



June 28, 2019

Jonathan Tucker, NEPA Planner  
Willamette National Forest, Middle Fork Ranger District  
46375 Highway 58  
Westfir, OR 97492

**RE: Young-Rigdon Scoping Comments**

Dear Jonathan,

My lab at Oregon State University College of Forestry is engaged in research to describe historical fire patterns in a study area in the Upper Middle Fork Willamette River that includes the Young-Rigdon planning area (see Figure 1). I wanted to share some preliminary findings of this research in the hopes it would inform the Young-Rigdon planning effort. Research is ongoing and these results are preliminary and will be refined over the next 6-12 months.

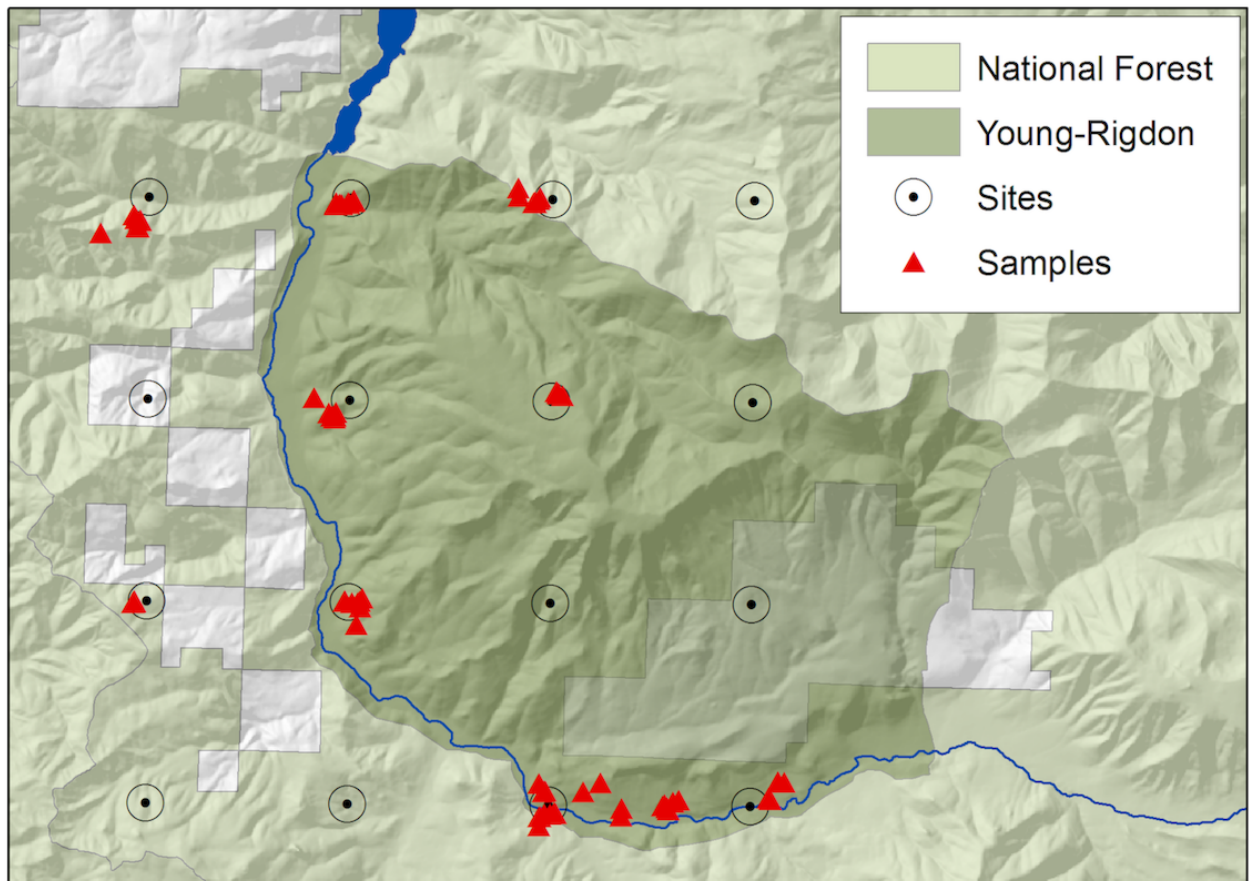
As of this date, we have reconstructed fire histories at 10 of 16 plots where we plan data collection. Preliminary analysis demonstrates that fire historically burned more frequently than suggested by theory and previous studies throughout most forest types within the upper Middle Fork Willamette watershed. Table 1 shows reconstructed mean fire return intervals (MFRI) for different forest types in which we've collected data (see also Figure 2).

<b>Forest type</b>	<b>Description</b>	<b>MFRI</b>
Dry pine with oak	Former oak-pine savannah seral to Douglas-fir	5
Dry pine	Former open pine stand seral to Douglas-fir	8
Dry Douglas-fir	Dry mixed conifer forest seral to grand-fir	14
Mesic Douglas-fir	Old-growth Douglas-fir seral to western hemlock	55
Silver fir	Old-growth Douglas-fir seral to silver fir or mountain hemlock	190

*Table 1. Preliminary reconstructions of mean fire return intervals (in years) in five different forest types. MFRI are an average of 1-3 different data collection points.*

We define dry pine stands as those stands that have relic old-growth ponderosa pine. All of these stands have experienced extensive infill of 80-150 year old Douglas-fir. Dry pine with oak stands are similar except that they include Oregon white oak (often dead after being overtopped by Douglas-fir). We define dry Douglas-fir stands as those stands that are dominated by Douglas-fir but also have some incense cedar and sugar pine and where oak and ponderosa pine is absent. Mesic-Douglas fir stands are dominated by Douglas-fir but also have western hemlock and/or western red cedar. Silver fir stands are dominated by Douglas fir but have true firs and mountain hemlock.

It is notable that all forests where we've collected data except the highest elevation portions of the upper Middle Fork watershed historically experienced fire at intervals that are more frequent than the time elapsed since fire was excluded from the landscape in the late 1800s. All of the stands where we collected data had relatively extensive cover of older (300+ year old) trees, suggesting that historical fire severity was often, if not typically, non-stand replacing. Specific silvicultural prescriptions should be informed by management goals. Restoration of historical successional and disturbance dynamics would involve removal of many if not most of the trees that infilled in stands since fire was excluded from the landscape.



*Figure 1. Map showing location of data collection efforts south of Oakridge (digital map was last updated in February, additional data collection has taken place since then).*



Figure 2. Examples of forest types where we've reconstructed historical fire regimes. From top left clockwise: Dry pine with oak, dry pine, mesic Douglas-fir, dry Douglas-fir. Not shown: Silver fir.

Please let me know if I can answer any questions or be of any assistance.

Sincerely,

A handwritten signature in black ink that reads "James". The first letter "J" is large and stylized, with a loop that extends to the left.

James Johnston, PhD  
Research Associate, Oregon State University