

Section One - Introduction

1.0 Introduction

1.1 Background

Willows in Australia

Although a familiar and often well-loved icon of the Australian landscape, willows (*Salix* spp.) are among the most serious river bank and wetland weeds in temperate Australia. For this reason willows (except *S. babylonica*, *S. x calodendron* and *S. x reichardtii*) have been listed as Weeds of National Significance, one of Australia's twenty worst invasive plants.

Willows infest thousands of kilometres of waterways throughout Victoria, New South Wales, the Australian Capital Territory and Tasmania, with some willows also present in Queensland, South Australia and Western Australia. They cause substantial economic and environmental impacts including reduced water quality and availability, increased erosion and flooding, reduced aquatic and riparian biodiversity and obstructed access to streams for fishing and aquatic sports. More than \$10 million is spent annually on willow management across Australia, costing in the order of \$35,000-150,000/km of densely infested waterways.

Willows are extremely promiscuous and can hybridise and spread by seed up to 100 kilometres from their initial source, highlighting the need for coordinated action across regions and States. The National Willows Taskforce (NWT) was established in August 2005 in order to help coordinate the strategic management of willows across Australia. This is facilitated through implementation of the National Willows Strategy.

Willow management in Australia

At least 32 naturalised and about 100 cultivated willow taxa (species, varieties and hybrids) are present in Australia. The distribution, invasiveness and impacts of these willows is somewhat poorly understood. There is a need to determine the relative importance and potential impact of each species in order to make informed decisions about the best way to manage existing and potential future willow infestations on public and agricultural land.

It is essential that the importance of individual weeds in our environments be understood, otherwise, the decisions to control them cannot be correctly made. Decisions based on limited factual data and emotional reactions will almost certainly result in poorly targeted expenditure of resources and, possibly, damage to the environment through inappropriate use of control measures.

It is unrealistic and unnecessary to expect that all willows can and should be controlled. It is also unrealistic to expect the community or government to be able to eradicate all willow infestations in the country, given the enormous costs involved. Control programs have to be targeted to priority species (those that are or have the potential to impact on high social, environmental or agricultural values) or priority areas. To assist in prioritisation, a more formal weed risk assessment of each species needs to occur.

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1.2 The project

Prior to 2006, information on the current and potential extent and impacts of different willow taxa across Australia was extremely limited. This was recognised by the National Willows Taskforce (NWT) as a major drawback to effectively implementing the National Willows Strategy. The NWT therefore developed a project to update willow mapping data and undertake detailed weed risk assessments to understand the distribution, invasiveness and impacts of willow taxa, and enable more effective prioritisation of willow management actions from the national to the local level. This project was based on the principle that 'you can't manage what you don't know'.

In May 2006, the National Willows Taskforce successfully gained funding through Round 2 of the Australian Government's Defeating the Weeds Menace Programme for a project titled '*Developing willow management priorities from the local to the national level*'. The project was supported and administered by the Department of Primary Industries Victoria on behalf of the National Willows Taskforce.

The project was developed to address **two key components**:

1. Determine the *extent of willow infestations* across Australia, and
2. Conduct detailed *weed risk assessment* of naturalised and non-naturalised cultivated willows.

The project was completed by conducting the following **eight key phases** from June 2006 to March 2008:

- Phase 1:** Collate and digitise currently available mapping information.
- Phase 2:** Conduct a weed risk assessment of willow taxa in Australia to prioritise willow taxa for management action.
- Phase 3:** Conduct workshops and interviews in each willow-affected Natural Resource Management (NRM) region across Australia.
- Phase 4:** Ground truthing and identification of inconsistencies and gaps in information.
- Phase 5:** Collate information into a centralised database and produce interactive national maps.
- Phase 6:** Using current distribution information, refine weed risk assessment of all willow taxa, giving potential distribution and relative invasiveness and impact.
- Phase 7:** Produce a prioritisation matrix based on weed risk and feasibility of coordinated control.
- Phase 8:** Produce reports on regional, State and national priority actions for willow management and recommendations for the legislative classification of each taxa.

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1.3 Uses for the information

The following report contains results from the eight key phases, including distribution maps of willows and prioritisation matrices for willow management from a national to the local level. The report discusses the methodology, results, implications and recommendations relating to the data from each of the two key components.

Setting priorities for on-ground management

The data from this project can assist willow managers in setting priorities for on-ground management that provide the greatest environmental and economic benefits. It can be used to determine and make decisions about:

- Where to prioritise willow management efforts.
- Which areas to target and which willows to target, particularly as willows can spread by seed across catchments.
- Which willows should be targeted as higher priorities than other willows.
- How to use our resources more efficiently and target the most strategic areas.
- If willows are not currently a problem in a region; whether they will likely become a problem and how to make sure they do not spread there.

Managing conflicting views and uses of willows

The data is also useful as a means of altering legislation to more effectively manage conflicting views and uses of willows and the willow problem. It is intended recommendations from this data will assist:

- Knowledge on which willows are a high weed risk and should be restricted from trade and planting, and which willows may be considered lower risk.
- State/Territory governments to make objective, scientifically-based decisions on legislation to actively control high risk problem willows.

This report provides a more objective, scientific process for prioritising willows than has previously been possible. It clearly outlines ***national priorities*** for willow management, including priority areas and willow taxa, that will provide the basis for directions set by the National Willows Taskforce.

A process for setting priorities at state and local levels

Given the extent of willow distribution across Australia and the differences among jurisdictions, it was beyond the scope of this project to set priorities at a finer scale. Instead, it provides a sound process for setting priorities at state and local levels and a toolkit that provides key information needed and directions on how to implement this process. Each area will need to use the information provided and implement this process to determine priorities for their specific area. Such an evidence-based approach will help build credibility in any future decision making and management activities at any level.

