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Northwest Power and Conservation Council

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November 10, 2020

MEMORANDUM

TO: Council Members

FROM: Patty O'Toole, Karl Weist, Stacy Horton

SUBJECT: 2020 wildfires and possible impacts to Fish and Wildlife Program projects

BACKGROUND:

Presenter: Raymond Davis - Monitoring Lead, Older Forests and Spotted Owls, Forest Service, Pacific Northwest Region 6
Bernadette Graham-Hudson - West Region Manager, Oregon Department of Fish and Wildlife
Kurt Merg - Vegetation Ecologist, Washington Department of Fish and Wildlife

Summary: The Committee will hear presentations about the 2020 wildfire season, particularly about the fires in Oregon and Washington that affected fish and wildlife resources and program-funded projects.

Relevance: This topic relates to Fish and Wildlife project implementation in addressing the Program's past investments as called for in the 2014 Fish and Wildlife Program (Part Six; Section II, and Appendix P).

Within this investment strategy, long-term maintenance of past investments is prioritized as the highest priority and on October 10, 2018 the Council approved the Asset Management Strategic Plan (Plan) to ensure the longevity and integrity of the Program's past investments made for the benefit of fish and wildlife. Not only does the Plan provide a process to address nonrecurring maintenance needs it is founded on the

importance that the past investments associated with lands continue to receive adequate annual budgets to cover annual O&M costs. These O&M budgets need to be protected and remain a Council Program priority. Annual maintenance is important to avoid emergency needs in the future.

Background:

The 2020 wildfire season was a record setting fire season in Oregon and Washington by contemporary standards, culminating in an east wind and fire event that burned over 750,000 acres over several days in Oregon and over 300,000 acres in Washington in one day alone. Although impact assessments are still preliminary, fish and wildlife mitigation and restoration efforts funded by a multitude of sources were impacted by the fires.

At the November Council meeting, the fish and wildlife Committee will hear from a representative from the US Forest Service about the 2020 fire season in the Pacific Northwest and how fire regimes are changing through time. The Committee will then hear from state fish and wildlife managers from Oregon and Washington who will share more specific information, though still preliminary, about how fires in 2020 impacted fish and wildlife mitigation and restoration efforts including those funded by Bonneville through the Council's Fish and Wildlife Program.

More Info: The Oregon Watershed Enhancement Board, one of Bonneville's funding partners in the Willamette Basin and other areas in Oregon, has established a [Wildlife Response Grant](#) through the end of the biennium (June 30,2021) to address short-term fire recovery needs. OWEB has dedicated \$75,000 for one mutually agreed-upon entity to apply to soil-stabilization and weed management on tribal or private lands in each of Oregon's 13 fire areas.



Northwest Forest Plan
Interagency Monitoring Program

Forest Fires of Washington, Oregon, and Idaho

Putting the 2020 fires into perspective

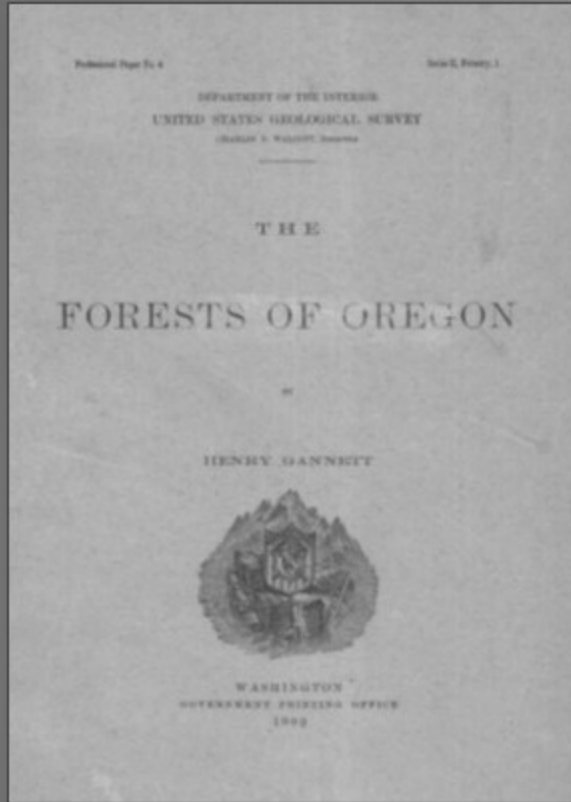


Raymond Davis

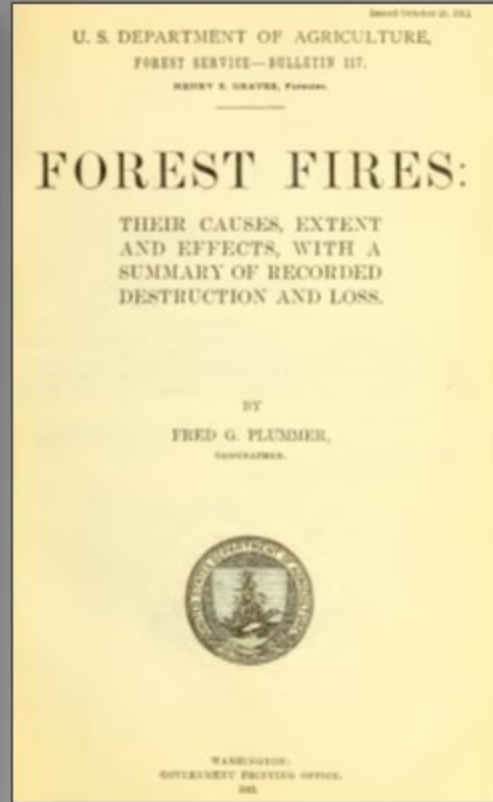




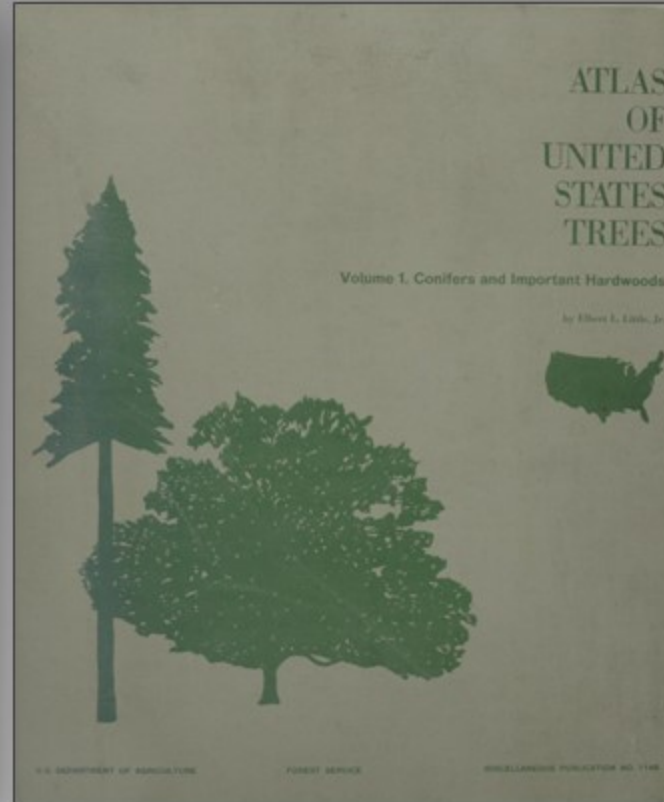
Information Sources



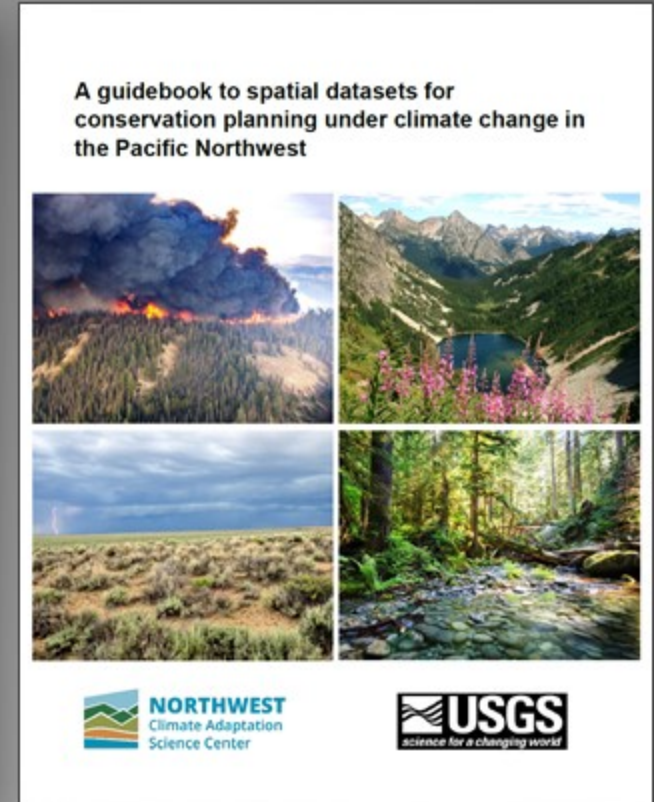
Historic
forest survey maps
Gannet (1902)



Historic
forest fire maps
Plummer (1912)



Conifer species
distribution maps
Little (1971)



Climate change
prediction maps
Cartwright and others (2020)



Northwest Forest Plan
Interagency Monitoring Program

Forest Fires of Washington, Oregon, and Idaho

Putting the 2020 fires into perspective



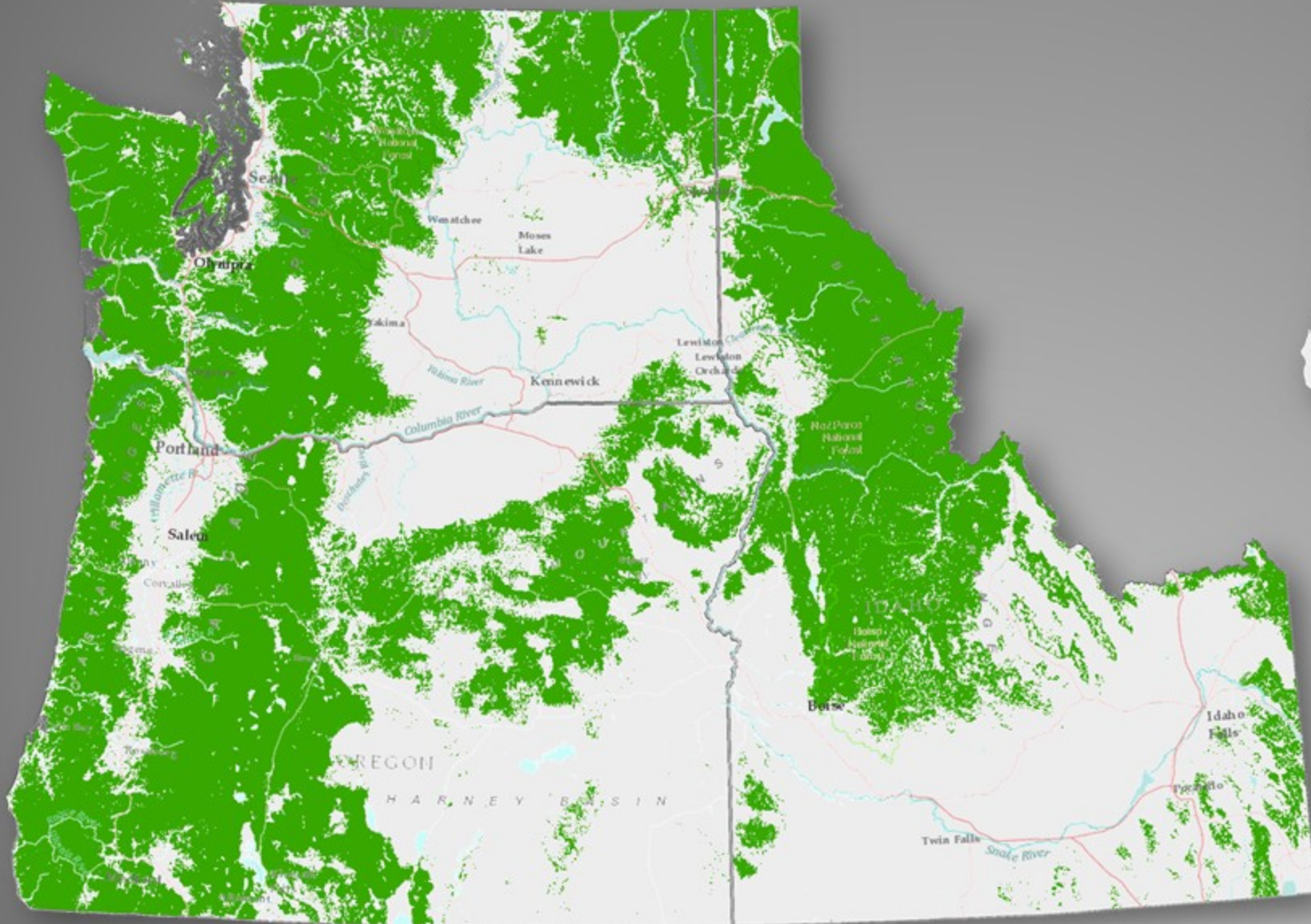
Raymond Davis





Forest Fires of Washington, Oregon, and Idaho

Forested Areas



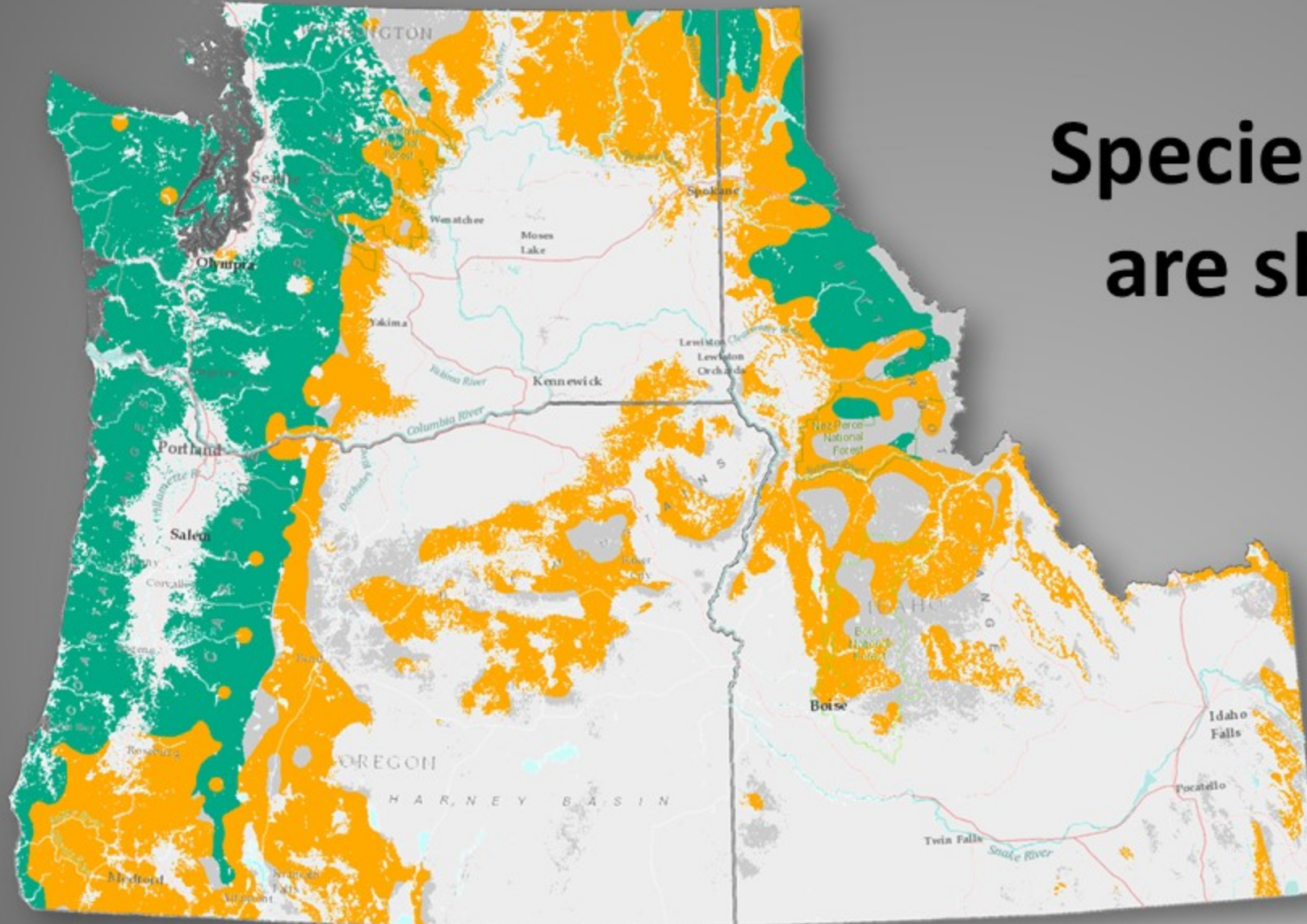
Northwest Power and
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Forest Fires of Washington, Oregon, and Idaho

Tree Species Distributions (Little 1971)



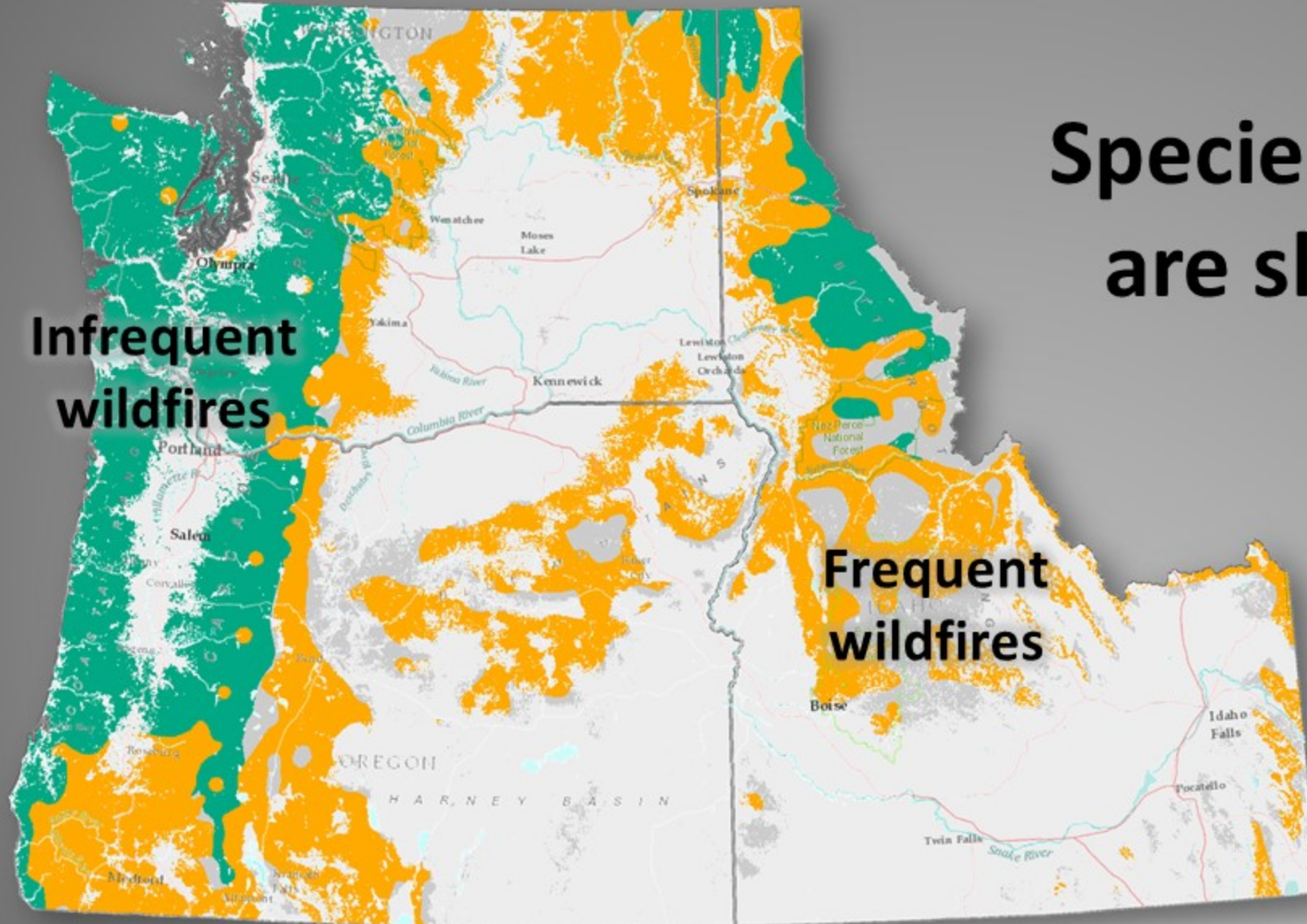
Species distributions are shaped by fire

- Fire-sensitive conifer**
 - Western redcedar
 - Western hemlock
- Fire-dependent conifer**
 - Ponderosa pine
 - Limber pine



Forest Fires of Washington, Oregon, and Idaho

Tree Species Distributions (Little 1971)



**Infrequent
wildfires**

**Frequent
wildfires**

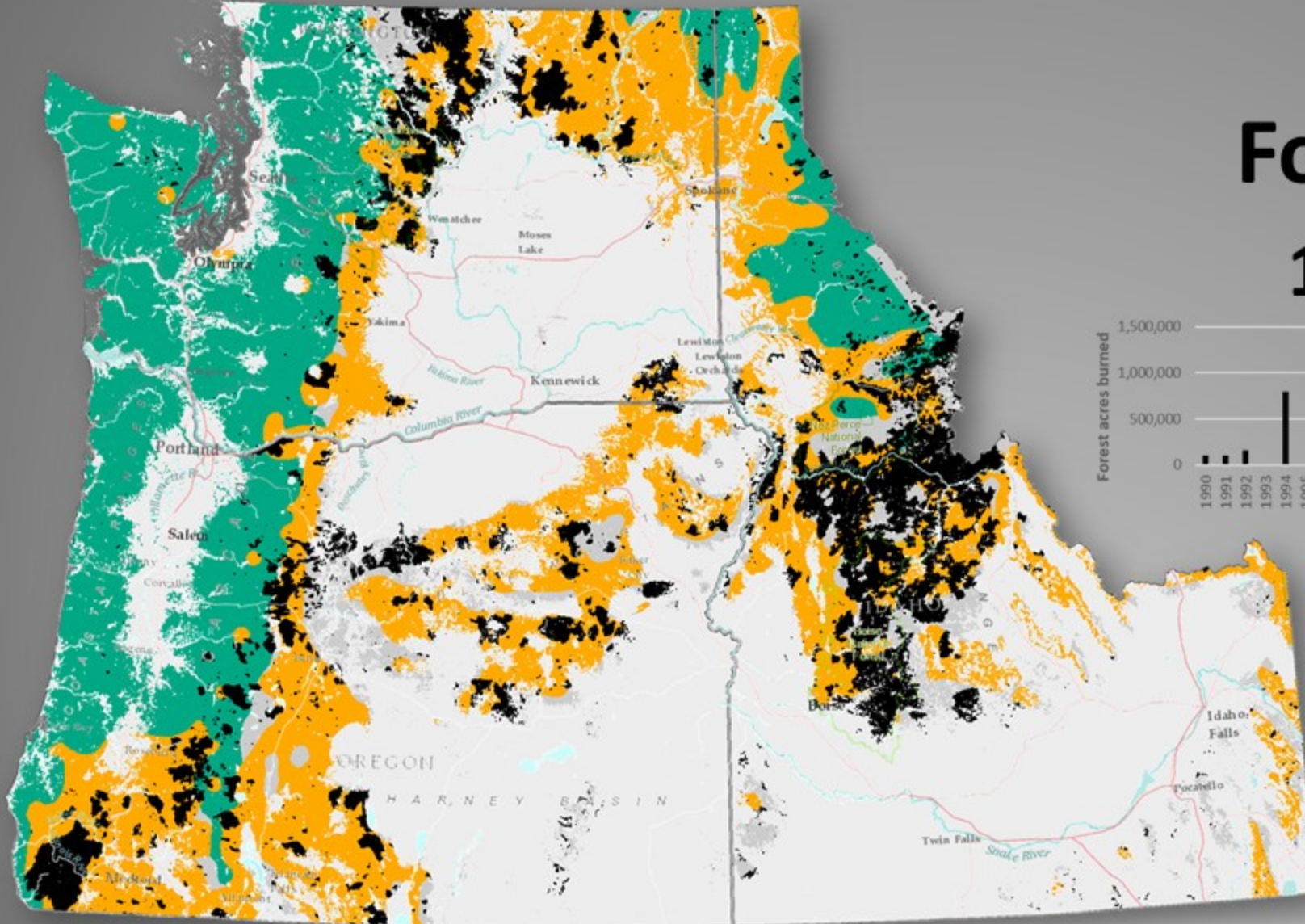
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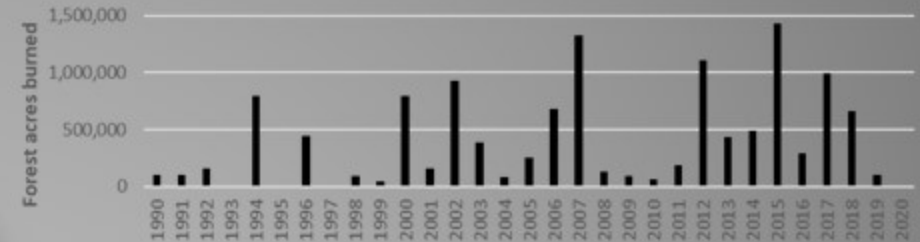


Forest Fires of Washington, Oregon, and Idaho

Tree Species Distributions (Little 1971)



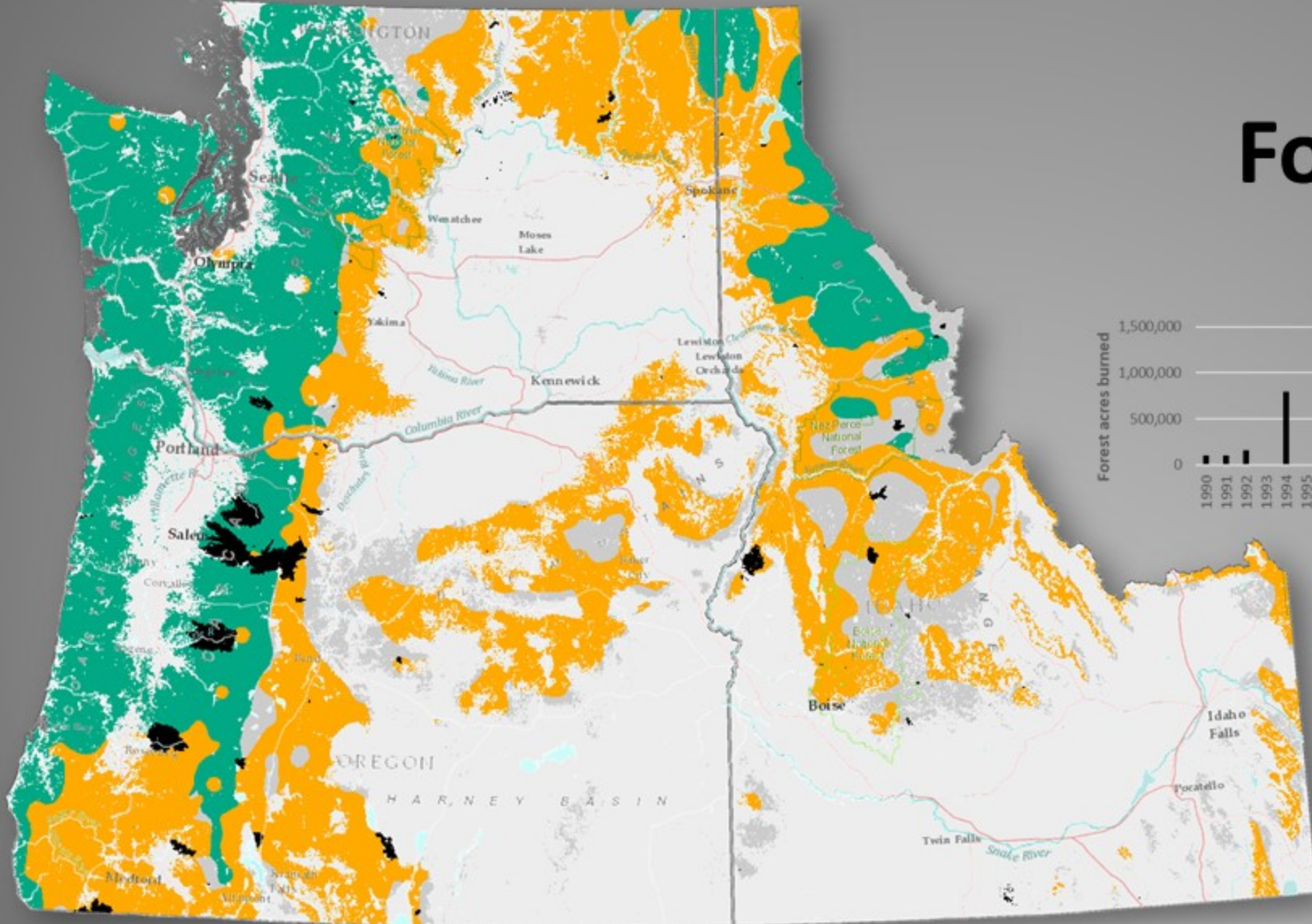
Forest fires 1990-2019



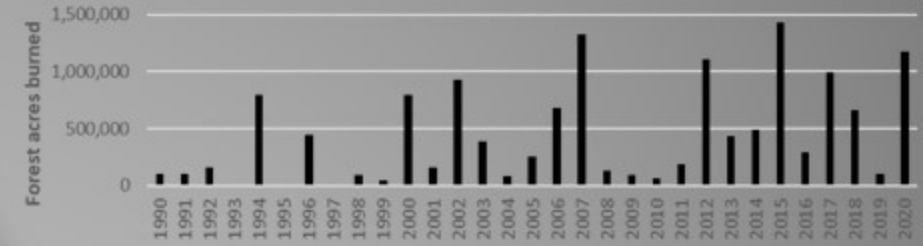
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Forest Fires of Washington, Oregon, and Idaho Tree Species Distributions (Little 1971)



Forest fires 2020

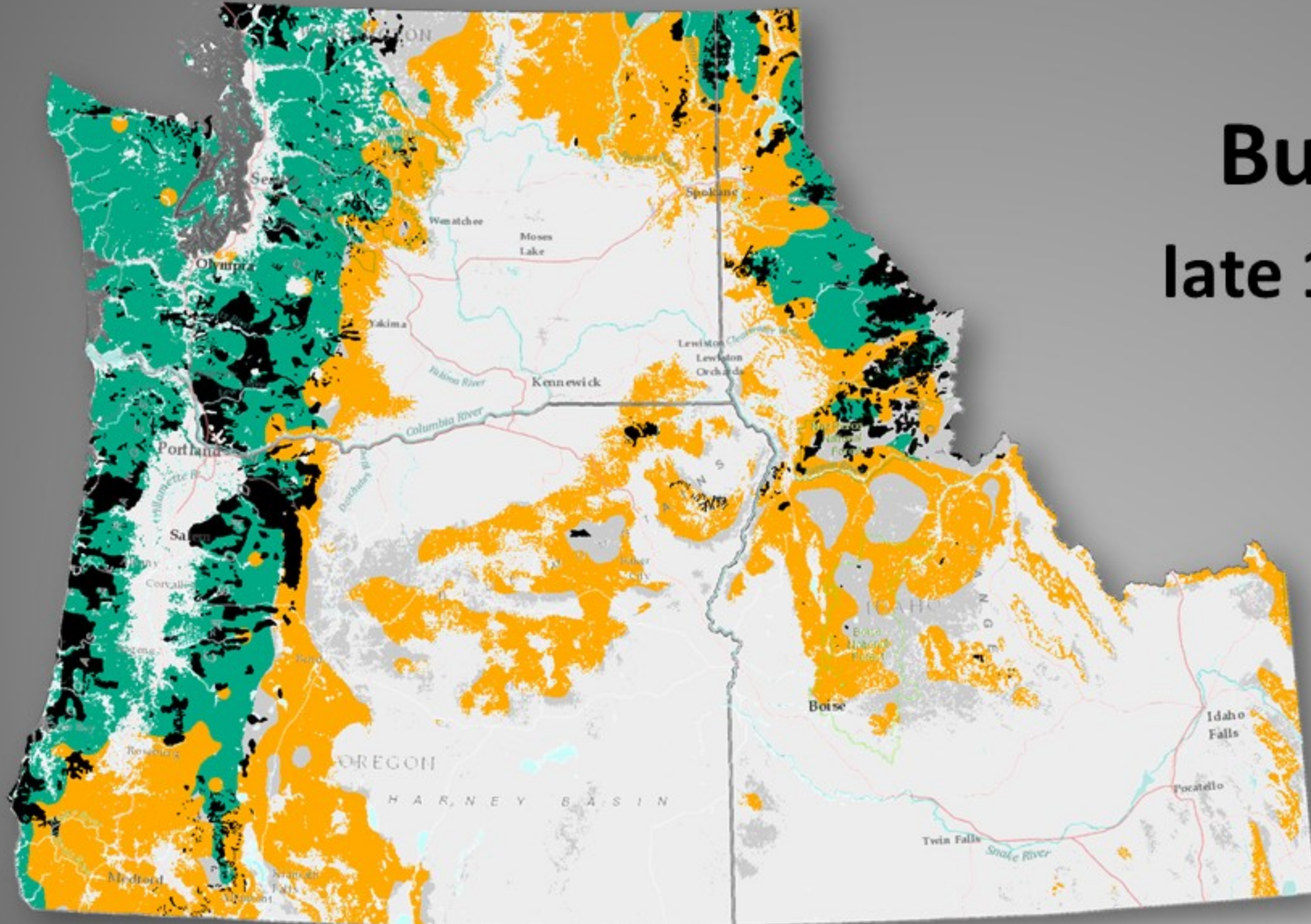


- Fire-sensitive conifer**
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Forest Fires of Washington, Oregon, and Idaho

Historical maps of "burnt forests" (Gannett 1902)



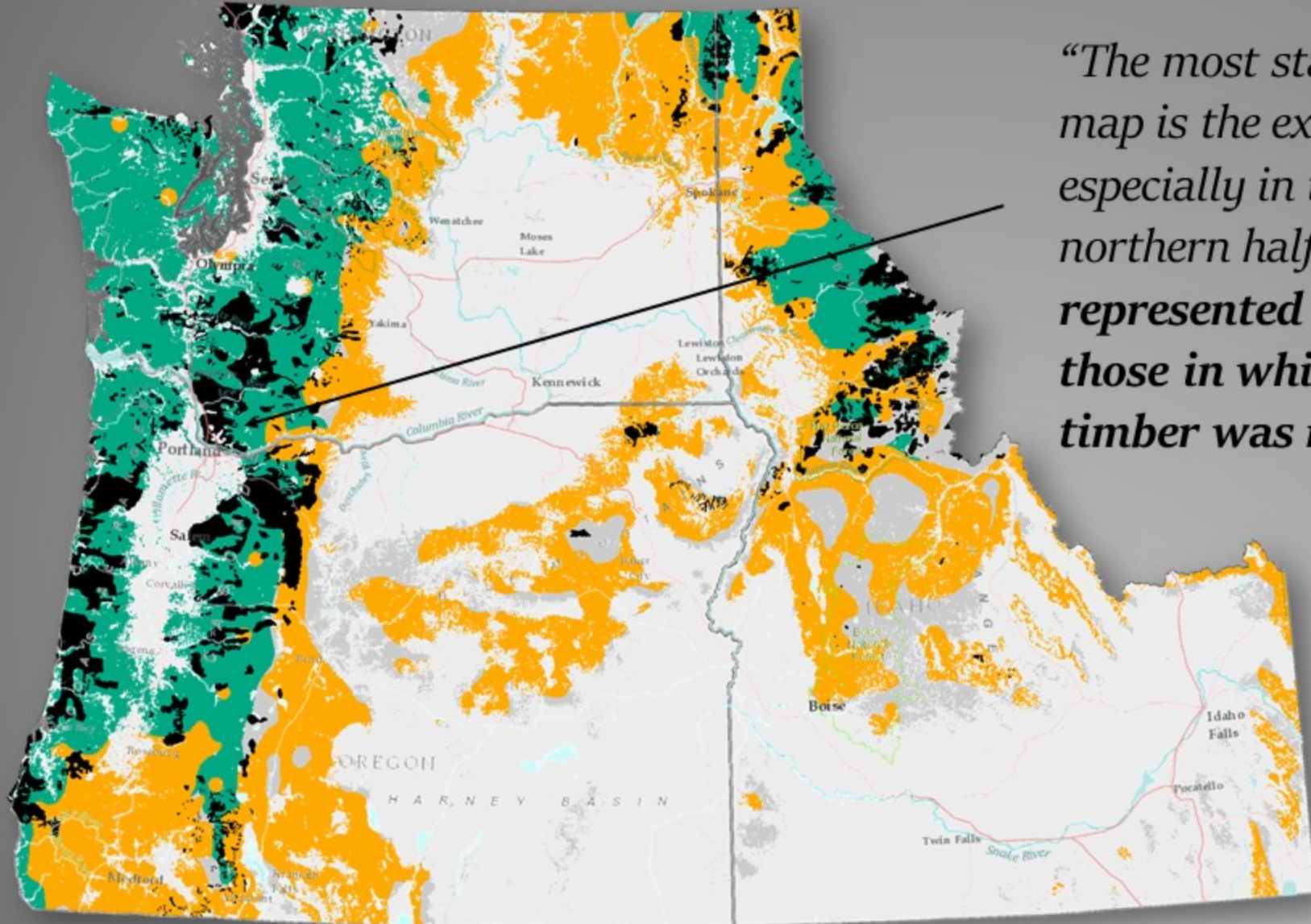
Burnt forest late 1800s to 1910

- Fire-sensitive conifer**
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 - Ponderosa pine
 - Limber pine



Forest Fires of Washington, Oregon, and Idaho

Historical maps of “burnt forests” (Gannett 1902)



*“The most startling feature shown by this map is the extent of the burned areas, especially in the Coast Range and in the northern half of the Cascades... **the areas represented here as burned are only those in which the destruction of timber was nearly or quite complete.**”*

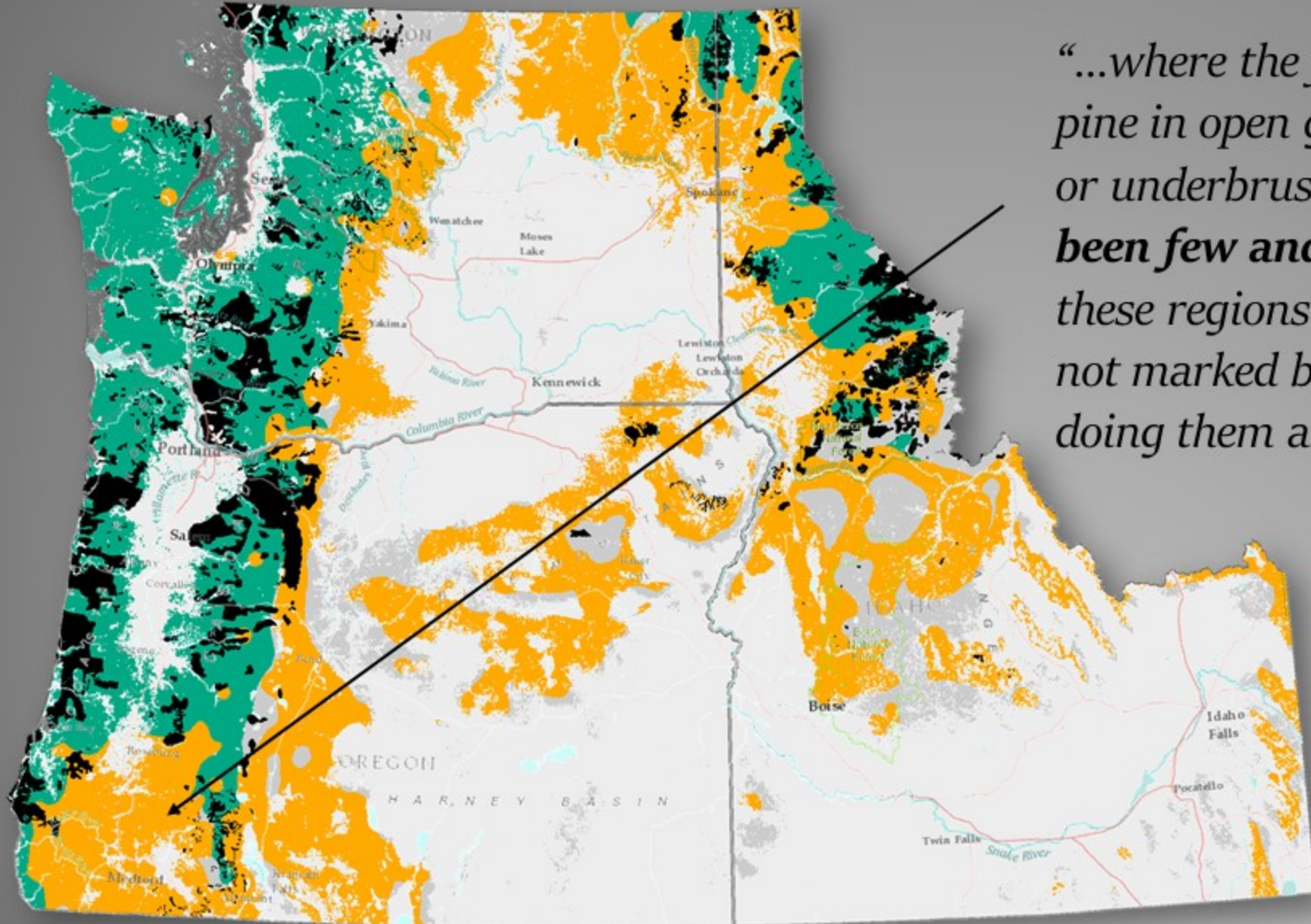
Gannett 1902

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Forest Fires of Washington, Oregon, and Idaho

Historical maps of “burnt forests” (Gannett 1902)



*“...where the forests are mainly of yellow pine in open growth, with very little litter or underbrush, **destructive fires have been few and small**, although throughout these regions there are few trees which are not marked by fire, without, however, doing them any serious damage.”*

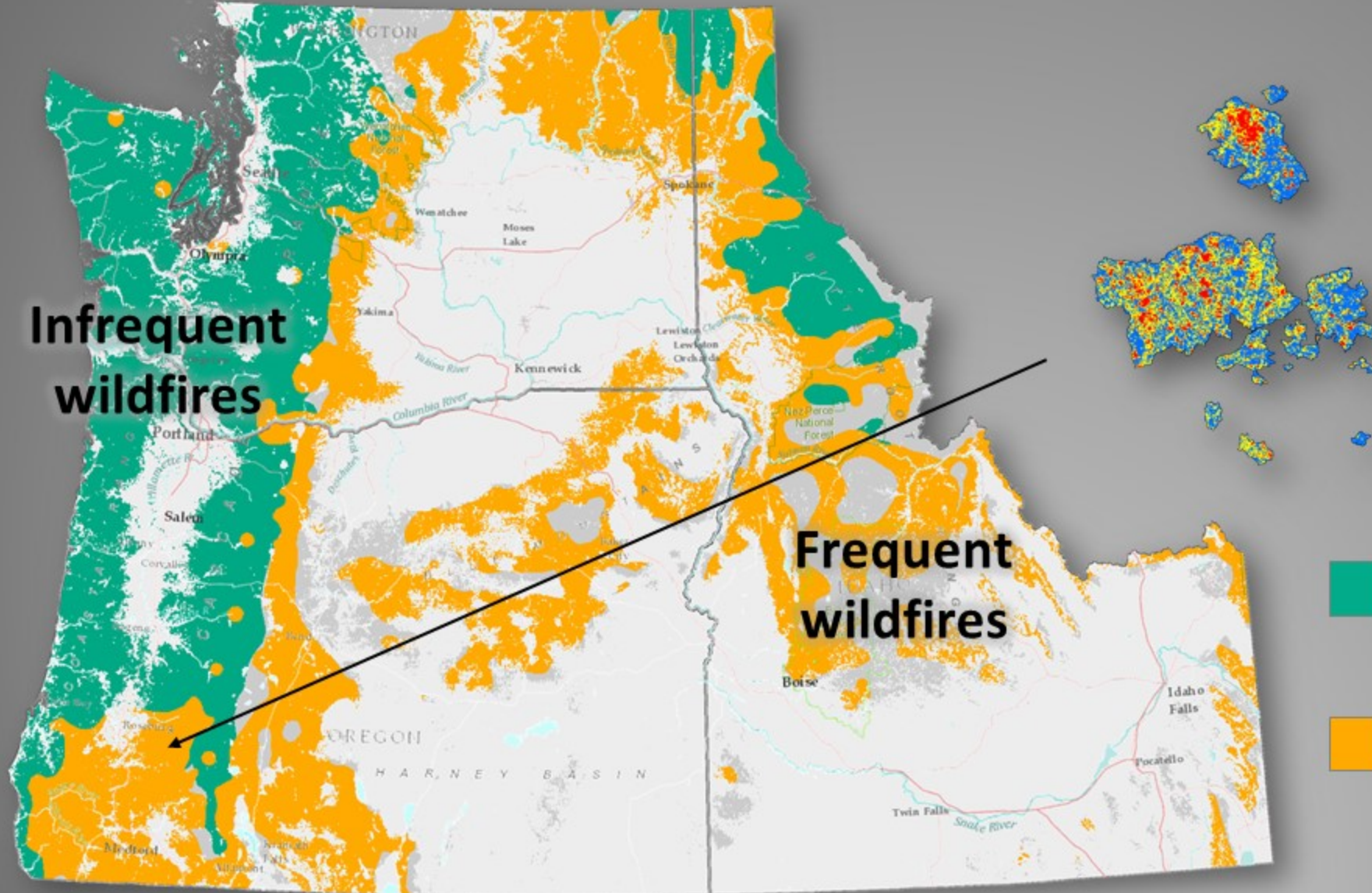
Gannett 1902

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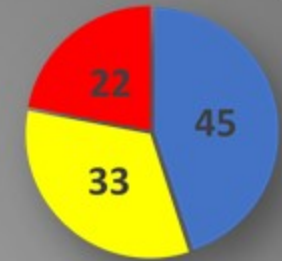


Forest Fires of Washington, Oregon, and Idaho

Fire Severity Comparison



mixed severity

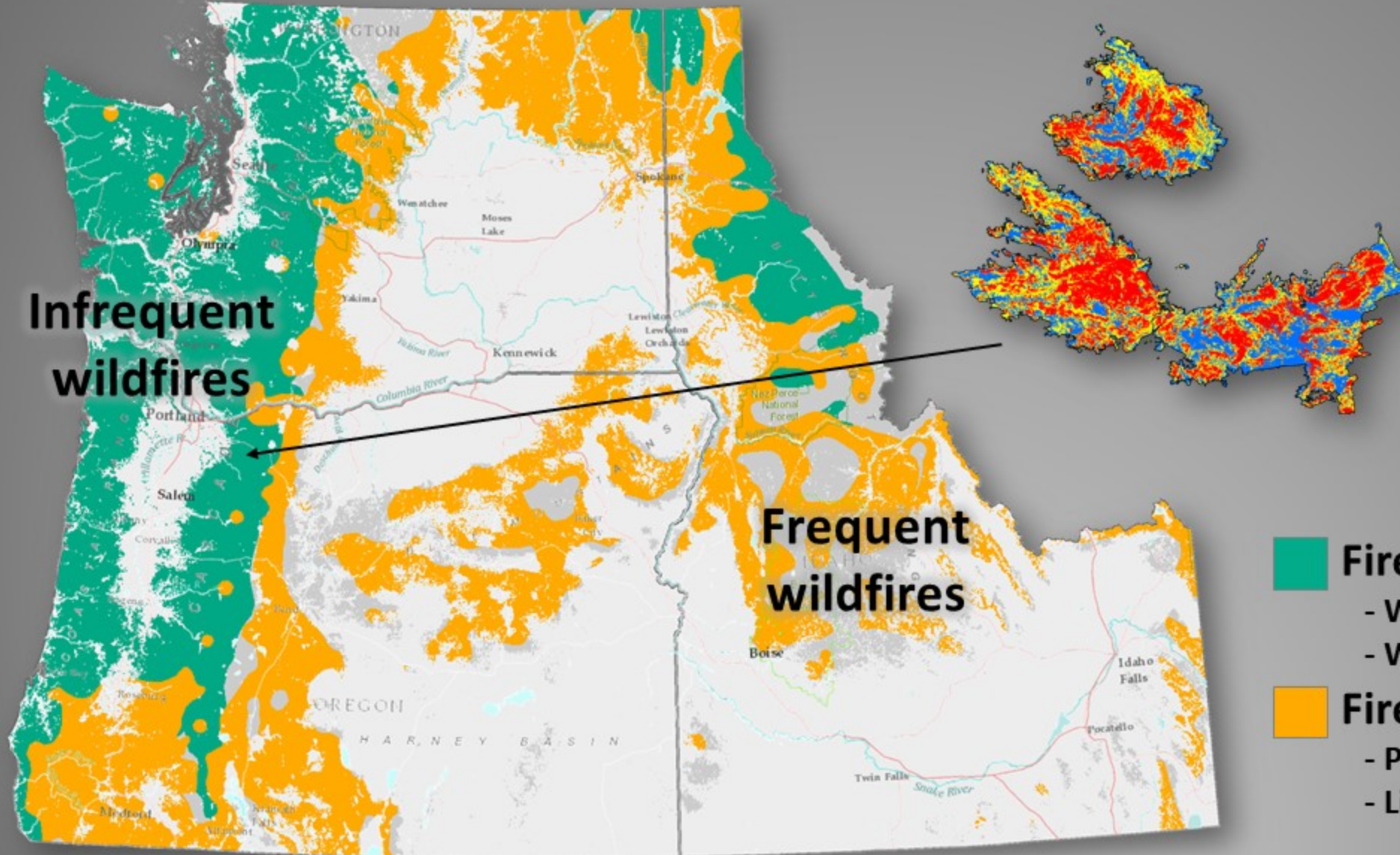


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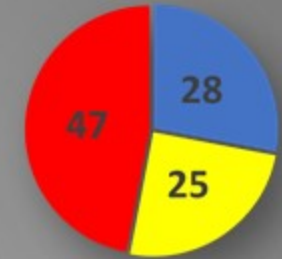


Forest Fires of Washington, Oregon, and Idaho

Fire Severity Comparison



high severity

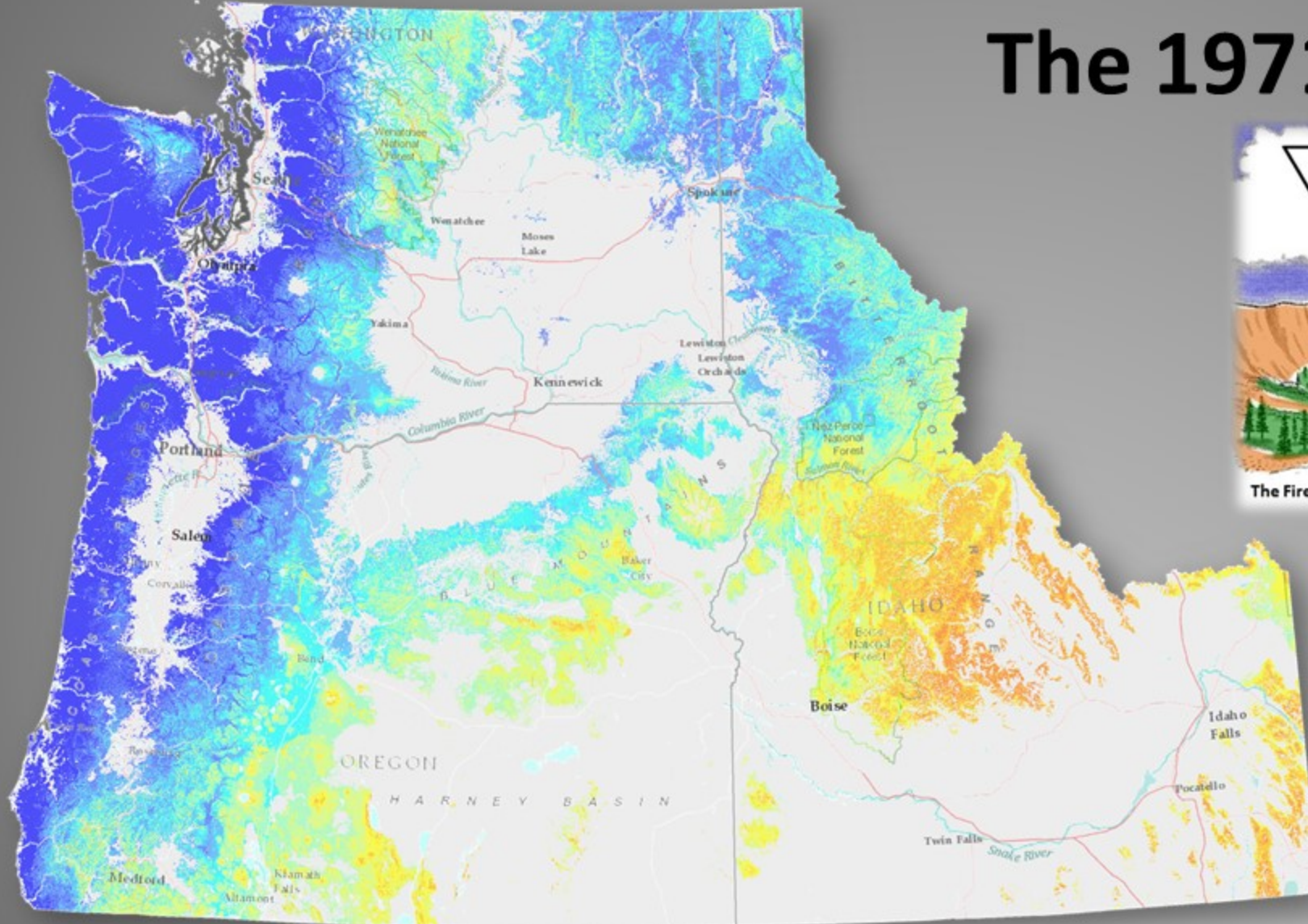


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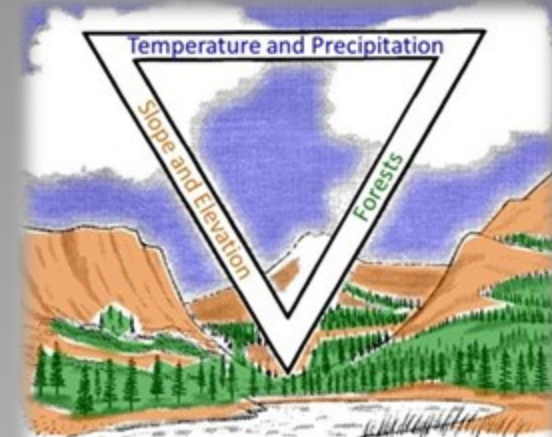


Forest Fires of Washington, Oregon, and Idaho

The Normal Fire Environment

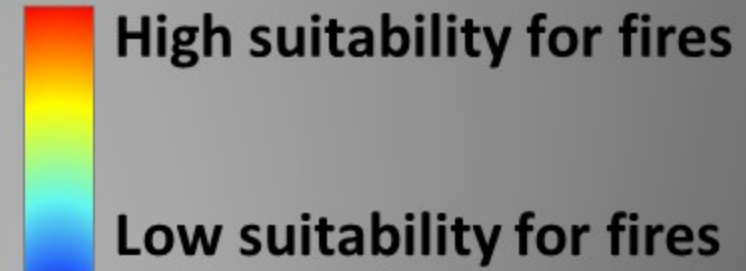


The 1971-2000 normal*



The Fire Environment Concept – Countryman (1972)

Davis et al. 2017
Cartwright et al. 2020

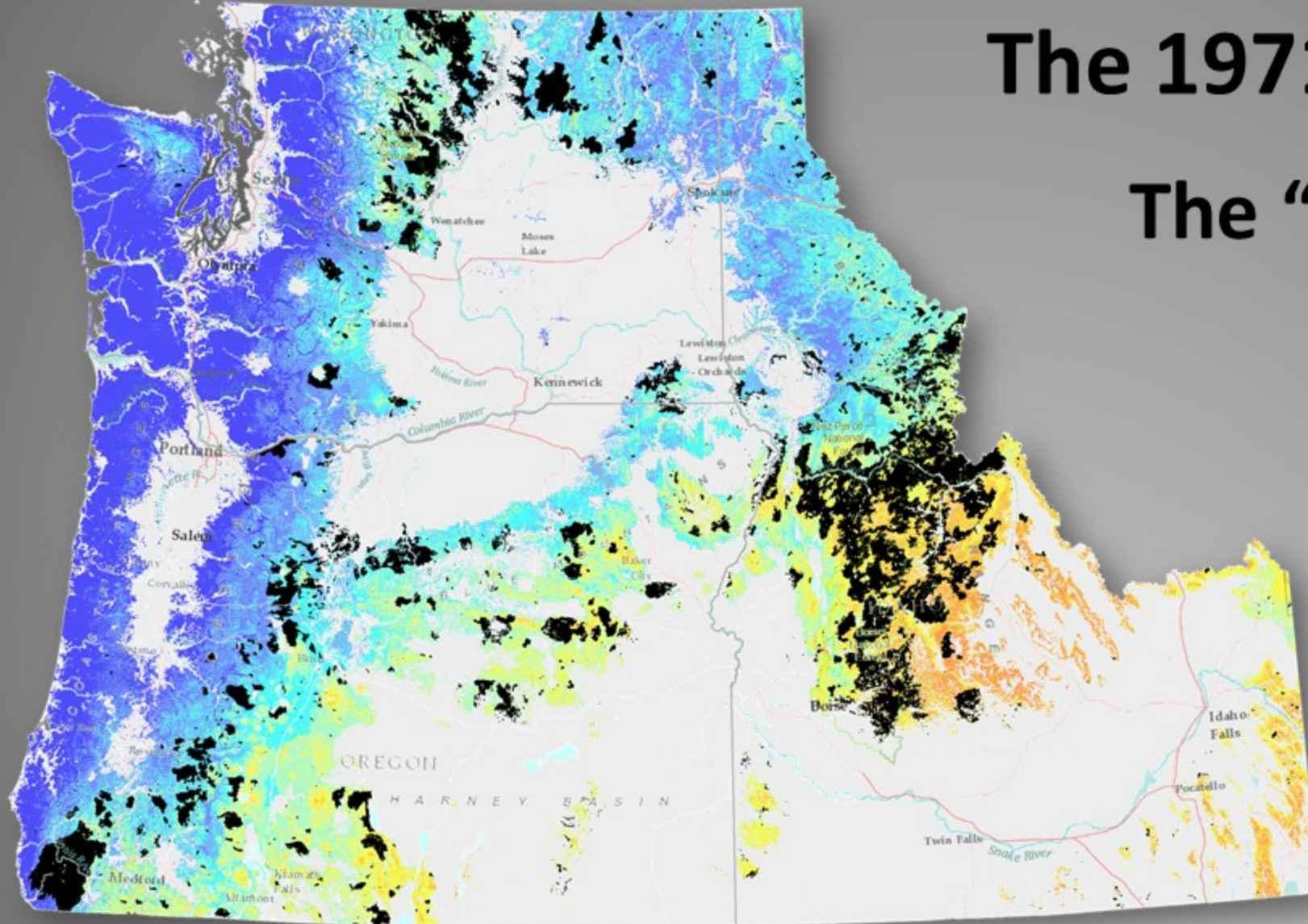


* Climate normal period = 3 decades



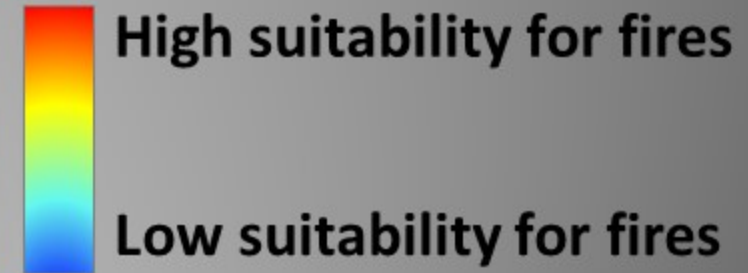
Forest Fires of Washington, Oregon, and Idaho

The Normal Fire Environment



The 1971-2000 normal*

The “normal” fires 1990-2019

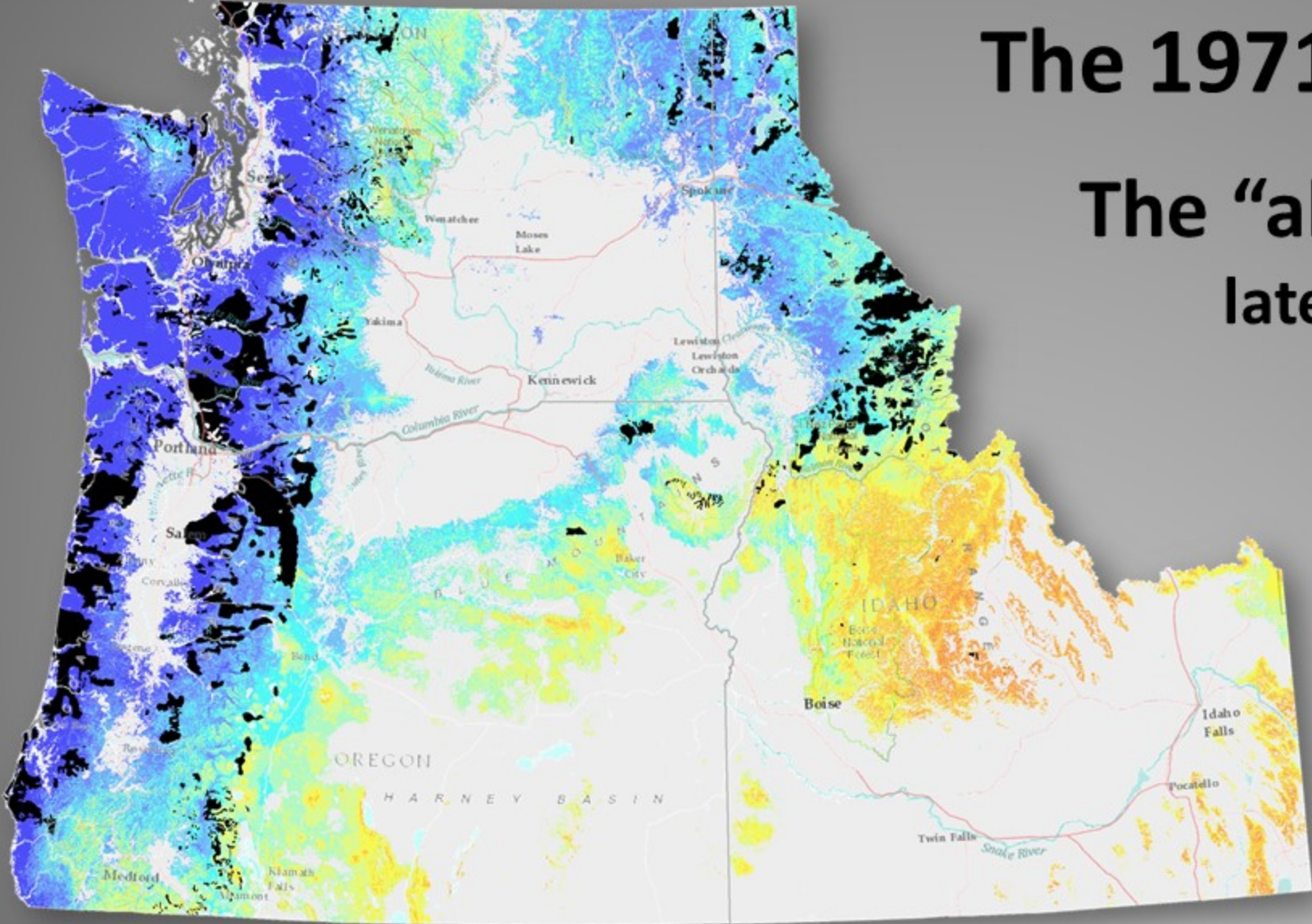


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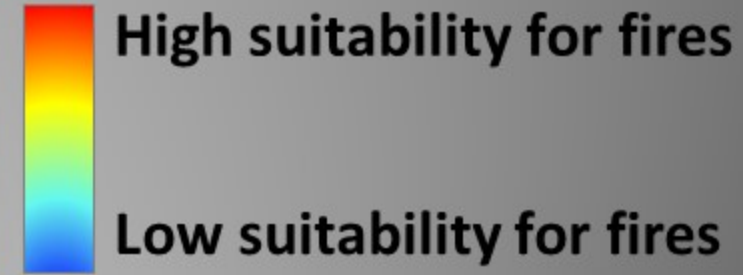
Forest Fires of Washington, Oregon, and Idaho

The Normal Fire Environment



The 1971-2000 normal*

The “abnormal” fires late 1800s-1910

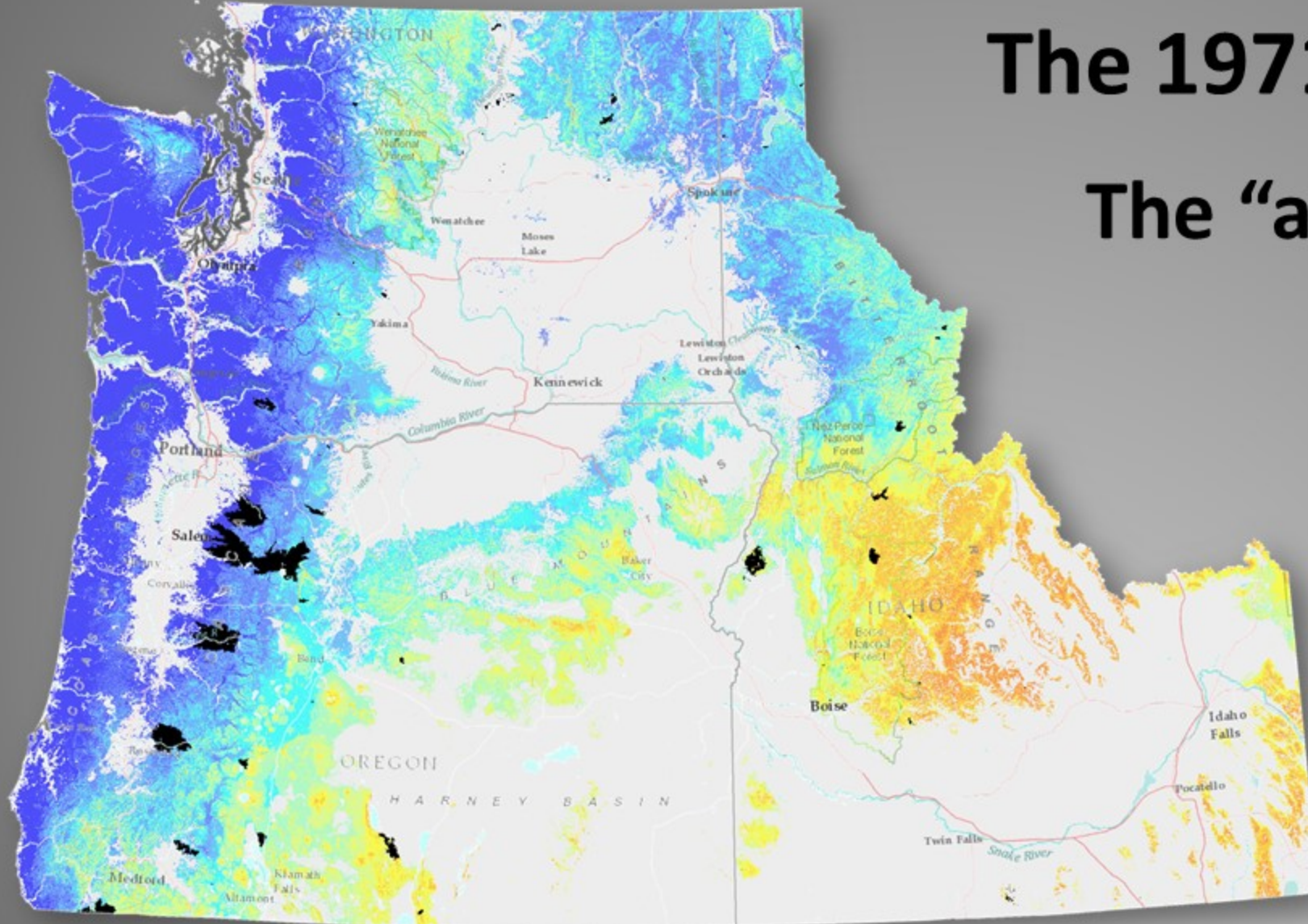


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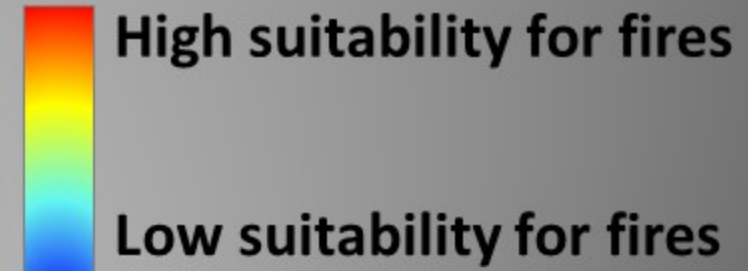
Forest Fires of Washington, Oregon, and Idaho

The Normal Fire Environment



The 1971-2000 normal*

The “abnormal” fires 2020

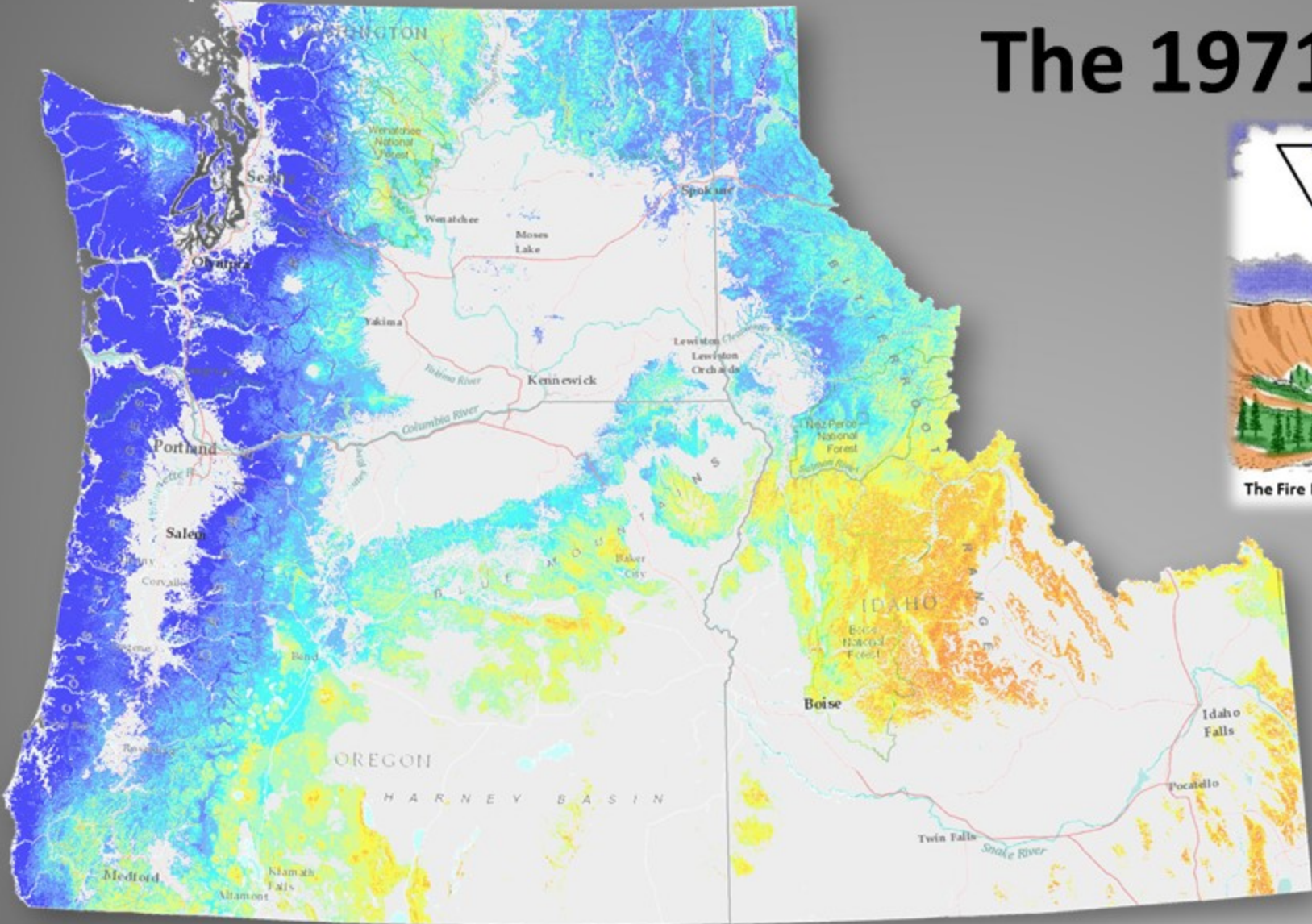


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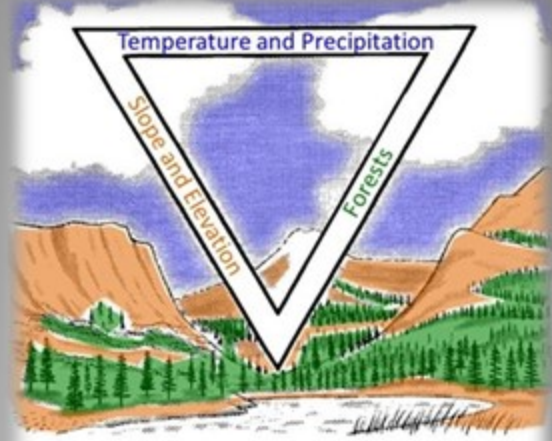


Forest Fires of Washington, Oregon, and Idaho

Climate Change Predictions

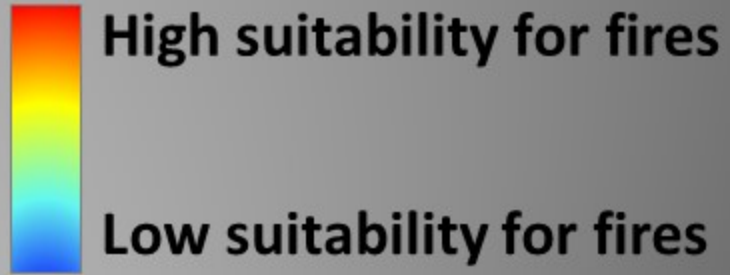


The 1971-2000 normal*



The Fire Environment Concept – Countryman (1972)

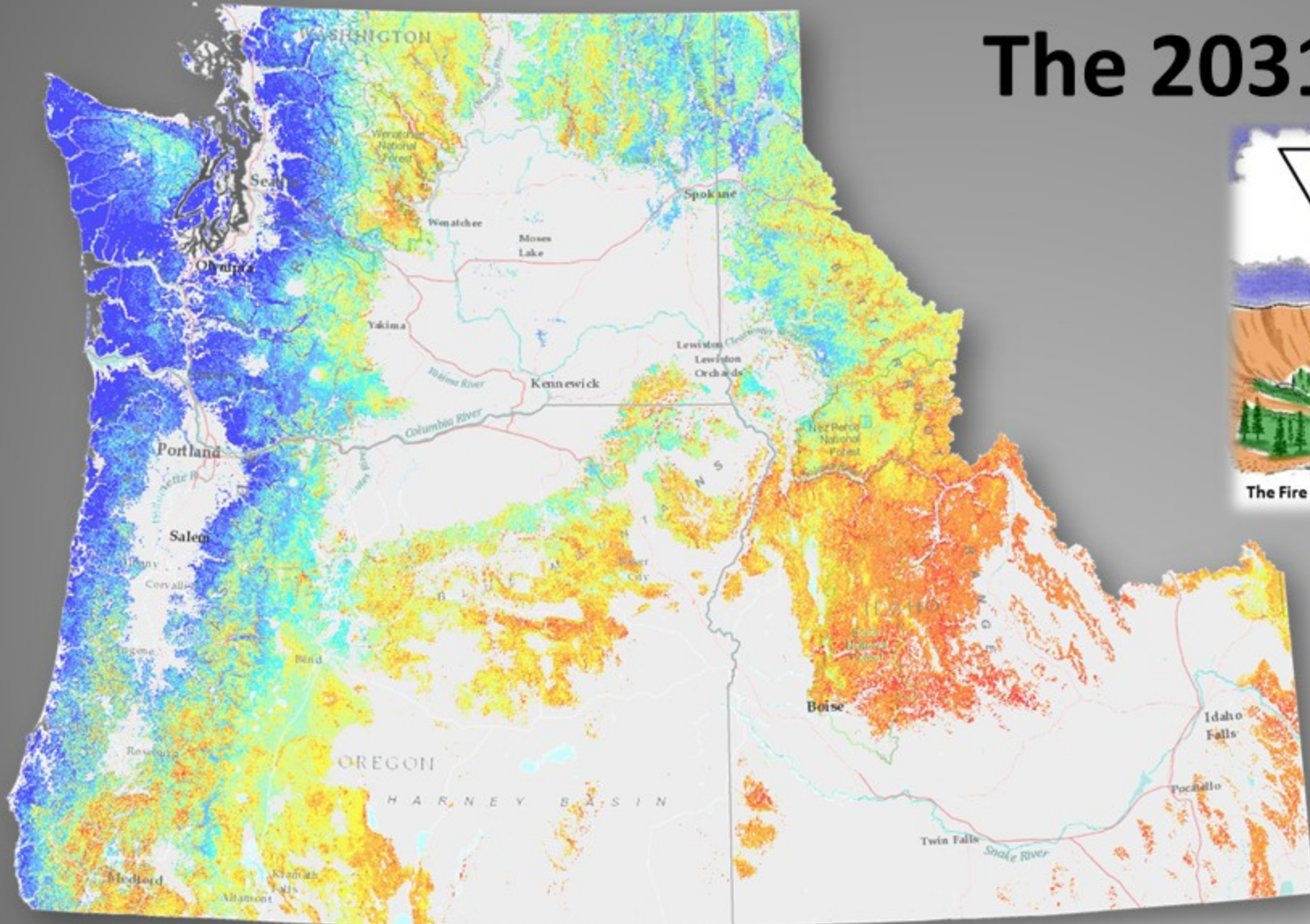
Davis et al. 2017
Cartwright et al. 2020



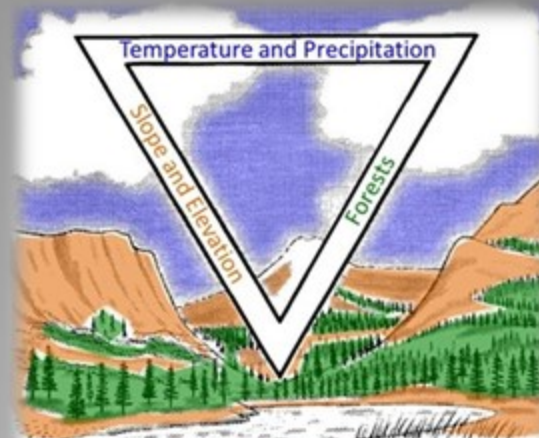
* Climate normal period = 3 decades



Forest Fires of Washington, Oregon, and Idaho Climate Change Predictions

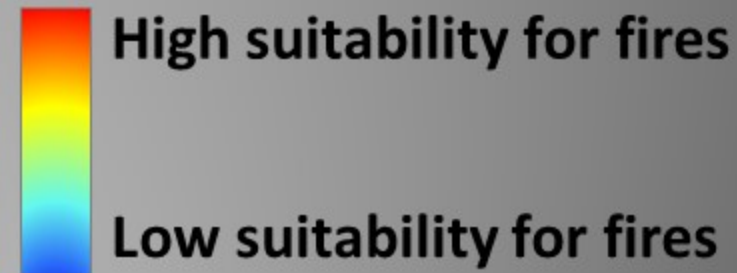


The 2031-2060 normal*



The Fire Environment Concept – Countryman (1972)

Davis et al. 2017
Cartwright et al. 2020

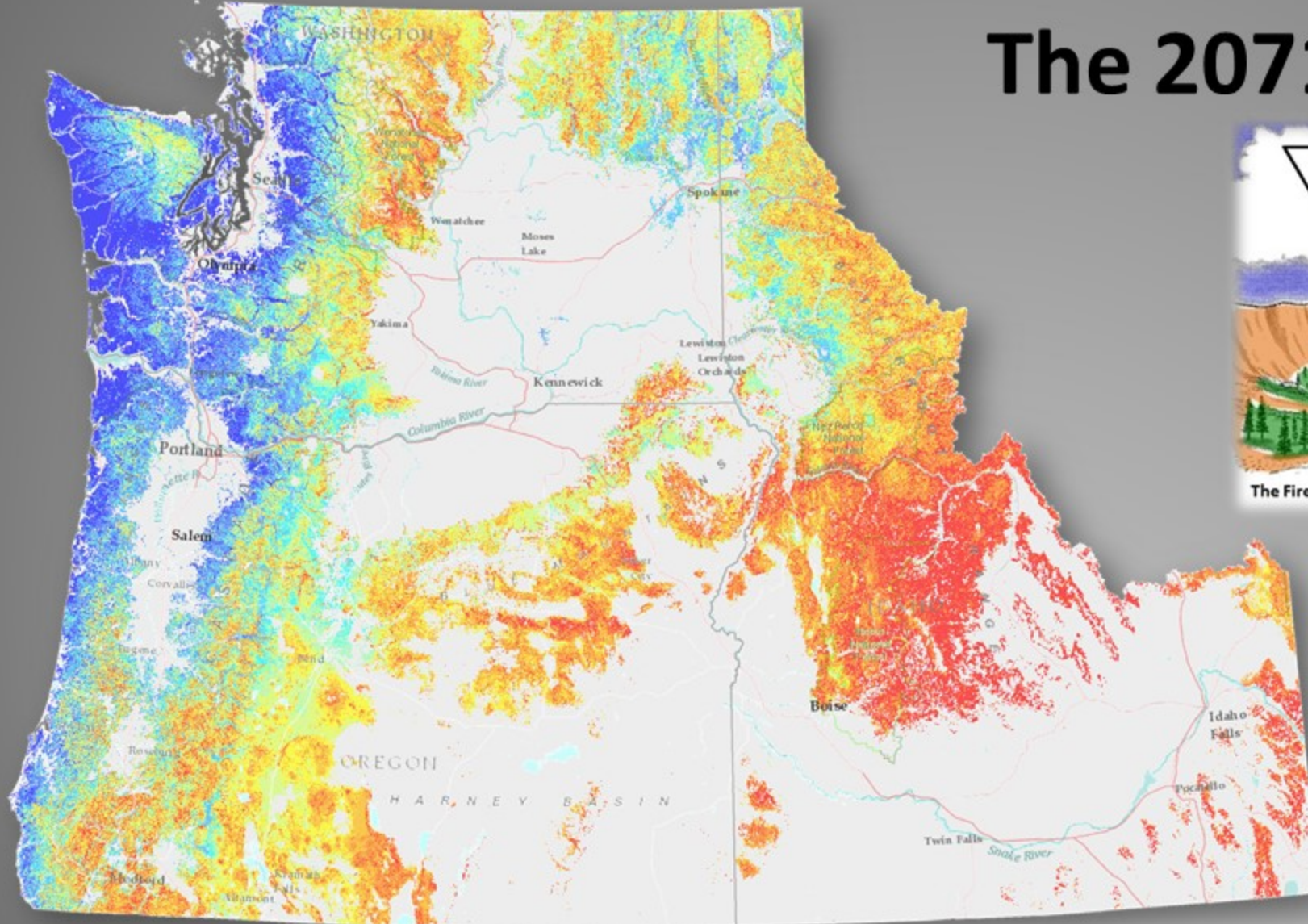


* Climate normal period = 3 decades

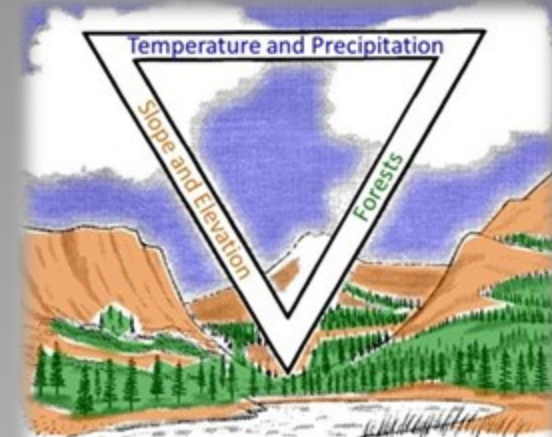


Forest Fires of Washington, Oregon, and Idaho

Climate Change Predictions

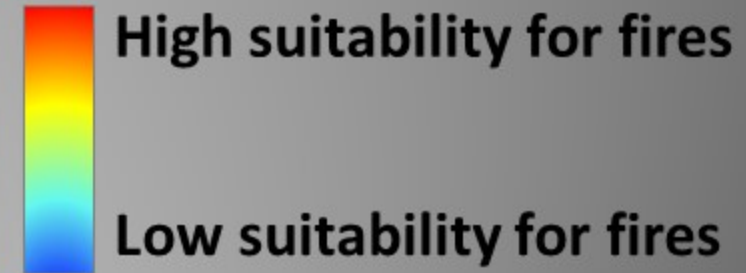


The 2071-2100 normal*



The Fire Environment Concept – Countryman (1972)

Davis et al. 2017
Cartwright et al. 2020



* Climate normal period = 3 decades



Forest Fires of Washington, Oregon, and Idaho

Summary

- Fire has been an integral part of the forest
- Fire frequency relates to fire severity
- Tree species distributions are shaped by fire regimes



infrequent wildfires – high severity



frequent wildfires – low severity



Forest Fires of Washington, Oregon, and Idaho Summary



- The fires of 2020 were “abnormal” (infrequent/high severity)
- Forest fire frequency, extent and severity are increasing
- The 2020 fires may become more “normal” with climate change

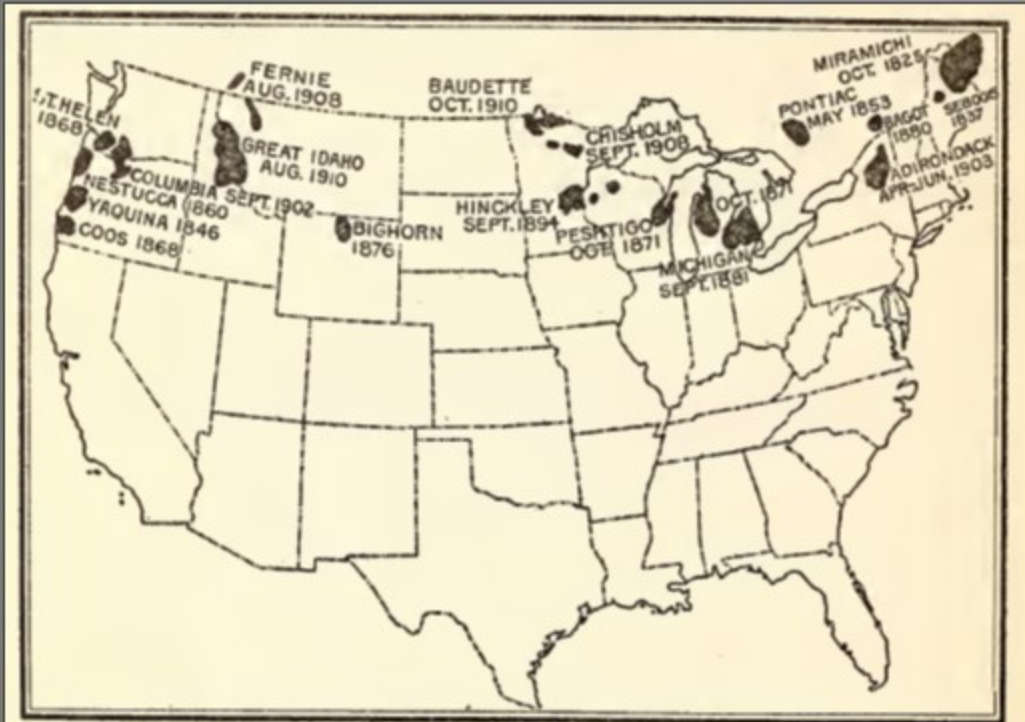


FIG. 4.—Diagram showing the location of the greatest forest fires in the United States since the year 1800.

Great forest fires (Plummer 1912)



FIG. 3.—Area in which dark days occurred, caused by smoke from the great Idaho fire, August 19-25, 1910.

1910 Great Idaho Fire & Smoke Plume

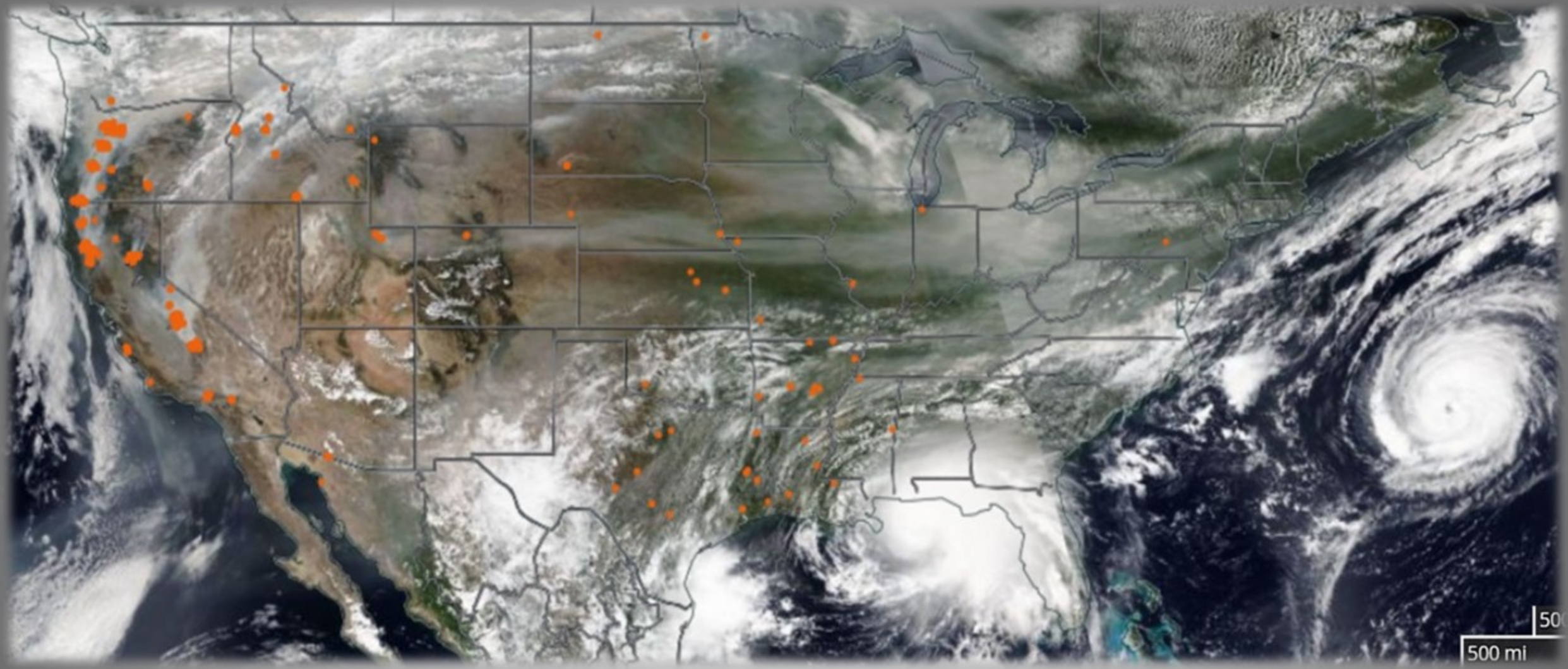


Northwest Forest Plan
Interagency Monitoring Program

Forest Fires of Washington, Oregon, and Idaho Questions?



Raymond Davis



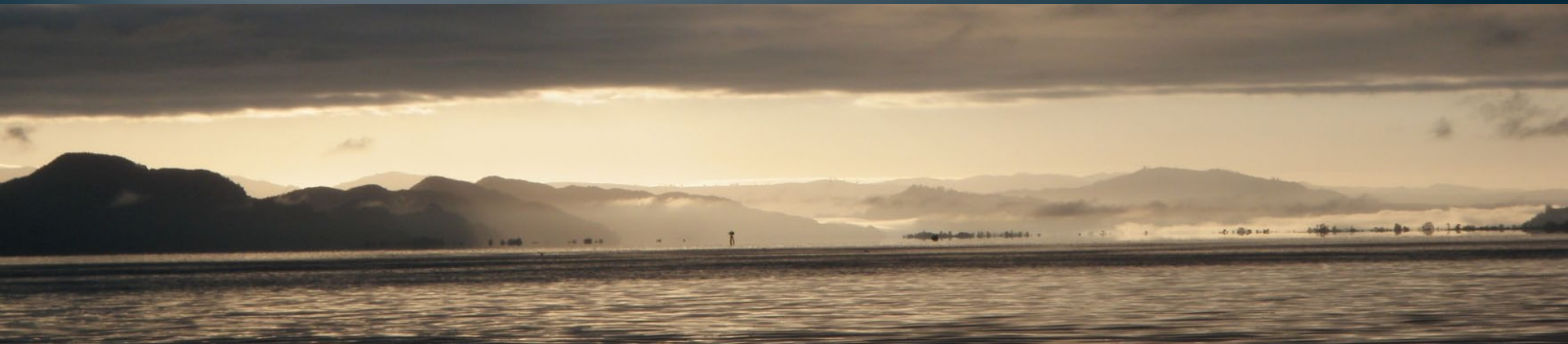
2020... fires, smoke, and hurricanes

2020 Wildfire Impacts

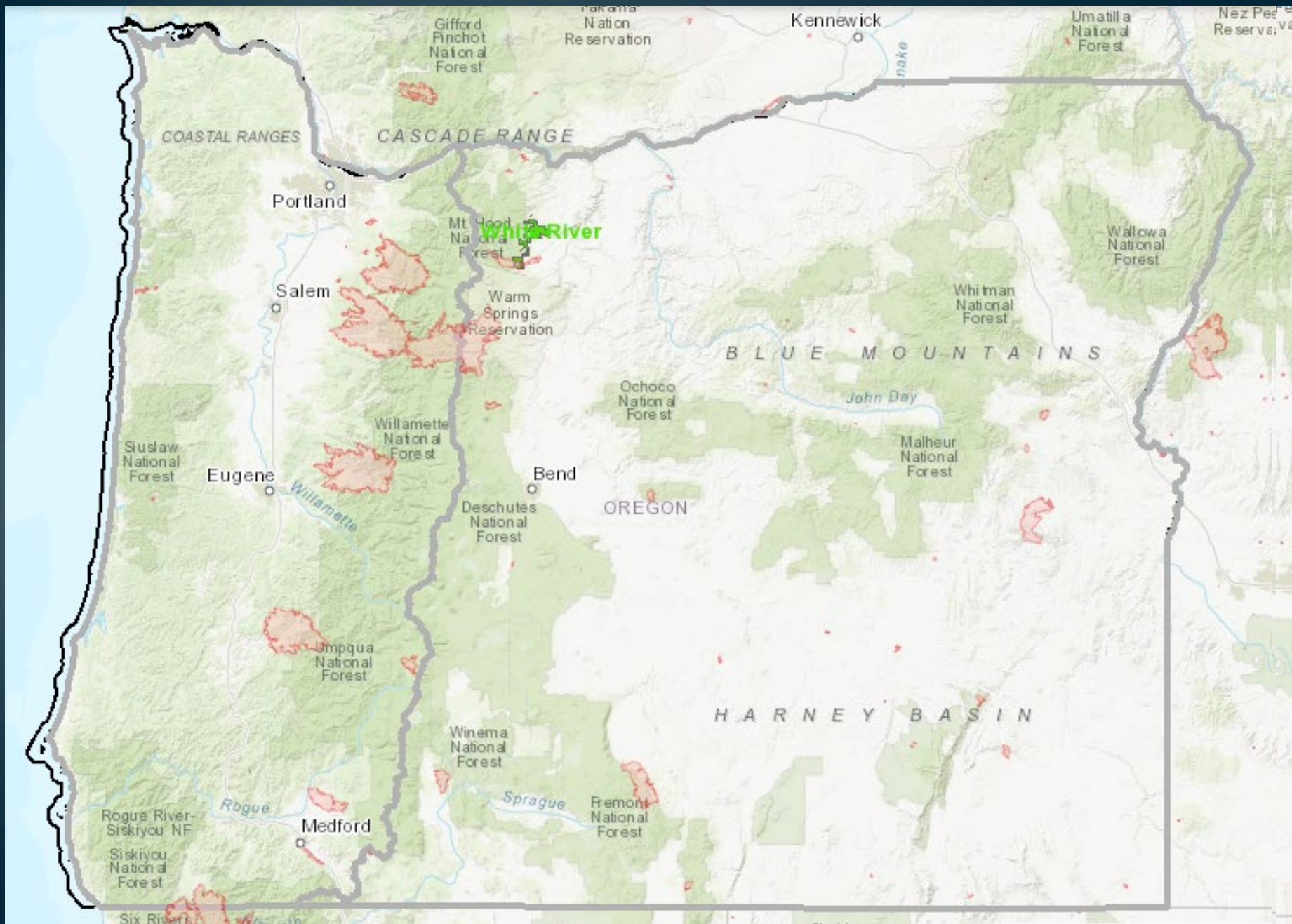
Bernadette Graham Hudson
Oregon Department of Fish and Wildlife
November 17, 2020

Overview

- Location of the fires in Oregon
- Impacts to hatcheries and production
- Impacts to Willamette Wildlife Mitigation Program properties and White River Wildlife Area
- Ongoing recovery efforts



Fire Locations



Hatchery Impacts

Hatchery Impacts

*Evacuations, Damage,
and Production*

- **Evacuations**
 - Eight hatcheries evacuated
 - Minto Fish Facility, Marion Forks, Klamath, Rock Creek, McKenzie, Leaburg, Salmon River, and Clackamas hatcheries
- **Damage**
 - Klamath Hatchery
 - Minto Fish Facility
 - Rock Creek Hatchery
 - Leaburg Hatchery

Klamath Hatchery

- Hatch house and office complex are a complete loss
- Lost 50k triploid brown trout in early rearing troughs in hatch house
- No loss in the outside raceways



Minto Fish Facility

- Minor damage to fish facility infrastructure
- Loss of storage shed, and fish liberation truck
- Adult spring Chinook were spawned and eggs transported to Roaring River Hatchery



Rock Creek Hatchery

- Near complete loss (hatch house, 5 homes, water disinfectant shed, equipment garage, liberation truck)
- Additional damage to intake control and ladder operations building
- Adult spring Chinook and summer steelhead were transferred to Cole Rivers Hatchery after the fire – being spawned to meet Rock Creek production goals
- Almost all juvenile fish were lost (winter steelhead, rainbow trout, spring Chinook, most coho)
- Remaining coho juveniles will be raised at Eastwood Elementary School's fish rearing facility and released this spring as smolts in Cow Creek below Galesville Reservoir



Leaburg Hatchery

- Damage to domestic well pump/pump house
- All in-basin production was released due to loss of water from lowering Leaburg Lake
- Rock Creek production at Leaburg was lost
- All spring Chinook broodstock was released (McKenzie production)
- Broodstock were re-trapped and McKenzie production goals met
- Eggs are split between McKenzie Hatchery, Marion Forks Hatchery, and Willamette Hatchery due to concerns over water quality in Cogswell Creek
- Ongoing uncertainty about water supply from Leaburg Lake

Leaburg Hatchery

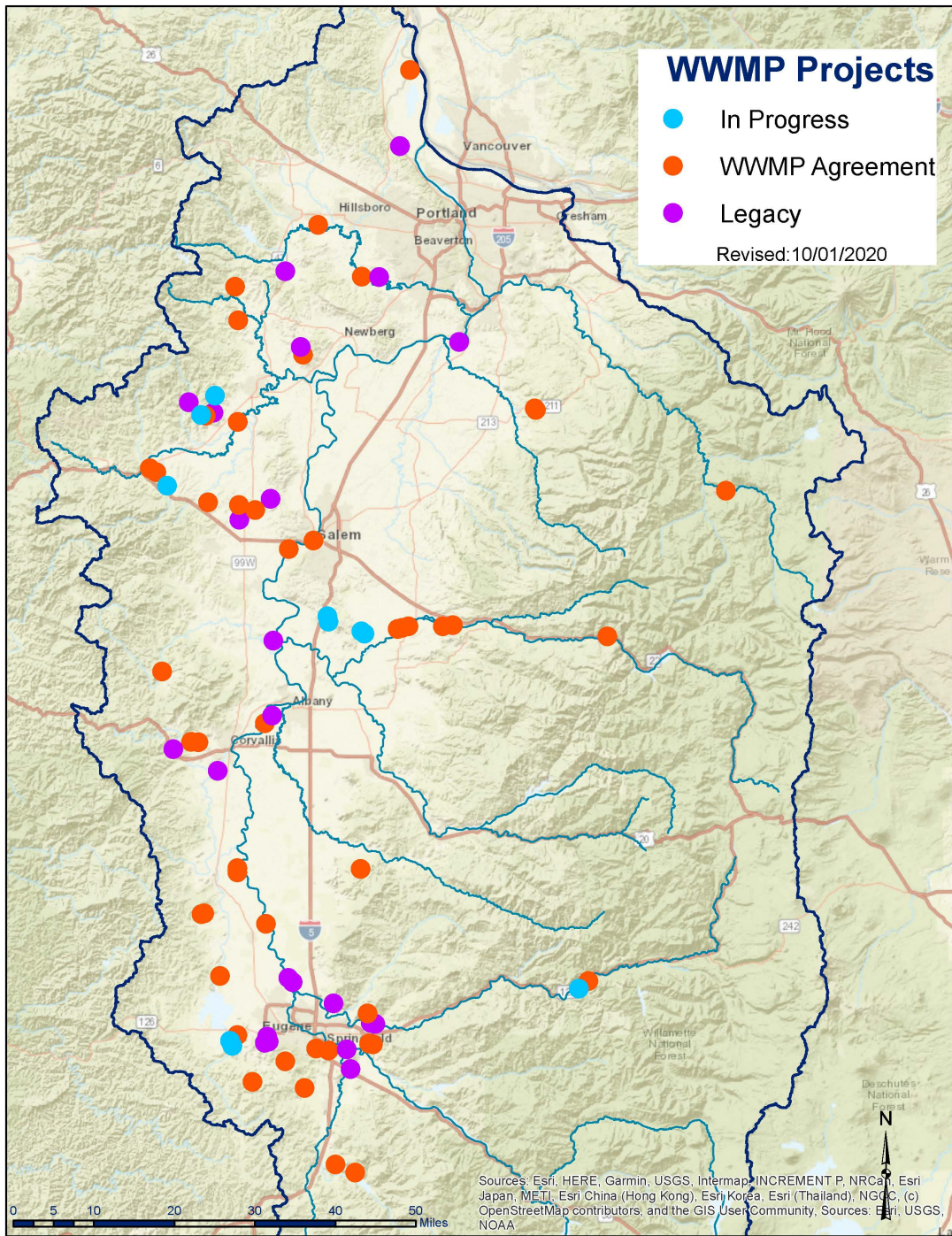


WWMP and Wildlife Area Impacts

WWMP Projects

- In Progress
- WWMP Agreement
- Legacy

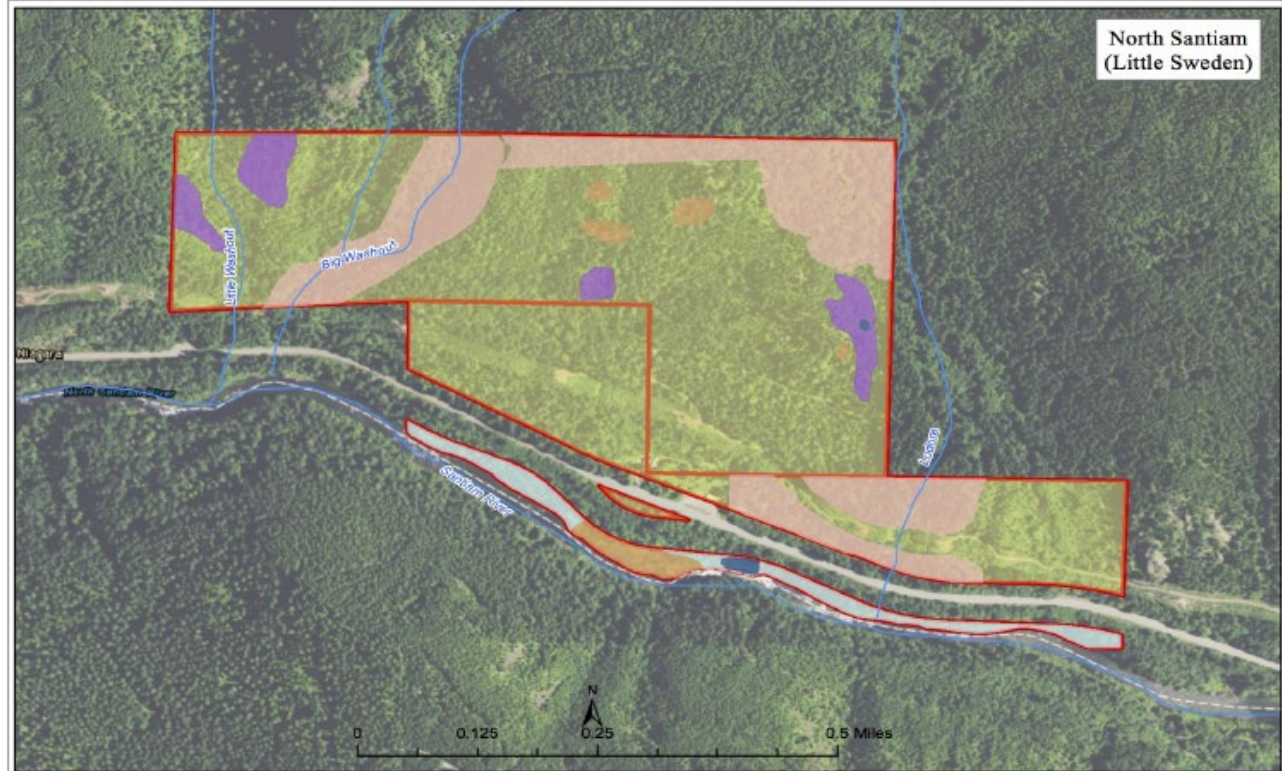
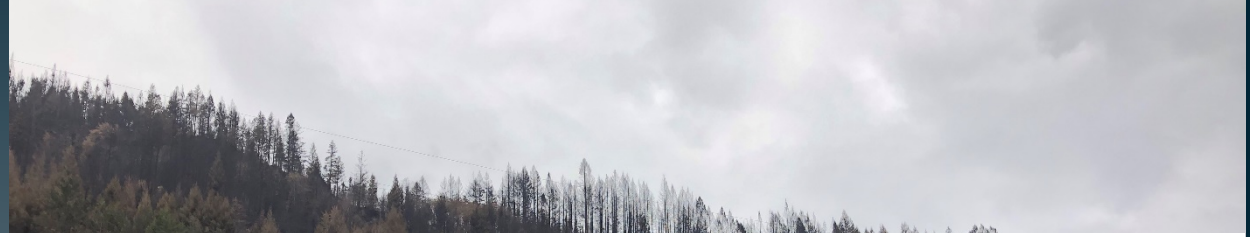
Revised: 10/01/2020



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCA, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community. Sources: Esri, USGS, NOAA

WWMP Impacts

Little Sweden –
Confederated Tribes of
Warm Springs



Legend

- Property Boundary
- Streams/River
- Cliffs, Outcrops, Rocks and Talus
- Wetlands
- Deciduous Forest
- Late successional mixed conifer forest
- Riparian area
- Conifer



This map is for display purposes only.
CTWS-GIS-TJ 1-6-16

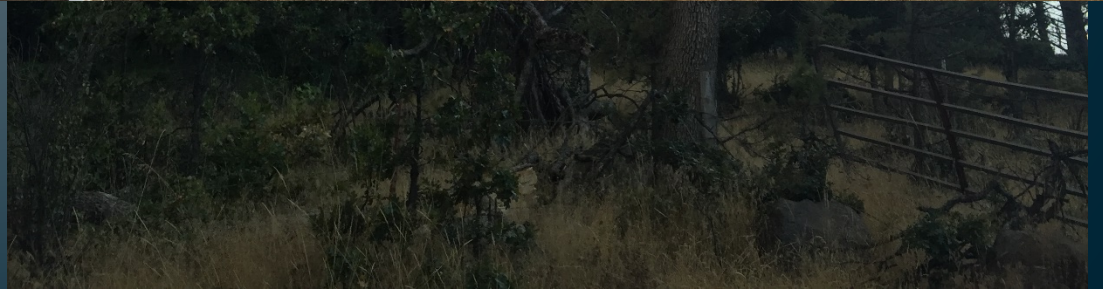




McKenzie River Trust



White River Wildlife Area Impacts




Ongoing Recovery Efforts

Recovery Efforts

- Burned Area Evaluation Team (BAER)
- Emergency Stabilization and Rehabilitation (ESR)
- Oregon Post-Fire Erosion Threat Assessment and Reduction Team (ETART)
- Governor's Natural and Cultural Resources Task Force

ODFW Priorities

- Removal/mitigation of hazardous wastes that might enter streams
- Ensuring that habitat recovery/restoration work is focused in the places where it will do greatest good
- Minimizing the impact of ongoing recovery/rebuilding efforts on fish, wildlife, and their habitats



Contact: Bernadette Graham Hudson
bernadette.n.graham-hudson@state.or.us

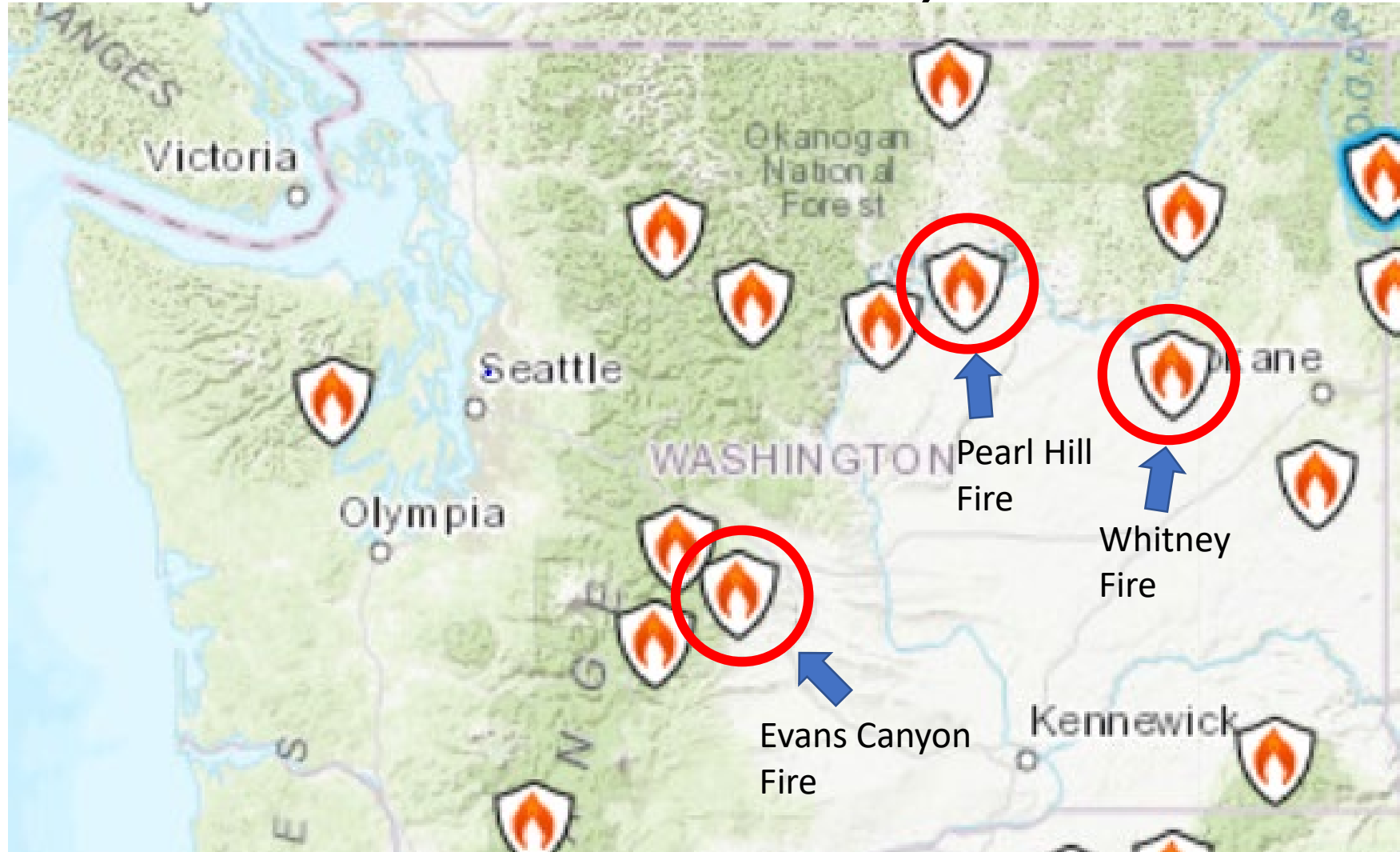
971-673-1134

Wildfire Impacts in Washington, 2020

WDFW Vegetation Ecologist, Kurt Merg



Wildfire in WA, 2020



Fires Detail

from InciWeb, NWCG

Fire Name	Acres	Percent contained
Mount Lena	20	100
Big Hollow	24,995	70
Cold Creek	564	88
Evans Canyon Fire	75,817	90
Jungle Creek Fire	588	100
Downey Creek Fire	2,570	
Chikamin Fire	1,685	100
Pearl Hill Fire	223,730	94
Apple Acres Fire	5,500	99
Palmer Fire	17,988	91
Inchelium Complex	19,399	100
Whitney Fire	127,430	95
Rattlesnake Fire	497	100
Babb-Malden/Manning Fires	18,254	100
	519,037	







Recovery Needs and Funding

	Wenas WLA	Sagebrush Flats WLA	Swanson Lakes WLA
Wildlife Area Acres	105,000	12,000	21,000
BPA Mitigation Acres	75,000	12,000	20,000
Burned Acres	60,000 (~2/3 BPA)	10,000	20,000
Burned Boundary & Internal Fence Miles (Damaged/Destroyed)	6.5/4, 10.5 total	26/12, 38 total	45/15, 60 total
Burned Elk Fence Miles (on BPA/on State)	5.5/12 17.5 total	n/a	n/a
Other Infrastructure	Estimate pending	\$284,000 (signs/reader boards, upland bird feeders, debris removal, etc.)	\$166,000 (headquarters damage plus repairs to electrical system and well)
Minimum Damage Cost Estimate	\$6,144,000	\$2,831,000	\$1,049,000
Current Habitat Recovery Allocation (seed, herbicide, irrigation pipe)	\$210,000	\$100,000	\$100,000