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Parks and Wildlife's Weed Management Approach



***Gazania* species complex**
expanding,
high Wheatbelt & Goldfields,
asset protection elsewhere

Greg Keighery

Naturalised Weeds

- Worldwide: 18,146 naturalised
(c. 250,000 species of flowering plants)
- Australia: 25,530 cultivated
(30,000 native species)
- Australia: 2,739 naturalised
(includes 606 native species naturalised outside native ranges)
- WA: 1,239 naturalized
(12 Ferns, 15 Conifers, 347 Monocotyledons and 865 Dicotyledons)



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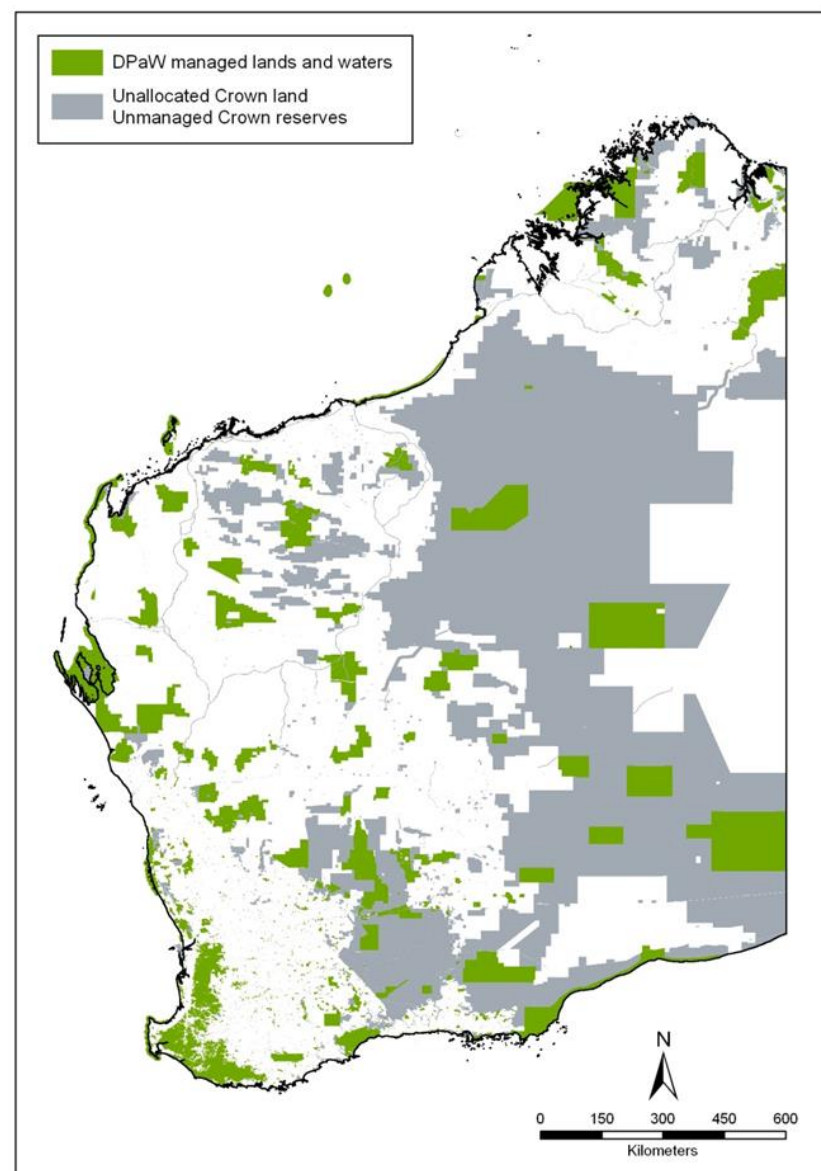


Scope of Weed Management in Parks and Wildlife

A state-wide program working closely with Regional & Fire Management Services and Science & Conservation Divisions.

Parks and Wildlife has weed management responsibilities for over 115 million hectares:

- 26 million ha of DPW-managed lands (green)
- 89.5 million ha of UCL & UMR – managed by DPW for fire preparedness and pest animal and weed control (grey)





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Weed Prioritisation Process

- Developed in 2008 to provide a more transparent process for determining weed management priorities for Parks and Wildlife.
- Reviewed biennially.
- Species-led Process
 - Results focus on high impact, rapidly invasive species with a population size which is feasible to eradicate or contain to a manageable size.
- Asset-protection-based Process
 - Protecting high value assets from priority widespread weeds.





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Species-led Prioritisation Process

- Five (5) key criterion assessed:
 - Impacts
 - Invasiveness
 - Current Distribution
 - Potential Distribution
 - Feasibility of Control
- Reliant on expert knowledge





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Species-led Prioritisation Process

Weed Species Ranking Process

- Employed four matrices to combine five key criterion into one ranking:
 - Step 1: potential distribution x impact = weed consequence
 - Step 2: invasiveness x weed consequence = weed risk
 - Step 3: current distribution x feasibility of control = weed management ability
 - Step 4: weed management ability x weed risk = weed species ranking
- In line with 'National Post-Border Weed Risk Management Protocol'.





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Species-led Prioritisation Process

Weed Species Ranking Process Results

- Species with a ranking (VH, H, M, L, N)
- Species ranked as further assessment required (FAR)
- Species that are ALERTS for the region

Additional outcomes:

- Greater awareness
- Documentation of species information



Many widespread annual weeds (grasses , herbs and geophytes)

highly invasive, but lack data on impacts, lack of control data, therefore:

FURTHER ASSESMENT
REQUIRED (FAR)



Romulea rosea



Aira carophyllea



Geissorhiza aspera

C1 species (Prohibited import,
prohibited to grow or sell)

Discovered at Hamel, 2016

Alert: Swan Coastal & South West





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Species-led Prioritisation Process

Information available for external stakeholders

- Species-led ecological impact and invasiveness ranking summary results and alert species by region are provided at:

<https://www.dpaw.wa.gov.au/plants-and-animals/plants/weeds/156-how-does-dpaw-manage-weeds>





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Asset-protection-based Prioritisation Process

Regional Priority Species and Locations Lists

- Internal management documents that provide staff with:
 - Species being targeted
 - 5 year goal – localised eradication, containment, density reduction
 - Priority within the region/district
 - Priority location at which species is being targeted
 - Species or communities under threat
 - Comments





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Asset-protection-based Prioritisation Process

Regional Priority Species and Locations Lists

- Priorities based on:
 - species ranked as VH through species prioritisation process
 - species impacting priority values/assets
 - species ranked as H
 - widespread species ranked as high impact and rapidly invasive





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Further Information

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Parks and Wildlife Weeds Website:

<http://www.dpaw.wa.gov.au/plants-and-animals/plants/weeds>

Policy 14 Weed Management:

<http://www.dpaw.wa.gov.au/about-us/36-policies-and-legislation>





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Weeds of National Significance

- 32 WoNS currently listed
- Commonwealth list of species coordinated through the national Invasive Plants and Animals Committee (IPAC)
- Review of WoNS currently underway with intention to delist the original 20 species

WoNS Website - <http://weeds.ala.org.au/WoNS/>



Kimberley Grader Grass Project



*Thank you to our
 Funding bodies &
 fabulous Project
 Partners*



Australian Government

Rangelands NRM
 Western Australia

How to use the 'Cut and Paste' Weeding method



1. Gather equipment: cutting tools, chemicals, PPE: **nitrile GLOVES**, eye protection, closed in shoes, hat, long pants & long sleeves.



2. Work in pairs. One person cuts & one person pastes the chemical.



3. Cut the weed close to the soil. 1-2cms above the soil level.



4. Scratch the bark off around the stump of the weed.

5. Within **30 seconds** of cutting, apply the chemical paste to the top of the stump & around the scraped area.



6. A stump cut & scraped - with the chemical paste applied.

Put chemicals, gloves & tools away safely.

Wash your hands before eating or smoking.





Listing Alert Species from
amenity, road verge and
Mistaken identity:
Casuarina glauca

Spreading around
Swan Estuary



Road Verge Plantings



Native species – *Banksia victoriae*
invading high quality bushland: Hartfield Park



Northern ridge track

FIGURE 4: TRIGG DUNE RESERVE



Remains of a planted Callitris killed by fire

Young Callitris from seed washed down hill



Brachychiton populneus: Highly invasive

Lachenalia species: Highly invasive

Lachenalia aloides

Lachenalia reflexa



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Crofton Weed

DAFWA Declared species,
located in Nedlands in 2014

Major Localised weeds

Competition, hybridisation between native and weedy Pigfaces (*Carpobrotus*)

Weedy South African - *Carpobrotus edulis*

Native *Carpobrotus virescens*

Two sexes



Hybrids

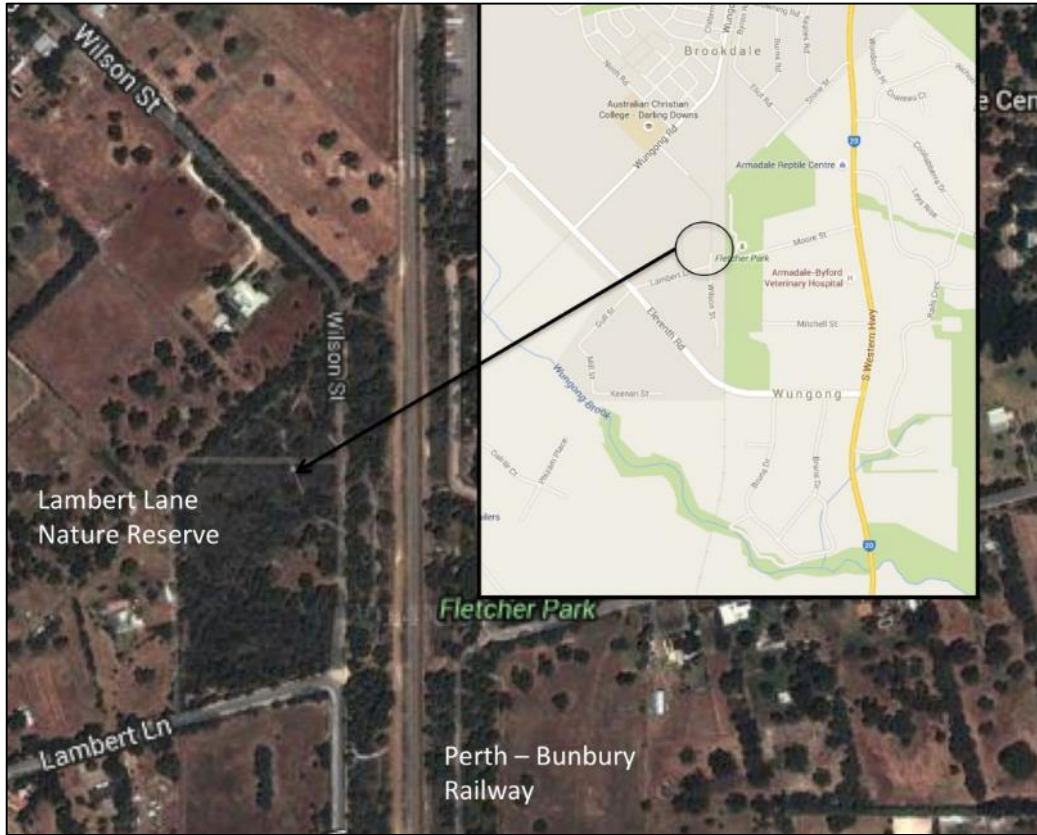
widely planted for rehabilitation



Fruits of (left to right): *C. edulis*, *C. hybrid* and *C. virescens*.



Hybrid *Carpobrotus* flower and fruit



Example prioritising in a single reserve - Lambert Lane Nature Reserve

- 8 hectares
- a vascular flora of 238 species
 - 208 native species
 - 30 weeds

Location of Lambert Lane Nature Reserve (Google Earth and Metropolitan Street Directory, 2014).
Note clearing that is the old rubbish tip.

Weed control and rehabilitation in disturbed old tip site

VERY HIGH

Bulbous weeds

- *Babiana angustifolia*
- *Freesia alba x leichtlinii*
- *Sparaxis bulbifera*
- *Watsonia meriana* var. *bulbillifera*

Perennial Grasses

- *Eragrostis curvula*
- *Ehrharta calycina*

Tree Weeds

- **Chaemaecytisus palmensis*
- **Leptospermum laevigatum*

MEDIUM/ LOW

Medium Priority

- *Oxalis glabra*
- *Trifolium angustifolium*
- *T. campestre*

Low Priority

- *Romulea rosea*
- *Sonchus oleraceus*
- *Ursinia anthemoides*
- *Petrorhagia dubia*
- *Silene gallica*
- *Disa bracteata*
- *Aira caryophyllea*
- *Avena barbata*
- *Briza maxima*
- *B. minor*

- *Dittrichia graveolens*
- *Acacia podalyriifolia*
- *Hypochaeris glabra*
- *Vicia sativa* subsp. *sativa*
- *Erodium botrys*
- *Orobanche minor*
- *Parentucellia latifolia*
- *Fumaria capreolata*
- *Lysimachia arvensis*