Managing Unplanned Ignitions for Resource Management Benefit in Klamath Mountains

Stacy Drury PSW Research Station,
Alan Taylor Pennsylvania State University,
Eric Knapp PSW Research Station
Project Idea

• Fire managers Shasta Trinity NF Looking for decision support on when to use unplanned ignitions

• Shasta Trinity goal to restore fire to its natural role on the landscape

• Asked us to take a look at the River Complex and assess the ecological effects of burning within the area
River Complex 2015

• July 30, 2015 dry lightning storm that caused 60 new fire starts

• By August 2\textsuperscript{nd} multiple fires burned together into River complex

• Final fire size $\sim 70,000$ acres, $\sim 62,000$ managed as a resource management fire
RAVG
(Ravage Assessment of Vegetation after Wildfire)
River Complex 2015
Currently uncertain under what conditions land managers can use unplanned ignitions to meet resource management needs

Questions:

• How long will a previous fire serve as a barrier to fire spread or decrease the fire intensity and subsequent fire severity of future burning?

• Under what climate and weather conditions can land managers successfully use unplanned ignitions to meet management goals?

• When should land managers in the Klamath Mountains expect unacceptable levels of high fire severity e.g. unwanted tree mortality?

• Are there drivers of fire severity that can be used to model fire severity in the Klamath Mountains?
Methods:

Use a combination of literature review, remote sensing, ArcGIS (QGIS?), and field plots to determine metrics useful for evaluating the potential to use unplanned ignitions.

- Install modified CBI plots across range of RAVG/MTBS burn severities
- Identify drivers of increased fire intensity and fire severity (such as vegetation type, fuel quantity, topography, previous fire severity)
- Model fire severity using Random Forest and sequential autoregression (SAR) modeling
Products

• Decision support guidelines for using unplanned ignitions in the Klamath Mountains – We will be working with Shasta-Trinity and other NFs units in the region

• Publications

• GIS based spatial model for evaluating burn severity – starting in the Klamath Mountains