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How can investment in the landscape or the interface reduce the risk of house loss from wildfires? A comparative study between Sydney, Australia and California, USA

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Wildfire can result in significant losses to people and property. Management agencies undertake a range of actions in the landscape and at the interface to reduce this risk. Data relating to the success of individual treatments varies, with some approaches well understood and others less so. Research has rarely attempted to consider the interactive effects of treatments in order to determine optimal management strategies that reduce the risk of loss. Bayesian Networks provide a statistical framework for undertaking such an analysis. Here we apply Bayesian Networks to examine the trade-offs in investment in preventative actions (e.g., fuel treatment, community education, development controls) and suppressive actions (e.g., initial attack, landscape suppression, property protection) in two fire prone regions –Sydney, Australia and California, USA. Investment in management actions at the interface resulted in the greatest reduction in the risk of house loss for both of the study regions. Landscape treatments had a limited ability to change the risk of house loss.