

## Let's get strategic: an invasive plant prioritisation process for DEC WA

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**Summary** Prior to the commencement of this project in 2008, the Department of Environment and Conservation (DEC) Western Australia did not have a coordinated, strategic approach to weed management. As such, the allocation of the department's limited funds for weed management has historically been *ad hoc* and non-strategic. In an effort to address these issues and implement an integrated approach to weed management on DEC-managed lands in WA, the Invasive Plant Prioritisation Process for DEC was instigated.

The aims of this process are to establish both a species-led and an asset-based protection approach to weed management. These two processes will be used to inform regional priorities and hence allow for the strategic allocation of funds for the best return for investment and the best long term outcomes for weed management and asset protection.

The outcomes of the species-led process are being actively utilised by staff and the process itself is currently undergoing its first biennial review. The development of the asset-based protection approach is still in an early stage.

**Keywords** Western Australia, species-led, asset-based, prioritisation.

### INTRODUCTION

The Environmental Weed Strategy of Western Australia (EWSWA) (CALM 1999) provided a ranking of weed species on a state-wide basis against three criteria—invasiveness, distribution and environmental impacts. A total of 1350 weeds were rated through this process as high, moderate, mild or low, with 34 weed species being rated as high.

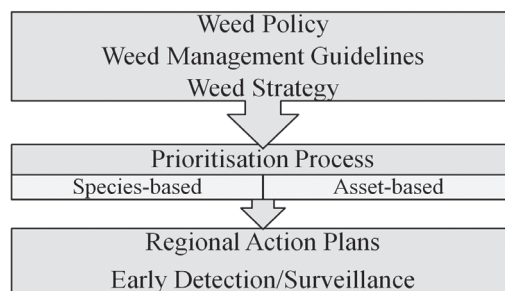
The state-wide ratings from the Strategy are deemed too broad to be of use from an on-ground operational perspective and both the ratings and the Strategy are now out of date. In addition to these factors, the Strategy was meant to have developed an integrated approach to environmental weed management that included site led and resource led control (CALM 1999). However, due to funding constraints, an assessment and ranking of weed species against the biodiversity assets they threaten was never undertaken nor was the feasibility of control ever considered.

In an effort to address these issues and implement an integrated approach to weed management in WA, the Invasive Plant Prioritisation Process for DEC was

commenced in 2008. The focus of this process is to develop a new weed policy framework as well as to incorporate the outcomes of a species-led and an asset-based protection approach to effectively control the threat of weeds on DEC-managed lands within WA.

### NEW WEED FRAMEWORK

Implementing a coordinated, strategic approach to weed management involves not only the development of the prioritisation process but also the establishment of an entirely new weed framework for DEC (Figure 1).



**Figure 1.** Proposed new weed framework for DEC WA.

As the above figure shows, it is proposed that the new weed framework for DEC will include the development of a new corporate weed policy, weed management guidelines and a weed strategy. The development of these documents is still in an early stage but it is intended for the policy to outline priorities of prevention, early detection and rapid response, eradication, containment and asset-based protection. These priorities are in line with the Australian Weeds Strategy and strategies from other states such as the NSW Biodiversity Priorities for Widespread Weeds Statewide framework (NSW DPI and OEH 2011).

The weed management guidelines will aim to provide more detailed information about weed management on DEC-managed lands—including setting the context of weed management in DEC operations, the department's capacity to manage weeds and associated legislation.

Development of the weed strategy will include a review of the EWSWA (CALM 1999) and will detail the methodology of both the species-led and asset-based protection prioritisation processes.

The final two components of the proposed weed framework—regional action plans and early detection/surveillance—will provide regional staff with tools to utilise the outcomes of the prioritisation process. The regional action plans will provide regions with a template to develop a works program for the management of priority sites and weeds.

Development of an early detection/surveillance program will provide a procedure through which species identified as alerts through the prioritisation process for each region are actively looked out for.

#### SPECIES-LED PRIORITISATION PROCESS

When first developing the species-led process, a review was conducted of other systems already in operation. It was initially envisaged that the process would be modified from systems such as the SA Weed Risk Management System (Virtue 2005) however due to a lack of resources, both human and monetary, it was deemed not feasible to attempt to develop such a process for DEC-managed lands in WA.

Instead, a simpler process was developed based on the Environmental Weed Census and Prioritisation, Swan Natural Resource Management Region project developed by Karen Bettink and Greg Keighery (2008). The proposed process was presented to the National Post-Border Weed Risk Management Forum in 2008 to ensure its rigor, with a general consensus from the group that whilst the process did not numerically score the criteria, there was sufficient detail being considered for decision.

The species-led prioritisation process highlights infestations of species which are considered to be high impact, rapidly invasive and still at a population size which is feasible to eradicate or contain to a manageable size.

The first stage in this process was to develop weed lists for each of the DEC regions. These lists were initially based on Keighery and Longman's (2004) publication "*The naturalised vascular plants of Western Australia 1: Checklist, environmental weeds and distribution in IBRA regions*", and included all weed species listed in the IBRA regions that intersected with each DEC region.

These lists were then cross checked with Florabase ([florabase.dec.wa.gov.au](http://florabase.dec.wa.gov.au)) to ensure all species' locations for which specimens were vouchered were included. Finally, these lists were cross checked with any other relevant weed lists for the respective regions. This included Peltzer's (2008) "*List of*

*Priority Environmental Weeds for the South Coast NRM Region*" for Warren and South Coast Regions and Bettink and Keighery's (2008) "*Environmental Weed Census and Prioritisation, Swan NRM Region*" for Swan Region.

Once the species lists were finalised for each DEC region, the regions were contacted and workshops arranged to carry out the species prioritisation process. These workshops were attended by relevant DEC staff who had expert knowledge about weeds occurring in their region, including locations, impacts and past control efforts. Greg Keighery also attended each of the workshops to share his expert knowledge of weeds and provide some consistency in assessment across regions.

During the workshops each species on the DEC regional lists were considered and if appropriate given a rating against their impact, invasiveness, current and potential distribution, and feasibility of control. Those species not currently within the region but known from adjacent regions were given an alert status.

The regional species-led prioritisation workshops will be undertaken biennially with regionally-based custodians responsible for updating the workshop spreadsheets as new species or infestations are identified.

**Outcomes** Once the initial workshops were completed for all regions, a series of four matrices were developed to provide an overall ranking for each weed species within each region. These matrices were based on the National Post-Border Weed Risk Management Protocol (Anon. 2006).

By running all species ratings through the matrices we were able to develop the following weed lists:

- species with a ranking (Very High, High, Medium, Low, Negligible);
- species ranked as further assessment required (FAR) due to more than one unknown rating;
- species with no ranking as one or more factors were not given a rating (excluding FAR); and
- species that are ALERTS for the region.

The species-led prioritisation process also gave regional staff a greater awareness of the weeds that are in, or just outside, their region. It also provided us with the opportunity to document species information that was previously in personal notebooks or in people's heads.

#### ASSET-BASED PRIORITISATION PROCESS

Asset-based prioritisation processes focus on identifying high value biodiversity assets, the weeds that pose a threat to these assets and the sites where control will have the greatest biodiversity benefit.

An initial workshop to discuss the development of this process for DEC-managed lands was held with key DEC staff in December 2011. A list of assets was developed (which included environmental, economic and social assets) and a number of methods to determine priorities of those assets were discussed.

Following this workshop and a review of other asset-based prioritisation systems, it was decided that the process for DEC WA would be modified from systems such as the NSW Biodiversity Priorities for Widespread Weeds Statewide framework (NSW DPI and OEH 2011) and New Zealand's Weed Risk Assessment process (Timmins and Owen 2001).

The system being developed will utilise a combination of both expert knowledge/opinion and spatial data to identify high value biodiversity assets, the weeds that pose a threat to these assets and the sites where control will have the greatest biodiversity benefit. As such, a system is being developed that will involve both an Excel® spreadsheet for collection of data from experts and a GIS-based system to display information about both assets and weeds spatially. The development of this process commenced in late June 2012.

#### LESSONS LEARNT SO FAR

A lack of staff and funding has meant that we have had to be creative in the processes we develop in order to still implement a system that is comparable to those more detailed ones already operating in other parts of Australia.

As the species-led process did not have a numerical scoring system, it was imperative that the descriptions for the criteria being rated provided as little ambiguity as possible. These issues were highlighted after the first round of workshops and the criterion descriptions altered accordingly. It was noted in the review workshops that the revised criterion were a lot clearer however it also demonstrated that this is still an evolving process.

Another issue identified throughout the development and implementation of these processes is the importance of ensuring the outcomes of both the species-led and asset-based prioritisation process are clearly understood. As we have not had the resources to develop the two processes simultaneously, there was confusion regarding the overall rankings of species from the species-based process. The process was explained thoroughly at each of the regional review workshops and this, along with the commencement of the asset-based process, has enabled people to gain a better understanding of the results from the species-led process and how the two processes will work together.

This has highlighted the need to ensure that any material published regarding the Invasive Plant Prioritisation Process must be very explicit when explaining how the rankings are to be interpreted and utilised to assist in determining weed management programs.

#### WHERE TO FROM HERE?

**Framework development** Review and development of the framework documents—weed policy, weed management guidelines and weed strategy—will continue, with the draft policy expected to be submitted by December 2012.

The regional action plans and early detection/surveillance program will be commenced during 2012/13 and will be developed in conjunction with regional staff to ensure the end products will be utilised.

**Species-led Prioritisation Process** The first round of biennial reviews commenced in March 2012. This included a process of refining the five category descriptions to reduce their ambiguity and attempt to achieve more consistency in allocation of the five ratings between staff and across the nine DEC regions.

**Asset-based Prioritisation Process** Development of a state-wide asset-based prioritisation process utilises both an Excel® spreadsheet for collection of data from experts and a GIS-based system to display information about both assets and weeds spatially.

#### ACKNOWLEDGMENTS

We wish to thank all regional DEC staff and external stakeholders for their participation in the prioritisation process, in particular the regional workshops. Thanks also to Stephen Johnson, Steve Csurhes and Christine Munday for feedback regarding the matrices. A special thank you goes to Greg Keighery for providing his expertise throughout the prioritisation process.

#### REFERENCES

- Anon. (2006). 'HB 294:2006 National post-border weed risk management protocol'. (CRC Australian Weed Management, Adelaide and Standards Australia, Sydney and Standards New Zealand, Wellington).
- Bettink, K. and Keighery, G. (2008). 'Environmental weed census and prioritisation, Swan NRM Region'.
- Bettink, K. and Keighery, G. (2008). 'SCC environmental weed list legend July 2008'.
- Department of Conservation and Land Management (CALM) (1999). 'Environmental Weed Strategy for Western Australia'. Como.

- Virtue, J.G. (2005). 'South Australia Weed Risk Management Guide' (Department of Water, Land and Biodiversity Conservation, South Australia).
- Keighery, G. and Longman, V. (2004). The naturalised vascular plants of Western Australia 1: Checklist, environmental weeds and distribution in IBRA regions. *Plant Protection Quarterly* 19 (1) 12-32.
- NSW DPI and OEH (2011). Biodiversity priorities for widespread weeds. Report prepared for the 13 Catchment Management Authorities (CMAs) by NSW Department of Primary Industries and Office of Environment & Heritage, Orange.
- Peltzer, S. (2008). List of Priority Environmental Weeds for the South Coast NRM Region.
- Timmins, S.M. and Owen, S.J. (2001). Scary species, superlative sites: Assessing weed risk in New Zealand's protected natural areas. In, *Weed Risk Assessment*. (Eds). R.H. Groves, F.D. Panetta and J.G. Virtue). pp. 217-227. (CSIRO Publishing, Collingwood, Australia).