

Washington Department of Natural Resources



Forest resilience planning and management, fire management and post fire response activities:

- Jen Watkins, Forest Health and Resiliency Planning, Science, Monitoring
- Trevor Contreras, Landscape Hazards Geologist
- Allen Lebovitz, Wildland Fire Liason



Wildland Fire Protection Strategy

VISION:

All Washington—safely managing and living with wildland fire.

Working collaboratively across jurisdictional boundaries and with engaged communities, we safeguard what we value. All of Washington is adapted and prepared, and our landscapes are healthy and resilient. We prevent wildland fire, use fire where allowable, and safely suppress unwanted fire.

GOALS

1. Washington's preparedness, response, and recovery systems are fully capable, integrated, and sustainable.
2. Landscapes are resilient. In the face of wildland fire, they resist damage and recover quickly.
3. Communities are prepared and adapted for current and future fire regimes.
4. Response is safe and effective. There is zero loss of life, of firefighters or the public, from wildland fires.

FOCUS AREAS

- All of Washington
- All landscapes (including smaller, fragmented ownerships and non-forested landscapes)
- Wildland fire risk management and reduction

20-Year Forest Health Strategy

VISION:

The goals and strategies outlined in the plan will reduce wildfire hazards to state trust lands and private forest owners, leverage additional funding, increase confidence for businesses, and accelerate the development of resilient forest ecosystems for the benefit of current and future generations.

GOALS

- Accelerate the pace and scale of Forest Health Treatments.
- Strategically focus work to protect communities and values.
- Promote Rural Economic Development and the use of restoration by-products.
- Respect and integrate diverse landowner objectives.
- Monitor progress and adapt strategies over time to ensure treatment effectiveness.

FOCUS AREAS

- Eastern Washington Forests
- Large, forested landscapes
- Forest health



ALIGNMENT

Both plans:

- Identify and manage wildland fire risk.
- Protect communities and values.
- Maintain resilient landscapes.
- Integrate landowner community objectives and values.
- Recognize the appropriate role of fire on the landscape.



WASHINGTON STATE WILDLAND FIRE PROTECTION 10-YEAR STRATEGIC PLAN

SOLUTIONS FOR A PREPARED, SAFE, RESILIENT WASHINGTON

www.wa.gov/nr



20-YEAR FOREST HEALTH STRATEGIC PLAN EASTERN WASHINGTON



Legislative context

RCW 76.06

Main forest health law for the state of Washington



SB 5546

Forest health landscape evaluations across all lands for priority planning areas

RCW 76.06.200

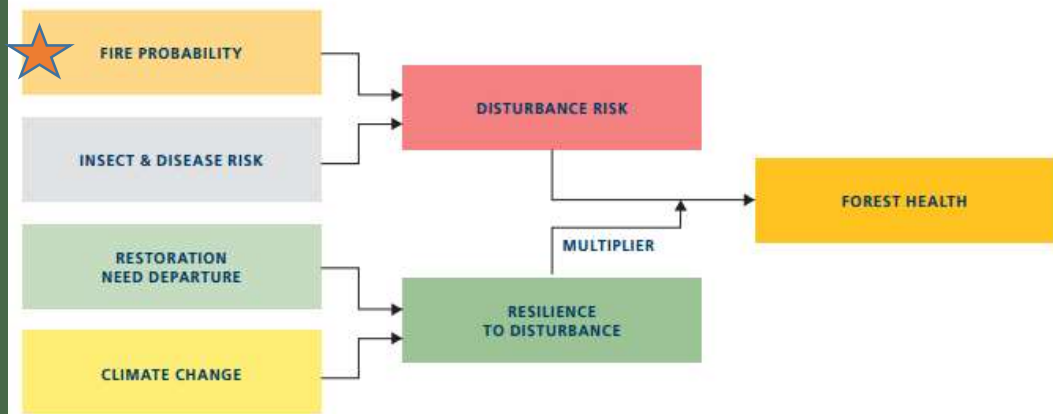
Forest Health Assessment and Treatment Framework

HB 1784

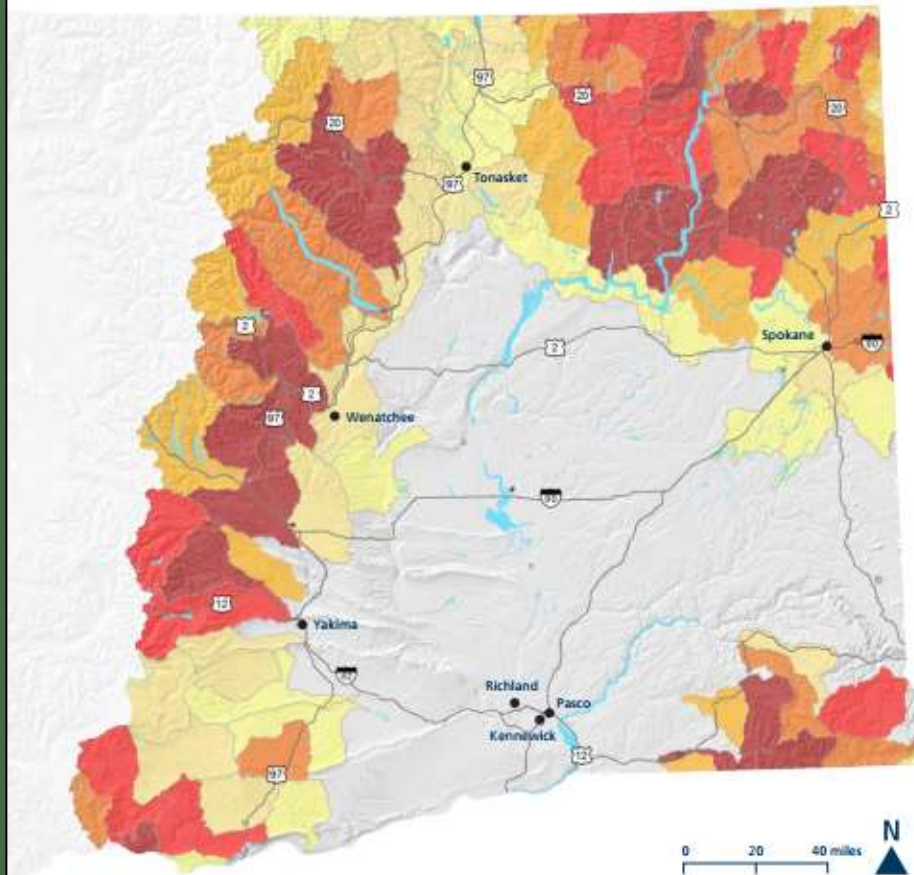
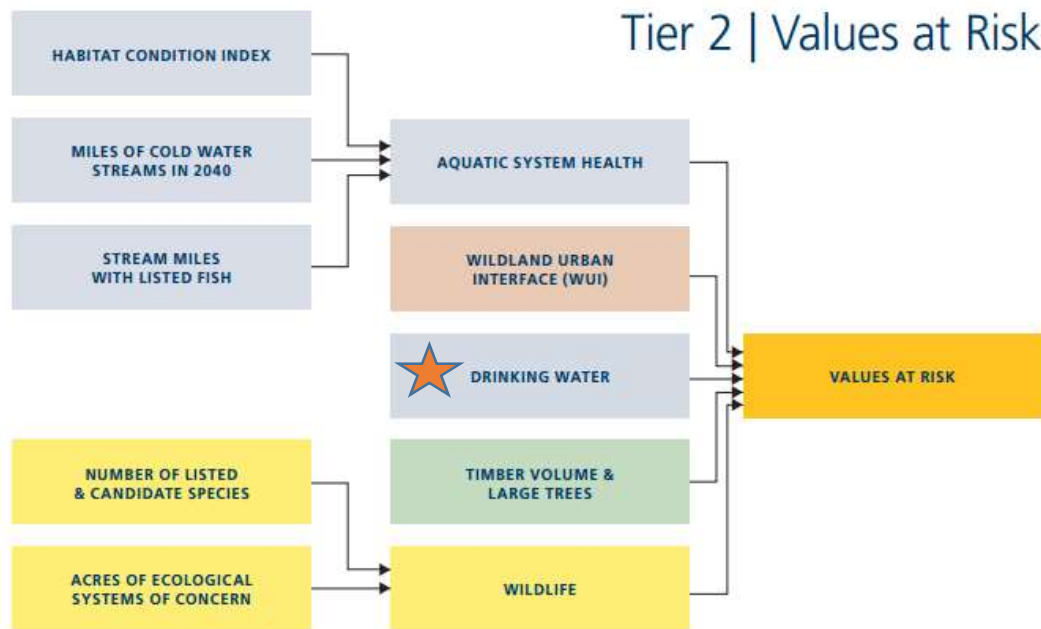
Dual benefit: forest health and fire response

Tracking implementation and data updates every two years

Tier 1 | Forest Health



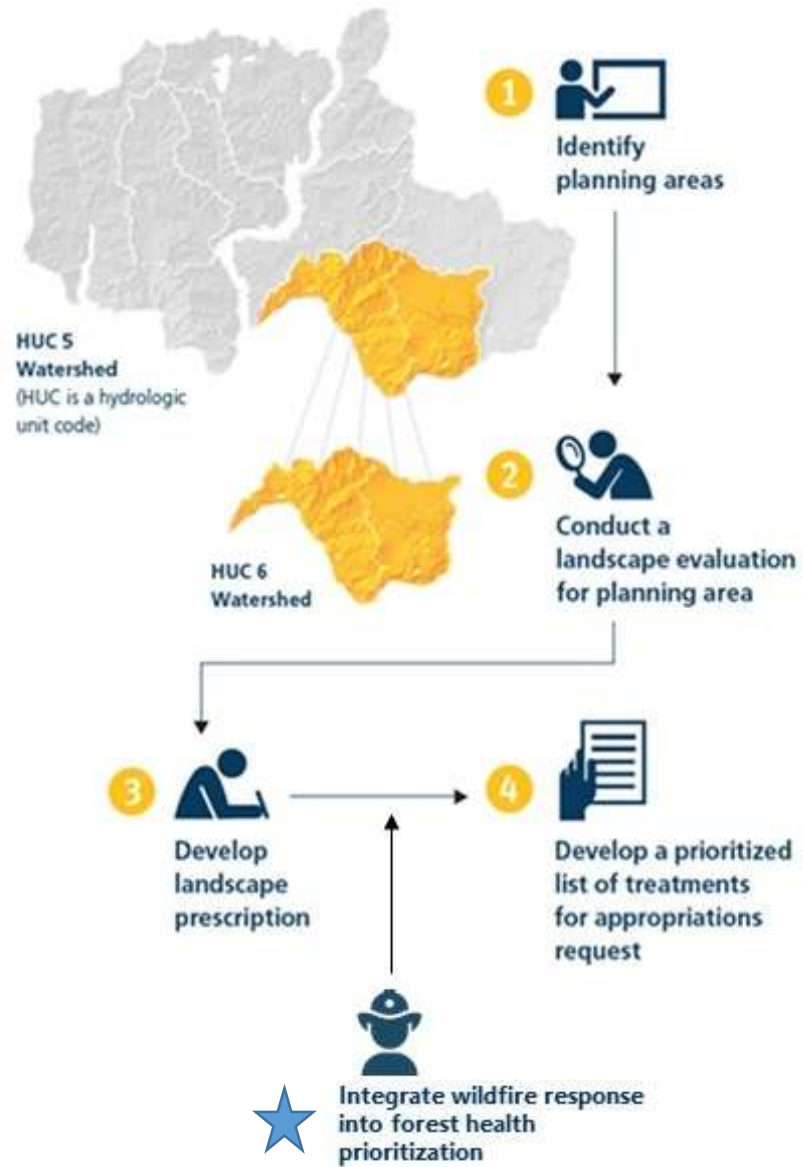
Tier 2 | Values at Risk



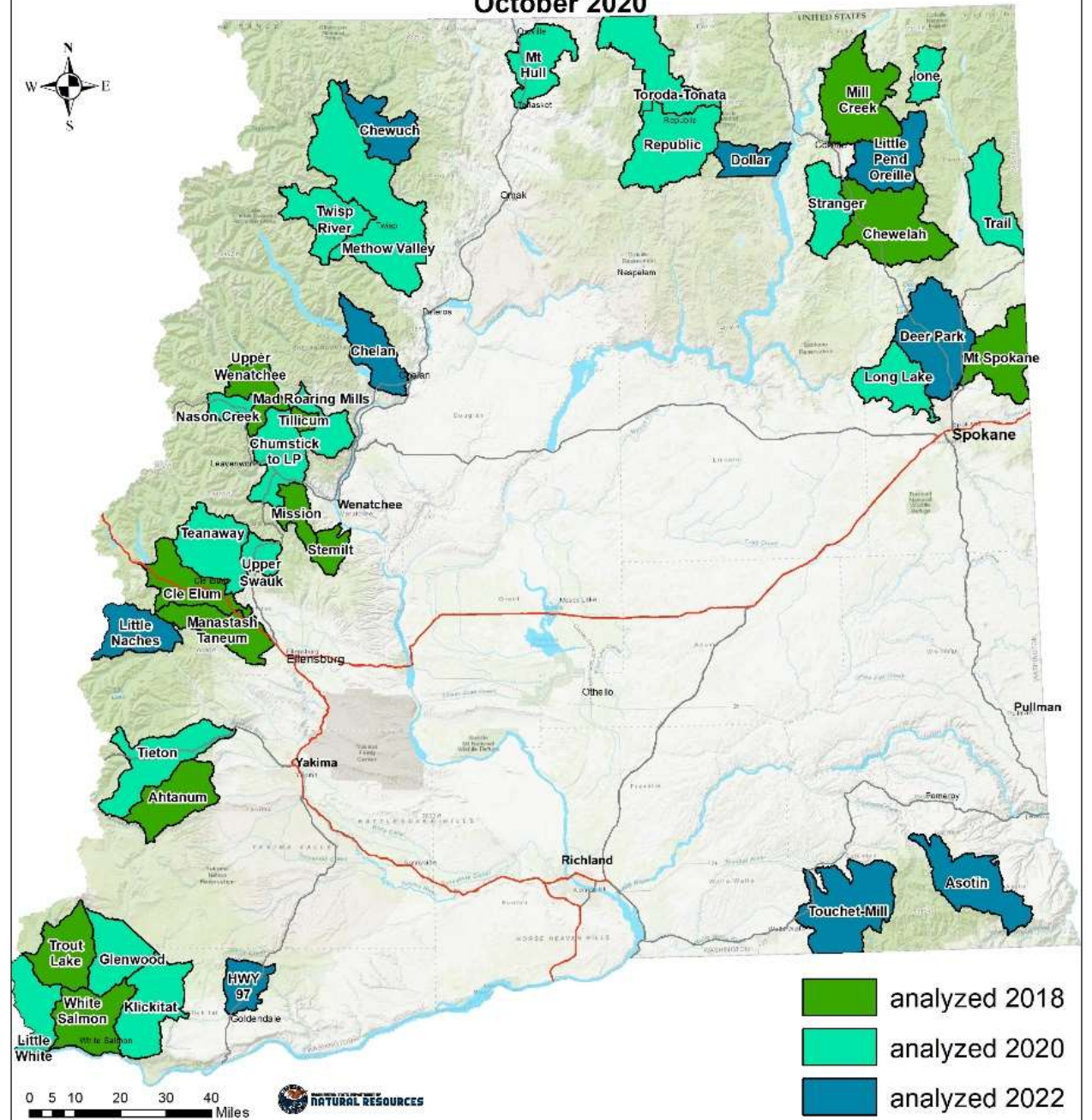
EASTERN WASHINGTON FOREST HEALTH PRIORITY HUC 5 WATERSHEDS



HUC: Hydrologic unit code. The U.S. Geological Survey developed this classification system as a way to categorize watersheds. The smaller the number, the bigger the geography, (e.g. HUC 1, HUC 2, HUC 3, HUC 4, HUC 5, HUC 6) Average HUC 6 watershed is approximately 20,000 acres. Average HUC 5 watershed is approximately 150,000 acres.

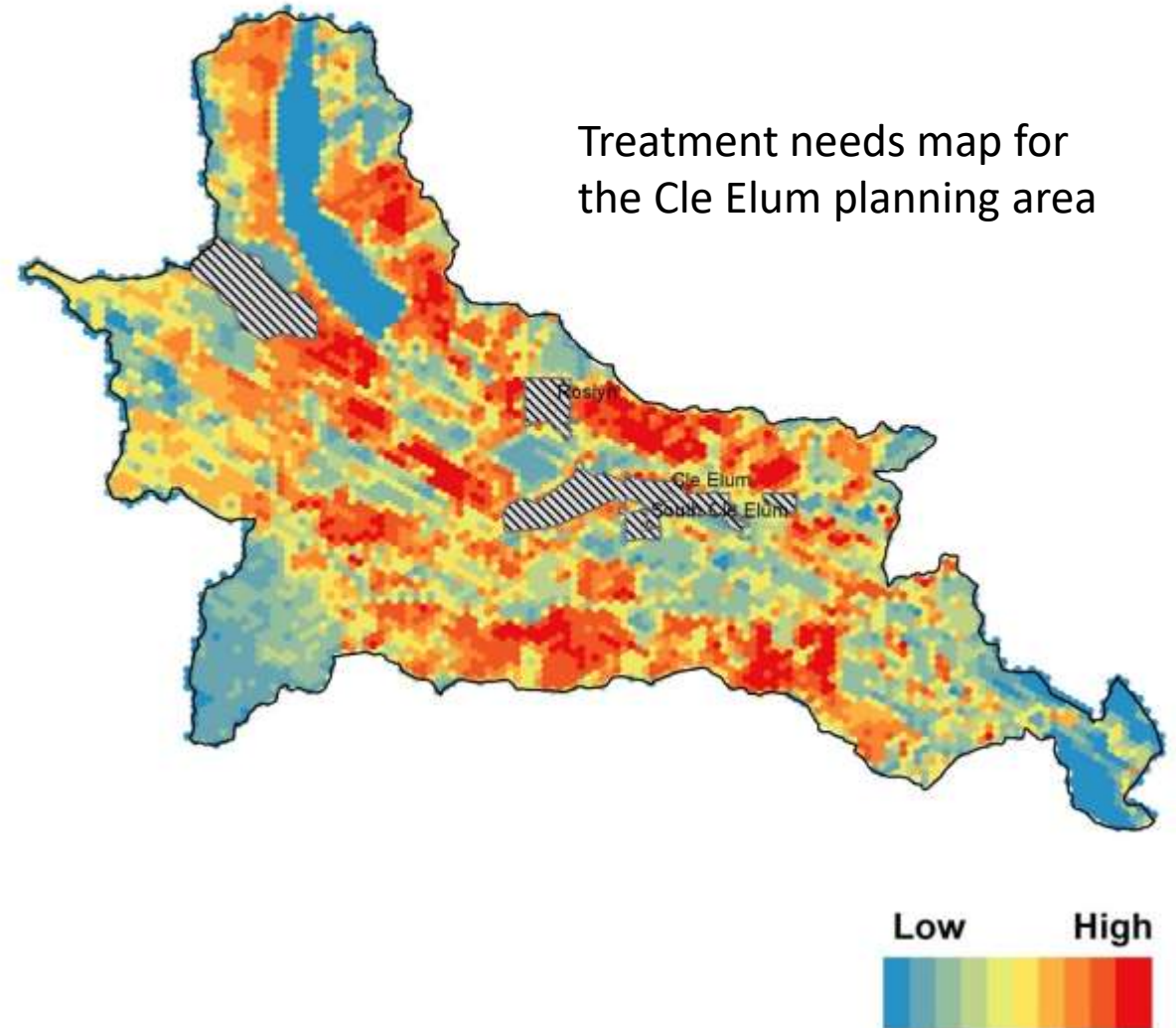


Planning Areas for 20-Year Forest Health Strategic Plan/SB 5546 Eastern Washington October 2020



Forest health

- **Goal** is improve forest health
- **Metric** is treatment needs
- Red = greater need = treats first
- Straight out of landscape evaluations





Forest
health



Fire response
benefit

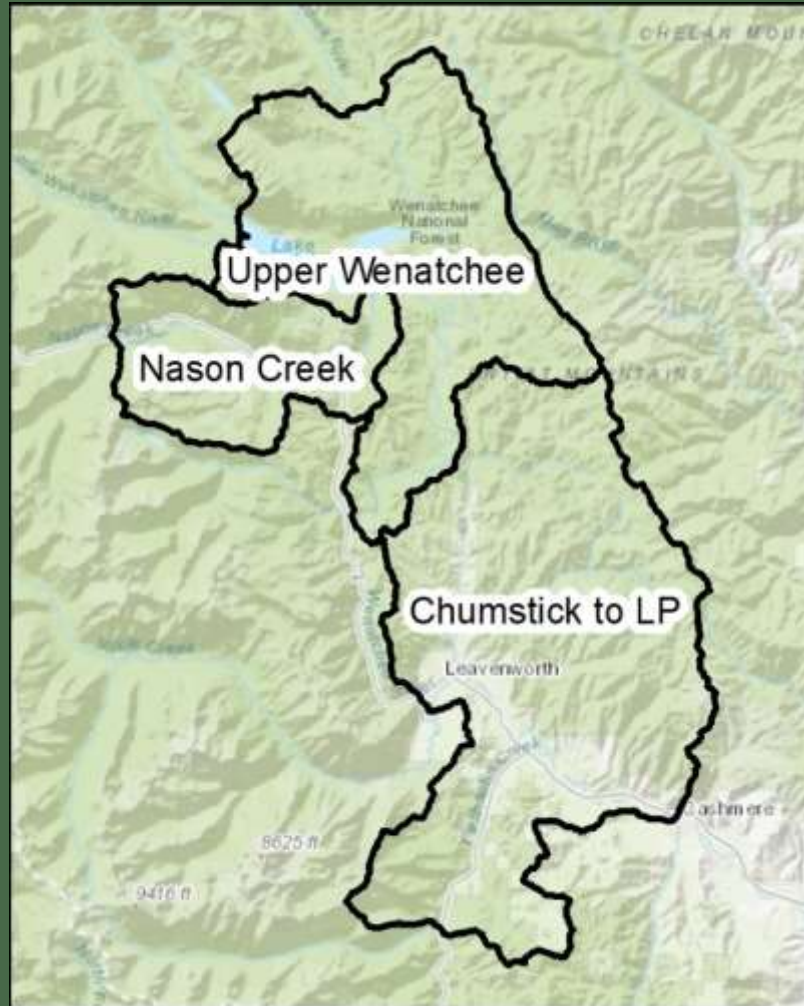


HB 1784 Pilot Areas

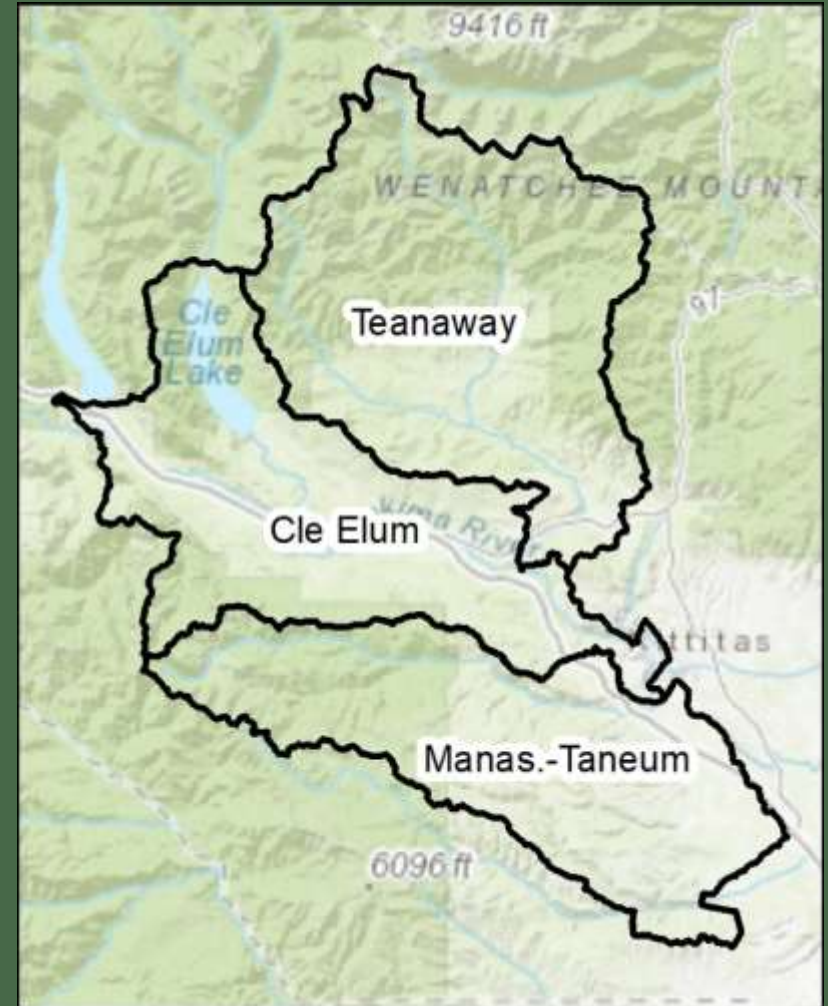
METHOW/TWISP



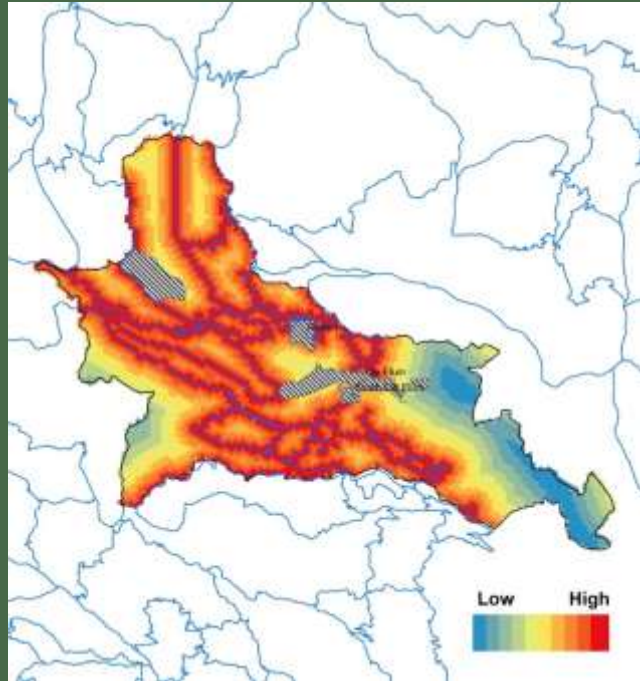
LEAVENWORTH



CLE ELUM

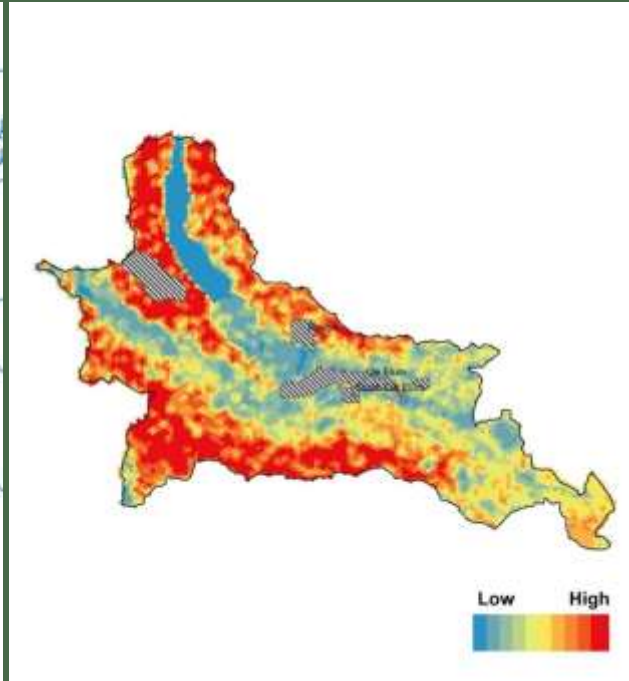


Fire management benefit – 4 metrics



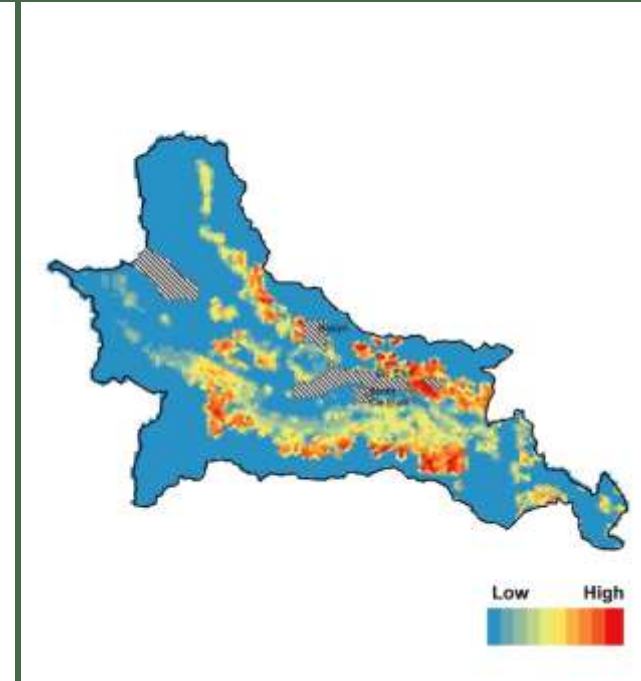
Distance to
POD/fuelbreak

*USFS PODS + Cle Elum
Fuelbreaks*



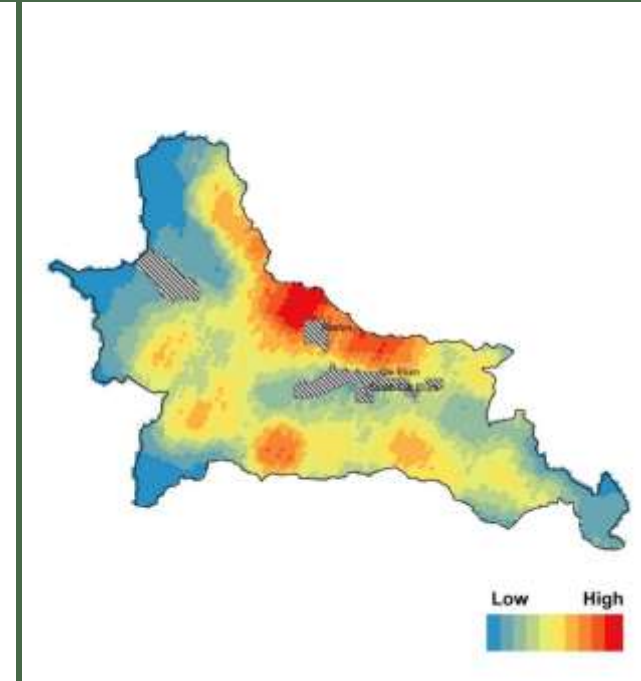
Probability of
flame length > 4ft

*Latest version of FSim
outputs (national - WRC)*



Risk to people
and property

*Landscape eval: QWRA combined
with DNR's WUI layer*



Wildfire transmission to
communities

*FSim data, housing density data,
community polygons*



✚	PRIORITY ACTIONS FOR WESTERN WASHINGTON
1	Work internally across DNR divisions , with the Forest Health Advisory Committee, the Timber, Fish, and Wildlife Policy Committee, and other partners to lay the scientific, social, cultural, and economic framework for an all-lands forest health and resilience vision and approach for western Washington forestlands, building off of existing plans and strategies.
2	Increase understanding of current and future fire regimes and risks to communities and infrastructure in western Washington to inform management and planning.
3	Work with the USDA Forest Service and forest collaboratives to accelerate planning and implementation of five-year work plans and priority landscapes identified in this action plan. Implement activities that accelerate the development of mature forest characteristics, create high-quality young, or early seral, forest habitat, and increase drought resilience and watershed health.
4	Within priority landscapes identified in this action plan , work with partners to identify locally appropriate forest health and resilience activities and desired outcomes. Prioritize use of relevant DNR programs and tools, such as the Building Forest Partnerships and All-Lands Forest Restoration grant programs, to improve forest health and resilience in priority landscapes.
5	Work with the Mt. Baker-Snoquaimie National Forest to achieve the goals and address the performance gaps identified in their 2016 Restoration Memo (see Appendix), including the development of a landscape restoration strategy to restore, maintain, and develop resilient conditions.

STRATEGIES



Washington Department of Natural Resources



Landslide Hazards Mapping Program: Understanding the past, & predicting what might happen after a fire

Trevor Contreras
Landscape Hazards Geologist



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Response



Washington Lidar



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Projects In Map View

Download Current View
Show All / Hide All

Ahtanum 2006

- DSM Hillshade
- DTM Hillshade
- DSM
- DTM
- Metadata

Asotin Creek 2008

- DSM Hillshade
- DTM Hillshade
- DSM
- DTM
- Metadata
- Point Cloud

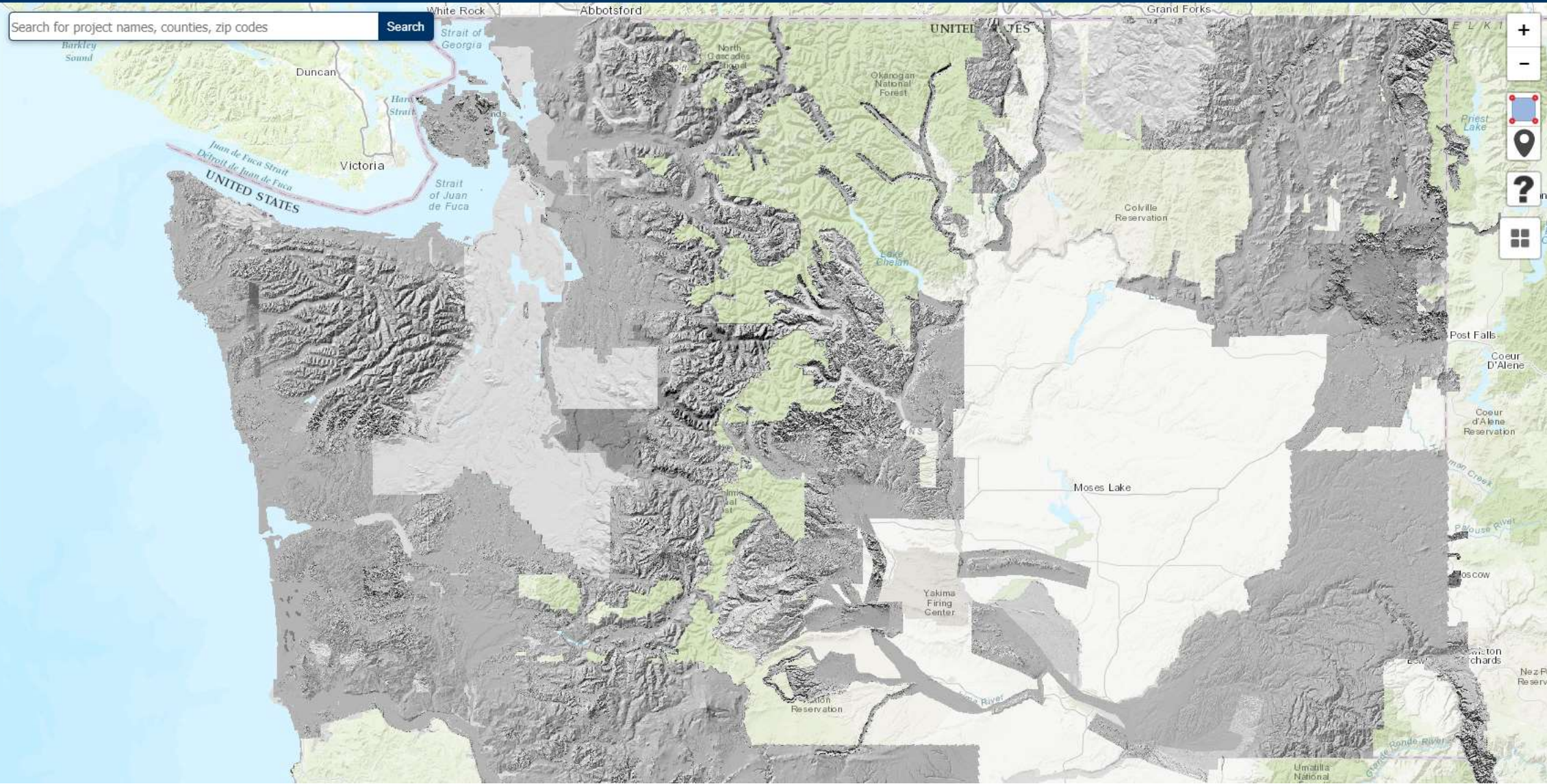
Bainbridge 2015

- DSM Hillshade
- DTM Hillshade
- DSM
- DTM
- Metadata
- Point Cloud

Baker 2015

- DSM Hillshade
- DTM Hillshade
- DSM
- DTM
- Metadata
- Point Cloud

Bellingham 2013



Map navigation controls:

-
-
-
-
-
-





Map out your active areas



Map out your active areas



Map out your active areas







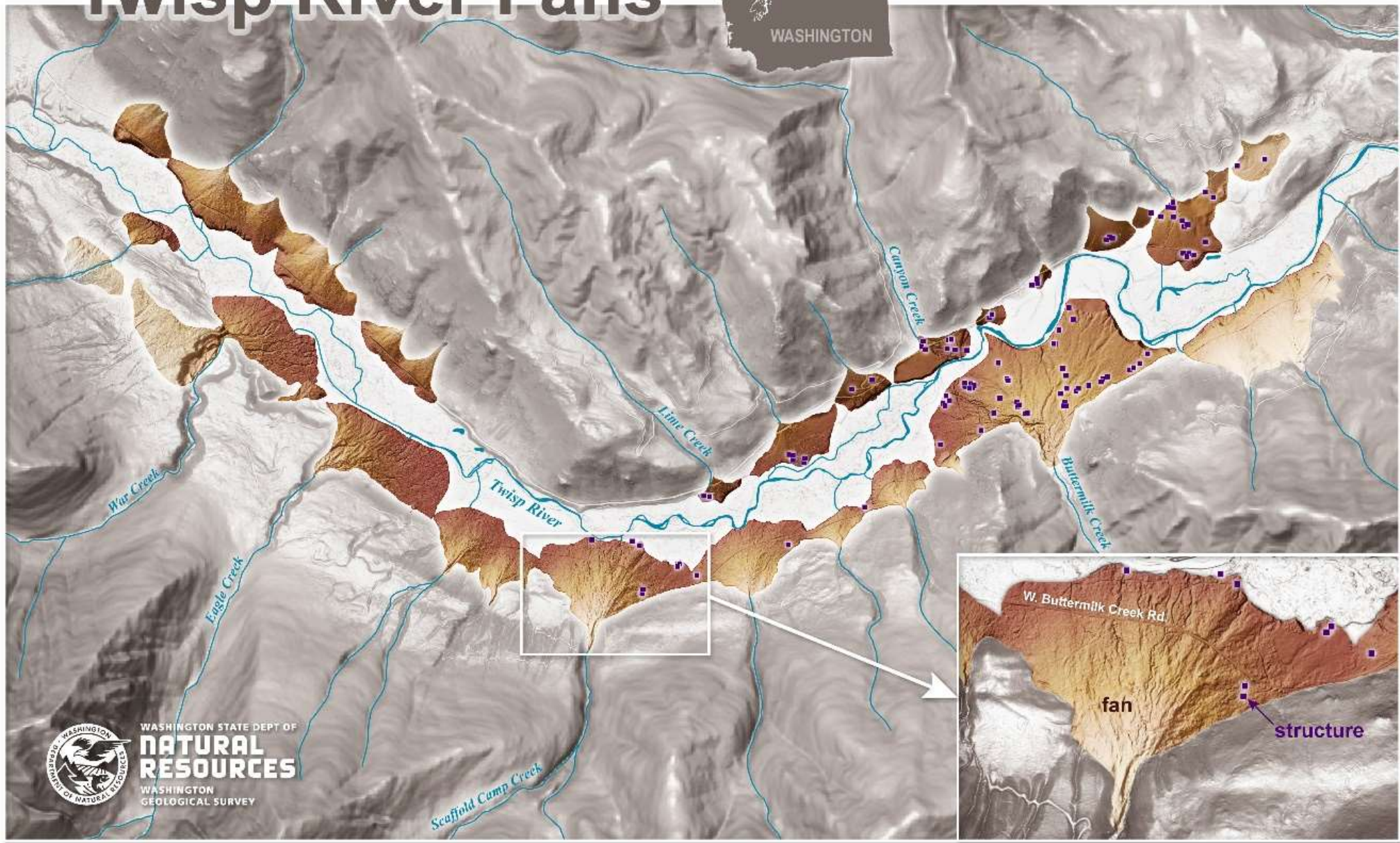




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GEOLOGICAL SURVEY



Twisp River Fans





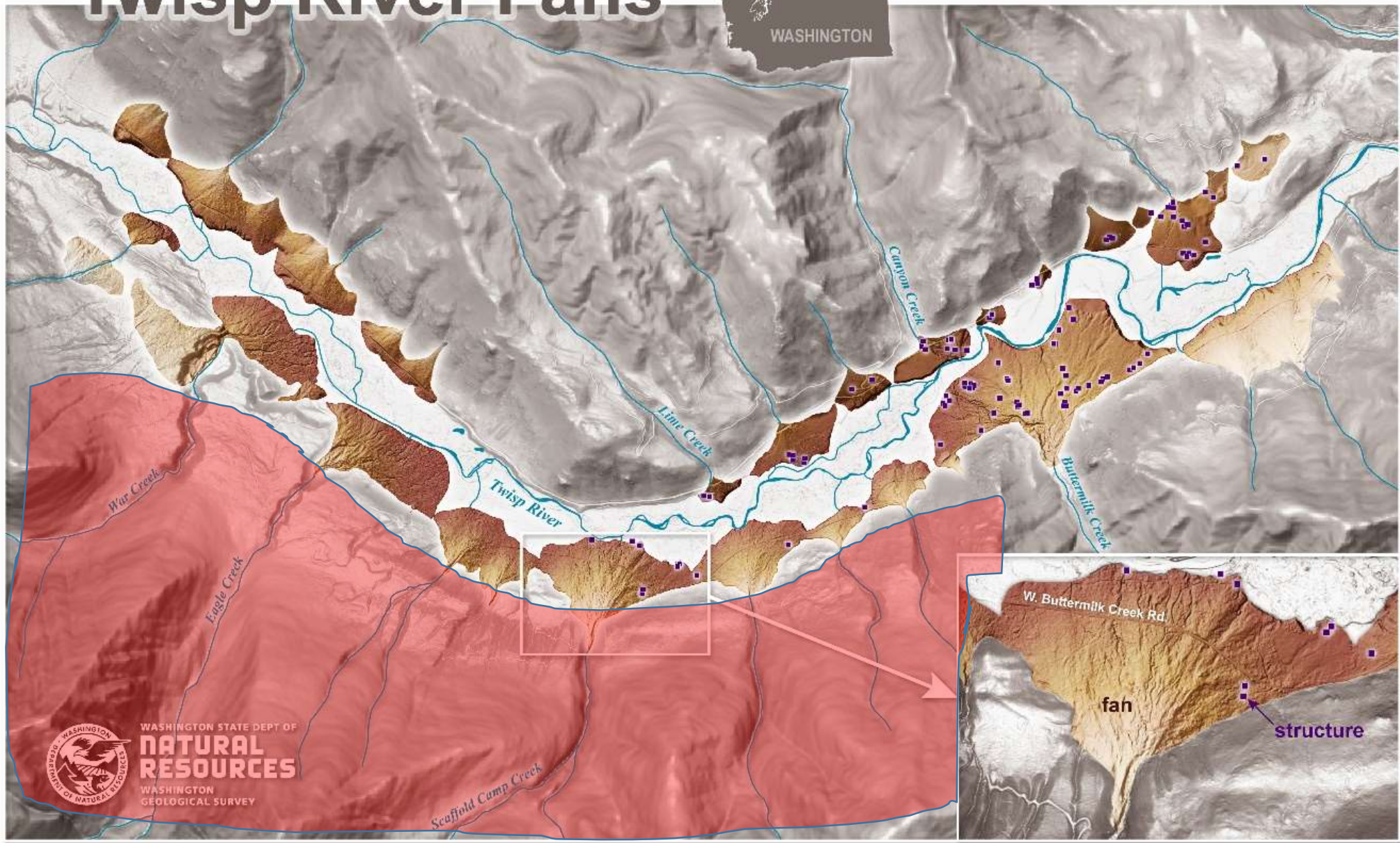




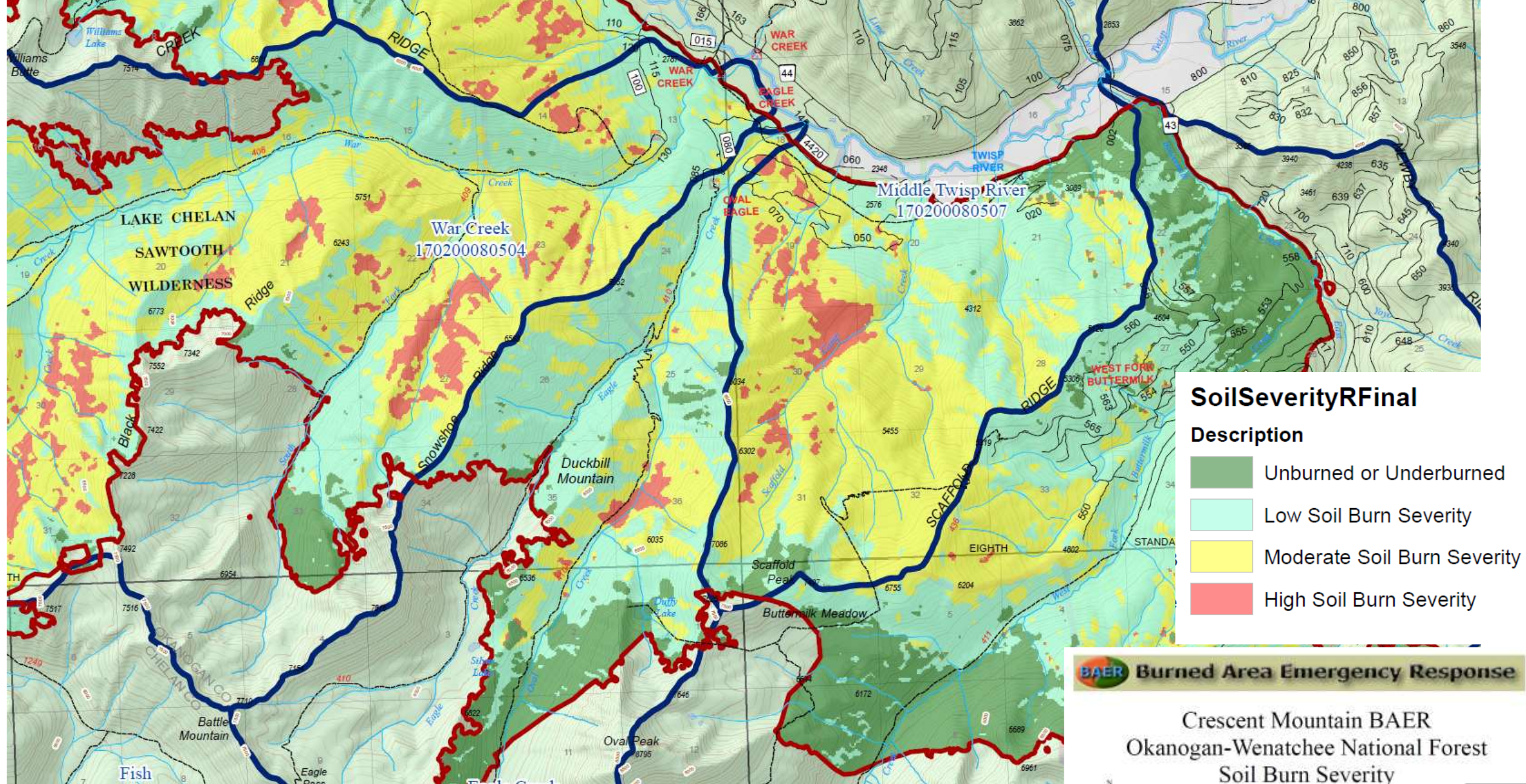




Twisp River Fans



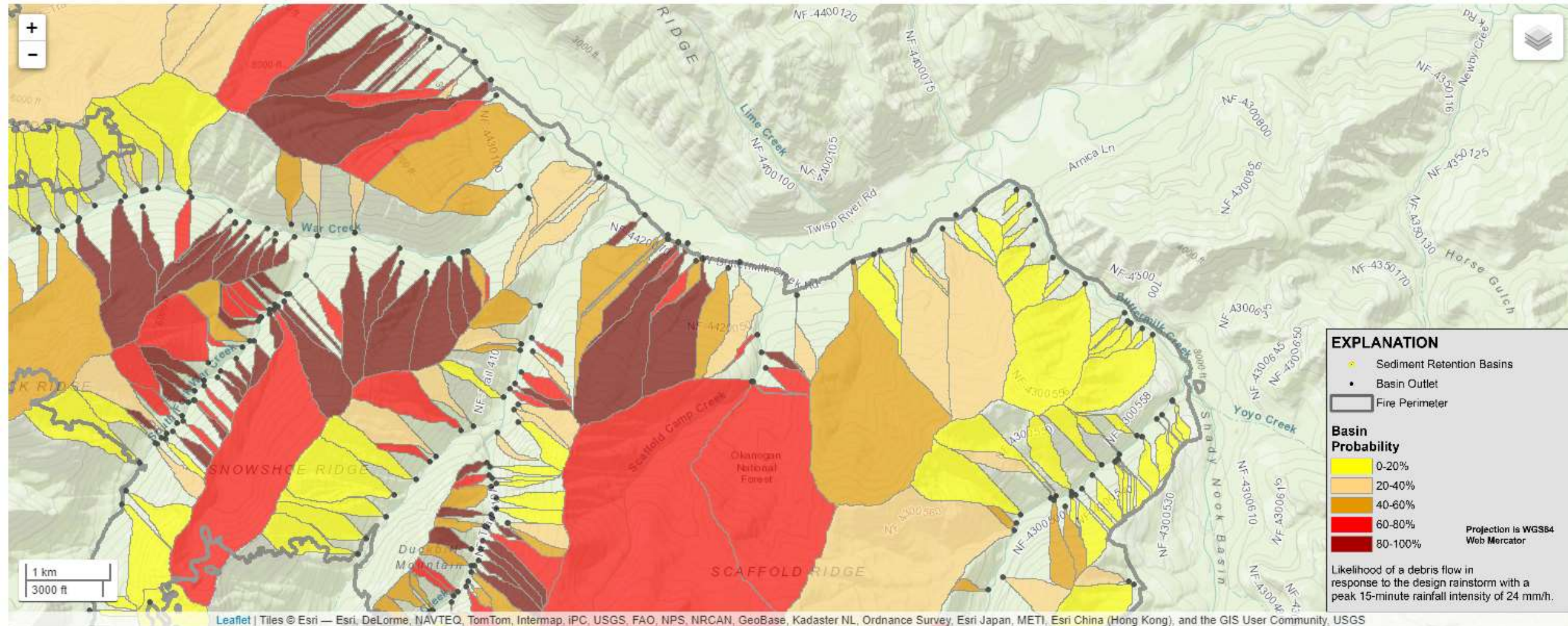
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Burned Area Reflectance Classification (BARC)

BARC goes into USGS Debris Modeling

Preliminary Hazard Assessment



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360-810-0005



aftertheflames.com

Post-fire Water Quality Impacts and Mitigation

After the Flames

ACTIONABLE BEST PRACTICES FOR
COMMUNITIES AND AGENCIES
IMPACTED BY WILDFIRE

WEBINAR

DEC 3, 2020
1:00 - 3:00 MST

What does current science and experience tell us about the near and long-term impacts of fire on water quality and how to recover?



Washington Department of Natural Resources



Restoration to Protect Aquatic Resources During and After Wildland Fire

Allen Lebovitz

Ecosystem Restoration Specialist

Wildland Fire & Forest Health Liaison



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Key Points

- ❖ **Need to address urgent ecosystem health, public safety, and community needs - prevent other catastrophic impacts after wildland fires**
- ❖ **Opportunity to implement landscape scale ecological restoration – “Restore ecological infrastructure”**
- ❖ **Opportunity to provide economic benefits to impacted communities**
- ❖ **Implementation of restoration actions immediately following wildfire suppression reduces impacts and provides strategic opportunity**

Fire Repair Phase

- ❖ **Repair impacts from fire suppression during fire management**
 - **Fire lines**
 - **Roads**
 - **Stream crossings**
 - **Other infrastructure**



Fire Line Rehab:

NOTE: Rehab only those lines that have been cleared by Tribal History and Archaeology. This information will be updated daily and included in the IAP. Only contingency and internal lines will be completed at this time. Perimeter lines will be rehabilitated by the Agency following turnback of the fire and after falls rains have secured the perimeter.

Dozer Lines: Rehab internal and contingency handlines as follows:

- Excavators will be required on all dozerlines. Dozers are very inefficient in the rehabilitation process to recover side cast material and can cause twice the disturbance if used for rehabilitation in moderately steep to steep terrain and in timbered vegetation types. As such, dozers will not be used during fireline rehabilitation operations.
- Pull berms and sidecast back onto fire lines; re-establish pre-existing contours and natural drainage patterns.
- Outslope fire line and construct waterbars across line. Place waterbars no more than 100 feet apart where fire line grade is less than 20%, 50 feet apart where grade is 20%- 40%, 25 feet apart where grade exceeds 40%.
- Cut waterbars at least one foot deep, and skew approximately 15 to 20 degrees from horizontal or outslope to drain freely from the fire line.
- Trees, woody debris, brush and rocks removed during line construction should be pulled back and scattered upon the line.
- Place obstructions to keep vehicles from driving these dozer lines unless otherwise instructed.

Hand lines: Rehab internal and contingency handlines as follows:

- Use hand tools or chainsaws only on handlines, not dozers, or excavators.
 - Trenching (if any) should be filled in and the hand line restored to blend with the undisturbed soil contours. Berms, topsoil, and organic matter should be pulled back onto the hand line. Green trees/branches, dead limbs and cut downed logs are to be re-scattered onto the hand line to obliterate evidence of the line as much as practical.
 - Skew waterbars horizontally from the fall line of the slope approximately 15 to 20 degrees from horizontal and drain away from the fire burned area if possible. Place waterbars no more than 100 feet apart where fire line grade is less than 20%, 50 feet apart where grade is 20%- 40%, and 25 feet apart where grade exceeds 40%.
 - Utilize natural rolls and dips whenever possible.
-
- Scatter branches, wood, rock, sod, pine, needles or other material to naturalize the fire line and further retard mineral soil movement. Remove all trash, equipment, and flagging.





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Fire Rehab Phase

- ❖ Restoration immediately after wildfire to specifically minimize impacts to public health & safety, property, & “critical natural and cultural heritage resources”

- ❖ Burned Area Emergency Response (BAER)
 - Slope stabilization

 - Replanting

 - Seeding

 - Road repair

 - Other infrastructure

After Fire

- ❖ **Address broader spectrum of restoration needs**
 - **Restoration of “ecological infrastructure”**
 - **Opportunity to help with economic recovery for impacted, generally rural, communities**
 - **Can be completed through GNA projects**



After Fire

❖ Benefits

- Reduction in landslides
- Reduced flooding through improving water attenuation
- Increase summer base flows by increasing water attenuation in the hyporheic zone (under ground)
- Improved aquatic health
- Improved forest health through thinning
- Increased wildland fire resiliency



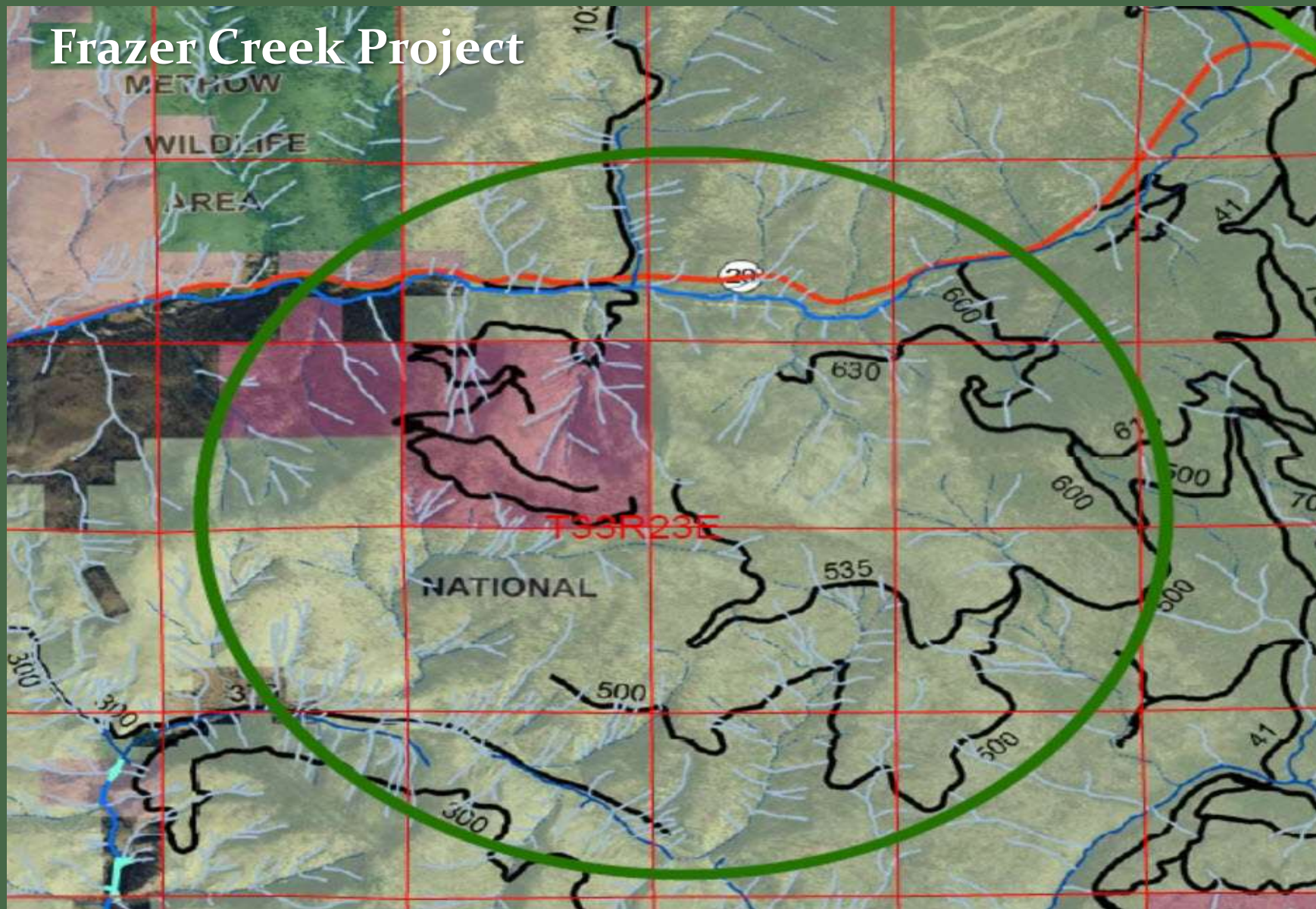
After Fire

❖ Frazer Creek Project

- WDNR and USFS ownership
- Failing culverts, ditch-lines, and roads
- Intensely down-cut channels that continue to head-cut and cause slope failures
- Threats to homes and Highway 20
- Significant, ongoing impacts to the Methow River



Frazer Creek Project





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After Fire

❖ Restoration Treatments

- Undersize culvert replacements
- In-channel wood placement to re-aggrade channels using salvaged and imported wood from site
- Reintroduce beaver to maintain and improve restoration long term



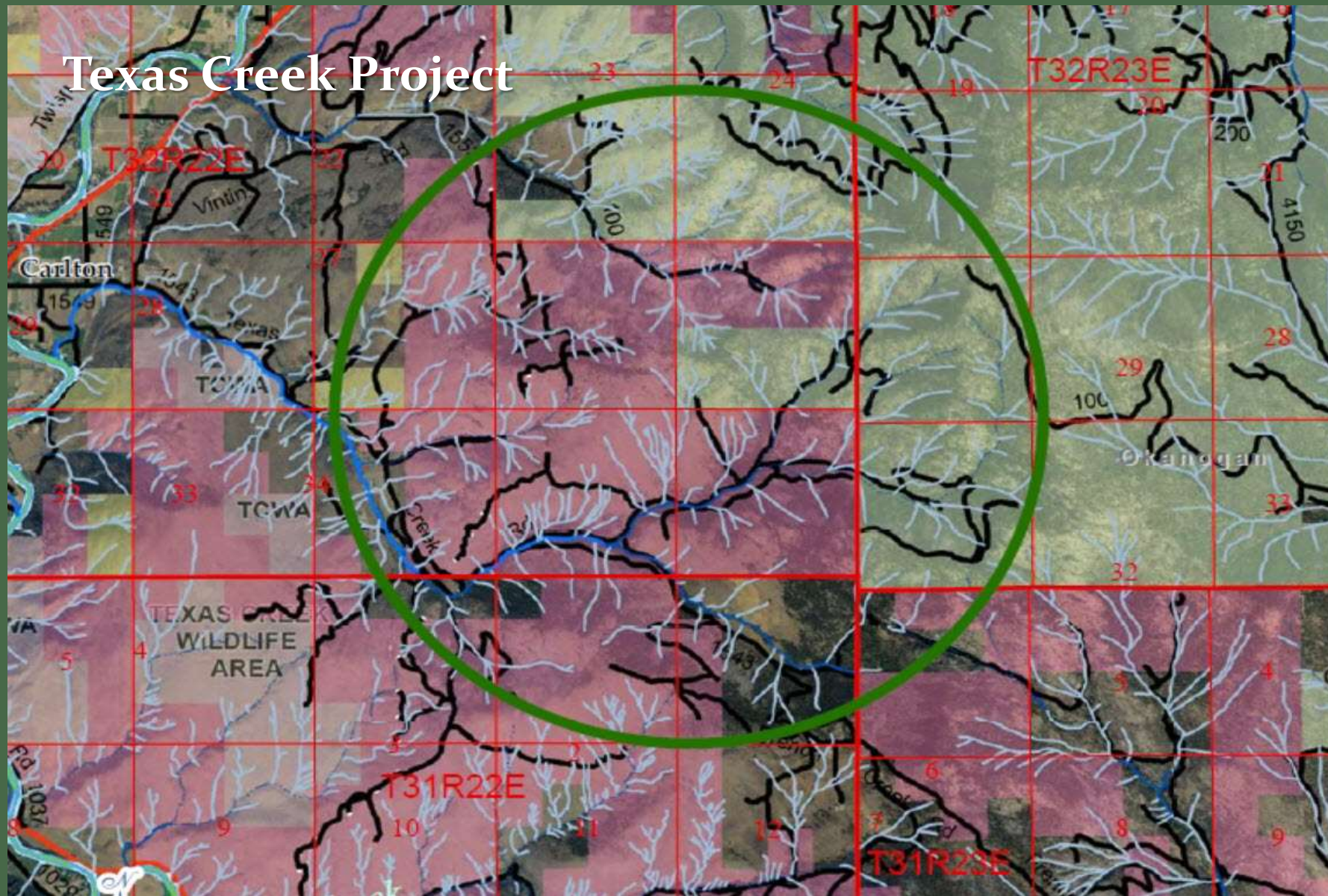
After Fire

❖ Texas Creek Project

- WDNR and USFS ownership
- Failing culverts, ditch-lines, and roads
- Intensely down-cut channels with highly degraded habitat that continues to head-cut
- Significant, ongoing impacts to the Methow River



Texas Creek Project





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Questions?



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