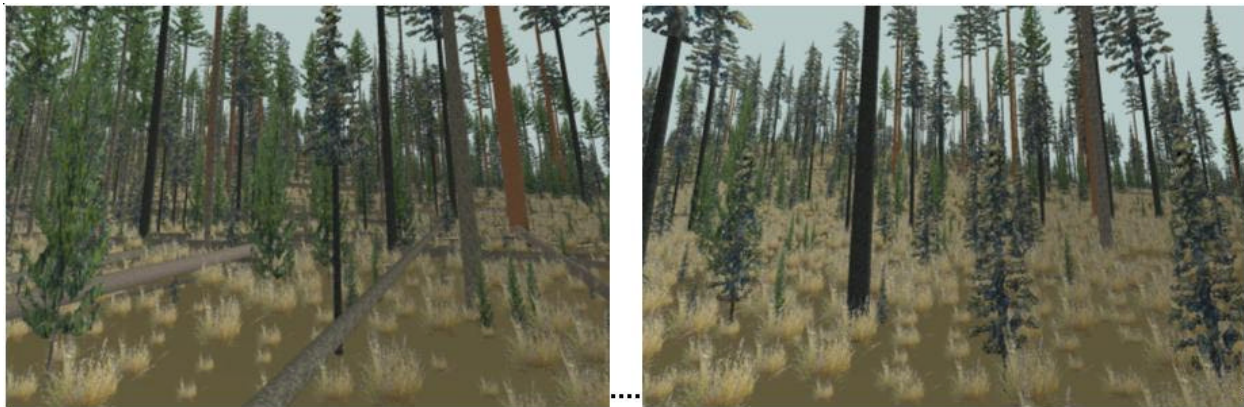


Healthy Forests Restoration Act Projects Title IV-Accelerated Information Gathering

Project Title: Stand and landscape visualization systems and remote sensing of forest vegetation structure (Accelerated Information Gathering)

Significance: Scientists at the Pacific Northwest (PNW) Research Station have developed visualization tools, EnVision and the Stand Visualization System (SVS), that create graphic images of forest conditions. EnVision shows forest vegetation, fuel and fire hazard conditions, and expected results of forest management activities. Enhancements are underway that will allow visualization of stand health attributes such as mistletoe brooms, tree leader dieback, broken tops, and insect damage. Research has also been initiated to evaluate the usefulness of airborne laser scanning sensors (LIDAR) for documenting pre- and post-treatment stand conditions on the Biscuit Fire Recovery salvage logging areas. Visualization and analysis systems are being developed that allow forest managers to view and map vegetation structure over the landscape using LIDAR data. In combination, these remote sensing measurement and visualization systems greatly improve the ability of forest managers to communicate current forest health conditions, proposed forest health and fire risk reduction actions, and likely outcomes of these types of forest management actions.



EnVision illustrates pre-(left) and post- (right) fuel reduction treatment conditions by depicting dead trees, accumulated understory vegetation, and down fuels.

Approach: Over the last three years, as part of the Joint Fire Science Program project titled "Development and delivery of the fire and fuels effects extension to the Forest Vegetation Simulator," PNW scientists have enhanced visualization capabilities to allow display of forest fuel conditions prior to and after proposed treatments. Currently, PNW scientists are working with modelers and scientists to enhance visualization capabilities to include additional forest vegetation conditions into existing stand and landscape visualization systems. This ongoing work is part of a Special Technology Development Program project titled "Using stand visualization software (SVS) to visualize and communicate the effects of forest disease, insects, and decline syndromes at the stand level".

Outcome(s): This research will provide tools that allow forest managers to better measure and map forest vegetation conditions over landscapes with new remote sensing technologies, and to better communicate, through stand and landscape visualizations, current forest conditions and how proposed management activities can change forest conditions to promote more healthy forests, and the impact of activities carried out.

Benefits: These visualization systems are valuable tools when trying to communicate changes in stand or landscape conditions resulting from growth processes, catastrophic disturbance, or management actions aimed at maintaining or improving forest health. One of the most powerful uses for visual simulations has been to help break deadlocks in debates about forest management alternatives. State, private, and federal foresters can use visual simulations to help explain forest dynamics and management scenarios to stakeholders. Public involvement is more effective when people understand the consequences of different management alternatives and societal choices. Better communication of alternative forest conditions helps reduce conflict because people better understand the implications of proposed management actions. In the end, stand and landscape visualizations allow increased public involvement, greater trust, and improved understanding of agency decisions.

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