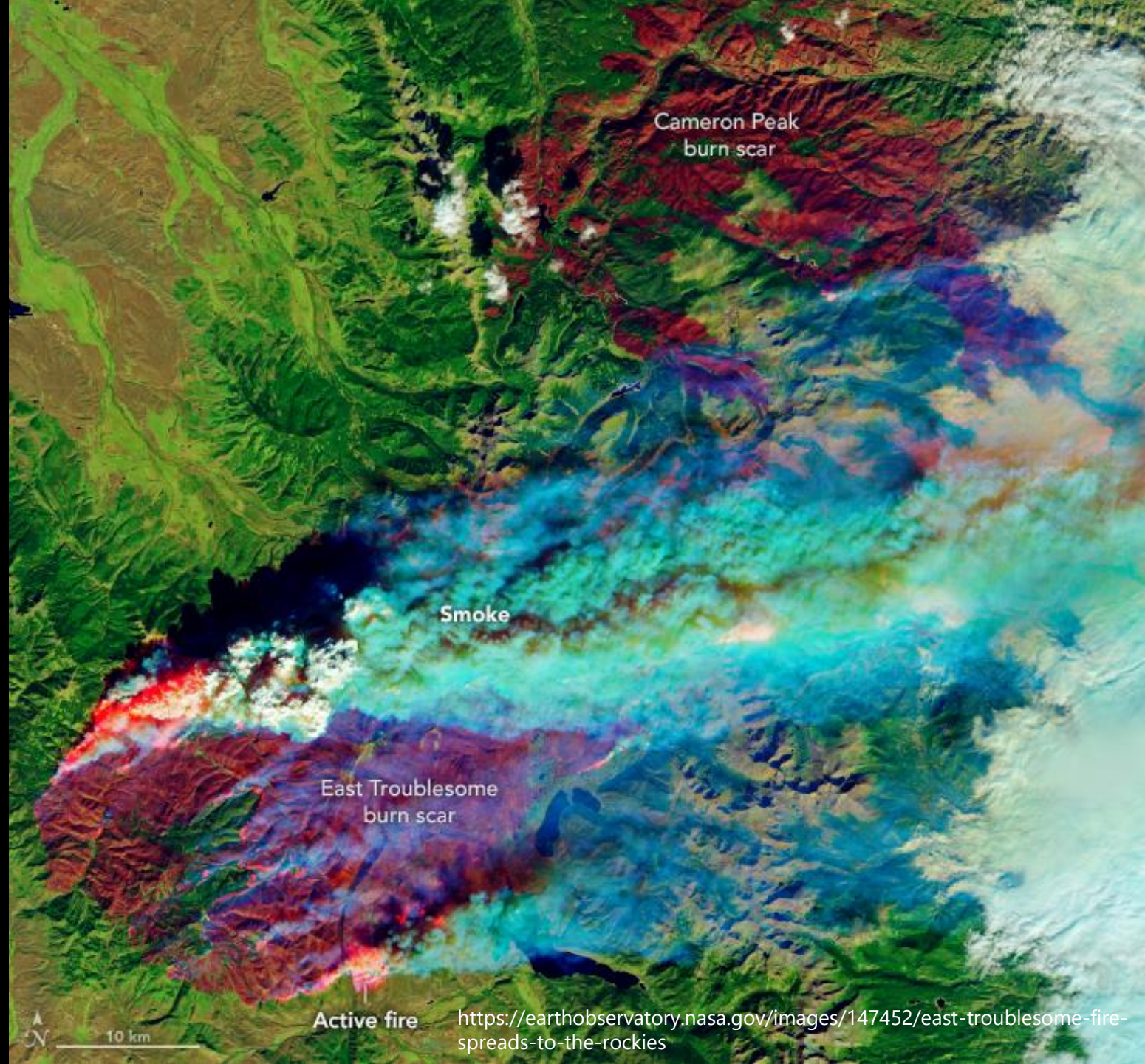


# East Troublesome and Cameron Peak Wildfire Impacts

Kimberly Tekavec, Northern Water

Water Literate Leaders

March 20, 2024






# Northern Water Today

 District population

1,021,000

 Ownership


Ag: 29%

M&I: 71%

 Deliveries (2020)

Ag: 40%

M&I: 60%

 Raw Water Provider

210,000 acre-feet/year

**CONSTRUCTED**  
1938-1957

WYOMING  
COLORADO

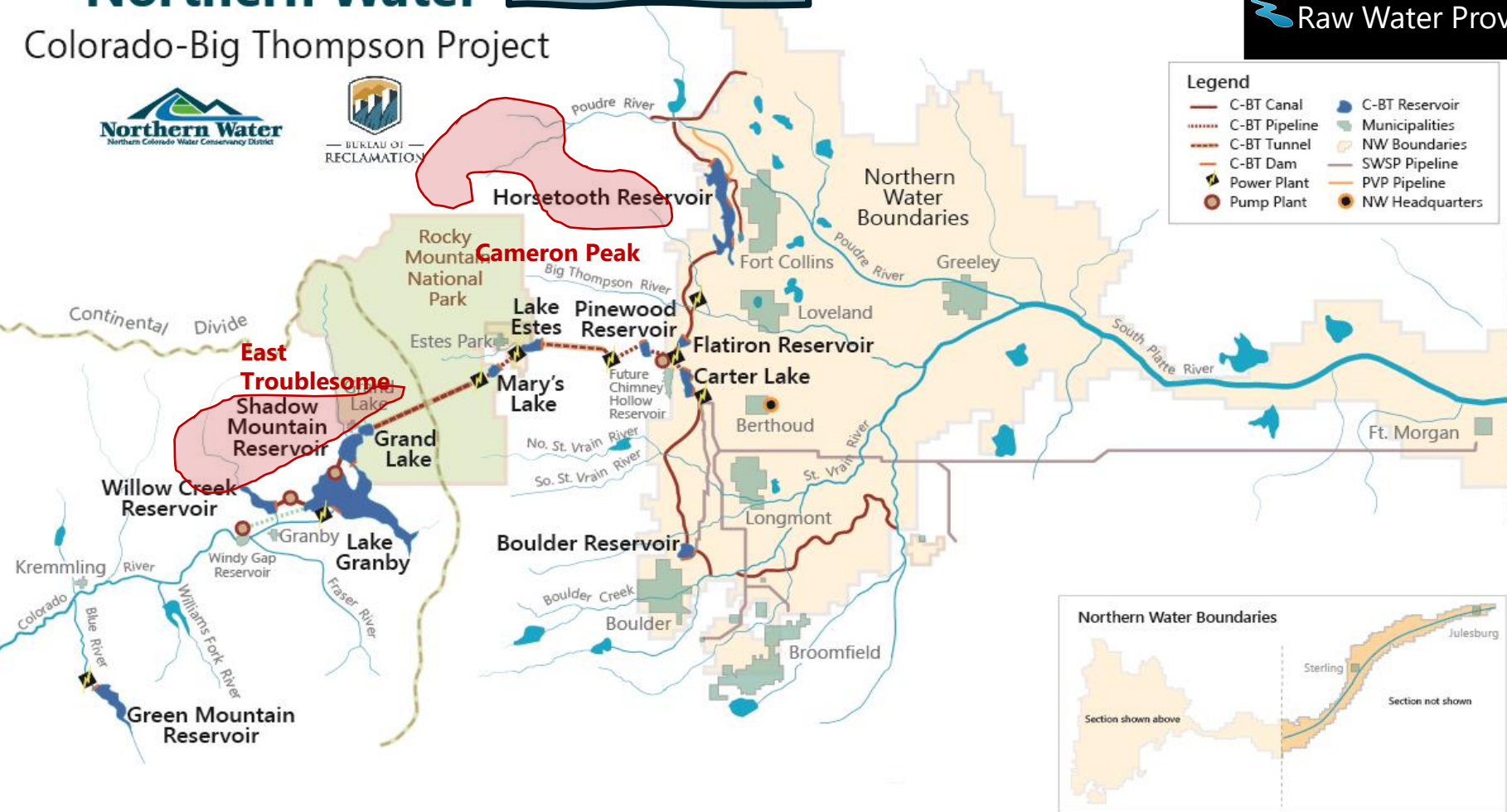
## Northern Water

Colorado-Big Thompson Project

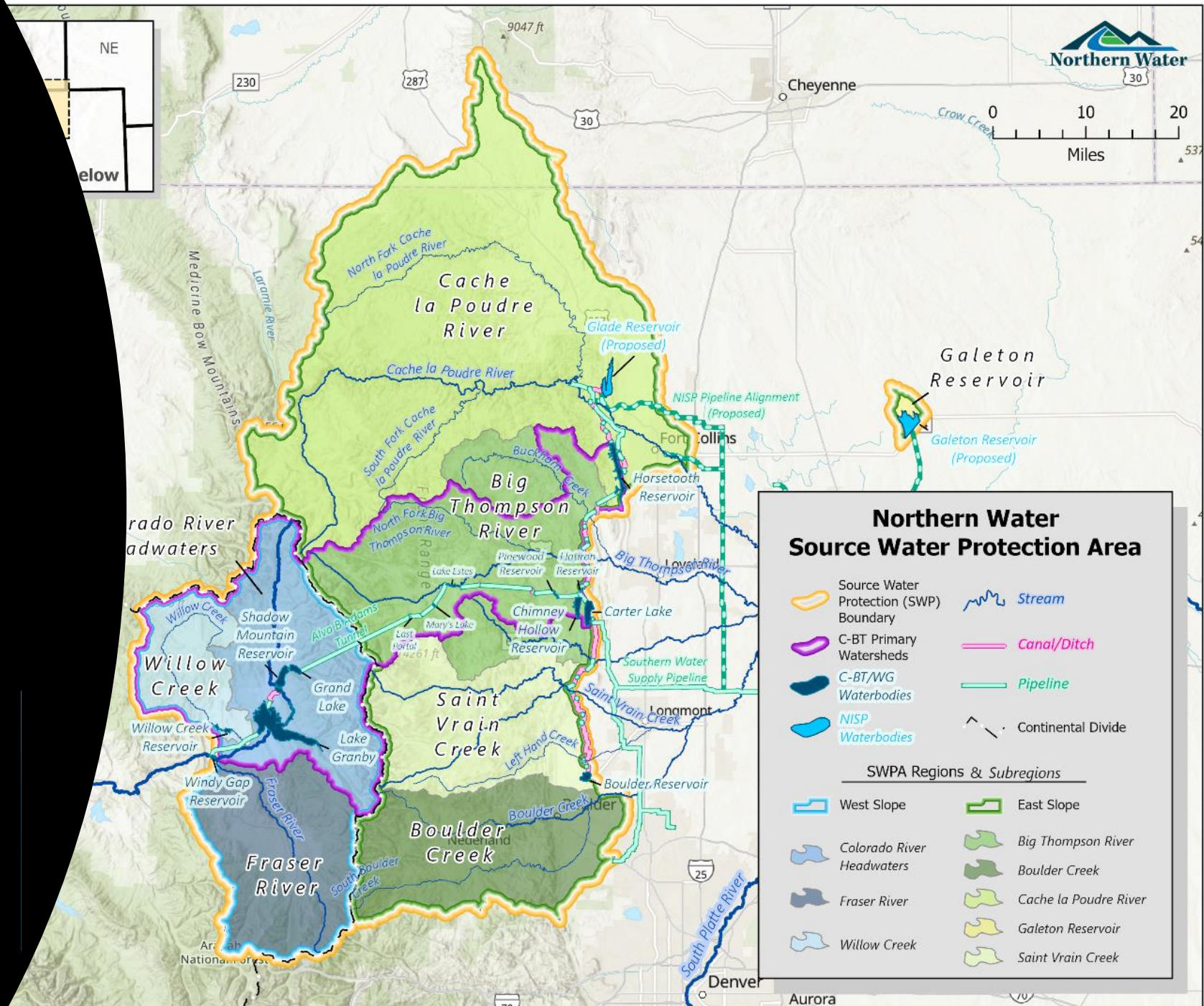


**Legend**

- C-BT Canal
- C-BT Pipeline
- C-BT Tunnel
- C-BT Dam
- Power Plant
- Pump Plant
- C-BT Reservoir
- Municipalities
- NW Boundaries
- SWSP Pipeline
- PVP Pipeline
- NW Headquarters



# Source Water Protection Area



SWPA (ac)      %

East Slope      1,595,122      76.2%

West Slope      498,126      23.8%

**Total      2,093,247**

**Northern Water Source Water Protection Area**

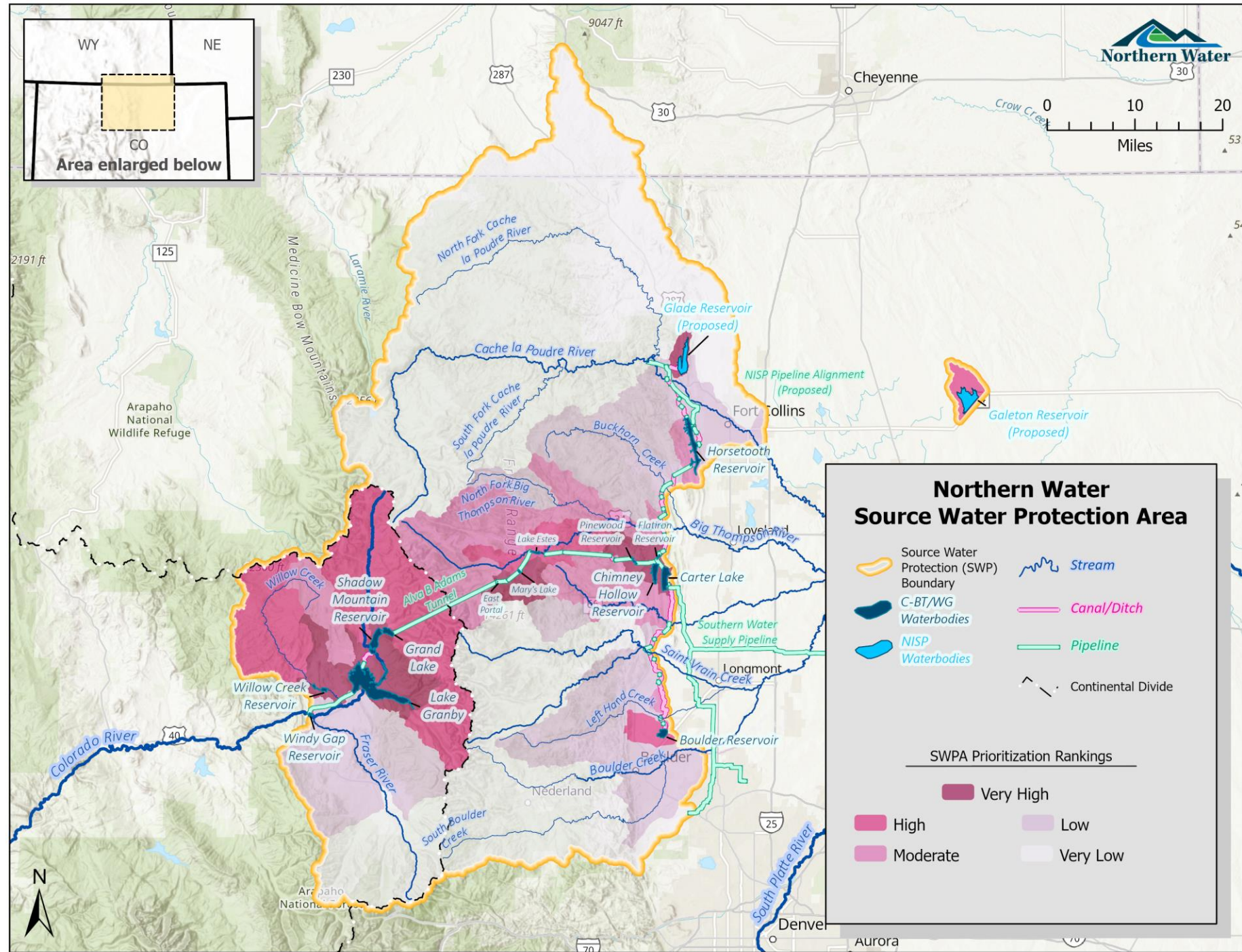
- Source Water Protection (SWP) Boundary
- C-BT Primary Watersheds
- C-BT/AWG Waterbodies
- NISP Waterbodies
- Stream
- Canal/Ditch
- Pipeline
- Continental Divide

**SWPA Regions & Subregions**

- West Slope
- East Slope
- Colorado River Headwaters
- Fraser River
- Willow Creek
- Big Thompson River
- Boulder Creek
- Cache la Poudre River
- Galetion Reservoir
- Saint Vrain Creek



# SWPA Prioritization Rankings (draft)





The background features a stylized, semi-transparent graphic. On the left, a globe shows the continents of North and South America. To the right of the globe is a vertical thermometer with a bulb at the bottom and a scale with horizontal tick marks. The entire graphic is rendered in shades of gray and blue against a black background.

# Context

Climate Change and Compromised Forest Health



# Further change to come

## Statewide Average Annual Temperature

+ 2 F over the past 30 years

GCMs predict + 2.5 F – 6.5 F by 2050

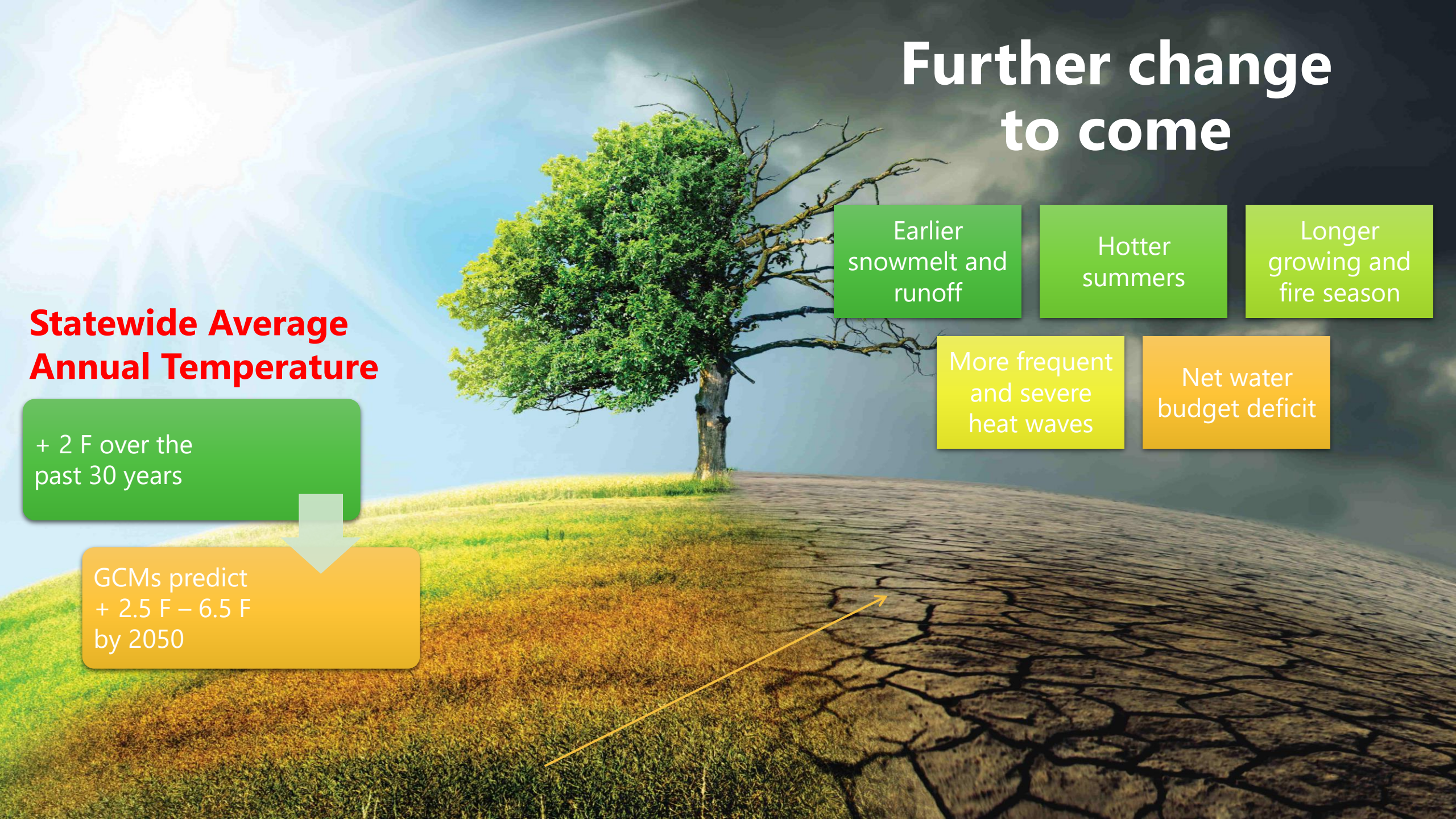
Earlier snowmelt and runoff

Hotter summers

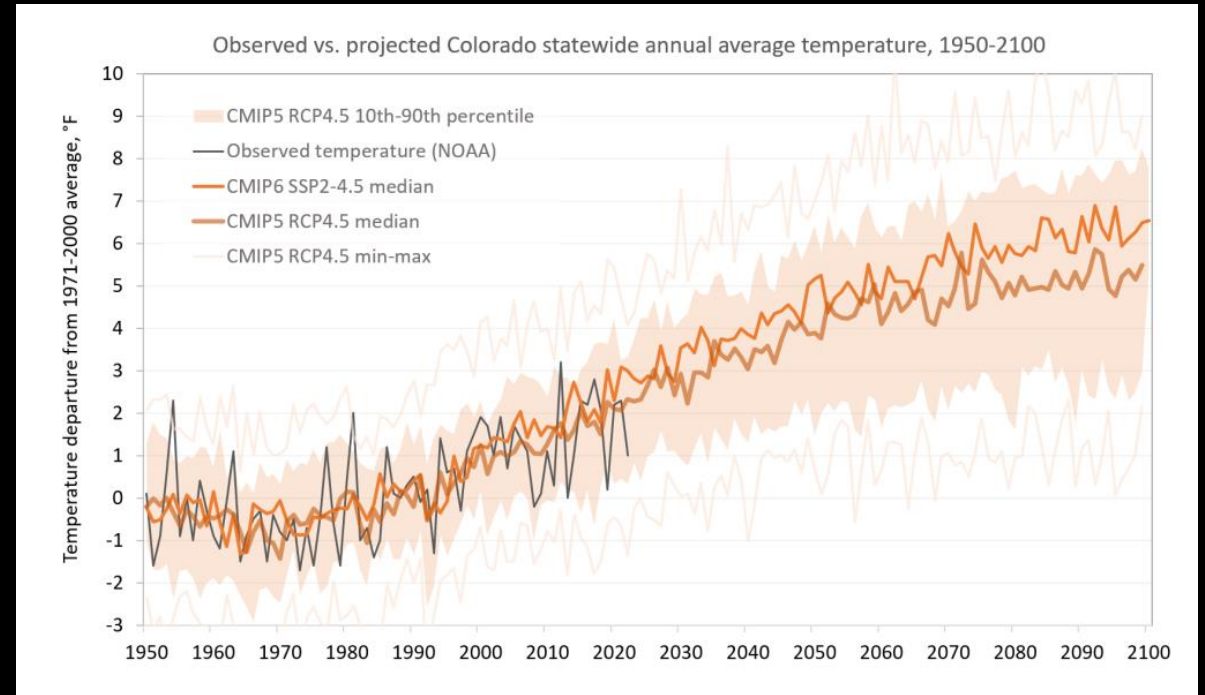
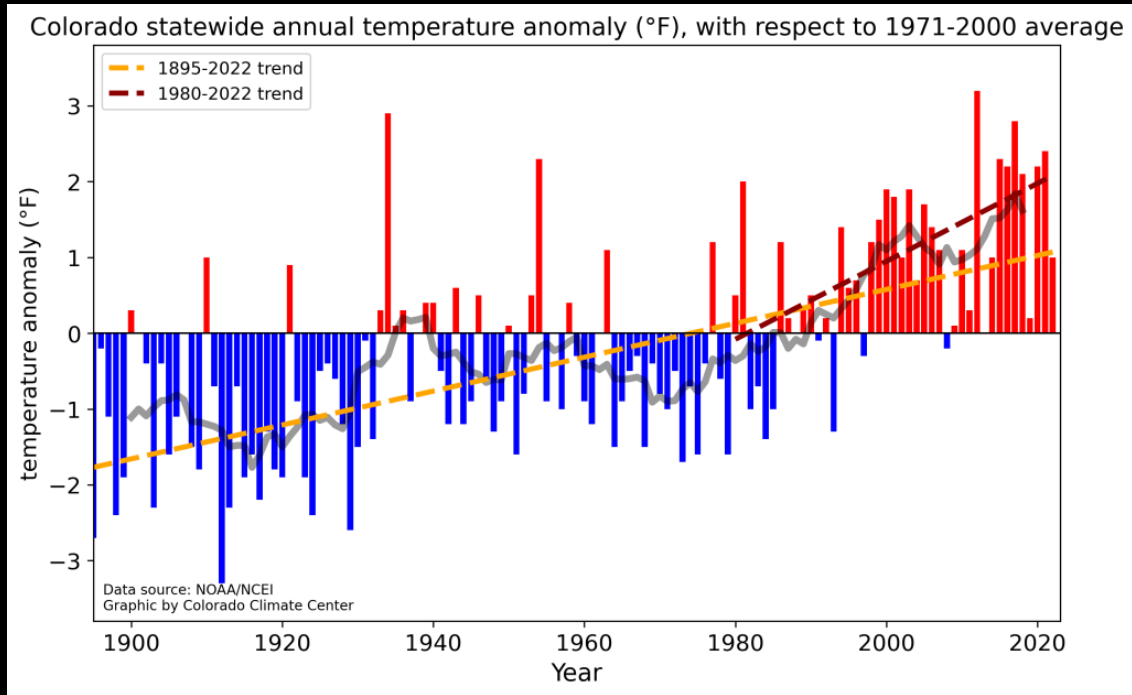
Longer growing and fire season

More frequent and severe heat waves

Net water budget deficit







Source: Colorado Climate Center





September 11, 2005



September 28, 2011

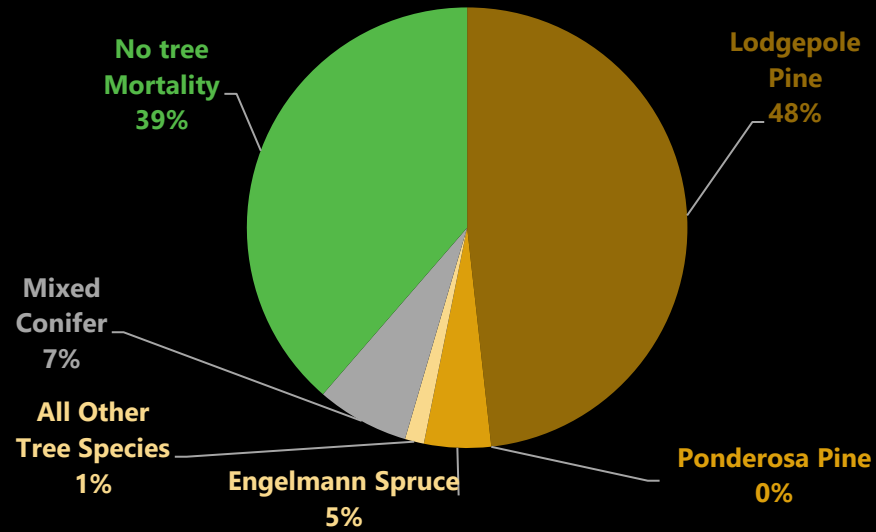
# Bark Beetle Epidemic





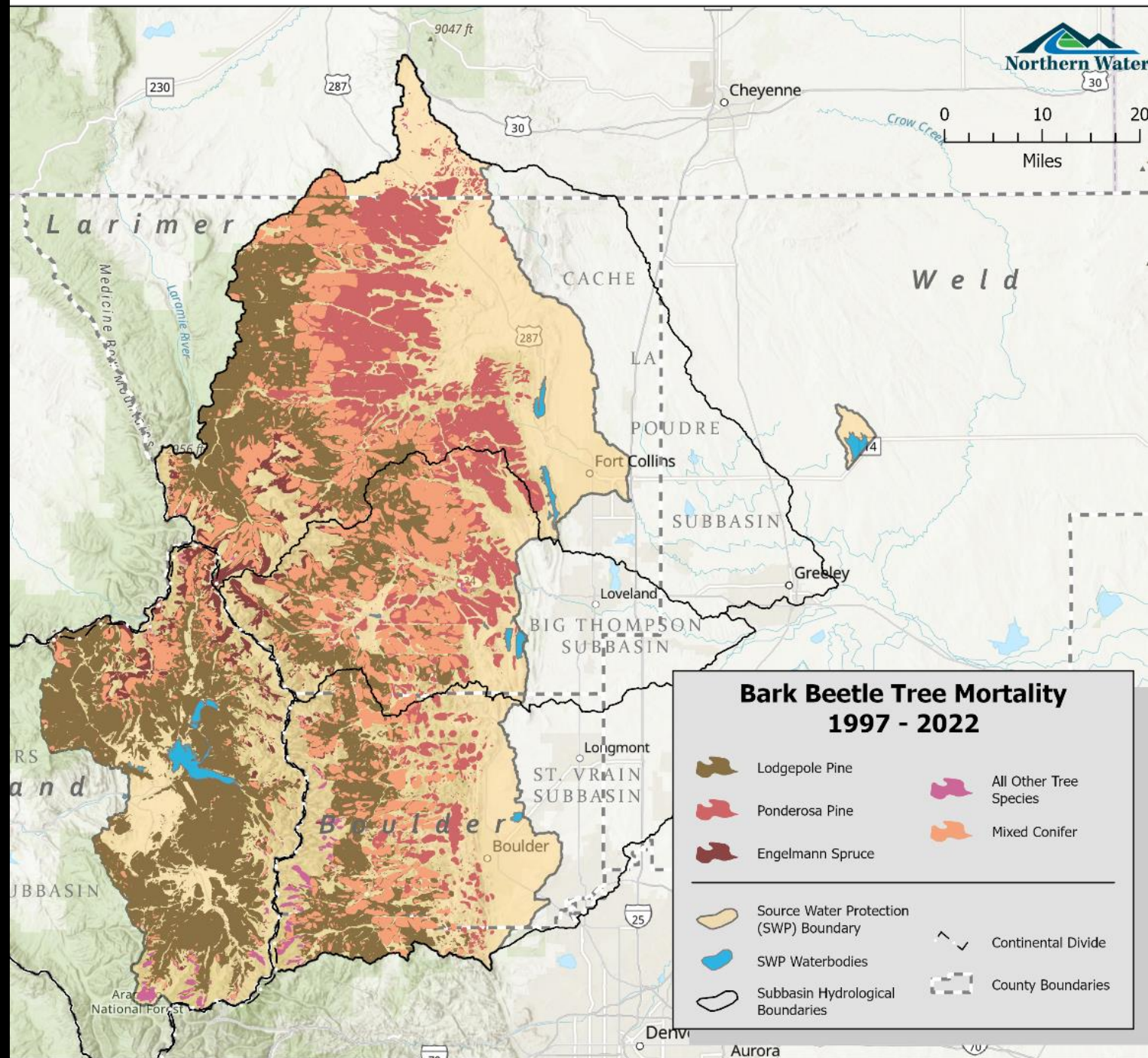
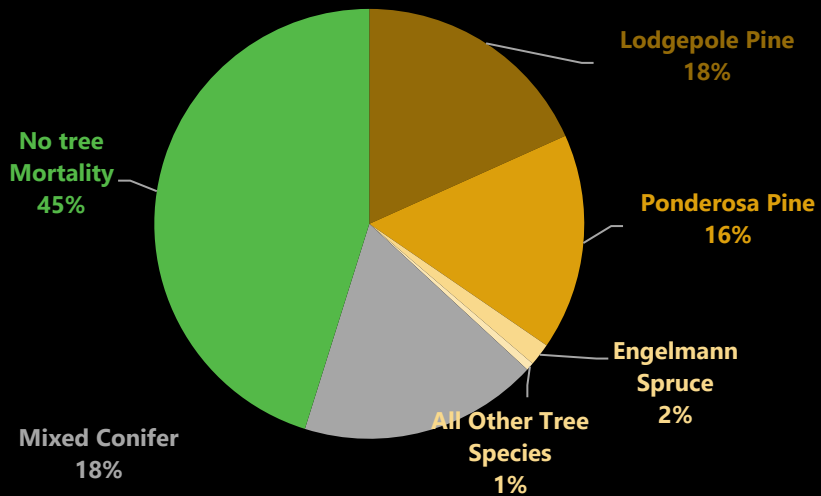
### WEST SLOPE TREE MORTALITY (% OF WATERSHED AFFECTED)

TOTAL 61.40 %



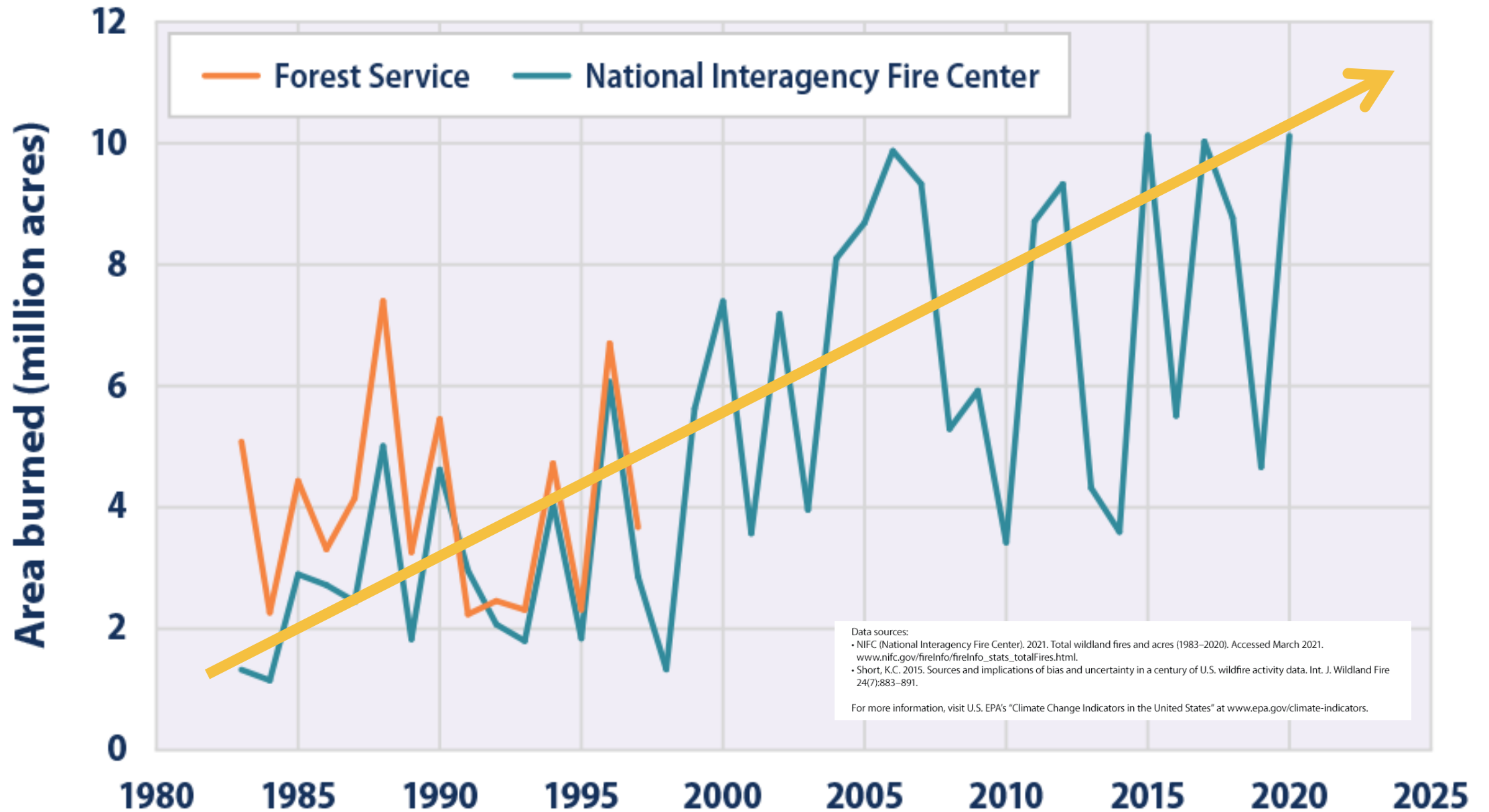
### EAST SLOPE TREE MORTALITY (% OF WATERSHED AFFECTED)

TOTAL 54.80 %

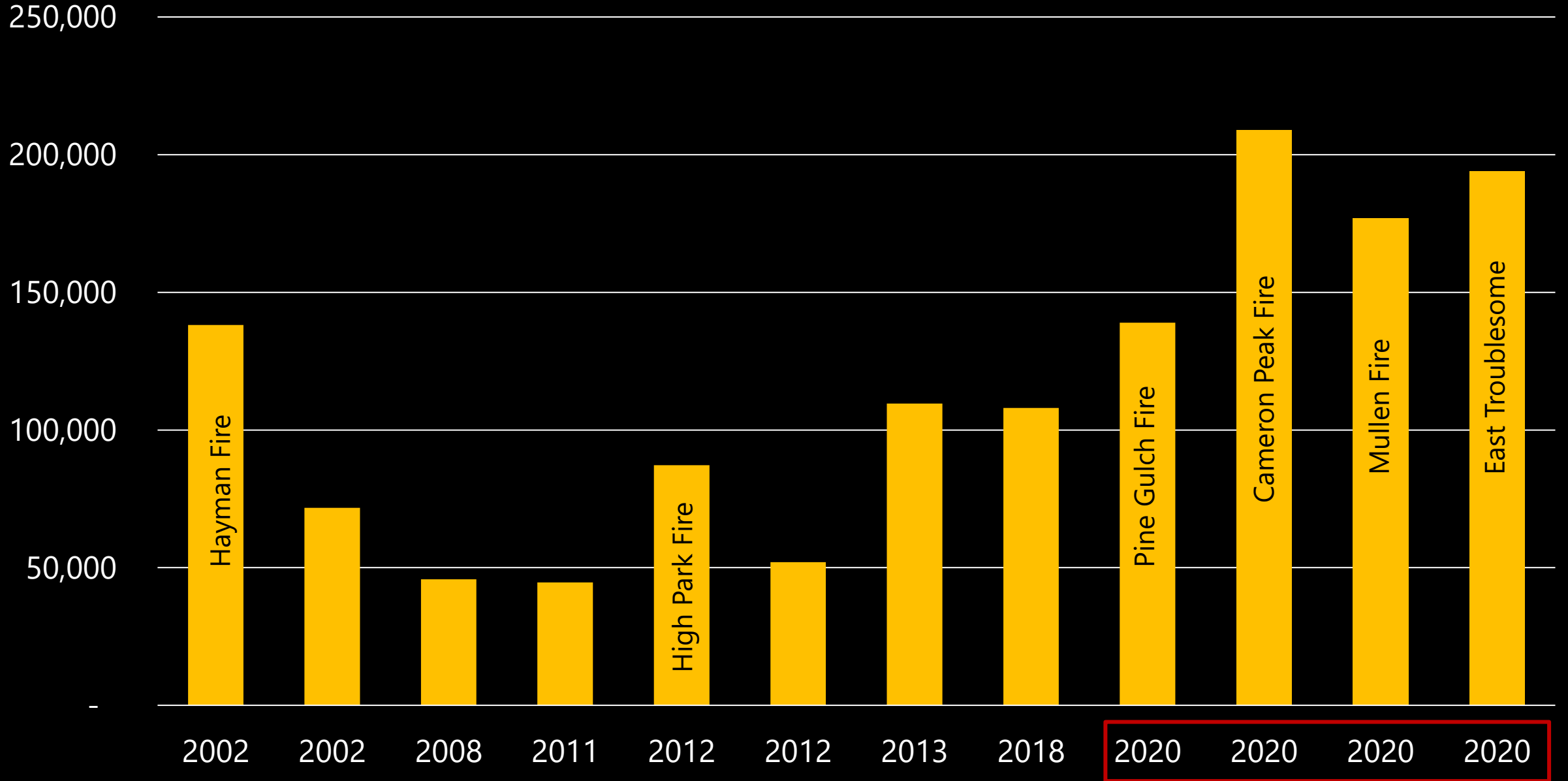




## Wildfire Extent in the United States, 1983–2020



# Largest Wildfires in Colorado - Burn Area (acres)





# 2020 Wildfires





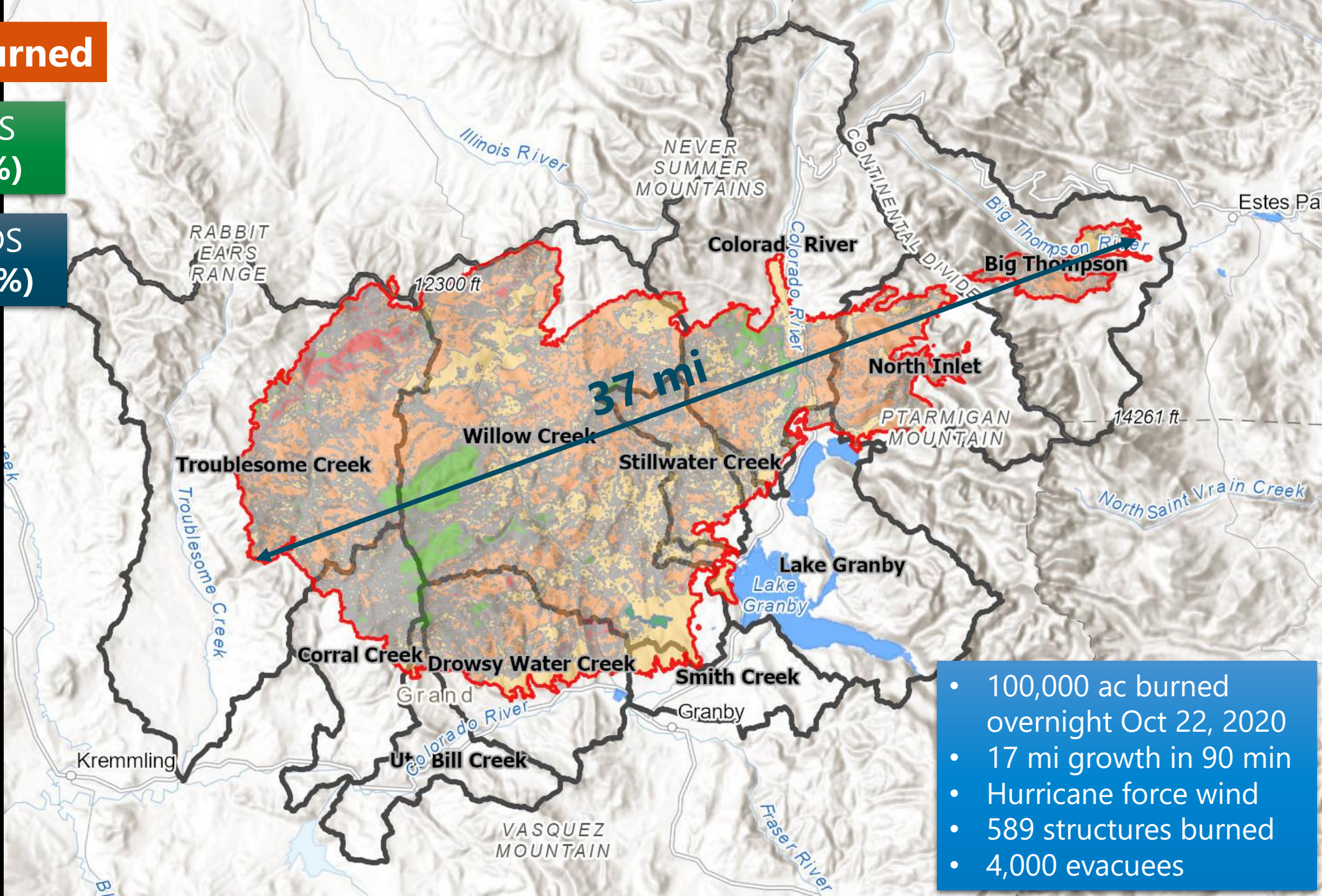
**193,559 ac Burned**

**PRIVATE LANDS  
19,757 ac (10%)**

**FEDERAL LANDS  
168,908 ac (90%)**

**Soil Burn Severity**

- High
- Moderate
- Low
- Unburned/Very Low
- Burn Area



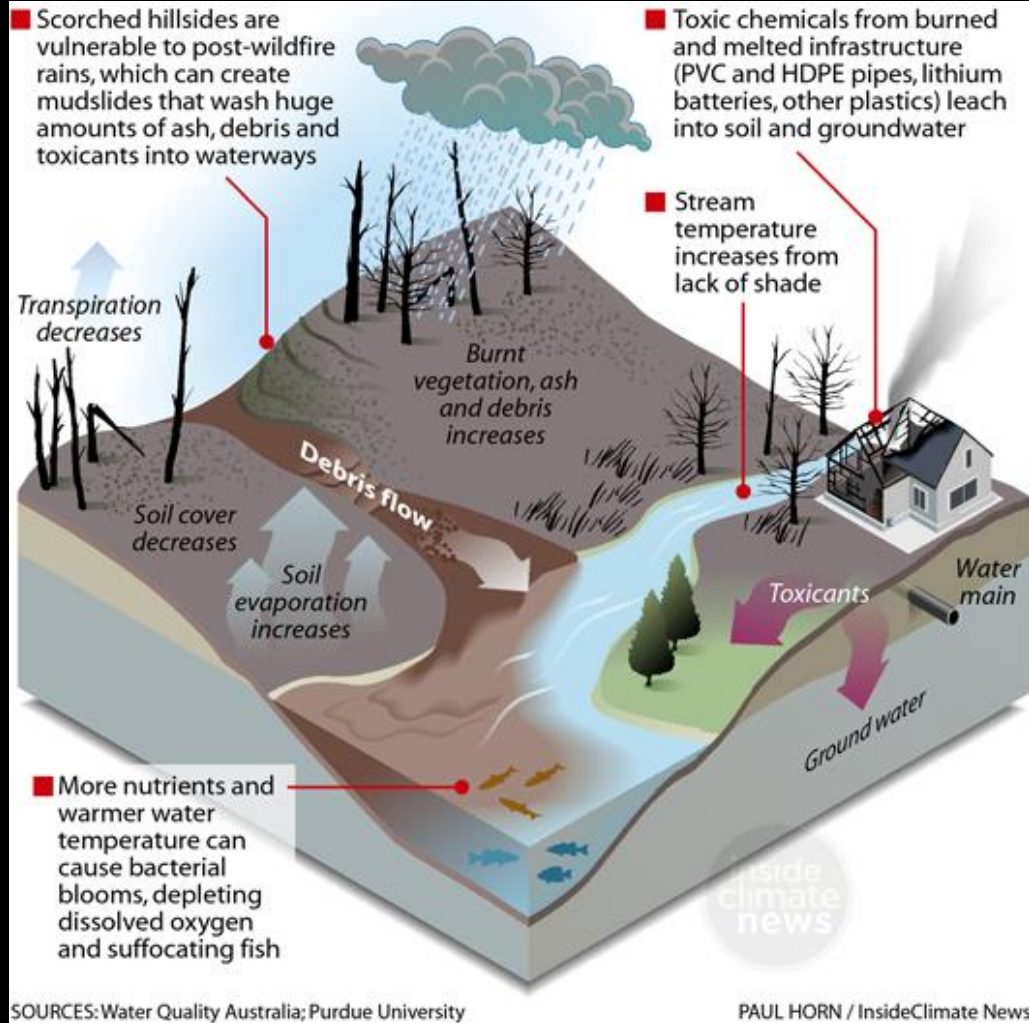
- 100,000 ac burned overnight Oct 22, 2020
- 17 mi growth in 90 min
- Hurricane force wind
- 589 structures burned
- 4,000 evacuees



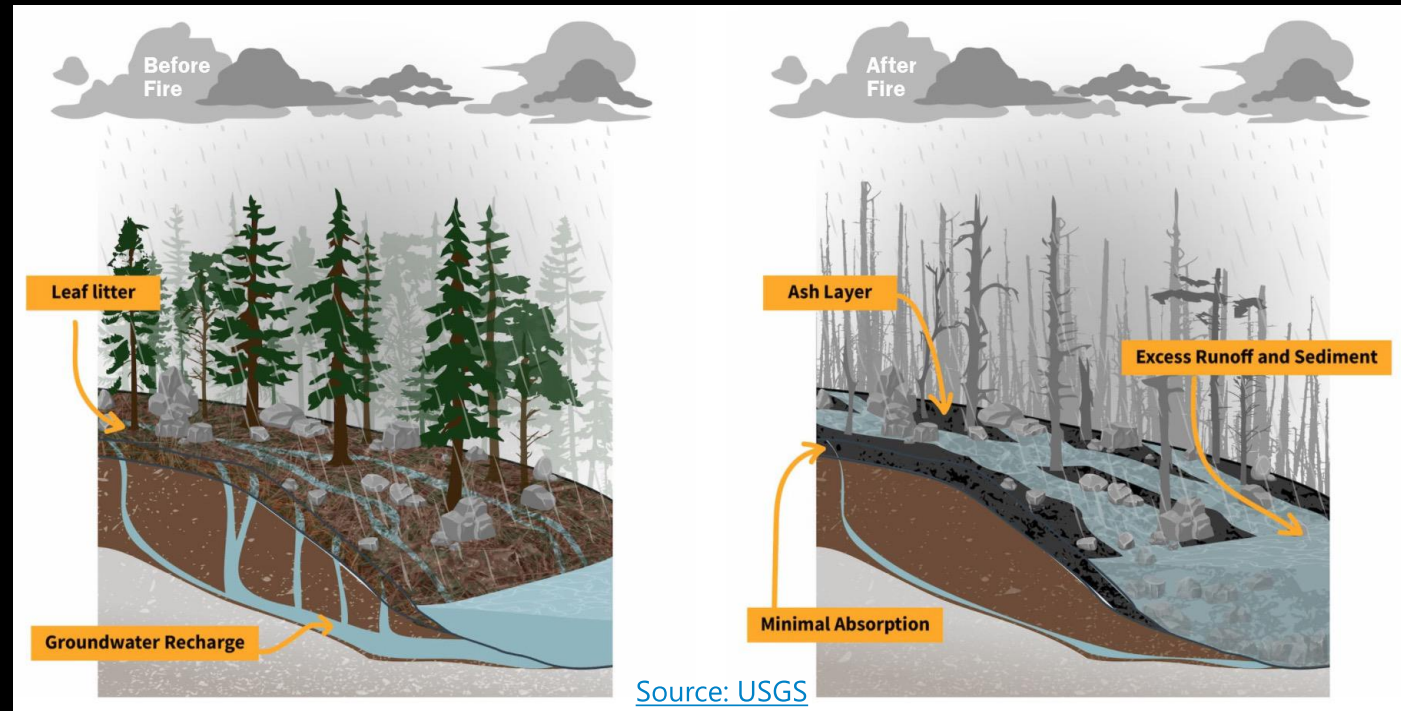




# Water Quality Impacts



## Flood After Fire







# Wildfire Aftermath



July 20, 2021



North Forty NEWS  
new scene weekly  
Click below to view our current edition.

Black Hollow Flood is Declared a Local Disaster Emergency

August 3, 2021 Annie Lindgren News Comments Off




Photo taken on July 26, 2021, less than a week after Black Hollow Flood in Poudre Canyon. Photo Credit Annie Lindgren

Want our news in your inbox? [CLICK HERE](#)

Coloradoan.

Massive search for last Black Hollow flood victim to take place Saturday in Poudre Canyon

Miles Blumhardt  
Fort Collins Coloradoan

Published 1:34 p.m. MT Sept. 17, 2021 | Updated 7:05 a.m. MT Sept. 18, 2021

[View Comments](#)



BLACK HOLLOW ROAD

Loss of Life and Property





**CR 219 (Drowsy Water by Hwy 40  
West of Hwy 125) August 20, 2022**



*Source: grand County Sheriff*



August 11,  
2023



August 26,  
2022



# Stillwater Creek Road Crossing





**North Inlet**



**Grand Lake Beach**

**Black water events – August 2021**



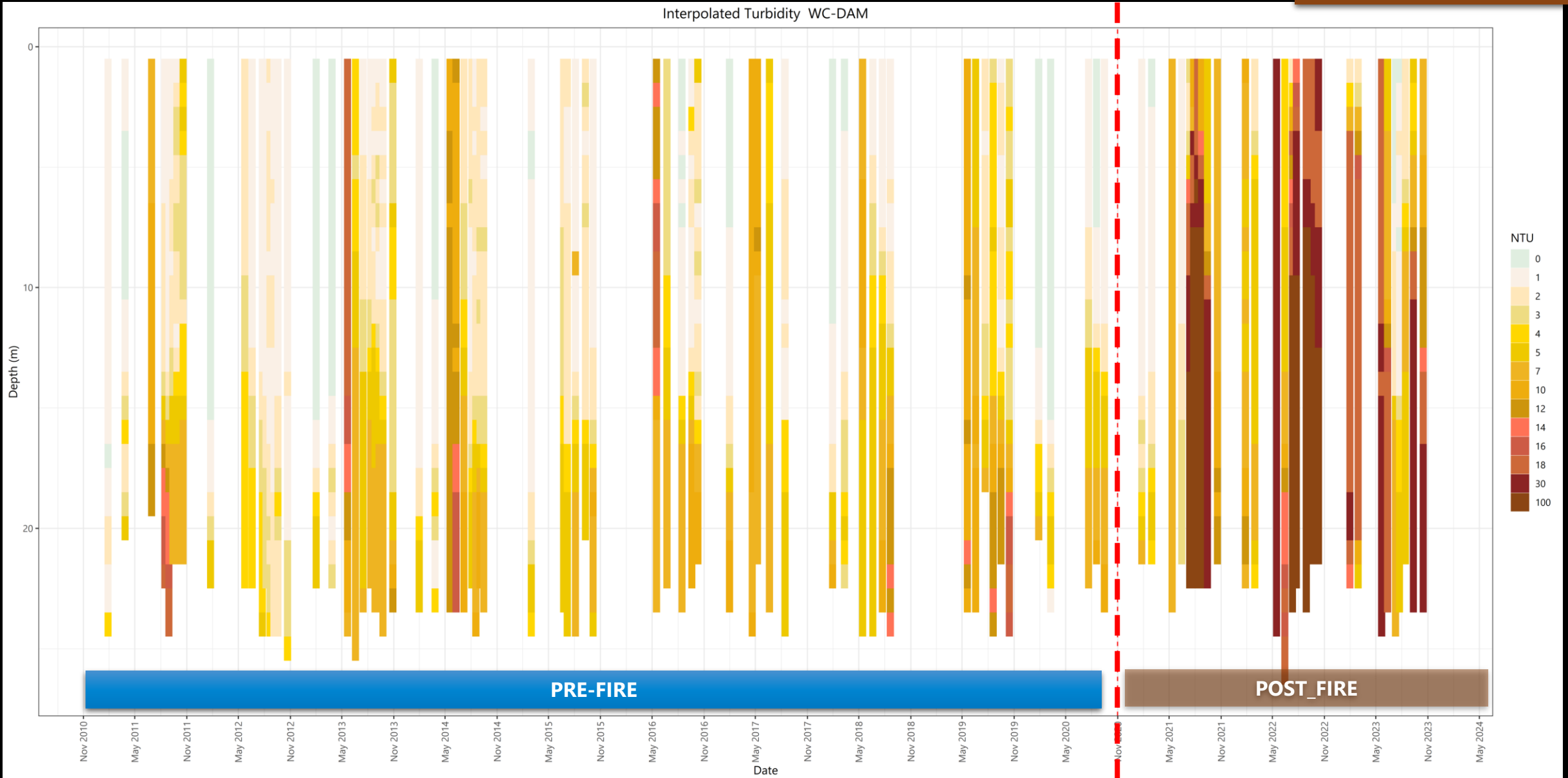


Highway 125 Grand County  
(Willow Creek watershed)



# Willow Creek Reservoir Turbidity (NTU)

> 100 not treatable







**Willow  
Creek  
Reservoir  
July 27,  
2021**



**Willow  
Creek  
Reservoir  
August  
22, 2022**



**Harmful Algae Blooms**



**Willow Creek Reservoir**  
**August 9, 2021**



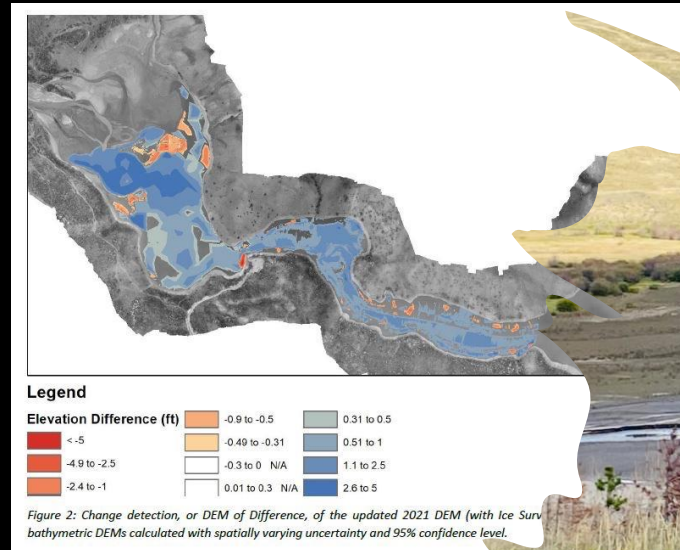


# WILLOW CREEK RESERVOIR DELTA

## Loss of Storage

Timeframe	Annual Volume Lost (af)
1969 - 2020 Annual Average	14.8
2020 - 2021 Combined Survey	51.1
2021-2022 Survey	50.5

3.45 x baseline (2021)  
1% active storage annually



Active Storage (as built)  
5,439 af  
Pre-fire (2020)  
4,241 af





# Post-Fire Watershed Protection



## Phase I

Emergency Watershed Protection Program (NRCS)

- Private Lands

Life and Property Protection  
Mulching



## Phase II

Federal Lands: BLM & USFS

- Cooperative Agreement
- Participating Agreement

Mulching



## Phase III

USFS

- Participating Agreement

Watershed Restoration



# Highway 125 Before



# Hall Creek Before



# Highway 125 After



# Hall Creek After





# AERIAL MULCHING



12,520 ACRES



980+ SEMI  
LOADS



87 DAYS



\$26.5 MILLION



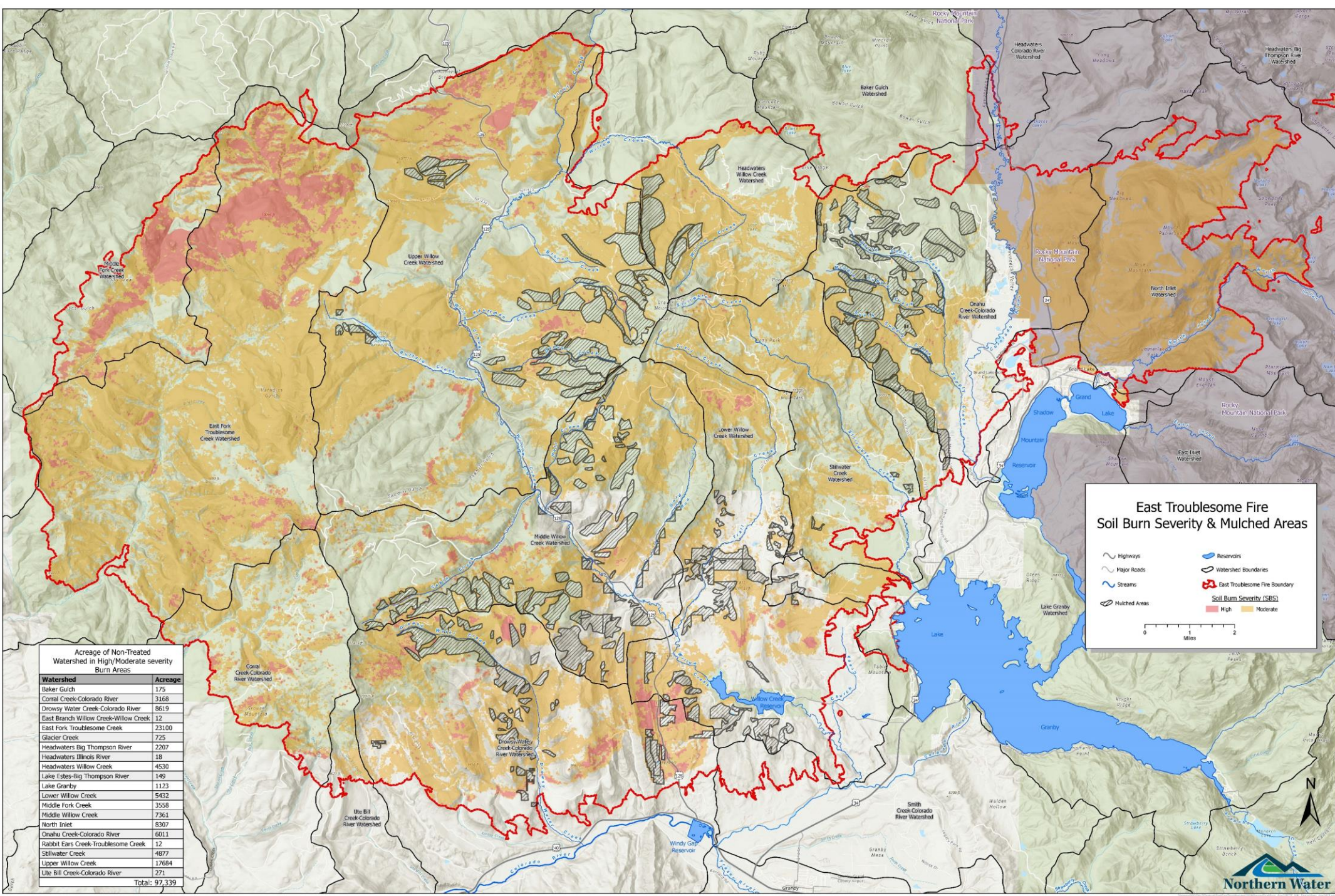
19,000+  
DROPS





# Mulching

97,000+  
acres  
remain  
untreated  
(moderate  
+ severe  
burn)









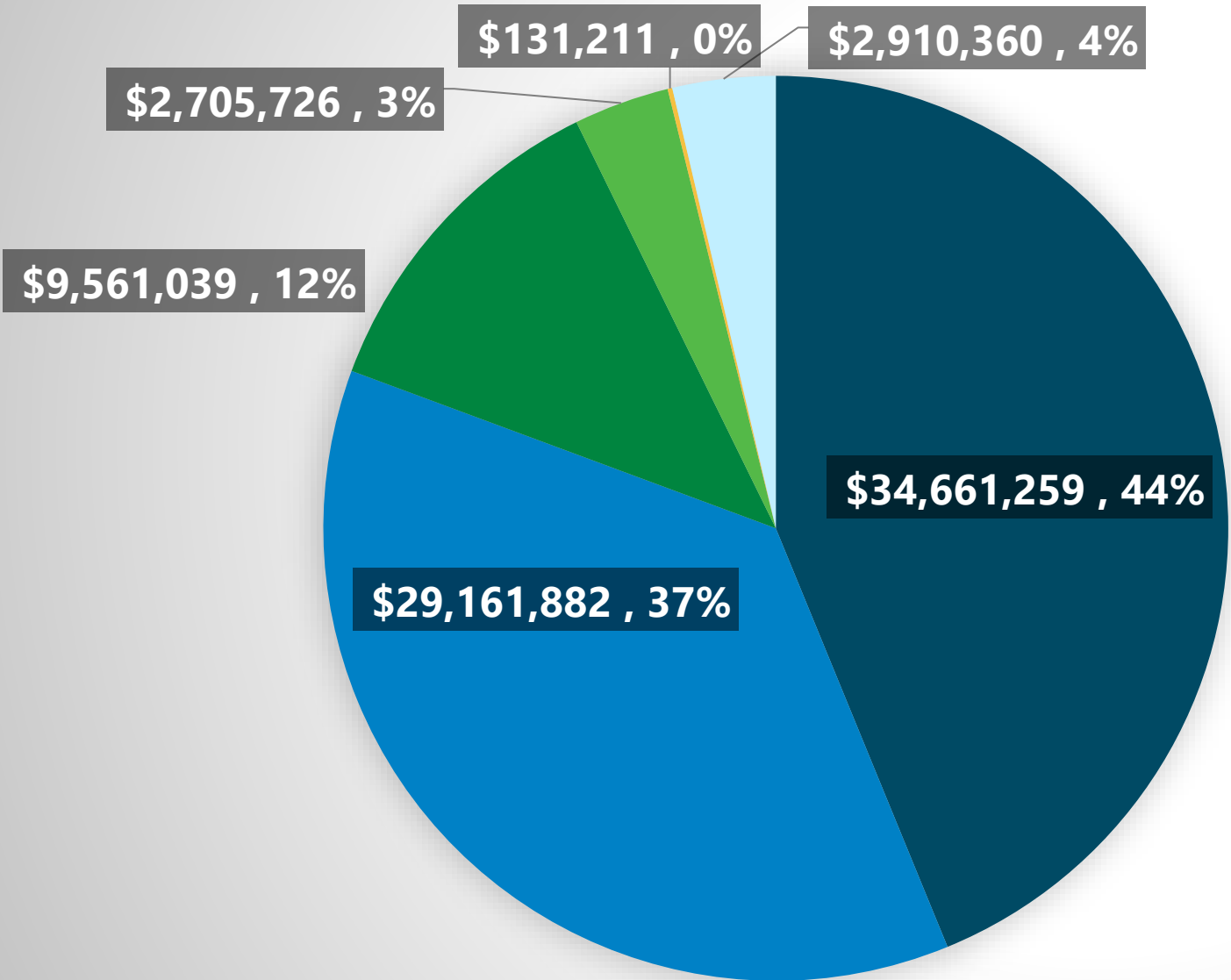


## Other Lessons Learned

- Watershed Protection and Forest Recovery Act of 2023
- [Lessons Learned Report](#)
- CWCB Instrumental!



# East Troublesome Fire Watershed Restoration Cost to-date (January 2024)



**TOTAL**  
**~\$79,000,000**

- USFS
- NRCS EWP
- CWCB
- BLM





# Thank you

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Kimberly Tekavec

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Environmental Services Division Director

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