Are invasive grasses directly impacting native plant diversity?

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1. Changing environment or competitive displacement?

- Sites suited to native species
- Sites not suited to native species
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1. Landscape scale observational data & large-scale manipulations
2. Common garden experiment
1. Changing environment or competitive displacement?

1.1 Landscape scale manipulations

The invasion of weeds is arguably one of the most obvious and serious threats to the environmental values of The Pinnacle. The consequences include the elimination of native grass species and the destruction of habitat that native birds and animals use for shelter, food and nesting. Weeds also alter bushfire pattern and intensity, and contribute to loss of plant cover and soil disturbance.

Fotpin's weed control activities have been based on a Weed Management Plan prepared by members in 2009-2010, based on a detailed survey of weeds present (more details below).

If you walked through the Reserve in late spring or early summer at that time you could suddenly be in a forest of vicious saffron thistles, surrounded by the bright yellow flowers of St. John’s Wort or confronted by a thicket of briar roses or blackberries. The good news is that, thanks to the efforts of our volunteers, the worst weeds are much less prevalent now than they used to be and small native plants and grasses are slowly making a comeback. Continued vigilance is required to consolidate and extend these gains and make the Reserve an area where native plants are more visible than the weeds.

A weed can be an exotic or native species that colonises and persists in an ecosystem in which it did not previously exist. Weeds range in size from small herbs (e.g. Paterson’s Curse, Verbascum sp.) and grasses to shrubs (e.g. Briar Rose, Cotoneaster sp.) and trees (e.g. Chinese Pistachio). Not all weeds pose the same risk to native ecosystems. For more information, see our guide to the risk of all the exotic species that have been found on The Pinnacle Nature Reserve.
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1.1 Landscape scale manipulations

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1.1 Landscape scale manipulations

Natives present: invaders competitively excluding otherwise.

Natives absent: environmental change favours invaders.
1. Changing environment or competitive displacement?

1.2 Common garden experiments

1. Changing environment or competitive displacement?

1.2 Common garden experiments

NATIVE

Rytidosperma caespitosum
Chloris truncata
Bothriochloa macra

NON-NATIVE

Dactylis glomerata
Phalaris aquatica
Eragrostis curvula

Photos: Lucid key server

1. Changing environment or competitive displacement?

1.2 Common garden experiments

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1.2 Common garden experiments

Native and invasive species occupy different sites.

1. Changing environment or competitive displacement?

1.2 Common garden experiments

Invasive species always competitively excludes native from sites.

Invasive species only competitively exclude natives under high nutrient levels.
Competitive effect

Bothriochloa macra

C. truncata

D. glomerata

E. curvula

P. aquatica

R. caespitosum

Nutrient Treatment
Competitive effect

Bothriochloa macra

Chloris truncata

Rytidosperma caespitosum

Nutrient Treatment

2. Do soil microbes influence invasion outcomes?
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Bates et al. *In prep.*
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Thank you:

Australian Research Council Grant DP150101839