

Biocontrol research for environmental weeds management in NSW

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Summary Classical biological control (biocontrol) involves the deliberate introduction of host-specific natural enemies of a target weed from its native to its invaded range. In 2016, the NSW Environmental Trust invested in biocontrol research for environmental weeds in NSW. Project scoping identified that the best approach was to take advantage of previous or current biocontrol projects to significantly reduce their cost, time and required resources. The project comprised two stages, with stage 1 now completed. In this first stage, a transparent prioritisation framework was devised, based on a matrix assessment system that involved:

1. initial screening steps to identify eligible weeds,
2. an assessment of the threat each weed poses to natural ecosystems,
3. the feasibility of undertaking a biocontrol project for each weed using the most promising candidate biocontrol agent, and
4. the likelihood of the selected agent being successful at controlling the weed if released in a new environment.

The framework was applied to generate a justified, priority list of biocontrol weed targets. Of the 67 eligible weeds identified and assessed, 18 were deemed to be priorities. These species were then allocated to a cell in a matrix of weed threat versus biocontrol prospects. Considering the first and second priority weeds identified and resources available for undertaking research in Stage 2, the Environmental Trust selected five weeds for investment: balloon vine (*Cardiospermum grandiflorum*), sea spurge (*Euphorbia paralias*), leaf cactus (*Pereskia aculeata*), broadleaved pepper tree (*Schinus terebinthifolius*) and yellow bells (*Tecoma stans*). Stage 2 has now begun with research on a candidate biocontrol pathogen agent of sea spurge.

Keywords Biological control, Environmental Trust, prioritisation framework, balloon vine (*Cardiospermum grandiflorum*), sea spurge (*Euphorbia paralias*), leaf cactus (*Pereskia aculeata*), broadleaved pepper tree (*Schinus terebinthifolius*), yellow bells (*Tecoma stans*).