



SNAMP Fire and Forest Health Integration Team meeting 2-17-2010, Davis CA

## Read Ahead Resources

### ***Results to be presented by Dr. Brandon Collins:***

Collins, B., Stephens, S.L., Moghaddas, J.J. and J. Battles. 2010. *Challenges and Approaches in Planning Fuel Treatments across Fire Excluded Forested Landscapes*. Journal of Forestry, January/February 2010. Page 24-31.

Placing fuel reduction treatments across entire landscapes such that impacts associated with high-intensity fire are lessened is a difficult goal to achieve, largely because of the immense area needing treatment. As such, fire scientists and managers have conceptually developed and are refining methodologies for strategic placement of fuel treatments that more efficiently limit the spread and severity of fire across forested landscapes. Although these methodologies undoubtedly improve managers' ability to plan and evaluate various landscape fuel treatment scenarios, there is still a considerable gap between modeling landscape fuel treatments and actually implementing these treatments "on the ground." In this article we explore this gap in light of decisions managers make with regards to the type, intensity, placement/pattern, and size of fuel treatments. Additionally, we highlight several critical constraints acting on managers when implementing fuel treatments across landscapes and offer some suggestions for dealing with these constraints.

This paper is available for a fee at <http://saf.publisher.ingentaconnect.com/content/saf/jof>. This paper is reviewed at the following website for no fee: <https://sites.google.com/site/foreststewardship/january-15-2010>

Abstract available at: <http://snamp.cnr.berkeley.edu/news/2010/jan/25/brandon-collins-et-al-publishes-challenges-and-app/>

### ***Results to be presented by Dr. David Saah:***

Saah, D., Battles, J.J., Stephens, S., Stine, P., Moritz, M., Hunsaker, C., Collings, B., Moghaddas, J., Ganz, D.J., Menning, K., Deniz, K., and T.K. Rugen. 2009. Meta-analysis of fire hazard assessments within the Sierra Nevada of California. Presentation to the 94<sup>th</sup> Ecological Society of America Annual Meeting, August 2<sup>nd</sup> to 7<sup>th</sup>, 2009, Albuquerque, New Mexico. OOS

30-1. <http://esameetings.allenpress.com/2009/Paper19279.html>

Or: <http://snamp.cnr.berkeley.edu/news/2010/jan/26/snamp-presents-meta-analysis-fire-hazard-assessmen/>

**Background/Question/Methods:** Nearly a century of fire management in the Sierra Nevada of California has had the unintended consequence of placing millions of hectares of forest at risk of catastrophic fire. Several management actions have been proposed to modify fire behavior on the forest landscape. One approach is based on the theory that disconnected fuel treatment patches that overlap in the direction of the head fire spread reduce the overall rate and intensity of the fire. Simulations have shown that with as little as 30% of the area in these strategically placed area treatments (SPLATs), fire risk can be decreased for the entire landscape. Another is a Defensible Fuel Profile Zone (DFPZ) that is composed of interlocked landscape fuels breaks designed to provide safe access for fire fighters, limit fire behavior to prescribed levels, and create conditions in which canopy fires are less likely to spread. Despite sound conceptual underpinnings for both approaches, there is uncertainty regarding their efficacy in modifying fire behavior.

As part of the Sierra Nevada Adaptive Management Program's (SNAMP), we compared the performance of a range of management strategies currently being implemented on US Forest Service lands in the Sierra Nevada. Five studies were selected based on their data availability: Sagehen Experimental Forest, the Last Chance SNAMP research site, and the Sugar Pine SNAMP research site all are implanting SPLAT treatments while the Plumas-Lassen Administrative Study has implemented DFPZ treatments. For comparison, we have also included the Kings River Experimental Watershed where an uneven--aged management strategy is planned. A uniform landscape level fire hazard assessment was conducted across all studies using FLAMMP. Four major fire behavior outputs (Crown Fire Activity, Flame Length, Minimum Travel Time, and Fire Line Intensity) were compared between pre and post treatment scenarios for two fire weather conditions (90<sup>th</sup> and 97.5<sup>th</sup>).

**Results/Conclusions:** Initial results indicate that all management strategies were successful at changing fire behavior to differing degrees. Both real-world SPLAT and DFPZ designs seemed to work as predicted. For example SPLAT fuel treatments that covered approximately 1/3 of Sagehen Creek Basin could be arranged in the landscape so that key aspects of the fire behavior were modified for the entire fireshed. The highly detailed field approach proved to be generally consistent with landscape level datasets (ie LANDFIRE) when designing fuel treatments. And most importantly, the judgment of local experts is essential to obtaining models with realistic fire behavior and support from affected communities.