



Blue Mountains Forest Partners

Our Mission

“Blue Mountains Forest Partners is a diverse group of stakeholders who work together to create and implement a shared vision to improve the resilience and well-being of forests and communities in the Blue Mountains.”

Blue Mountain Forest Partners Full Group Meeting Minutes

Meeting Overview:

- **Date of Meeting:** **July 18, 2019**
- **Time:** **4:00 – 7:00 pm**
- **Location:** **John Day Airport Conference Room**
- **Facilitator:** **Mark**
- **Minutes Scribe:** **Pam Hardy**

-
- **Call to Order: Introductions, changes to the agenda, agenda approval (5 minutes)**
 - No changes to the agenda. Agenda Approved.
 - October meeting will focus on elk – there will be extra outreach to invite folks to this.
 - OPB will meeting with a few folks next month to discuss “Post-Timber Wars” developments. Will look specifically at the salvage research and harvest, and restoration treatments.
 - **Approval of June 2018 Full Group minutes (5 minutes)**
 - Approval of minutes – No changes, none opposed.
 - **Ops’ update (5 minutes, Pam)**
 - **Wednesday field trip update (5 minutes, Mark)**
 - Looked at aquatics & veg in the Bark Project near Murderer’s Creek. Riparian areas have a lot more conifers than we think they used to. Heard that hardwoods need more space. Discussed a sample marking. S. Fork John Day Watershed was there. Jeff Neil, former ODFW, was there & very helpful. Had a couple of adjacent landowners.
 - Discussed ventenata invasion. It’s moving through that country. It responds well to fire, so this might be a problem with Rx Fire. Aerial spraying is the best-known way to stop it, but that’s not easily done under FS regs.
 - Meadow Restoration & Pine Savannah. There are places that we think have a lot more pine than historically,



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and reduction may result in increased stream flow.

There are some questions about the extent to which this holds in dry forest.

- **Austin Idaho Scoping discussion, other Forest Service project updates (35 minutes, BMRD and PCRD staff)**

- There is a detailed package online.
- A brief was handed out.
- Q: The relationship between the map & the table is not entirely clear, especially as related to the administratively closed roads. How can I find these on the ground?
A: We can sit down with you individually and go through these details.
A: the maps in the scoping package are geo-located, so you can put them in Avenza pdf.
The carsonite signs are not always present (or are sometimes fallen over).
- Q: Does this show all past administratively closed roads?
A: No – only the ones that need to have the closures confirmed.
Most of the “confirmation of closure” roads are already closed on the ground.
- Q: This is the opportunity to comment on specific roads
– whether we want them left open or not, right?
A: Right.
- Q: What types of closures? Berms, Gates?
A: Unless there’s a specific reason why it should be one version or another, we don’t always say which type we’ll use in which situation.
- Cmt: Specific comments are the most valuable.
Give the road number, and the specific reason you want it open.
Use the full 7-digit road number – there are some numbers that have many roads
EG: there are a lot of 101 road numbers.
- Q: How closely does the proposed action follow the BMFP ZOAs?
A: That would be a good topic for a much deeper conversation.
It was carefully looked at in the design.
FS is using the PVT (potential veg type) to determine HRV
Q: Does PVT incorporate the fire cycle?
A: Yes.
- Q: How could the ZOAs be written differently so they speak the same language as the FS?
A: The different ways we classify veg types is not very different.
- Andrews Merrick – 1910 report on trees said only 7/8 snags/acre
Decaid – never intended to say that snags should be equally distributed across the landscape.
Larry Amel did a write up of the historical snag component.
We are held to forest plan standards. Not Decaid standards.
- Q: The Countryman Article: is it in the record? How do I get it?
A: We can send that to you.
Mark will put a link up.
- Q: Summit Creek riparian area: what’s the plan?
A: It’s scheduled for significant restoration



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Q: what about the dead timber? It's a fire hazard

A: it's expected to be taken for firewood.

- **Blue Ridge Fire update (5 minutes, Roy)**

- Historically lightning starts have been put out immediately.
- Recently, the Forest has been delineating places where lightning fire could be allowed to work.
Based on adjacency to high values.
Based on existence of lots of resources across the nation & easy fire conditions.
- On July 3 there was a strike.
It was almost completely surrounded by good control roads
There were few other fires across the nation (plenty of resources in case things went wrong)
- Total acres: 667
Mixed effects – a few torches, but lots of low intensity, surface fire.
They did some quick photo points & a few transects in areas they knew the fire would burn, so they'll be able to tell us how much work it did.
- Q: What was the cost & what pot of money did it come from
A: It came from suppression dollars. Cost ~ \$1000/acre – more than expected
Debrief: we were probably too cautious, and could have ordered less resources.
- Still looking for effective ways to let people know about these things.
Deschutes County might have a good example.

- **Prairie City Updates**

- Cliff Knox: Ken is leading the ID Team
Alternatives have been finalized. Specialist reports starting next week.
DEIS expected in October.
- Elk 16 Fencing: Spoke with Trent Seager
He suggested smaller, more effective exclosures
Still planning to move forward on fencing
Q: Where does the \$ come from?
A: It's part of CFLR, could be retained receipts.

- **PODs: Potential Wildfire Operations Delineations—a tool to enhance preparedness, communications, and responder safety in wildfire control operations (1 hour, Chris Dunn with Rocky Mtn. Research Station)**

- See attached powerpoint
- PODs are essentially Strategic Fire Planning
- History: How we interact with fire is changing.
The biggest fire ever in the US was in the mid-west came out of Wisconsin.
That caused concern about a "timber famine"
Result was that in 1905 FS is created, but not funded.
1910 "The Big Burn" occurs, Lots of local deaths.
Led to effective lobbying for \$\$ for the FS on the basis of fire suppression.



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- Even back then, there was debate about whether they should continue “Indian burning”
Decision: increase forest cover. Heavy fire exclusion.
 - Increase in forest density was written about in the 1940’s
There was concern back then about the impact on forest health.
 - 1940’s – 1980’s we had wetter, cooler Augusts.
That made it easy to suppress fire. But now fires are growing again.
 - National Cohesive Strategy is the current response
 - ecological health
 - community safety
 - fire mgmt systemThis talk is about the last one.
 - Key elements
 - Quantitative Risk Assessment
 - Suppression Difficulty
 - Potential Control Locations
 - Potential Control Location Data Atlas
A list of places where it’s likely that you’ll be able to fight fire.
 - Quantitative Risk Assessment:
Spatially identifies the consequences of fire to a bunch of values such as homes, ecosystems etc.
It can determine whether the fire will have positive or negative impacts depending on flame lengths
 - Suppression Difficulty Index
Looks at roads, fuel tx’s escape routes etc.
 - Allows us to decide if we should try to suppress or let the fire burn for positive effects
 - Targeting Mitigation
Doing the analysis up front allows you to identify strategic places to spend your fuels dollars
Helps a city determine both the public and private sources of risk.
 - Gives significant attention to local knowledge
The data are adjusted based on local conversations.
 - The Malheur Nat’l Forest was surprisingly low-priority in the map of the combined values/risk
- **Damon and Soda Bear accomplishments update (30 minutes, Roy)**

Damon Accomplishments

- See Handout & Powerpoint
- Did fewer acres than planned, but more volume
Completed about half the PCT – still more to be done as money becomes available.
Completed about 1/3 of the aspen
Completed about 1/3 of the burning



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- Haven't figured out why these areas were dropped.

Soda Bear Accomplishments

- pushed to next month – we ran out of time.
- **Friday field trip: Half-day monitoring field trip to visit veg and riparian treatments in the Summit Creek area on Prairie City Ranger District**
 - Leave the SO at 8am.
Pass thru Prairie City at 8:30
Go out the 62 Road
- **Adjourn: 7:10**



Blue Mountains Forest Partners

Blue Mountains Forest Partners Vision, Guiding Principles, and Grounds Rules for Collaboration

Our Vision

The Blue Mountains Forest Partners represents a broad constituency of stakeholders interested in healthy forest ecosystems, economic vitality and quality of life in Grant County, Oregon. We provide the US Forest Service with proposals for management of National Forest lands, and we support the utilization of forest resources and related opportunities to strengthen local economies.

Guiding Principles

- To promote forest restoration in Grant County, integrating ecological, economic and community needs that have been developed and/or prioritized through collaboration.*
- To improve our ability to work collaboratively and participate actively in these issues, finding common ground for our work. Our process will be open, inclusive and encourage participation of diverse stakeholders; our meetings will provide a 'safe' space for discussion and sharing of ideas.*
- To overcome gridlock in forest planning and implementation. The success of our work is tied to long-term sustainability of forests and communities.*

Ground Rules for Collaboration and Meeting Participation

Members and nonmembers alike are expected to abide by these ground rules

- Respect each other in and outside of meetings.*
- No backroom deals.*
- Personal attacks will not be tolerated.*
- The personal integrity and values of participants will be respected.*
- Stereotyping will be avoided.*
- Commitments will not be made lightly and will be kept—agreements will be honored.*
- Disagreements will be regarded as "problems to be solved" rather than as "battles to be won."*
- Participants are representative of a broad range of interests, each having concerns about the outcome of the issues at hand. All parties recognize the legitimacy of the interests and concerns of others, and expect that their interests will be represented as well.*
- Participants commit to keeping their colleagues/constituents informed about the progress of these discussions*
- Participants commit to stating interests, problems, and opportunities. Not positions.*
- Participants will air problems, disagreements and critical information during meetings to avoid surprises.*
- Participants commit to search for opportunities and alternatives. The creativity of the group can often find the best solution.*



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- *Participants agree to verify rumors at the meeting before accepting them as fact.*
- *Respect the facilitator and meeting agenda.*

DRAFT

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Sign-In Sheet: Full Group, 18 July 2019

Name	Organization	Email Address
Mark Wells	BMEP	—
Joe Thurlbent	Grayback	
Steve Williams	IDA	
Kraig Williams	IDA	
Ron Hardy	WILLC	
Glen Johnston	Backlund Logging	
Rick Hinstler	BMEP	
Ron Sevey	Citizen	—
Craig Trulock	USFS	Craig-trulock@usda.gov
Ron Simpson	Mulhens N.F.	
Bob Fortworth	USDA FS	
Sarah Bush	FS	—
Tom Murray	USFS	
Scott Appen	USFS	

Name	Organization	Email Address
James M. Preston	Citizen Prairie City, OK	jpreston1@gmail.com
Belle Stenger	Citizen Quoting, Oregon	tjgeorge@ortelco.com
Shauko Conie	PCRD	shauko.conie@usda.gov
Ken Bucher	PCRD	kbucher@STF-LV
Kevin Green	PCRD + BMRD	kevin.green@usda.gov
Caleb Sturgill	ODF	caleb.j.sturgill@oregon.gov
Renee Hollowell	PCRD	reneerenee.hollowell@usda.gov
Kate Cuero	BMRD / MNF	ac fire
Amanda Lindsay	MNF / BMRD	amanda.lindsay@usda.gov
Eric Miller	MAF / SO Fire	eric.a.miller@usda.gov
Lauren Pomstad	MNF	lauren.pomstad@usda.gov
Bethany Parker	BMRD / MNF	bethany.parker@usda.gov
Daniel Lien	BMRD / MNF	daniel.lien@usda.gov
Roy Walker	Walheur L.F.	
Chris Dunn	O.S.U.	chris.dunn@oregonstate.edu

[illegible]



Austin Project Scoping Briefing

July 28, 2019

Topic: Austin Project 30-day scoping period, Blue Mountains Forest Partners Briefing

30-day scoping period: July 8 to August 7, 2019

Austin Project

The planning area is approximately 78,200 acres and encompasses the Bridge Creek - Middle Fork John Day River watershed and the headwaters of the Middle Fork John Day River.

Public Involvement

Project development began in the summer of 2017 with fieldtrips and meetings with the Blue Mountains Forest Partners to discuss the existing and desired conditions of the Austin planning area. In 2018 the Austin interdisciplinary team hosted a public open house, and participated in several fieldtrips and meetings to share information and gather input to further project development.

Purpose and Need for the Project

The purpose and need for the Austin Project was developed by comparing existing and desired conditions, and management objectives related to forest and watershed resiliency, and biophysical processes and function. A summary of the purpose and need includes:

- Promote watershed health and resiliency, including improved water quality and flow characteristics, riparian vegetation communities, and aquatic habitats to maintain healthy ecological function and process.
- Maintain and improve diverse forest composition and stocking levels to promote landscape resiliency within a complex disturbance regime of wildfire, drought, insects, and diseases.
- Improve wildlife habitat.
- Promote forest conditions that allow for the reintroduction of fire upon the landscape where naturally occurring fire has been excluded. Create conditions conducive to firefighter and public safety to improve the ability to protect the public and private land interface, and natural resource values.
- Move toward a safe and sustainable minimum road system that is environmentally and economically sustainable.
- Contribute to the region's social and economic vitality by promoting multiple uses in the planning area.

Proposed Action Summary

The proposed action was developed through a collaborative process involving the public, Blue Mountains Forest Partners, and Malheur National Forest staff. Proposed actions for the Austin Project include:

Watershed and fisheries restoration - approximately 3,710 acres, including: 1) 2,820 acres of *stream and floodplain restoration* activities proposed to promote riparian habitat health and resiliency, and 2) 670 acres of *riparian meadow restoration* proposed for 30 meadow areas to restore large tree structure around meadow edges. and promote meadow functions and plant communities. Includes potential commercial byproduct removal: after desired riparian habitat conditions are met, or in meadow treatment units located outside riparian habitat conservation areas.





Blue Mountains Forest Partner's Zones of Agreement

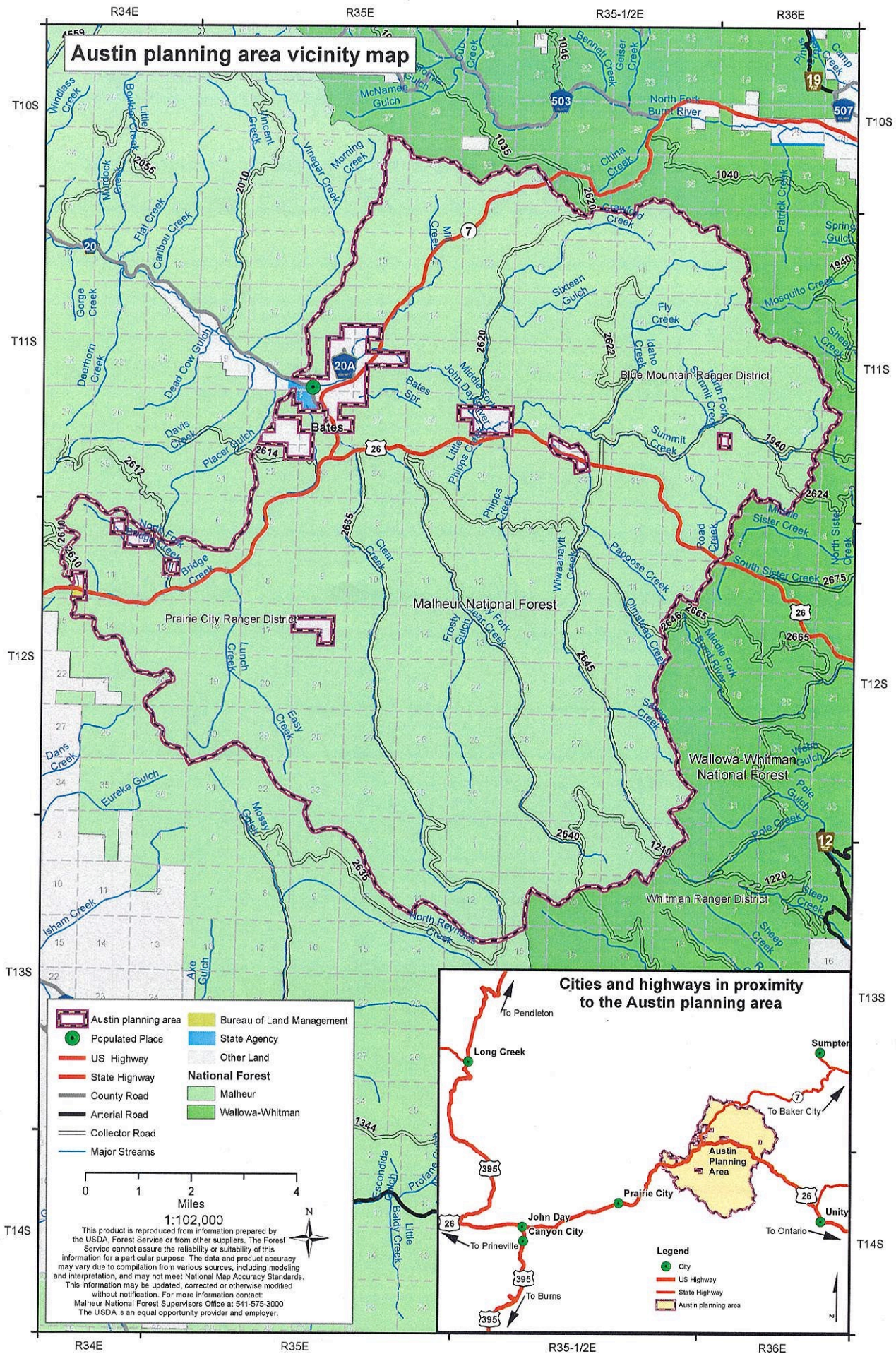
BMFP's Zones of Agreement are being carefully considered in the development of the Austin Project. In particular the project includes: 1) restore forest resiliency, with an emphasis on reducing risk of uncharacteristically severe wildfire, 2) protect and enhance old forest structure, 3) provide for diverse wildlife habitat, 4) improve watershed and stream health, 5) utilize Franklin/Johnson/Van Pelt to guide treatments, 6) vary thinning to emphasize spatial heterogeneity, 6) increase mean stand diameter and shift species composition from drought and fire intolerant species to drought and fire tolerant species, and 7) place treatment units strategically on the landscape to moderate wildfire behavior and aid in control.

Austin Project Scoping Additional Information

The Austin scoping package is available online at: <https://www.fs.usda.gov/project/?project=53678>, including instructions for submitting comments. Comments received during scoping will be considered in alternative development.

An open house will be held on Tuesday, July 30, 2019, from 4:30 to 6:30 pm at the Malheur National Forest Supervisor's Office, 431 Patterson Bridge Road, John Day, OR 97845 in Juniper Hall.







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Malheur National Forest

Presentation to Blue mountain Forest Partners
07/18/2019



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Accomplishment Update for Damon and Soda Bear



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Damon WUI

Collaboration Started in 2008

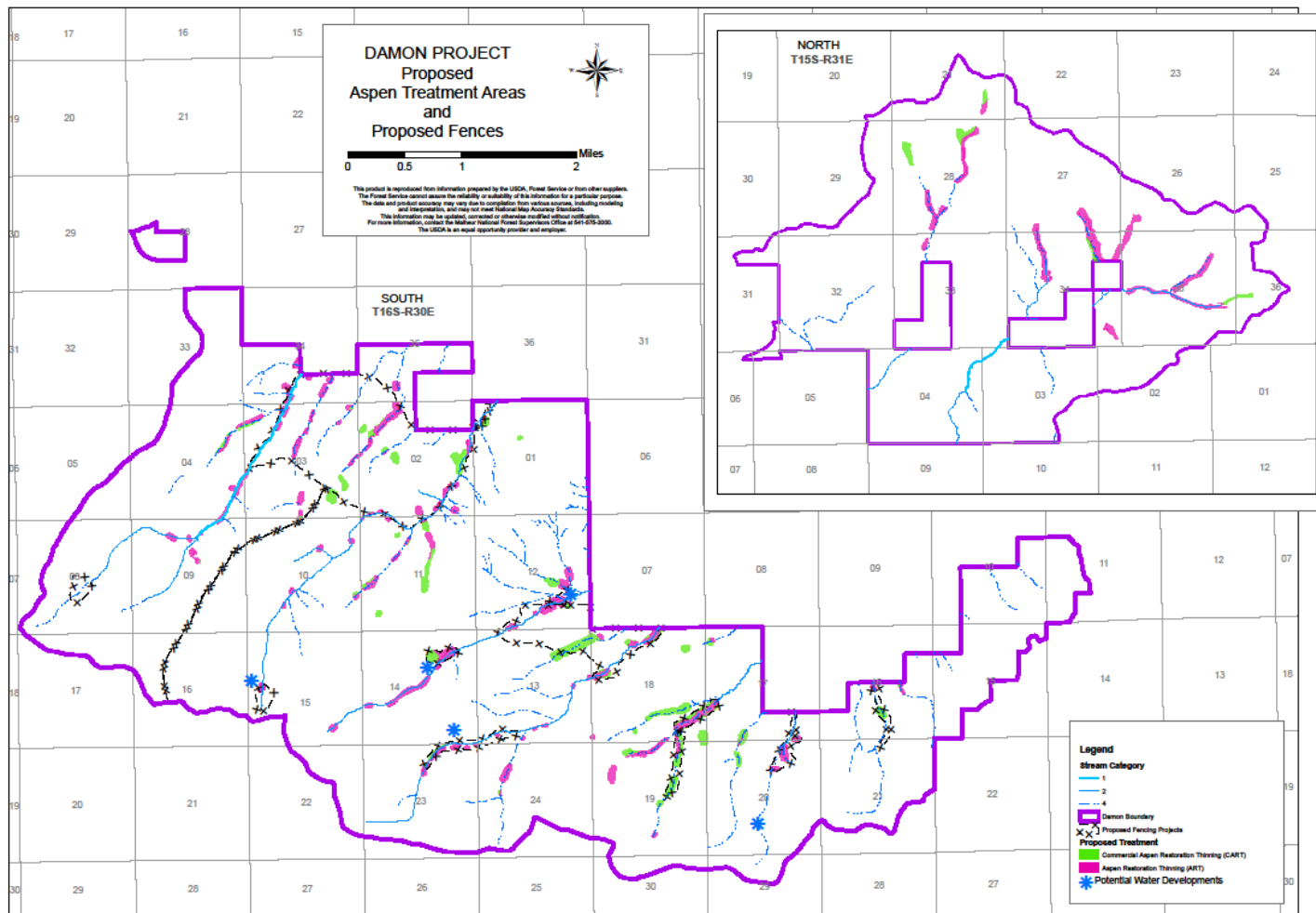
Decision Signed 6/2010, 19,422 Analysis Acres

Treatment	Planned	Completed (as of 4/9/2019)
Commercial Harvest (acres) includes biomass units	8,455	6,931
Commercial Volume (ccf) includes biomass in DN	27,000-36,000	50,404
Non-Commercial thin and Slash Treatments (acres)	6,718	3,510
Aspen Restoration Thinning (acres)	619	256 acres
Underburning (acres)	13,696	5,308
Road Decommissioning (miles)	9.6	0
Road Closure (miles)	3.2	3.2



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Soda Bear Project

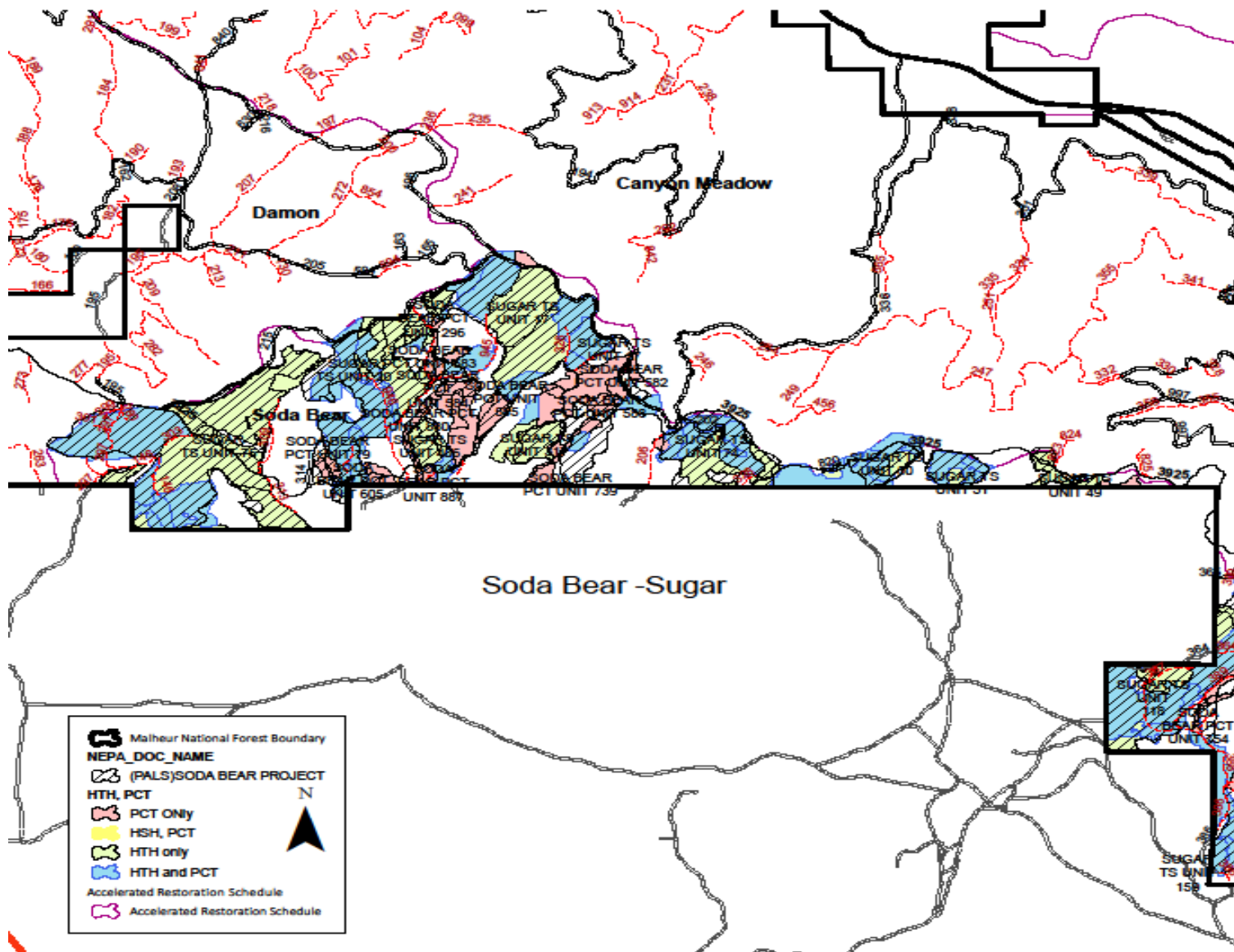
Collaboration Started in 2010

Decision Signed 1/2012

Treatment	Planned	Completed (as of 4/9/2019)
Commercial Harvest (acres) HTH and HSH	9,349	6,350
Commercial Volume (ccf) includes biomass	29,915	56,335
Non-Commercial Thin and Slash Treatments (acres)	10,889	2,122
Aspen Restoration Thinning (acres)	65	65
Underburning (acres)	14,174	0
Road Decommissioning (miles)	3	Not confirmed
Road Closure (miles)	8	Not confirmed

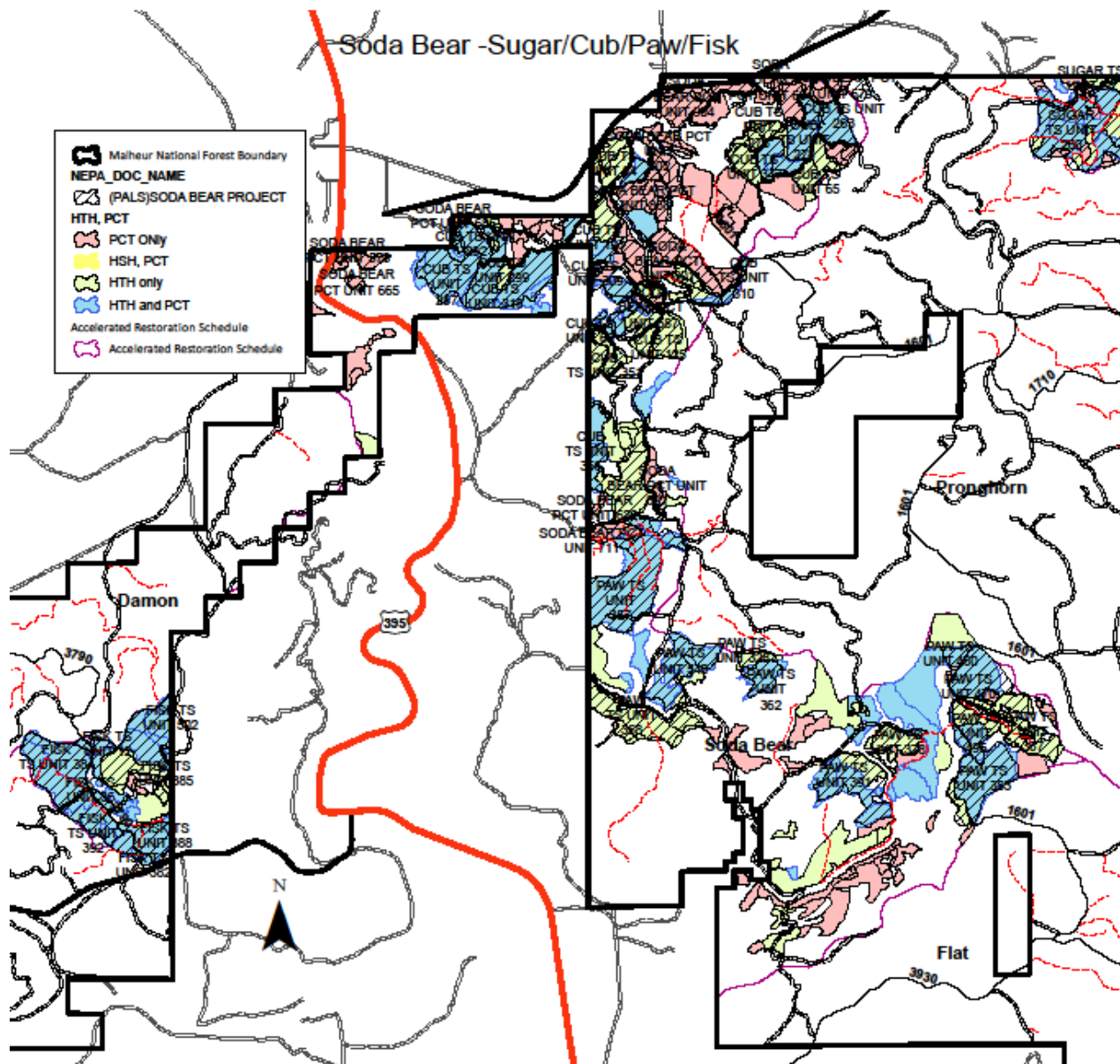


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Soda Bear -Sugar/Cub/Paw/Fisk



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71% of the Malheur NF is in the Frequent/Low Severity Fire Regime

That is 1.2 million acres across the Forest

Several Studies, including one completed locally here on the Malheur have found that the 500 year period prior to aggressive fire suppression, these lands burned on average every

12 YEARS



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More than 100,000 ACRES Per Year



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Damon WUI– By the Numbers as of 6/2019

Collaboration Started 2008 - Decision Signed 6/2010

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Commercial Harvest

- 3 Timber Sale awarded
 - DE, sold 9/2010, Iron Triangle, closed 7/2015, (11,227 ccf)
 - Drew, sold 8/2011, Iron Triangle, closed 1/2017, (17,194 ccf)
 - DS, sold 9/2010, Iron Triangle, closed 7/2015, (6,583 ccf)
- Timber Sales, 35,004 ccf (18 mmbf) volume sold for \$841,899.
- Collected \$80,107 in KV
- \$488,536 went to Salvage Sale fund
- \$195,880 went to the treasury
- The balance went to BD and Road Maintenance funds.
- 3 MCMB Stewardship Task Orders Awarded, Kriege, Iron Triangle and Gahlsdorf all awarded in 2011. **58%** of material was biomass (minimum 12' to 3' top). Total logging cost \$2.14 million.
- DN Stewardship, 15,400 ccf sold for \$2.1 million. Boise Cascade (Pilot Rock) and Malheur Lumber, 97% return
- Sales closed 2015-2017

Non-Commercial (PCT) Harvest and Slash treatments

- Cost to complete Non-commercial thin/Slash treatments = \$661,313 to date.
- Primarily funded with CFLR but also used Title II, KV, and Stewardship receipts.
- The Districts are looking at a few more planned PCT and slash treatments. Some slash piles still need burned

Aspen Restoration Thinning

- Work not covered by commercial treatments was completed using GNA agreement with ODF&W. An additional GNA agreement this year will complete 100 additional acres.
- Aspen treatments in commercial stands have all been completed.
- For aspen protection a combination of hinging, 4 wire and buck/pole.
- Small professional service contract to have aspen monitoring done in Damon and Starr.

Underburning

- Started in 2014. The largest single unit so far was 1,572 acres.
- Included prescribed fire on private lands using Wyden Authority

Engaging fires before they start: Strategic fire planning for the 21st Century

Christopher J. Dunn, chris.dunn@oregonstate.edu, Oregon State University, Corvallis, OR.

Dave Calkin, USFS Rocky Mt. Research Station, Missoula, MT.

Matt Thompson, USFS Rocky Mt. Research Station, Ft. Collins, CO.

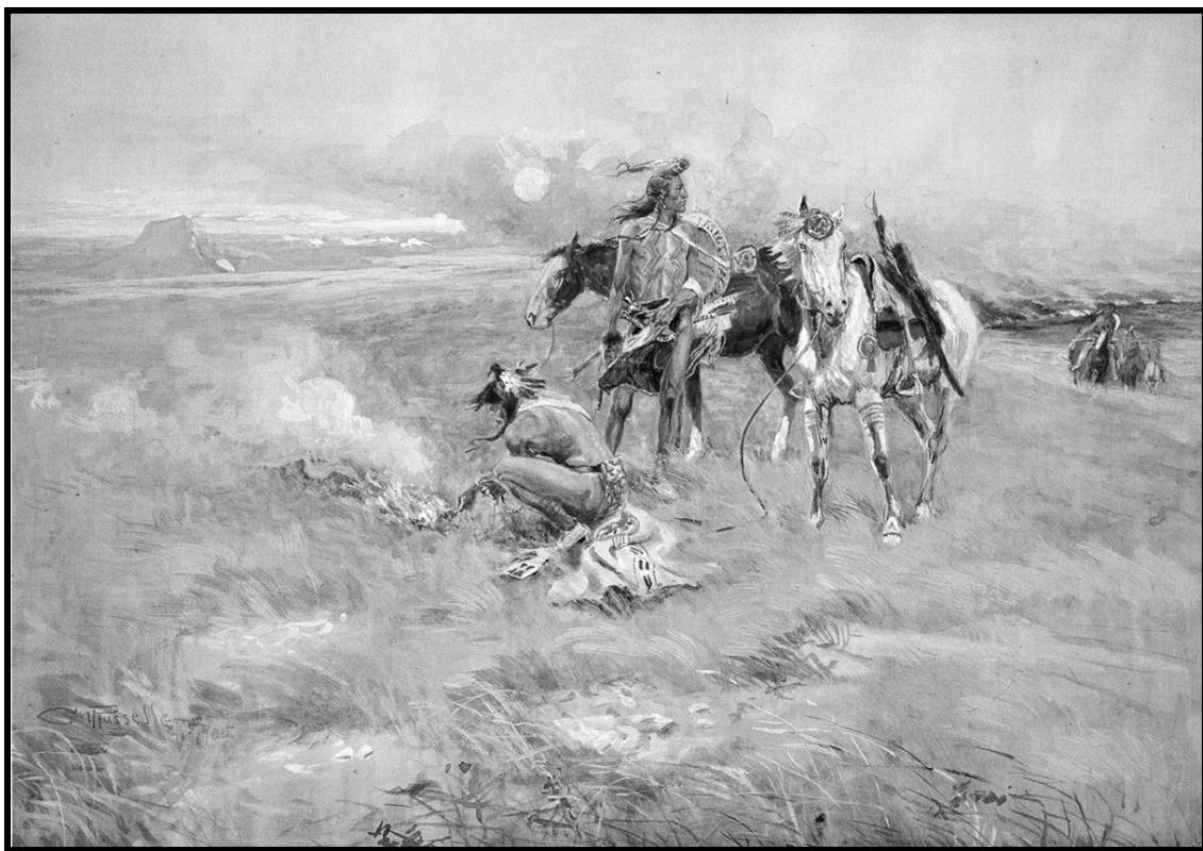
Kit O'Connor, USFS Rocky Mt. Research Station, Missoula, MT.

Rick Stratton, USFS, Washington, DC.

Joe Scott, Pyrologix, Inc., Missoula, MT.



Stuck between two paradigms



Charles M. Russell, 1905



USFS, 1953

“The greatest good for the greatest number”

Forest Reserve Act 1891

Expanded land base of national forests under President Theodore Roosevelt

1905 Forest Service created

Debate regarding merits of public vs. private land holdings

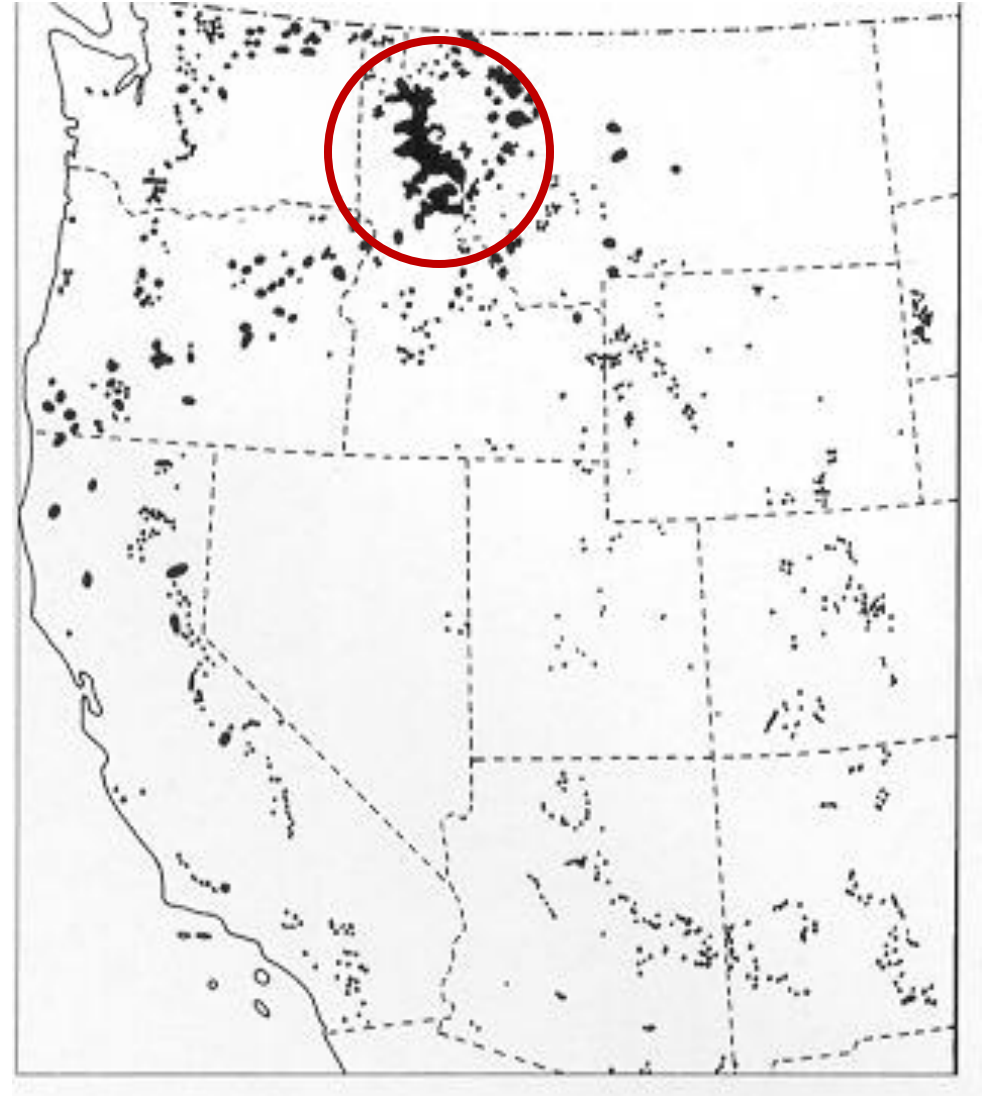


The Big Burn of 1910

Fires across much of the West, but Idaho and Montana were hit hard

3 million acres burned

88 firefighters died



1910 Fires – A Local Disaster



1910 Fires – A National Success

1911 – Weeks Act

Fostered State fire programs with Federal funds

A direct political result of the 1910 fires



How Fire Helps Forestry

The Practical vs. The Federal Government's Theoretical Ideas

By GEORGE L. HOXIE, C. E. *Sunset* (1910)

The Torch in the Timber

*It May Save the Lumberman's Property, But It Destroys
the Forests of the Future*

By Henry T. Graves *Sunset* (1920)

What is the Truth?

*The Forest Service and Stewart Edward White Agree to
Study Forest Fire Damage*

By Paul G. Redington *Sunset* (1920)
District Forester, San Francisco



Henry Graves, USFS Chief



“PIUTE FORESTRY” OR THE FALLACY OF LIGHT BURNING

*BY WILLIAM B. GREELEY, ASSISTANT FORESTER, UNITED STATES
FOREST SERVICE FROM THE TIMBERMAN, MARCH 1920*



Fire Exclusion Wins!

Forest industry fights for
fire

Forest Service fights
against it

“Light Burn Committee”
concludes in favor of fire
exclusion





USFS, 1953



Increasingly complex wildfire environment

Altered forest structure and fuel loadings

- Fire and forest management

Expanding wildland urban interface (WUI)

Climate change

- Longer fire seasons
- Increased summer droughts

Wildfire paradox



Fire As An Ecological and Silvicultural Factor in the Ponderosa-Pine Region of the Pacific Slope

Harold Weaver¹

This article presents evidence in support of the author's belief that complete prevention of forest fires in the ponderosa-pine region of the Pacific Slope has certain undesirable ecological and silvicultural effects. He emphasizes the fact that conditions are already deplorable and are becoming increasingly serious over large areas, and urges intensive research on the problem.

Journal of Forestry, 1943



1909



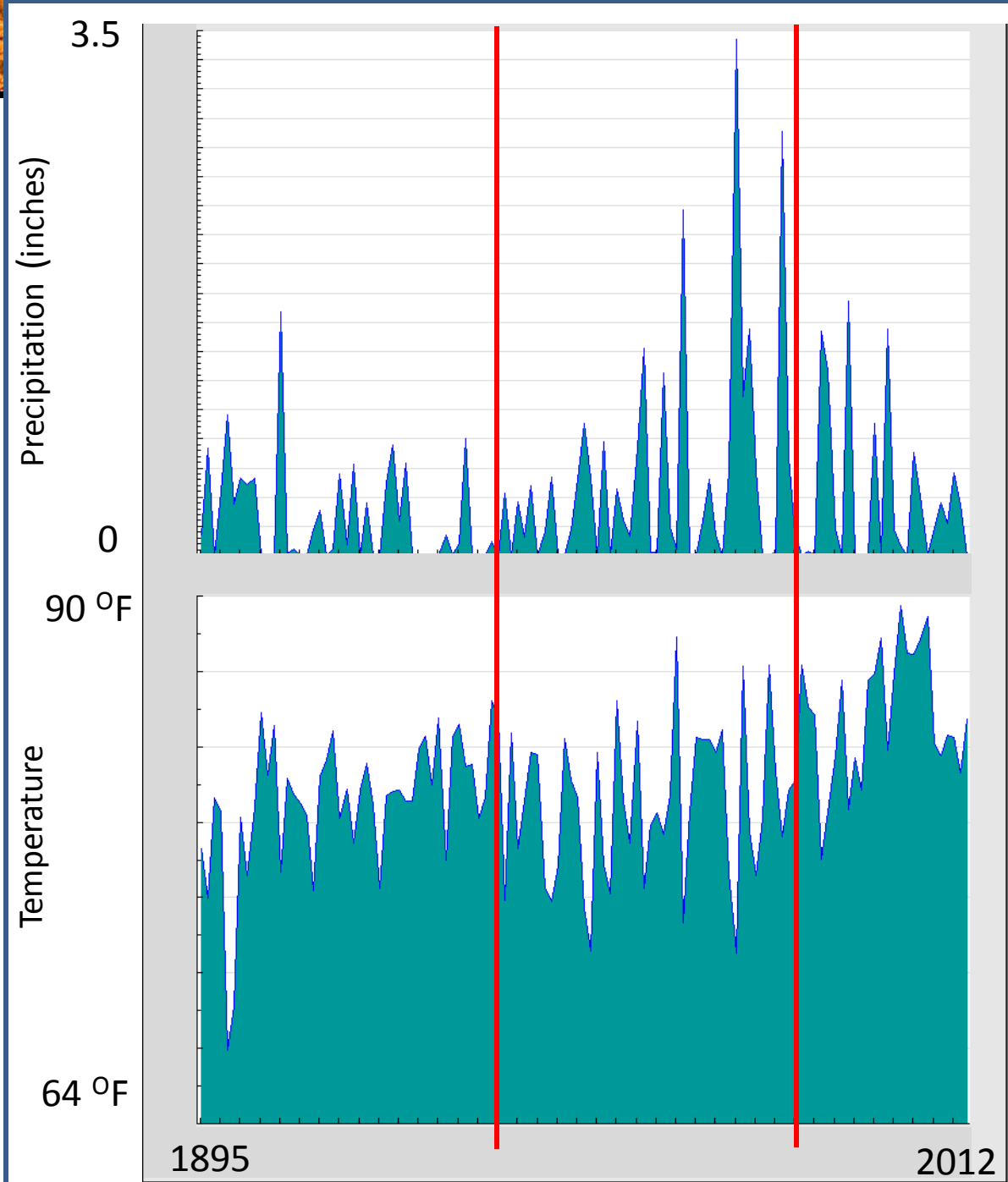
1948

Harold Weaver, "Fire as an Ecological and Silvicultural Factor in the Ponderosa Pine Region of the Pacific Slope," *Journal of Forestry* 41(1): 7-14

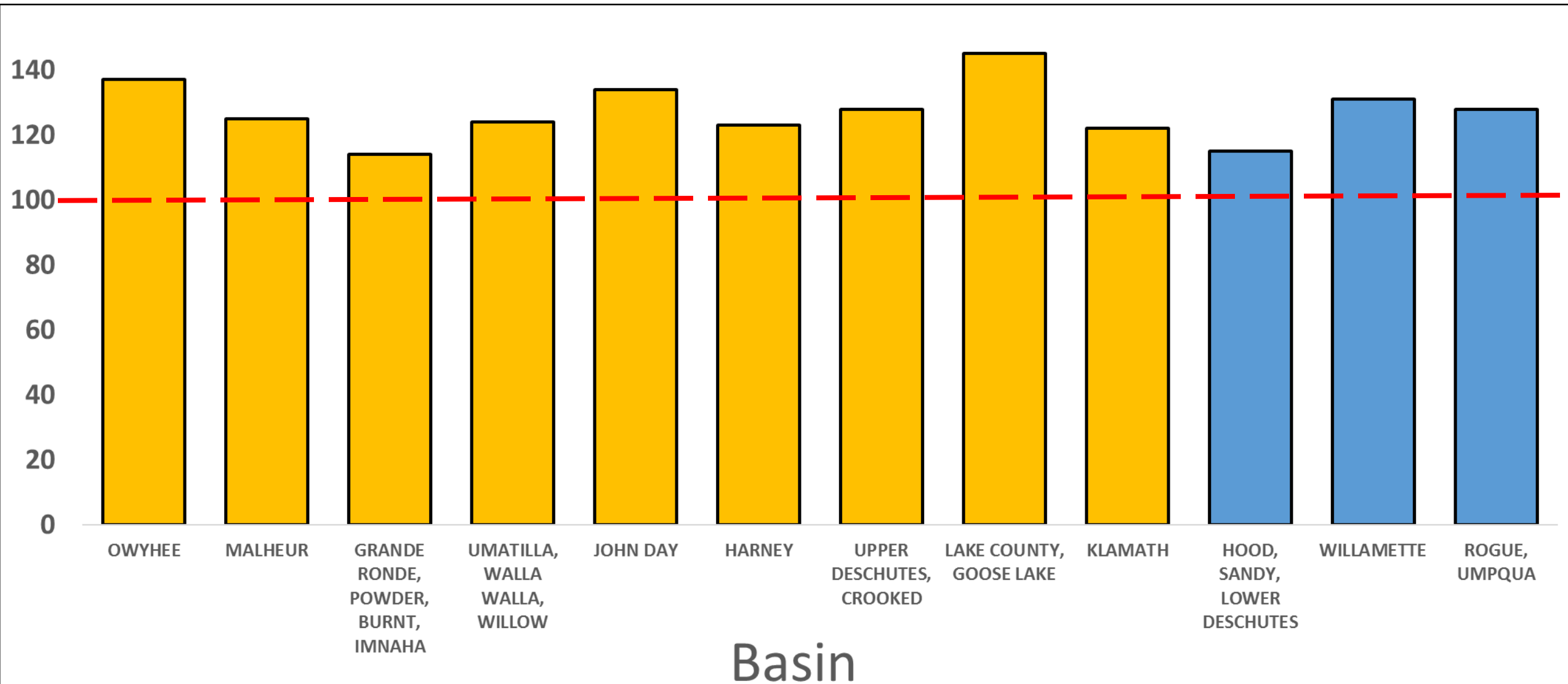
Contemporary Climate

Average monthly August
precipitation and maximum
temperature

Cooler/Wetter Climate
~1949 – 1985

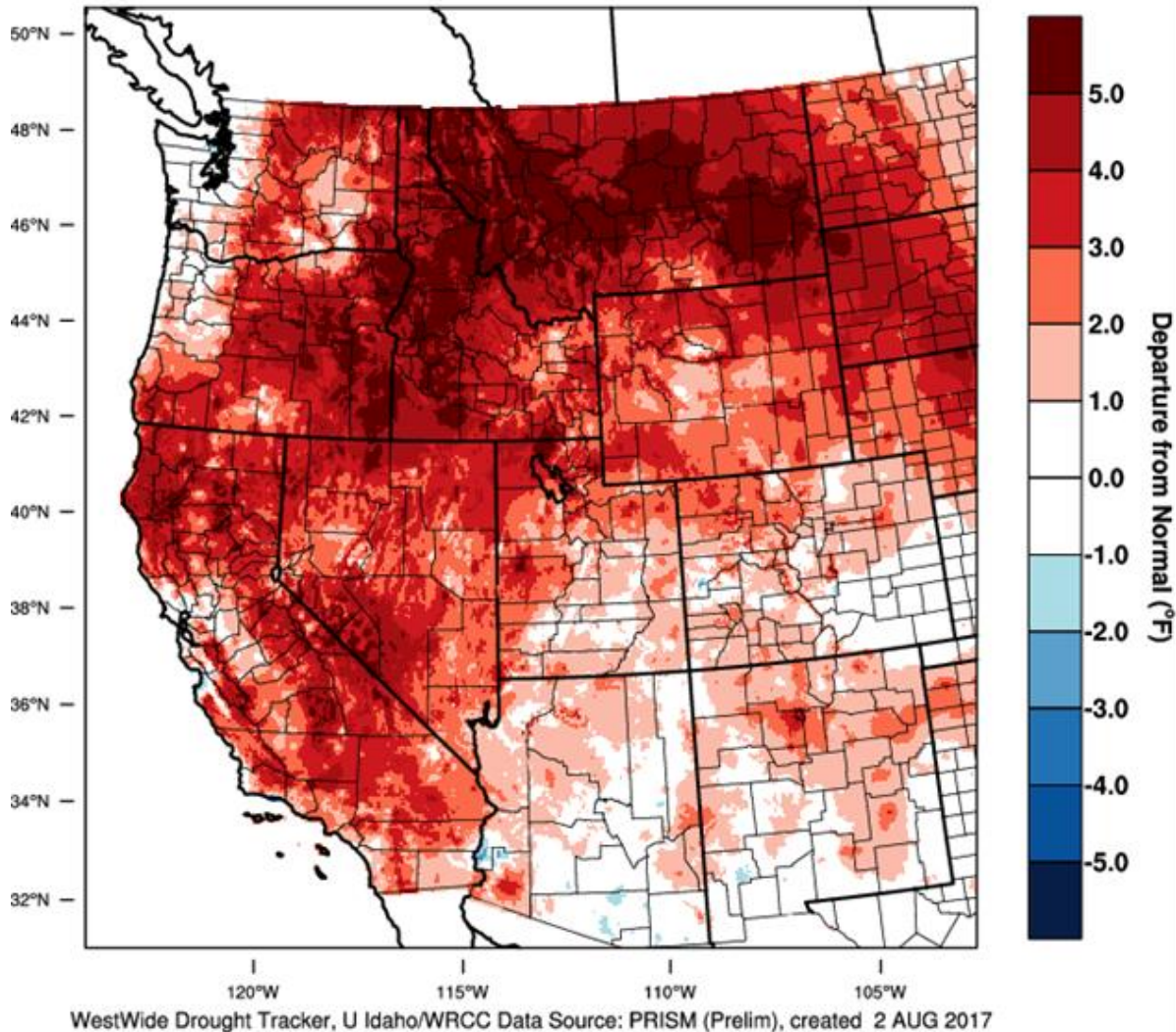


Feb. 27th, 2017: Basin-wide snowpack (% of 1981-2010 median)

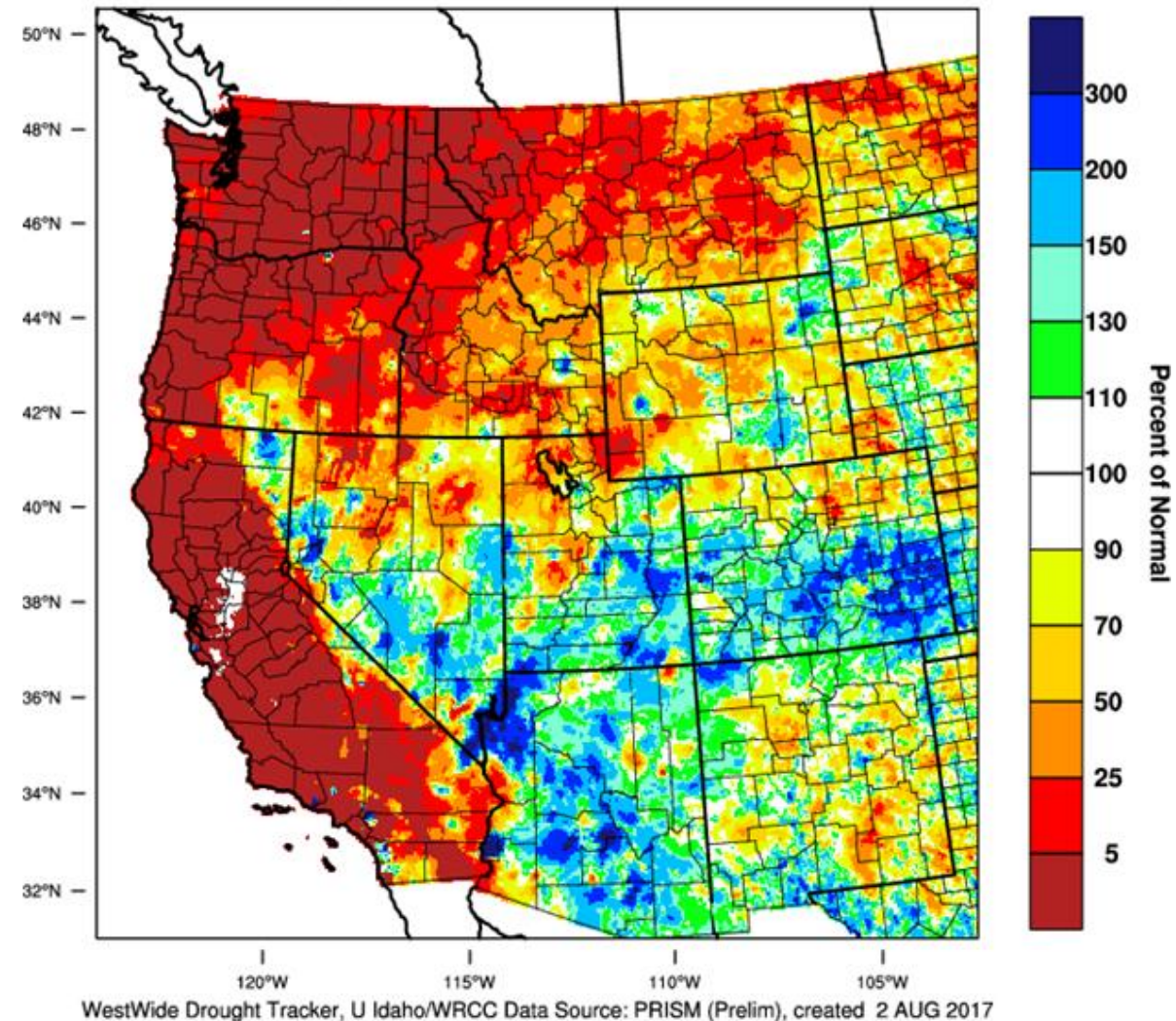


July 2017 climate

Temp. departure from normal



Precip. % of normal (1981-2010)



Increased risk to communities



Paradise lost to Camp Fire

Fire as the solution

National Cohesive Wildland Fire Management Strategy vision:

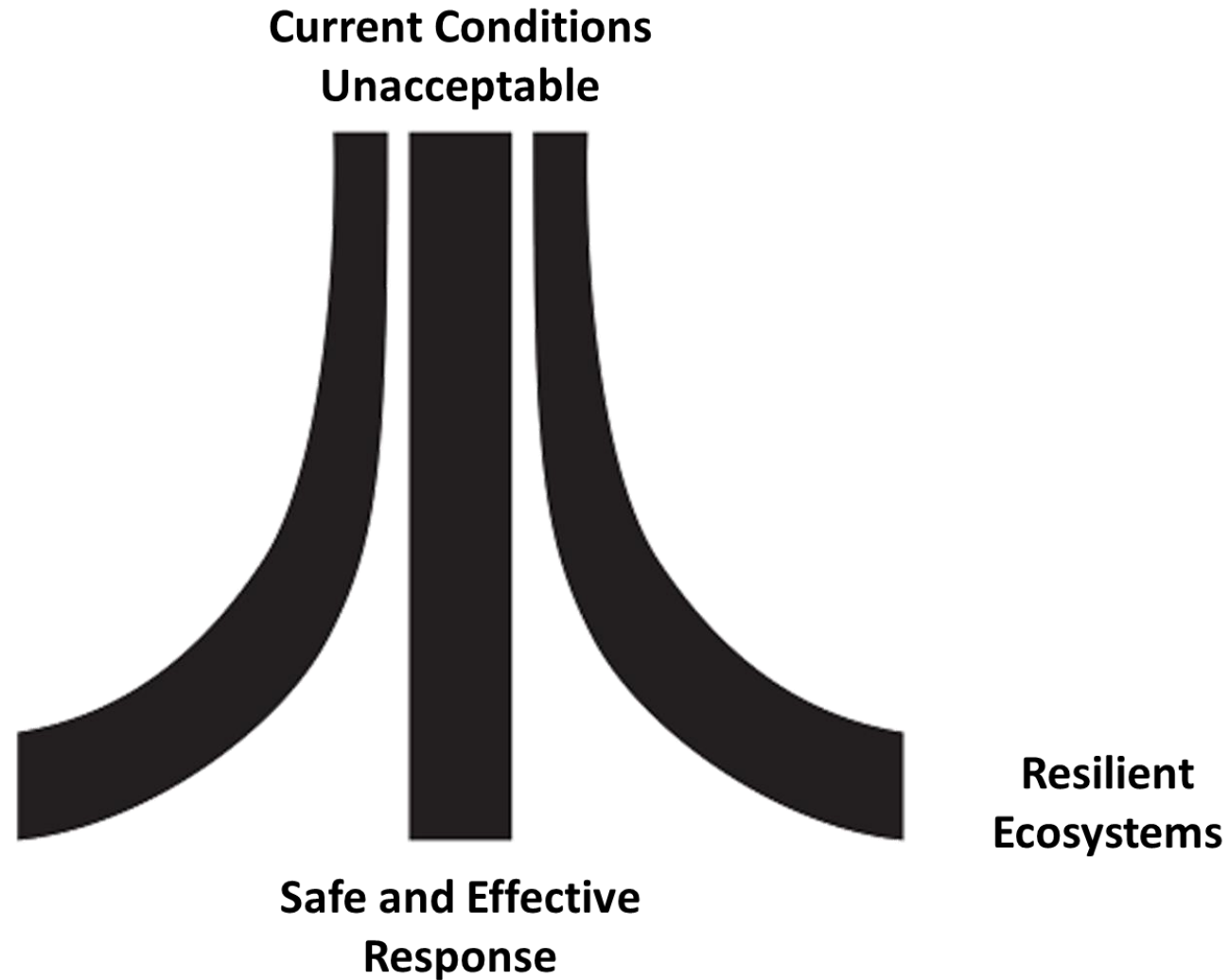
*To safely and effectively extinguish fire when needed; use fire where allowable; manage our natural resources; and as a nation, to **live with wildland fire.***



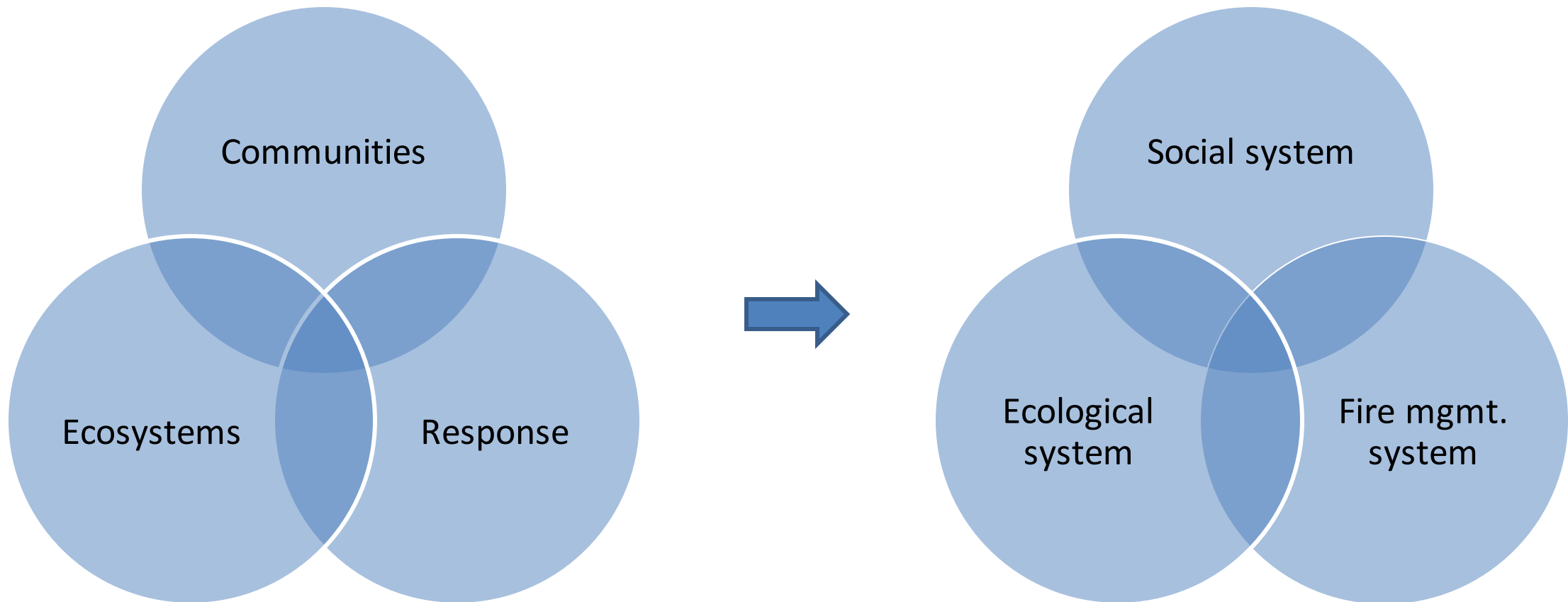
National Cohesive Wildland Fire Management Strategy vision:

*To safely and effectively extinguish
fire when needed; use fire where
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Resilient
Communities



The cohesive strategy: Addressing fire prone landscapes as social-ecological systems

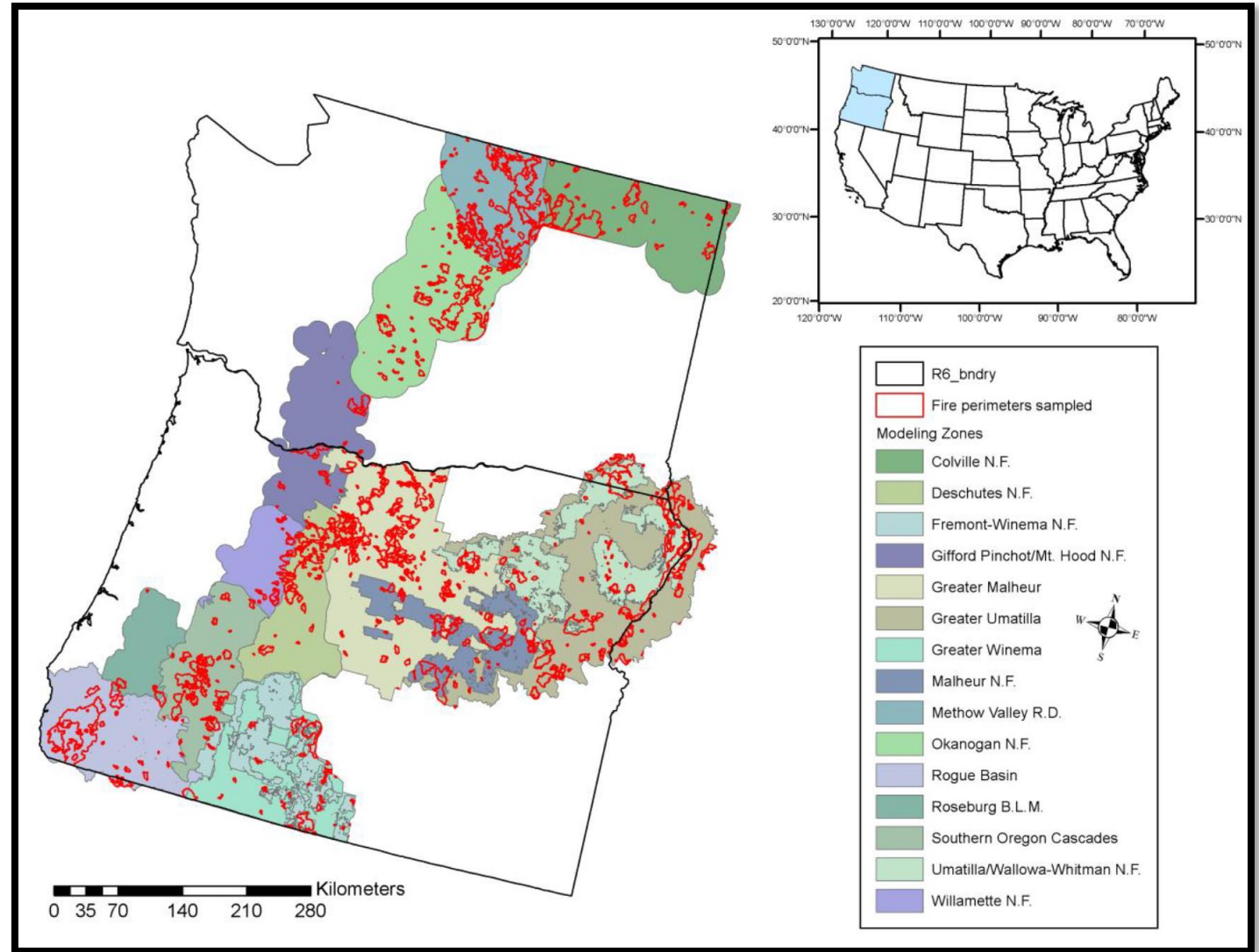


The Tools

Potential Control Location
Atlas (PCLs)

Quantitative Wildfire Risk
Assessment (QRA)

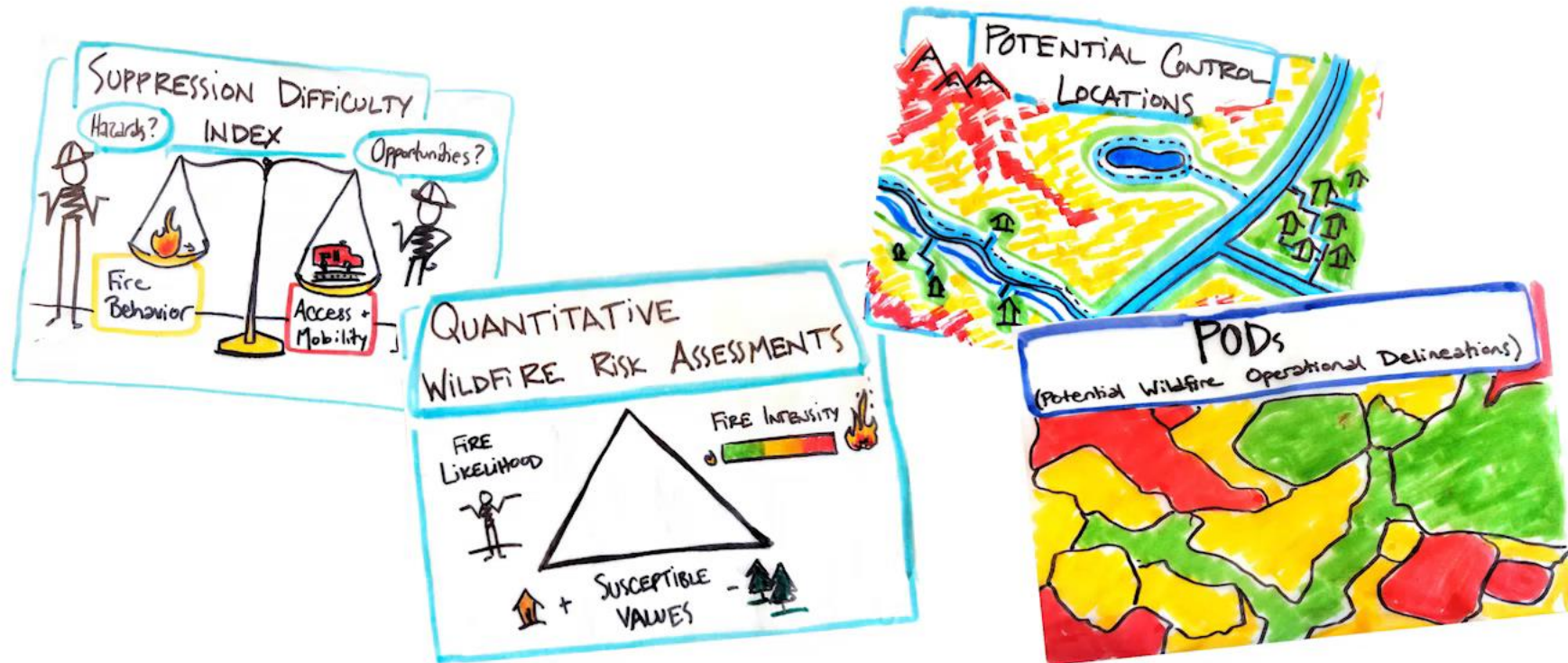
Suppression Difficulty Index
(SDI)



The U.S.F.S. Rocky Mountain Research Station
presents:

PARTNERING for SOLUTIONS:

NEW TOOLS for SPATIAL FIRE PLANNING

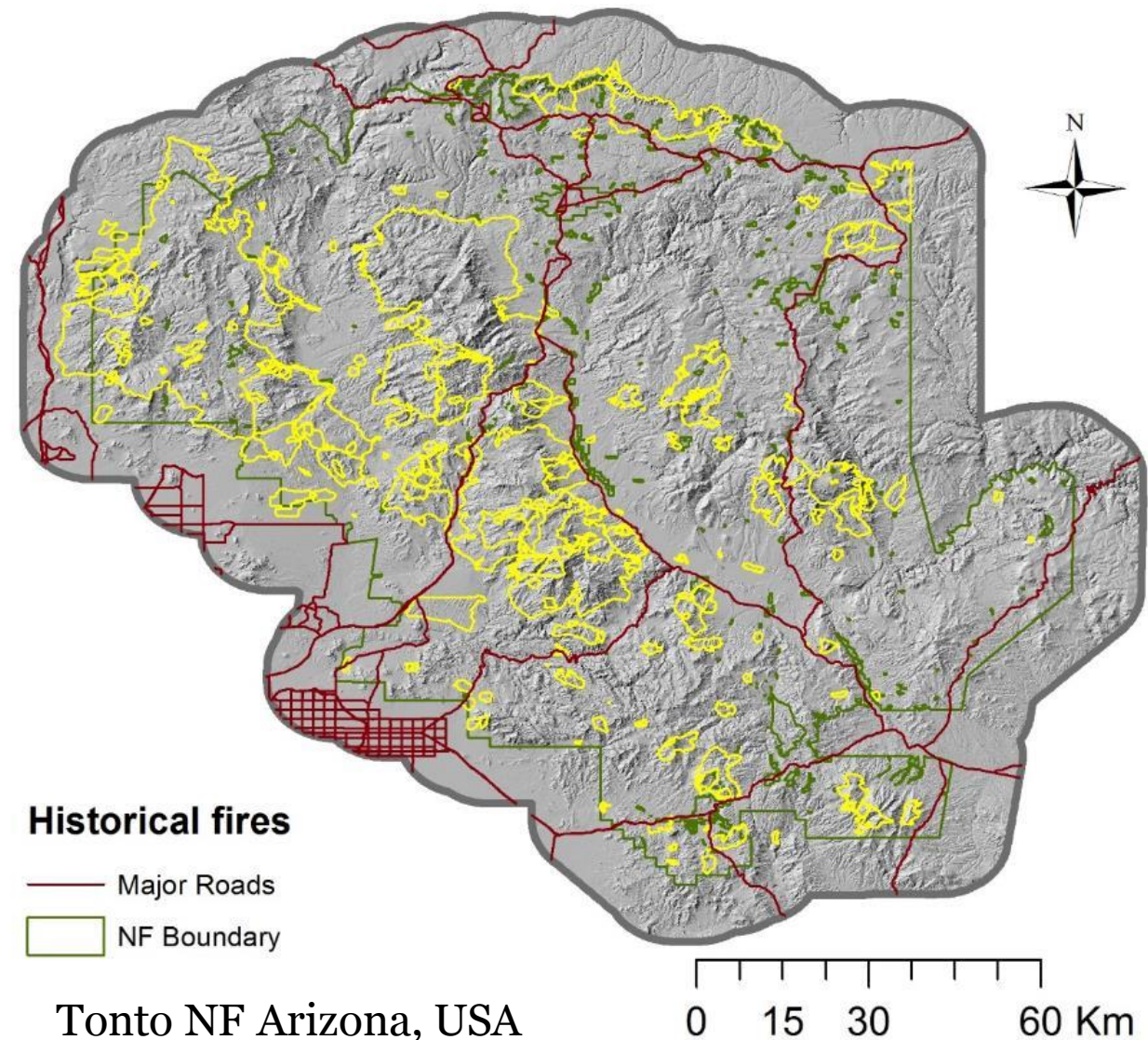


Measured landscape features

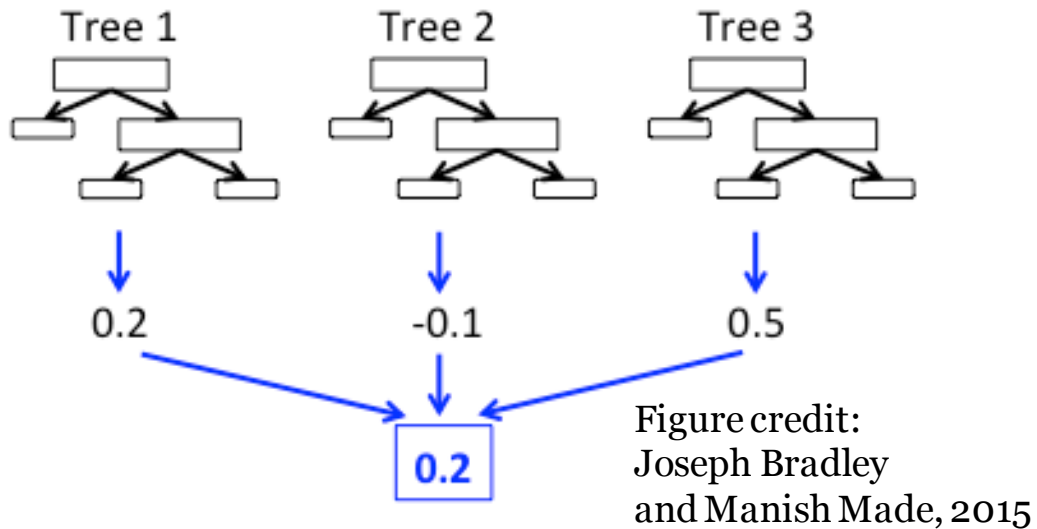
- Topography (complexity and position)
- Slope, aspect, soils
- Fuel type and transitions
- Developed features (roads, infrastructure)
- Barriers (rivers, lakes, impervious surfaces)

Compound fire indices

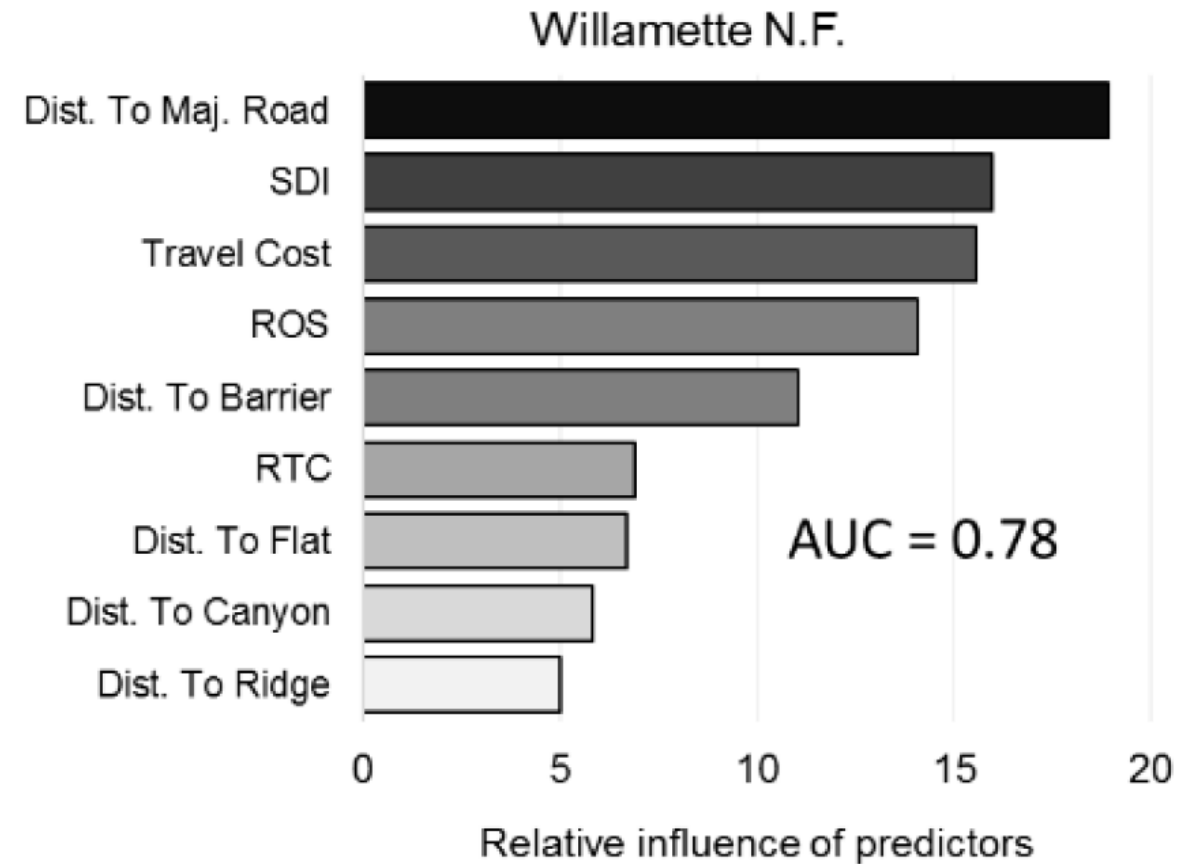
- Resistance to control (Dillon et al. 2011, 2015)
- Rate of fire spread (FlamMap, Finney 2006)
- Suppression difficulty index (SDI) (Rodriguez y Silva et al. 2014)
- Travel cost (accessibility to personnel and equipment)



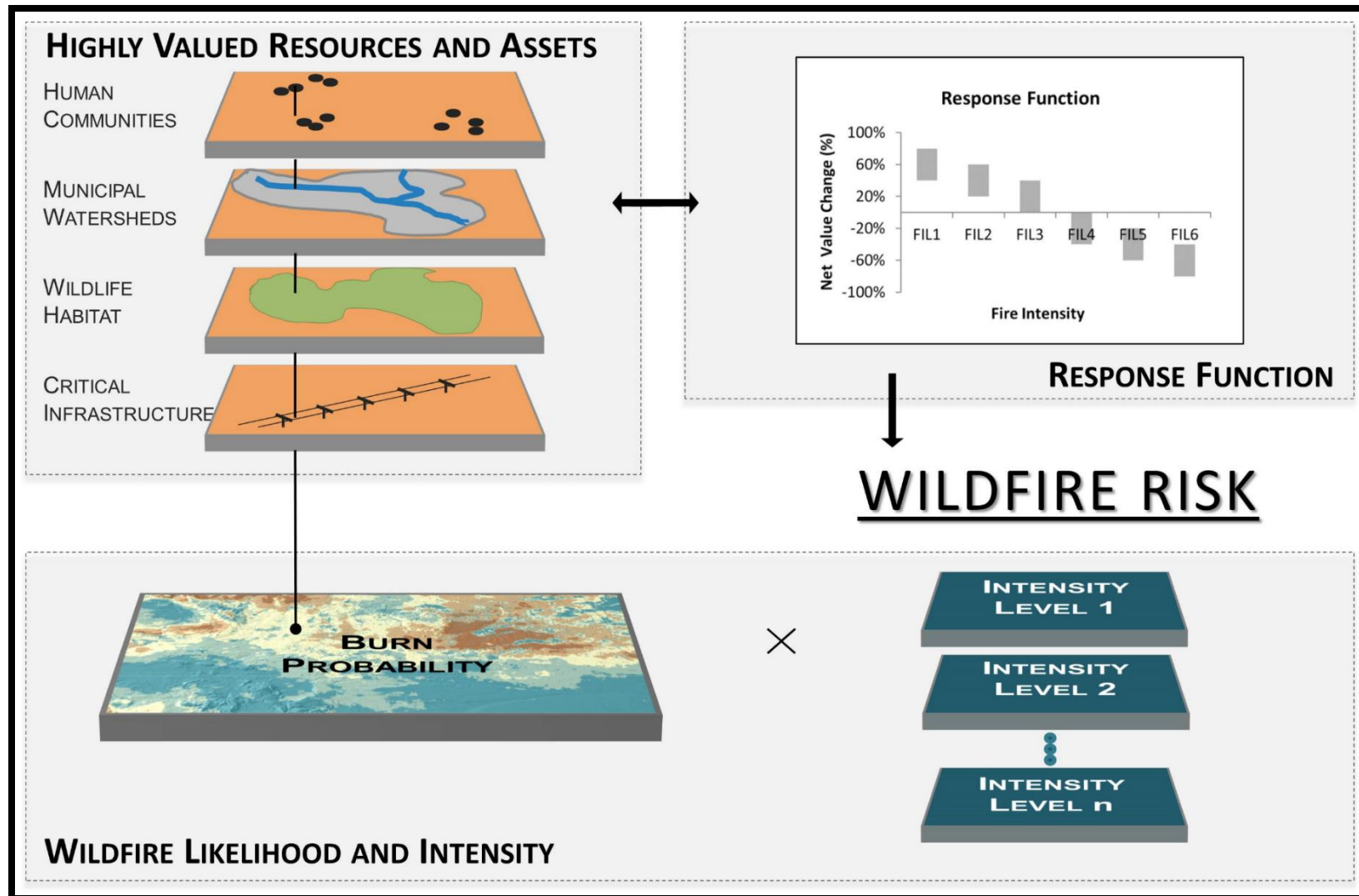
Potential control location atlas



Averages coefficients from thousands of individual regression trees to capture predictor interactions to balance model fit with prediction accuracy (Elith et al. 2008).



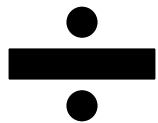
Quantitative wildfire risk assessment: cNVC a formal system for quantifying fire risk



And pre-identifying areas of high risk to fire responder safety

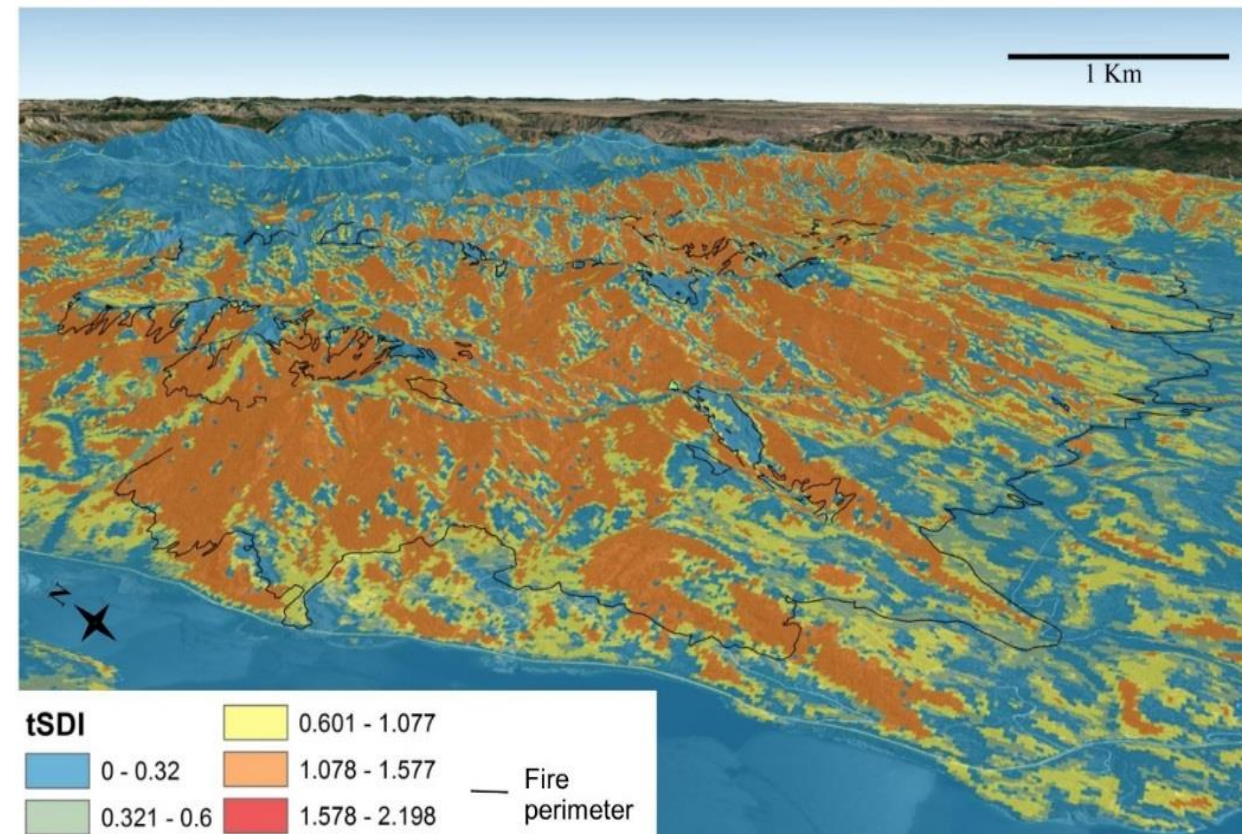
Characterized by suppression difficulty:

Potential high fire intensity and flame lengths



Road, trail, and fuel break density, ease of movement (slope and soil class), fuel class

Based on Suppression Difficulty Index from:
Rodriguez y Silva et al. 2014



Informing wildfire response

Strategic and tactical
response objectives and
actions

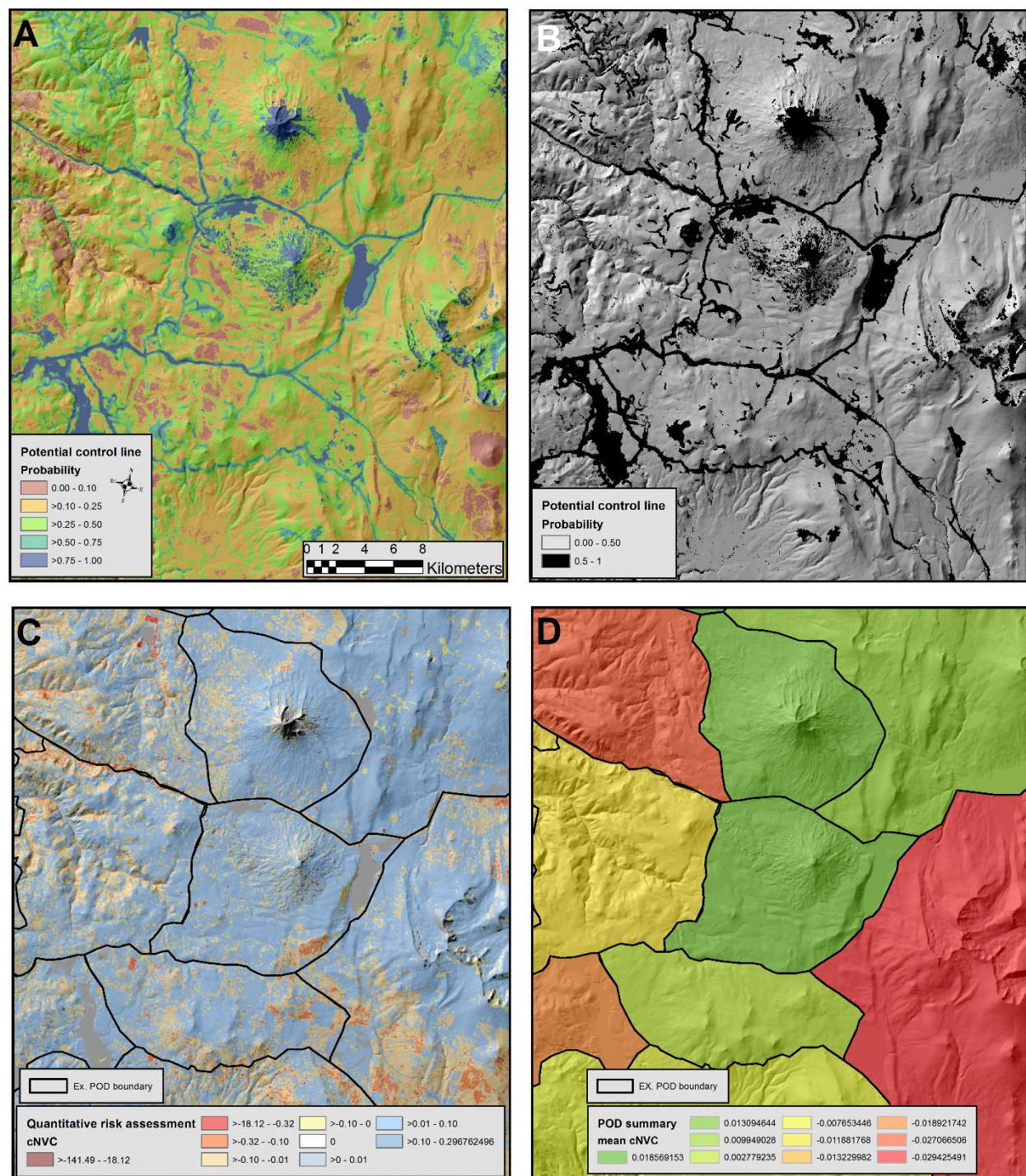


Strategic response

PODs – Potential wildfire
Operational Delineations

Strategic response
commensurate with values

Supports both initial attack
and campaign fire decisions



Planning and response

PODs in action

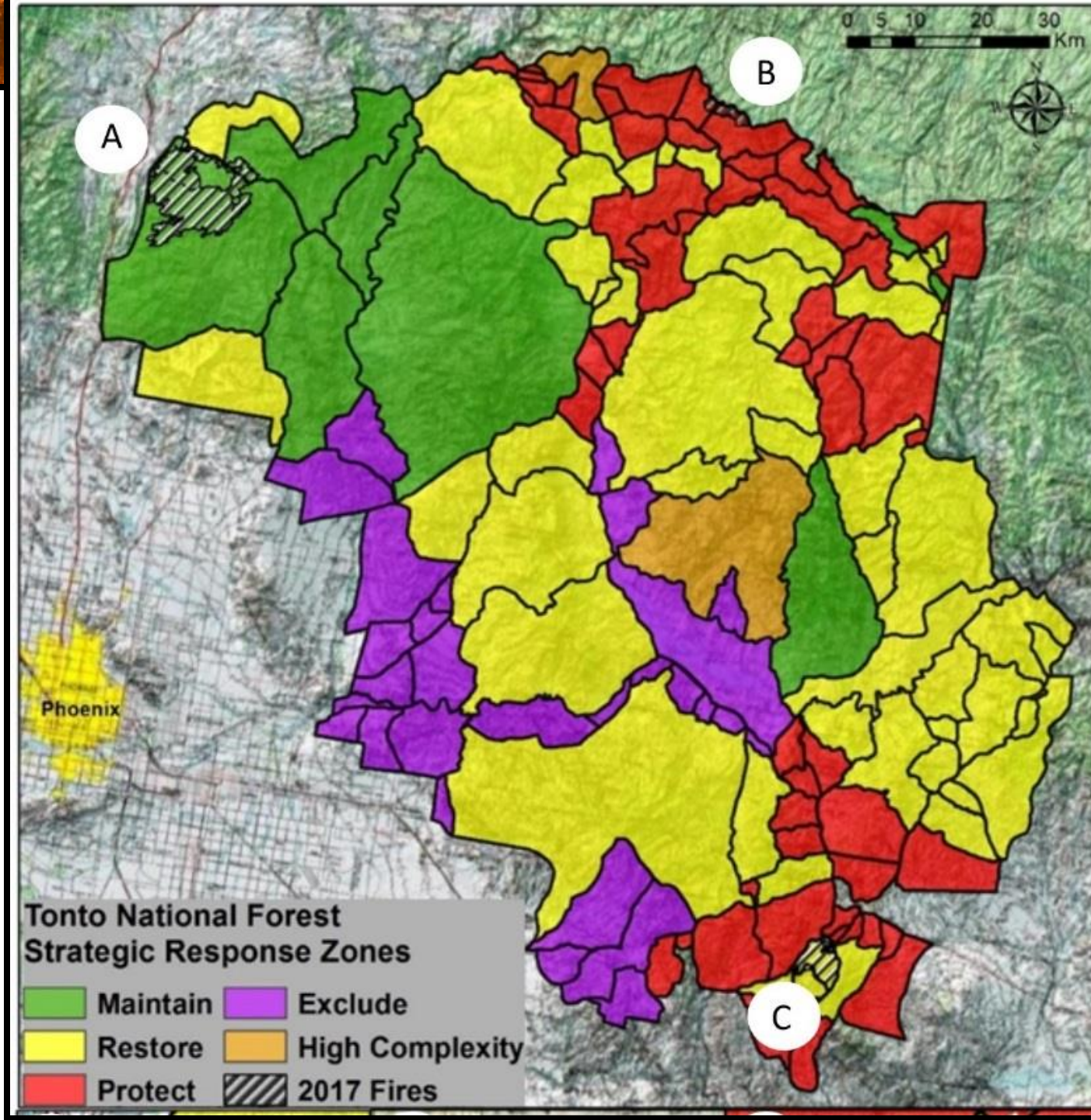
Protect: Current conditions are such that HVRAs are at high risk of loss from unwanted wildfire

Restore: Current conditions are such that HVRAs are at moderate risk of loss from wildfire

Maintain: Current conditions are such that HVRAs are at low risk of loss from wildfire, and many natural resources may benefit from fire

Exclude: Current conditions are such that HVRAs are at high risk of loss from wildfire

High complexity: Current conditions are such that HVRAs are at high risk of loss from wildfire, depending on ignition location and weather conditions





Strategic Response Zone example language

1. **Protect:** Current conditions are such that HVRAs are at high risk of loss from unwanted wildfire. Mechanical fuel treatments would principally be used to yield desired fire behavior conducive to more effective fire response, or in some instances retention of desired conditions for natural resources. Prescribed burning would principally be used to maintain previously treated areas.
2. **Restore:** Current conditions are such that HVRAs are at moderate risk of loss from wildfire. Wildfire should be used to increase ecosystem resilience and provide ecological benefits when conditions allow. Strategically located mechanical treatments and/or prescribed burning, where feasible, may support the reintroduction of wildfire to achieve desired conditions.
3. **Maintain:** Current conditions are such that HVRAs are at low risk of loss from wildfire, and many natural resources may benefit from fire. Due to low risk, wildfires are expected to be used as often as possible to maintain ecosystem resilience and provide ecological benefits when conditions allow. Mechanical treatments and/or prescribed burning, where feasible, are used to complement wildfire to achieve desired conditions.
4. **Exclude:** Current conditions are such that HVRAs are at high risk of loss from wildfire. Historically fires that ignited here did not spread. Current conditions, due to invasive grasses, have created an extremely vulnerable system where fire causes ecosystem conversion. Primary protection objective is to minimize both suppression and fire damage to the ecosystem.
5. **High complexity:** Current conditions are such that HVRAs are at high risk of loss from wildfire, depending on ignition location and weather conditions. Steep terrain, lack of roads or trails, and dense understory make mechanical fuel treatments and prescribed burning difficult. Fire sensitive HVRAs are intermixed with fire-tolerant HVRAs, often with mixed land ownership. Mitigation action and clear communication with POD stakeholders will be necessary to address current fire hazards. This should be a transitional classification that moves the area of concern into a different strategic response once mitigation actions are taken.

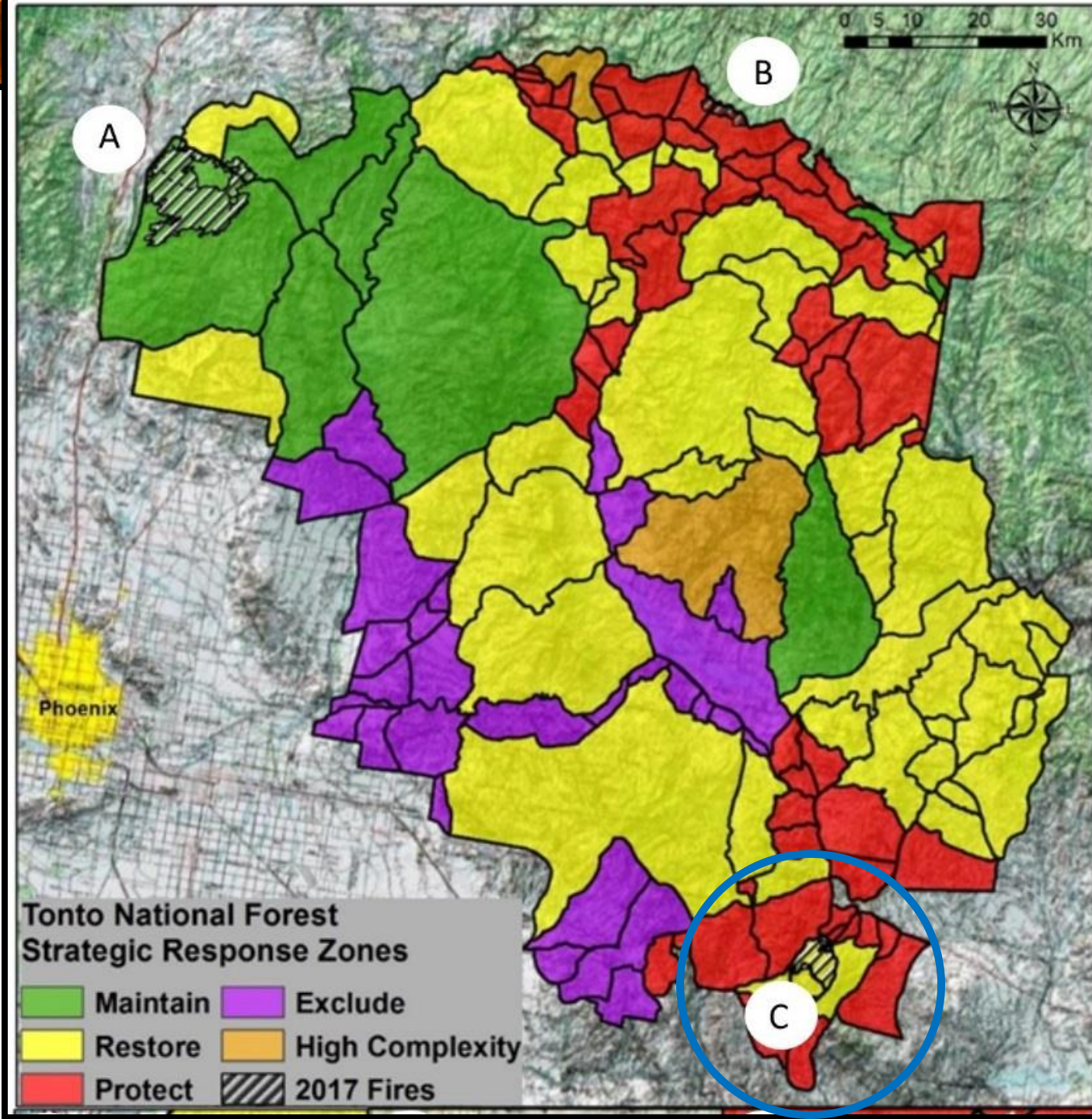
Planning and response POD Applications

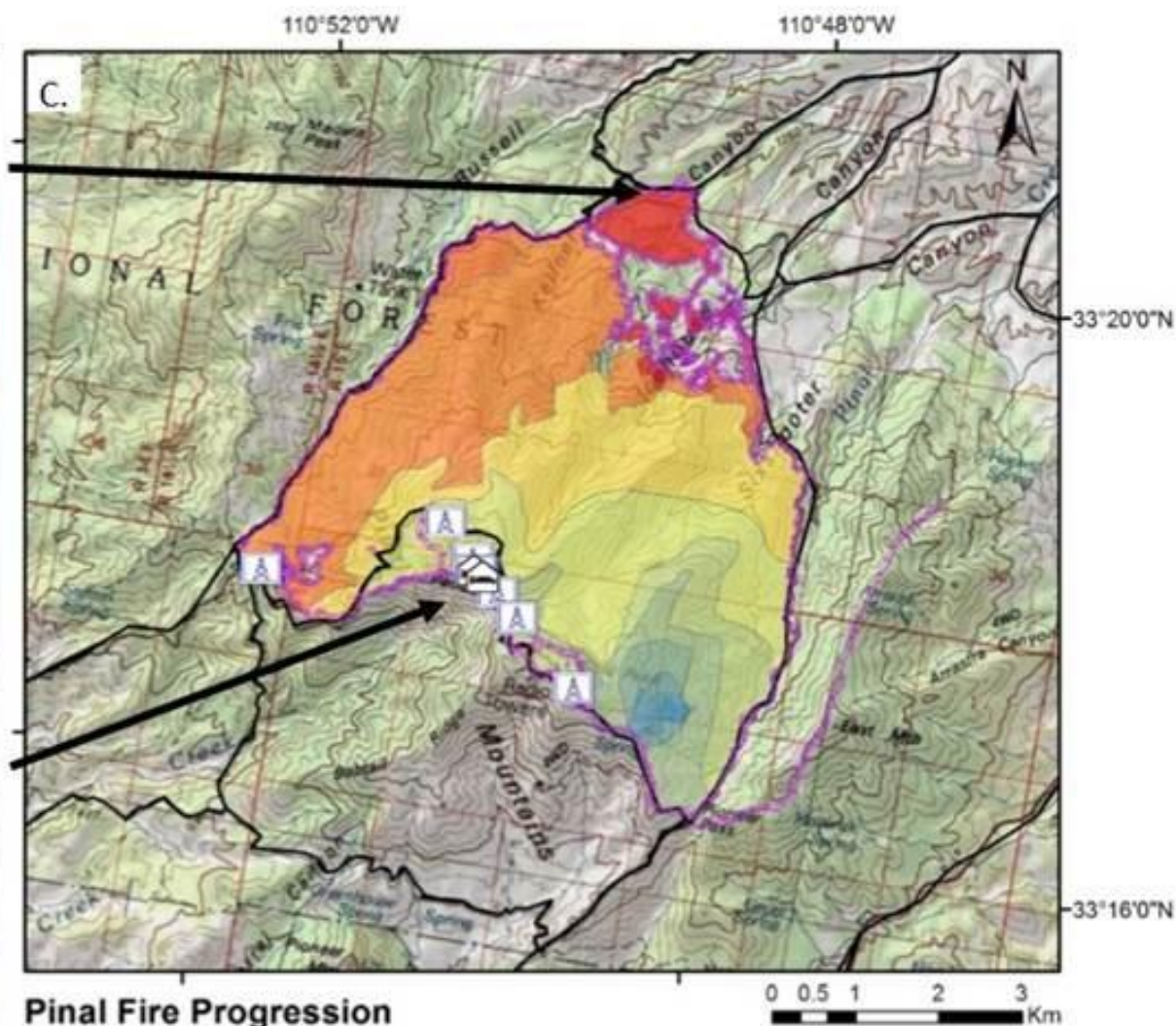
Tonto N.F.

(A) Brooklyn wilderness fire

(B) Highline WUI fire

(C) Pinal resource benefit fire





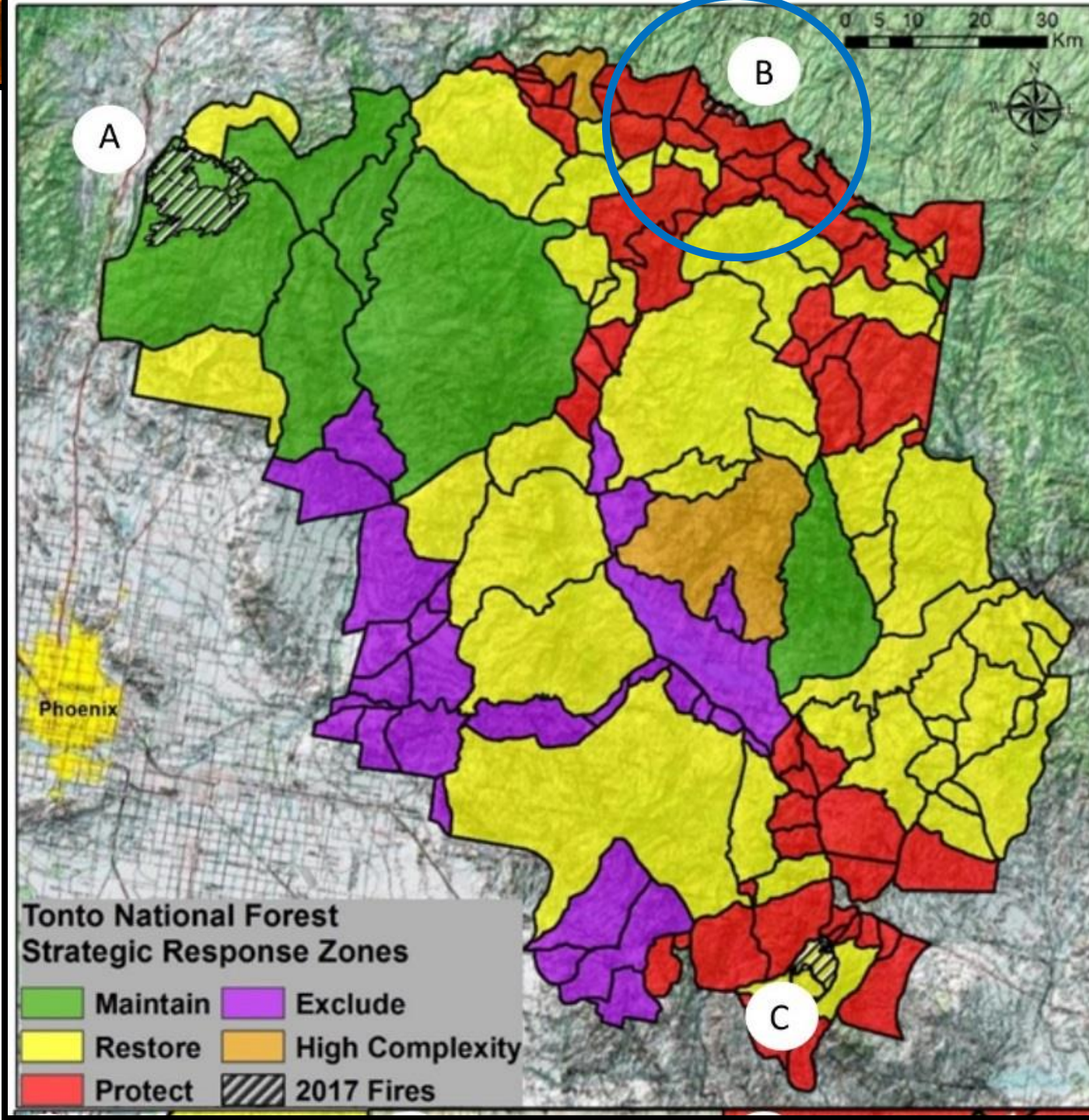
Planning and response POD Applications

Tonto N.F.

(A) Brooklyn wilderness fire

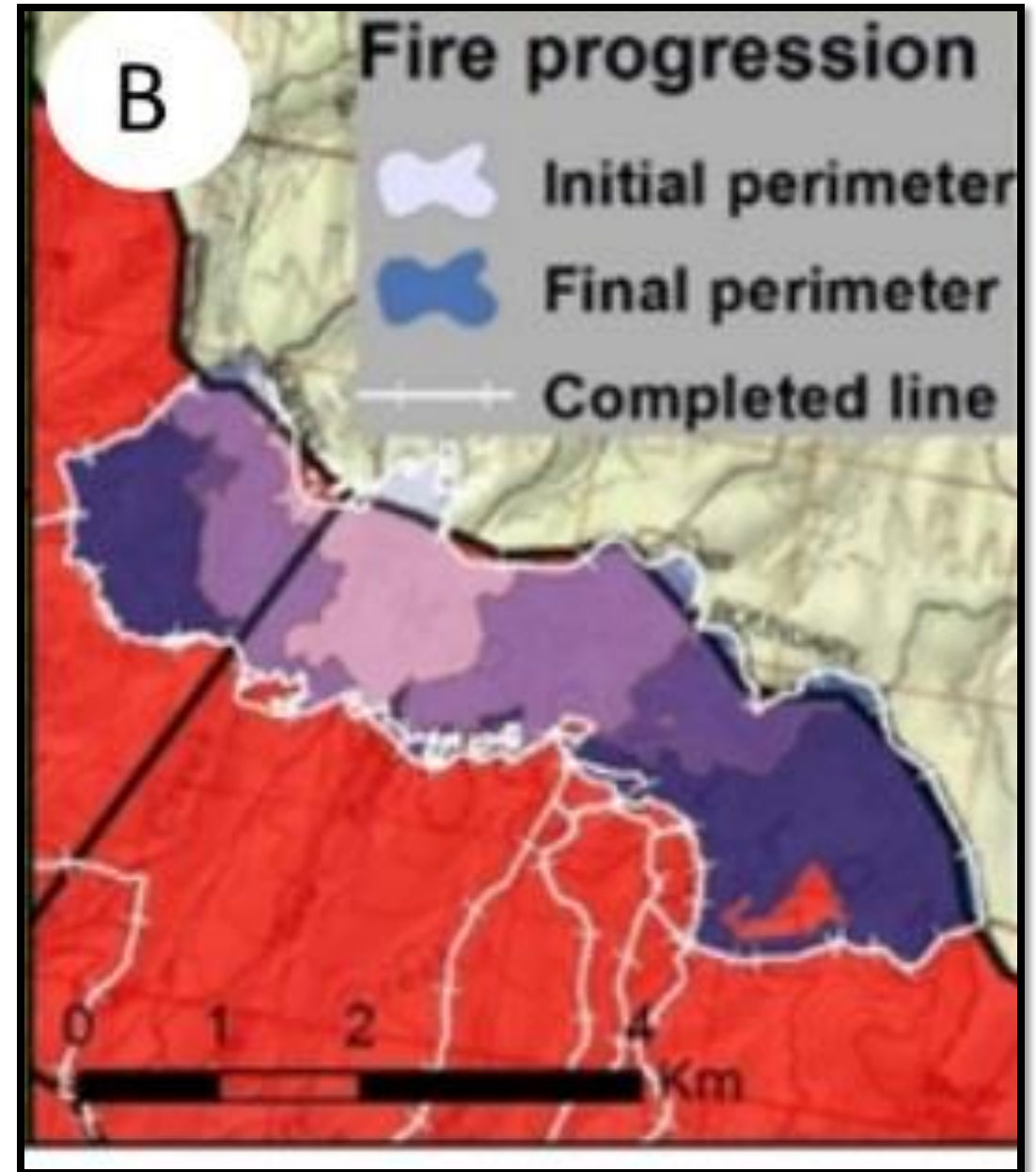
(B) Highline WUI fire

(C) Pinal resource benefit fire

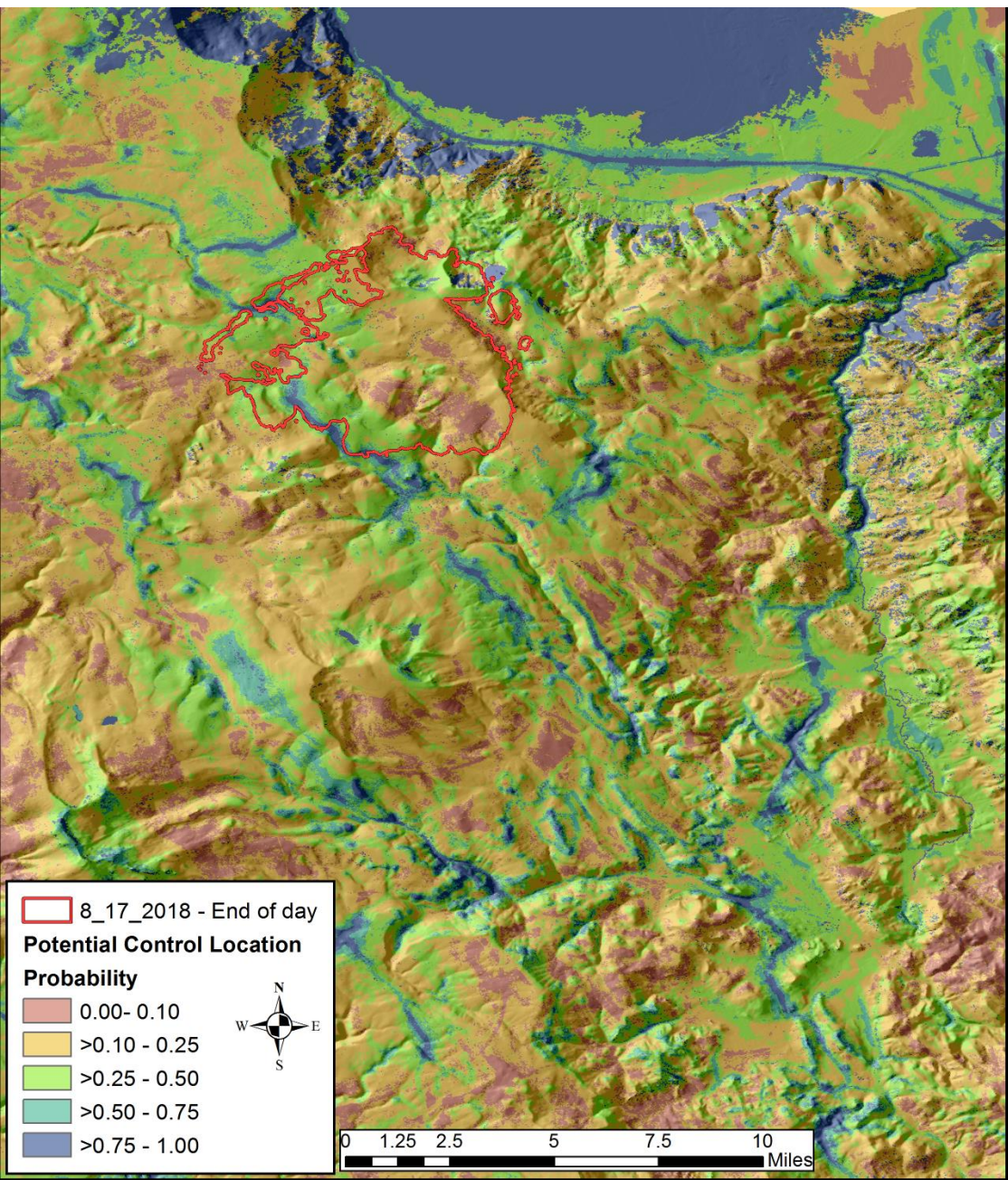


Planning and response POD Applications

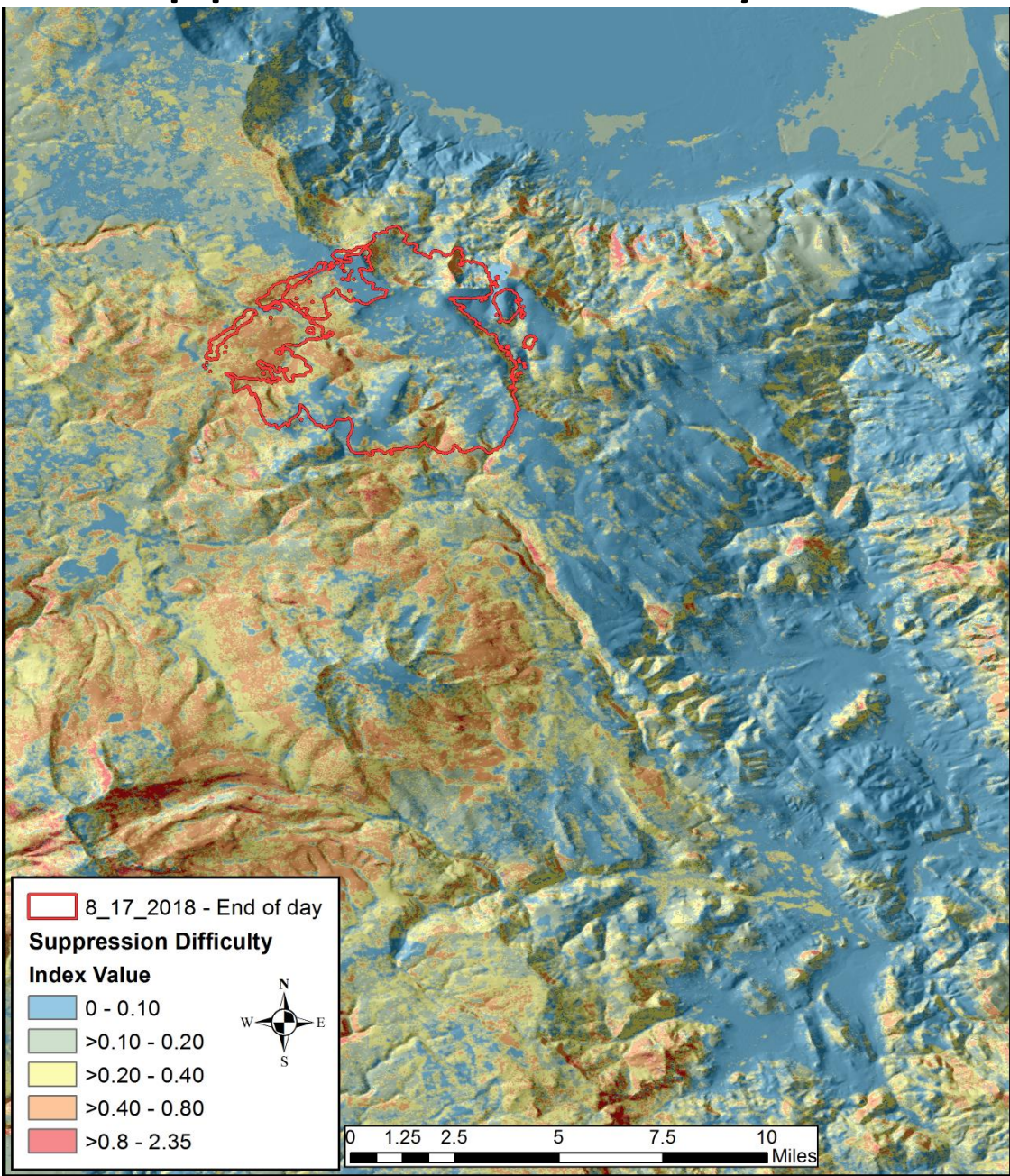
Highline WUI fire



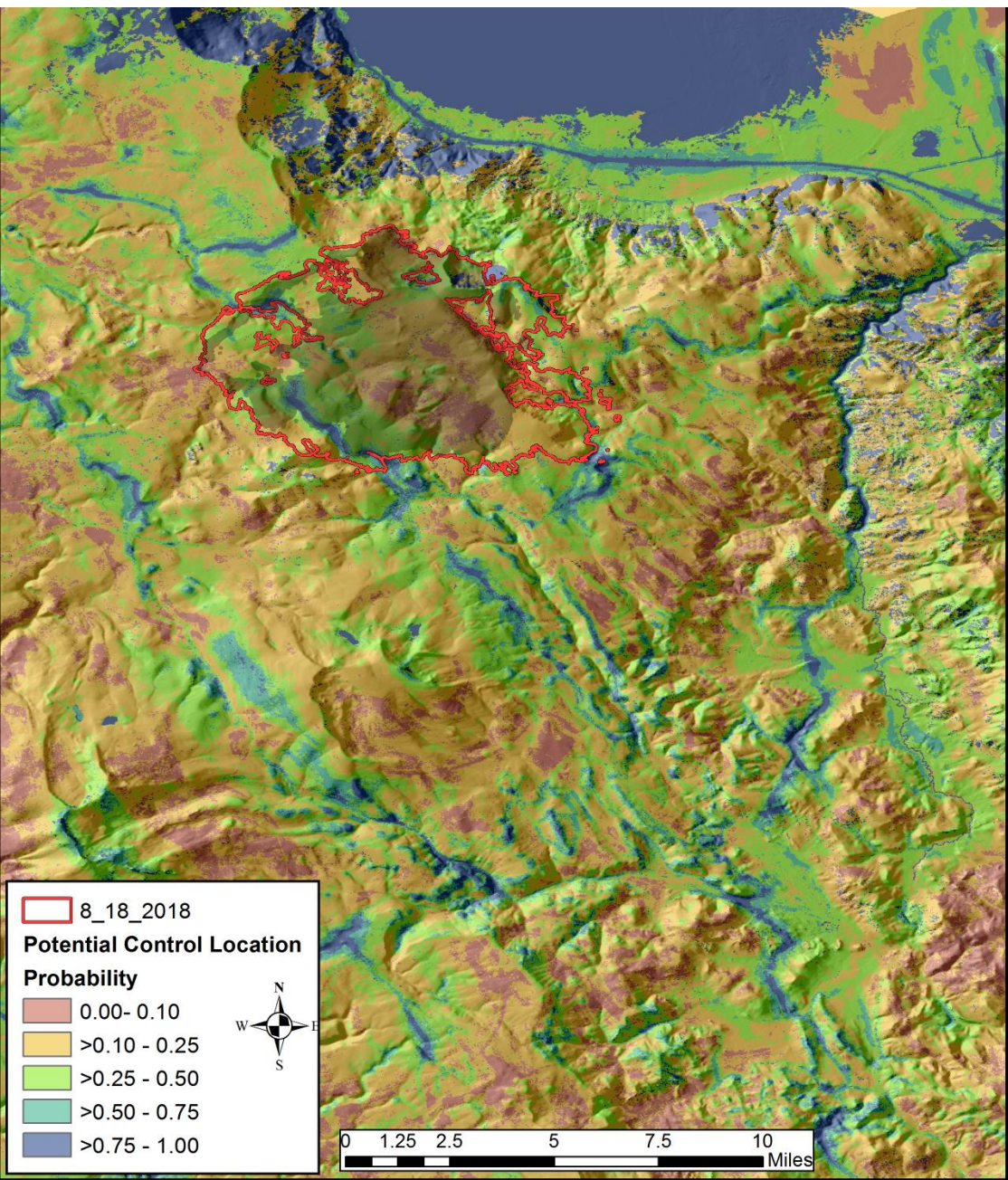
Potential Control Locations



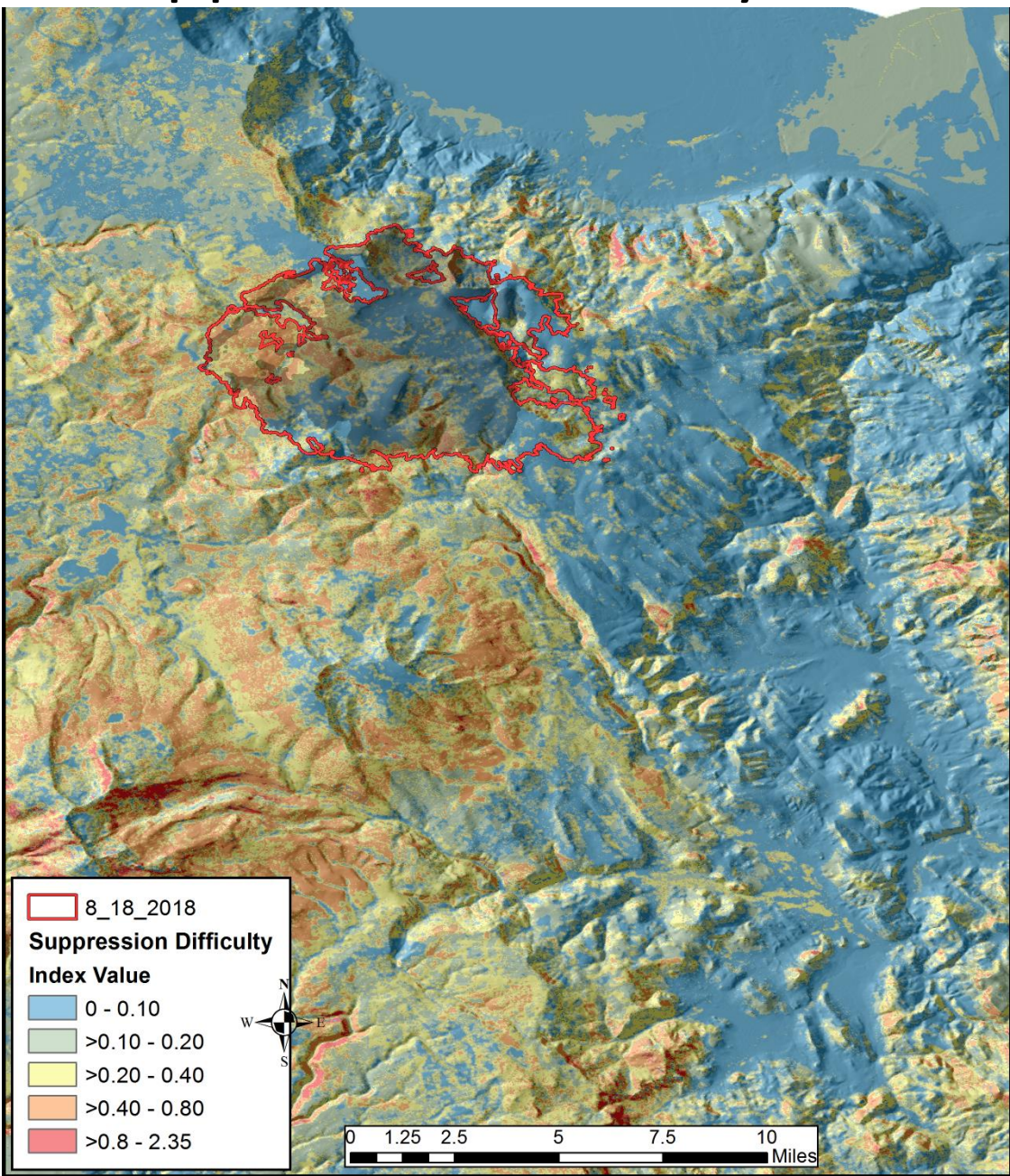
Suppression Difficulty Index



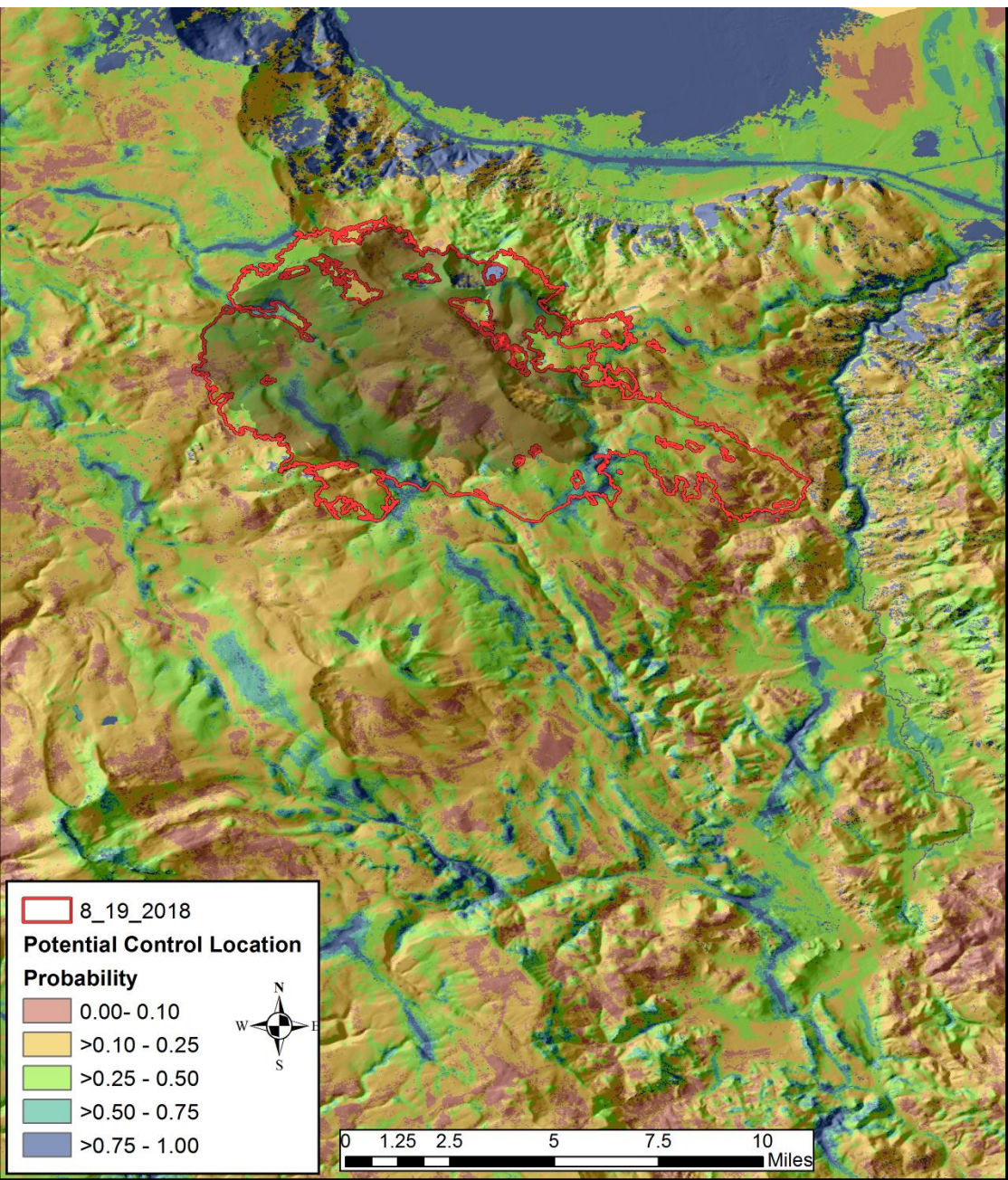
Potential Control Locations



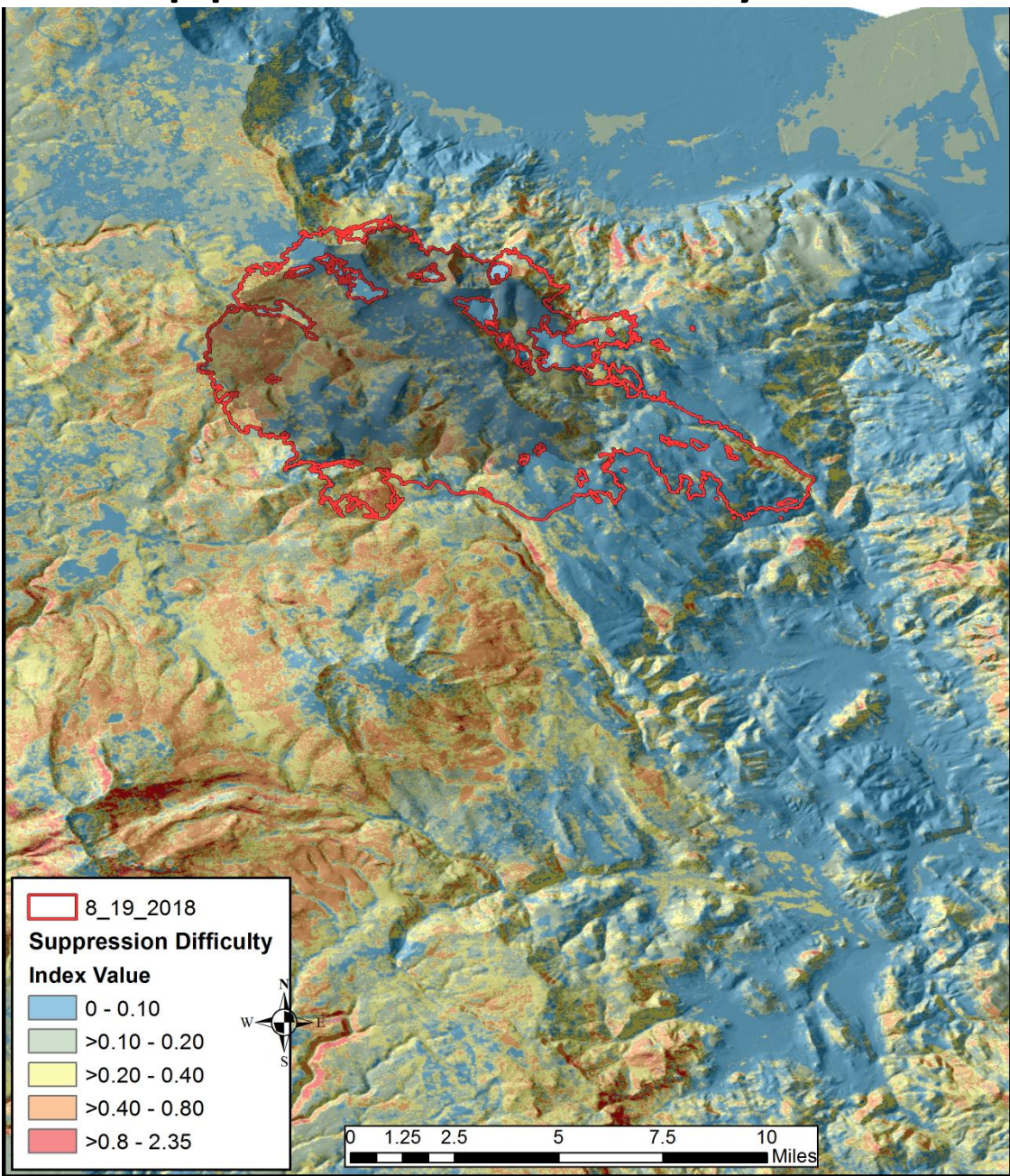
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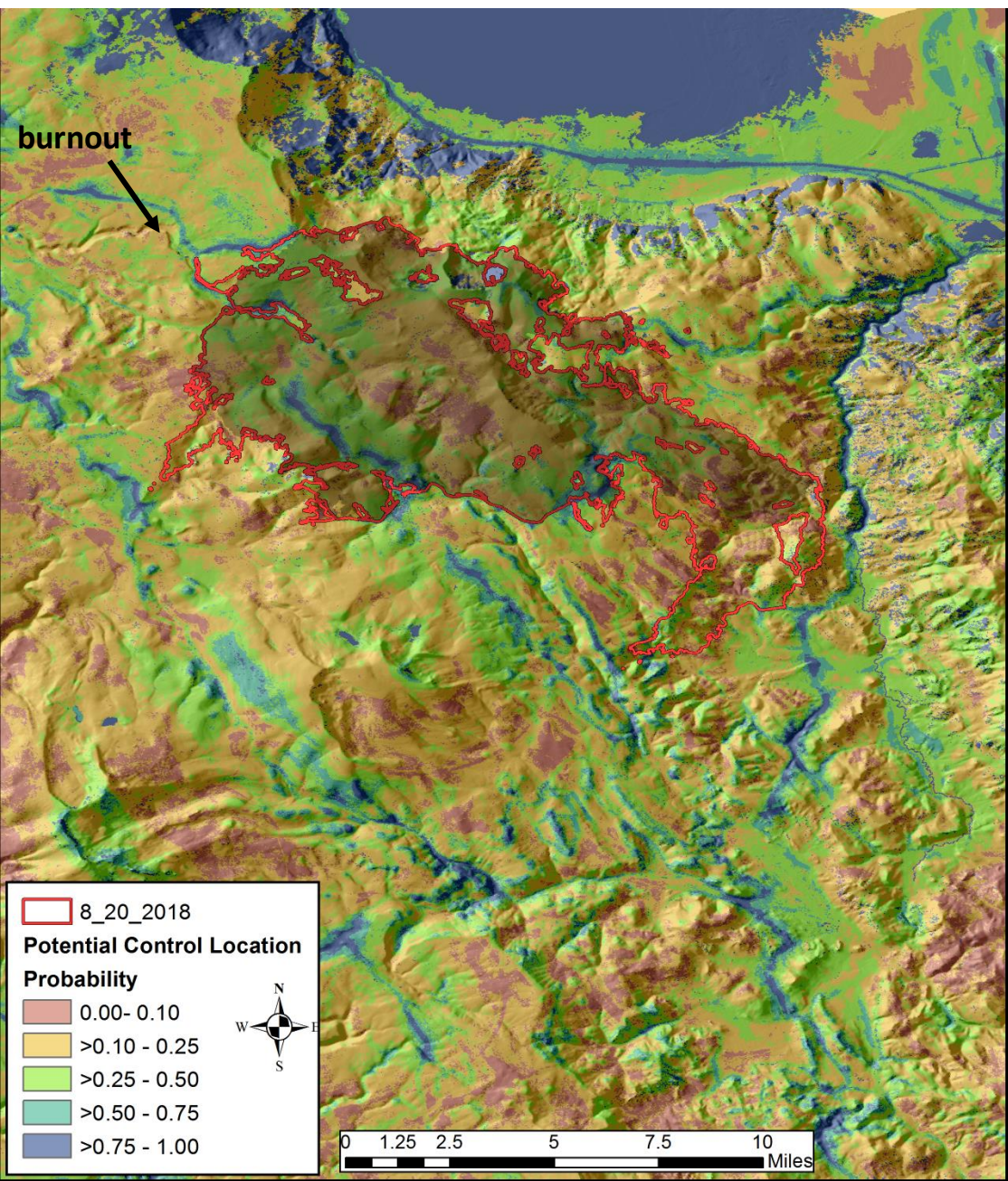
Potential Control Locations



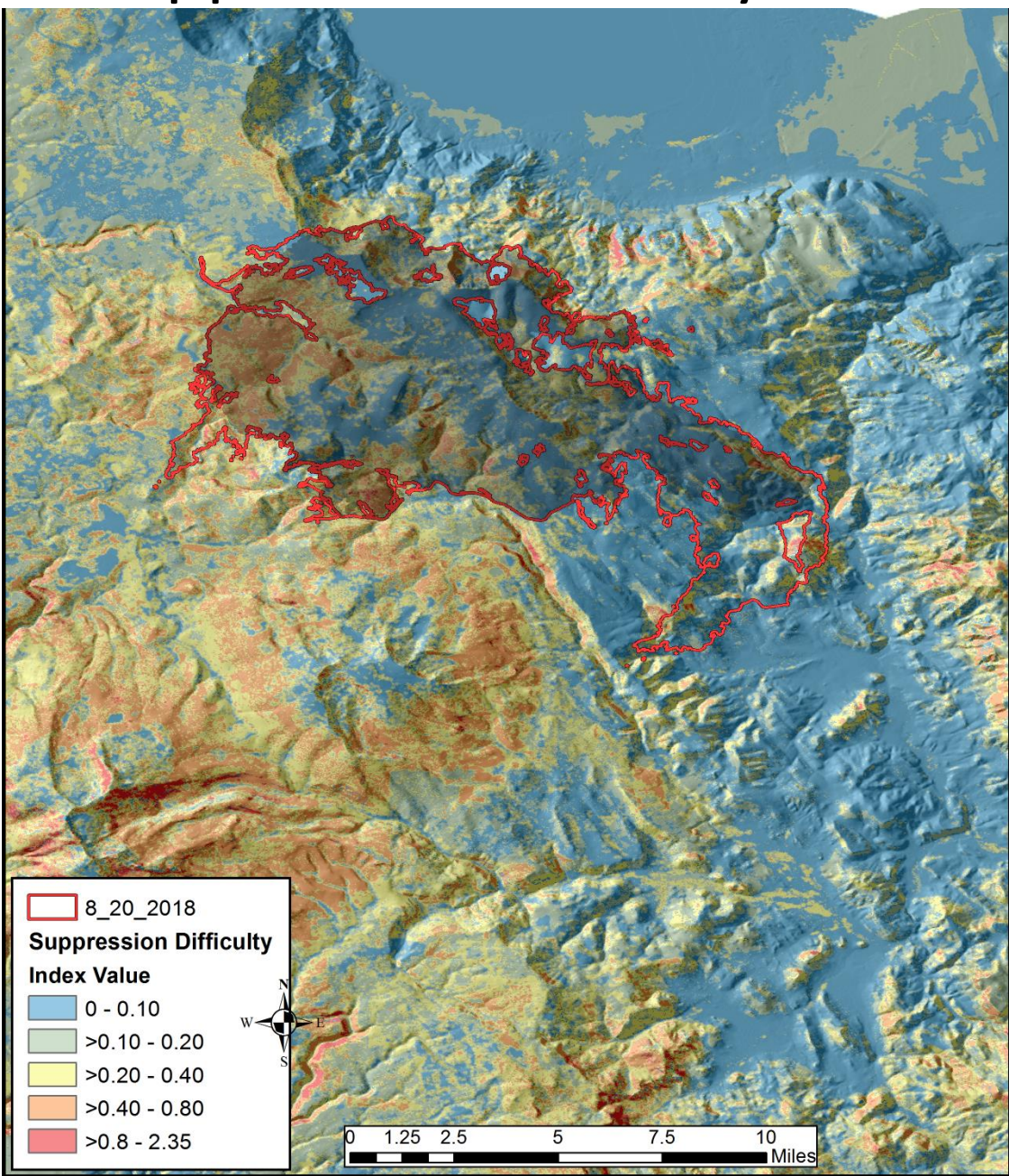
Suppression Difficulty Index



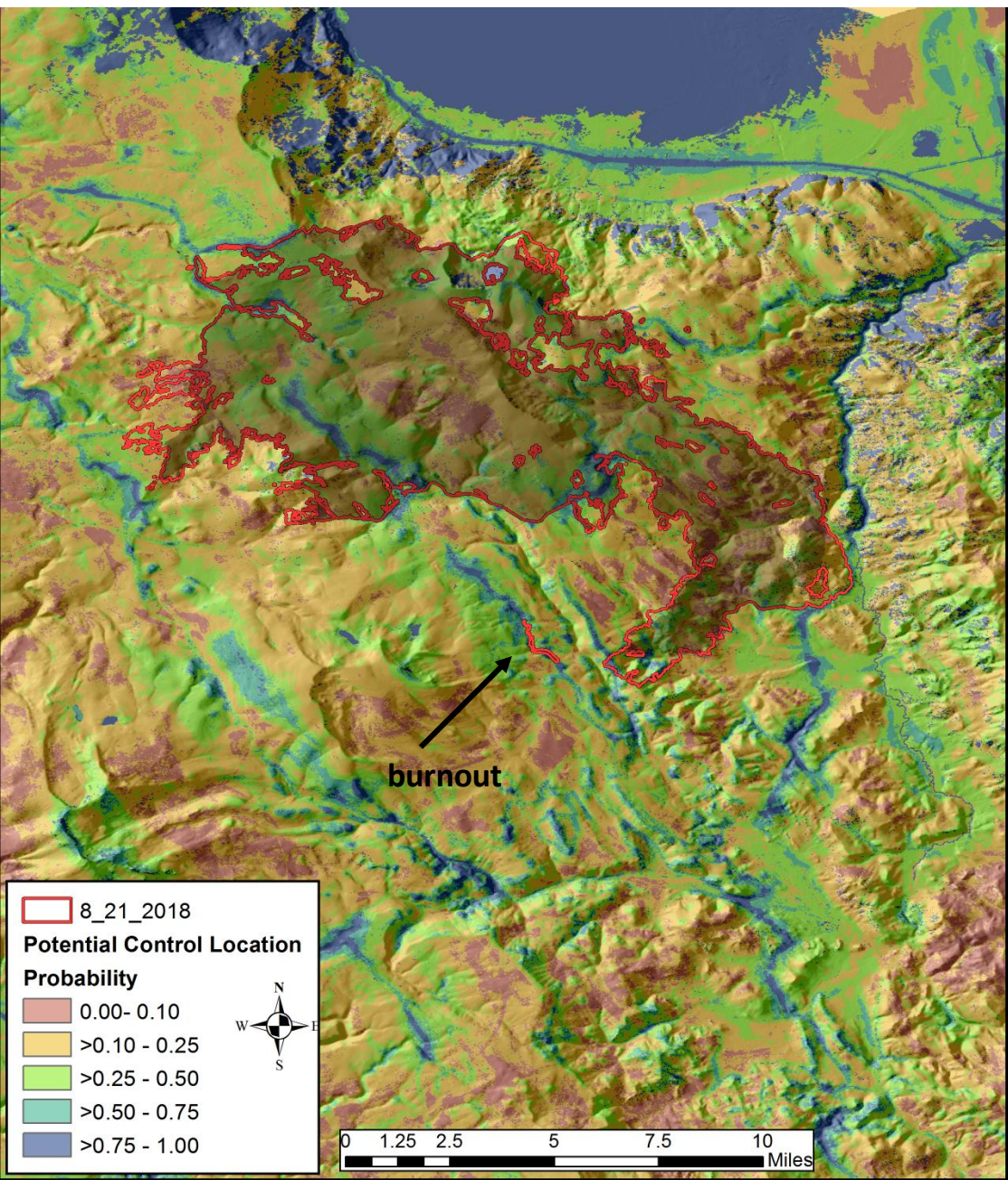
Potential Control Locations



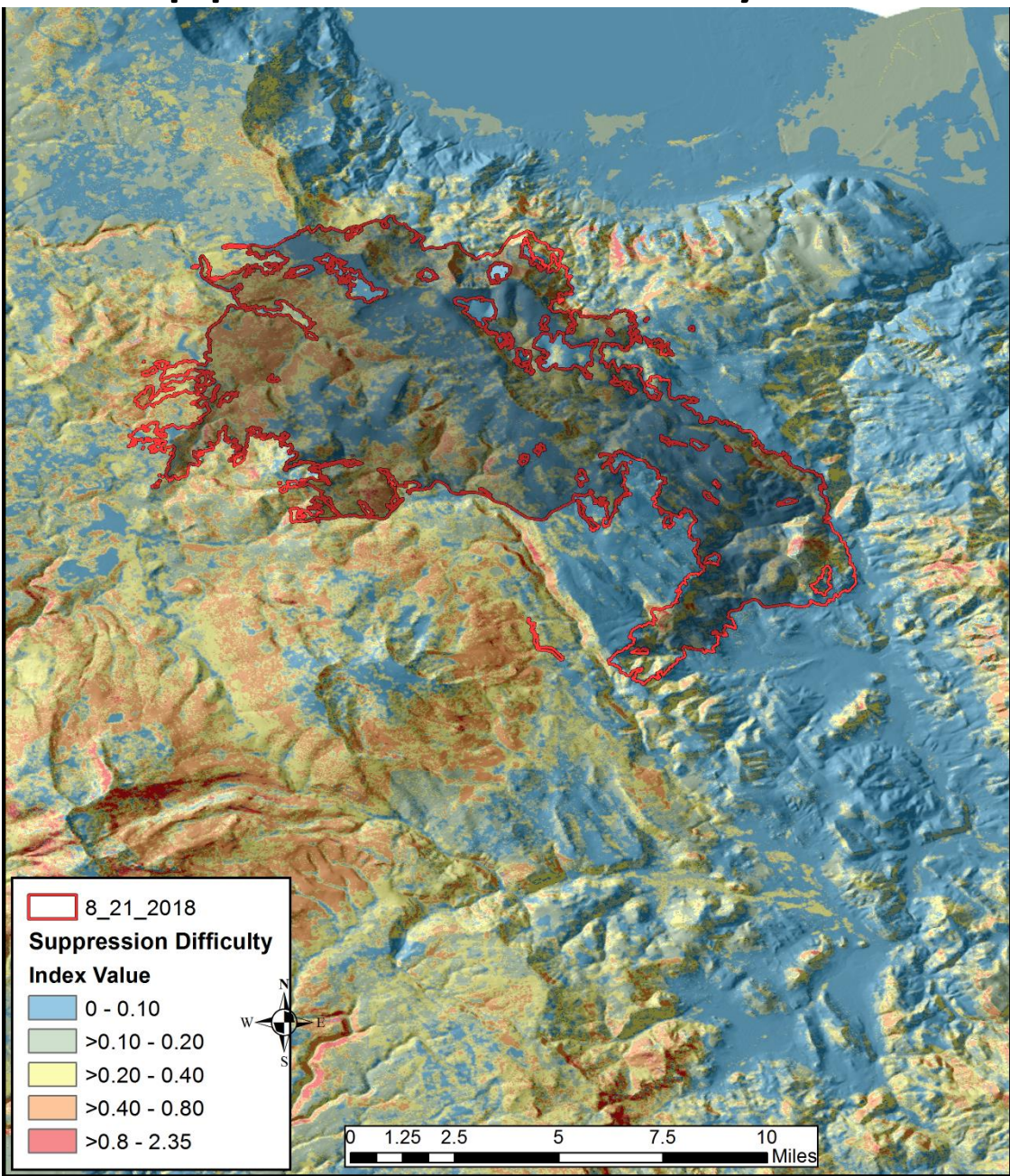
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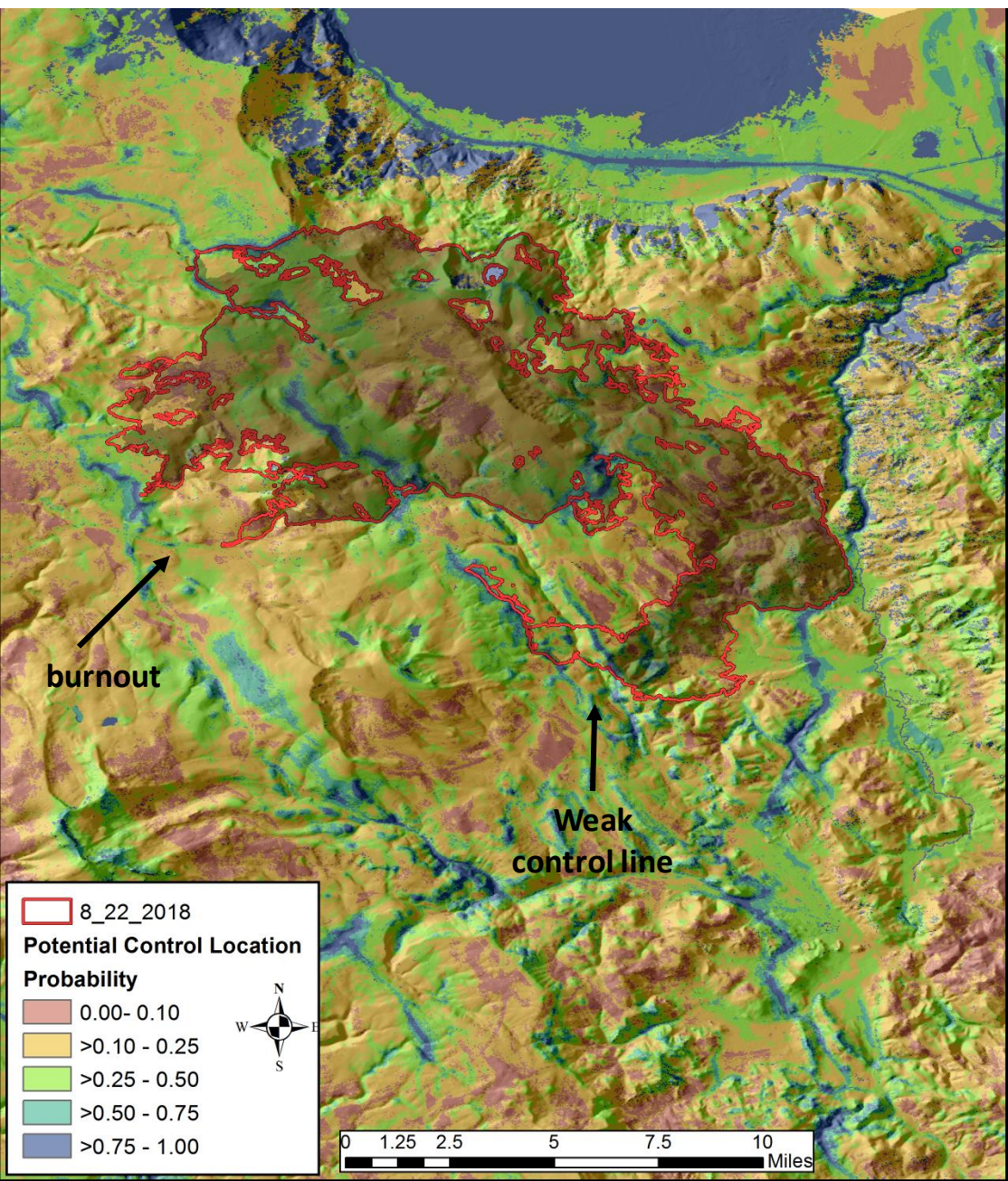
Potential Control Locations



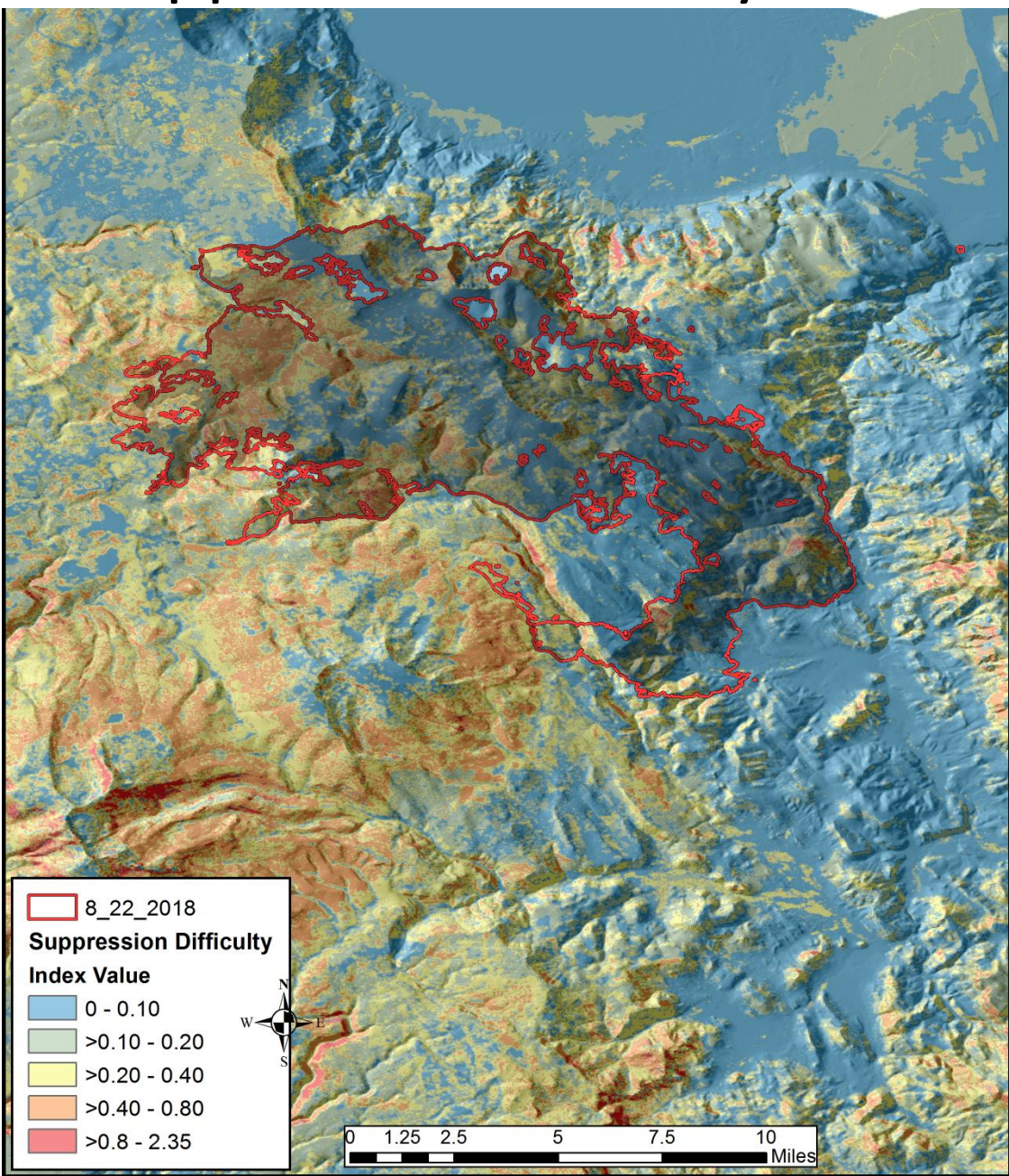
Suppression Difficulty Index



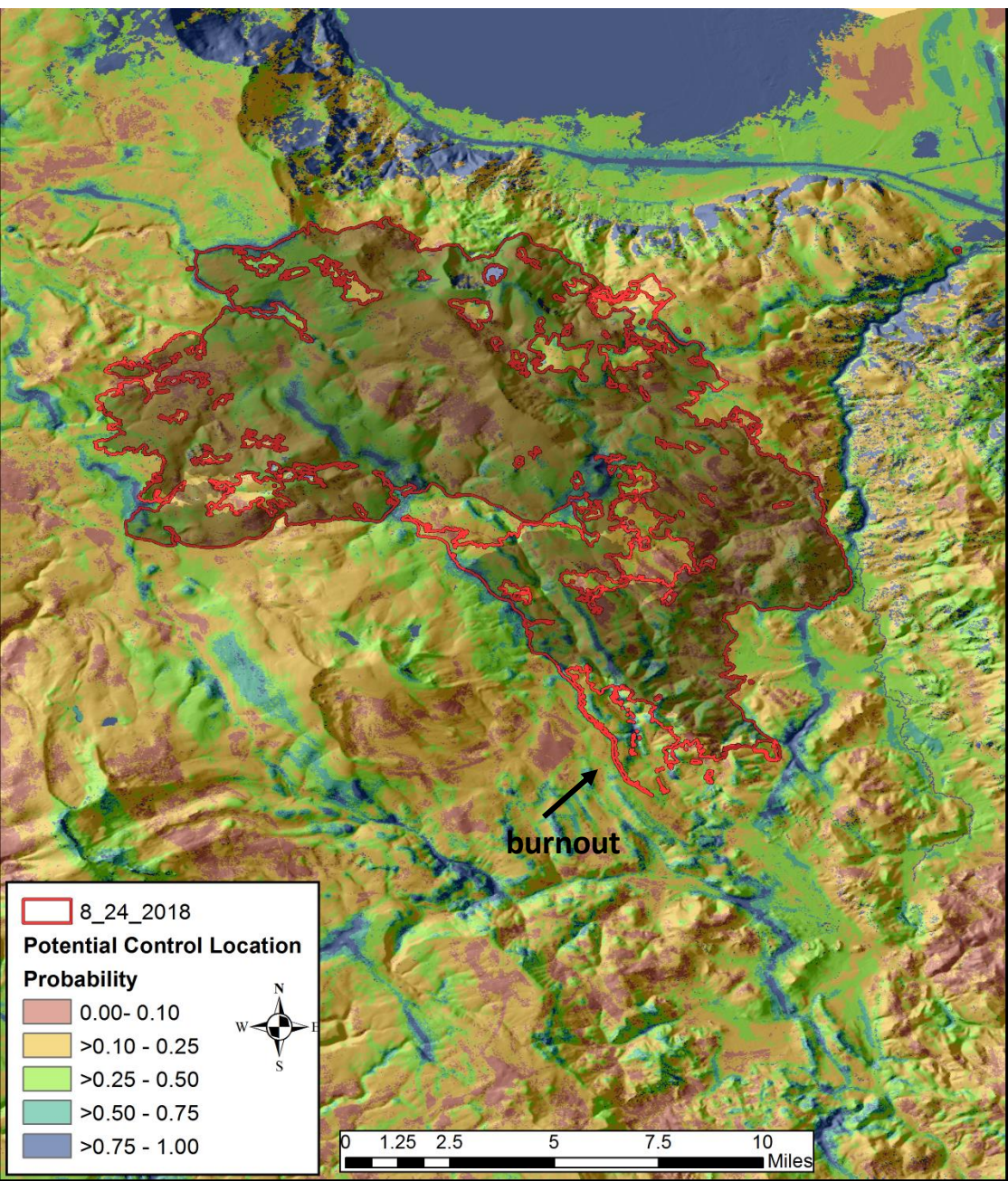
Potential Control Locations



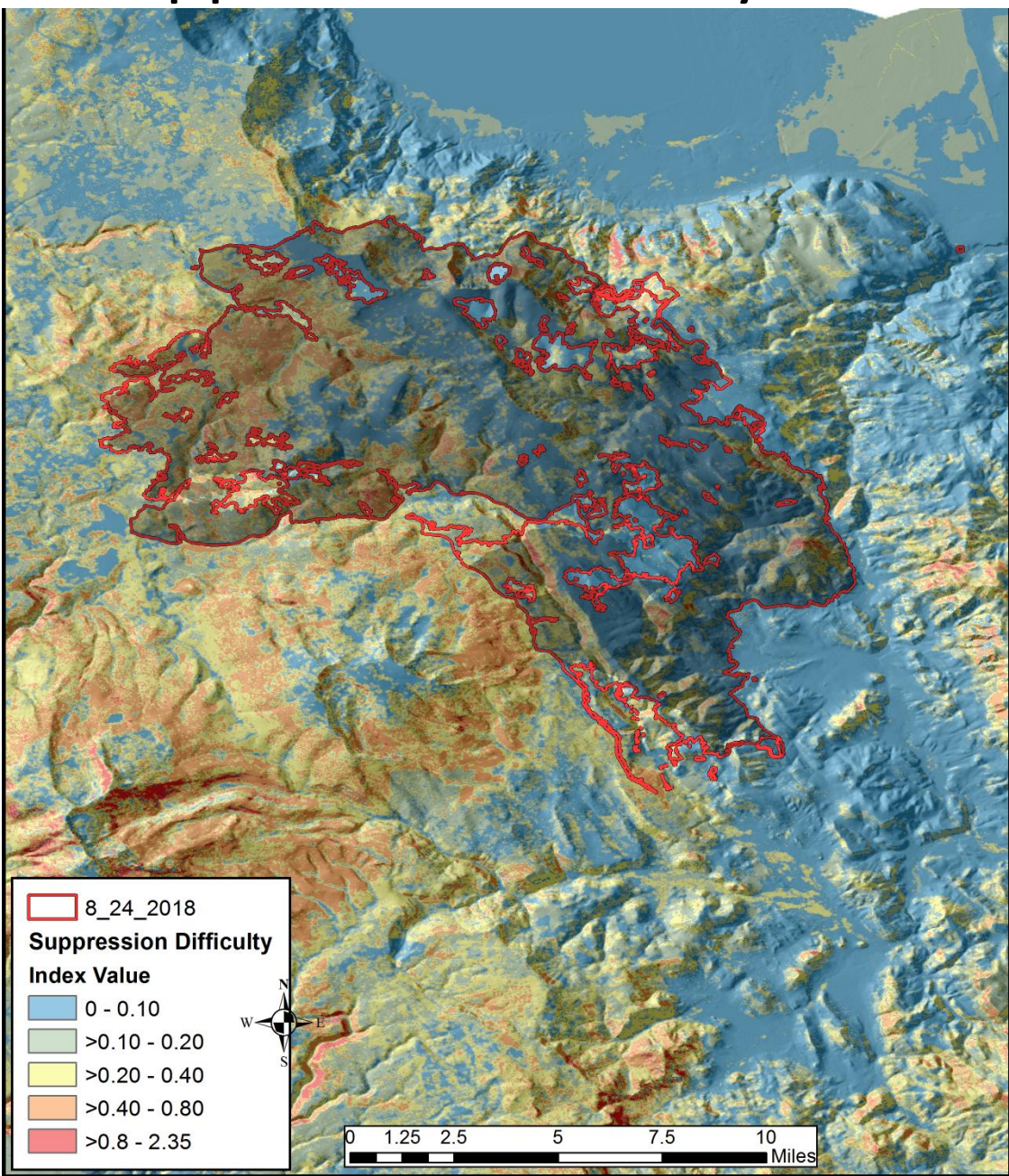
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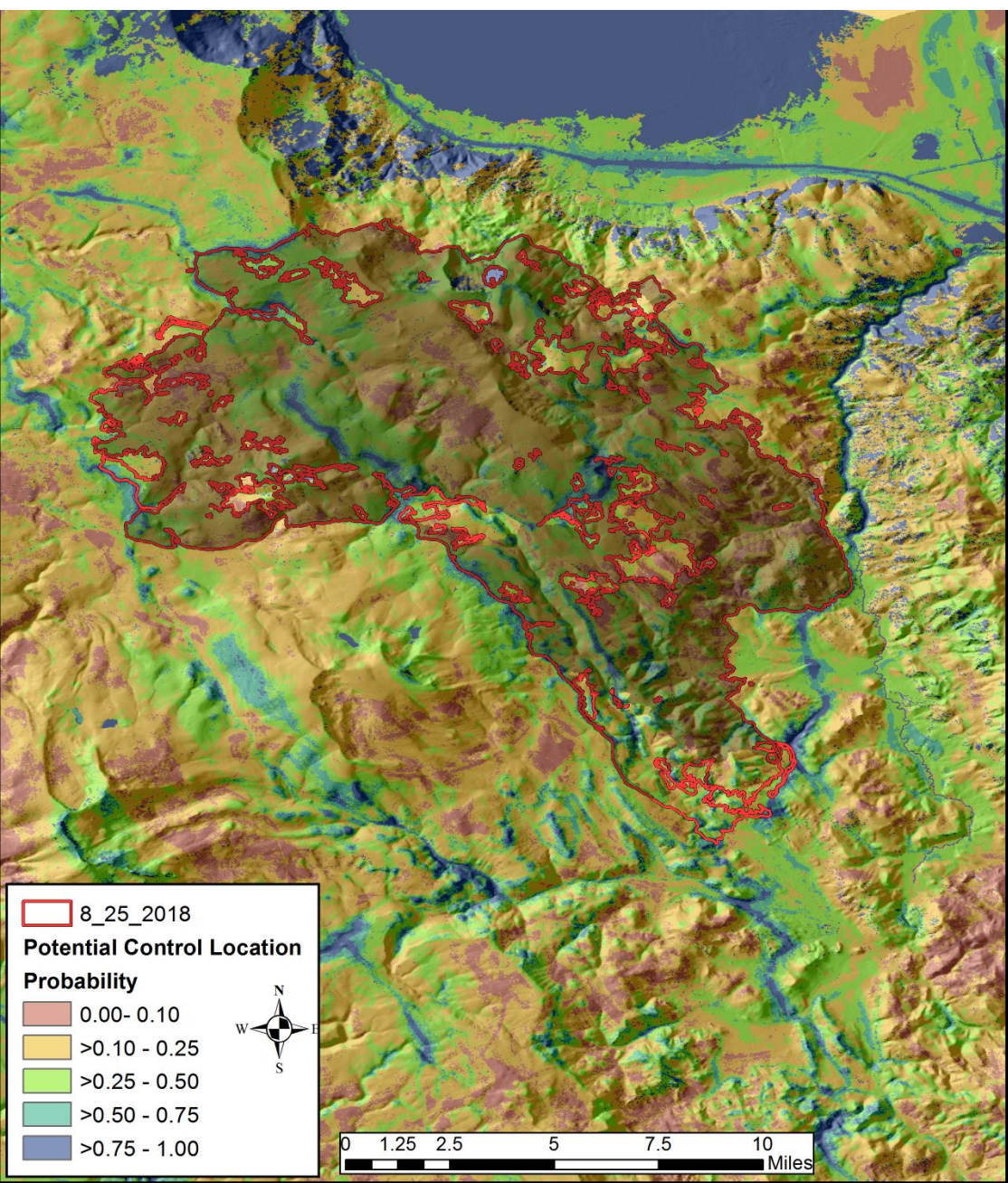
Potential Control Locations



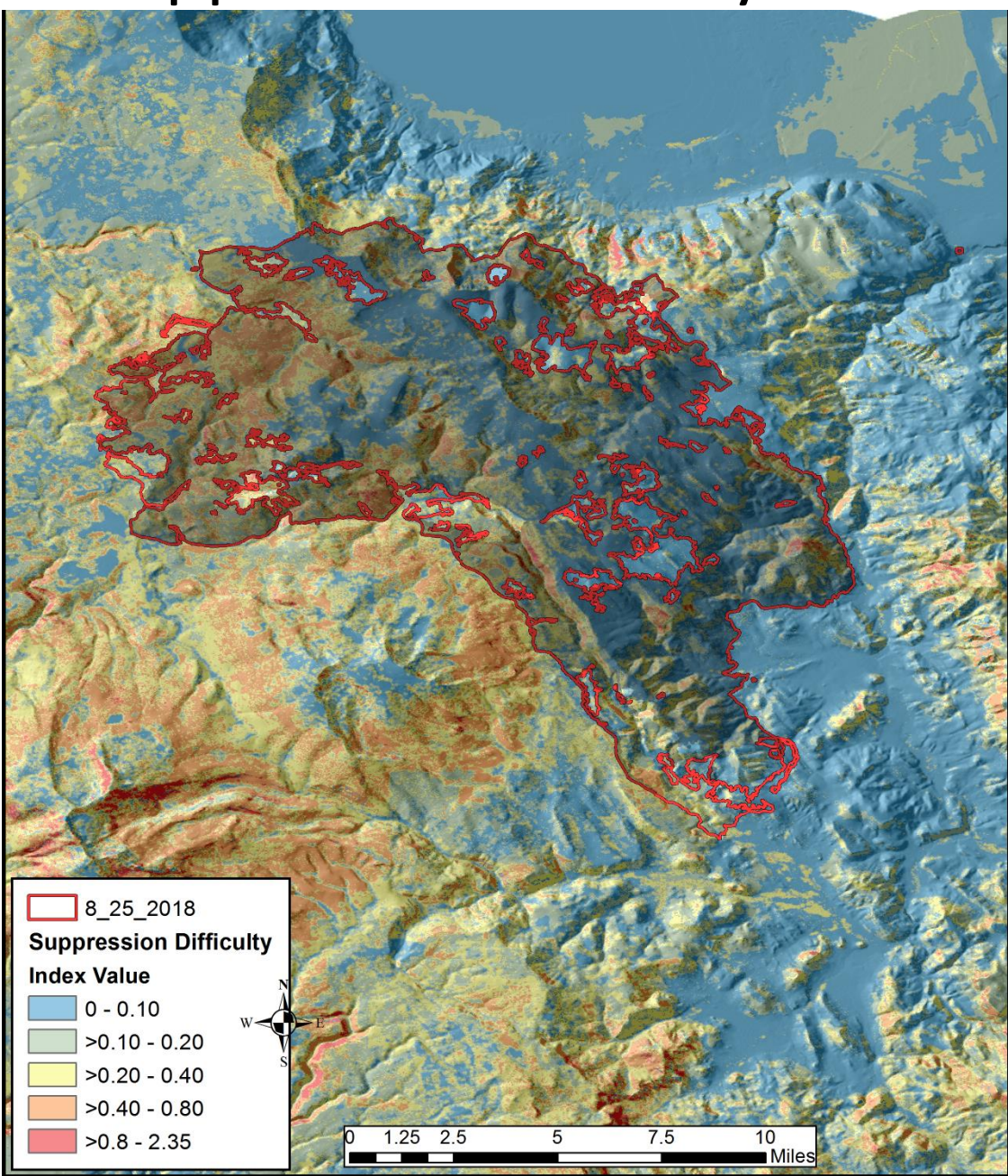
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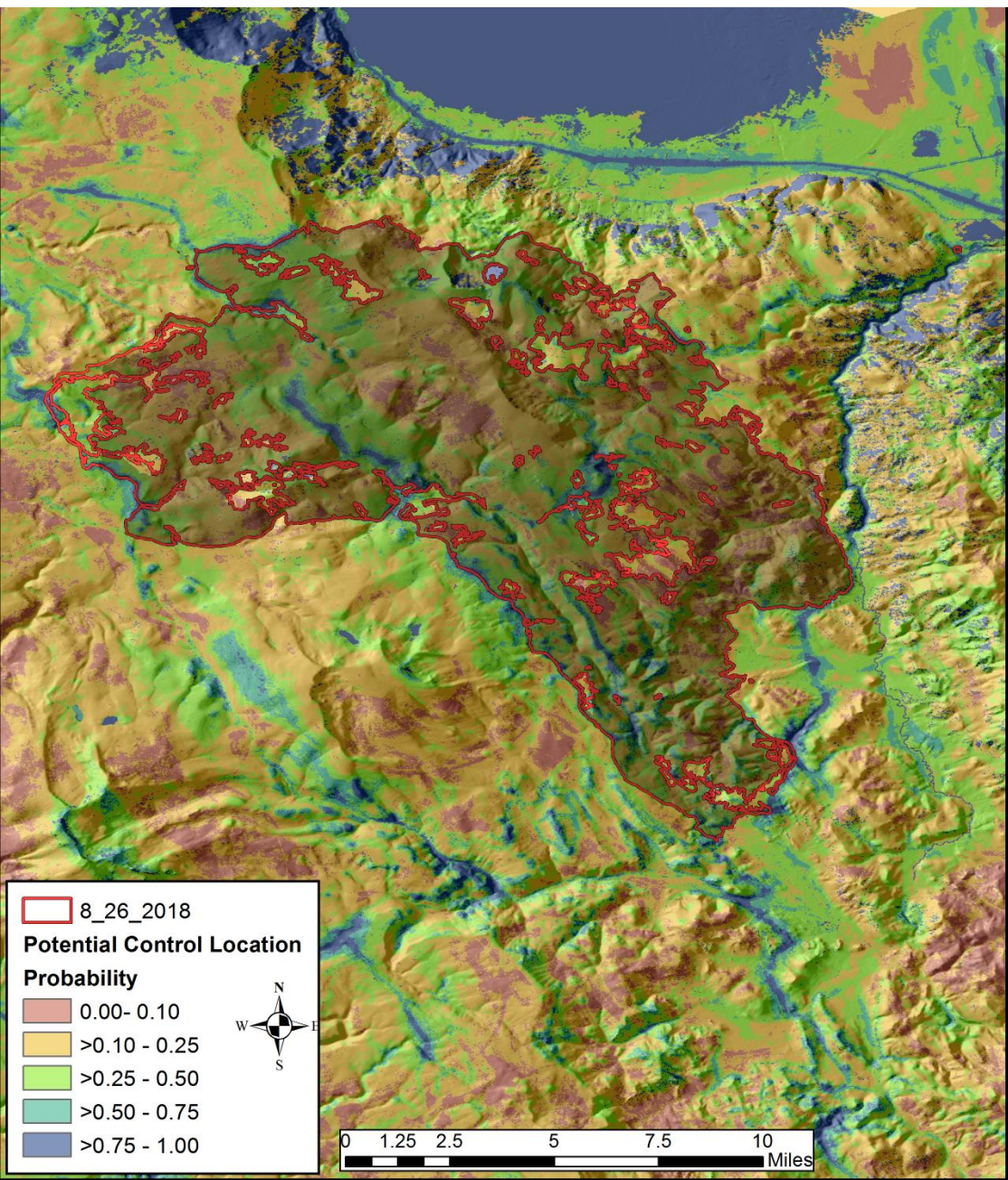
Potential Control Locations



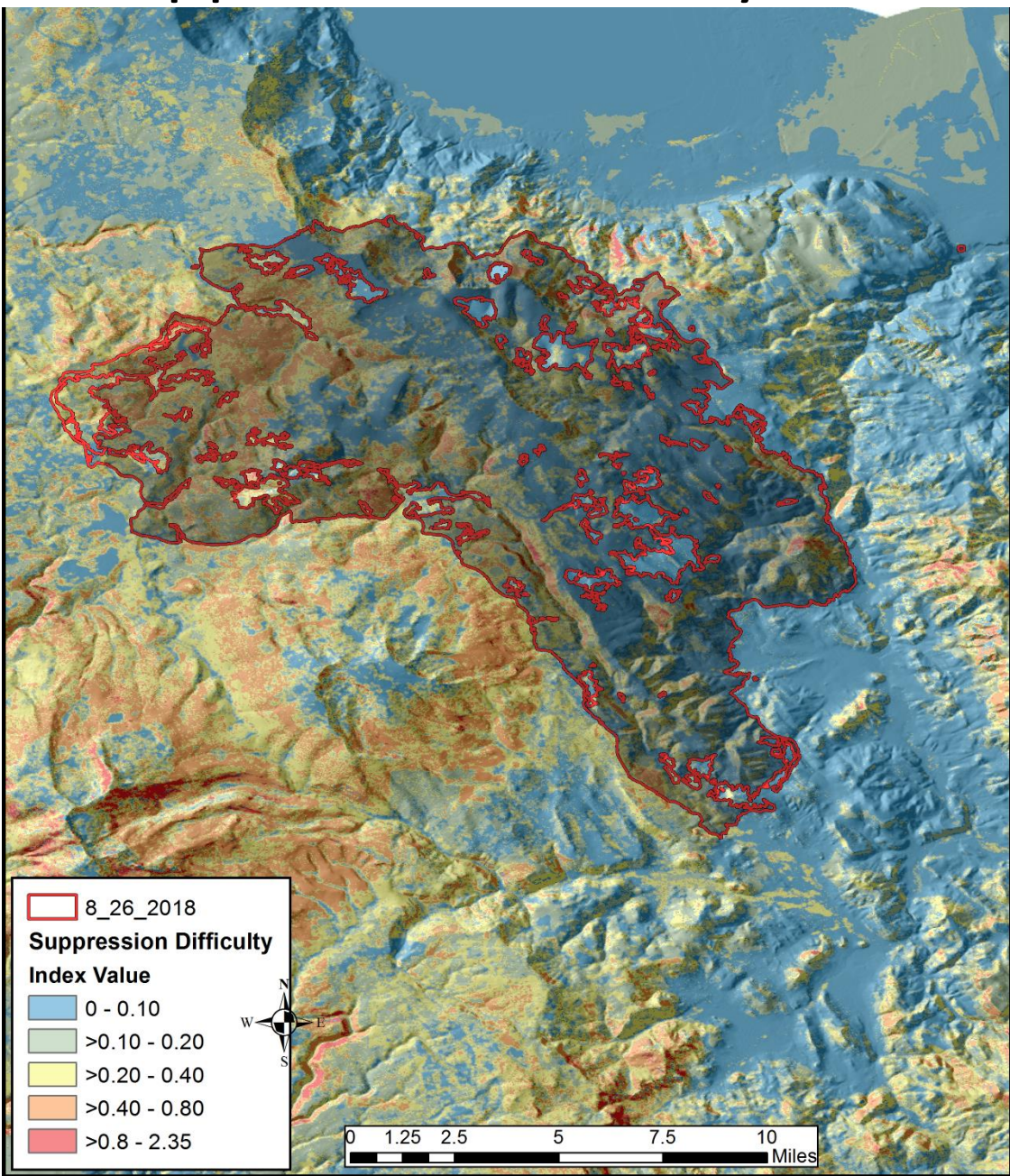
Suppression Difficulty Index



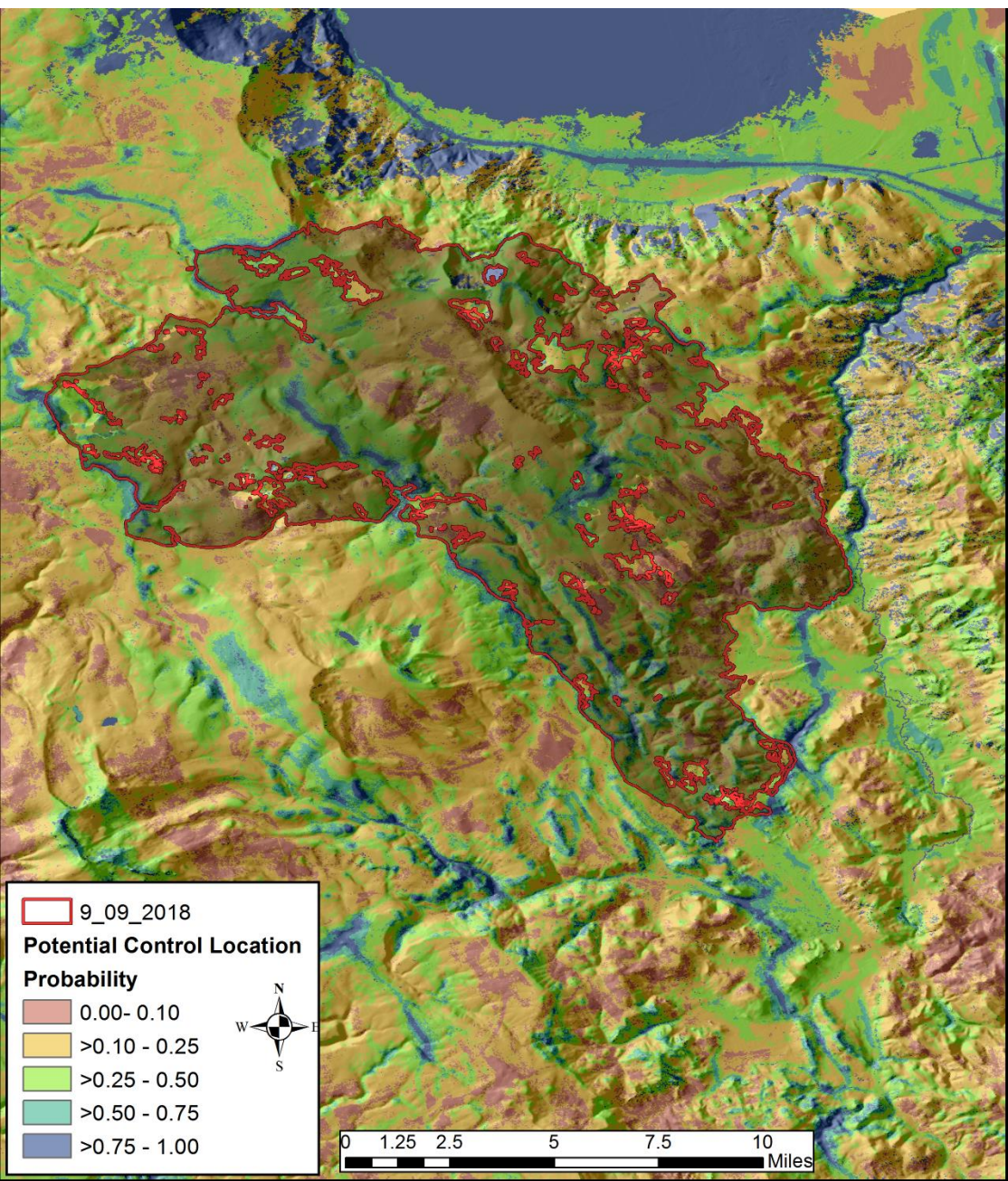
Potential Control Locations



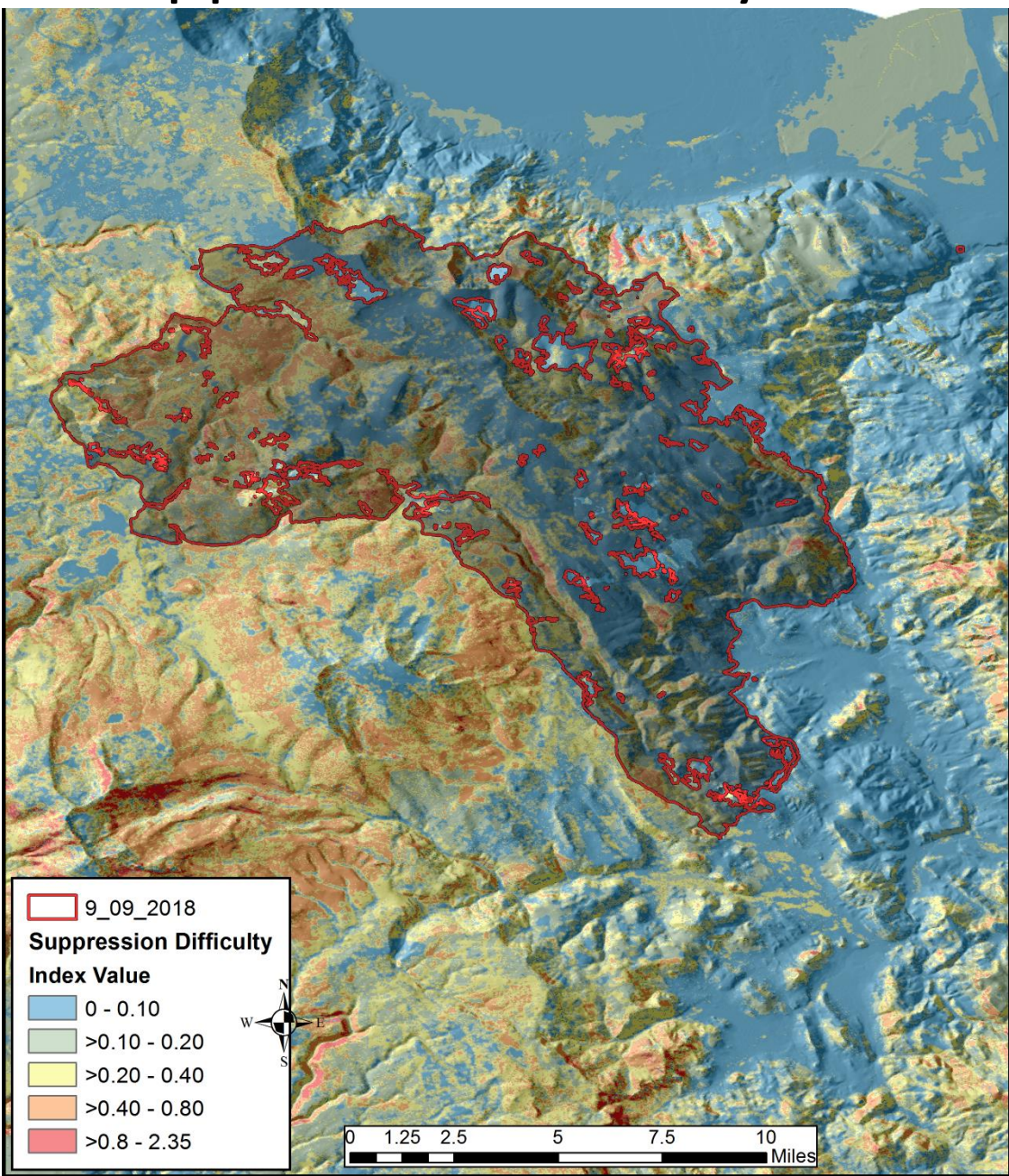
Suppression Difficulty Index



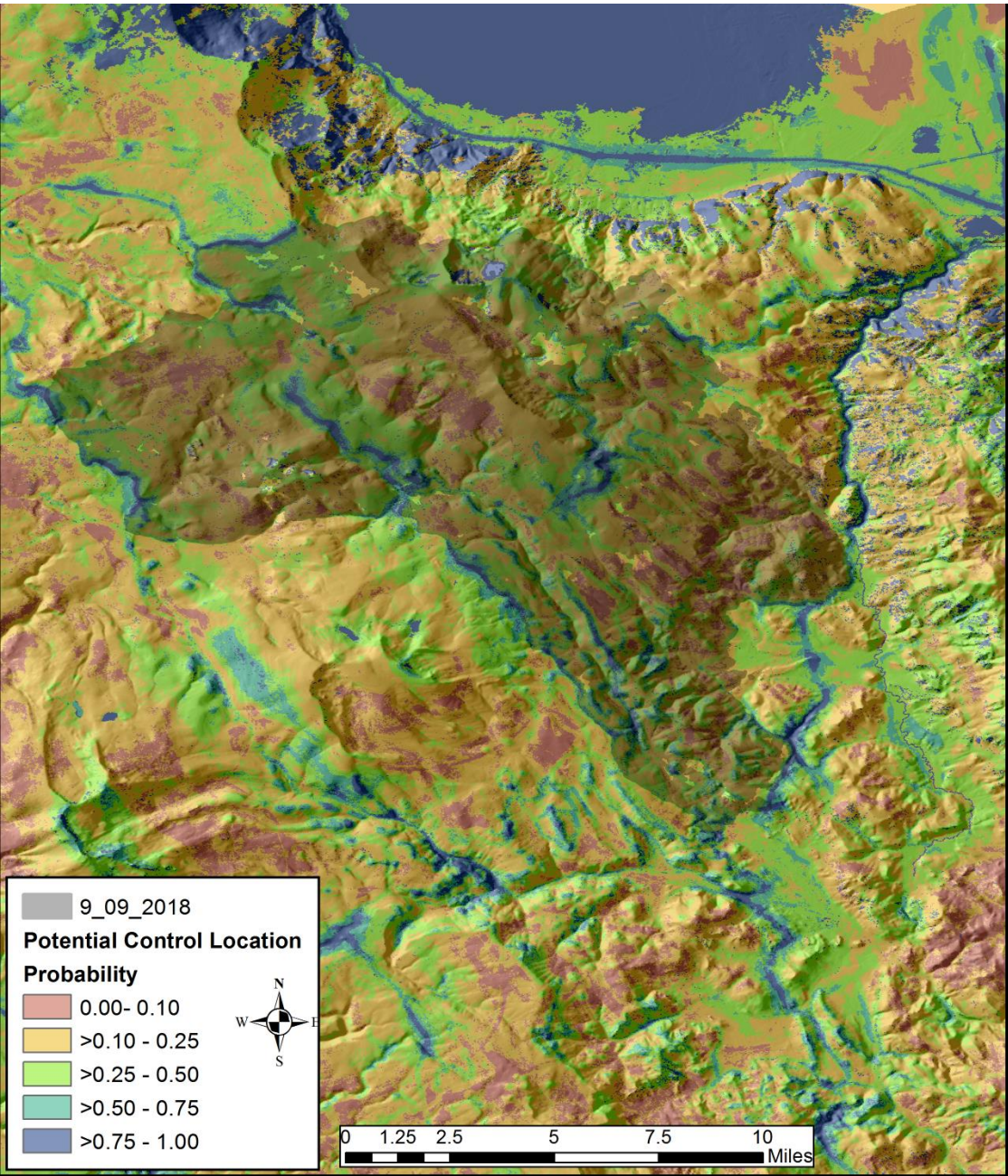
Potential Control Locations



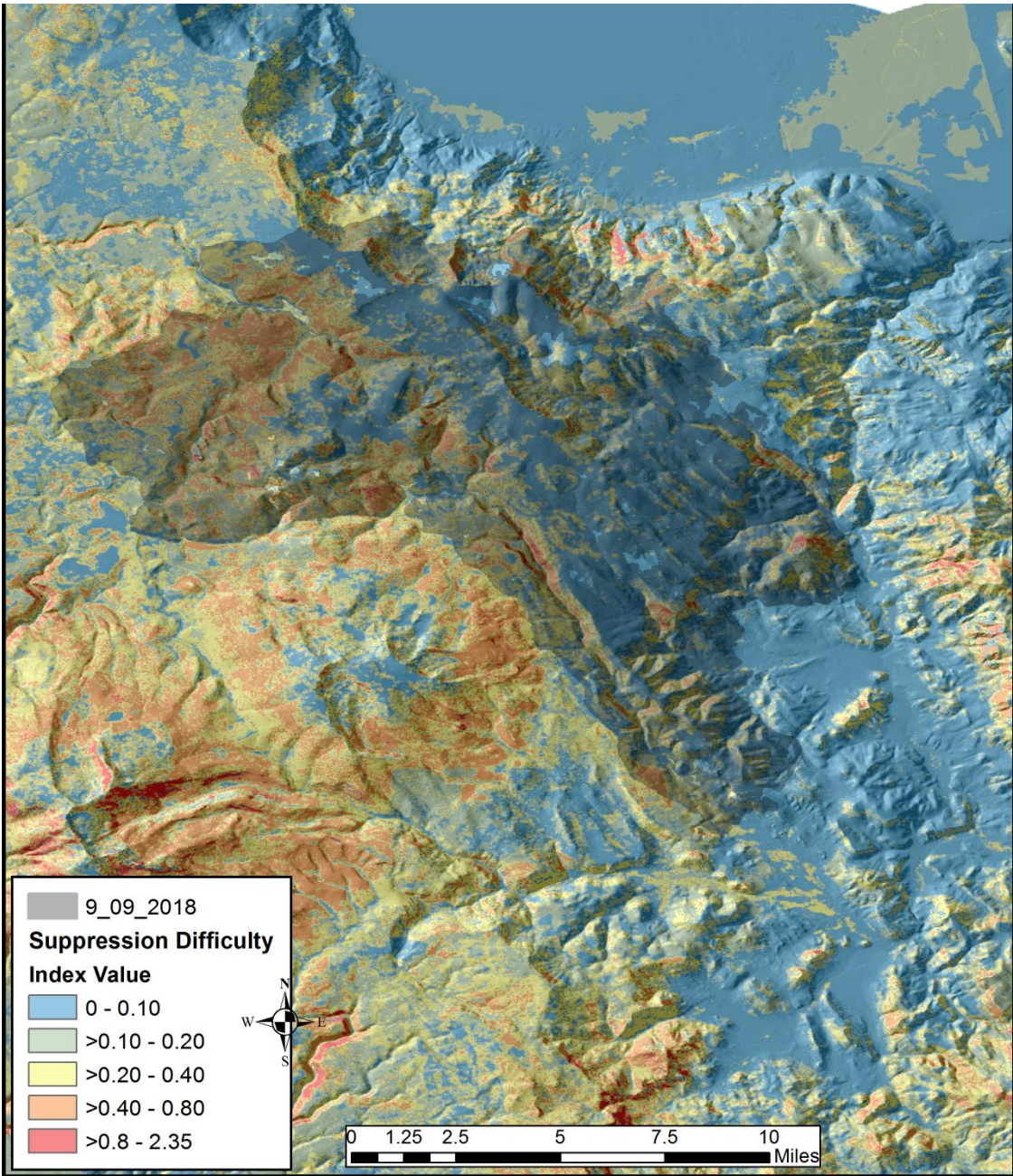
Suppression Difficulty Index



Potential Control Locations



Suppression Difficulty Index

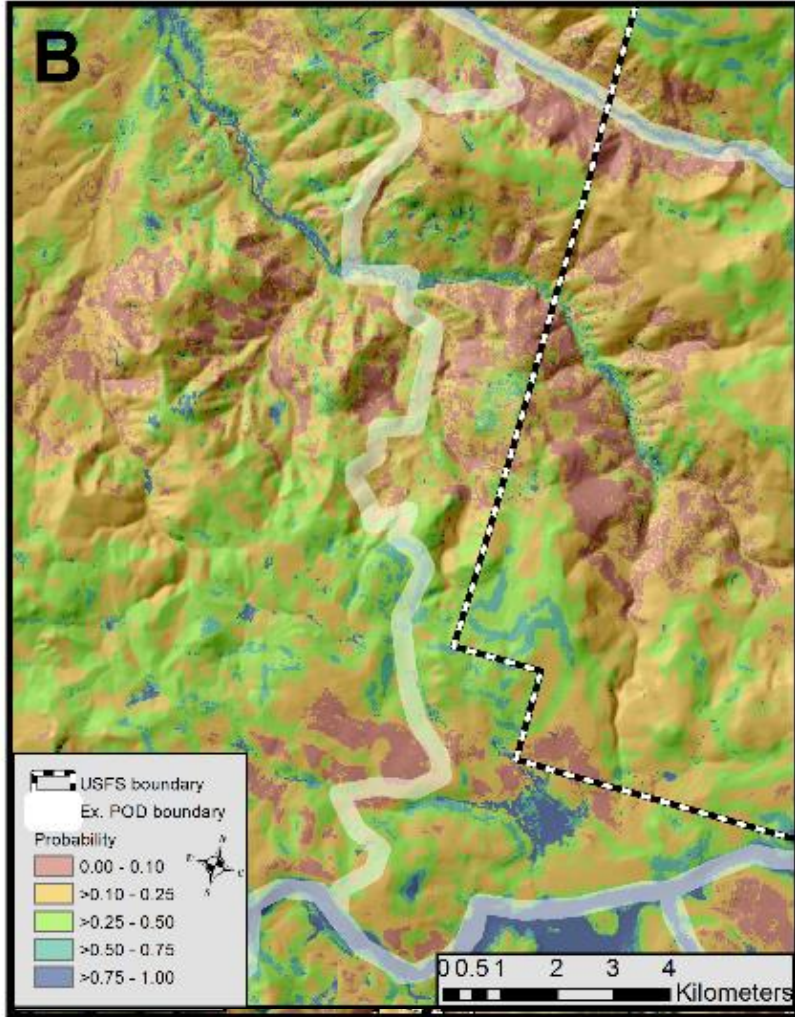


Targeting mitigation: Where, when, why, and who?

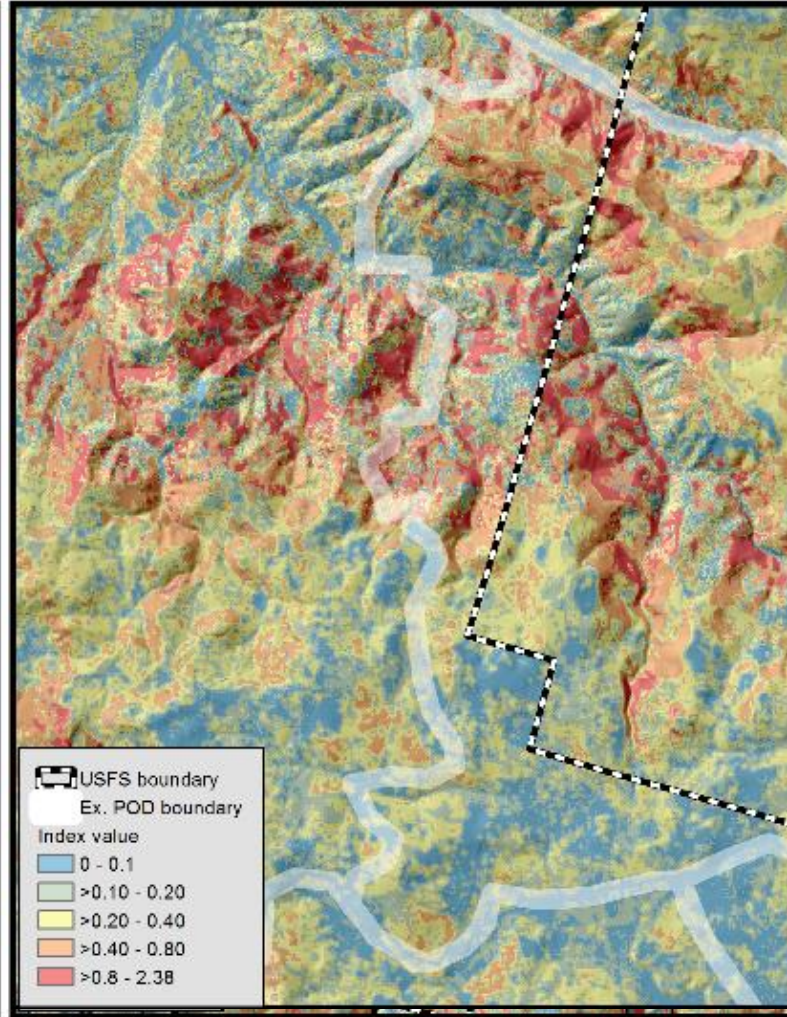


Targeting mitigation – POD boundaries

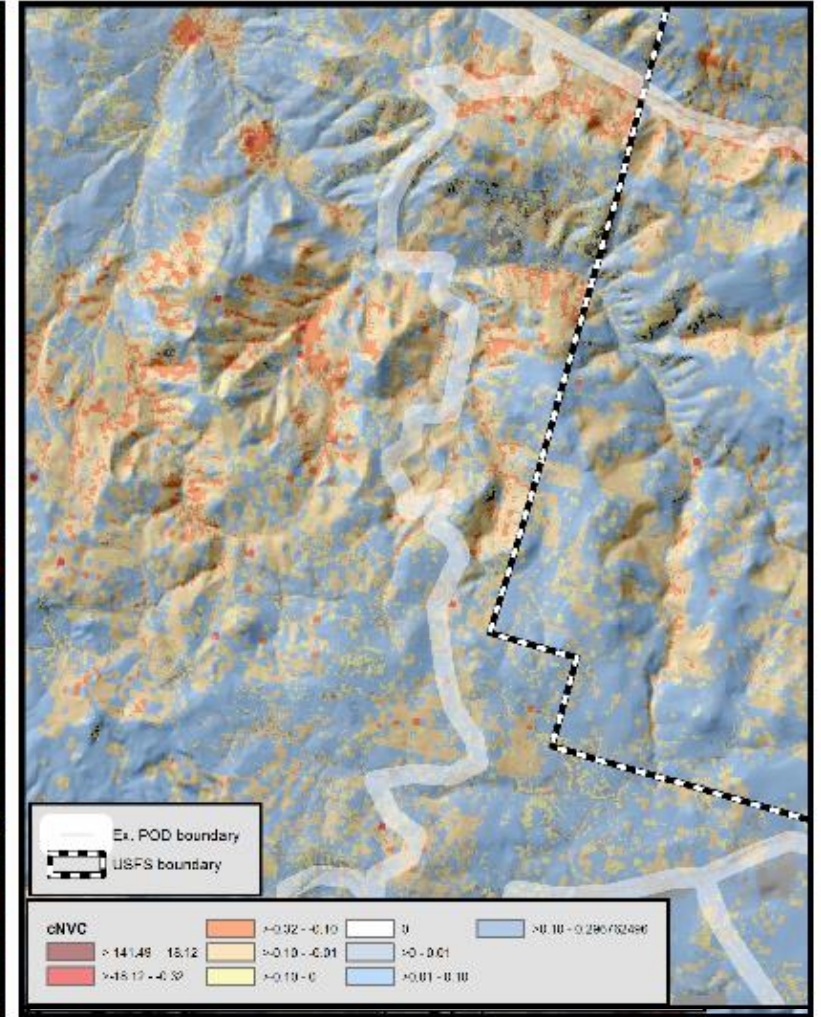
Potential Control Lines



Suppression Difficulty Index

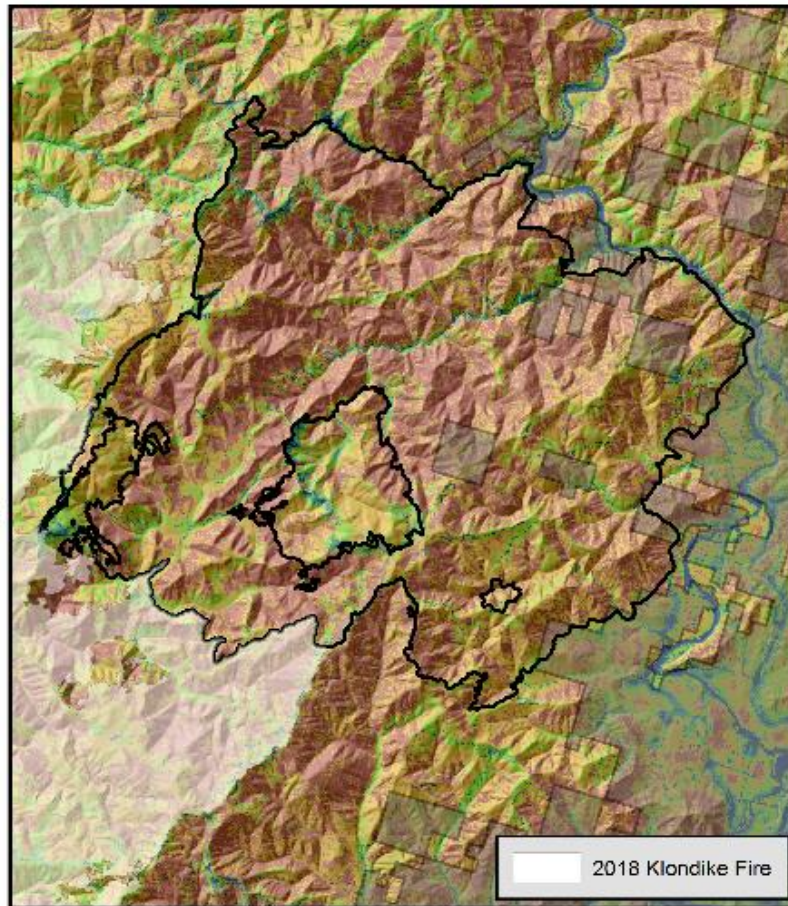


Quantitative Risk Assessment

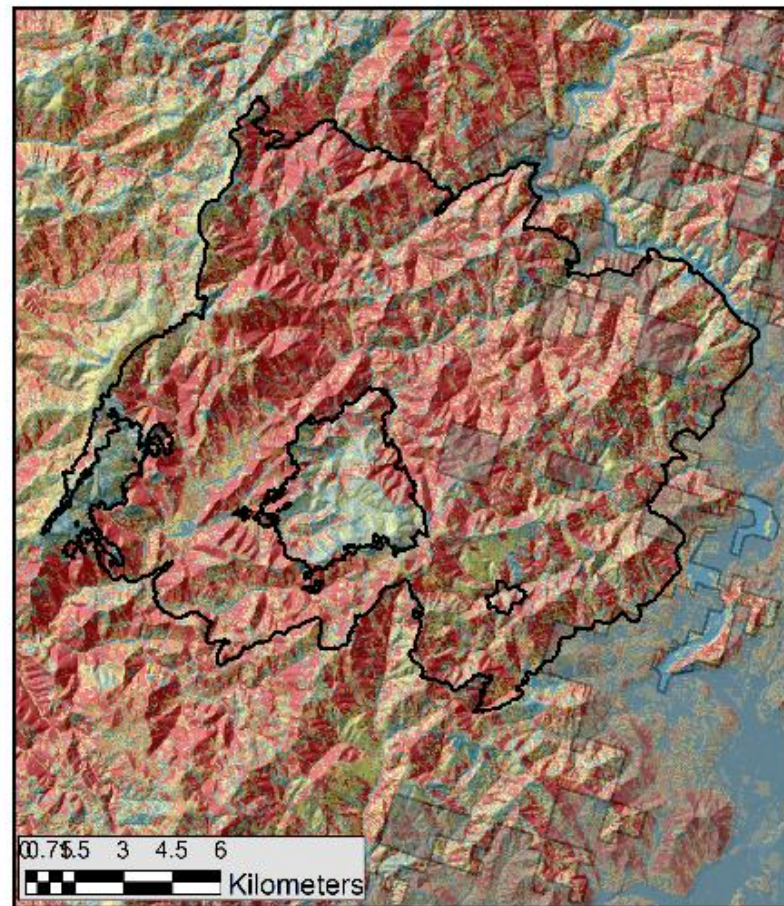


Targeting mitigation- Difficult fire management landscapes

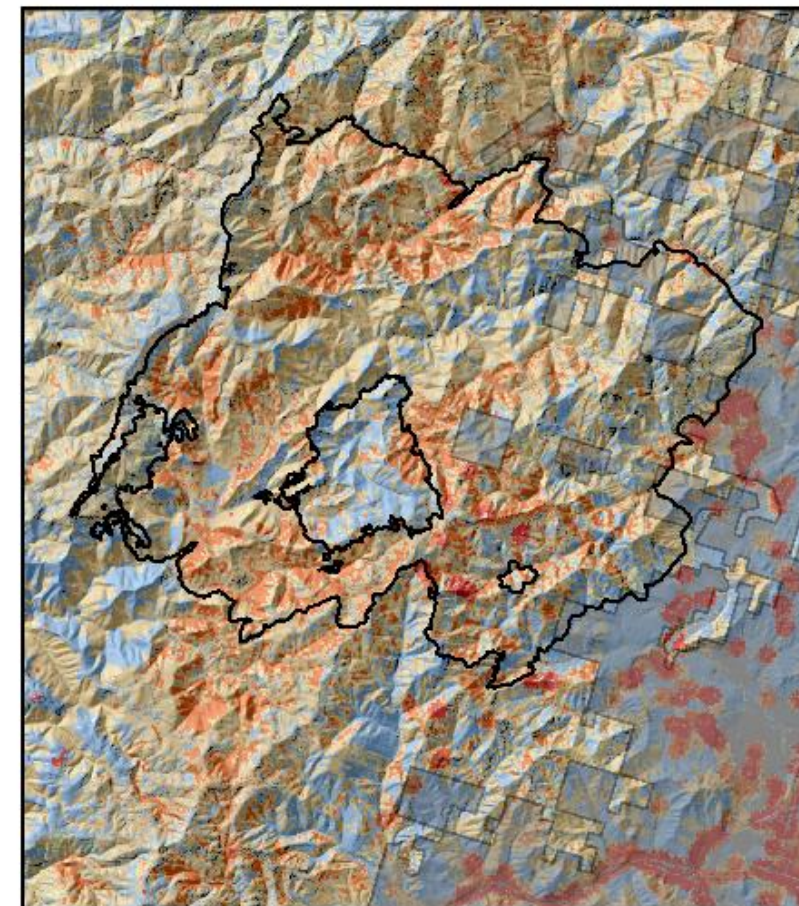
Potential Control Lines



Suppression Difficulty Index



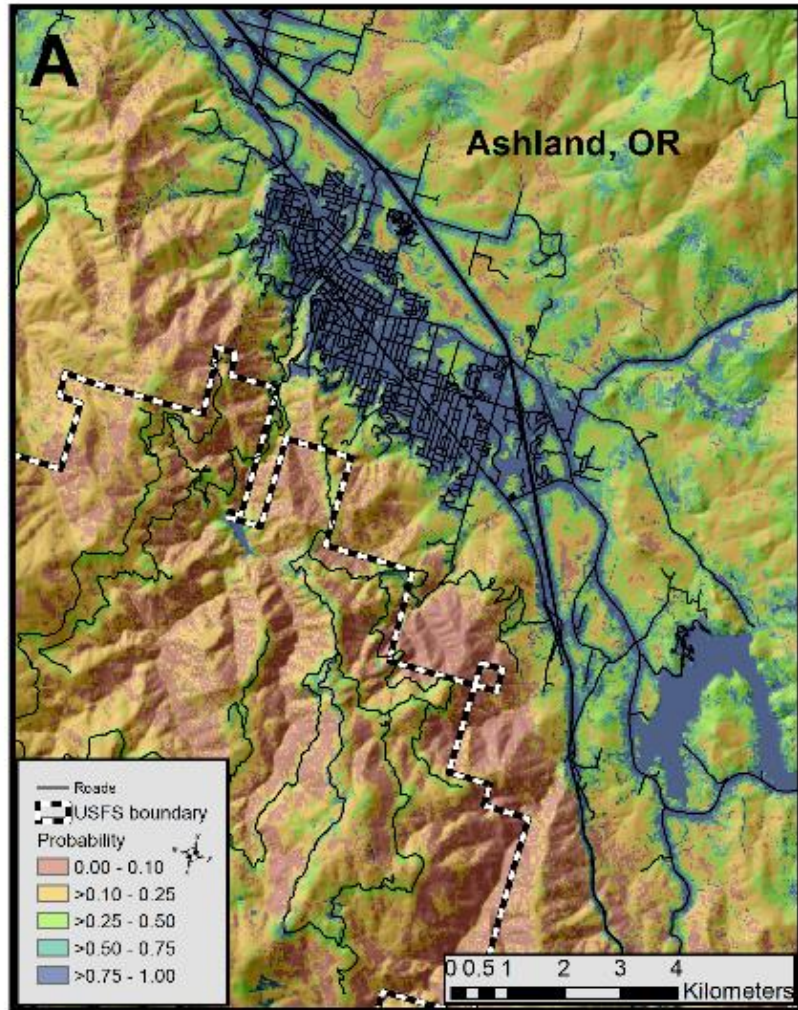
Quantitative Risk Assessment



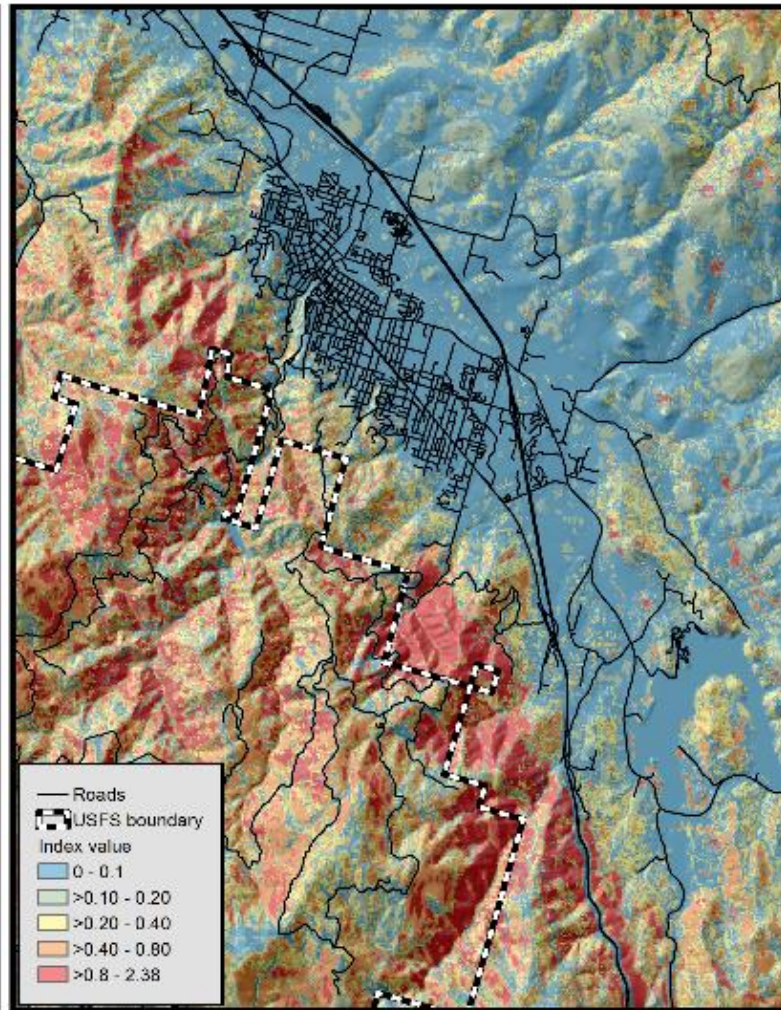
2018 Taylor Creek Fire

Targeting mitigation – Communities

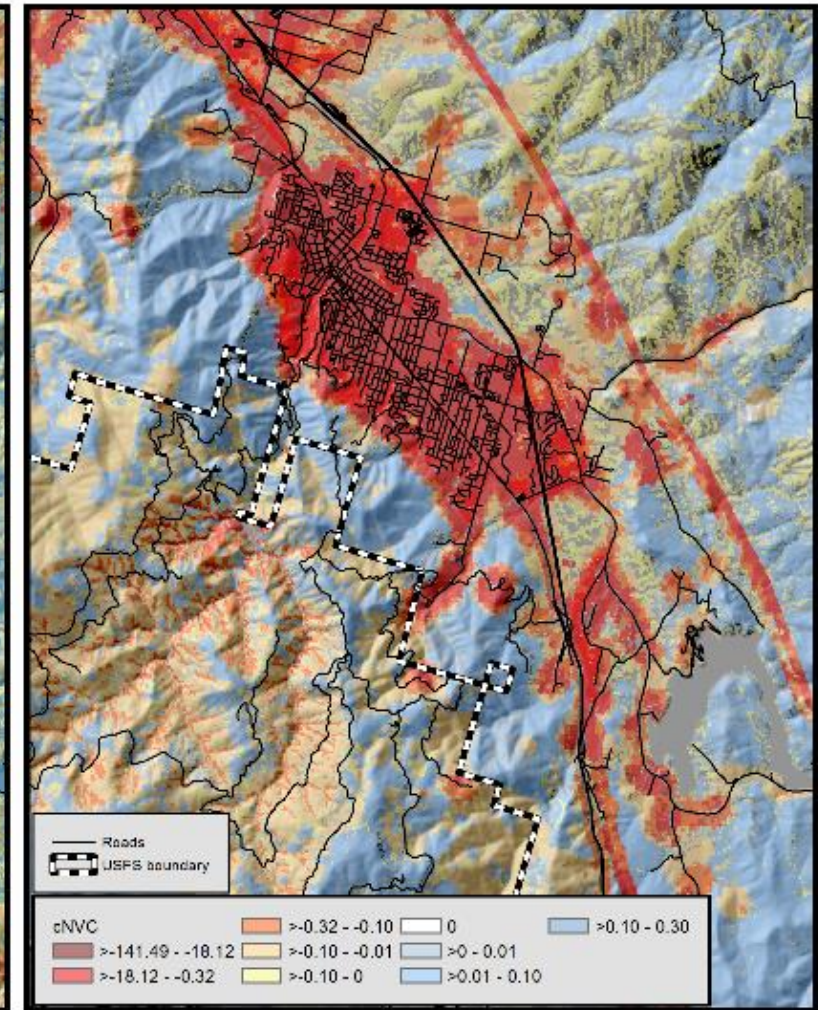
Potential Control Lines



Suppression Difficulty Index

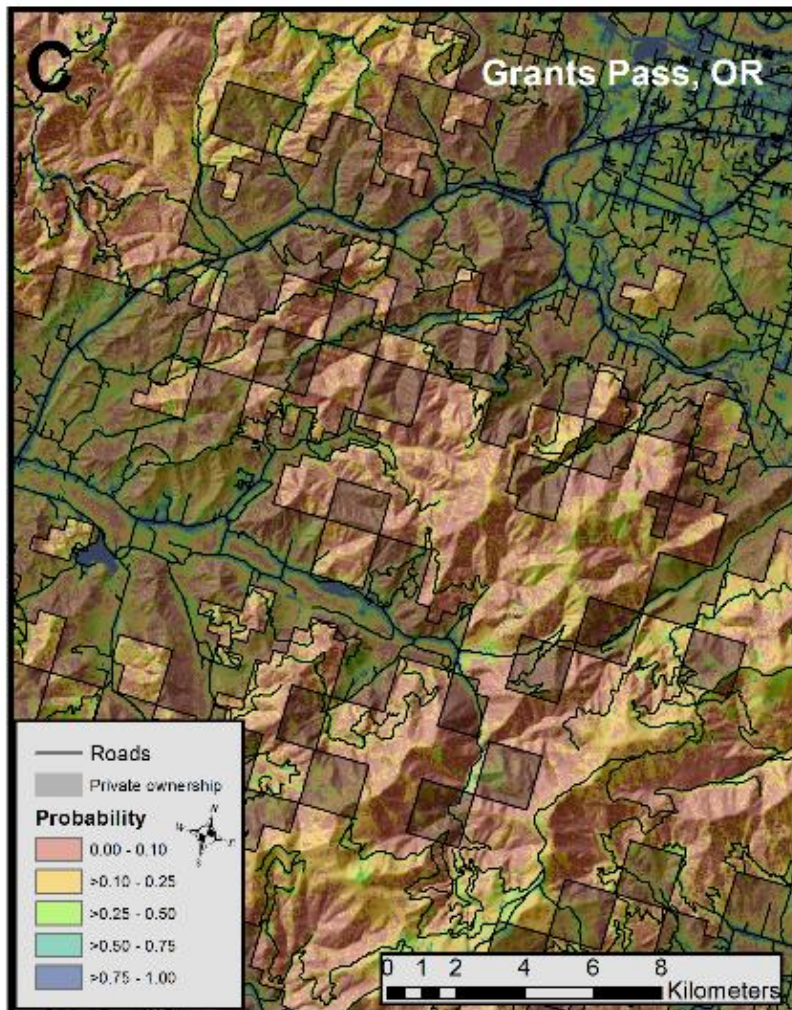


Quantitative Risk Assessment

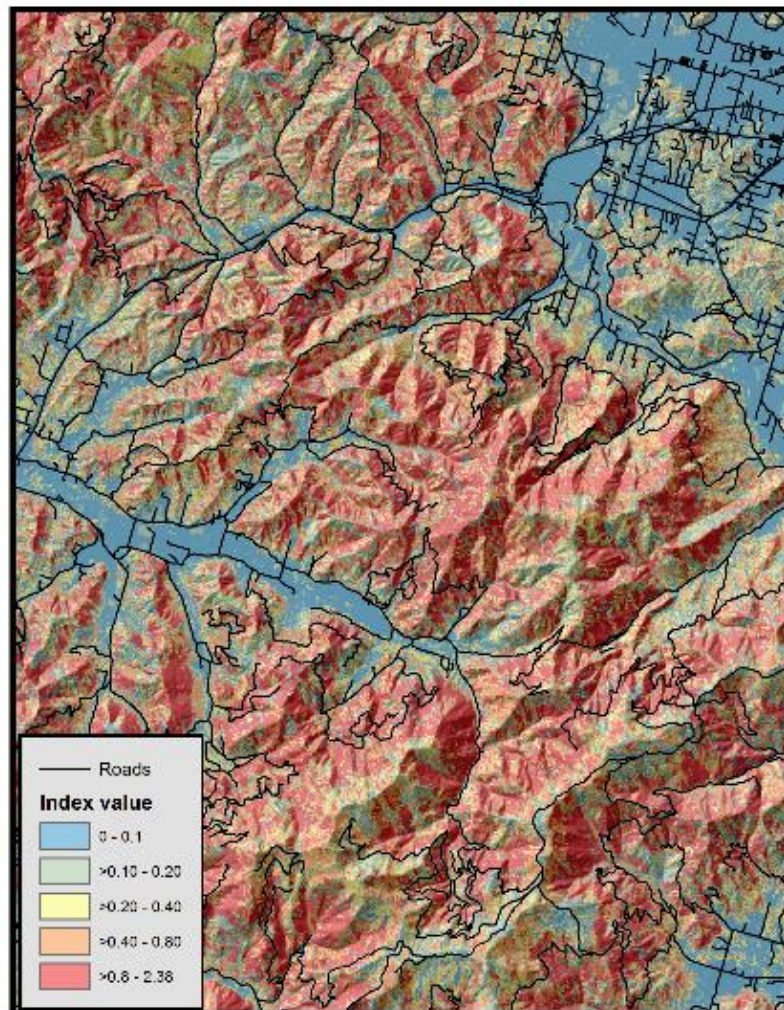


Targeting mitigation – Shared responsibility

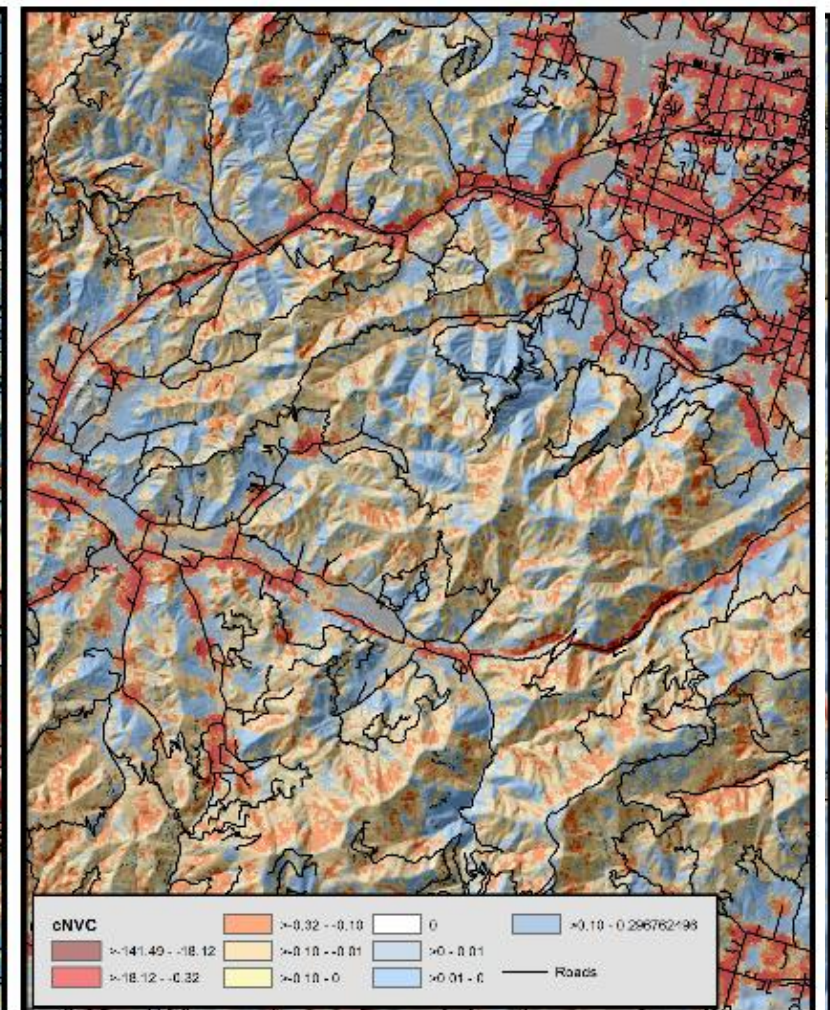
Potential Control Lines



Suppression Difficulty Index



Quantitative Risk Assessment

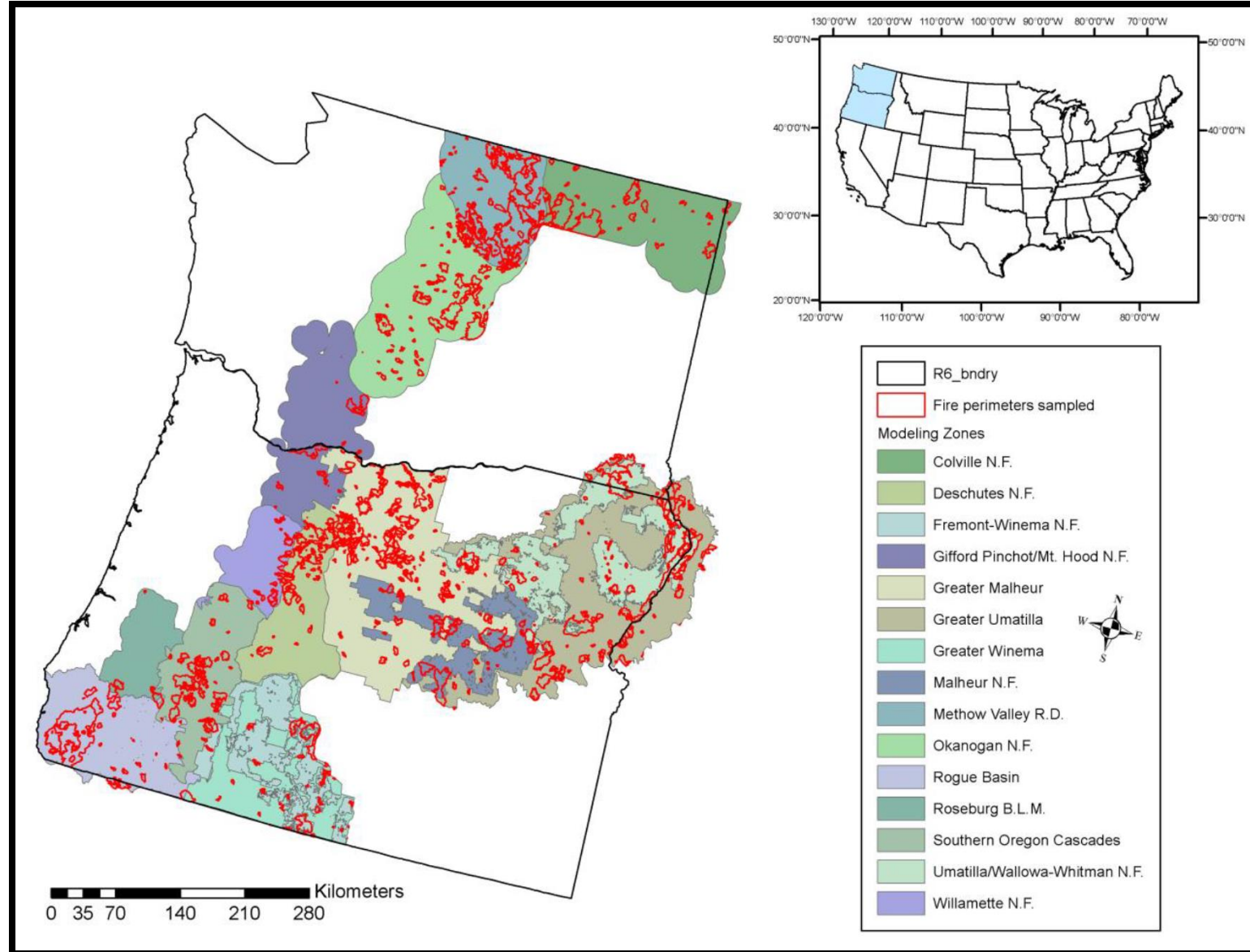


The Analytical Tools

Potential Control Location Atlas (PCLs)

Quantitative Wildfire Risk Assessment (QRA)

Suppression Difficulty Index (SDI)





Basic strategic/spatial fire planning process

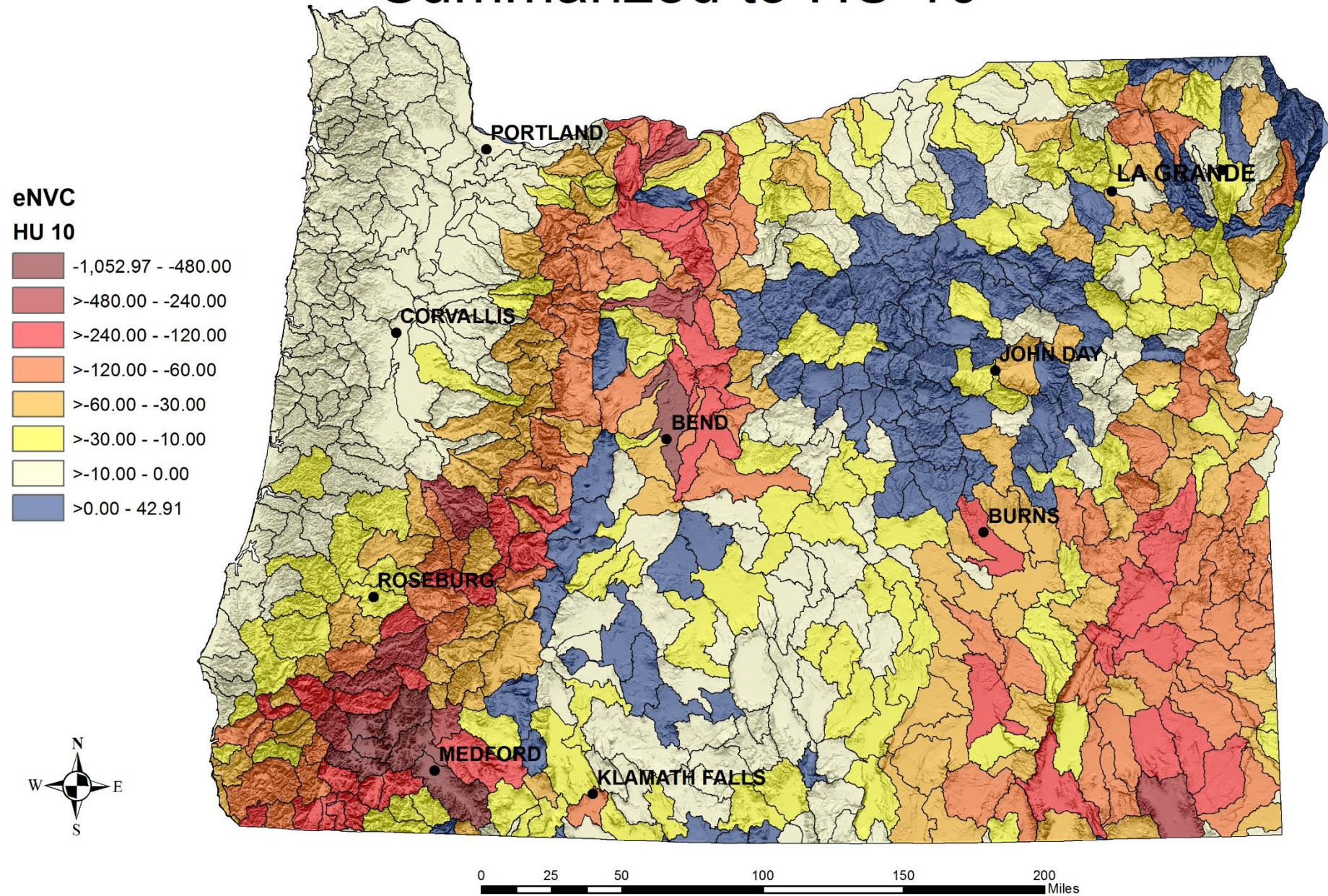
1. Introduction to supporting data and end goals
2. Potential Operational Delineation (PODs) drawing (driven by local fire staff)
3. Strategic Response Zones (SRZs)
4. Communication and outreach
5. Alignment and implementation
6. Monitoring and updating



Concluding thoughts

1. Part of the solution to the fire problem is alignment of fire management actions with an eye towards long-term risk reduction
2. Methods described can include values from multiple stakeholders
3. Designed to form the foundation for addressing shared responsibility and co-management in fire and land management
4. Provides an exceptional communication tool during pre-planning/scenario planning and during wildfire response
5. Not a substitute for local and experiential knowledge, rather complementary
6. Not decisions, but decision tools.

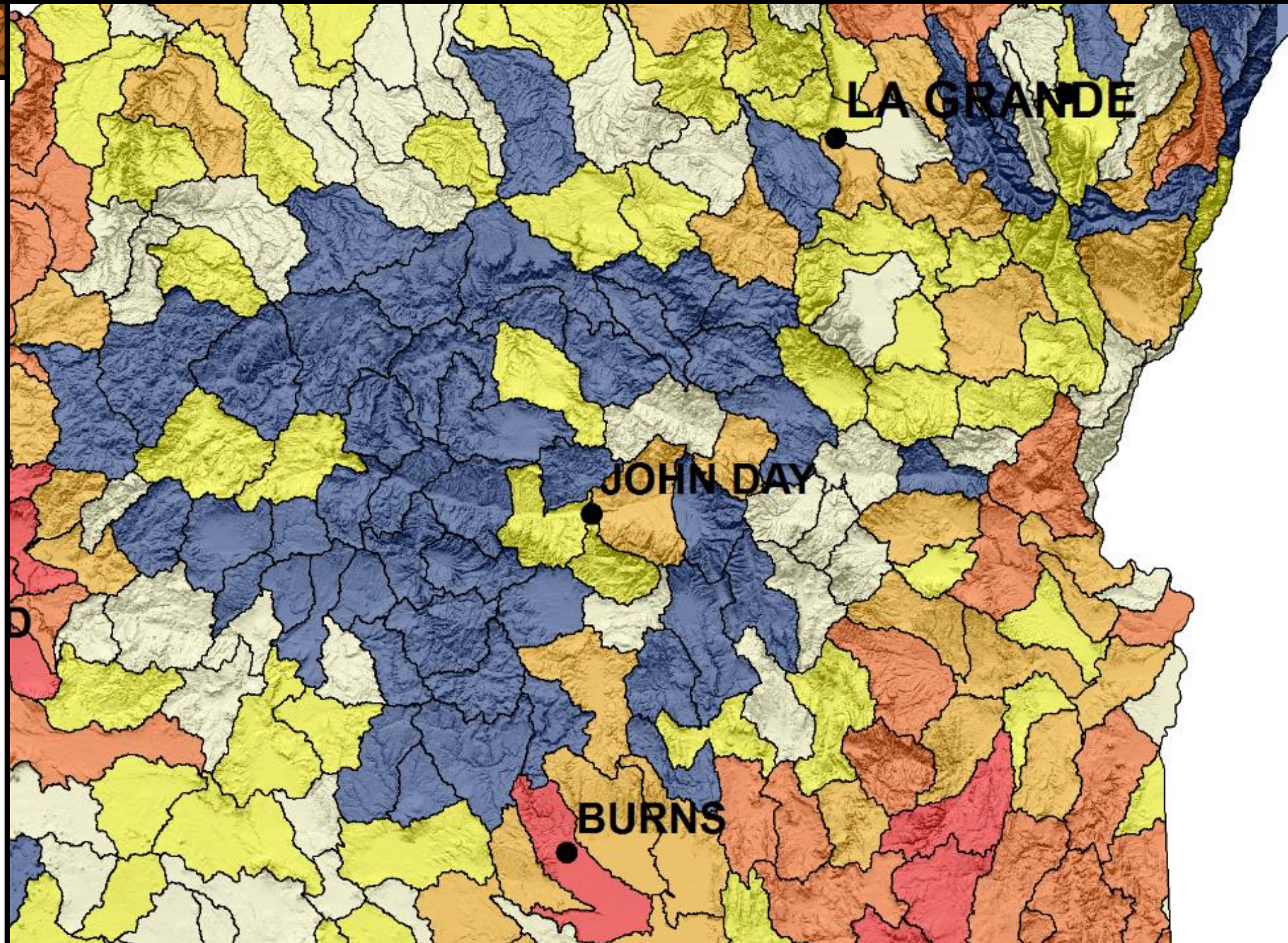
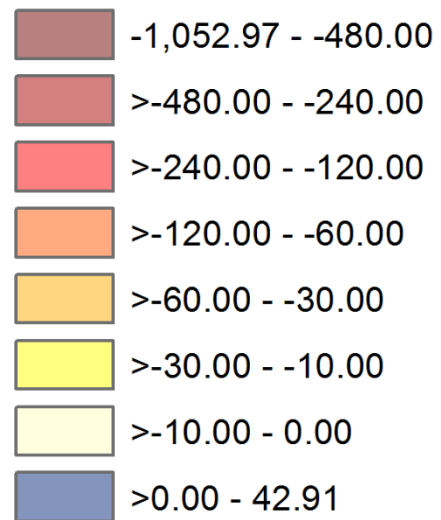
Expected Net Value Change (eNVC) Summarized to HU 10





eNVC

HU 10





Additional resources

Risk Management Science Team: <https://www.fs.fed.us/rmrs/groups/wildfire-risk-management-science-team>

Whiteboard video links: <https://www.youtube.com/playlist?list=PLNsZX2SBTIVn1ce0l9-0C6CCbID0j2kwn>

Tony Schick – Can Moneyball Fix How The West Manages Wildfire? <https://www.opb.org/news/article/fire-wildfire-west-management-science-data-risk-moneyball/>

O'Connor, CD, Calkin, DE (2019) Engaging the fire before it starts: A case study from the 2017 Pinal Fire (Arizona) <https://www.iawfonline.org/article/engaging-the-fire-before-it-starts-a-case-study-from-the-2017-pinal-fire-arizona/>

O'Connor, C.D., Calkin, D.E., Thompson, M.P. 2017. An empirical machine learning method for predicting potential fire control locations for pre-fire planning and operational fire management. International Journal of Wildland Fire, 26: 587-597.

Dunn, CJ, Thompson, M, Calkin, DE (2017). A framework for developing safe and effective large-fire response in a new fire management paradigm. Forest Ecology and Management, 404: 184-196. <http://dx.doi.org/10.1016/j.foreco.2017.08.039>

Rodriguez y Silva F, Martinez JRM, Gonzalez-Caban A (2014) A methodology for determining operational priorities for prevention and suppression of wildland fires. International Journal of Wildland Fire 23(4), 544-554.