



**ADAPT NRM**  
ADAPTING TO AUSTRALIA'S  
CLIMATE FUTURE

Weeds are one of the main threats to biodiversity and agriculture in Australia and under climate change are expected to become an increasing challenge for regional natural resource management (NRM).

The suite of weed species threatening a region are likely to change and some weed species may become more invasive. Understanding the drivers of weed abundance and distribution in future climates will help land managers and planners prepare appropriate response strategies.

### The science of weeds and Climate Change

- Weeds have long been a problem in Australia, with a large and growing reserve of potential weeds from the 2,700 already naturalised species.
- Under climate change, the 26,000 alien plant species already grown in Australia, though not yet naturalised, could be an even larger reserve of potential weeds.
- While scientists and land managers have a long history of fighting weed invasions, often successfully, climate change will increase the challenge.
- Climate change will exacerbate the weeds threat mainly through new and changed levels of plant invasions.
- Australia's extensive experience in control provides a strong basis to develop adaptation responses to climate change.

### Weed management planning under Climate Change

A framework for a weed management plan that addresses climate change adaptation is provided.

The framework outlines a standard weed management plan that follows an adaptive management approach and includes consideration of altered risks and adaptation.

Each component of the framework is considered an iterative process, because the most effective responses to weed problems under climate change may not be known and outcomes may only be achieved after trying a range of options, assessing the responses, and making appropriate changes.

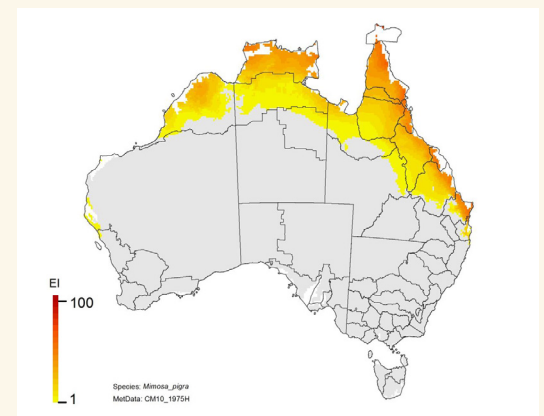
Each component under climate change may differ somewhat from a business-as-usual approach to weed management.



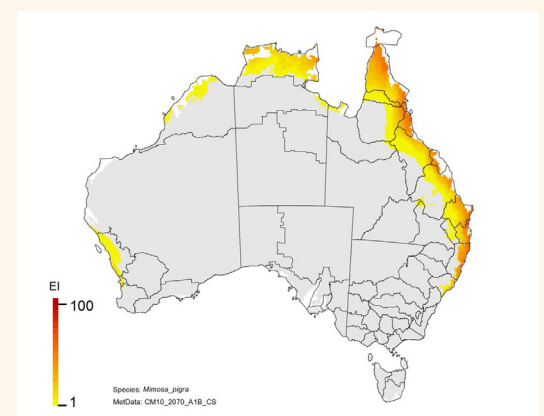
## Weeds and Climate Change: Key Messages

FIGURE 1

**Weed Distribution Mapping:**  
Weed threats may increase in some areas but decrease in others



CURRENT CLIMATE



2070 PROJECTIONS (MK3)

NRM regions and projected climatic suitability (Ecoclimatic Index) for *Mimosa pigra* (mimosa) using CLIMEX modelling. Upper: current climate. Lower: projections for 2070 based on CSIRO Mk3 global climate model (GCM), A1B SRES emissions scenario.

# General components of weed management planning through an adaptation lens.

## Step 1. Assessment

Under climate change, assessment may need to include:

- New weed threats from both inside and outside the region
- Existing weed threats that may get worse
- New weed threats from changing land

## Step 2. Strategy & Priorities

Under climate change, strategic planning and prioritisation may be different because:

- An increasing number of potential weed problems may require stricter prioritisation to focus on weeds that impact what communities value
- Priorities may need to shift substantially over time as new threats emerge and values change

## Step 3. Implementation Planning & Action

Under climate change, implementing weed management may need to be different because:

- The effectiveness of some existing weed control measures is expected to decrease
- New weeds may need new forms of control
- Control measures suitable for extreme events rather than average conditions may be a robust approach

## Step 4. Monitoring

Under climate change, monitoring may need to be different because:

- A cost-effective approach may involve greater monitoring for new threats rather than immediate control of any new species detected
- Widespread monitoring for new threats could involve high levels of community engagement

## Step 5. Reflection

Under climate change, reflection may need to be different because:

- It may need to happen more frequently to ensure new threats detected by monitoring can be acted on quickly
- It may need to consider adaptation responses in other sectors or regions that affect weed distribution



## The Weeds and Climate Change module

The Weeds and Climate Change module is delivered in three parts:

- The Weeds and Climate Change Technical Guide (PDF), available via the website
- [Weeds pages on \*adaptnrm.org\*](#) featuring a summary of key messages from the technical guide, and with links to:
- Supporting materials and information on invasive plant species, including maps and datasets, available through the CSIRO Data Access Portal [data.csiro.au](http://data.csiro.au)



## Download Available

The Module 2 Weeds Technical Guide is available to download on: [WWW.ADAPTRM.ORG](http://WWW.ADAPTRM.ORG)

## Citation

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