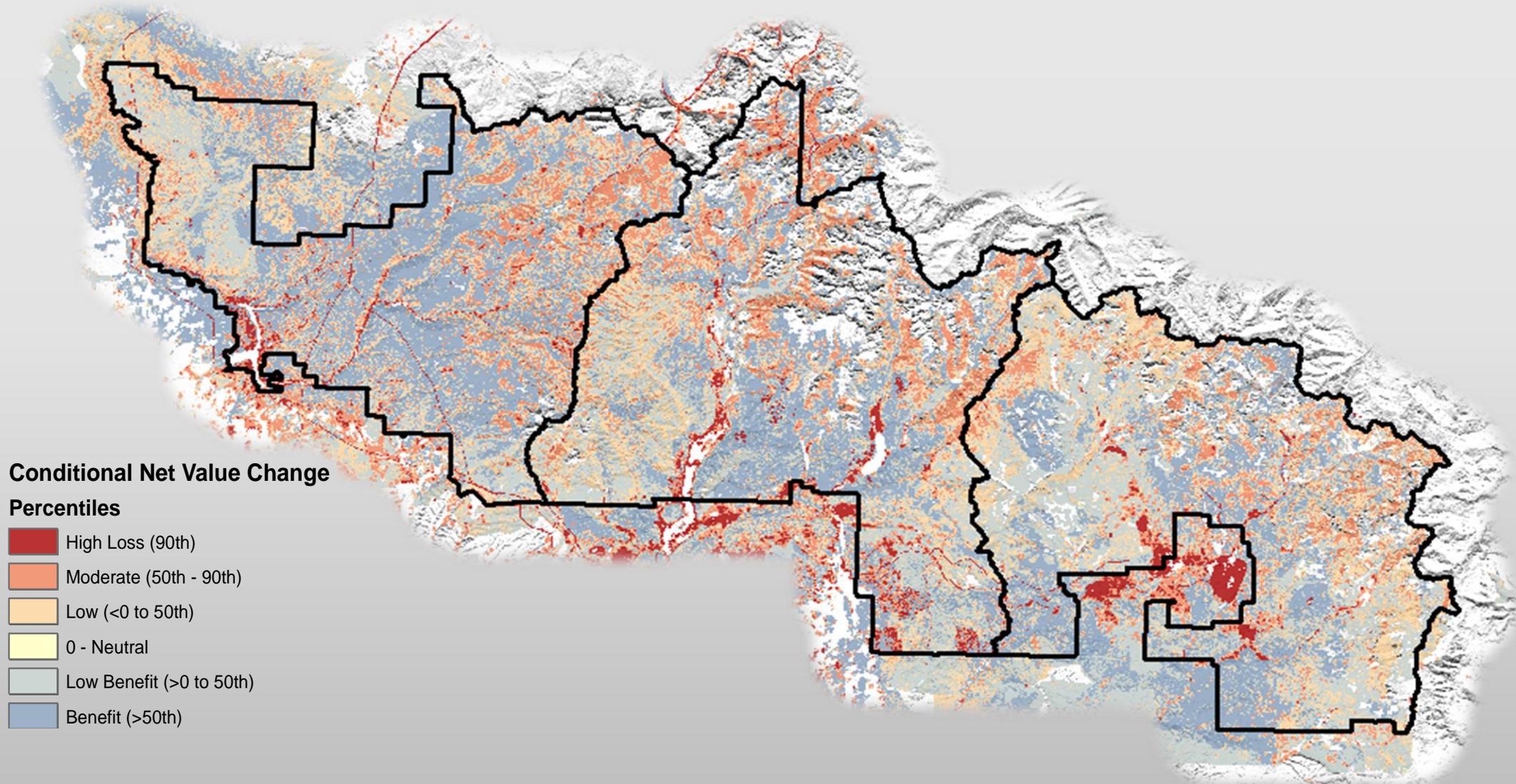


San Juan National Forest Quantitative Risk Assessment Salter Vegetation Management EA Specifics



Introduction to Wildfire Risk

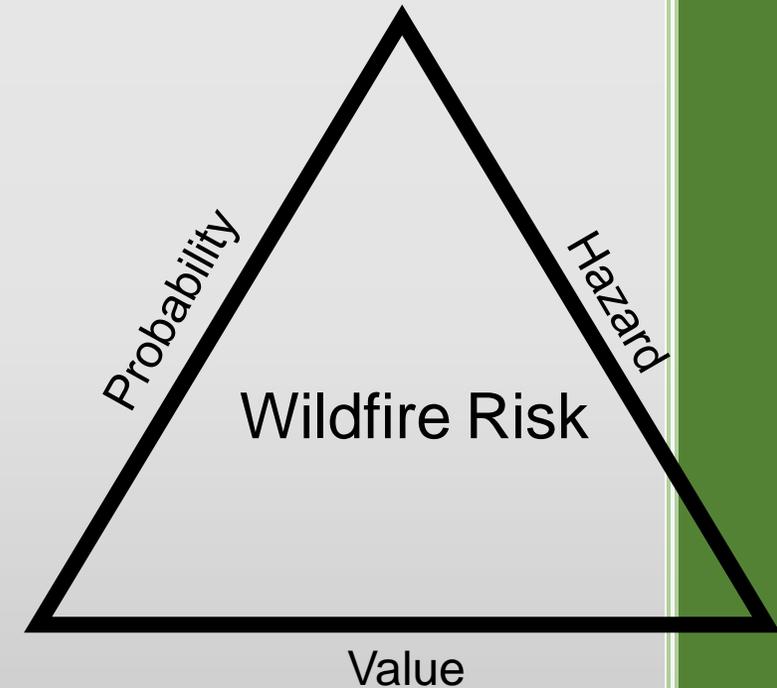
“A measure of the probability and consequence of uncertain future events,” Yoe, 2011

San Juan NF Quantitative Risk Assessment includes

- The likelihood of a fire burning
- The intensity of a fire if one should occur
- The exposure of assets and resources based on their locations, and
- The susceptibility of those assets and resources to wildfire

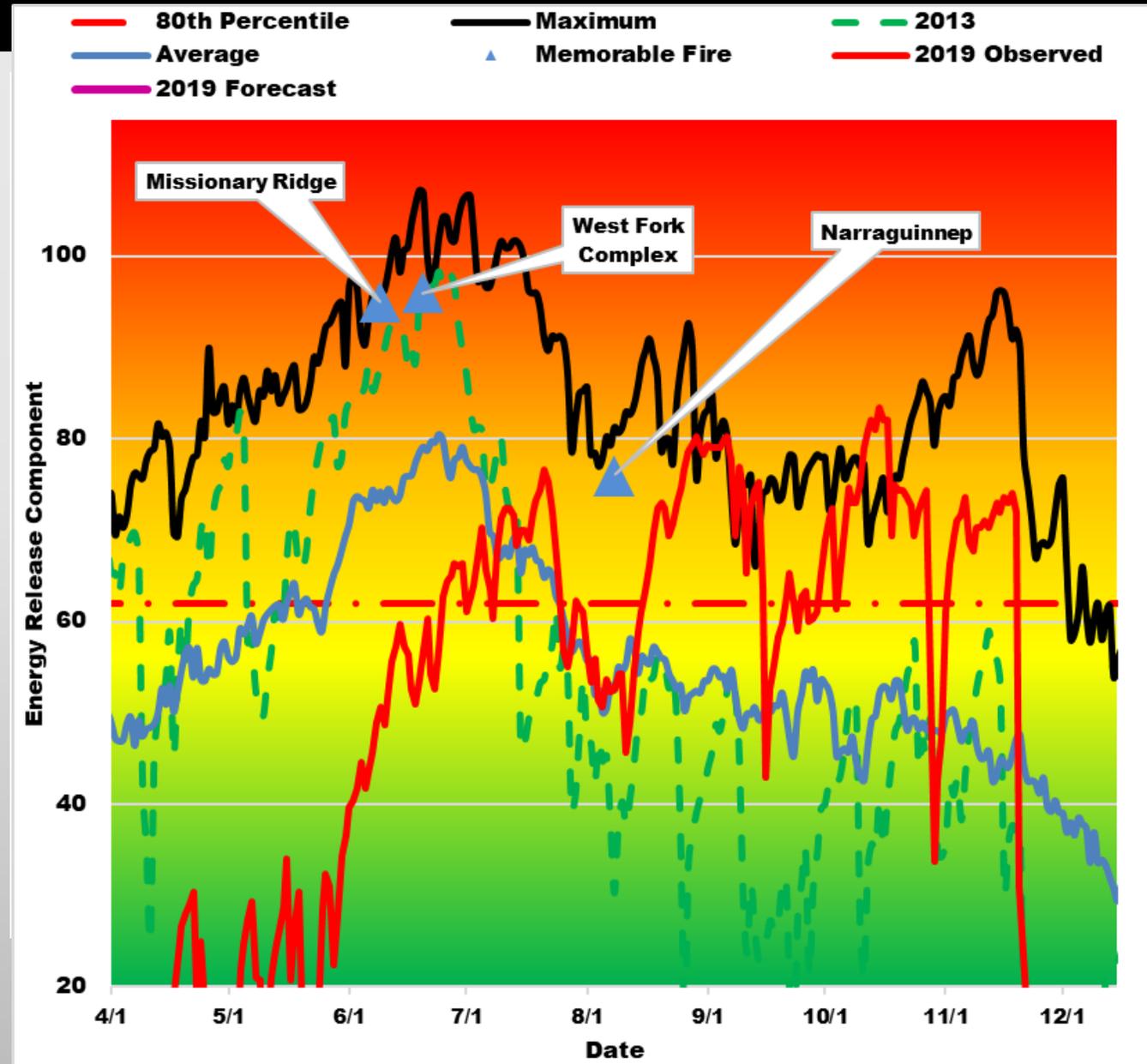
Risk is **both** positive and negative; there is a risk you will win the lottery, there is a risk you will be hit by lightning

Wildfire Risk displays the “net value change,” either positive or negative, of resources and assets to wildfire



Fire Model Accuracy

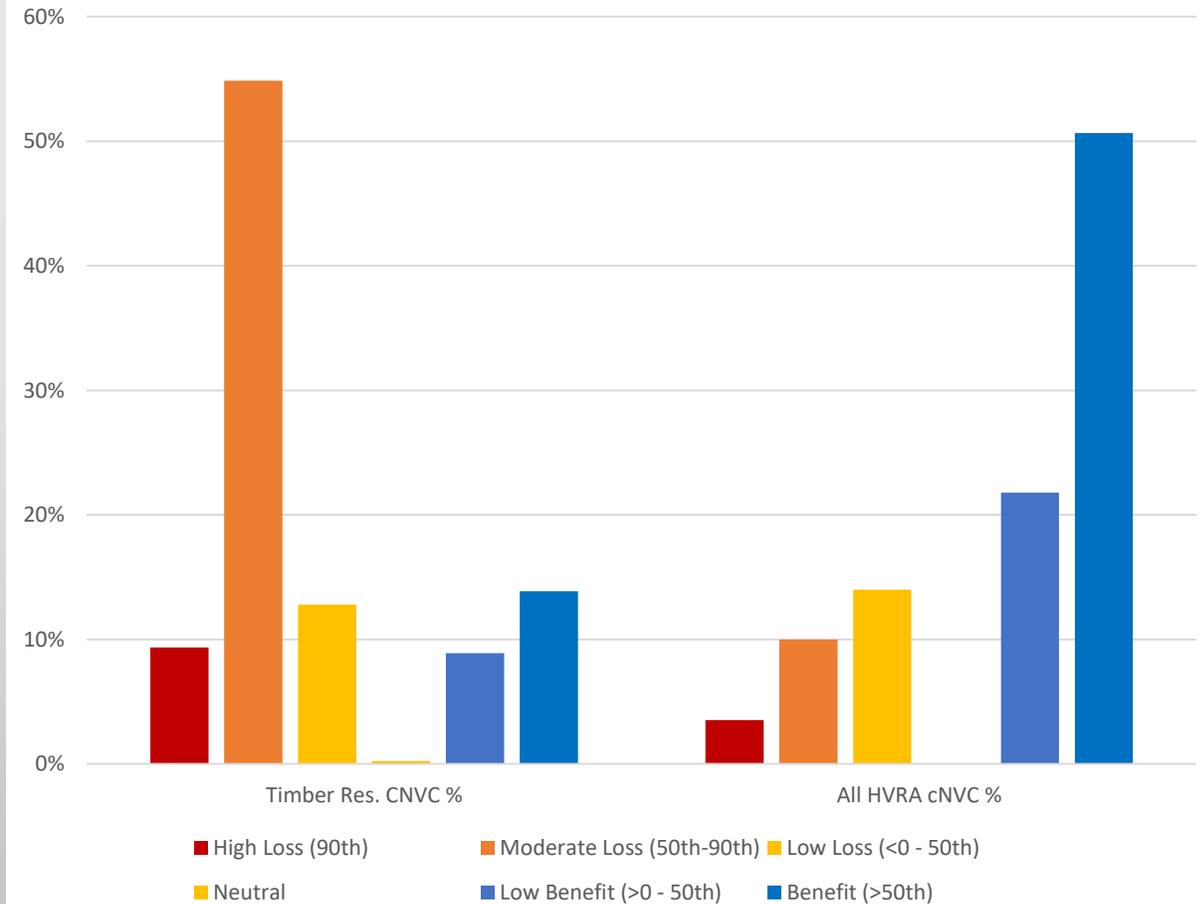
- Large Fire Simulator (FSim) models large fires above the 80th percentile ERC on a 2016 landscape
- Fires from ~300 to >200,000 acres are simulated on the SJNF and incorporated into QRA outputs
- Average expected area burned by large wildfires (>247 ac) per year within SJNF boundary is 4,060 acres
- Observed burned area/year since 2000 is 12,323 ac
- Observed burn rate is +2 Standard Deviations from mean
- 2020 FSim run will capture disturbances through 2019 and utilize even hotter and drier conditions
- *Observed fire occurrence on the SJNF is outpacing modeled results*



Summary

- Total cNVC gives decision makers a reasonable idea of expected threat/benefit of wildfires occurring above the 80th percentile ERC
 - It is not a panacea for all resource issues
- Relative Importance plays substantially into overall risk
 - An attempt to recreate tradeoffs made during wildfire decision-making
- Proactive work can and should both reduce threat and enhance benefit on a **landscape** to individual and combined HVRAs
- Vegetation management activities can reduce the hazard of different fire types depending on treatment type, likely reducing the potential intensity of future fires
- Results only apply to high end wildfire impacts on HVRAs

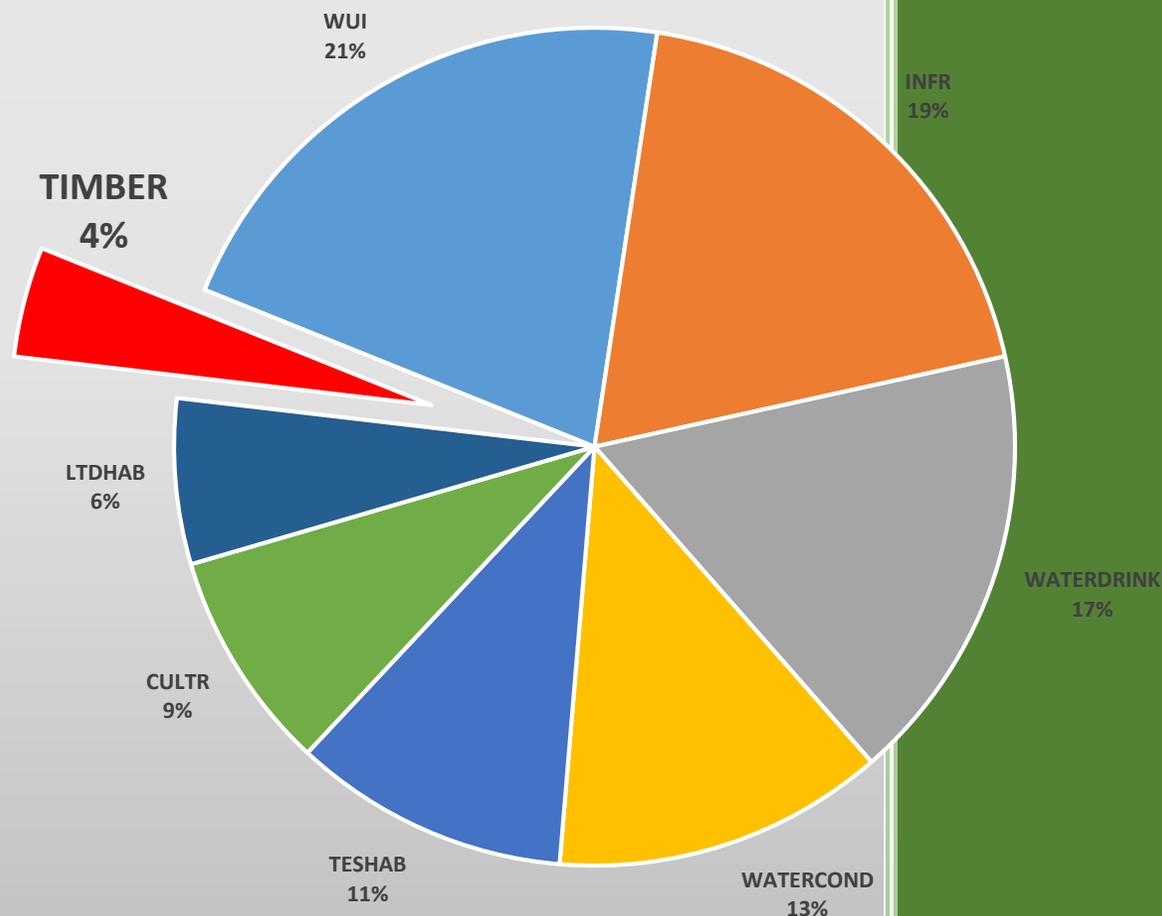
Comparison of overall cNVC vs. Timber Resources cNVC, Salter EA Area



Highly Valued Resources and Assets

- Assets – Human Made Features
- Resources – Natural Features
- SJNF – 12 different asset categories, 20 resource categories
- Relative Importance assigned per HVRA category, and again per sub-HVRA category.
- Relative Extent (how much area a mapped HVRA occupies) important to overall weighting
- ***Overall, Timber Resources (Suitable Base & Plantations) only get 4% of the relative importance pie***

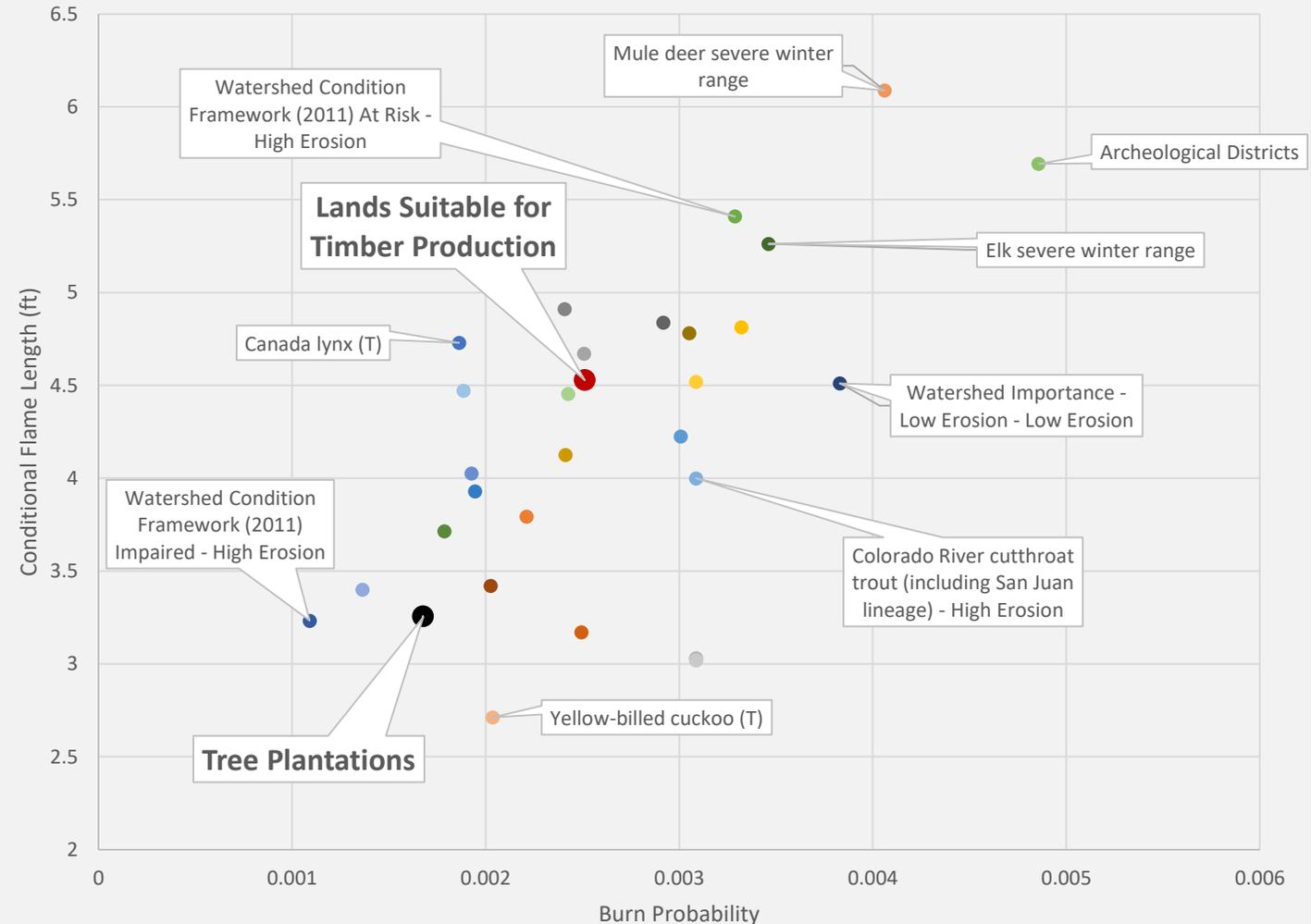
Overall Relative Importance of HVRAs on SJNF



Exposure Analysis - Resources

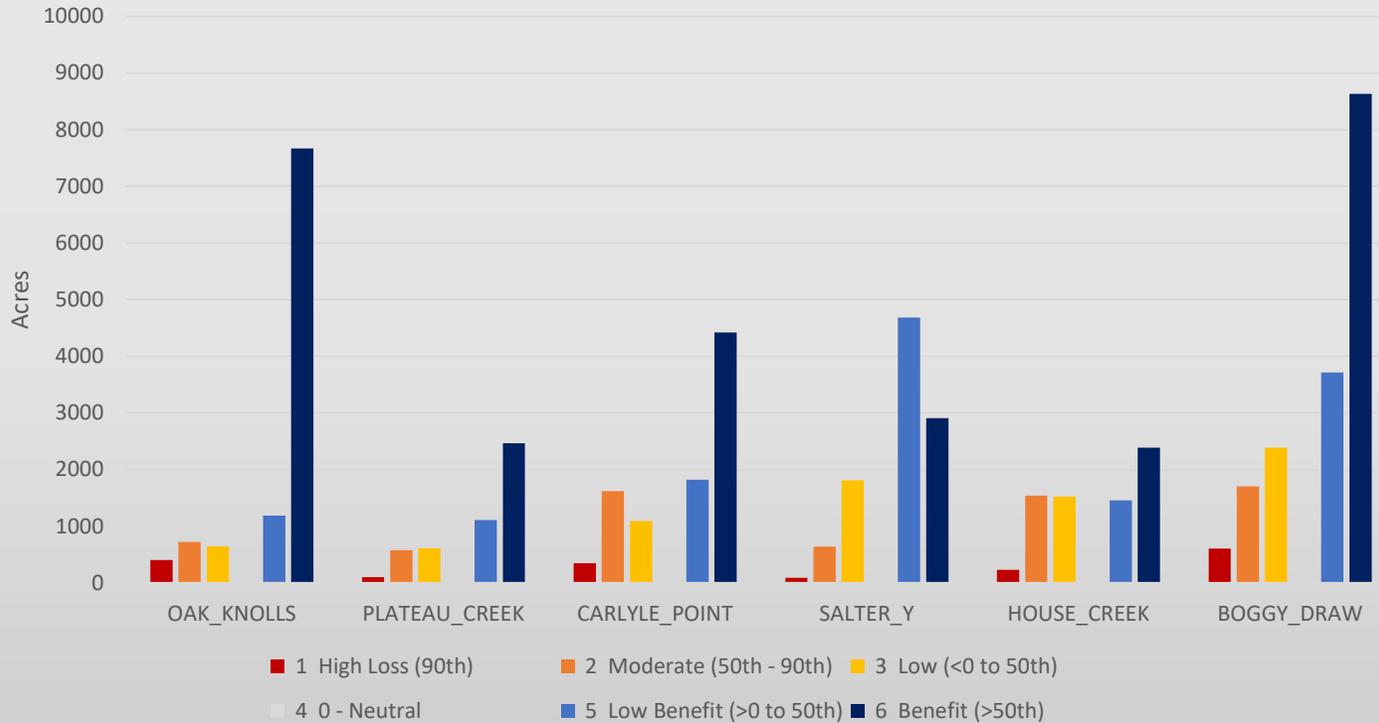
- Resources are much less highly valued than resources, but are prolific on the landscape (4.2m ac)
 - Timber is classified as a resource
- In an “average year,” expect approximately 11,900 acres to burn, with effects varying
 - Resources area burned is not discrete*
- The site characteristics of resources directly contribute to their exposure
 - Tree plantations – compact surface fuelbed, high foliar moisture content of short canopy – less exposed to wildfire
 - Suitable base generally burns at higher intensities than desired (<4' FL), with an expected 800 acres/year to burn
 - More exposed to wildfire due to site conditions

Chart 4: San Juan NF Resources Exposure Analysis

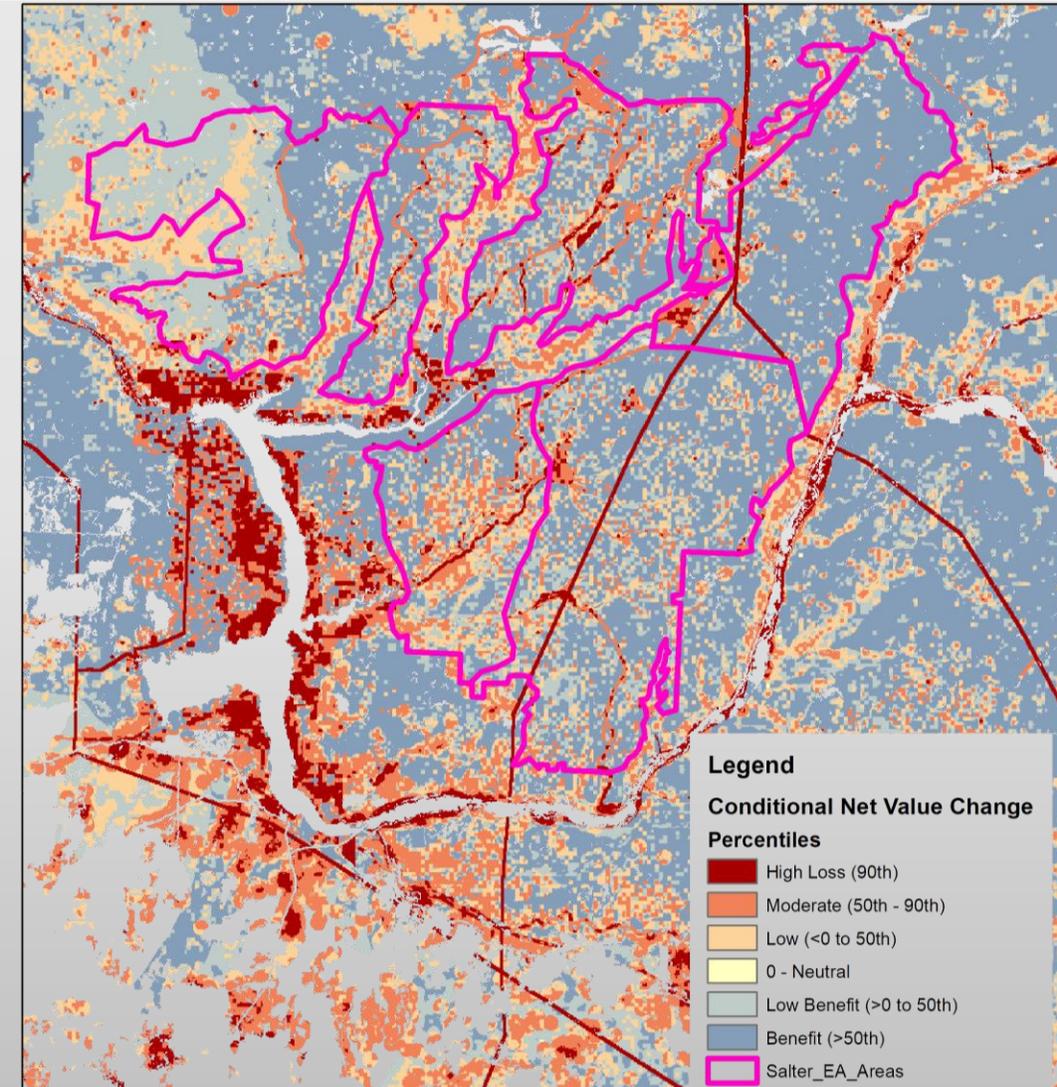


Effects Analysis – All HVRA's

Salter EA Conditional Net Value Change to Timber Resources from high end (>80th percentile) wildfires

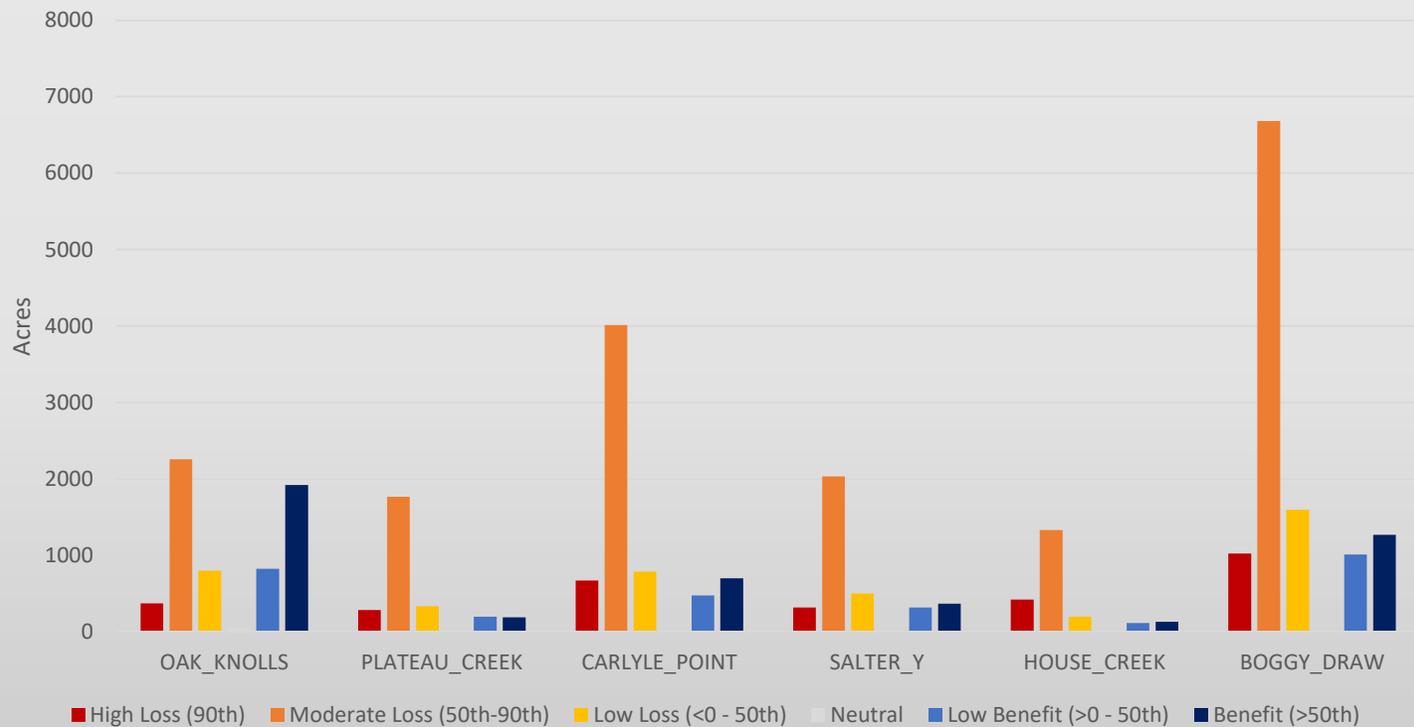


- In the full context of HVRA's, most of the Salter area is expected to benefit (72.4%) from high end wildfire
- However, relative importance clouds the impact that this would have on timber resources

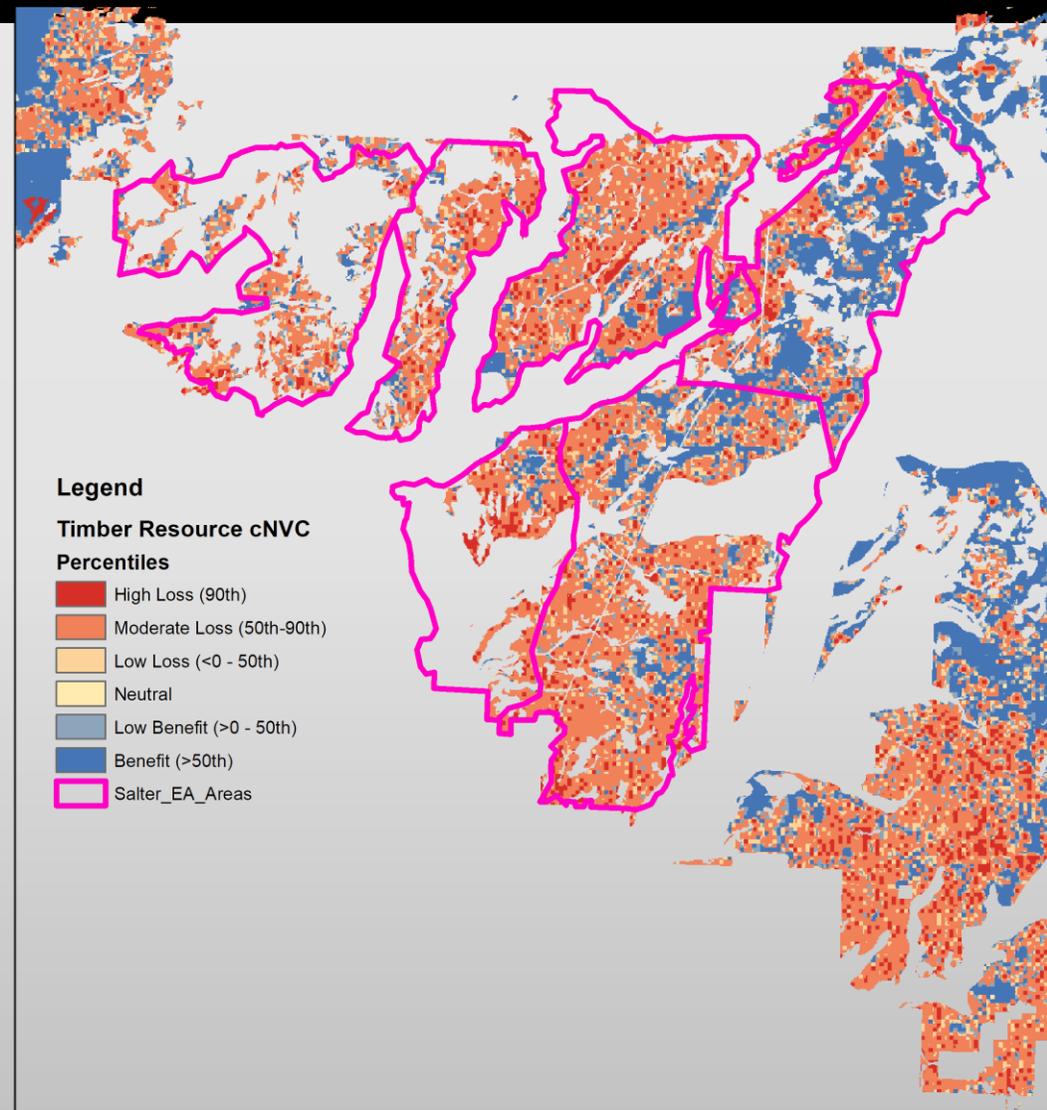


Effects Analysis – Timber Resources only

Salter EA Conditional Net Value Change to Timber Resources from high end (>80th percentile) wildfires

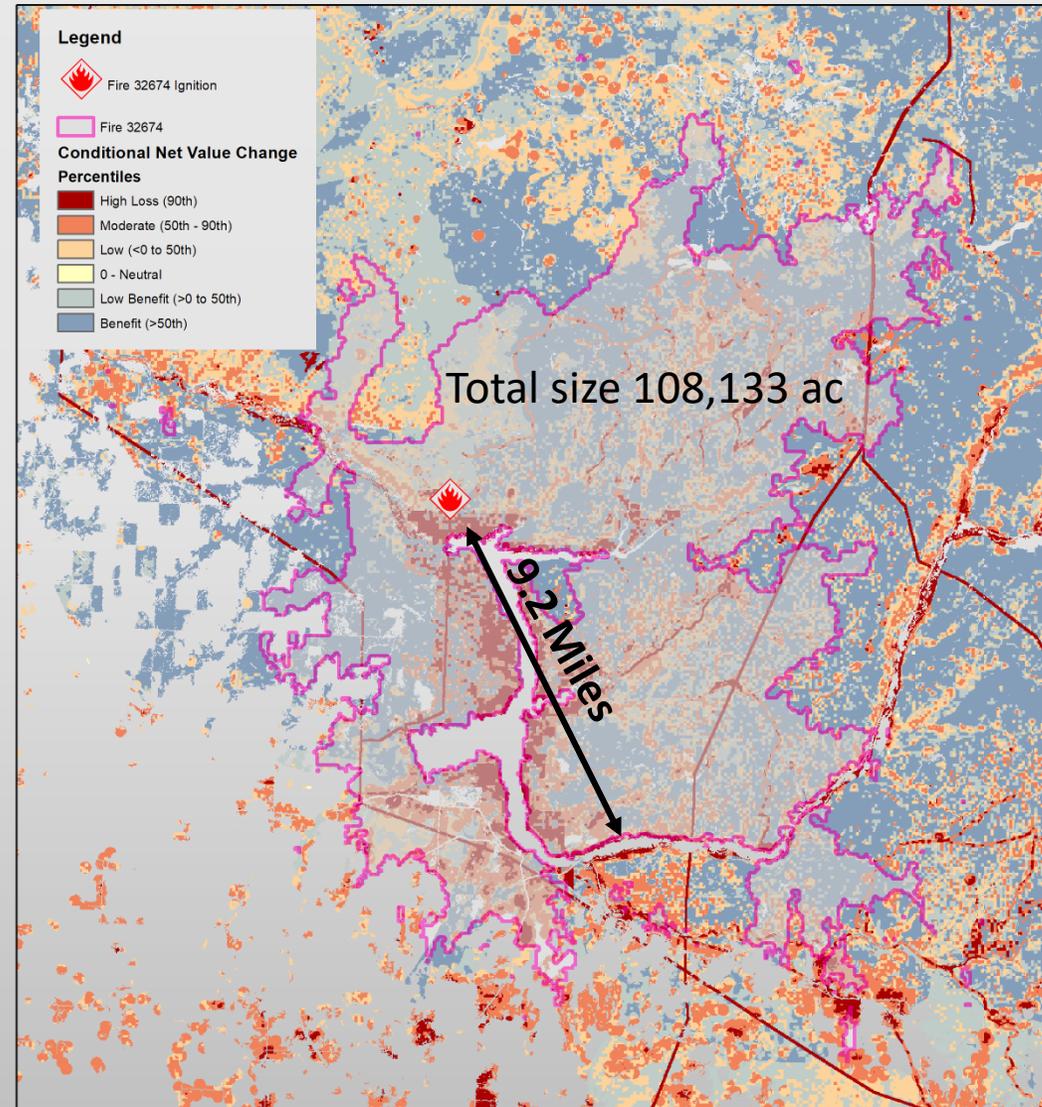


- Looking at only timber resources, 77% of the area within the Salter area would be threatened by wildfire, with only 23% benefitting



WUI Implications

- While WUI can be discretely located on the landscape, risk source and transmission are important to define a “WUI” treatment
- FSim shows fires over 100,000 acres as very possible in the area.
- Fires at this scale can start almost anywhere in the landscape and impact HVRAs very distant from ignition
- A fuelbreak right alongside the WUI would not be effective against a crown fire, or spotting distances at even 90th percentile conditions
- It’s important to treat the landscape, not just near assets
- The best WUI defense is improvement and maintenance of the Home Ignition Zone (Cohen, 2000)



FSim Fire 32674 Showing Origin and Modeled Spread