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LiDAR improves fire behaviour predictions using a biophysical, mechanistic model

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Numerous studies have attempted to address the utility of LiDAR as a tool for measuring fuel inputs to fire behaviour models, however the direct effect of this approach on fire behaviour prediction requires quantification.

We used a biophysical, mechanistic model validated for eucalypt forest in SE Australia to assess the improvement in prediction accuracy afforded using LiDAR-derived inputs. The accuracy of modelling with these inputs was compared to modelling using detailed site-specific field surveys of a dry sclerophyll forest to represent the highest standard of inputs, and values derived from desktop-available community-wide descriptors to represent baseline inputs.

Use of LiDAR significantly improved on baseline predictions and enabled site-specific decision making across the study area. When used with an appropriate model, LiDAR can facilitate improved decision-making in regard to forest fire behaviour.