

Managing weeds for biodiversity conservation using an asset-based approach

Peter J. Turner, Leonie K. Whiffen, Mark A. Hamilton and Paul O. Downey

Pest Management Unit, Department of Environment, Climate Change and Water (DECCW), PO Box 1967, Hurstville, NSW 1481, Australia

Corresponding author: Pete.Turner@environment.nsw.gov.au

Summary Weed species that are widespread are unlikely to be eradicated, thus control efforts need to be based on containment and asset-protection as outlined in the Australian Weed Strategy (NRMMC 2007). Here we discuss the approach used in New South Wales (NSW) to protect environmental assets (native species, populations and ecological communities) from widespread weeds.

In NSW, weeds pose the second greatest threat to biodiversity after habitat loss (Coutts-Smith and Downey 2006). Weed control undertaken for the protection of such threatened assets requires an adequate assessment of (i) the native biodiversity at risk, and (ii) the likelihood and feasibility of achieving their protection. In addition, the success of these weed programs must go beyond the simple measurement of area treated to an assessment of an asset/biodiversity response. A series of strategic weed management plans and tools have been developed for eastern Australia to assist with these issues, based on a triage system that prioritises the biodiversity at risk and sites for control, independent of land tenure. This asset-based triage approach has been successfully applied to two widely distributed Weeds of National Significance in Australia, bitou bush (*Chrysanthemoides monilifera* subsp. *rotundata* (DC.) Norl.) and lantana (*Lantana camara* L.) (Hamilton *et al.* 2010).

The release of the Bitou Bush Threat Abatement Plan (TAP) in 2006 established a system for prioritising the biodiversity most impacted by bitou bush and sites for their protection based on the ability to deliver effective control and a positive biodiversity response. Whilst the TAP approach has subsequently been modified to address the threat of lantana, on a national scale, it was not feasible to use this single weed species approach to address the 340 significant environmental weeds in NSW (Downey *et al.* 2010). To address this issue, a collaborative project was initiated with the 13 Catchment Management Authorities (CMAs) in 2007 to identify regional widespread weed priorities for biodiversity conservation. This approach encompassed multiple widespread weed species at a regional scale (Williams *et al.* 2009). This approach has received the support of all levels of government in NSW and is supported by a strategic monitoring

framework that measures success through improvement in condition of environment assets (Hughes *et al.* 2009). Monitoring to-date has shown this approach is effective (Hamilton *et al.* 2010).

Results from the regional assessments will be supplied to individual CMAs and other stakeholders and include priority lists of widespread weed species, biodiversity threatened by these weeds and a ranked list of sites for control. A series of implementation options will be available to tailor management to the specific weed threats.

Keywords Key Threatening Process, impacts, strategic planning, Threat Abatement Plan.

REFERENCES

- Coutts-Smith, A.J. and Downey, P.O. (2006). Impact of weeds on threatened biodiversity in NSW. Technical Series 11. CRC for Australian Weed Management, Adelaide.
- Downey, P.O., Scanlon, T.J. and Hosking, J.R. (2010). Prioritising alien plant species based on their ability to impact on biodiversity in New South Wales. *Plant Protection Quarterly* 25, 111-26.
- Hamilton, M.A., Turner, P.J., Rendell, N. and Downey, P.O. (2010). Reducing the threat of a nationally significant weed to biodiversity: four years of implementation of the NSW Bitou Bush Threat Abatement Plan. Proceedings of the 17th Australasian Weeds Conference, ed. S.M. Zydenbos, pp. 166-9. (New Zealand Plant Protection Society, Christchurch).
- Hughes, N.K., Burley, A.L., King, S.A. and Downey, P.O. (2009). Monitoring manual for bitou bush control and native plant recovery. (Department of Environment, Climate Change and Water, Sydney, NSW).
- NRMMC (2007). Australian Weeds Strategy – a national strategy for weed management in Australia. (Natural Resource Management Ministerial Council (NRMMC), Australian Government Department of the Environment and Water Resources, Canberra).
- Williams, M.C., Auld, B.A., Whiffen, L.K. and Downey, P.O. (2009). Elephants in the room: widespread weeds and biodiversity. *Plant Protection Quarterly* 24, 120-2.