



# Impacts of the 2012 Pole Creek Wildfire

On Fish, Wildlife, and Aquatic  
Habitat, and on Public Health

Presenting to the Oregon Legislature February 25, 2014



Photo Credit: Deschutes National Forest



## **Oregon Dept of Forestry**

Doug Decker, State Forester

Nancy Hirsch, Fire Protection Division Chief

Teresa Alcock, Fire Program Analyst

## **Oregon Health Authority**

Curtis Cude, Environmental Public Health Section Manager

Dave Farrer, Public Health Toxicologist

# Contents



- Fire Area Geography and Communities
- **The Pole Creek Fire**
- Fire Area History
- **Impacts on Public Health**
- **Impacts on Fish, Wildlife and Aquatic Habitat**
- Conclusions
- Recommendations



Photo Credit: Deschutes National Forest



# Fire Area Geography and Communities

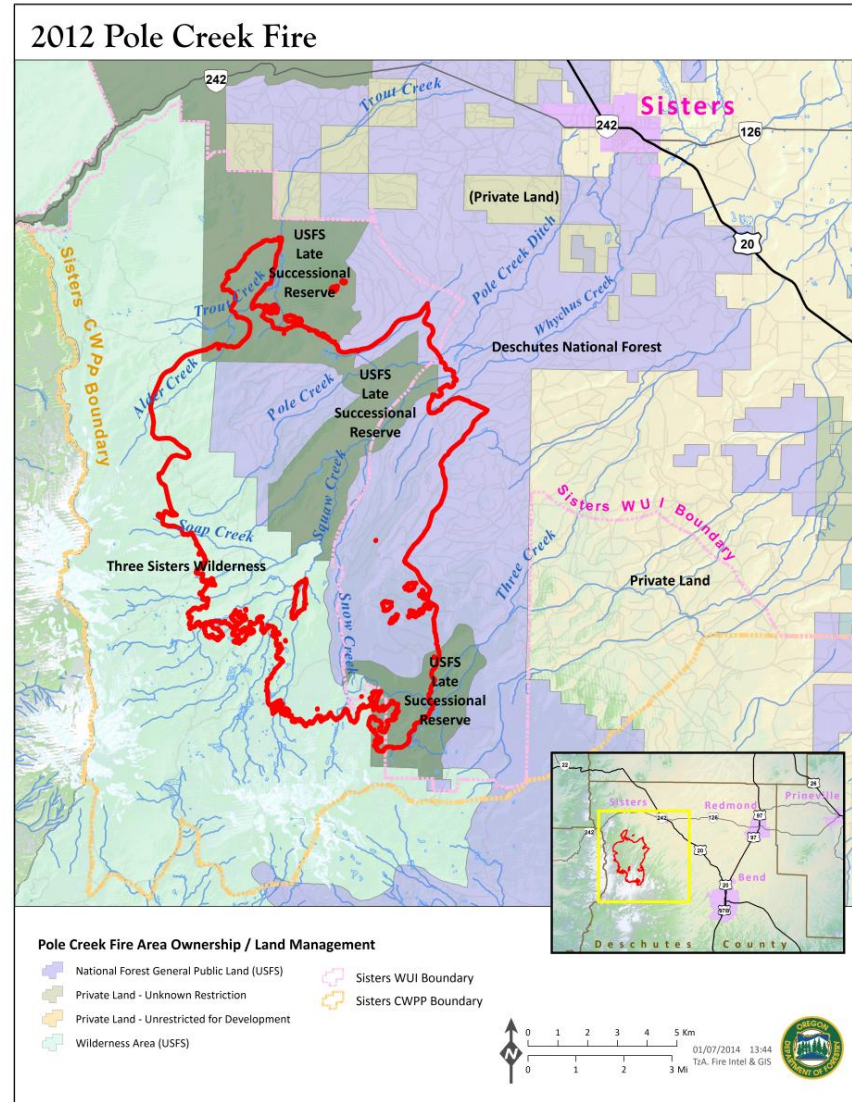


~6 miles from the fire to the town of Sisters

- Community Wildfire Protection Plan
- Wildland Urban Interface

Public and Private Lands

- USFS Wilderness
- Late Successional Reserves



# The Pole Creek Fire



- Started by lightning on September 9, 2012
- **US Forest Service Fire** (All on USFS lands)
- Burned **26,584 acres** within the Whychus Watershed in Deschutes National Forest
- Total Vegetation Mortality
  - Stand replacement- **39%**
  - Riparian reserves - **35%**
- Soil erosion hazard - **26%**



Photo Credit: Deschutes National Forest



# Fire Area History

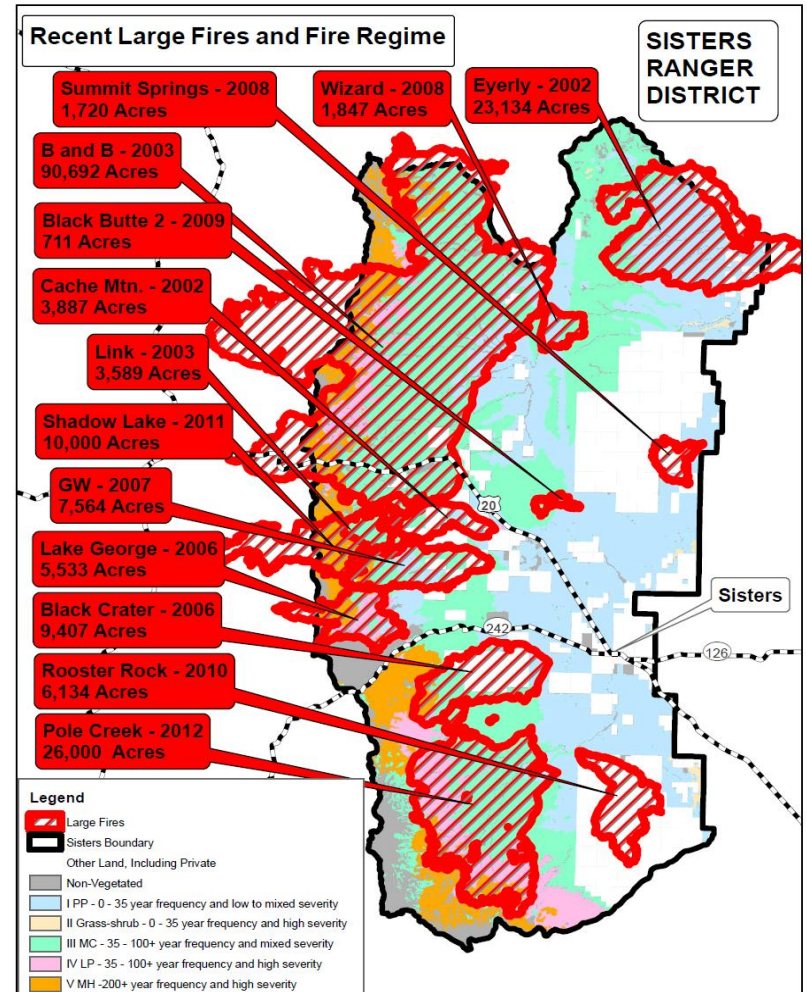


## Recent large fires

The Pole Creek fire killed even thinned Ponderosa pine stands *from the heat of surrounding burn areas* in an area where these older fire-resistant trees may have survived



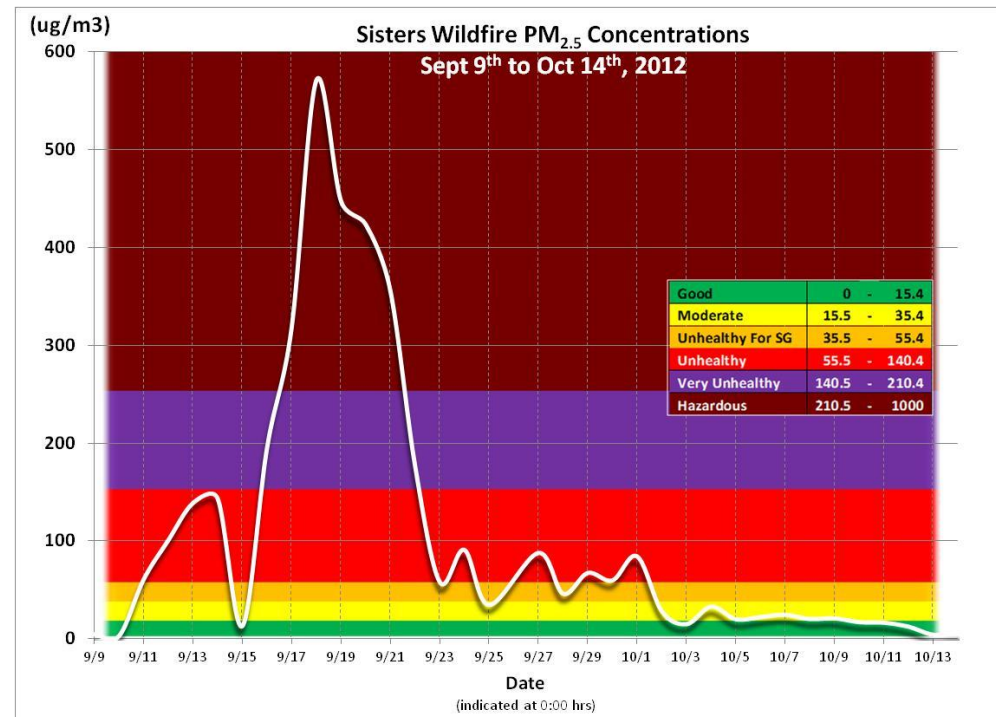
Photo Credit: TZA, ODF



# Impacts: Public Health



- The Oregon Health Authority found:
  - No reported direct injuries
  - PM2.5 is the most dangerous part of wildfire smoke and was very high in Sisters during the Pole Creek fire
  - No difference in the number of hospitalizations



# Impacts: Public Health



Relevant Underlying or Contributing Cause of Death	Year	Number of Deaths Aug. 14 – Sep. 7	Number of Deaths Sep. 8 – Oct. 2	Number of Deaths Oct. 3 – Oct. 27
Acute Cardiac Event (Heart Attack or Severe Rhythm Disturbance)	2011	9	4	5
	2012	8	8	6
Chronic Respiratory Disease, including Asthma	2011	8	4	10
	2012	7	14	10



# Impacts: Public Health



- Two smoke-related motor vehicle crashes occurred in the Sisters area during the Pole Creek wildfire (no injuries)



(This is not a photograph of either of the accidents in Sisters)





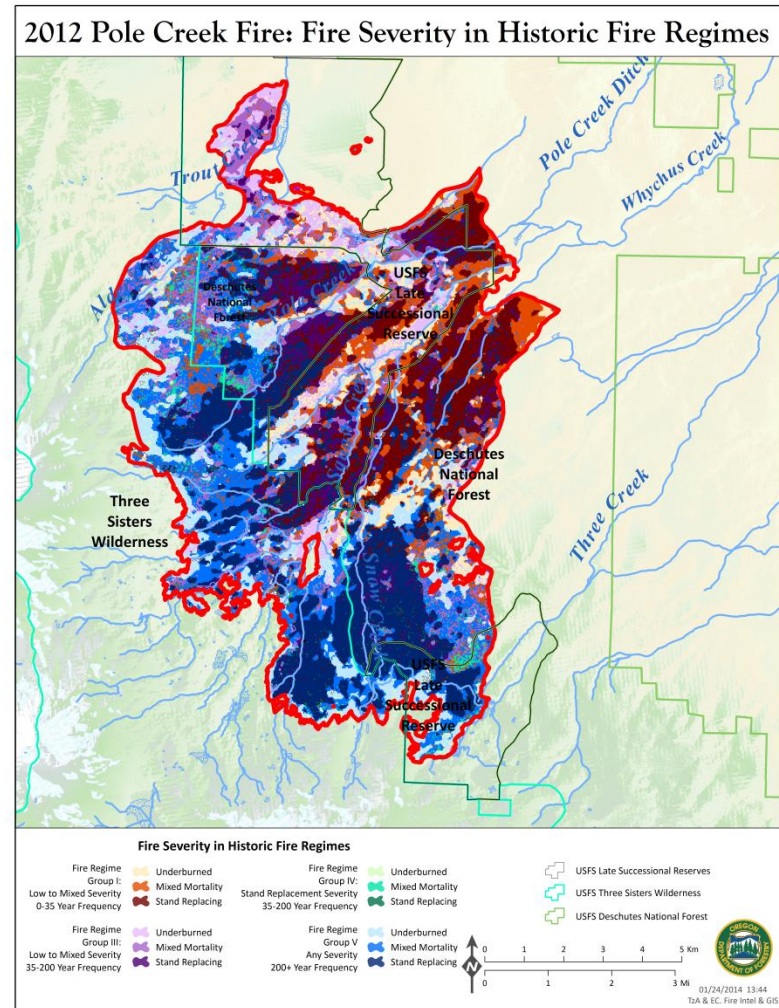
# Impacts: Fish, Wildlife, Aquatic Habitat



Four historic “Fire Regimes” identified within the Pole Creek Fire ranging from low to high severity

In general:

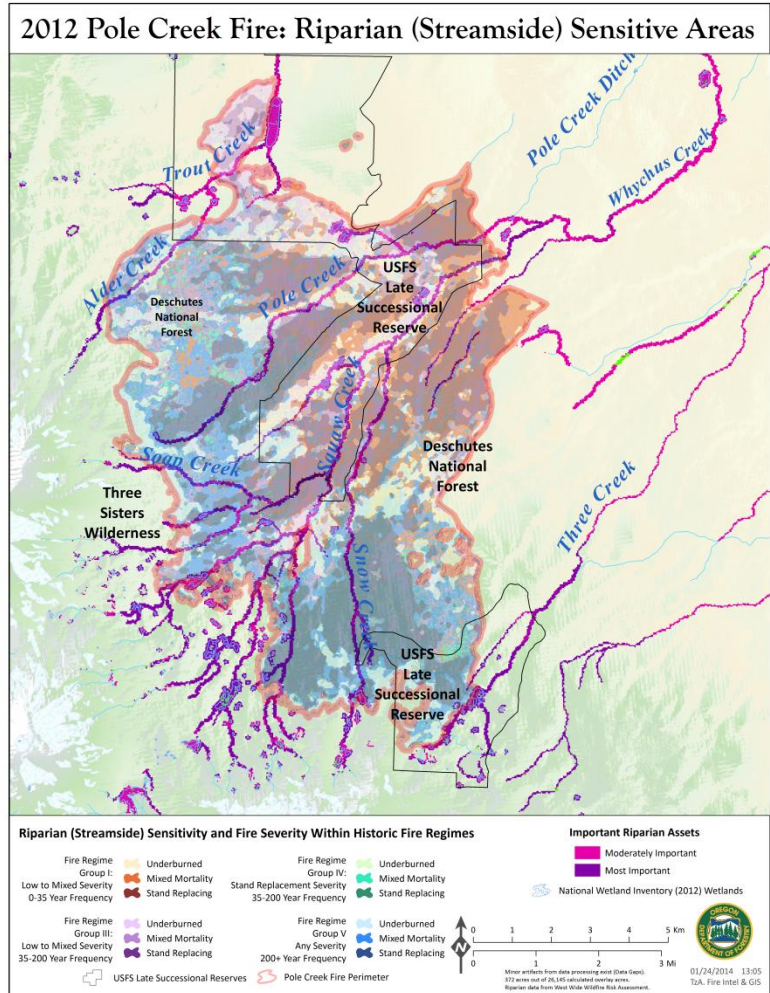
- **High severity:** modify habitat most, substantial forest canopy and ground cover removed
- **Mixed-severity:** variable habitat modification
- **Low severity:** little change to the structure, dominant vegetation is adapted to survive a fire



# Impacts: Fish, Wildlife, Aquatic Habitat



- Varied effects across the landscape
  - Low, moderate, high severity areas
  - **Some effects beneficial, some detrimental**
- Many animal species **adapted** to survive their historic Fire Regime
- **Habitat changes** influence wildlife more than direct injury and mortality
- **Emigration and immigration** - reorganizations in wildlife communities



# Impacts: Fish, Wildlife, Aquatic Habitat



Among the greatest impacts:

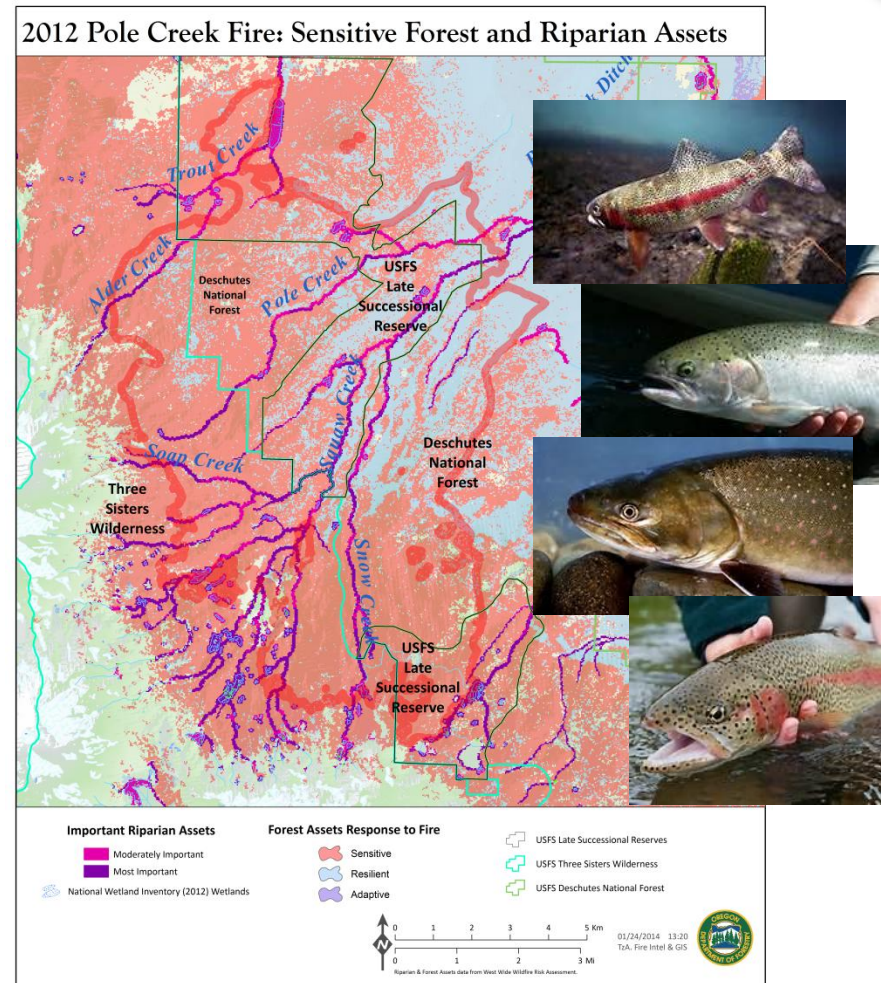
- **Loss of interior older forest habitat and connectivity loss**
- Increase in open canopy habitats
- Loss of reception of precipitation and **earlier snow pack melting** with loss of forest canopies
- **Soil burn** and loss of soil cover impacting the **primary food web**
- Raptors and woodpeckers benefit, cavity-nesters and insectivores benefit



# Impacts: Fish, Wildlife, Aquatic Habitat



- No direct fish mortality
- increase in stream water temperatures
- Potential surge in primary productivity from streamside vegetation loss
- potential for ash flows, erosion, road damage and washouts, and flooding over surfaces and in streams (scouring of fish redds and reduction of fish egg survival)
- degradation of water quality with increased sediments from erosion and chemical changes



# Conclusion

- ✓ Historic fire exclusion
- ✓ Lack of active management
- ✓ Extensive acreages of life-spanned insect-killed lodgepole pine trees



**Contiguous accumulated fuels**

**Drought stress:  
Invitation to Insects and Diseases**



***Greater intensity fires***

***Increase in size of fires***

***More smoke***

***More severe fire effects on public health,  
fish, wildlife, and aquatic habitats***



# Recommendations: OHA



OHA encourages local communities to utilize the Oregon wildfire Response Protocol for Severe Smoke Episodes, available online here:  
<http://www.deq.state.or.us/aq/burning/docs/WFresponse.pdf>

OHA encourages all hospitals in Oregon to implement Oregon ESSENCE to improve timely reporting of emergency department visits across the state.



# Recommendations: ODF



Support Implementation of the *Cohesive Wildfire Strategy*



- ✓ **Creating Fire Adapted Communities**
- ✓ **Restoring ecosystem health and resilience to wildfire**
- ✓ **Implementing safe, effective wildfire management decisions**



# Recommendations: ODF



- ✓ Continue to support and explore new opportunities to **increase active management** on federal forests
- ✓ Work to ensure **policy framework** is in place that allows a **timely response** on **post-fire recovery and restoration** work

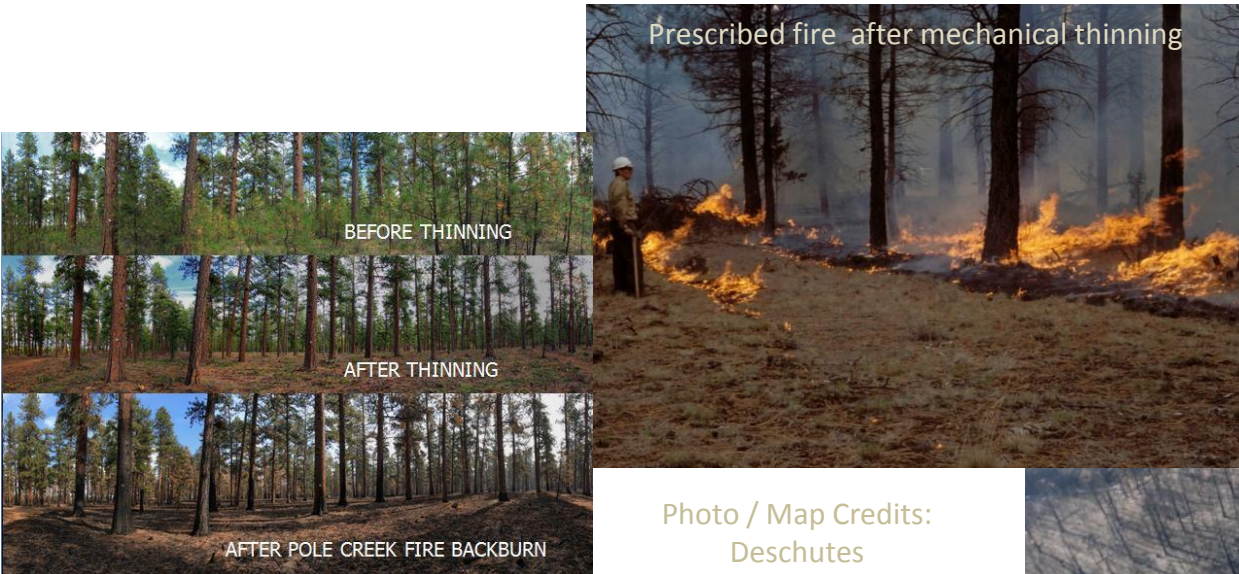
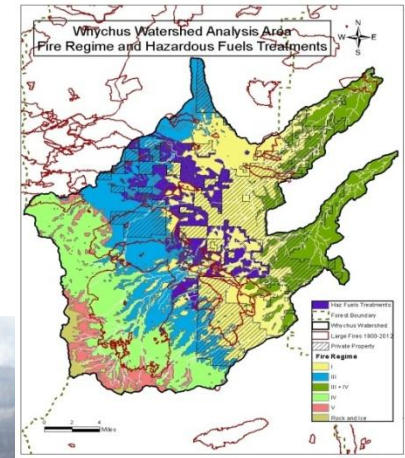
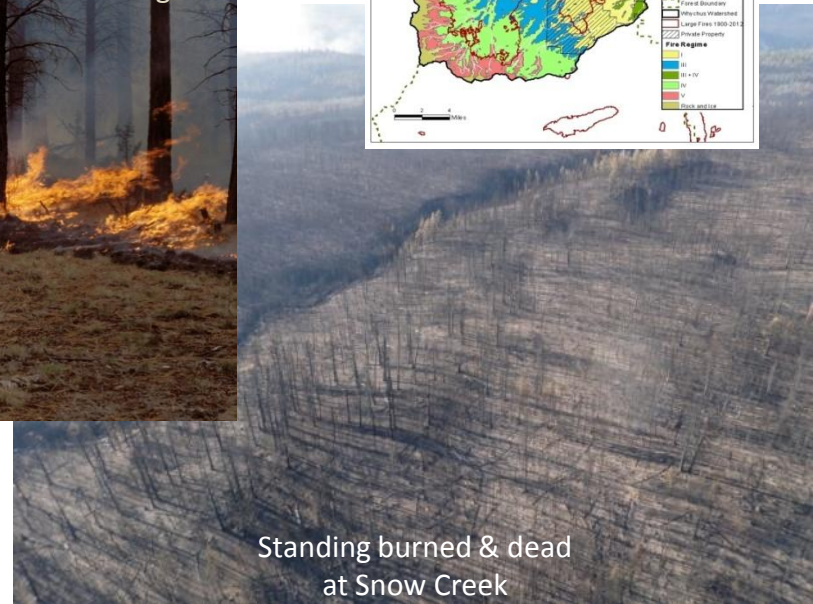


Photo / Map Credits:  
Deschutes  
National Forest





# Acknowledgements



Sources instrumental in the production of the report:

- Consultations with Sisters Ranger District of USDA Forest Service Deschutes National Forest, Oregon Department of Fish and Wildlife, and Oregon Health Authority
- Pajutee, Maret. **USFS Ecologist. Presentation: “After the Pole Creek Fire, Fire Effects and Lessons from 10 Years of Big Fires in Sisters.”** USDA Forest Service, Deschutes National Forest, Sisters Ranger District.
- **2013 Whychus Watershed Analysis Update Report.** USDA Forest Service, Deschutes National Forest, Sisters Ranger District.



Full Bibliography is included in the Final Report

Impacts of the 2012 Pole Creek Fire on Fish, Wildlife and Aquatic Habitat, and on Public Health



Photo Credit: Deschutes National Forest



# Thank you

## **Oregon Dept of Forestry**

Doug Decker, State Forester

Nancy Hirsch, Fire Protection Division Chief

Teresa Alcock, Fire Program Analyst

## **Oregon Health Authority**

Curtis Cude, Environmental Public Health Section Manager

Dave Farrer, Public Health Toxicologist

**The full report is available in print and online:**



Oregon Health Authority  
500 Summer St NE, E-20  
Salem, Oregon 97301

**[Oregon.gov/oha](http://Oregon.gov/oha)**

Oregon Dept of Forestry  
2600 State Street  
Salem, Oregon 97310

**[Oregon.gov/odf](http://Oregon.gov/odf)**