Science Delivery Template – Primary FON

Proposal Title: Using landscape features, plot measurements, and remote sensing data to improve predictions of fuels treatment longevity in the Colorado Front Range

Principal Investigator: David Barnard USDA ARS

I. End user identification and engagement

While the outcomes of the research will be broadly applicable to local, regional, national, and federal end users, we have established relationships with partners and stakeholders with whom we will actively seek feedback and input during all phases of this project. Primarily, we will interface with the Northern Colorado Fireshed Cooperative (NCFC; letter of support included). The NCFC is made up of representatives from federal, state, and local natural resource agencies, nonprofit organizations, university-based entities, and watershed coalitions and has a primary mission of working to manage wildfire risk and implement action plans in strategic priority areas. Hence, the organization operates as a direct connection between our proposed research and end users. The NCFC meets quarterly. Additionally, the NCFC includes sub-committees such as the Operations Committee of which the PI of this proposal participates in more frequent meetings. As part of this proposal, we plan to present stages of our research to solicit feedback and share results. We will also participate in NCFC field days, workshops, and in-person meetings.

In addition to the broader end user base that makes up the NCFC, we also plan to directly interface with local conservations districts including the Larimer Conservation District (LCD) and the Boulder Valley and Longmont Conservation District (BVLCD)(letters of support provided by both). Both of these conservation districts work directly with private landowners to execute watershed and forest restoration efforts, which primarily include fuel treatments, to reduce wildfire risk and improve ecosystem resilience and function. We will interface with LCD and BVLCD indirectly through NCFC meetings and directly through field visits and office meetings to direct research and share research results. Additionally, scientists from the Colorado Forest Restoration Institute are co-PIs on this proposal and thus research results will be directly implemented into their planning, monitoring, and treatment process.

It is important to note that our goals with these interactions are as much to receive feedback from partners during the planning and execution phase as it is to deliver results. Thus these interactions will be two-way, with all partners being given opportunities for input into current and future research planning.

II. Science exchange outputs and outcomes

This project will result in three peer reviewed publications that will be submitted to top forest and fire ecology journals. Research findings will also be integrated into a web application that will be made publicly available and allow users to input site characteristics to estimate treatment longevity and retreatment frequency. This app will be developed using R Shiny and Google Earth Engine. We will also develop maps of treatment longevity across Colorado or, if results provide sufficient detail and acceptable error ranges, across the southern Rockies ecoregion.

We will actively engage with stakeholders, partners, and end users through participation in NCFC quarterly meetings and as part of the Operations Committee with forest, watershed, and fire operations managers. We will participate in and host larger site and field visit tours with NCFC partners and will participate in smaller and more focused field visits with LCD and BVLCD, and with any other partnerships that develop through NCFC meetings.

III. Coordination with JFSP Fire Science Exchange Network

We provide a letter of support from Gloria Edwards at the Southern Rockies Fire Science Exchange for this proposal. We will meet with Gloria and develop contacts with others in the Fire Science Exchange Network throughout the proposed project to identify additional end users, ensure relevant research results are widely disseminated, and to assist in interpreting and translating the management/policy relevance of research results.