Forests and Climate Change

Presentation Guide

This document explains the flow and content of the "Forests and Climate Change" PowerPoint presentation. This presentation can be tailored to your audience and available time. We recommend you incorporate local examples where ever possible to really connect these issues to your particular community.

In this document you will find a screenshot of each slide in the PowerPoint, followed by two sections (where appropriate):

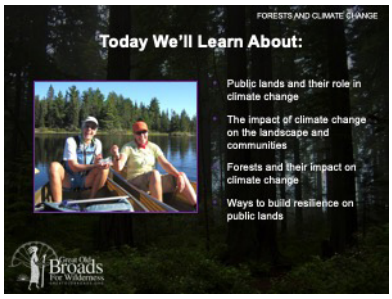
- Example language – outlines the concepts you want to communicate to your audience.
- Background information – helps provide a deeper look at the content.

Not all of this information may be needed in your presentation, however it will help guide the discussion for each slide and serve as a resource for you to further elaborate on a concept or cite sources. Please make the presentation your own and share with us whatever content you find most effective.

Don't have the time or venue for a PowerPoint? Consider this guide as a treasure trove of communication tools that you can incorporate into discussions, activities, or more informal outreach opportunities!

1

Example language: Thank you <share a bit about yourself, your passion for public lands and forests—but be sure to keep your intro brief>



2

Example Language: Today we'll be talking about:

- Public Lands and their role in climate change
- Impact of climate change on the landscape and communities
- Forests and their impact on climate change
- Ways to build resilience on public lands

3

Example language: What ARE public lands? Broadly speaking, they are lands that belong to the public, managed by various segments of government: federal, state, county, and municipal. Each government entity manages the lands differently. Every American has a say in how these lands are managed.

Background: *Territory acknowledgement is a way to insert an awareness of Indigenous presence and land rights. It recognizes the history of colonialism and a need for change in our awareness of these issues. Before giving this presentation go to https://native-land.ca/territory-acknowledgement/ and enter the location of your presentation in order to identify the Tribes that are appropriate to acknowledge. This website offers many valuable resources to help you plan your words thoughtfully.*

Sample: *"Right now, we are in (your location ie. Portland, OR), which is the ancestral territory of the (Tribe or Tribes indigenous to this location, ie. the Cowlitz Tribe and Clackamas Tribe, among others). These lands were taken from Indigenous peoples. Please take a moment with me to acknowledge the indigenous peoples whose land we stand on today and whose ancestral territories we now think of as public lands. If you don't know the ancestral occupants of the land you live, work, and play, you might ask why?"*

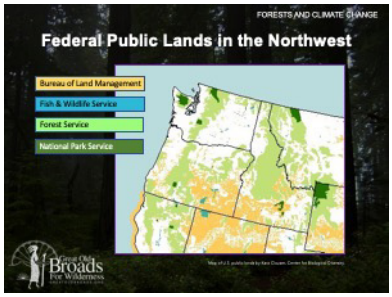
Sources:

- *https://www.rei.com/blog/hike/your-guide-to-understanding-public-lands*
- *https://native-land.ca/territory-acknowledgement/*

4

Example Language: Public lands are precisely what their name implies—lands that are owned by us, the public. These can include everything from the smallest **local city parks** all the way to the largest **national parks** and **forests**.These lands are to be managed for the long term health of the land and the American people.

Background*: Incorporate local examples—point out your favorite National Forest, state park, BLM land in your area to anchor this for your audience in familiar names and landscapes.*



5

Example Language: Here in the Northwest, several different federal agencies manage public lands for uses including everything from **recreation** to **clear-cut logging**. Some lands have special designations that protect them for conservation, while others are preserved for their cultural significance, wildlife, or the intrinsic value of the ecosystem. Other public lands are set aside for more intensive commercial uses such as mining, logging, grazing, and energy development. As you can see, the **Bureau of Land Management** (which is part of the **Department of Interior**) and the **U.S. Forest Service** (part of the **Department of Agriculture**) manage the lion's share of federal lands in the region.

As an aside, you may be asking why the **U.S. Forest Service is** part of the Department of Agriculture and **not** the Department of Interior? That distinction goes back to the beginning of the Forest Service in the early 1900s. The service was **not created to necessarily preserve and protect** the nation's forests for recreational, scientific, cultural, or environmental reasons or to preserve their natural state, but instead to manage forest reserves on public land for **logging and other commercial interests**. Forests (in the prevailing industrial views of the time) were considered an agricultural resource to be exploited rather than unique ecosystems to be preserved.

Background: *Map does not include local- or state-managed public lands, tribal lands and holdings, or lands under the management of the U.S. Department of Defense.*

6

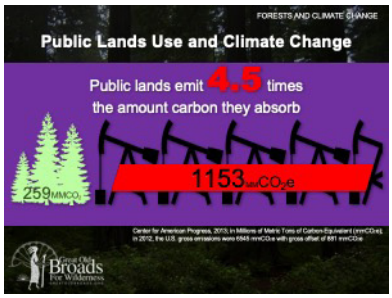
Example Language: But how are public lands—or more specifically, how public lands **are being used**—impacting climate change?

Background: *The size of the public lands in the United States is roughly the size of India, and these lands absorb vast amounts of* CO_2.

7

Example Language: Because we're discussing public lands and our changing climate, we have to understand the basic science of greenhouse gases. In addition to oxygen and nitrogen, the Earth's atmosphere naturally contains a percentage of **greenhouse gases** like **carbon dioxide**, **methane**, and others. These gases act like a blanket that surrounds the earth, keeping our planet at a reasonably comfortable, livable temperature while still allowing excess heat to escape into space. But when we add more and more greenhouse gases to this "blanket" in the atmosphere, it's like thickening the blanket. This **heavier blanket** traps more heat underneath it and allows far less to escape back into space, **increasing** the temperature and **disrupting** the climate worldwide.

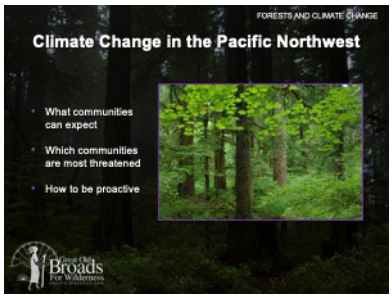
This disruption takes the form of generally **warmer conditions**, **rising sea levels** as polar icecaps and glaciers melt, and much more **unpredictable** weather overall. Many places will become **drier**, a few places will become **wetter**, and storms may become stronger, more difficult to forecast, and possibly far more dangerous for people around the world.



8

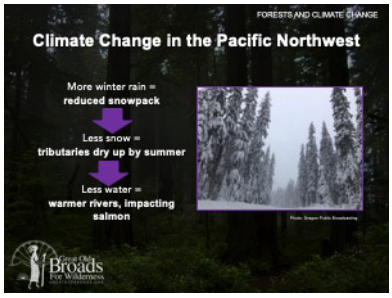
Example Language: How are public lands—or more specifically how public lands **are being used**—impacting the balance of these greenhouse gases?

Generally, these greenhouse gases coming from public lands are from **fossil fuel extraction**, such as oil and natural gas drilling, taking place on public land. Because of these activities, public lands are currently releasing nearly **4 ½ times** more carbon than they can absorb. These emissions make up 20% of the nation's greenhouse emissions! This carbon—released into the atmosphere as **carbon dioxide**—is significantly increasing the effects of global warming and climate change. 98% of climate scientists agree that these emissions are leading to human-caused climate change.



9

Example Language: Now that we generally understand climate change and how public land use is contributing to it, what does all this mean to the ecosystems and our own communities in the region—especially those communities that are most at risk? What impacts are we seeing now and what can we expect in the future?



10

Example Language: Let's start with the changing winters here in the Pacific Northwest.

Warmer winters will lead to a shift from **snowfall to rain** in the mountains. This is projected to **boost *winter* river flow**, but the lack of a lingering snowpack to gradually melt over the course of the spring and summer will **reduce *summer* river flow**, causing tributaries to dry up. This makes typically cold rivers warmer—creating major problems for **endangered salmon** when they return to spawn in late summer and fall.

As a result of a warmer climate, average **winter** precipitation is actually expected to **increase** over the long term—but with **greater year-to-year variability**. This means that there will be more years of very low rainfall and extended drought. But this also means **extreme weather events**—such as heavy, flooding rainfall—happening more often.

11

Example Language: Climate change in the Pacific Northwest generally means hotter and drier summer conditions that escalate the risk of dangerous and damaging **wildfires** to communities. Forests that are stressed by drought are also more susceptible to insect outbreaks and diseases that are becoming more aggressive due to climate change. The mountain pine beetle now develops faster and infects far more trees due to warming winters. Beetle outbreaks are moving to even higher elevations to places where beetles have not been recorded before.

Background: https://www.fs.usda.gov/ccrc/topics/bark-beetles-and-climate-change-united-states.

12

Example Language: But what about the **local wildlife**? How wildlife responds to climate change can be complex—temperature shifts, changes in water availability, extreme weather events, and layered impacts from existing threats like habitat fragmentation can all impact wildlife. This is especially true for **vulnerable endangered species**, or species that are dependent on a **winter snowpack** for their survival, like **wolverines** and **snowshoe hares**.

In addition, climate change can bring invasive species into the area, driving out native species and destroying habitats.

Background: *The lack of winter snowpack will be a problem for species like snowshoe hares—which have adapted to camouflage themselves with white coats in winter—as well as species that depend on snowshoe hares to survive, like the wolverine.*

Sources:

- https://www.opb.org/news/article/snowshoe-hares-climate-change-northwest-survival/

As climate change worsens, we can anticipate the spread of 450 tree-damaging pests introduced from around the world. This threatens to slow tree growth and increase tree mortality. A recent examination of non-native forest pests—insects, pathogens, and organisms that eat tree sap—threaten 40 percent of the nation's forests.

13

Example Language: Climate change is also impacting communities across the Northwest. The effects of climate change are not felt equally across communities. **Frontline communities** are experiencing the first—and often the worst—effects of climate change.

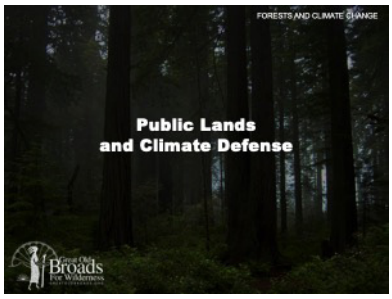
Frontline communities in the Northwest include:

- Tribes and Indigenous peoples
- Those most dependent on natural resources for their livelihoods
- The economically disadvantaged

Why? Tribes and Indigenous communities often rely heavily on the natural environment in ways that are critical to **cultural survival**. Climate change is projected to impact "**First Foods**" or historically cultivated subsistence, economic, or ceremonial foods, which often include berries, roots, fish, and local wildlife. These communities often have fewer economic resources to prepare for and cope with climate disruptions.

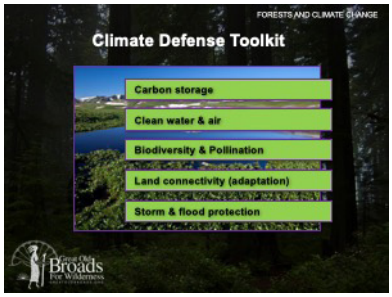
Background: *The cultural practice of harvesting and consuming First Foods is integral to tribes and Indigenous health. Many tribes, such as the Confederated Tribes of the Umatilla Indian Reservation are using climate change vulnerability assessments and climate change adaptation plans. This report (https://bit.ly/2RY7y8c) offers examples of local community organizations that are empowering front line communities while ensuring that people most affected by environmental injustices have a strong voice in finding solutions and moving forward.*

Sources: *https://tribalclimate.uoregon.edu/*



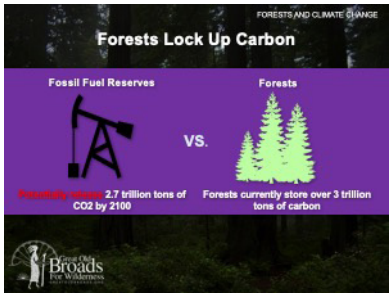
14

Example Language: Climate change is altering our landscapes and impacting our communities in substantial ways. As these impacts intensify, they threaten to destabilize entire ecosystems and our communities that are connected to these landscapes. But what is the role of our public lands—especially forests on public lands—as a climate change *defense*? What role to these landscapes play in the fight against climate change?



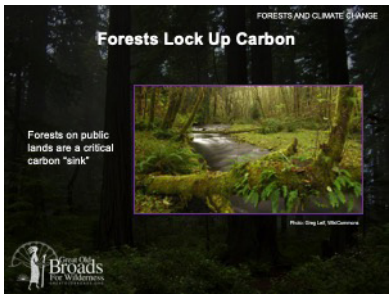
15

Example Language: Public lands—especially forests—have a natural, but largely unnoticed, toolkit to combat climate change. This includes the ability to pull and store massive amounts of carbon from the atmosphere. But forests also help provide clean water and air, biodiversity—especially for vital pollinators, land connectivity to help wildlife adapt to a changing climate, and storm and flood protection for downstream communities.



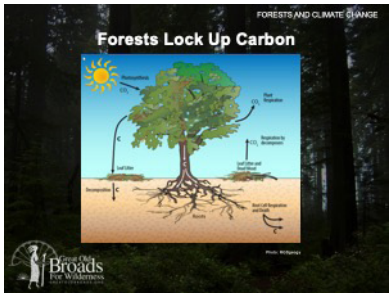
16

Example Language: The first thing to understand about forests is that they store massive amounts of carbon, keeping it out of the atmosphere and slowing climate change. It's estimated that forests remove **nearly a quarter** of the carbon dioxide humans pump into the atmosphere, substantially slowing the effects of climate change. Forests on public lands store around **3 trillion tons of carbon**, keeping it locked away in the trees and soil. That's more carbon than is stored in US fossil fuel reserves. But forests have gradually accumulated all this carbon over **centuries**. If these forests are logged, much of this carbon also returns to the atmosphere.



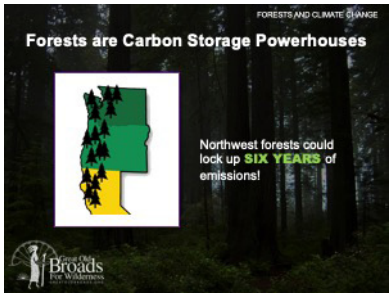
17

Example Language: This makes undisturbed old-growth forests on public lands "**carbon sinks**." In simpler terms—carbon goes into the forest, but very little of it ever comes back out… as long as the forest remains undisturbed.



18

Example Language: How does this work? Carbon is pulled out of the air through the process of **photosynthesis**. During photosynthesis, in which trees convert carbon dioxide and sunlight into energy, trees literally **suck carbon dioxide** out of the atmosphere—storing it in their leaves, needles, branches, trunks, and roots—while releasing oxygen back into the atmosphere as a **"waste" product**. **Around HALF of a tree's total mass is carbon** pulled out of the atmosphere. When a tree dies and breaks down, this stored carbon sinks down into the soil and is eventually buried **deep in the earth**.



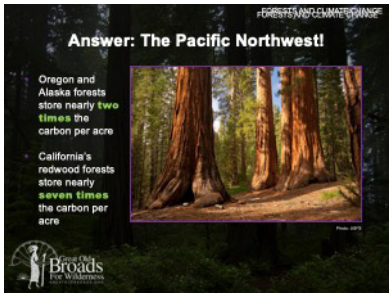
19

Example Language: When you consider that the age of many old-growth forests in the Pacific Northwest can stretch **at least** as far back as the **last ice age**, you can see that means there's **a lot** of stored carbon in them. Here in the Pacific Northwest alone, healthy forests on **public lands** have the potential to lock up as much carbon as eliminating nearly **six years-worth** of current regional fossil fuel emissions—that's like burying ***72,148 tanker trucks*** of gasoline!

Background: *The forests described here are the highest priority forests to protect because they currently have high above- and below-ground carbon density, high tree species richness, and a high proportion of critical habitat for endangered vertebrate species, indicating a strong potential to support biodiversity into the future and promote ecosystem resilience to climate change.*

20

Example Language: Time for a **pop quiz**! Which region stores more carbon per acre—the **Amazon** or the **Pacific Northwest**?



21

Example Language: The Pacific Northwest wins! The expansive Amazon tropical rainforest of South America is one of the world's largest carbon sinks **by area**. But on a **per-acre basis**, the Amazon is not nearly as efficient at absorbing carbon as the coastal rainforests of the Pacific Northwest. In fact, the Douglas fir forests of Oregon and the hemlock and cedar forests of Alaska store about ***twice as much carbon per acre*** as the Amazon!

But the real grand prize goes to the giant coastal redwood forests of Northern California, which store ***seven times as much carbon*** as the Amazon in each mile of forest. They are regarded as the most carbon dense forests in the world.

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Example Language: The thinking used to be that a tree became "**less useful**" over time…sort of like, say, the thinking about an "**old broad**." But now we understand that a tree's growth actually **accelerates over time**. A tree in a Pacific Northwest coastal forest remains viable for centuries—they often live for over **800 years**! It's actually not too surprising. Just take a look at the crosscut of a tree. All those tree rings growing out and out? It takes a lot of carbon to keep wrapping bigger and bigger rings of wood around a very old tree every year. **Never underestimate Great Old Broads**!

All the while, old-growth forests accumulate carbon for centuries and build up incredible stores deep in the soil. Wild forests with diverse tree species absorb more sunlight and gather more carbon than young, industrial tree plantations. However, much of this carbon—even soil carbon—will move back to the atmosphere if these forests are disturbed.

Background: *A study compiled growth measurements of 673,046 trees belonging to 403 tree species from tropical, subtropical and temperate regions across six continents. They found that the growth rate for most species "increased continuously" as they aged.*

Source: https://blogs.ei.columbia.edu/2011/12/27/arboreally-speaking-the-good-old-growth-curve-is-a-delusion/

23

Example Language: We know that undisturbed, old forests can lock up incredible amounts of carbon, keeping it out of the atmosphere and helping to slow the onset of climate change.

But what about **young forests**?

24

Example Language: The average lifespan of an industrial **farm** tree is just **40 years**. This is not enough time to reach its full carbon capacity (remember, a tree in an old coastal rainforest can live more than **800 years**). In addition, tree farms tend to be **monoculture**—that is, just one species.

This **lack of diversity** not only lowers the overall carbon capacity of the forest, but also lessens the ability of the forest to provide the many other benefits offered by old-growth forests. **Maintaining intact forests** that have already built up massive carbon stores offers the most **immediate** climate benefits.

Background: *Oregon Example—As recently clear-cut land grows, so too does the proportion of land that is emitting rather than sinking carbon dioxide.* ***Between 2001 and 2014 Oregon experienced a net loss of 1.2 million acres of forest cover.*** *There is no guarantee that these forests will recover fully and any guarantee is transferred to future generations to monitor their recovery.*

"Even though these are some of the most productive and carbon dense forests in the world, the carbon accumulated in much of the removed biomass took up to 800 years to accumulate—and cannot be recovered if current management practices continue."

25

Example Language: And just what are those other benefits provided by old-growth forests? There's increased habitat for wildlife and shelter from extreme weather events—old-growth forests are far more resilient to wind, rain, and snow; maintaining quality fresh water supplies, and more diverse local economies. We'll start with a look at wildlife…

26

Example Language: Wildlife is far more likely to thrive in old-growth forests, as the forests provide **more space** for species to adapt, allowing them to be more resilient to a changing climate. Undisturbed old-growth forests are critical **refuge** from the **fragmented** habitats affected by human activities. So, what do we mean by "fragmented"? When an area of old-growth forest is developed, it's **not** just clear-cutting that impacts the ecosystem. **Roads, vehicle traffic, utility lines, pipelines, and any kind of development** can also create a fragmented habitat. Fragmentation not only makes the habitat becomes smaller, but also makes travel between now-divided habitat more dangerous. When ecosystems are fractured into smaller patches of habitat, the **edges** of these areas become inhospitable to many species, including native birds that depend upon the **interior** forest habitat.

Background: *Climate change has caused decreased range in nearly half of studied animals and plants in North America. Ecosystems that are relatively intact have a better chance of maintaining biodiversity because they are not under as much stress as ecosystems fragmented by human development. Many of our public lands, which have been fragmented by industrial uses, are less resilient and adaptable to a changing climate. Enhancing landscape connectivity is critical to conserving biodiversity in a changing climate.*
Source: https://www.iaspreparationonline.com/habitat-fragmentation/

27

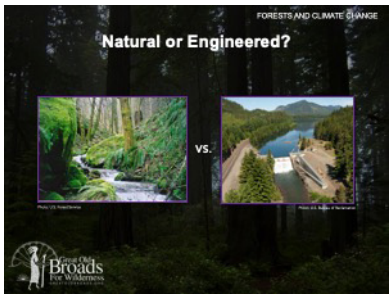
Example Language: One of the most important (and **irreplaceable**) direct benefits old-growth forests offer to communities across the Northwest is fresh water. Old-growth forests are vital sources of drinking water for **more than 180 million people** in the United States. These undisturbed forests naturally cool and filter drinking water, recharge underground aquifers, and replenish surface waters like streams and rivers.

These sources of clean water are likely to become even more important to the region's population as summers continue to **get warmer and generally drier**, and other sources of water become **stretched to their limits**.
Source: https://www.fs.fed.us/water/

28

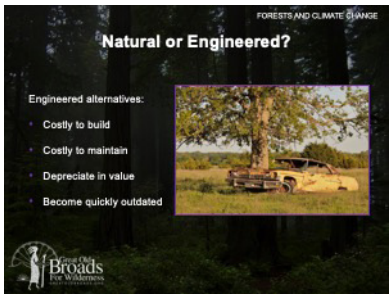
Example Language: Old-growth forests provide carbon sequestration, clean water, and habitats for endangered species. But they also provide a great many other practical benefits, like **storm water management, flood control, and landslide protection**. Old-growth forests retain water and release it slowly much better than tree farms and certainly far, far better than **denuded, clear-cut** landscapes—where storm water can quickly **erode** the soil, fouling waterways, causing **floods,** and heightening the risk of **potentially disastrous landslides**.

Healthy public lands also provide opportunities for employment and generate billions of tourism dollars, which helps to **diversify local economies** and increase their capacity to **address change**. According to The Outdoor Industry Association, the Northwest's outdoor recreation economy generates **$51 billion** in consumer spending each year and provides around **451,000 jobs.**



29

Example Language: We've discussed some of the benefits of undisturbed old-growth forests, but how do these benefits—especially as they relate to **water**—stack up to **human-made** engineered alternatives?



30

Example Language: Engineered alternatives, such as water treatment plants, dams, storm sewers, and landslide protection tend to be **costly** to build, costly to maintain, and they tend to depreciate in value and become quickly outdated—necessitating **even more costly** replacements. Old-growth forests are not costly at all—in fact, they tend to work best if they're left **alone**.

Background: *Using land cover analysis, a 1998 report by American Forests related changes in the amount of vegetation and tree cover in the Puget Sound region to stormwater management and air quality. The report placed an economic value on the ecology of the most urbanized parts of the Puget Sound watershed. The analysis valued the air quality by pollutants removed by the canopy cover at $166.5 million annually, and estimated storm water benefits amounting to $5.9 billion. Forestland is estimated to save about $21,000 per acre in storm water retention costs by capturing up to 50% of rainfall in the region. Experts have calculated the costs when a healthy watershed is lost to logging and a new human-made infrastructure is needed.*

In total, the Columbia River Basin provides annual ecosystem service benefits of $189.9 billion. The highest total benefits accrue from forests at $149 billion, followed by rivers at $11 billion. Given that forests represent over 56 million acres, or 18 percent of the basin's total area, the high forest value was foreseeable. Rivers, on the other hand, cover only 658 thousand acres (0.2 percent of the basin), and yet had markedly high per-acre ecosystem service values.

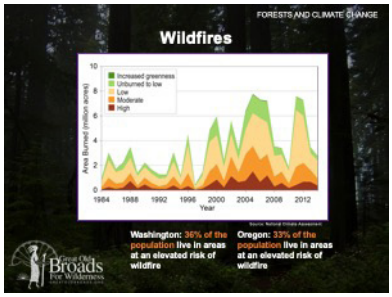
Sources:

- https://your.kingcounty.gov/dnrp/library/2005/kcr1845.pdf
- https://bit.ly/2KpIDq5

31

Example Language: How can we improve the climate change resilience of our forests and what might be holding them back? There are two **primary** forces that have a direct impact on forests—wildfires and logging.

Let's look first at wildfires.



32

Example Language: Thanks to the dramatic images of flames, billowing gray clouds that can blanket entire states with thick, lung-clogging smoke, and blackened landscapes—wildfires are probably the most **immediately recognizable impact** on a forest. And because of the increasingly warmer and drier climate, forests in the United States are more prone to wildfires than in past decades. In addition, the size and severity of these fires are on the rise, **especially in the West** where an increasing number of people live in or on the margins of forested areas.

For example, here in the Northwest, some **33% of Oregon residents** live in areas that are at an elevated risk of wildfires. In Washington, that number rises to **36%.**

Background*: Graph explanation—this graph from 4th National Climate Assessment shows the area burned by large wildfires (greater than 1,000 acres and greater than 500 acres in the eastern United States) for 1984–2014. Although the area with moderate-to-high burn severity has increased in recent decades,* ***it has not changed as a proportion of the total area burned*** *(note: severity does vary across regions).*

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Example Language: But as far as the forest is concerned, in even the most severe wildfires only about **5-10%** of the carbon held in the forests is released. So as spectacular and potentially dangerous as wildfires are for humans, they really aren't an overwhelming source of greenhouse emissions, as some might think.

Background: *Forests hold on to the vast majority of their stored carbon even after severe wildfires,* ***but only as long as the burned forests are not logged.***

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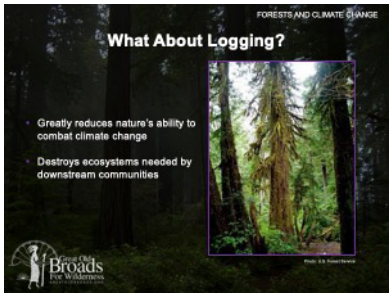
Example Language: In fact, naturally occurring wildfires are a **vital part** of maintaining healthy fire-adapted forest ecosystems. Nearly every forest in the United States—especially in the West—**has burned** at some point over the centuries. But because of nearly a century of government policy to suppress **virtually every wildfire** regardless of cause, many fire-adapted forests have been deprived of the fires they need to thrive, rejuvenate, and refresh themselves. Fires leave standing dead trees and sunny openings, which are important new habitat for plants and wildlife, and they help control the spread of **invasive insects and disease**.

Many animal and plant species have evolved to thrive with fire. Some tree species like the Lodgepole pine, **actually need fire** to stimulate the release of new seeds.

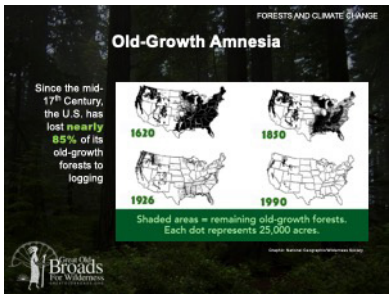


35

Example Language: What about logging?

Logging may not seem as **immediately** dramatic as wildfire, but it's climate impacts can be far more consequential. First, the removal of old-growth trees obviously reduces nature's ability to combat climate change. Every tree that's removed is **one less tree capable** of absorbing and holding on to carbon—and as you're about to see, we have removed **a lot of trees** from old-growth forests across the United States over the past few centuries.

Second, logging old-growth forests takes away the other ecosystem benefits necessary for downstream communities, such as clean water, flood and landslide protection, and the economic opportunities many small communities rely on across the region (**especially tourism**).



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Example Language: When it comes to nature, we tend to have a remarkably short memory. But when you look at this illustration, you can see just how many old-growth forests have been lost to logging since Europeans began arriving in North America *en masse* in the mid 17th Century.

To break this graphic down into numbers, nearly **85% of America's original old-growth forests—with trees that were many centuries old—are now gone**, and the invaluable carbon sinks they represented have been lost!

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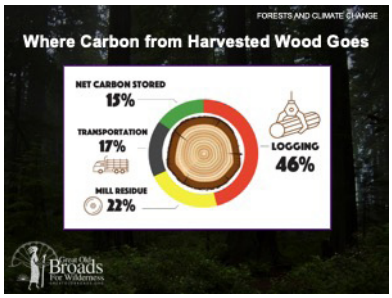
Example Language: You can begin to understand the magnitude of the impact of old-growth logging when you consider it in the context of climate change. Logging and logging-related emissions have **reduced the natural carbon sink in California by 27%, in Washington by 34%, and in Oregon by very nearly half**.

In fact, in just over 100 years, Oregon has removed the equivalent of all live trees in the state's Coast Range forests. Between 2001 and 2014 alone Oregon experienced **a net loss of 1.2 million acres of forest cover**. Most of the carbon those trees held now resides in either **the atmosphere or in landfills**.

Background: *Study from 2001 to 2016 looked at the entire process in Washington, Oregon and California. Found that the logging of forests in* ***Oregon emitted 33 million tons of CO2 – almost as much as the world's dirtiest coal plant.***

This scientific study calculated the "regional forest carbon balance (from 2001 to 2016) using observations from over 24,000 forest inventory plots in Washington, Oregon, and California (states with GHG (greenhouse gas) reduction mandates)." Source: Hudiburg, Tara W., et al. "Meeting GHG reduction targets requires accounting for all forest sector emissions." Environmental Research Letters 14.9 (2019): 095005



38

Example Language: If you remember, around half of a tree's total mass is made up of carbon. So if you cut a tree down for processing in a mill, where does all the carbon go?

Much of the carbon that would have been stored in that tree for centuries is lost during logging, milling, and transportation. Just the act of logging alone releases about **46%** of a tree's net carbon right there on the spot. Processing in a lumber mill releases another **22%**, and another **17%** is lost through transportation.

All this means that by the time that wood is turned into consumer items like lumber, paper, toothpicks, etc., only about **15% net stored carbon remains**. The rest has drifted away to contribute to global warming.

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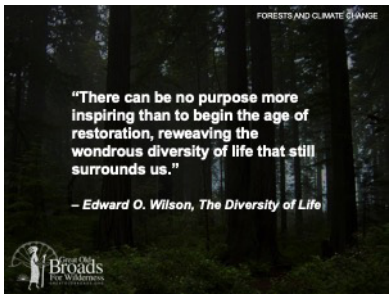
Example Language: So just how much CO2 comes from logging in Oregon? A study found that over one four-year stretch, logging in Oregon emitted over 34 million tons of Carbon Dioxide into the atmosphere—that's equivalent to the weight of the concrete and steel in **FIVE** Hoover Dams!

Source: *https://news.mongabay.com/2019/05/tall-and-old-or-dense-and-young-which-kind-of-forest-is-better-for-the-climate/*



40

Example Language: "There can be no purpose more inspiring than to begin the age of restoration, reweaving the wondrous diversity of life that still surrounds us." – Edward O. Wilson, The Diversity of Life **(discuss quote)**

Cleary, there is some work to be done to optimize our public land's role in combatting climate change. So, how can the public make a difference when it comes to forests on public lands? We've got all kinds of options!

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Example Language: The most direct way to become involved is through public lands stewardship events, like those offered through **your local Broadband**. Stewardship means going out into disturbed or endangered landscapes to replant native vegetation, remove invasive species, and perform ongoing, routine monitoring of the land, air, and water to check and record their status and health.

This sort of restoration work is a good way to not only heal the landscape but to also make it more resilient to the impacts of climate change. **It's also a great way to make some new friends!**

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Example Language: But there are other important ways to become involved as well.

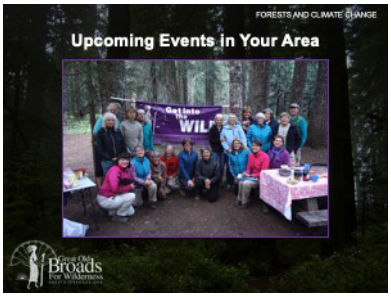
The first is to become more educated about forests—especially the ones in your area—and the forces that are impacting them, and then collaborating and sharing that knowledge with others. Keep informed, and keep a dialog going!

Second, get to **know the local, state, and federal agencies** that manage the public lands in the area. **Stay in contact with your elected officials** at all levels of government and make sure they're aware of the impacts facing old-growth forests on public lands. Getting involved in these conversations can help lead to the decisions that keep forests standing.

Third: **Participate** in the public lands planning process. **Attend and take an active part** in meetings, and **volunteer** to serve on advisory boards and committees. **Be heard!**

Fourth: Get to **know and understand the policies already in** place for local public lands. Ask if these policies go far enough to protect sensitive landscapes like old-growth forests.

Fifth: Join your local **Broadband**!



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Example Language: If you're interested and want to learn more, we have some great **upcoming events** in this area you might be interested in…**<discuss upcoming events>**