

## Weed invasions and native plant extinctions: a six-threshold framework

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**Summary** Despite weeds being widely acknowledged as a major threat to biodiversity, there is growing debate, regarding the nature of the weed threat – in particular whether the outcome is likely to be the widespread extinction of native plants. The debate has raised questions on whether the threat posed by weeds to native plants has been overstated. We provide a conceptual framework to guide discussion in which the threat posed by weeds is considered in the context of a progression from no impact through to extinction.

We define six thresholds along this ‘extinction trajectory’ – global extinction being the final threshold. Although there are no documented examples of either ‘in wild’ (Threshold 5) or global extinctions (Threshold 6) of native plants that are attributable to weeds, there is evidence that native plants have crossed or breached other thresholds along the extinction trajectory due to weeds. Management interventions focussing on Thresholds 1 to 3 (a declining population through to the local extinction of a population) are likely to halt progress along the extinction trajectory.

Several other factors may be masking where native species are on the trajectory; these include a lack of appropriate data to accurately map the position of native species on the extinction trajectory, and the timeframe required to definitively state that extinctions have occurred. The critical issue for conservation managers is the underlying trend, because interventions cannot be implemented after extinctions occur. Thus the lack of evidence for extinctions attributable to weeds does not mean we should ignore the broader threat.

**Keywords** Biological invasions, conservation, extinction trajectory, threshold breaches, invasive plant species, declining populations.

### REFERENCE

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