

Water influences the impact of a native parasitic plant ('snotty gobble') on gorse

Robert M. Cirocco¹, José M. Facelli¹ and Jennifer R. Watling^{1,2}

¹DP 312 Benham Building, School of Biological Sciences, The University of Adelaide, Adelaide, South Australia 5005, Australia

²All Saints Building, Manchester Metropolitan University, Manchester M15 6BH, UK
(robert.cirocco@adelaide.edu.au)

Summary Weeds of National Significance such as *Ulex europaeus* (gorse) have devastating socio-economic and environmental impacts. At The University of Adelaide we have been researching the potential use of a native parasitic vine *Cassytha pubescens* otherwise known as 'snotty gobble' as a novel bio-control for major shrubby weeds such as gorse and blackberry. Native parasitic plants may have detrimental effects on performance of invasive weedy hosts by removing resources via suckers and thus contribute to their demise. Glasshouse and field studies have documented severe effects of parasites on invasive species, but the effects of parasites may be highly variable depending on environmental conditions. We conducted a glasshouse experiment investigating the effects of *Cassytha pubescens* on growth and physiology of gorse under high versus low water supply. The strong effect of *Cassytha* on growth of gorse was more severe in the well-watered treatment likely being due to improved parasite performance in these conditions. *Cassytha pubescens* also negatively affected nitrogen status of

gorse and there was evidence of long term breakdown of the photosynthetic apparatus of the host in response to infection. The data indicate that the native parasite negatively affects photosynthetic performance and growth of gorse by removing large amounts of nitrogen from the host. Thus, *Cassytha* continues to show promise as an effective native bio-control against major invasive shrubby weeds in Australia, particularly in areas of high water availability and if successful may be used to help restore our native biodiversity.

Keywords Native bio-control, *Cassytha pubescens*, gorse, nitrogen, parasitic plant-host association, photosynthesis, *Ulex europaeus*, water availability, Weeds of National Significance.

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