

PNW Quantitative Wildfire Risk Assessment | 2023 update

Ana Barros

Utility Wildland Fire Prevention Advisory Committee

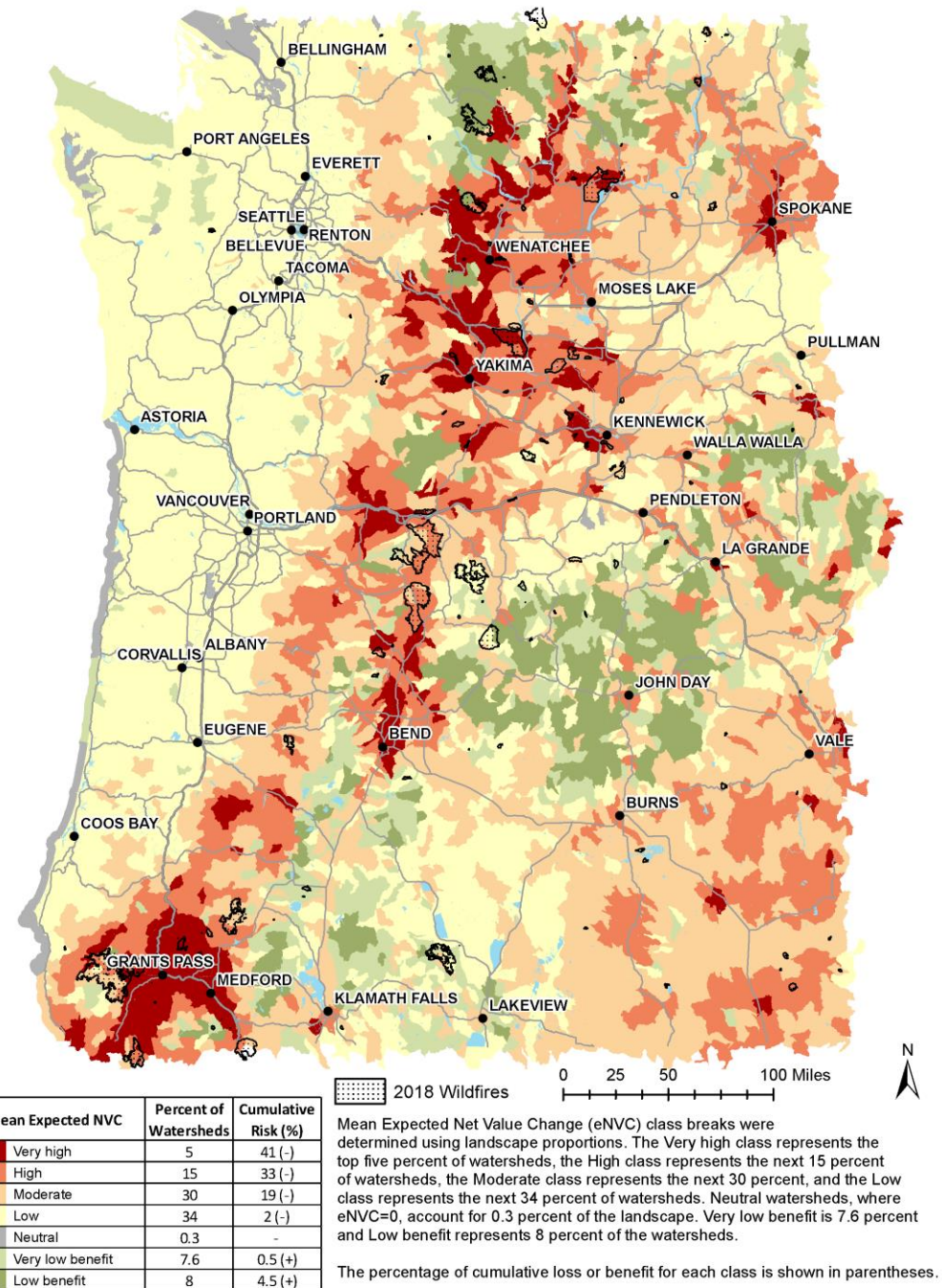
August.16.2023

Olympia, WA



What is the QWRA?

- 🔥 All-lands, comprehensive wildfire risk assessment
- 🔥 The first assessment was released in 2018
- 🔥 The 2023 update will account for changes in the landscape and will take advantage of improved risk analysis methods
- 🔥 Applications include:
 - Integration of wildfire risk with natural resource planning
 - Community wildfire protection planning
 - Fire response analytics & pre-season fire planning (Federal fires)



Who is leading the update?

- 🔥 Chris Dunn | Oregon State University
- 🔥 Ian Rickert | US Forest Service
- 🔥 Andy McEvoy | Oregon State University

With collaborators from:



Oregon State
University



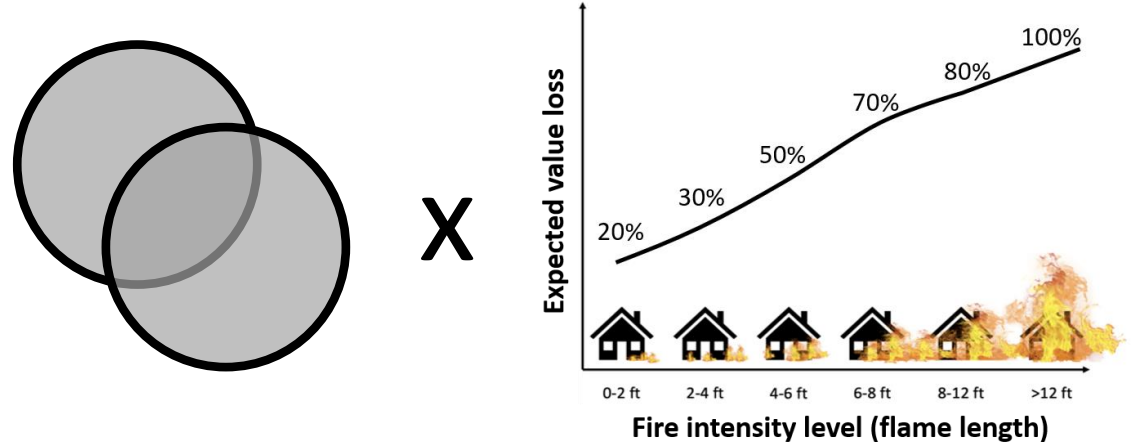
Wildfire Risk

Hazard x Vulnerability

Likelihood x Intensity



Exposure x Susceptibility





People and property

- Low Vulnerability
- Moderate-low vulnerability
- Moderate-high vulnerability
- High vulnerability



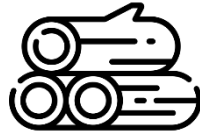
Recreation

- High Development
- Low Development



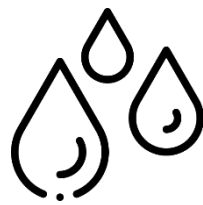
Critical infrastructure

- Electric Transmission lines (high/low)
- Railroads
- Interstates
- Highways
- Communications
- Electric Substations
- Oil & Gas
- Powerplants
- Essential facilities



Timber

Ownership



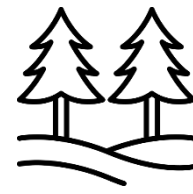
Drinking Water

- Low
- Moderate
- Severe
- Very severe



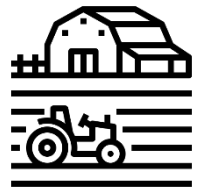
Wildlife

- NSO
- Marbled murrelet
- Greater Sage Grouse
- Steelhead trout
- Bull trout
- Redband trout
- Coho salmon
- Chinook salmon



Ecological integrity

- Forest
- Rangelands

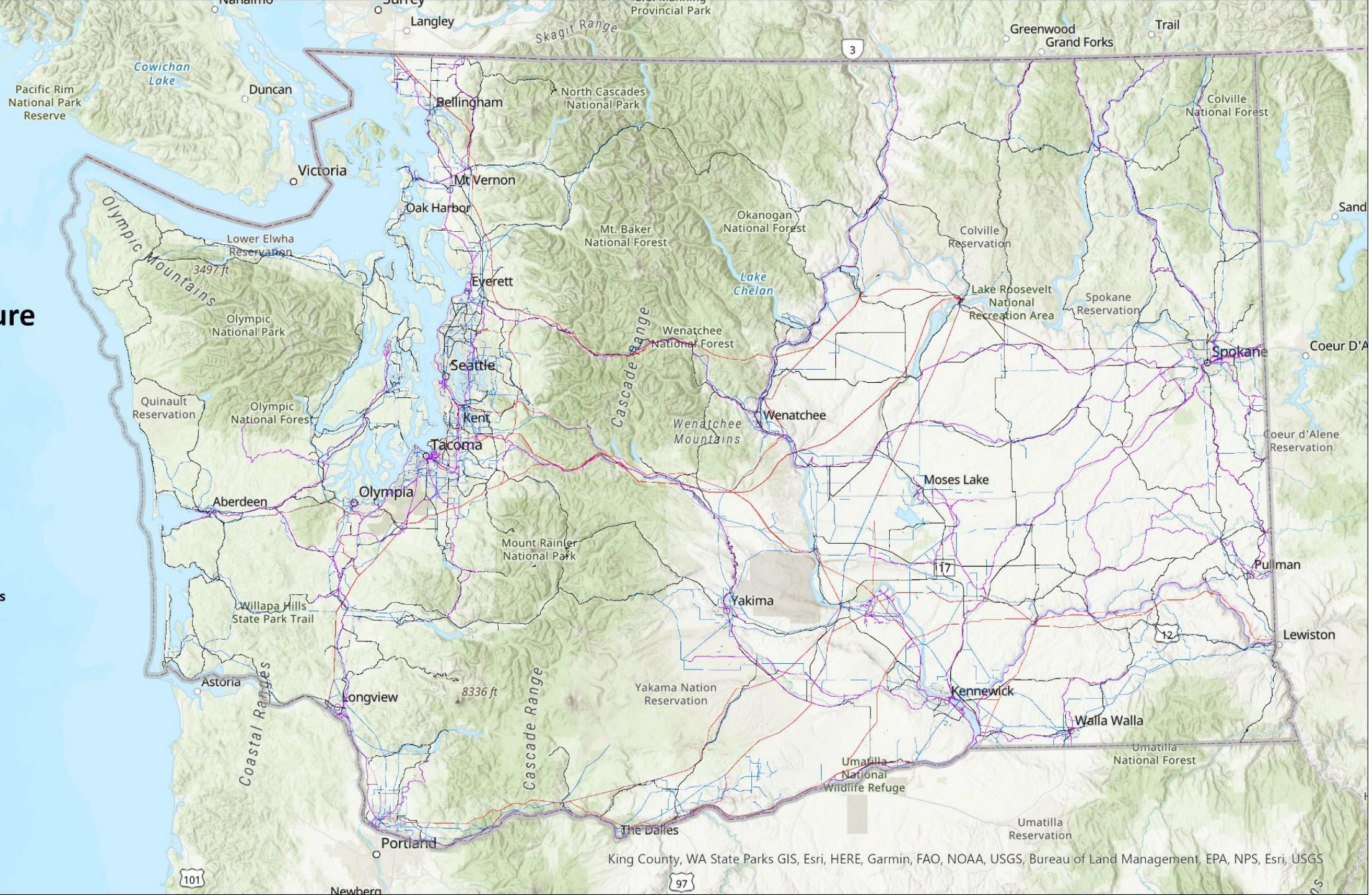


Agriculture

- Perennial
- Annual

Critical infrastructure

- transmission_high
- transmission_low
- highways
- interstates
- railroads
- communications
- oil & gas
- essential facilities
- electric substations
- powerplants



Ways to engage

1. Feedback on the quality of the data, alternative data sources, etc.
2. Specific questions on data:
 - Data that tell us what materials poles are made out of (wood or steel)?
 - Data on the height (z-value) of the transmission lines?
 - If they exist, can those data be available to us?
3. Representative(s) that can be a contact point for this and future updates

Components of the QWRA

Fire Occurrence & Behavior

Average annual burn probability
Fire intensity

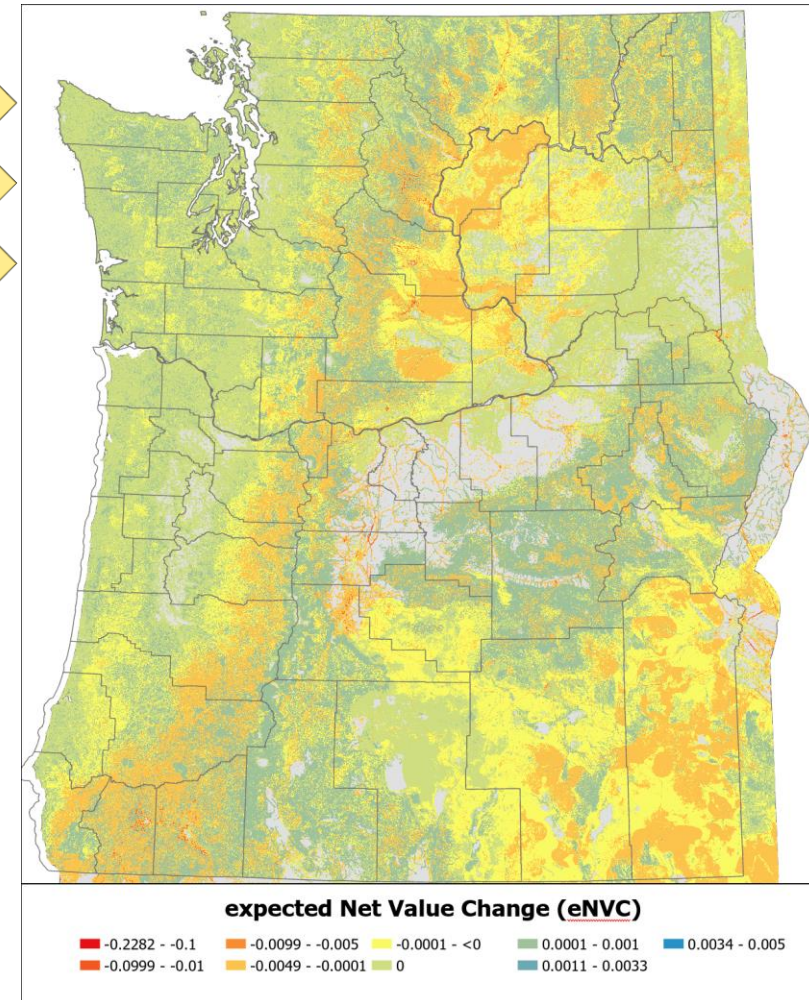
Highly-Valued Resources & Assets

People & Property
Infrastructure
Timber
Watersheds
Vegetation
Wildlife ...

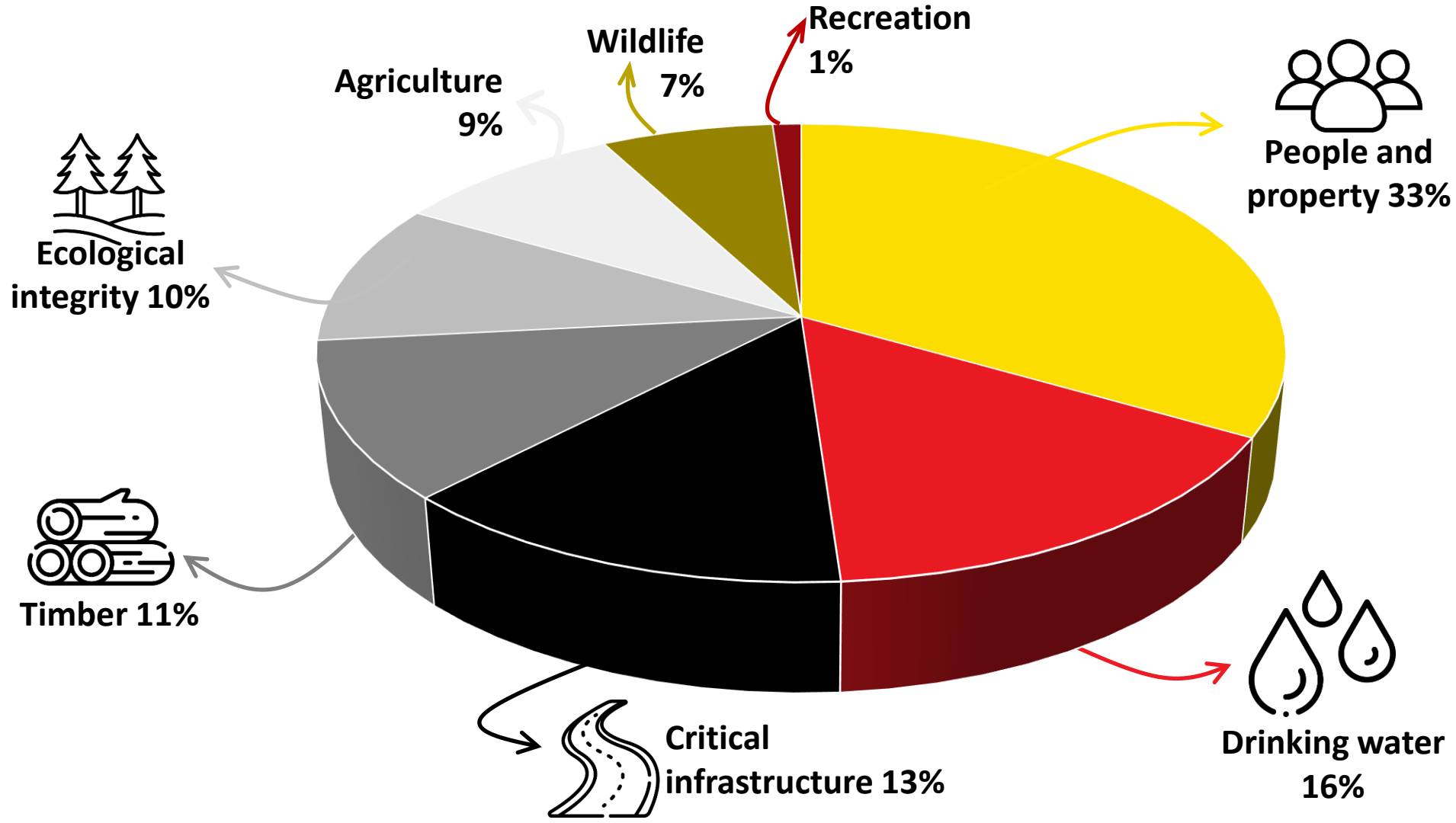
Risk Products

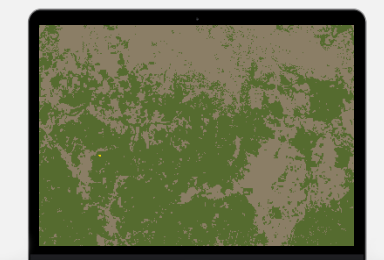




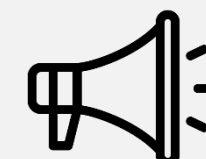
Integrated risk
Non-integrated risk
Expected risk
Conditional risk
Various secondary analyses

Relative importance



Relative importance of HVRAS

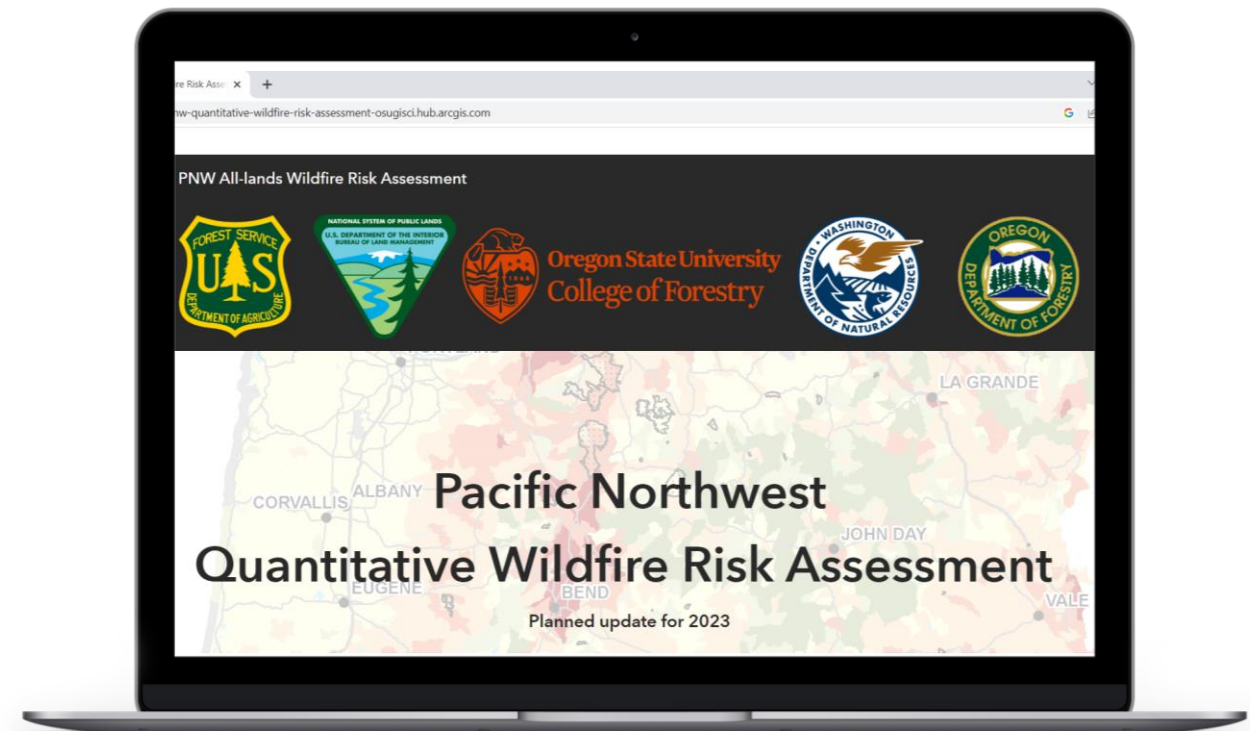


FIRE MODELING	HVRA DEVELOPMENT	RESPONSE FUNCTIONS	RELATIVE IMPORTANCE	ASSESSMENT AND QUALITY CONTROL	DISTRIBUTE ASSESSMENT PRODUCTS
2022	Fall 2022-now	March	Late Spring	Summer	Mid-October
<p>Fire modeling to produce burn probability and flame length maps</p> 	<p>Updating/mapping existing and new HVRA for Oregon and Washington</p> 	<p>Subject matter experts from state and federal agencies develop response functions for HVRA</p> 	<p>State and federal agency Leaders finalize a relative importance scheme</p> 	<p>Running the assessment, evaluating results, changes as needed</p> 	<p>Data products and technical report available to the public</p> 

Project webpage

PNW All-lands Wildfire Risk Assessment (arcgis.com)

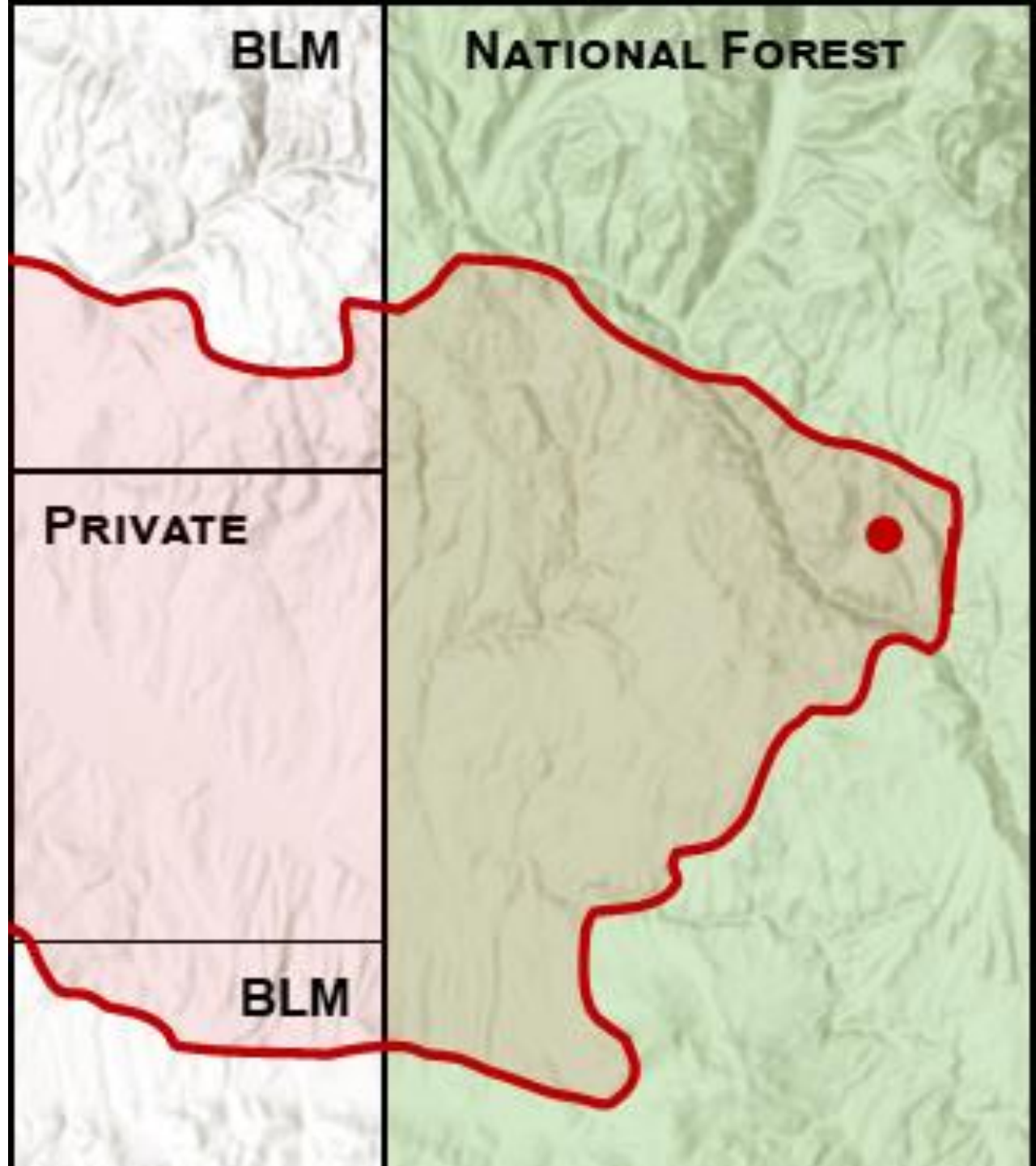
*Includes link to the mailing list for
project updates*

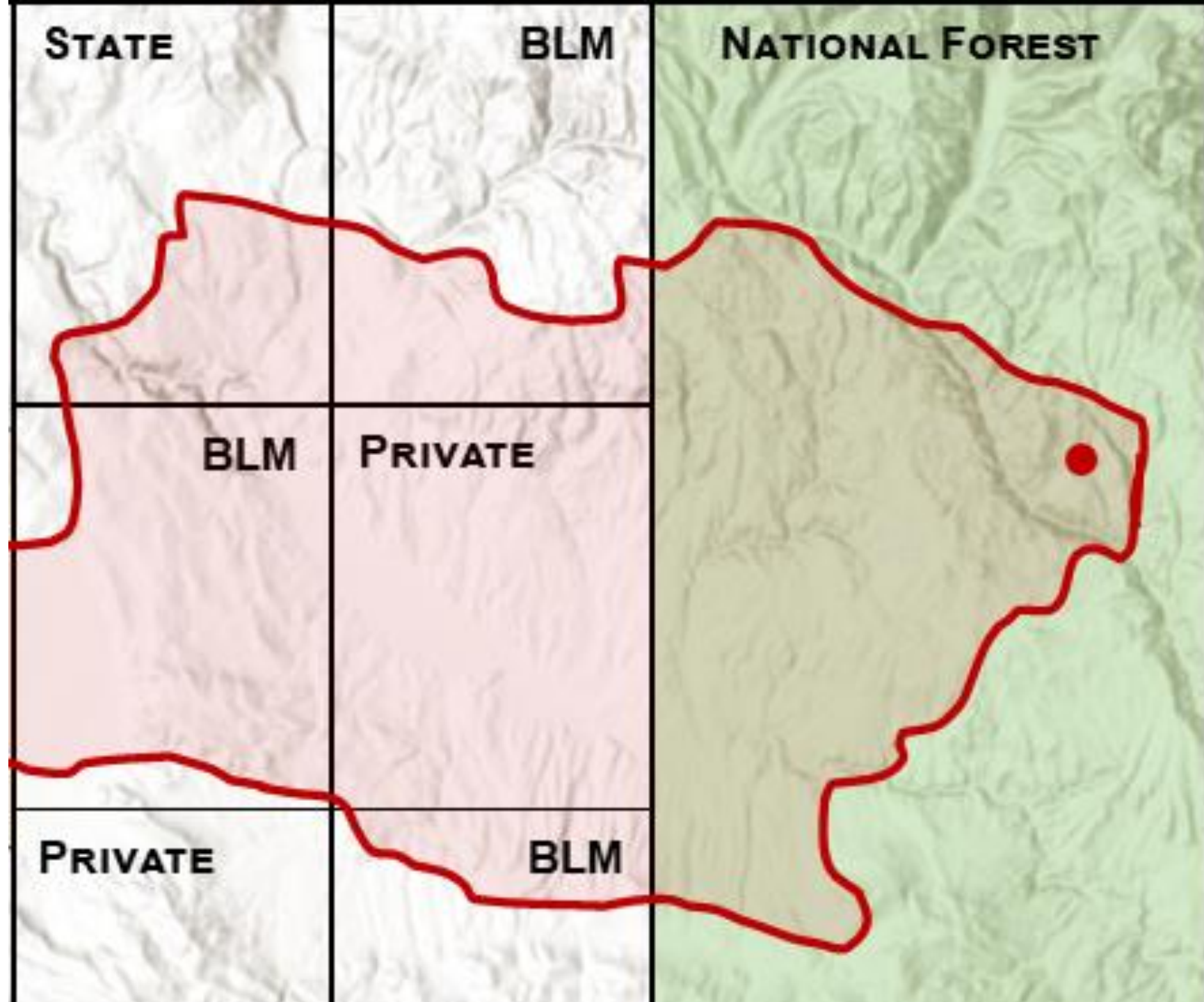


Wildfire risk and wildfire transmission

NATIONAL FOREST







URBAN INTERFACE

STATE

BLM

NATIONAL FOREST

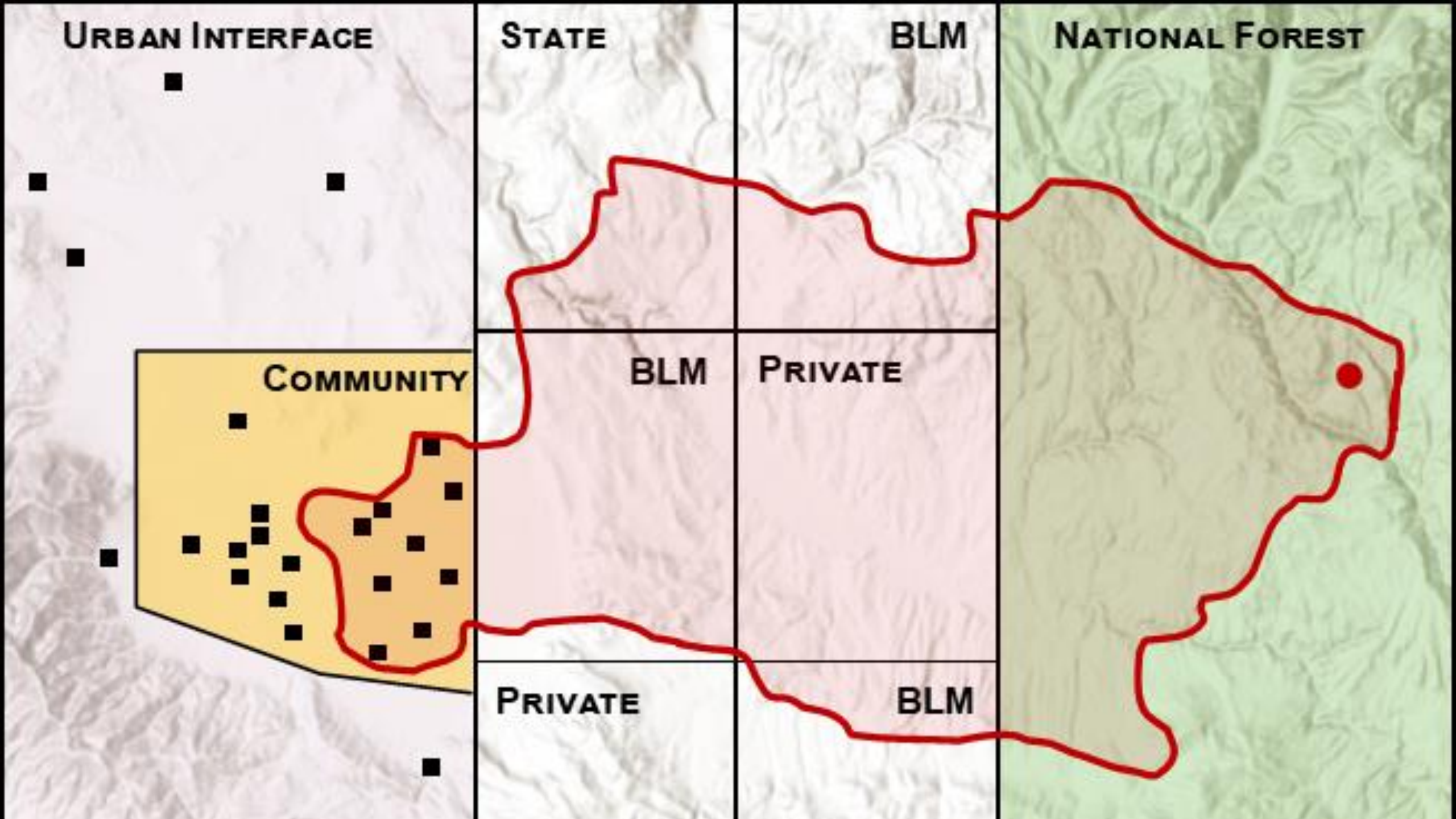
COMMUNITY

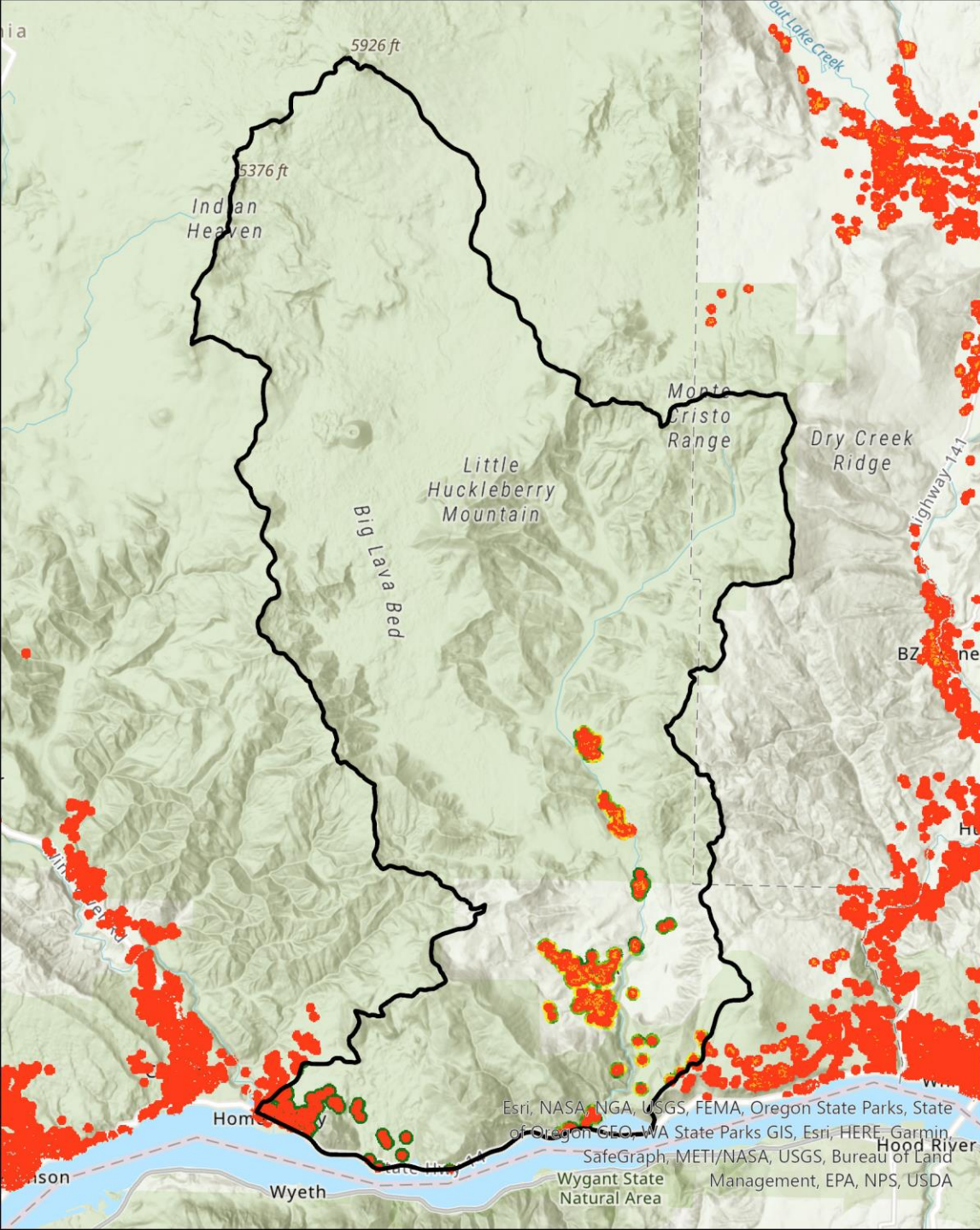
BLM

PRIVATE

PRIVATE

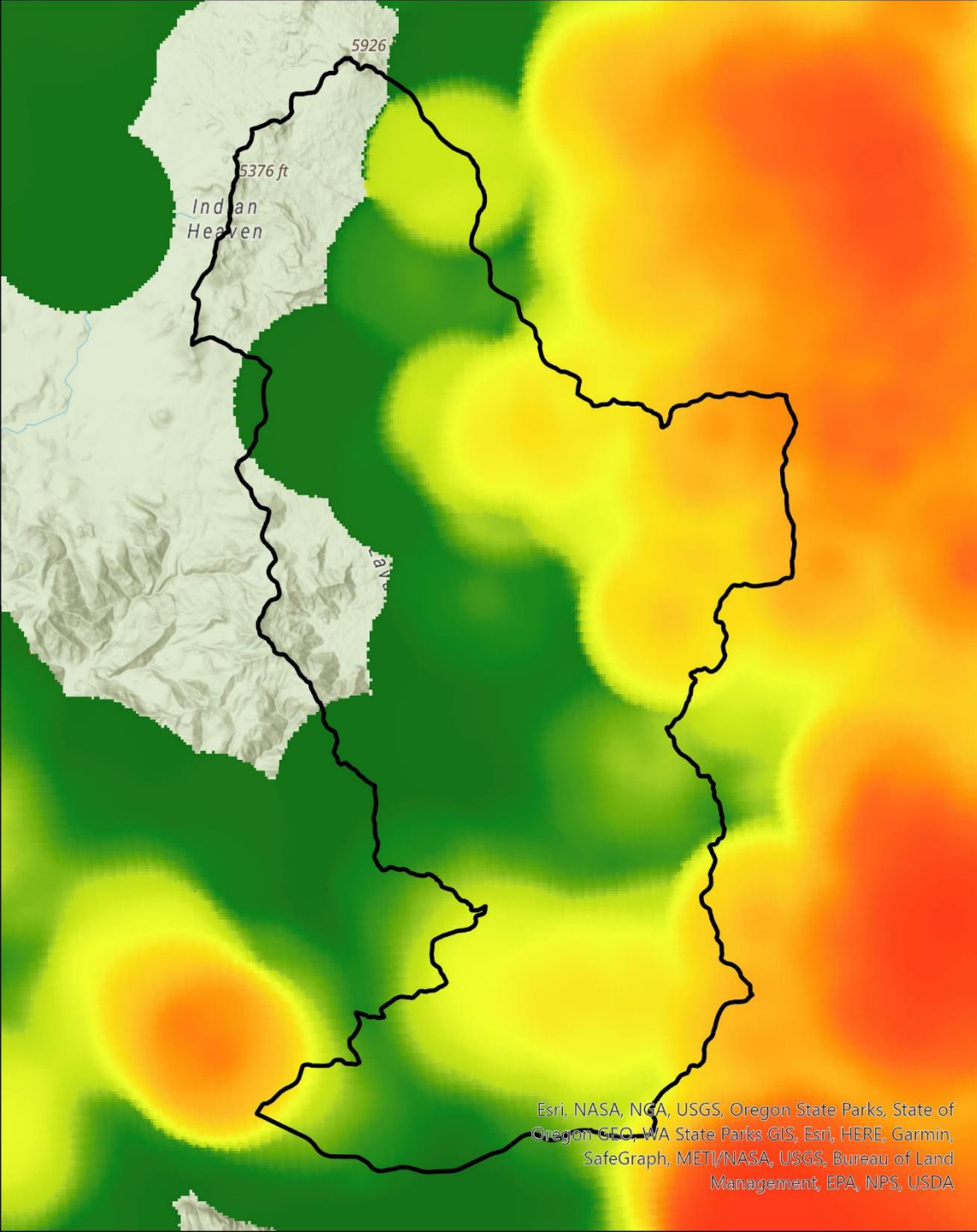
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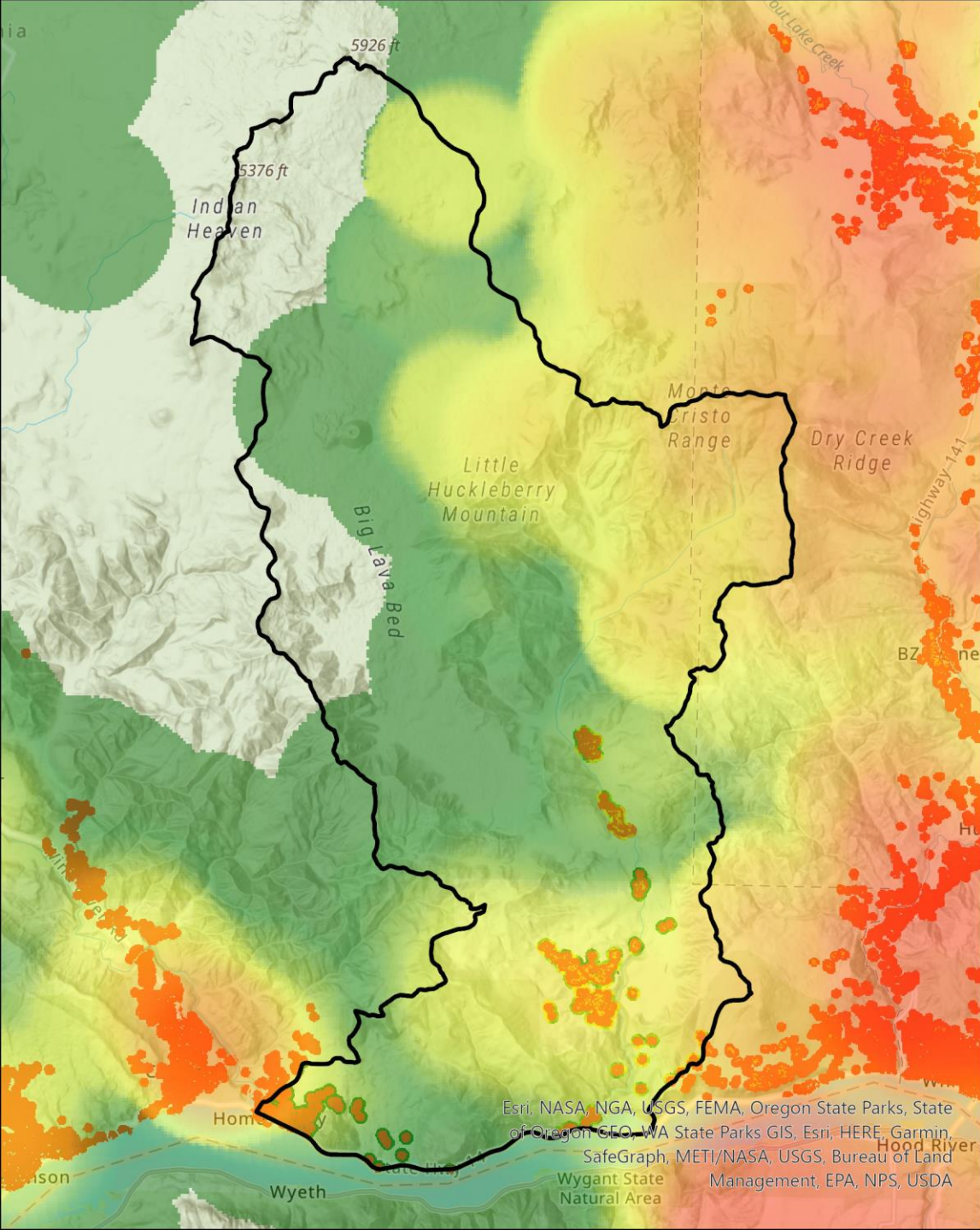
Wildfire risk to structures

In situ – you have risk where you have spatial overlap between hazard and the value at risk – in this case, structures but could be transmission lines, timber, habitat, etc.



Wildfire transmission to structures

Ex situ. Transmission maps the source of fire to the value at risk, which can be many miles away from where the resource is located. One can think of it as the third dimension of risk: source.



Risk

Hazard x Vulnerability x
Transmission

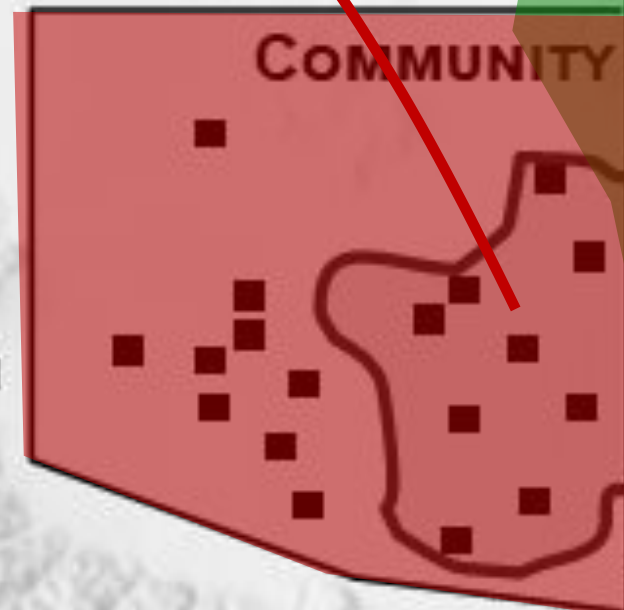
URBAN INTERFACE

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NATIONAL FOREST

Work on defensible space,
firewise communities
escape routes
etc



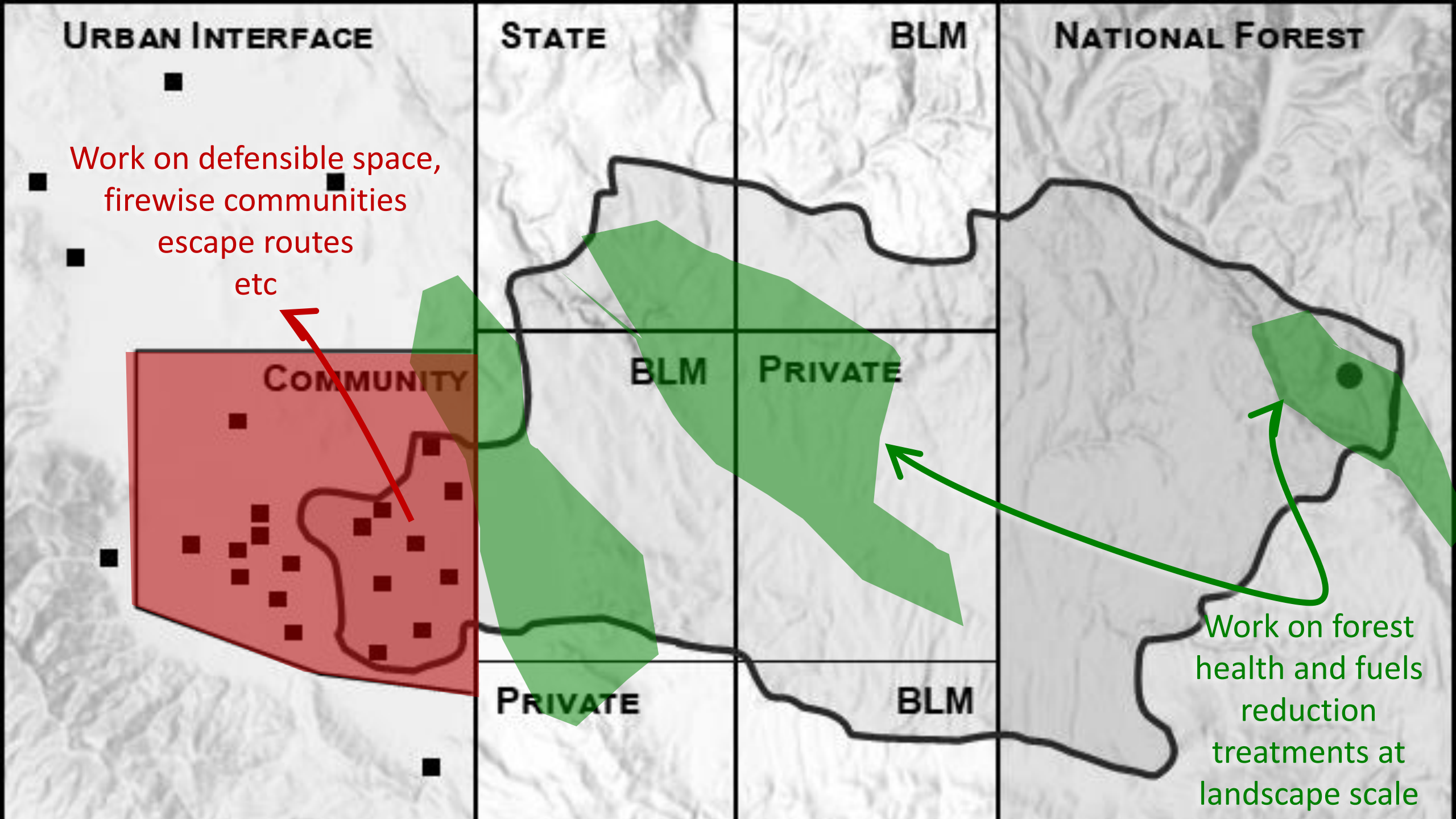
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Work on forest
health and fuels
reduction
treatments at
landscape scale



THANKS!

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