

# Systematic framework to assess restoration actions and outcomes based on measurable success criteria and indicators

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A unifying framework is presented for tracking the outcomes of intentional and unintentional land management practices on the condition components of plant communities. The framework is based on 22 indicators hierarchically organised into 10 functional, structural and compositional criteria. Changes in the values of criteria and indicators over time track the response of a plant community to land management practices. This involves a two step process. First develop a systematic and comprehensive site-based chronology of land management practices over time. Second fully integrate relevant data and information on the responses of the plant community into the chronology of practices, actions and interventions. How, and to what degree, the practices effect the indicators is also recorded, including deliberate and/or inadvertent actions and outcomes. Data and information on the outcomes of actions is compiled from various sources including; direct measures of field-based attributes, estimates of attributes derived from expert elicitation, environmental histories, interviews with skilled subject specialists and relevant metrics derived from multi-spatial and multi-temporal remote sensing datasets. Provided a competent ecologist has access to key resources, a preliminary assessment can be completed in three days. Indicators are scored separately using a metric 0-1, based on the response of the plant community's indicator assessed relative to the indicator in the reference state. Indicator scores are aggregated and weighted separately for three components; functional (55%), structural (27%) and compositional (18%). The reference state is assigned 100%. This framework has been widely applied across major climate zones in Australia to track and explain observed decadal spatial and temporal changes in the condition of plant communities including changes due to restoration activities. Examples will be provided in how applications of this framework also provide insights in plant community resilience, possible system trajectories and future management options.