

# Watersheds & Wildfire

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## Forest Fires, Watersheds and Source Water Forum

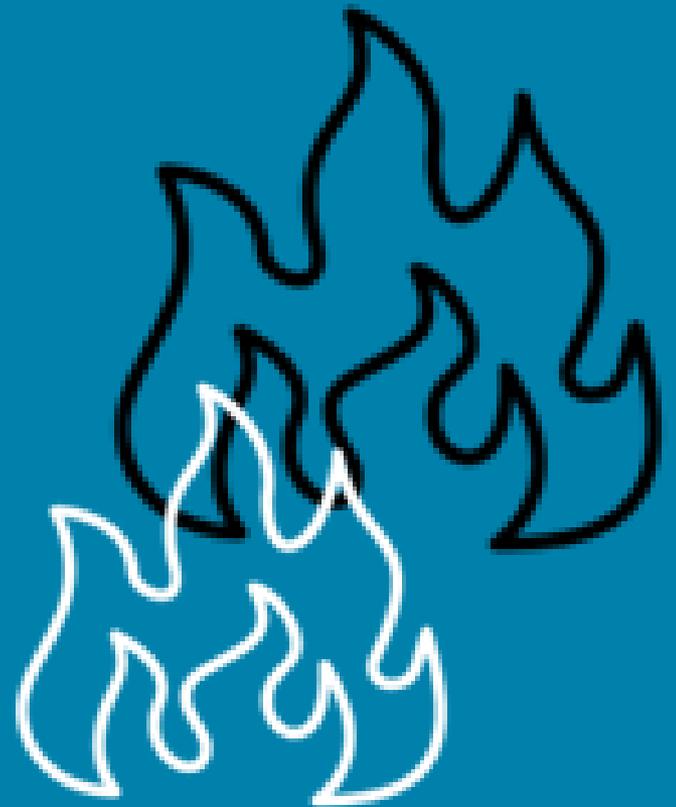
Grande Prairie

October 30 2019

Mike Williamson

Wildfire Management Specialist

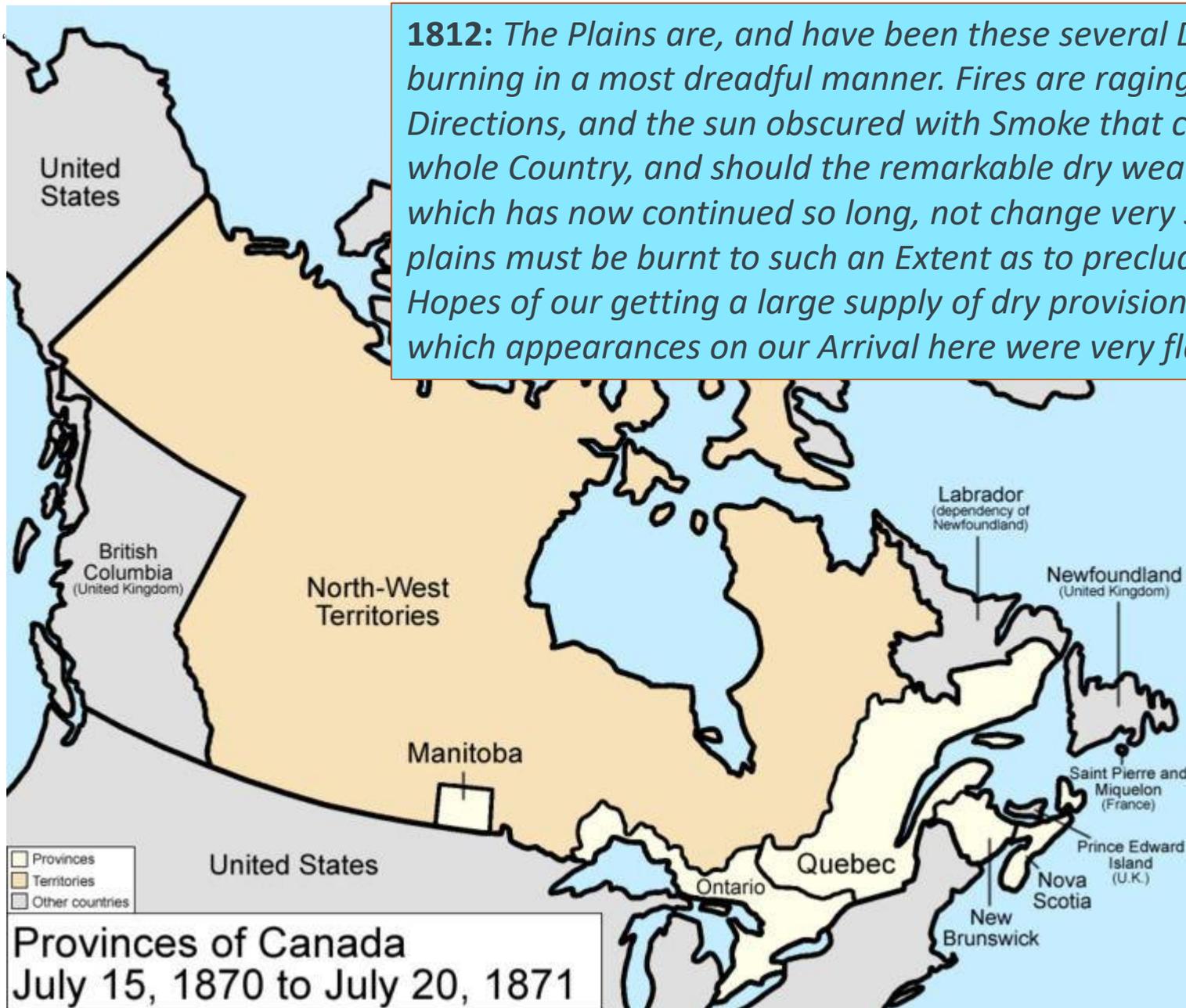
Peace River Forest Area



Alberta

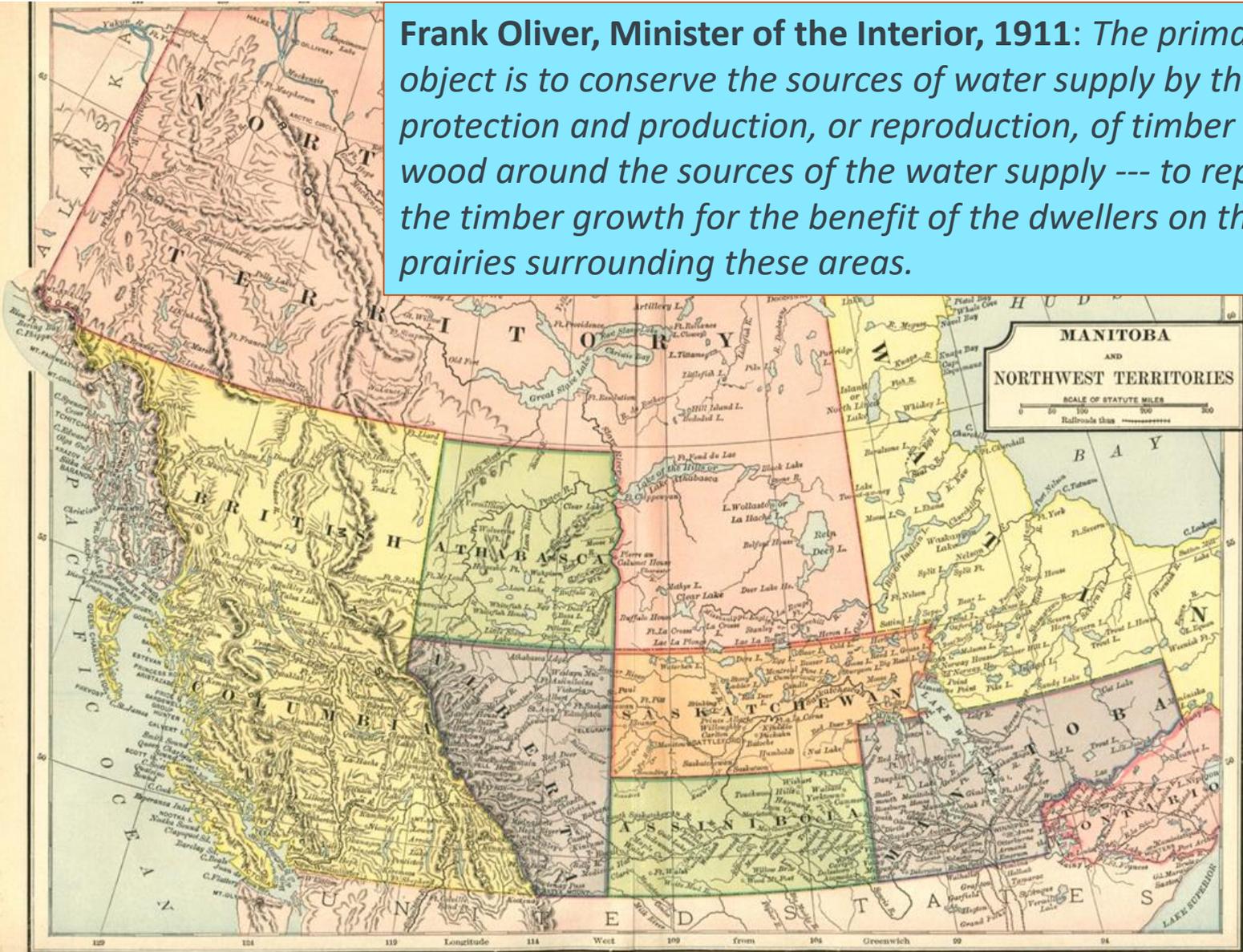
# History

**1812:** *The Plains are, and have been these several Days past, burning in a most dreadful manner. Fires are raging in all Directions, and the sun obscured with Smoke that covers the whole Country, and should the remarkable dry weather which has now continued so long, not change very soon, the plains must be burnt to such an Extent as to preclude all Hopes of our getting a large supply of dry provisions, for which appearances on our Arrival here were very flattering.*



**Provinces of Canada**  
July 15, 1870 to July 20, 1871

**Frank Oliver, Minister of the Interior, 1911:** *The primary object is to conserve the sources of water supply by the protection and production, or reproduction, of timber or wood around the sources of the water supply --- to reproduce the timber growth for the benefit of the dwellers on the prairies surrounding these areas.*

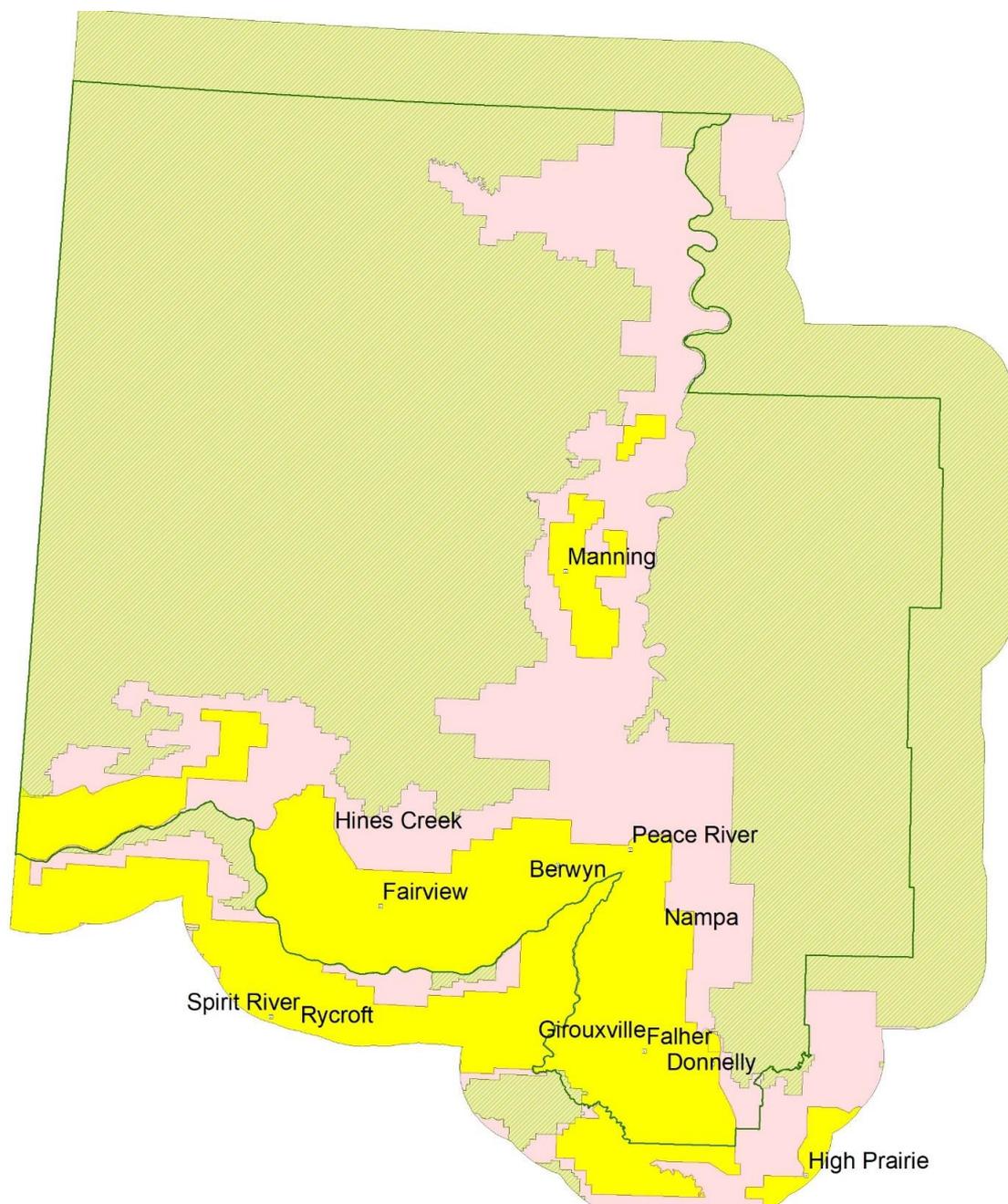




Abraham Knechtel, Dominion Forester, 1910: “... our legislators... are well aware that forests feed springs, prevent floods, hinder erosion, shelter from storms, give health and recreation, protect game and fish, and give the country aesthetic features. However, the Dominion Forest Reserve policy has for its motto, “Seek ye first the production of wood and its right use -- and all these other things will be added unto it.”

# Mandate

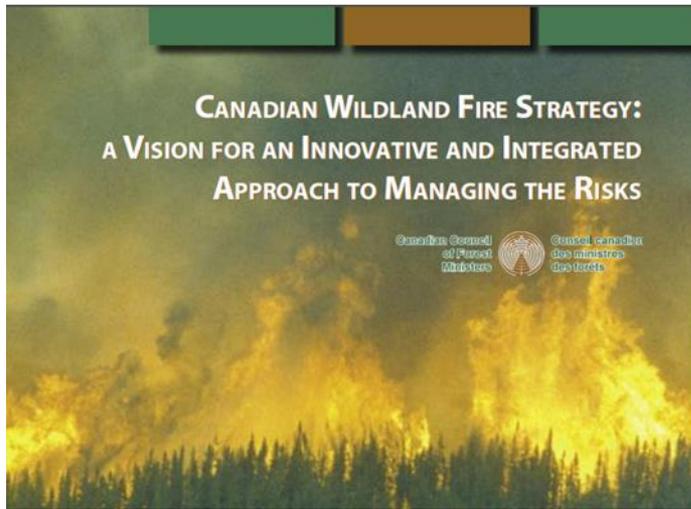
*Mitigation Preparedness Response Recovery*



# Provincial Priorities

## Provincial Priorities

1. Human Life
2. Communities
3. Watersheds and Sensitive Soils
4. Natural Resources
5. Infrastructure (which has a major impact on public safety or the local economy).



**Mitigation  
Preparedness  
Response  
Recovery**

Alberta's Wildfire Management Branch has a mandate to protect human life, reduce the risks and threats of wildfire to communities, watersheds and soils, natural resources, and infrastructure.

# Current status

**"The fire control objective . . . is to reduce . . . preventable fires and to detect, control and extinguish all harmful fires within the forest protection areas by means of rapid discovery and strong initial attack with the aim of swift control at minimum size during the first day of burning. There will be maintained an efficient flexible and progressive fire control organization . . . with the necessary manpower, equipment, aircraft and related facilities . . ."**

## 1971

- Detect, control, and extinguish all “harmful” fires within the forest protection area.
- Ensure the rapid discovery of fires.
- Provide strong initial attack.
- Control at minimum size during the first day of burning.
- Discover all fires at a size of 0.25 acres (0.1 ha) or less.
- Action all fires within 1 hour of discovery.
- Control all fires at a size of 3 acres (1.2 ha) or less.
- Maintain an annual allowable burn of 0.1% or less in the FPA (= 39,300 ha).

**1972:** 1000 hr rule

Small changes into the late 1990’s

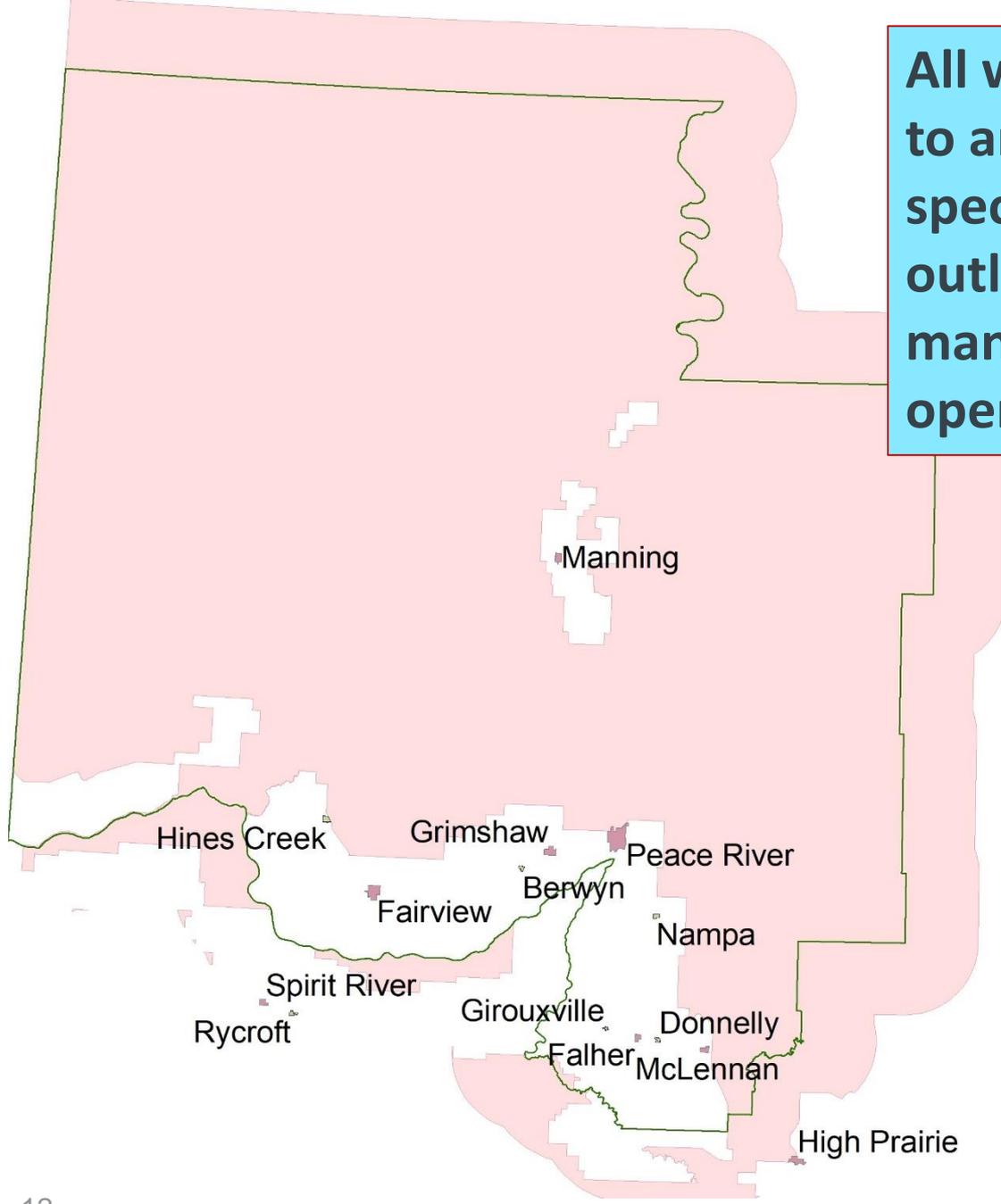
## Performance Objectives

### 2019

#### On all fires within the FPA

- Report any smoke within 5 minutes of detection
- Initiate wildfire suppression action before wildfire exceeds 2 ha in size
- Contain wildfire spread by 1000 hrs. following day

**All wildfires will be responded to and managed to accomplish specific resource objectives as outlined in an approved management plan or standard operation procedures.**





## Our Mandate

Manage wildfire **threats and opportunities** to reduce risk to human life, communities and **promote healthy ecosystems.**

## Our Mission

To manage wildland fire proactively and **collaboratively**, protecting human life, reducing risk to communities, **promoting healthier forest ecosystems**, natural resources and property, while effectively responding to wildland fire incidents.

## Our Vision

Alberta is a world leader in integrated landscape wildland fire management, supporting safe communities and **healthy forest ecosystems**

# Wildfire Management Plan

# Landscape level, risk-based strategic plan

**Risk** is the effect of uncertainty on objectives.

May be negative or positive, unwanted or wanted

May represent a threat or an opportunity

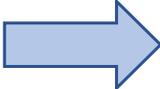
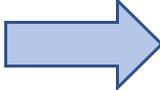
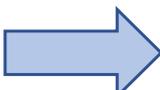
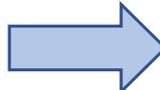
Aggregates Consequence (Impact) with Probability (Likelihood)

- Spatially displayed
- Will inform future operations, create decision space
- Forest Area with contractor support; 5 year; ISO 31000 standard
- Inventory values, assess, rank, in collaborative sessions; IRMS;  
Builds Context
- Seeks opportunities, recognizing fire as key ecosystem driver

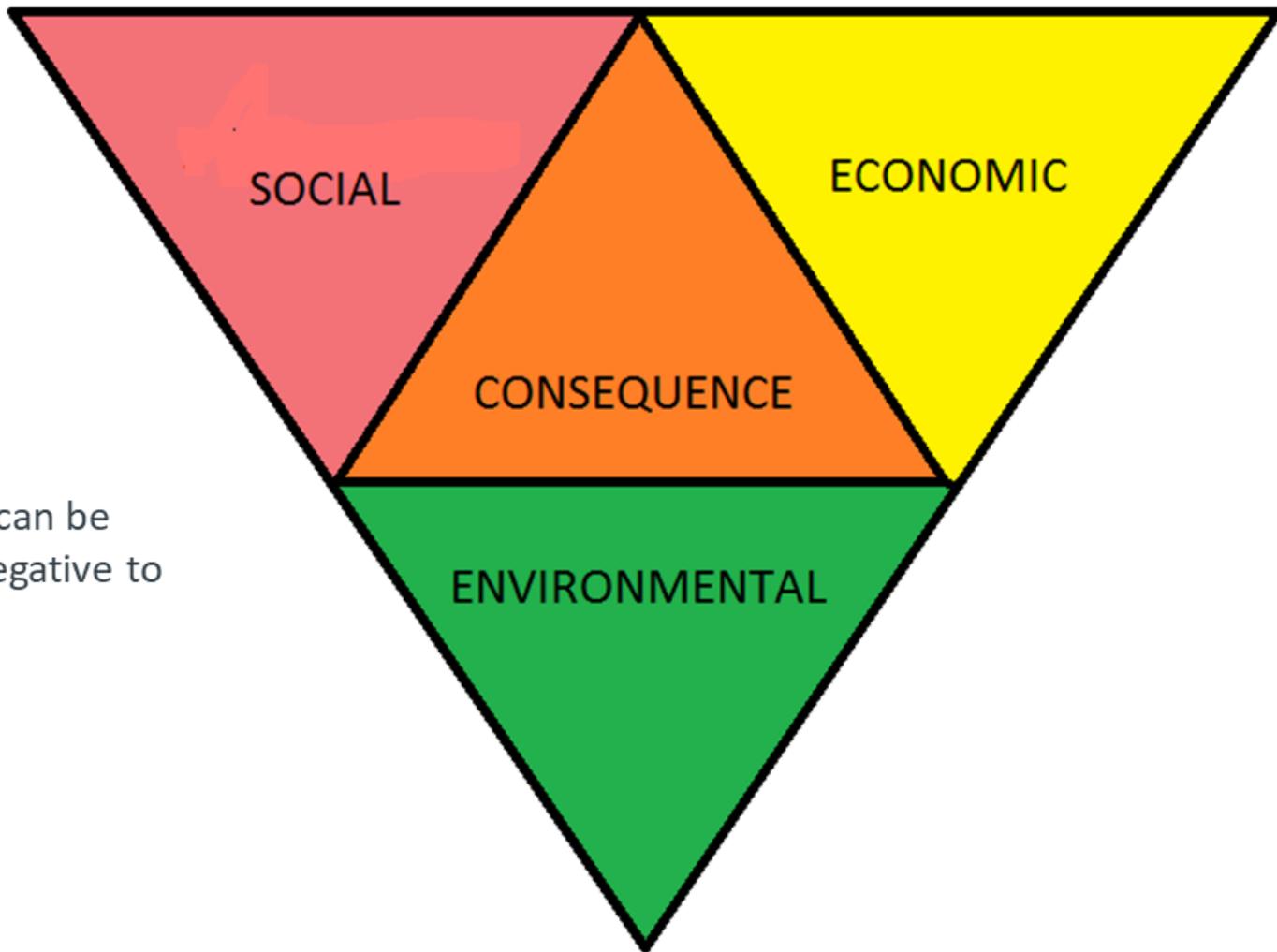
## Key Drivers and Assumptions

- Forests provide diverse cultural, economic and social opportunities
- Climate change will stress forests and alter historic disturbance patterns
- Wildfire resilient ecosystems and communities are vital
- Successful forest and wildfire management will require coordination, collaboration, integration with partner agencies through IRMS
- Scientific, traditional, adaptive and risk-based management are the foundation of wildfire management and forest stewardship
- Transparency and accountability are vital for public assurance and social license

# Operational Outcomes

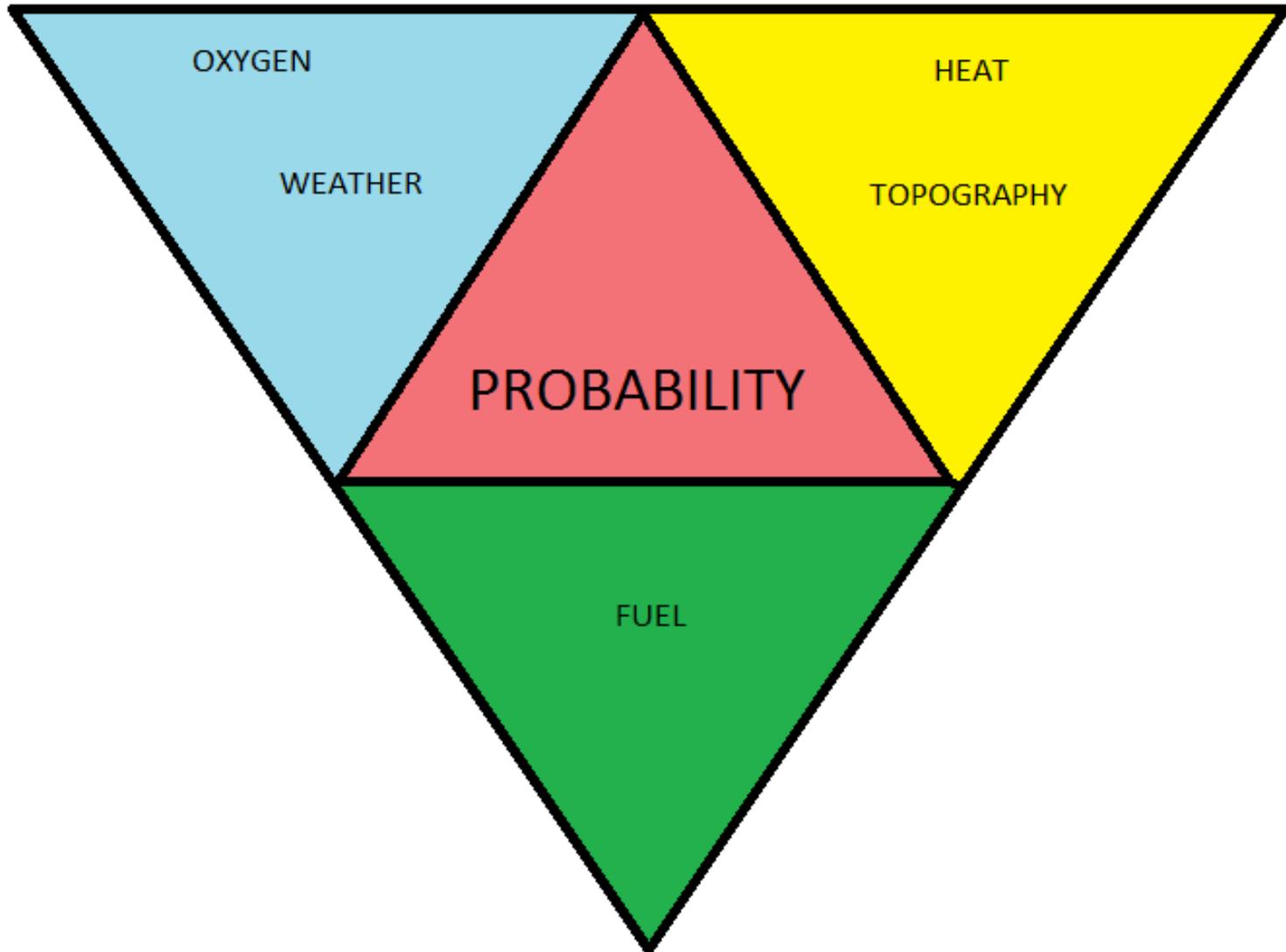
Limited response to the build up of hazardous fuels.		Proactive management of fuel accumulations.
Passive approach to the ecological benefits of fire		Active management for the ecological benefits of fire
Limited inter-agency management of wildfire		Collaborative and integrative approach to planning & management
Rapidly escalating costs to effectively respond to unwanted fires		More efficient and economical response to wildfire events.
Reactive and rote response to fire events		Planned/ considered response based on values at risk and ecological benefits

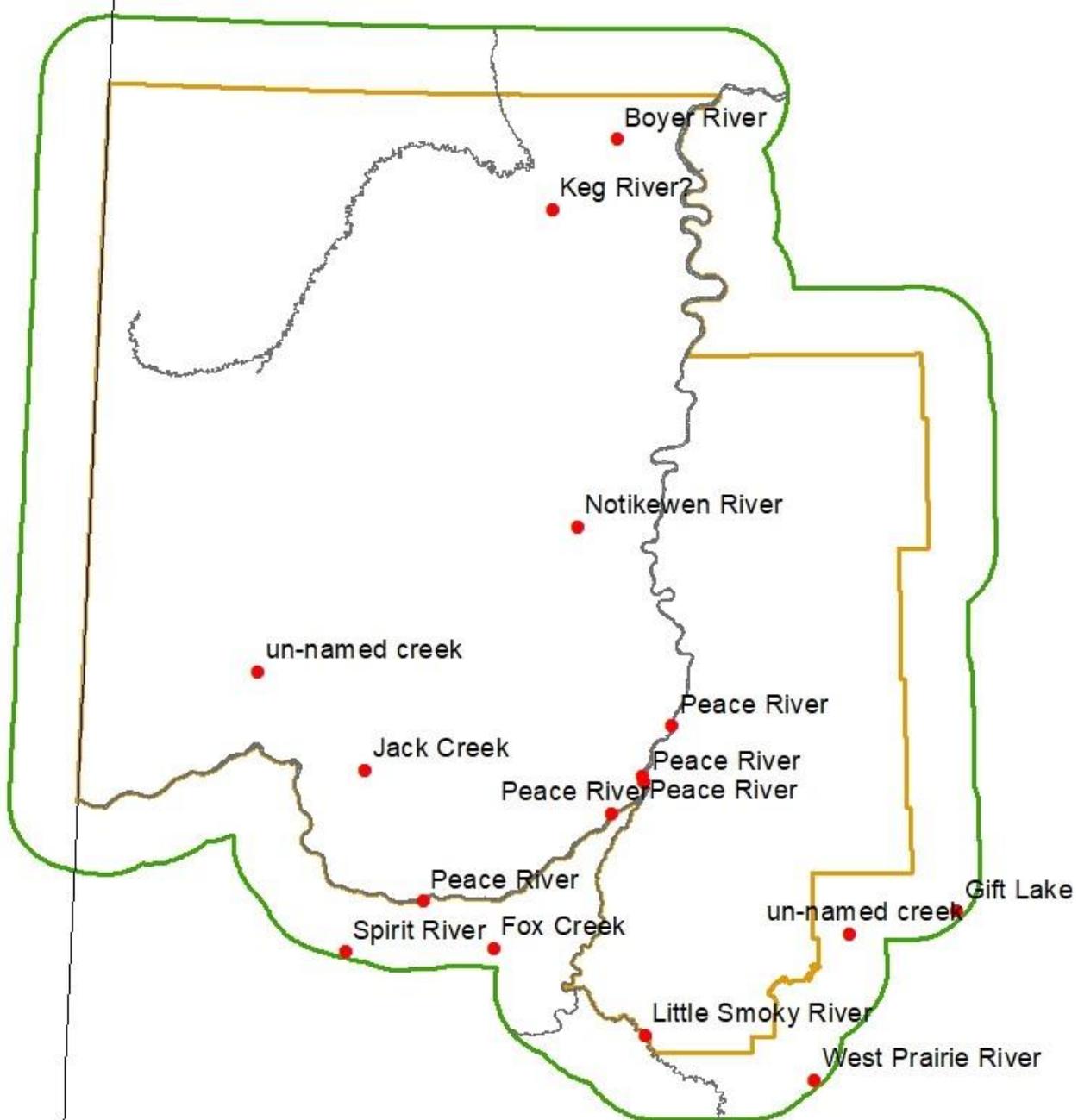
# Consequence Tetrahedron

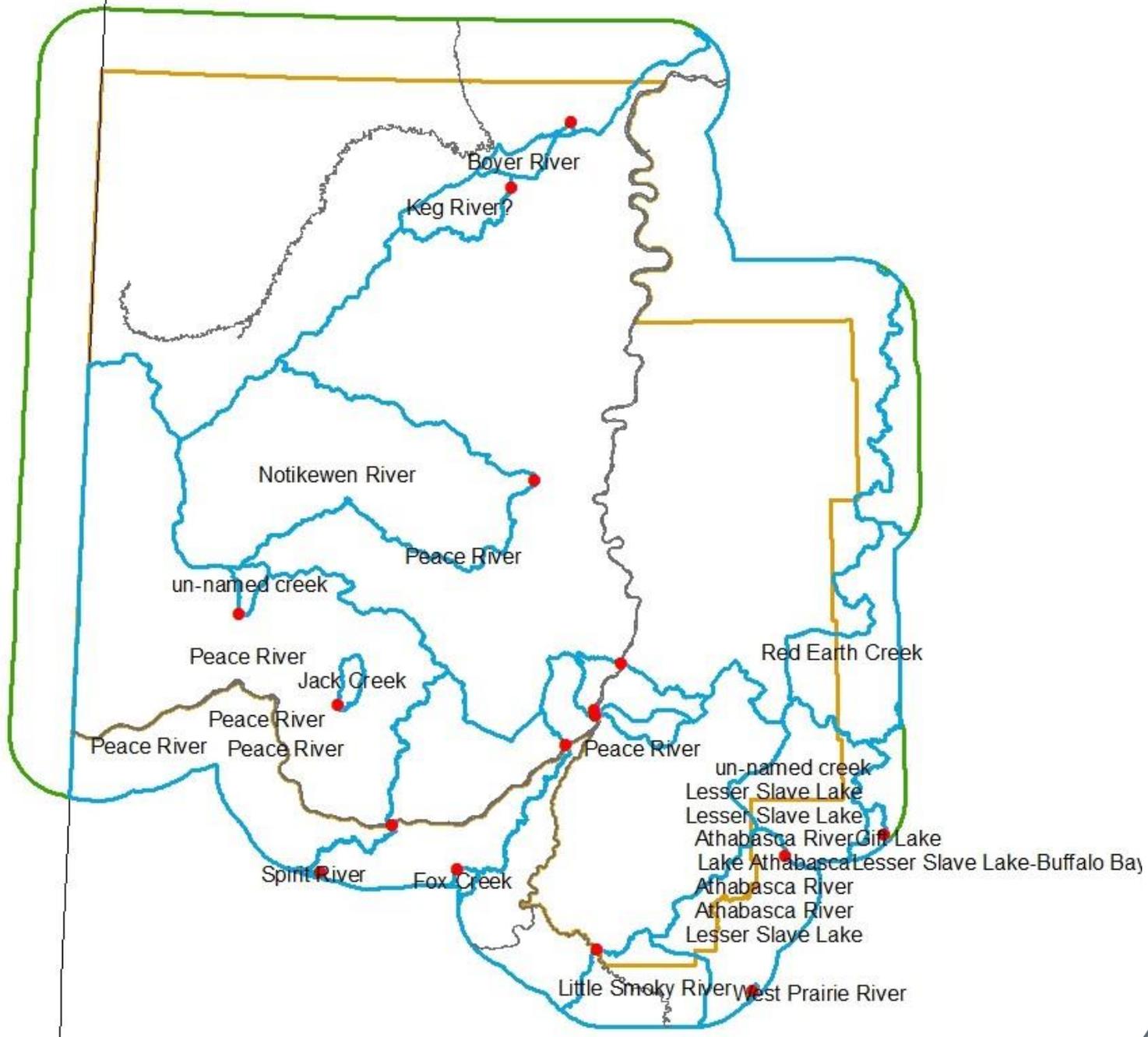


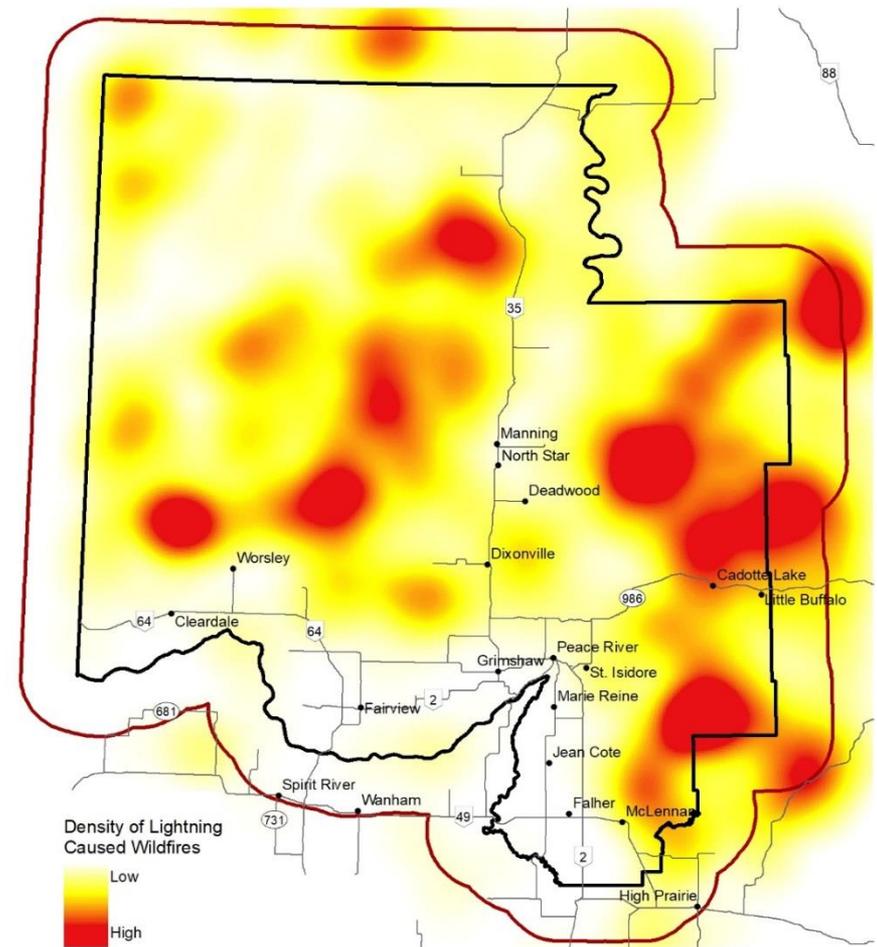
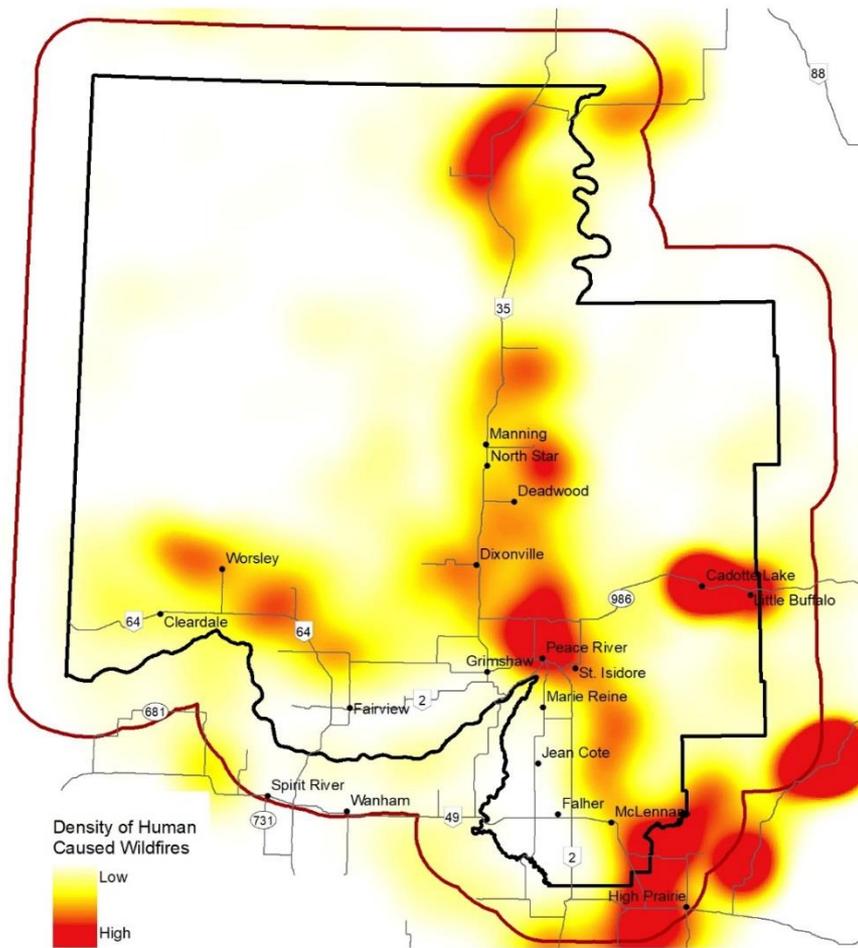
Consequence can be scaled from Negative to Positive

# Probability Tetrahedron

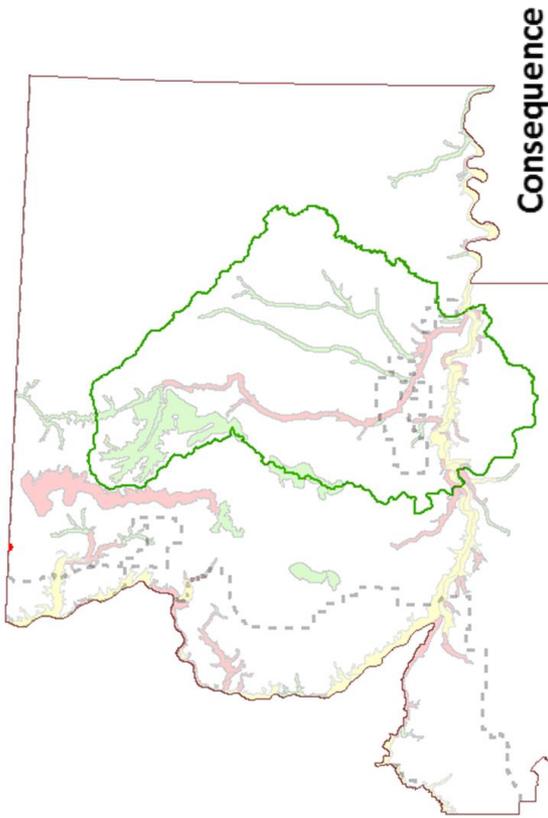








Mitigation Preparedness Response Recovery



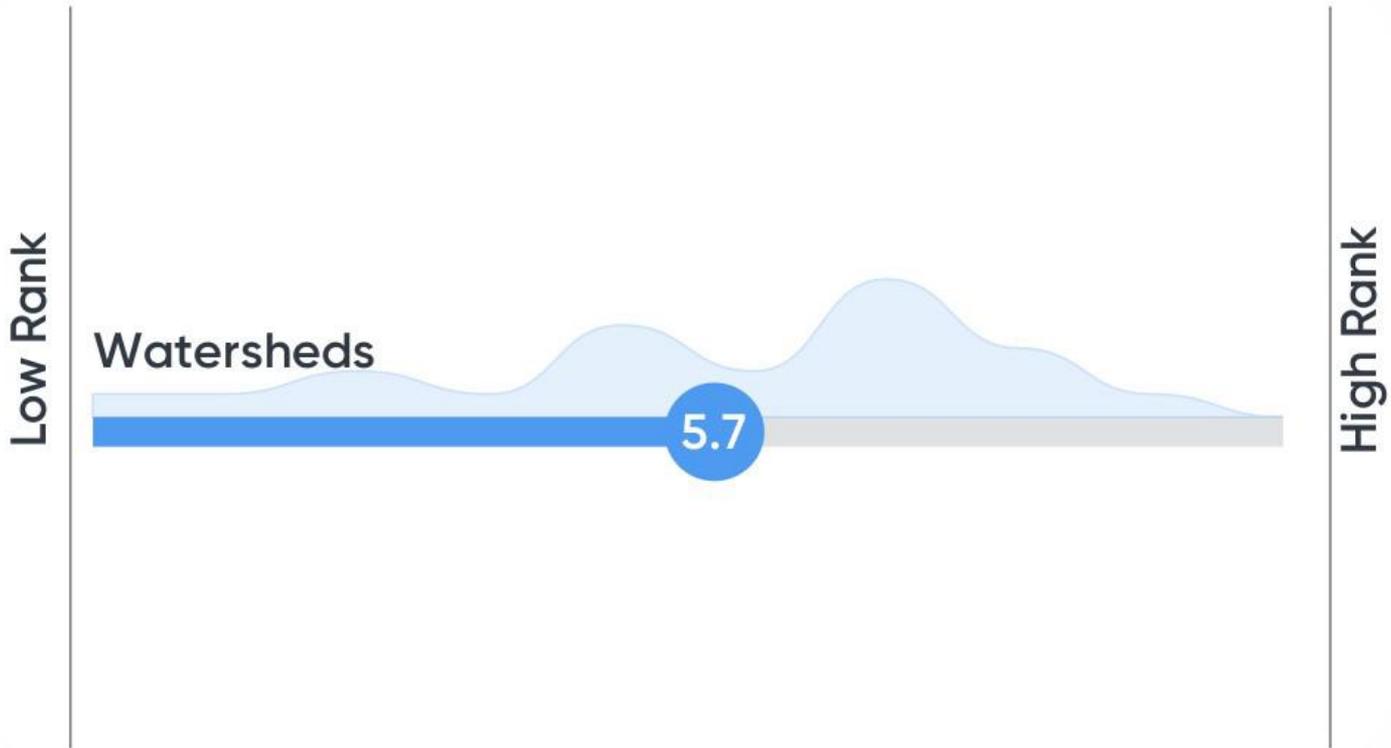
Extreme (5)	RR	I	I	I	I
Major (4)	RR	RR	I	I	I
Moderate (3)	CI	CI	RR	RR	RR
Minor (2)	M	M	CI	CI	CI
Insignificant (1)	M	M	M	M	CI
	Remote (1)	Unlikely (2)	Possible (3)	Likely (4)	Most Likely (5)

**Likelihood**

Mitigation Preparedness Response Recovery

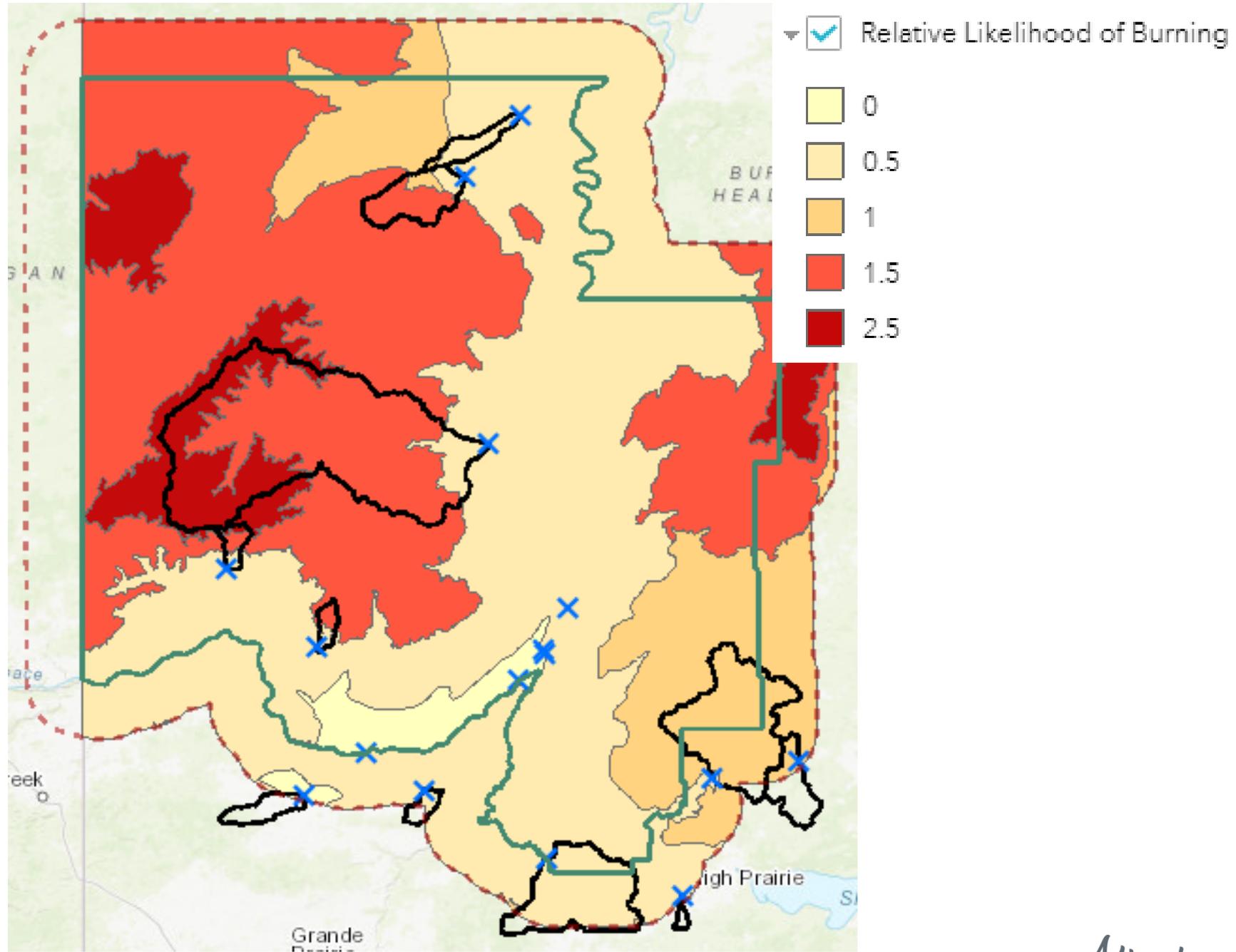
# Watershed - COMMUNITY

Mentimeter



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Mitigation Preparedness Response Recovery



Fire is ecologically good.  
High to Severe constraints

No Wildfire/ no Prescribed Fire

Fire is ecologically good  
Low to Moderate constraints.

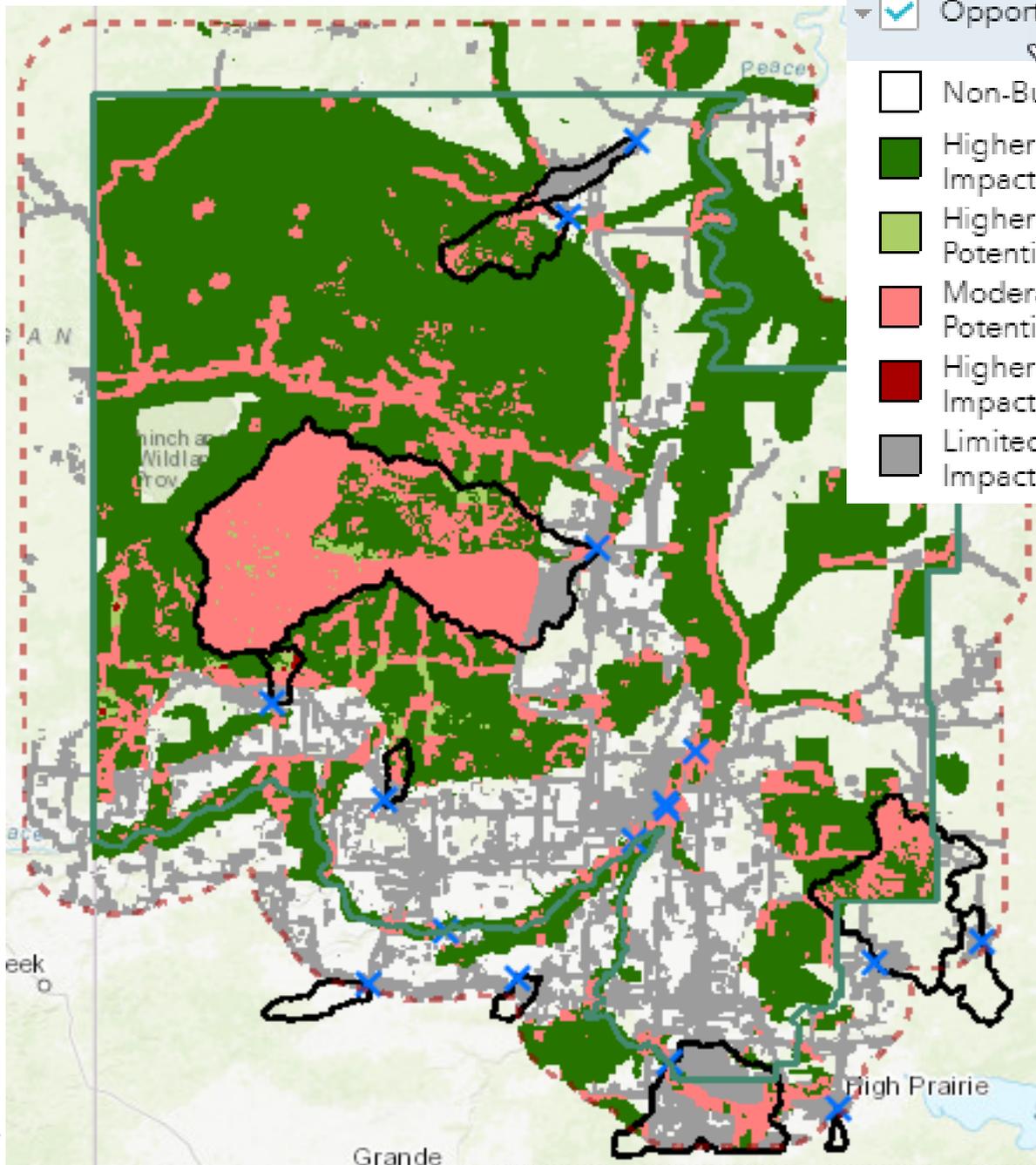
Prescribed Fire

Fire is ecologically good.  
No constraints

Managed Wildfire/ Prescribed  
Fire

Fire is not ecologically good.

No Wildfire/ No Prescribed Fire



- Opportunity - Impact Rollup
- Non-Burnable or Undetermined
- Higher Potential Opportunity - Low Potential Impact
- Higher Potential Opportunity - Moderate Potential Impact
- Moderate Potential Opportunity - Higher Potential Impact
- Higher Potential Opportunity - High Potential Impact
- Limited Potential Opportunity - All Potential Impact Levels

# Risk Management Strategies

- avoiding the risk by deciding not to start or continue with the activity
- taking or increasing risk in order to pursue an opportunity
- removing the risk source
- changing the likelihood
- changing the consequences
- sharing the risk with another party or parties
- retaining the risk by informed consent

Wildfire Management is tasked with managing an unowned public risk.

WMB is neither the source nor the bearer of the risk.

This limits our use of these strategies.

“The main thing is to keep the main  
thing the main thing.”  
Stephen Covey

# Gaps

*Mitigation Preparedness Response Recovery*

“The main thing is to keep the main thing the main thing.”

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*Mitigation Preparedness Response Recovery*