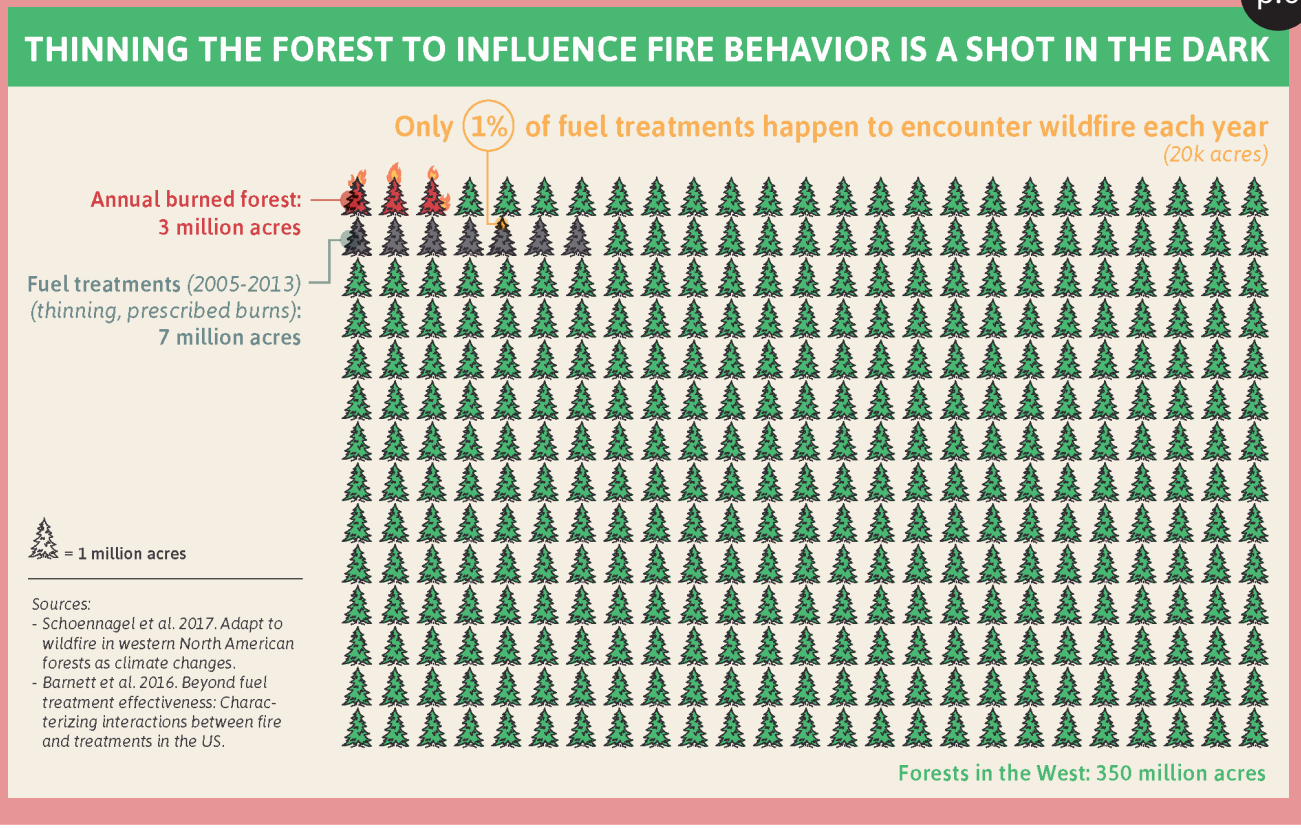
MESSAGE #6: Climate change drives wildfires, but wildfires do not drive climate change.

- Despite their impressive smoke plumes, wildfires only emit about 5-10% of the carbon contained in the forest. Scientists have found that forests hold on to the vast majority of their stored carbon even after severe wildfires, as long as the burned forests are not logged. These forests naturally grow back after wildfire, quickly absorbing the carbon that was released during the fire[10].
- Wildfire has always been an essential and unavoidable element in our forest ecosystems, so eliminating emissions from these wildfires is both unattainable and ecologically harmful. Instead, we must focus our efforts on human-caused carbon emissions such as rampant fossil fuel use and industrial logging, which are the actual causes of climate change.

MESSAGE #7: Large wildfires are mostly driven by weather, and mostly put out by it too.

- The timber industry emphasizes the build up of "fuels*" (i.e. vegetation) in the forest to justify its proposals to control fire by removing those fuels (logging). While the lack of fire on the landscape has contributed to an unnatural build up of flammable vegetation, experts tell us that wildfires in the West are primarily driven by weather conditions such as wind and drought.
- Climate trends from the 20th century provide us with numerous examples of how wildfires are driven by weather (*see FIGURE #1*).

FIGURE #3 The forests of the West are vast, and it's impossible to predict where fires will burn next. Researchers have found that less than 1% of thinned areas actually encounter wildfire each year, which means the vast majority of thinning treatments are ineffective at influencing fire behavior [11]. Thinning efforts should instead be focused on the forests directly adjacent to homes and communities where they can actually help enhance public safety.



MESSAGE #8: Thinning forests in the backcountry does not protect communities from fire, and emits large amounts of carbon pollution.

- Thinning or "fuels reduction" projects are often proposed to reduce fire risks, but the best available science suggests that thinning forests far away from where people live is ineffective at preventing conflicts between people and wildfire.
- Thinning often involves commercial logging of medium to large trees, which degrades wildlife habitat and releases significant amounts of carbon. In fact, even severe wildfires emit less carbon than commercial thinning projects of the same size [12].

MESSAGE #9: We need to support land managers and native people to use fire for its benefits.

- We possess the knowledge and ability to put fire back on the landscape, while protecting homes and communities from the risks of wildfire. Prescribed burning* in ecologically appropriate settings can lower fire risks to communities and restore landscapes degraded by decades of industrial logging and firefighting.
- Native peoples of the Pacific Northwest learned over thousands of years to work with, not against, wildfire [13]. Tribal nations across the West such as the Warm Springs Tribe, the Yurok Tribe, and the Umatilla Tribe are held back from managing their lands with fire due to government restrictions on cultural burning practices.

MESSAGE #10: Timber plantations* and heavily thinned forests are less resilient* to climate change and more prone to uncharacteristically severe wildfire.

- Scientists have found that native*, old-growth forests* with complex forest structures are the most resilient to fire, whereas forests that have been degraded by decades of clearcut logging are more prone to unnaturally severe fire [14].
- Researchers have also found that intact, native forests do a better job at storing and gradually releasing water, which will be important as more precipitation falls as rain instead of snow [15].

MESSAGE #11: To address the health impacts from smoke, we need to treat smoke as a human health issue, not a forest management issue.

- The hard truth is that wildfires and smoke will continue to be a part of living in the West. We can prepare our communities to be more resilient to smoke by making sure our public buildings are havens from smoke and by helping people install air filters in their homes.
- Thinning forests does not necessarily reduce smoke, especially because smoke often travels great distances from far-away wildfires.

SOLUTIONS - What We Can Do

After decades of failed wildfire policy, we must re-examine our relationship with fire and move towards solutions that will help us co-exist with more fire on the landscape. In recent years it has become increasingly clear that we cannot log our way out of this problem, but there are many things we can do to mitigate the risks that fire poses to our communities.

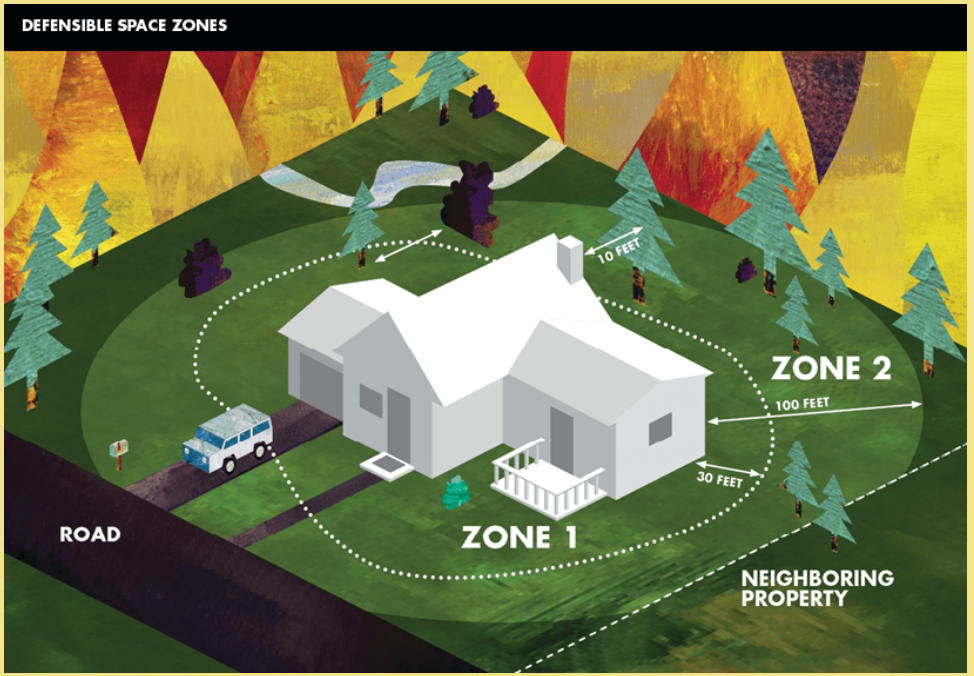
Below are the *top five solutions* to bolster our resilience to wildfire in the age of climate change:

SOLUTION #1: Protect homes and communities by building resilience to wildfires and smoke.

- By focusing our wildfire policies on home safety and community preparedness, we can help front-line communities adapt to climate change and co-exist with 21st century wildfires.
- The most effective pathway to fire co-existence is to retrofit homes to be more fireproof, and educate our communities to be more firewise:
  - > install fire-resistant roofing, rain gutter guards, ember-proof vents, and other home improvements;
  - > create "defensible space" within 60-100 ft of homes (e.g. regularly thin small trees, remove shrubs, cut grasses, make sure no branches are touching structures) (*see FIGURE #4*);
  - > prevent human-caused fires during fire season, especially in forests near communities;
  - > limit new development in fire-prone areas, which is where the vast majority of human-fire conflicts occur.
- Neighbors need to work together and with their local fire service to achieve greater wildfire safety. State fire agencies such as CalFire and the Washington Department of Natural Resources should also expand the programs they offer to train communities how to be "firewise."
- To help our communities become more resilient to the impacts of wildfire smoke we can build public smoke shelters and work with homeowners and renters to install advanced air filtration systems. It is especially important that we provide these resources to low income communities who are often the most vulnerable to the health impacts of smoke.

ABOVE, PHOTO: Fire lab (courtesy of Trip Jennings, Balance Media).

BELOW, FIGURE #4: Wildfire experts say that the best ways to protect people and property from fire are to retrofit homes with fire-proof materials and create defensible space within 60-100 feet of all structures. In fact, researchers have found that the vast majority of homes that take these steps survive wildfire encounters (courtesy of CalFire).



SOLUTION #2: Take bold action to fight climate change by reducing fossil fuel emissions and transitioning to a green economy.

- A hotter and drier climate is driving increased fire activity in the West, endangering communities in fire-prone areas. The sooner we transition from fossil fuels, the sooner we can stabilize our climate.
- One of the best ways to reduce fossil fuel emissions is to support alternative sources of energy such as wind, solar, and other carbon-neutral renewables. If we hope to avoid the worst effects of climate change, we also have to stop the development of new fossil fuel infrastructure, such as pipelines and export terminals.
- We must ensure that our transition to a green economy is a just transition that creates vibrant communities and employment opportunities that are shared equitably.

SOLUTION #3: Work with fire to reap its social and ecological benefits ("Ecological Fire Management")

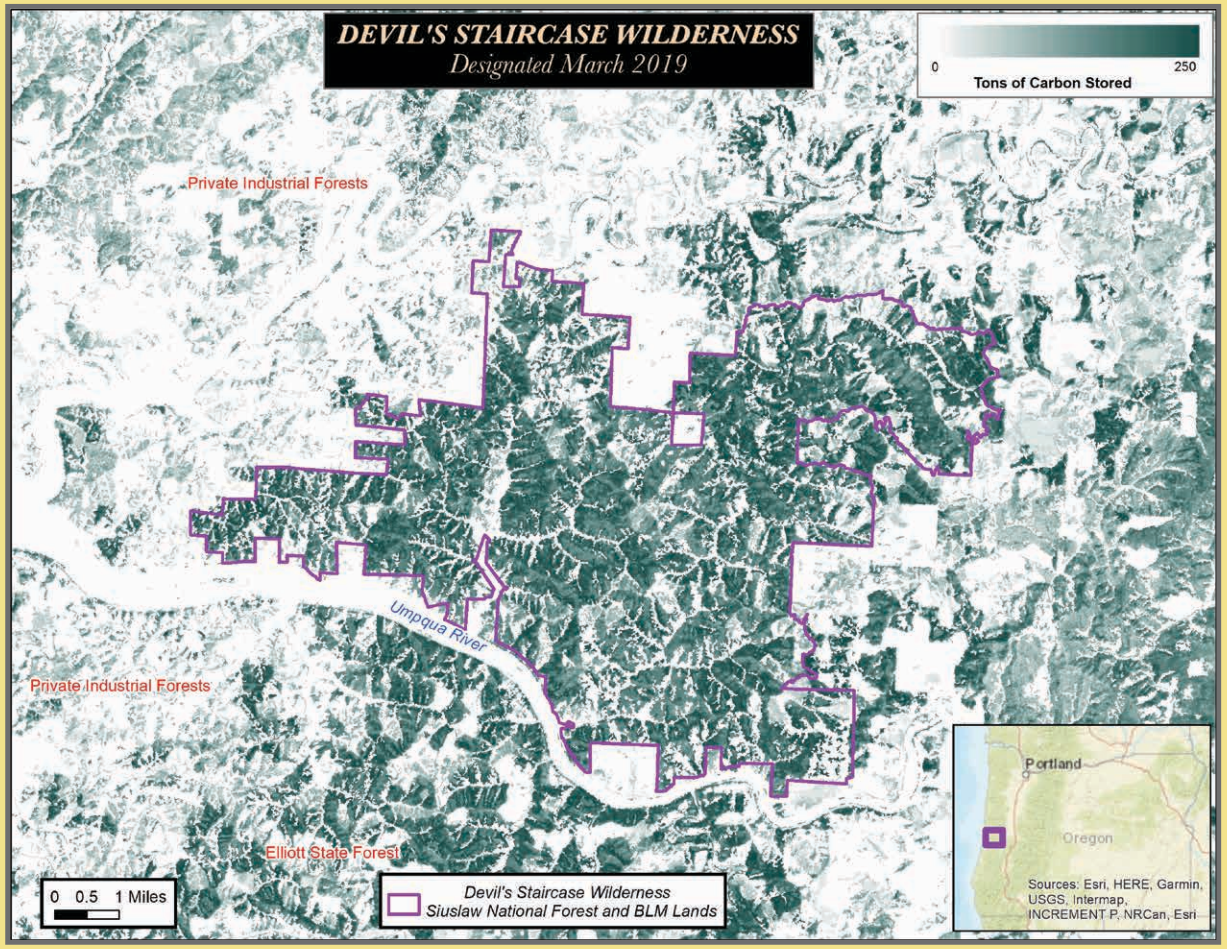
- We should allow fires to burn in remote backcountry areas far away from communities instead of aggressively suppressing all fires on the landscape. Forests are healthiest when their natural processes, including wildfires, are allowed to function.
- Firefighters should concentrate their efforts on wildfires that actually pose risks to homes and communities. This strategy minimizes the hazards to firefighters, lowers the costs passed on to taxpayers, and is proven to be the most effective way to protect people and their property from fire risks.
- Restore* forest ecosystem health by expanding controlled burning in safe weather conditions and in appropriate ecosystems.
- Support Native American communities' use of fire to restore cultural resources that require fire for their productivity and ecological integrity.

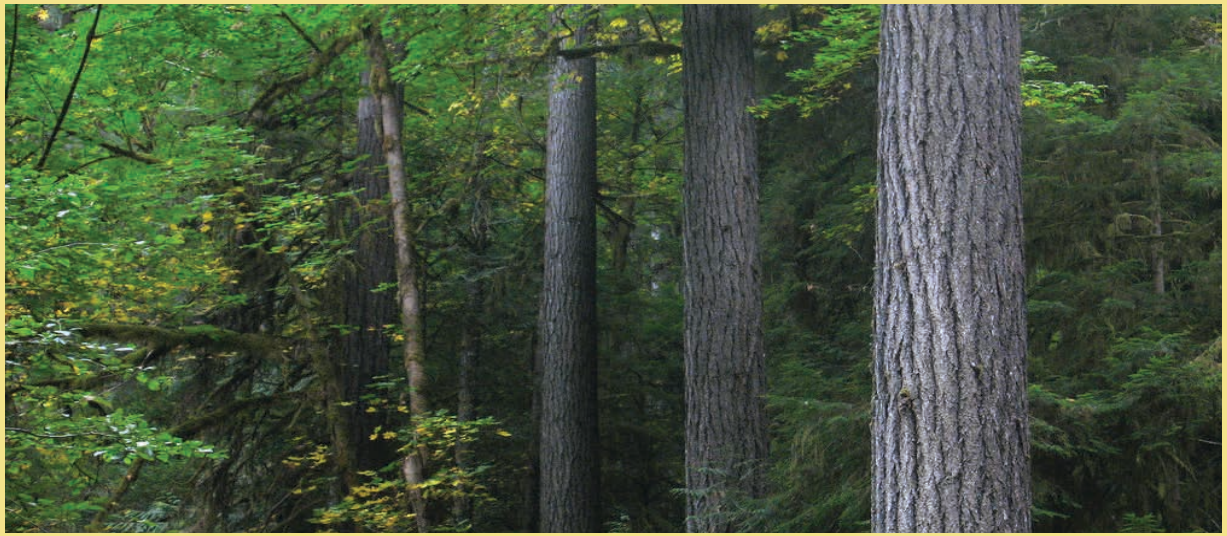
PHOTOS | AT LEFT: The Eagle Creek Fire burned nearly 50,000 acres in the Columbia River Gorge during the late summer and fall of 2017 *(left, top image)*. Forest ecologists are already documenting the forest's natural recovery, as seen here in this 2019 photo *(left, bottom image)* of Upper McCord Falls (courtesy of Crag Law Center).

DIRECTLY BELOW, LEFT & RIGHT: Members of the Yurok Tribe conduct a prescribed burn in Northern California (courtesy of Trip Jennings, Balance Media).

SOLUTION #4: Reform the management of our public forestlands to prioritize climate change adaptation and carbon storage.

- National and state forestlands help stabilize the climate by capturing and storing vast amounts of carbon for long periods of time, but only if protected from industrial logging. To mitigate global warming, we must not only keep fossil-carbon in the ground, but also keep forest-carbon in the forest.
- Healthy, unlogged forests are more resilient to the impacts of climate change and less likely to experience uncharacteristically severe wildfires. Forest ecosystems are most resilient when their natural processes, such as wildfire, are allowed to function.
- Intact forests also help our communities adapt to drier conditions by acting as natural reservoirs that store, filter, and gradually release cold, clean water year-round.
- Unlogged forests also serve as an important climate refuge to fish and wildlife, especially imperiled species such as Chinook salmon, marbled murrelets, and the Pacific fisher. Intact wild areas will be critical in the 21st century for plants and animals to migrate to higher latitudes and elevations where they can find cooler and more suitable habitat.





ABOVE, FIGURE #5 Old-growth forests in western Oregon store more carbon per acre than just about any other landscape on earth; however, when these forests are subjected to industrial logging, much of that carbon is transferred from the forest to the atmosphere. This map shows the Devil's Staircase Wilderness area, which constitutes the largest swath of old-growth left in the Oregon Coast Range. Notice how much more carbon is stored in the Wilderness area compared to the clearcuts and plantations that surround it!

RIGHT, PHOTO: A healthy, old-growth forest (courtesy of Francis Eatherington).

SOLUTION #5: Reform our weak logging laws on state and private lands to include climate-smart practices.

- Western forests have the potential to uptake and store much more carbon from the atmosphere than they currently do, but only if we update and modernize the logging laws for state and private timberlands to keep up with the best available science.

- Here are four climate-smart practices that reduce forest degradation and help our forests store more carbon:

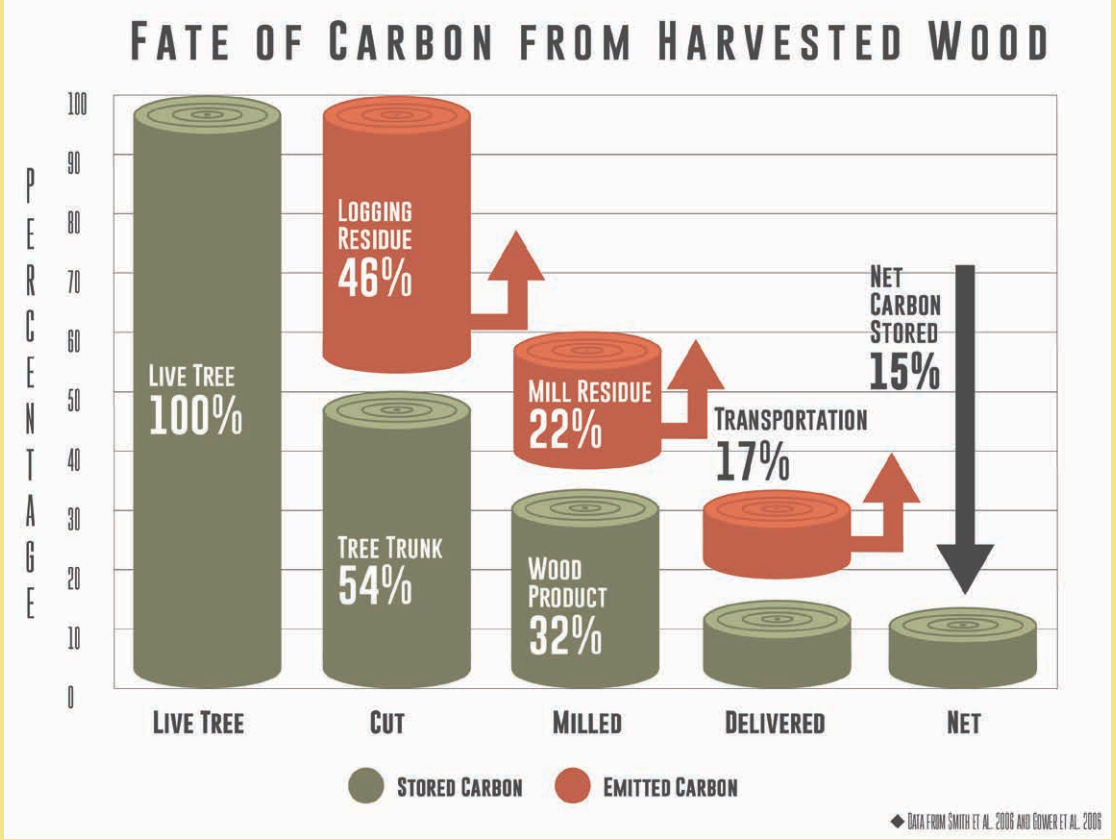
  (1) Protect clean drinking water by adopting no-cut buffers around rivers, streams, and other water-ways. Riparian areas also happen to store disproportionately more carbon than neighboring sites.

  (2) Limit clearcut logging (especially in drinking watersheds), ban post-fire logging, and require more trees (live and dead) to be left on the landscape after logging.

  (3) Let trees grow for longer before logging. For example, scientists have found that we can dramatically increase carbon sequestration on private timberlands in western Oregon and Washington by harvesting trees every 60-80 years (instead of every 35-45 years) [9].

  (4) Increase biodiversity by limiting pesticide and herbicide use, and encouraging diverse tree and plant life.

TOP, PHOTO: Oregon has the weakest logging laws in the West, as seen in this Weyerhaeuser clearcut in the Oregon Coast Range (courtesy of Francis Eatherington). **BOTTOM, FIGURE#6** To understand the carbon consequences of industrial logging, you need to look at the entire lifecycle of wood products. When a forest is clearcut, the branches, tree tops, and other logging residue left behind are usually burned or left to decompose. This process quickly releases large amounts of carbon that would have otherwise remained stored in the forest for many more years. Once logs reach a mill, even more carbon is lost as the wood is processed and cut into two-by-fours and other lumber. By the time wood products reach their end destination, only a fraction of the original carbon from the forest remains.



GLOSSARY OF TERMS

Active forest management – a forestry term often used to describe just about any forest management activity. In practice, it is most commonly used to describe post-fire logging, thinning, clearcutting, prescribed fire, tree planting, herbicide spraying, and road building.

Catastrophic – a subjective and misleading term often used to describe fire effects on ecosystems that otherwise are largely adapted to wildfire.

Charcoal forest or snag forest (AKA "complex early seral forest") – a newly emerging forest created by a fire that kills most of the trees in a stand ("high-severity fire"), leaving biological legacies such as standing dead trees ("snags"). These forests generally contain high levels of biodiversity amongst plant and animal life, but due to fire suppression there is a deficit of these landscapes in the West.

Clearcut – the logging practice of removing all or most trees on site once trees have accrued desired economic value (return on investment). In practice, this can include various types of logging practices that may not be described as a clearcut by land managers but have few "leave trees" in a logging unit that otherwise are functionally and ecologically equivalent to a clearcut.

Climate-smart forestry – forest management that optimizes long-term carbon storage in a forest and protects water quality for nearby communities. Climate-smart forest practices include letting trees grow longer before logging, leaving wider buffers around rivers and streams, and leaving more dead and live trees on the landscape after a logging operation.

Forest restoration - the use of active and passive techniques that restore the ecological integrity (native species, processes, structure) of a degraded forest based on comparisons to reference conditions. Restoration techniques include removing ecosystem stressors (e.g. cows, roads, ORVs), weed pulling, prescribed fire, rewilding, and managed wildfire.

Fuels – a subjective term used to describe the flammable components of a forest. For instance, what a land manager sees as "fuels" an ecologist may view as vegetation or wildlife habitat.

Fuels reduction - the removal of the flammable components of a forest. This is often attempted using many different approaches such as thinning and prescribed wildland fire. The latter is the most cost-effective and ecologically-beneficial way to reduce flammable materials over a large area.

Healthy forest – a subjective term most often used in forestry to describe forests that are green, considered vibrant, but have little natural features such as tree mortality (snags, down logs) and complex understories - which are viewed as tree-species competitors in industrial plantations. Conversely, forest ecologists have found that forests with high levels of biological diversity and pyro-diversity are the healthiest and most resilient forest ecosystems.

Industrial logging - forest practices motivated almost exclusively by efficiency and return on investment. In the Pacific Northwest, industrial logging generally entails clearcutting a stand every 40 years, heavily spraying with herbicides and fertilizers, then replanting a single tree species to form a timber plantation. In addition to being carbon intensive, industrial logging practices are degrading to watersheds, wildlife habitat, soil quality, and general ecosystem health.

Intact forest – a large block of forest with no industrial activities. Generally, intact forests have all characteristic native species, processes, and structures present over large areas. The size of the area varies and, in some cases, smaller parcels may take on some intactness features in highly fragmented systems.

Native forest – an unlogged forest containing native species, functional ecosystem processes, and complex structures. It is commonly used as a "reference" condition for restoration along with primary forest. The term "primary forest" is often used to describe forests, both young and old, that have no signs of industrial activities (e.g. logging, mining, roads, etc).

Old-growth forest – structurally diverse forest containing large live and dead trees and a wide array of species. Old-growth forest conditions generally develop if a forest reaches an age of ~120 years-old without any major disturbance (e.g. logging, high-severity fire, etc).

Post-fire logging (AKA "salvage" logging) – the practice of removing the dead trees and some live trees after wildfire. This is often followed by dense tree planting and can include spraying herbicides and building new roads to access sites. Post-fire logging is fundamentally an economic activity that can often lead to long-term ecological damage.

Prescribed fire – prescribed fire is the art and science of setting low-intensity burns during favorable conditions to reduce flammable vegetation and restore forests. Prescribed fires (also known as "controlled burns") can be a very useful tool to restore certain forest types; however, these fires can never truly mimic the ecological benefits of wildfire and should only be used in appropriate forest types.

Resilience – the ability of an ecosystem to return to a pre-disturbance condition when disturbed. Ecologists have found that ecosystems with a wide variety of species can withstand disturbances better than ecosystems with fewer species.

Sequestration - the uptake of atmospheric carbon by plants through the process of photosynthesis. Sequestration also involves the storage of excess carbon by plants which is predominant in large trees that can store large amounts of carbon for centuries.

Thinning – the practice of selective logging that can include non-commercial removal of small trees but most often includes logging of large-commercially, valuable trees.

Timber plantation – a simple, homogeneous stand made up of tightly-packed, fast-growing trees such as Douglas fir. Plantations are usually uniformly replanted after a clearcut and are maintained through extensive use of herbicides and fertilizers.

Working forest – a forest generally associated predominantly with economic activities, such as logging.

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