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Linking FVS to 3D Fire Models: introduction to STANDFIRE, a platform for stand scale fuel treatment analysis

Russell Parsons

Managers are increasingly called upon to implement fuel treatments to reduce potential fire behavior, or to support restoration efforts. The FFE-FVS system plays a key role in such analyses. However, much of the detail of real world fuels in FFE-FVS cannot be used to full effect in the simple fuel and fire models within FFE-FVS and other systems, making it difficult to relate real fuels on the ground to how they might burn. This presentation introduces a new platform for stand scale fuel treatment analysis, called STANDFIRE. STANDFIRE builds upon and extends the capabilities of FFE-FVS, enabling us to use real world fuels data, test spatially explicit fuel treatments, and assess their effectiveness in altering fire behavior using dynamic 3D physics-based fire models to calculate both fire behavior and effects. STANDFIRE connects directly to the existing FFE-FVS model using FFE-FVS for biomass and growth over time, facilitating analysis of fuel treatment longevity. A modular design permits incorporation and testing of new components as they become available, paving the way for continuing refinement applying next generation science knowledge to help managers more confidently assess fuel treatments to improve firefighter safety and restore our ecosystems.