



## Research Brief for Resource Managers

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### Fuel treatments to preserve old forest structure can reduce fire risk in the WUI

Ager, Alan A., Nicole M. Vaillant, and Mark A. Finney. 2010. [A comparison of landscape fuel treatment strategies to mitigate wildland fire risk in the urban interface and preserve old forest structure](#). *Forest Ecology and Management* 259(8): 1556-1570.

Many land managers perceive a trade-off between implementing fuel treatments in the wildland urban interface (WUI) to protect property values and implementing fuel treatments in wildland areas to achieve ecological goals. However, a 2010 research project by Ager et al. demonstrates that landscape-scale fuel treatments designed to achieve stand restoration objectives can also reduce the likelihood and intensity of wildfire in WUI areas up to ten kilometers (km) distant.

Ager et al. used models to compare fuel treatments designed to protect residential structures with treatments designed to meet forest health and ecological restoration goals in a 16,000 hectare study area in Oregon. They combined burn probability modeling with risk analysis to measure the effects of fuel treatments on resource values and fire behavior, both within and outside of the treatment units. They found that treatments designed to protect ecological values not only reduced the expected loss of large trees, but also reduced burn probabilities within WUI areas between 5 and 10 km (3-6 miles) away. Treatments designed to protect property values in the WUI were effective at structure protection, but did not protect large trees.

The authors also found that implementing treatments on a relatively small percentage of the landscape (10%) resulted in a roughly 70% reduction in the expected loss of large trees after a wildfire. The authors conclude that the

#### Management Implications

- Fuel treatments far removed from WUIs can still significantly reduce wildfire threats to property values.
- Significant reductions in burn probability and fire size were observed after strategically treating only 10% of the landscape.
- Wildland fuel treatments may provide longer term reduction of wildfire threats to both resource and property values than WUI treatments alone.

restoration fuel treatments were successful because they targeted areas with the highest surface and canopy fuel loadings and were strategically placed across the landscape.

Ager et al. suggest that restoration and forest health goals may be compromised when resources are focused on fuel treatments in and around WUIs rather than surrounding wildlands. They also caution that focusing fuel treatments in WUI areas could indirectly contribute to fuels build up and larger fires in adjacent wildland areas. These wildland fires may eventually overwhelm the localized protection offered by WUI treatments.

The authors conclude that fuel treatments focused on forest restoration can significantly reduce wildfire intensity both within and outside of the treatment area, creating conditions that potentially allow natural ignitions to play an increased role in future fuels management.