

# Weed Risk Assessment of Willows (*Salix* species) in Australia

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## Research scope

In order to prioritise activities that will stop the further spread of willows and to effectively manage existing infestations, it is important to know:

- a) which of the willows in Australia pose the biggest threat to aquatic and riparian values, and
- b) which places in Australia are or will be the most susceptible to willow invasion.

To address these two questions, willows are being subjected to a national weed risk assessment (WRA) process that calculates the invasiveness, impacts, present distribution and potential distribution of many of the willows present in Australia.

## Results to date

A preliminary analysis ranked willows according to their invasiveness and impacts. The highest risk taxa were *S. cinerea*, *S. purpurea*, *S. x rubens*, *S. fragilis*, *S. alba* & *S. nigra*. The impacts assessment was originally designed to assess a wide variety of weedy species. It needed to be tailored to reflect the degree that different willows impact on environmental, agricultural and social values. A workshop was held to identify and develop criteria to determine which resources are or could be impacted on by willows. Analytical Hierarchy Process was used to determine the relative importance of these criteria. These criteria will have different weightings in the weed risk assessment to reflect their relative importance in determining the risk of each willow taxon.

## Implications for management

Using evidence from published literature and experts in the field, the WRA gives each willow taxa a score that represents its risk, or threat. Willows can then be ranked from the highest priority to the least. This allows the limited funding to be allocated to the most important problems or priority areas.

Each willow taxa is assessed using a standardised set of questions. The responses to these questions have been compiled in a database. This allows us to compare willow taxa based on elements of their biology or ecology. For example, you could query the database to display all willows that are capable of vegetative reproduction, or all willows that have a high impact on stream health.

## Further work needed / gaps

- ◆ Observations of the **environmental/agricultural impacts** of the following willows: *S. aegyptiaca*, *S. alba* var. *coerulea*, *S. daphnoides*, *S. eriocephala*, *S. myrsinifolia* (syn. *S. nigricans*), *S. pentandra* and *S. x sericans*.
- ◆ How the following willows **reproduce in Australia** (by seed/hybridising &/or vegetatively?): *S. caprea*, *S. daphnoides*, *S. gracistyla*, *S. myrsinifolia* (syn. *S. nigricans*) and *S. matsudana x alba*
- ◆ The **growth rate** of the following willows: *S. daphnoides*, *S. elaeagnos*, *S. triandra*, *S. X calodendron*, *S. X mollissima*, *S. X pendulina*, *S. X reichardtii* & *S. X sericans*.
- ◆ Any evidence of willows from the ***Salix* subgenus *Chamaetia* (the alpine willows) becoming naturalised** anywhere in the world, or any other information about their potential for invasiveness e.g. the way they reproduce, their growth rates etc.. This information would be extremely valuable.

## Related publications

Preliminary results of willow weed risk assessment can be found at: [www.dpi.vic.gov.au/dpi/vro/vrosite.nsf/pages/weeds\\_listing2\\_s](http://www.dpi.vic.gov.au/dpi/vro/vrosite.nsf/pages/weeds_listing2_s)

Willows Weed Risk Assessment methodology can be found at: [www.weeds.org.au/WoNS/willows](http://www.weeds.org.au/WoNS/willows)

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