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## Public Lands & Climate Change 101

### Presentation Guide

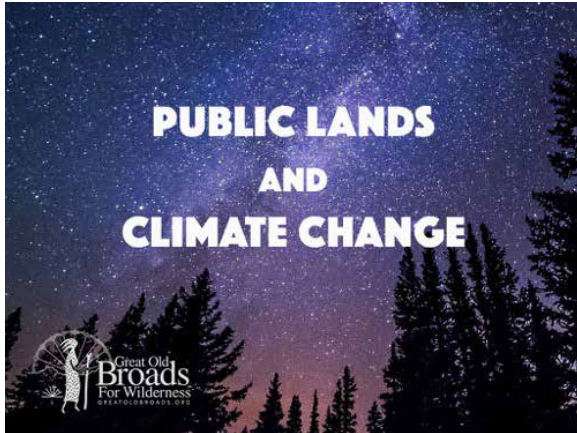
This guide explains the flow and content of the “Public Lands & Climate 101” presentation, which can be tailored to your audience and available time. We recommend you incorporate local examples wherever possible to really connect these issues to your community.

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 as a treasure trove of communication tools that you can incorporate into discussions, activities, or more informal outreach opportunities!



1

**Example language:** Welcome and thank you for coming... share a bit about yourself and your passion for public lands.



2

**Example language:** As Great Old Broads for Wilderness, we are constantly learning about and caring for our public lands. Today, we'll explore:

- What are public lands?
- How are public lands used?
- How are public lands and climate change related?
- How does public lands management impact climate change resilience?
- How can we get involved?



3

**Example language:** Today we are discussing public lands, but 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.

Because the lands are held in trust for the public, every American has a say in how these lands are managed.

These lands have a complex history.

**Facilitation Note:** *Territory acknowledgment 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*

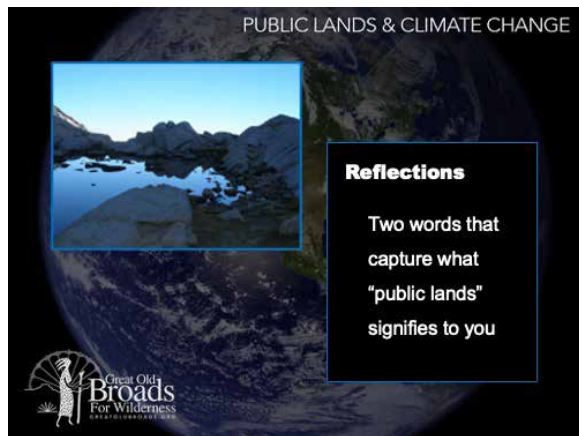


<https://native-land.ca/territory-acknowledgement/> and enter the location of your presentation in order to identify the Tribes that are appropriate to acknowledge. This website offers many valuable resources to help you plan your words thoughtfully.

**Example Language:** Right now, we are in (your location ie. Portland, OR), which is the ancestral territory of the (Tribe or Tribes indigenous to this location, e.g. 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?

**Source:** <https://www.rei.com/blog/hike/your-guide-to-understanding-public-lands>

**Facilitation Note:** This exercise is an abbreviated adaptation of curriculum created by The Wilderness Society.



4

**Example language:** The ways each of us think about public lands are personal and can vary based on our experiences, knowledge of the land, and culture. We all have different images or memories when we think of public lands.

What comes to mind for you? Turn to the person next to you and share a few words that capture how you think of public lands, and perhaps an experience that comes to mind.

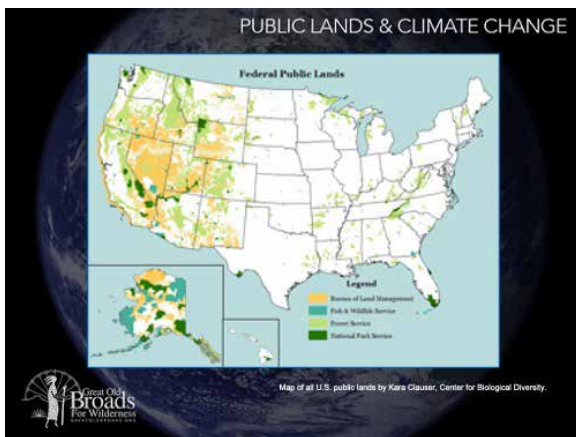
**Facilitation Note:** Tailor this activity to audience size and time available. Give the group time to discuss for a minute and, if time allows, ask a few audience members to share their response. If the group is smaller, people can report back to the presenter directly. If the group is larger, you may use microphones, or just have your audience talk to their neighbors and move on. With a smaller group, if time permits, you may ask participants to write down a few words on post-it notes to display for the group and discuss. This exercise gives the audience a more personal understanding of public lands before discussing agency management and land impacts.



5

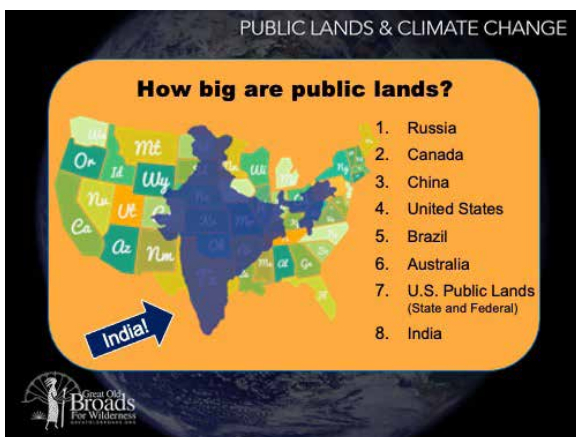
**Example language:** Through our stories, we can begin to see the diversity of perspectives, experiences, and assumptions about public lands. Let's keep this in mind today as we learn more.

**Facilitation Note:** This exercise is an abbreviated adaptation of curriculum created by The Wilderness Society.



6

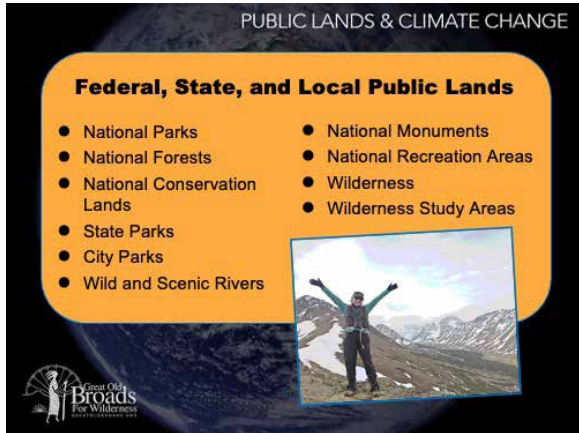
**Example language:** Federal public lands, (pictured here) are held in trust for all Americans. These lands are to be managed for the long-term health of the land and the American people.



7

**Example language:** So how big are America's public lands? If all the public lands of the United States were combined into their own country, they would be the 7th largest country in the world, just after Australia and larger than India! That's 640 million acres.

**Facilitation Note:** Important to note that this image is just to illustrate scale, it does not indicate the actual location of public lands.



8

**Example language:** Public lands aren't just national parks—your state, county, and local city parks count, too. Within the national park system alone, there are 28 different designations.

**Facilitation Note:** Share examples of public lands in your community.

**Background Information:** In the late 1700s, according to the Public Lands Foundation, the U.S. government claimed millions of acres of land from the Native Americans. At the same time, the government claimed

land previously settled by Mexico, Canada, Russia, Spain, France, and England. It was in 1781 that New York State gave the federal government all of its "unsettled" land west of the colony to the Mississippi River. In just over 20 years, all land west of the colonies followed suit and was considered public domain. Eventually the government acquired 1.8 billion acres, most of which were later transferred to individuals, corporations, and states to create things like schools, railroads, and ranches.

The late 1800s brought about "a preservation and conservation movement," according to a Congressional Research Service report. President Lincoln deeded Yosemite Valley to the state of California for a public park in 1864. And in 1872, President Grant signed a law, making Yellowstone the first national park in the nation. Over the next 100-plus years, 59 strictly regulated national parks followed, as well as a myriad of other public lands with differing designations.

**Source:** <https://www.rei.com/blog/hike/your-guide-to-understanding-public-lands>

**Additional links:**

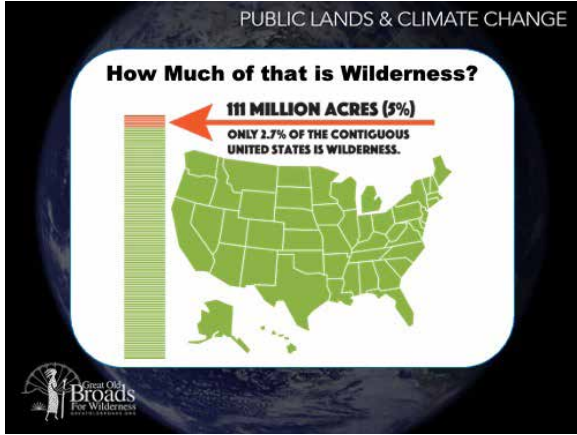
National Park Designations: <https://www.nps.gov/goga/planyourvisit/designations.htm>

Public Lands Foundation: [https://publicland.org/wp-content/uploads/2016/08/150359\\_Public\\_Lands\\_Document\\_web.pdf](https://publicland.org/wp-content/uploads/2016/08/150359_Public_Lands_Document_web.pdf)

Congressional Research Service Report: <https://fas.org/sgp/crs/misc/R42346.pdf>

Yosemite Valley designation: <https://www.loc.gov/item/today-in-history/june-30/>

National Parks system: <https://www.nps.gov/aboutus/national-park-system.htm>



9

**Example language:** Approximately 5% of the entire United States is protected as wilderness. Alaska contains just over half of that amount.

Only about 2.7% of the contiguous United States—an area about the size of Minnesota—is protected as wilderness.

We like to think of Wilderness as our gift to future generations of Americans. Wilderness is a refuge, provides a corridor for wildlife and ensures greater biological diversity. It is untamed forests, deserts, coasts,

and mountains. It is quiet and provides solitude and respite for us from a busy world.

**Sources:** <https://wilderness.net/learn-about-wilderness/fast-facts/default.php>  
<https://www.greatoldbroads.org/what-is-wilderness-2/>



10, 11, 12

**Example language:** Are all public lands protected? Preserved in their natural condition? No, not exactly. Many federal agencies manage public lands for multiple use, from recreation to timber harvest.

Some lands have special designations that protect them for recreation, conservation, or cultural significance. Other lands are preserved for wildlife and the intrinsic value of the ecosystem.

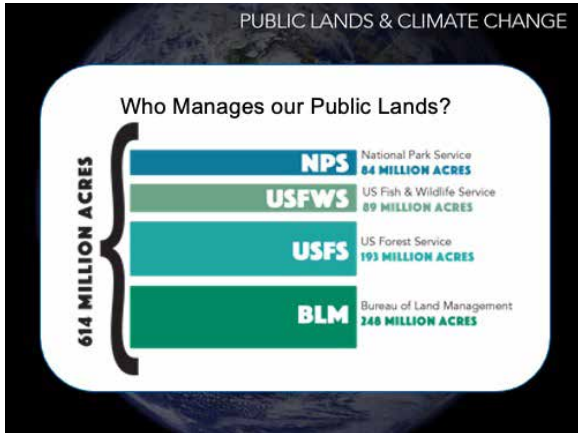


There are also lands managed for commercial uses such as mining, logging, grazing, and energy development. For instance, about 73% of the publicly-owned land in Western states is grazed, making up about 270 million acres, which is equal to the total acreage of OR, WA, CA, and ID combined.

<http://people.oregonstate.edu/~muirp/wpubland.htm>



**Facilitation Note:** Comment on the activities that occur on your community's public lands.



13

**Example Language:** In order to really understand why public lands vary from pristine wilderness to oil fields, we have to understand who is in charge. Each federal land agency has unique management mandates, objectives, and policies that guide the way the land is treated. It would take quite a bit of time to fully discuss the role each federal agency holds in managing public lands—we’ll provide a brief overview today.

The Bureau of Land Management (BLM) is in charge of the most federal lands, managing one in every 10 acres of land in the United States, and approximately 30

percent of the Nation’s minerals. The BLM has a multiple-use mandate stating that resources and uses on public land must be a balanced combination that will best meet the needs of the people (current and future).

BLM lands are found in every state and can include forests, mountains, sagebrush prairies, arctic tundra, and deserts. <https://www.blm.gov/about/what-we-manage>

The US Forest Service was established in 1905 to provide quality water and timber for the nation. Congress later directed the agency to broaden its management scope for additional multiple uses and benefits and for the sustained yield of renewable resources such as water, forage, wildlife, wood, and recreation.

<https://www.fs.usda.gov/about-agency/meet-forest-service>

The National Park Service preserves the natural and cultural resources and values of the lands within the National Park System. Their focus is on preservation and education.

<https://www.nps.gov/aboutus/index.htm>

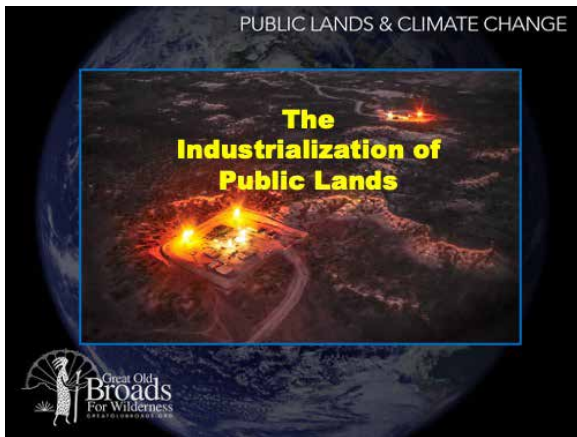
The US Fish & Wildlife Service manages the National Wildlife Refuge System. They operate over 70 National Fish Hatcheries and 65 fishery resource offices.

[https://www.fws.gov/help/about\\_us.html](https://www.fws.gov/help/about_us.html)



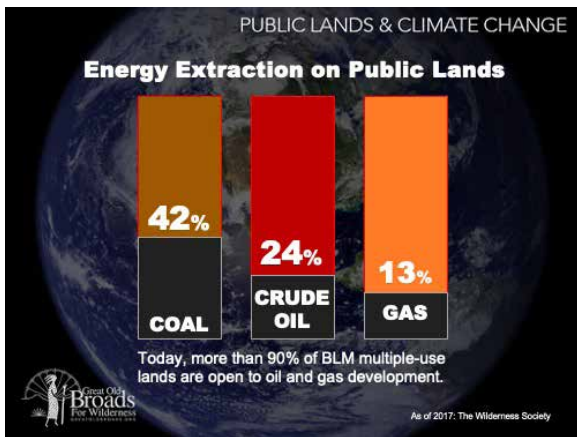
14

**Example Language:** What does the protection and multi-use management of public lands look like?



15

**Example Language:** Over time, we have seen an increase in industrialization and intensive commercial uses on public lands. When we look at these trends in the context of climate change, we find some startling impacts.

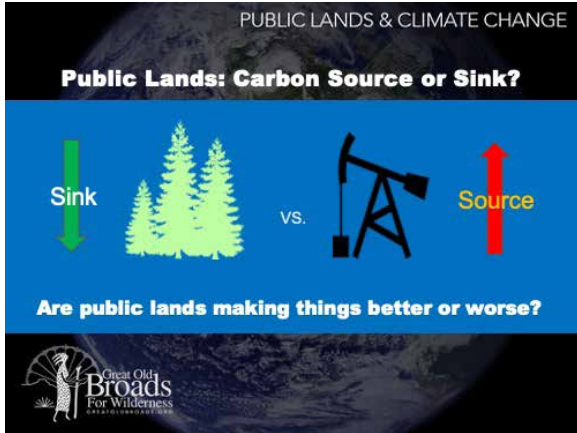


16

**Example Language:** Most people are unaware that public lands produce a huge amount of oil and gas. What kind of impact is that having on the land? It turns out, multiple use on BLM land means that 90% of these lands are open to oil and gas development.

42% of the nation's coal, 24% of the crude oil, and 13% of the natural gas comes from public lands.





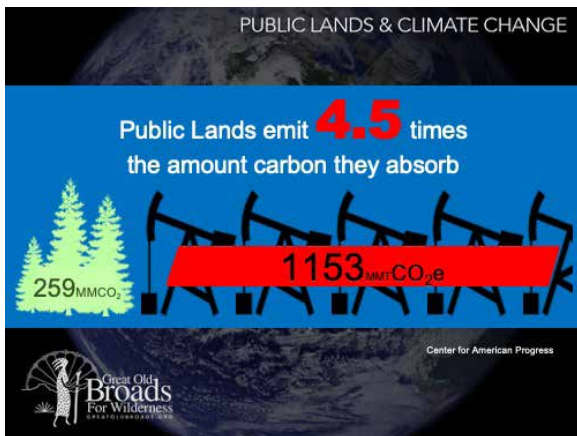
17

**Example Language:** The nation’s public lands are home to old-growth forests, wetlands, marshes, and rich soils that store carbon.

When plants perform photosynthesis, they grab CO<sub>2</sub> out of the air and lock up the carbon in the plant’s structure and soils while releasing oxygen back into the atmosphere. We call this a carbon sink because that carbon is sinking down into the earth and getting locked away.

This is nothing new—FDR recognized the significance of America’s national forests, calling them the “lungs of our land.”

Meanwhile, through current industrial uses of public lands, ancient carbon is removed from public lands in the form of oil and natural gas to be burned. This is a source for carbon to enter the atmosphere. If we compare the amount of carbon that public lands store to the amount of carbon we are pulling out of public lands, what is the balance? Is the management of public lands making things better or worse?



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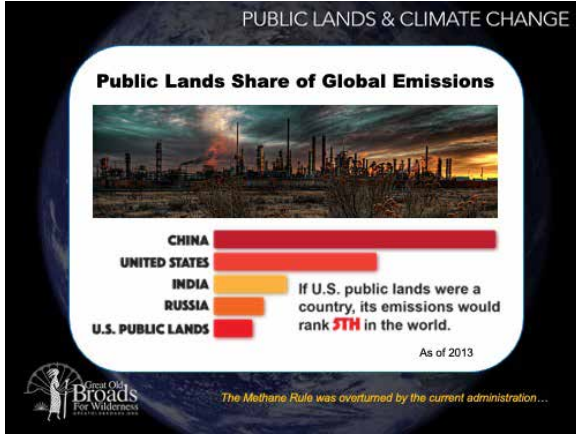
**Example Language:** Unfortunately, public lands emit more carbon than the ecosystems can sink (or store). Through oil and gas extraction, we are introducing 4.5 times the carbon into the atmosphere than our public lands can absorb.

*[really let this sink in for people]*

**Background Info:** This statistic applies to the lower 48 and does not include Alaska or offshore drilling in public waters.

**Content source:**

<https://www.americanprogress.org/issues/green/news/2013/12/05/80277/the-clogged-carbon-sink-u-s-public-lands-are-the-source-of-4-5-times-more-carbon-pollution-than-they-can-absorb/>



19

**Example Language:** To further put these emissions into perspective, if US public lands were a country, its emissions would rank 5th in the world, accounting for 20% of the nation's emissions

**Background Note:** The bar representing the United States counts all of the country's emissions including public lands. This is for comparison purposes to visualize how US public lands stack up against the country as a whole.



20

**Example Language:** Public land leases for oil and gas production issued in the last three years have continued to climb. If drilled, these leases could result in emissions from extraction of 1 billion metric tons of CO<sub>2</sub>e. End-use emissions would result in the release of 5.95 billion metric tons of CO<sub>2</sub>e.

These leasing decisions have significant and long-term ramifications for our climate and our ability to stave off the worst impacts of global warming. Emissions from public lands are on track to drastically exceed the level in line with what leading climate science says is

necessary to avoid the worst effects of warming.

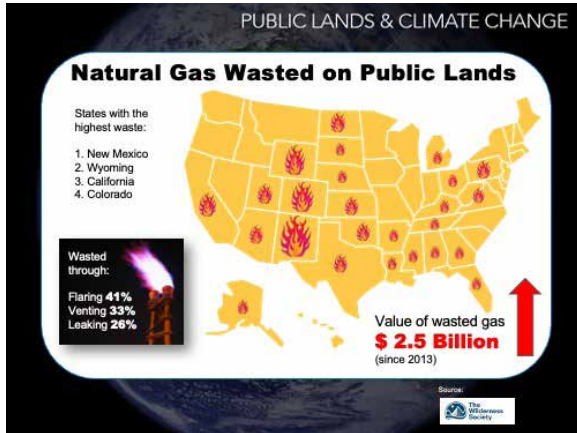
From 2017 to 2020, nearly 10 million acres of public land has been leased for new extraction. This is the same size as TEN Olympic National Parks. A third of this land is being leased for merely \$2.00 an acre, a measly price to pay for permanent ecosystem damage.

Even under a conservative "low-development scenario," where very few land leases are developed for oil or gas production, the potential emissions would still equal the total annual emissions of Brazil."

**Source:** *The Climate Report 2020: Greenhouse Gas Emissions from Public Lands* by The Wilderness Society



21



**Example Language:** Unfortunately, much of the natural gas taken out of the ground is wasted. The value of this gas lost to flaring, venting and leaking has been estimated at 2.3 billion dollars since 2013, equivalent to the emissions of 3.3 million cars being driven for an entire year. Oddly enough, much of that waste, occurring through flaring and venting, is intentional and justified for economic reasons by the industry. The volatile compounds released are known to pose a significant threat to human health.

While natural gas burns cleaner than other fossil fuels, it is mostly composed of methane, a very potent greenhouse gas that contributes to global warming.

**Background Info:** *This recent publication explores the underestimated impacts of oil and gas on methane emissions relative to other sources: <https://www.nature.com/articles/s41586-020-1991-8> (note: this article is behind a pay wall)*

*You can further explore these methane leaks, their impact on our country and our communities using The Wilderness Society's interactive online tool:*

<https://www.wilderness.org/articles/article/natural-gas-waste-map>

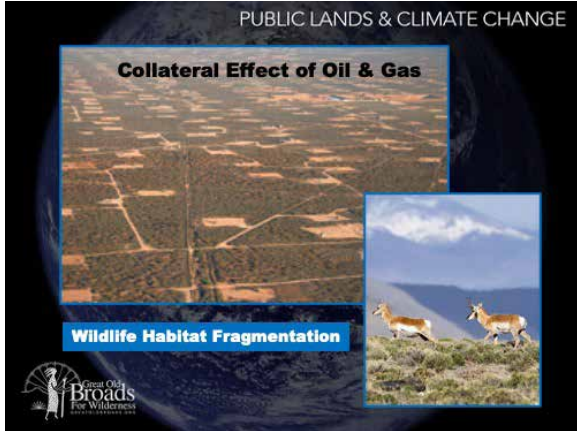
*Scientists say the new findings reinforce that methane emissions from oil installations are far more widespread than previously thought.*

<https://www.nytimes.com/2019/12/16/climate/methane-leak-satellite.html>

**Photo and text source:** <https://www.bbc.com/news/science-environment-35659947>

**Video link:** <http://theraucousrooster.com/2016/01/24/beyond-the-self-congratulatory-headlines-the-real-jerry-brown/>

<https://www.nytimes.com/2020/02/19/climate/methane-flaring-oil-emissions.html>



22

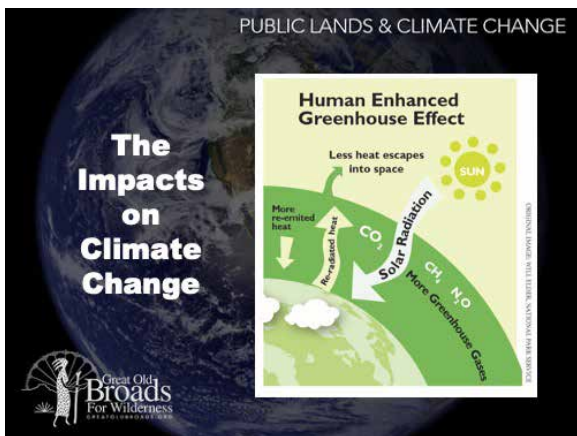
**Example language:**

Energy development can be devastating to the landscape:

- Surface vegetation and soils are often removed.
- Water sources can be altered or depleted.
- Transmission lines and roads fragment habitat, displace wildlife, and increase predation and accidental wildlife deaths.

In densely developed areas, with one drill pad per 10 acres, the pads and infrastructure can destroy up to 175 acres of habitat, the equivalent of 133 football fields, causing both direct habitat loss and indirect harm to wildlife as they avoid a larger area around the zones of drilling. A study near Pinedale, Wyoming, observed mule deer behavior before and during oil pad development. They found almost half of high-use habitat declined to medium-low or low-use levels.

**Citation:** Sawyer, H., R. M. Nielson, F. Lindzey, and L. McDonald. 2006. Winter habitat selection of mule deer before and during development of a natural gas field. *Journal of Wildlife Management* 70: 396-403.



23

**Example language:** The greenhouse effect is the way in which heat is trapped close to the surface of the Earth by “greenhouse gases.” These heat-trapping gases can be thought of as a blanket wrapped around the Earth, which keeps it warm. Without them, our planet would be well below the freezing point of water. Greenhouse gases include carbon dioxide, methane, and nitrous oxides.

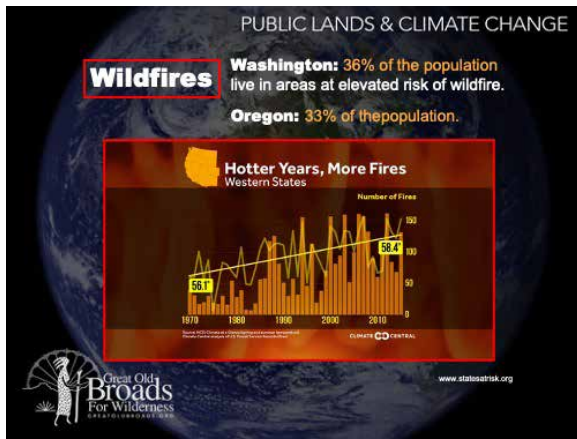
**Source:** <https://climate.nasa.gov/faq/19/what-is-the-greenhouse-effect/>

When greenhouse gases are emitted from our public lands, they enter the atmosphere. Burning fossil fuels adds more greenhouse gases to the atmosphere, thickening the blanket, and increasing the globe’s temperature and altering climate.



**Background info:** Image source Project Learning Forests and Climate Curriculum Tree Activity 2. The blanket analogy is from NNOCCI's Reframing Climate Change communication toolkit.

Many communities in the Northwest are noticing changes in frequency and duration of wildfires, dramatic swings in rain and snowfall, harsh summer temperatures, and more. When we look at regional ecosystems and communities, we can begin to understand the impact of climate change and what the future might hold.



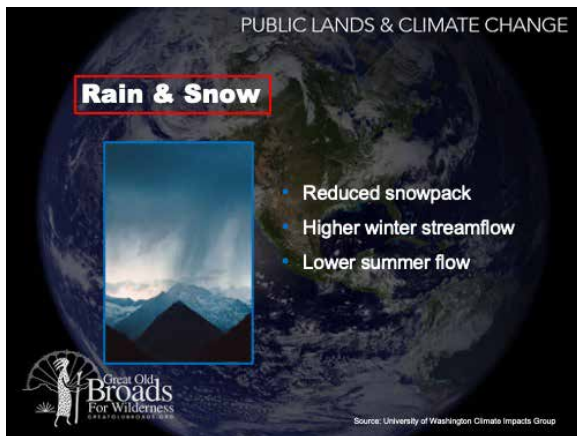
24

**Example Language:** Across the West, forests are getting drier and trees are stressed by lower water availability. We are also seeing more hot, dry, and windy days that heighten wildfire conditions. In the Pacific Northwest, the size, duration, and number of wildfires are increasing.

It is estimated that human-caused climate change contributed to an additional 10 million acres of forest fires during 1984–2015, nearly doubling the expected area.

Wildfires pose a unique challenge to communities because there are now over 40-million homes in fire-prone landscapes across the West.

A Climate Central analysis shows that the number of large fires on Forest Service land is increasing dramatically (<http://assets.climatecentral.org/pdfs/westernwildfires2016vfinal.pdf>).

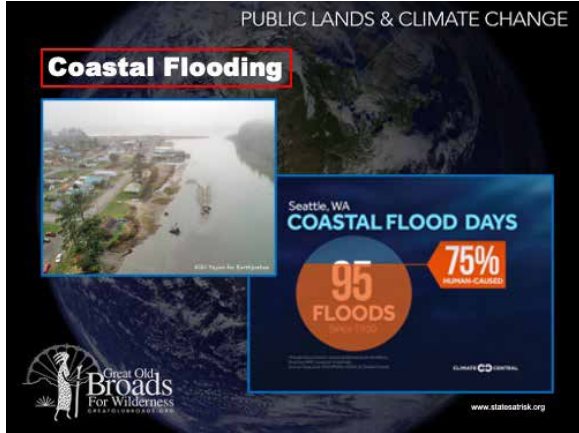


25

**Example language:** Reduced snowpack means reduced water storage, irrigation shortages, and winter and summer recreation losses. A higher winter streamflow increases the chance of rivers flooding, increasing the need for stormwater management and flood protection. With the melt happening earlier, there is a lower summer flow, which results in conflicts over water resources, reduced hydropower, and negative effects on salmon populations (and other wildlife dependent upon riparian systems).

Average winter precipitation is expected to increase over the long term, but year-to-year variability in precipitation is also projected to increase.

Years of abnormally low precipitation and extended drought are expected and increases in extreme events, such as heavy rainfall, are also anticipated to occur more often.



26

**Example language:** Sea level rise impacts shorelines, ecosystems, and coastal human populations. Over the last 100 years, 50% of coastal wetlands have been destroyed due to land use changes, sea level rise and extreme weather events.

The worst sea level rise projection, 4.3 feet by the end of the century, would heavily damage infrastructure throughout the Northwest, including low-lying urban areas of the Puget Sound and Portland, while deeply harming and displacing vulnerable coastal communities, including Indigenous groups.

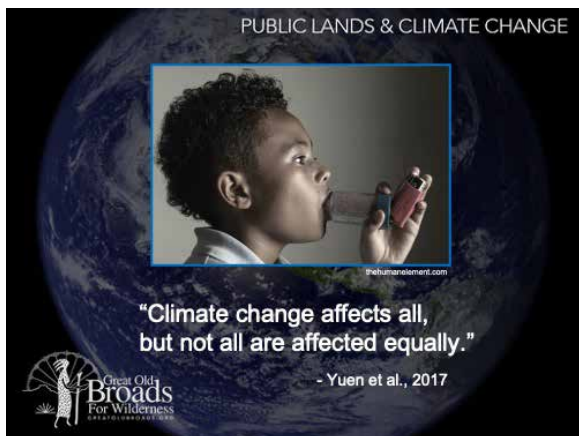


27

**Example Language:** Rising stream temperatures, intense storms, and loss of habitat are having catastrophic effects on species such as wild salmon, which are nearing extinction.

More intense winter storms cause higher river flows with more runoff, increasing sediments that can bury salmon eggs and reduce salmon survival.

Increased winter streamflow and decreased summer flow are projected to threaten salmon spawning, compromising salmon hatchery and reintroduction efforts.



28



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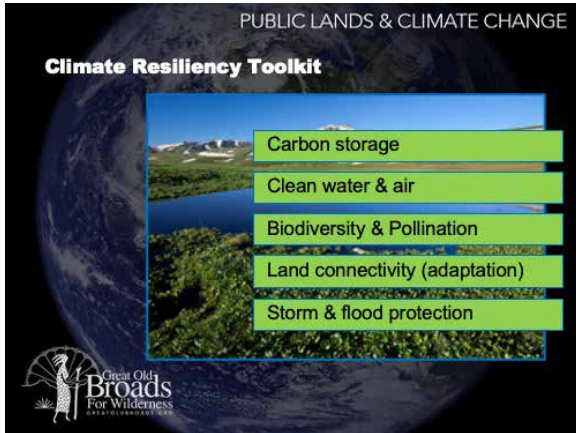
**Example Language:** When we look downstream and downwind from public lands, we find that climate change impacts have disproportionate impacts on Tribal nations, communities who are dependent on natural resource economies, and lower income communities. Their ways of life are at risk because they rely heavily on the natural environment in ways that are critical to cultural survival. These communities often have fewer resources to prepare for and cope with climate disruptions.

Air pollution is a direct impact of both fossil fuel extraction and climate change. 158 million Americans—nearly half of the country—live in counties where air pollution exceeds national health-based standards. Each year, air pollution causes 200,000 premature deaths.



30

**Example Language:** Currently, industrialized management of public lands is a large contributor to climate change. Industrial activities on public lands are negatively impacting ecosystems and public health. Great Old Broads for Wilderness explore ways public lands can work to solve rather than contribute to climate change.



31

**Example Language:** If we look closely at natural landscapes, America’s intact public lands offer much in the way of climate defense. Public lands remove and store carbon, provide clean air and water, serve as a buffer to severe storms, offer large natural areas to serve as habitat, encourage biodiversity, and allow for adaptation to changing conditions. They can solve much of the problem if we “use” them differently.

Studies show nature-based climate solutions can provide over 1/3 of the cost-effective actions needed between now and 2030 to stabilize warming to below 2 °C.

Source: <https://www.pnas.org/content/114/44/11645>)



32

**Example language:** Forests on public lands in the Northwest, especially those with high carbon storage and low vulnerability to drought and fire, have the potential to lock up as much carbon by 2100 as burying 72,148 tanker trucks of gasoline, or eliminating ~6 years of current regional fossil fuel emissions.

Globally, forests store more than 3 trillion tons of CO<sub>2</sub>—more than all the readily accessible oil and gas reserves that could be extracted in this century.

Allowing forests to reach their full carbon sequestration potential on a global scale could provide 37% of the carbon reductions needed to stabilize our climate.

Background Info: This information is sourced from this article: DOI: 10.1002/EAP.2039 Old-growth forests “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.” Land management can also mitigate the negative effects that climate-induced ecosystem transformations have on biodiversity and watersheds, which influence ecosystem services that contribute to human well-being.”

In the past, it was thought that old trees declined over time and became less “useful” or “productive.” However, many species continue to grow at incredible rates, acting as vital carbon stores. Old-growth





forests not only store vast amounts of carbon in living trees, but also in the soils and decaying materials that build up the forest floors and extend deep below the surface.

Much of this carbon, even soil carbon, will be released into the atmosphere if forests are disturbed. Maintaining intact forests is a natural way to mitigate the effects of a changing climate.

PUBLIC LANDS & CLIMATE CHANGE

### Coastal & Riparian Ecosystems

(Salt Marshes, Estuaries, Rivers, etc.)



- Water Filtration
- Carbon storage
- Vegetation reduces flooding
- Habitat



33

**Example Language:** Coastal ecosystems are even greater carbon sinks, absorbing as much as 10x more carbon per square foot compared to forests. These ecosystems, including oyster beds and seagrass beds, have been shown to reduce waves by 60% during extreme weather events.

Meanwhile, native species buffer rivers from rising summer temperatures and slow down runoff to protect species and downstream communities from flooding.

PUBLIC LANDS & CLIMATE CHANGE

### Repairing & Restoring Resilience




34

**Example Language:** There are many ways that we can improve the health of public lands and contribute to climate resilience when we actively engage in public land stewardship.

PUBLIC LANDS & CLIMATE CHANGE

### Stewardship takes many forms

Water quality monitoring



Restoring native vegetation



Removing invasive species



Restoration work heals the land and makes it more resilient to climate impacts




35

**Example Language:** Whether we are gathering data, restoring native species, or repairing entire ecosystems, there are enormous opportunities to enhance our landscapes' natural climate resilience. Our broadband (and/or partnering organizations) have... (planted native species, collected water monitoring data, etc.)




PUBLIC LANDS & CLIMATE CHANGE

### Dive in Deeper



- Education – keep the conversation going
- Get to know your local public land management agencies
- Participate in public land planning processes.
- Learn more about the policies in place for local public lands.
- Join your local Broadband




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Plug in your own examples. This is a great opportunity to talk about the work your Broadband is doing. Or describe where your Broadband is growing and taking on new roles.

PUBLIC LANDS & CLIMATE CHANGE

### Upcoming Events in Your Area

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Offer your audience an invitation to any upcoming events that your Broadband is hosting, thank everyone for their time, and open the floor to questions!