

Assessing the Current Condition of River Red Gum along the Victorian Murray: from ground survey to validated landscape map

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Regulation of the Murray River has reduced the frequency and duration of floods, and has led to an apparently substantial decline in the condition of river red gum forests. If the condition of these important forests is to be effectively monitored and managed, a quantitative and efficient assessment procedure is required. We found that percentage live basal area, plant area index and crown vigour were reliable, objective predictors of stand condition. Stand condition was surveyed along the Victorian Murray River, the lower Ovens River and the Lower Goulburn River. We used neural networks and Bayesian model averaging to determine relationships among the condition variables measured in the field and remotely-sensed environmental variables. These models were used to predict stand condition across the whole study area. The ability of these models to predict stand condition beyond the original survey was tested by surveying sites from a range of predicted condition. The validated model was then used to produce a map of the current condition of river red gum across the Murray River floodplain in Victoria. The map will enable land managers to prioritise environmental flows among sites and to judge the effectiveness of these floods against a baseline condition.

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