JFSP Project Number: 2005-02-local needs (Red Mountain Mastication Study)

Principal Investigator: Dr. Jo Ann Fites

2006 Progress Report

1. **Why is the research important from your perspective?**

Managers are increasingly applying mastication treatments with outcomes in terms of subsequent fuel rearrangement and surface fuel loading that is a concern to fire managers. This is a treatment that is particularly applied in WUI areas or where air quality is a concern. It is a concern to silviculturists, wildlife biologists, soil scientists and other resource specialists when masticated material is burned because there can be higher tree mortality and heat pulse to the soil. Managers need more quantitative information on the potential effects of mastication on fuels, fire behavior, and fire effects in order to have more informed environmental analysis on the tradeoffs with other treatments that are better known (e.g. thinning and prescribed burning). This research is also important because we are comparing several practical ways to measure masticated surface fuels that are not adequately captured by typical Brown's planar intercept techniques. Finally, we are working on a manager's guide on mastication that synthesizes current information and on-going research by others on mastication.

2. **How will managers and practitioners use this research?**

They will be able to directly apply the recommendations for practical ways to inventory masticated fuels. They will be able to utilize the information on the changes in fuel configuration and loading from mastication, measured fire behavior during prescribed burns and tree mortality with pullback of masticated material or not from trees in project level plan development, environmental document analysis (NEPA) and fire management plans. Specifically, there are no fuel models currently available specifically for characterizing potential fire behavior in masticated fuels, even amongst the new Burgan and Scott expanded set. This study will provide one to several applicable fuel models to apply to masticated fuels.

3. **Is the work applicable at local, regional, or national scales and why?**

Although this has a local focus in ponderosa pine plantations in the southern Sierra Nevada, we believe it is applicable to mastication in other areas where ponderosa pine saplings and poles and shrubs are the primary plants masticated. This study does not attempt to address decomposition, which would vary regionally and nationally depending upon climate. A key aspect that is applicable nationally is the measured fire behavior—our study has greater rigor in a full suite of fire behavior measurements than other studies that we are aware of that tend to focus primarily on temperature.

4. **Please provide contact information for three managers or field practitioners who can provide testimonials of how they use your research findings for each JFSP project (Name, Title, Organization, Phone number, and E-mail).**

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