

Parks Victoria Research Partners Panel Project Summary Report: RPP 1314P13

A decision support framework for integrating species, pathway and area priorities for weed management in parks and reserves in Victoria

Parks Victoria and Monash University

Background

The impacts of invasive alien species are among the top threatening processes to biodiversity. Effective management of invasion can be a complex and expensive task. Prioritising invasion is therefore vital for effective management. Existing prioritisation frameworks focus on the important process of ranking invasive alien species according to their potential negative impacts on natural ecosystems. Some prioritisation frameworks also include the pathways through which species invade. Invasive species management often also focus on specific areas, such as protected areas, to concentrate their efforts. However, no method as yet, has integrated all three of these important components for prioritising invasion.

Aims

In collaboration with park rangers we formally categorised and integrated these three components of invasion (priority weed species, important pathways of weed introduction and spread, as well as areas most susceptible or sensitive to invasion) to creating a repeatable and informative decision framework to support planning and management of invasive species.

Results

- Natural dispersal, waterways, movement of animals, vehicles, and habitat material were the most commonly used pathways identified across the four parks.
- High priority species tend to disperse through high priority pathways.

Relevant parks and ecosystems

Dandenong Ranges National Park (DRNP), Chiltern-Mt Pilot National Park, Langwarrin Flora and Fauna Reserve, Lysterfield and Churchill National Parks

More information

Contact Parks Victoria on 13 1963

Outputs

Reeves, S. L. (2016). Decision support framework for integrating species, pathways and area priorities for weed management in Chiltern-Mt Pilot National Park, Langwarrin Flora and Fauna Reserve, Lysterfield and Churchill National Parks. Honours Thesis: Monash University.

Final Report: Submitted with this summary – by the same name.

Webpage

<http://melodiemcgeoch.com/weed-management-parks-victoria/>



Forty-seven native orchid species have been recorded at Dandenong Ranges NP, four of which are threatened.



Second-ranked weed, Watsonia spreads readily along waterways in many Victorian national parks.

- Pathways present at the four parks examined were found to be associated with a number of susceptible site variables and were credible proxies for pathway by site interactions
- The heat maps (e.g. Fig. 1) highlight that the risk of invasion across all parks was higher at the perimeter (susceptibility).
- However, management actions across parks are influenced by both the susceptibility and sensitivity of sites (Fig. 1-4).
- Overall, there was inadequate information on the spatial distribution of IAS across the park.

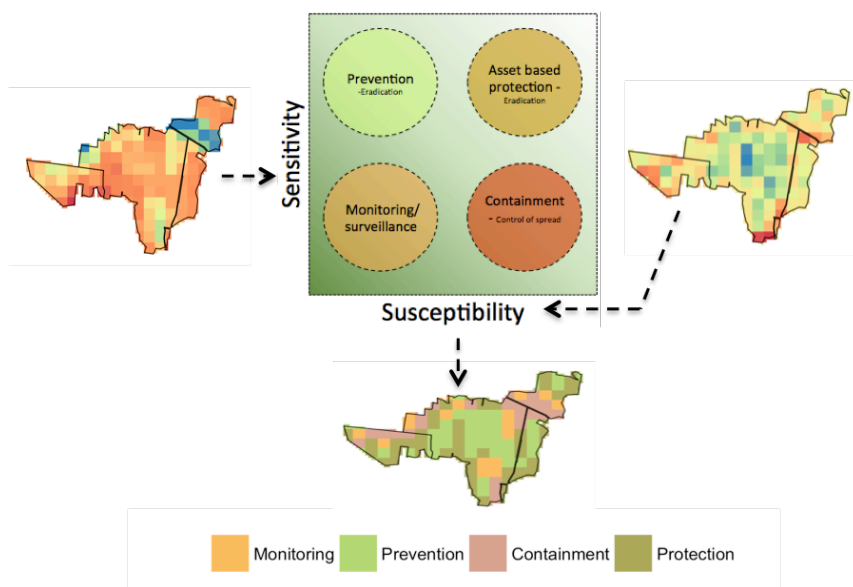


Figure 1. Four plan management action plot where mapped sensitivity and susceptibility can be combined to indicate an management action. Low sensitivity and susceptibility indicate monitoring, low sensitivity and high susceptibility indicate containment, high sensitivity and low susceptibility indicate prevention and high sensitivity and high susceptibility indicate asset-based protection. Example shown is for Lysterfield and Churchill Parks.

Implications

- Methods for prioritising IAS are an important step towards creating a standardised assessment model for preventing, controlling and reducing the impacts of IAS on protected areas.
- The benefits of analysing combinations of species, pathways and sites have been demonstrated here.
- Most importantly, park managers can examine these IAS prioritisation outputs in combination with their on-ground knowledge and experience to make an informed decision on where to best target their resources.
- Overall, there was inadequate information on the spatial distribution of IAS across the park.

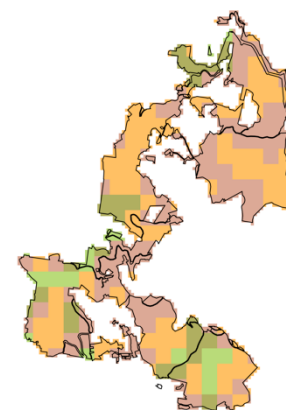


Figure 2. Dandenong Ranges NP management actions

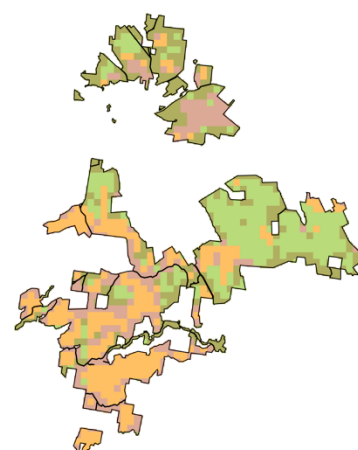


Figure 3. Dandenong Ranges NP management actions

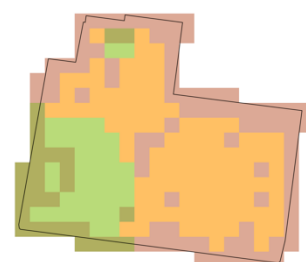


Figure 4. Langwarrin Reserve management actions