

Combining Geospatial Fire Metrics in the southern Sierra Nevada: Looking at Vulnerability



National Park Service
US Department of the Interior



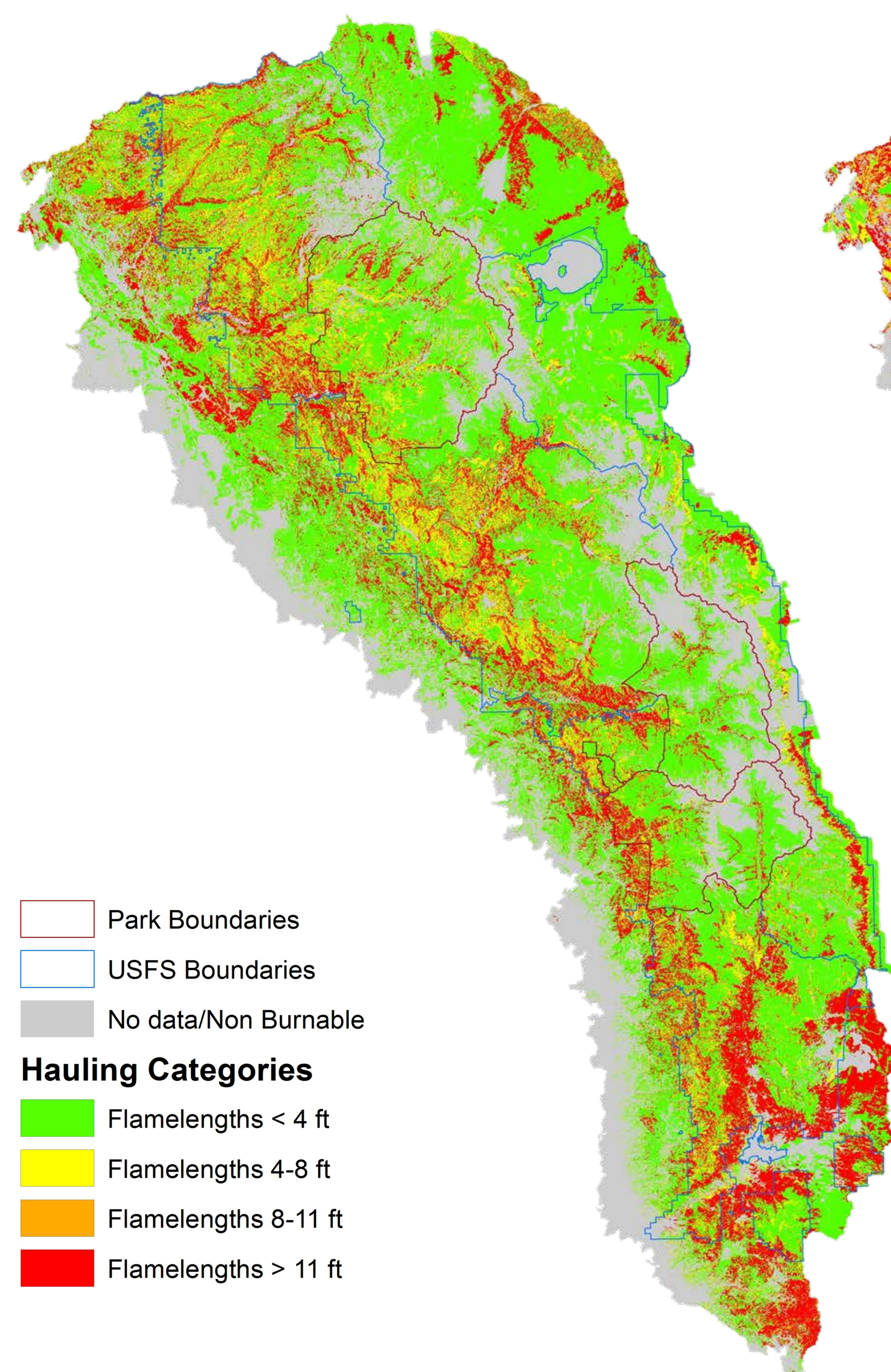
Karen Folger, GIS Specialist, National Park Service, Sequoia and Kings Canyon National Parks (karen_folger@nps.gov)

Predicted
Flamelength

Fire Return Interval
Departure

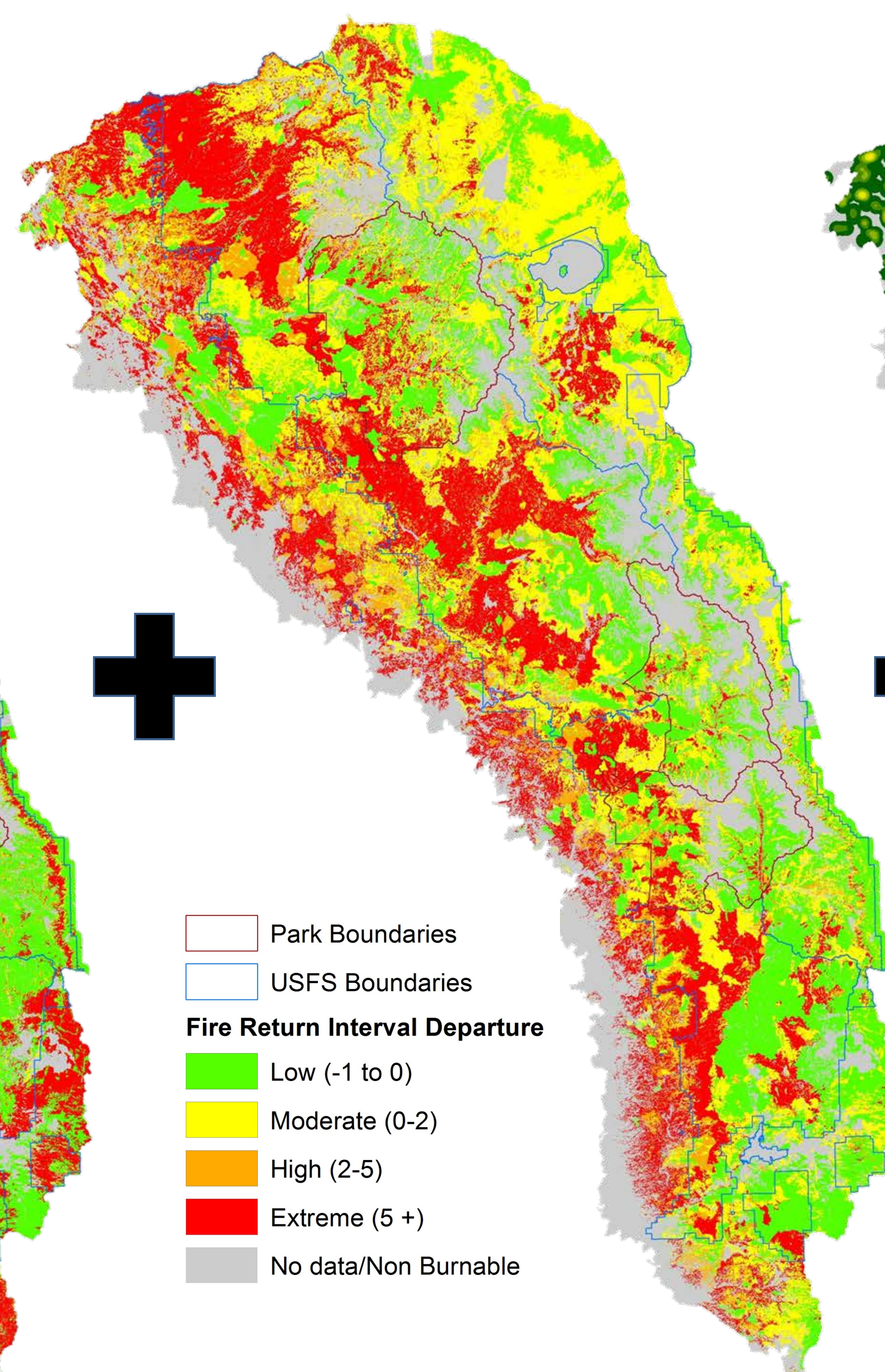
Fire Occurrence
Areas

Fire Vulnerability



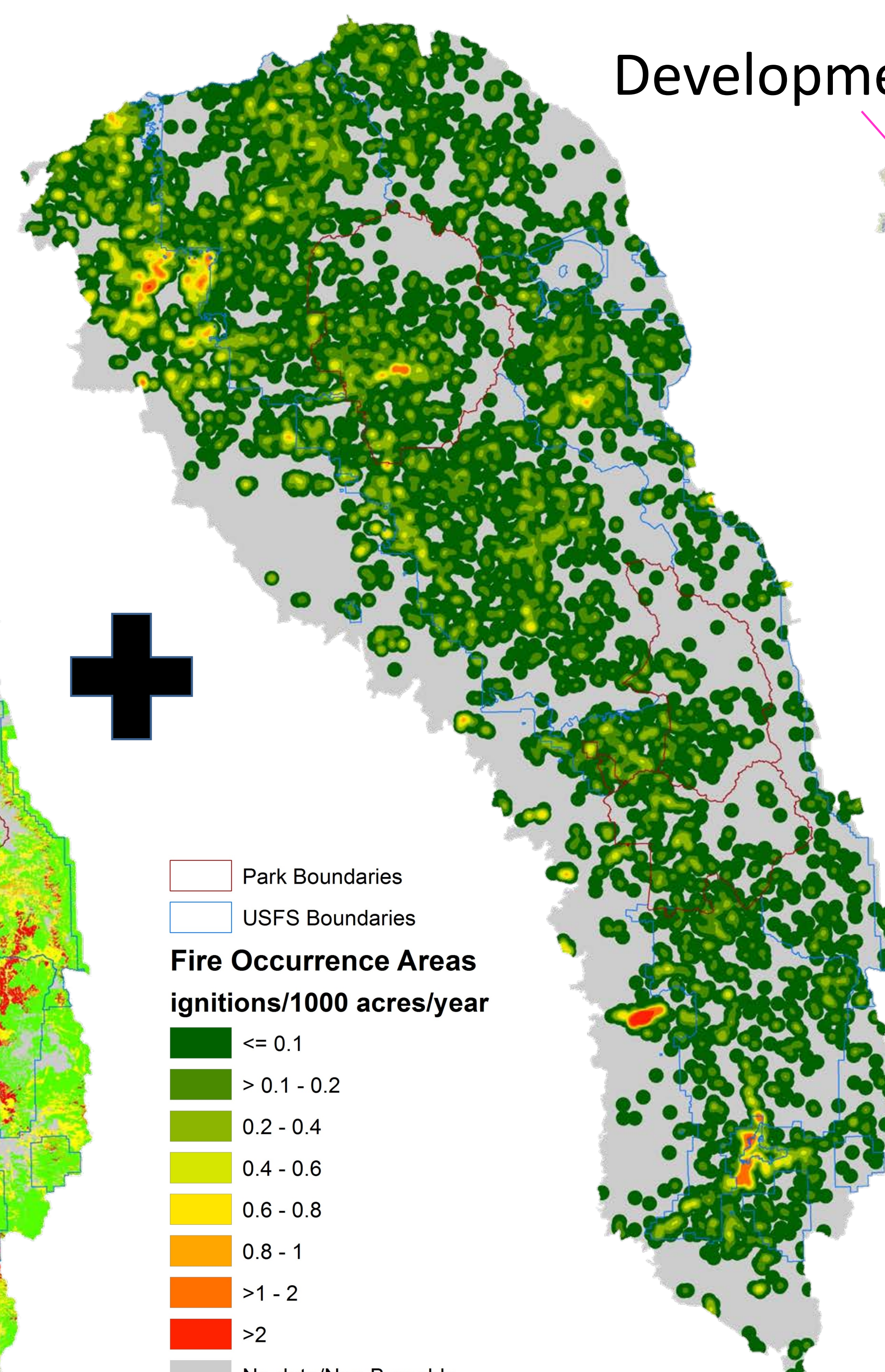
Classes 2,4,6,8

Flammap requires data layers for Terrain (Aspect, Slope, Elevation) plus Fuel models, Canopy Cover, Canopy Height, Canopy Base Height, and Crown Bulk Density. Additionally we used 10mph uphill winds and extreme fuel moistures in the model to create the output shown.



Classes 2,4,6,8

Fire Return Interval Departure (FRID) measures the departure of an area from its pre-Euroamerican fire return interval. Data depicted here is derived from the USFS FRID created by the Region 5 Remote Sensing Lab and modified to use the NPS departure classes.

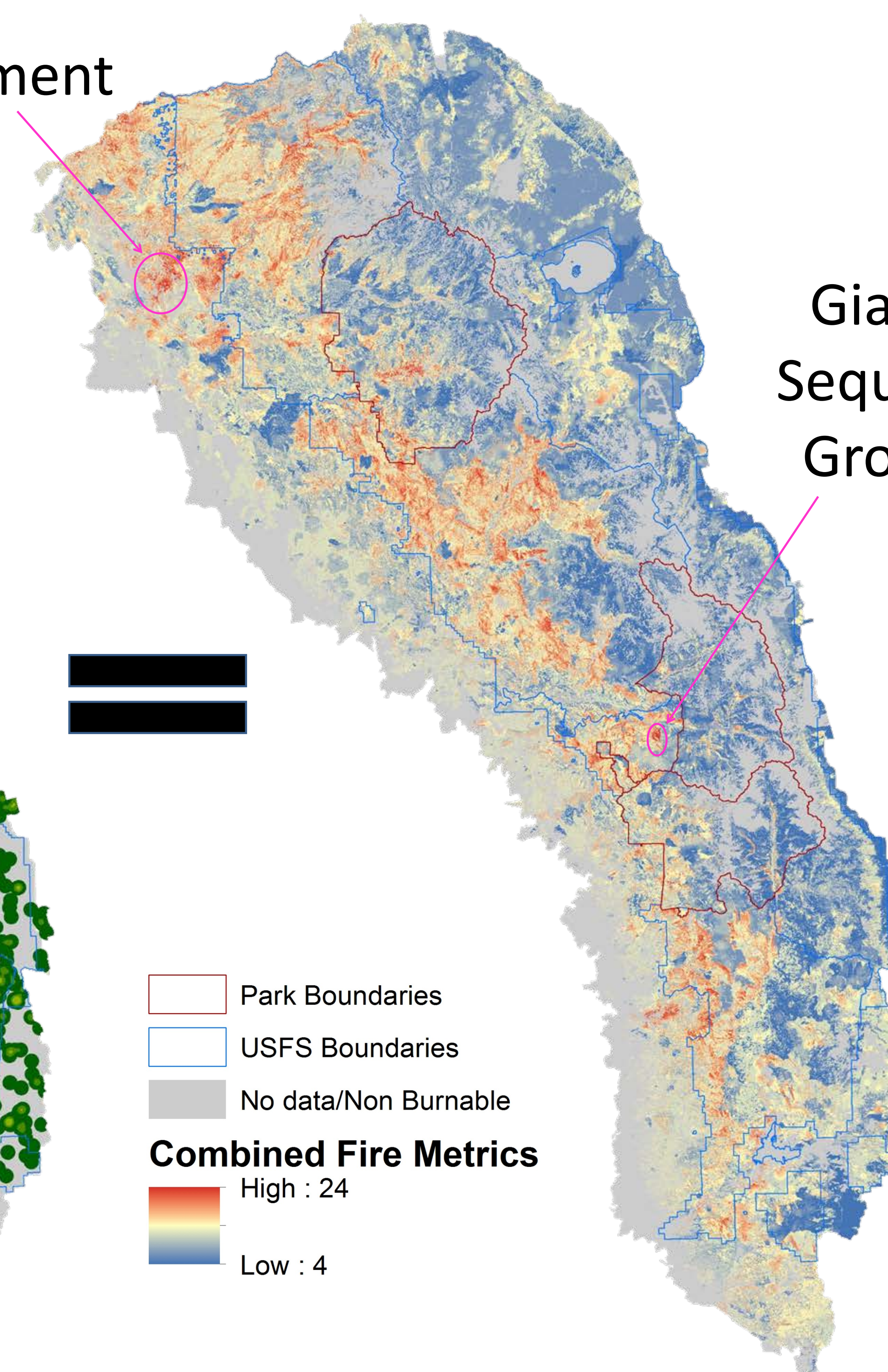


Classes 1-8

Fire Occurrence Areas are created from point ignition source data. The ignitions used for this run were from a national dataset available from a 10 year period (1999-2008). The point density analysis then calculates how many ignitions occurred in 1000 acres per year.

Development

Giant
Sequoia
Grove



Adding together the classified results of the previous models can give resource managers an idea of areas on the landscape that may be more vulnerable to catastrophic fires. Combined with other areas of interest, like development or Giant Sequoia Groves these results can help managers prioritize work.

Additional information on the specifics of any of these methods can be obtained by contacting the author above. Thanks to the US Forest Service Region 5 Remote Sensing lab for providing much of the data used in these analyses. The area of analysis is the Protected Area Centered Ecosystem boundary, which runs from the Stanislaus National Forest in the north, parts of the Humboldt-Toiyabe National Forest, western portions of the Inyo National Forest on the eastside, includes Yosemite National Park, Sequoia and Kings Canyon National Parks, west to include the edge of the foothills, and south to include Sequoia National Forest and down to Highway 58.