Progress and prospects for the biological control of invasive alien grasses Poaceae) in South Africa

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Historically, invasive alien grasses have not been considered a major threat in South Africa, and as a result, very few resources are allocated to their management. However, there is an increasing awareness of the severe environmental and socio-economic impacts of invasive grasses and the need for appropriate management options for their control. South Africa has a long history of successfully implementing weed biological control (biocontrol) to manage invasive alien plants, however much like the rest of the world, invasive grasses do not feature prominently as targets for biocontrol. The implementation and early indicators of success of the few grass biocontrol programmes globally and the finding that grasses can be suitable targets, suggests that biocontrol could start to play an important role in managing invasive alien grasses in South Africa. In this paper, we evaluated the prospects for implementing novel grass biocontrol projects over the next ten years against 48 grasses that have been determined to represent the highest risk based on their current environmental and economic impacts. The grasses were ranked in order of priority using the Biological Control Target Selection system. Five grasses were prioritised – *Arundo donax* L., *Cortaderia jubata* (Lem.) Stapf, *Cortaderia selloana* (Schult & Schult) Asch. & Graebn., *Nassella trichotoma* (Hack. ex Asch.), and *Glyceria maxima* (Hartm.) Holmb., based on attributes that make them suitable biocontrol targets. *Arundo donax* has already been the target of a biocontrol programme in South Africa. We reviewed the progress made towards the biocontrol of this species and discuss how this programme could be developed going forward. Moreover, we outline how biocontrol could be implemented to manage the remaining four high-priority targets. While biocontrol of grasses is not without its challenges (e.g. unresolved taxonomies, conflicts of interest and a lack of supporting legislation), South Africa has an opportunity to learn from existing global research and begin to invest in biocontrol of high-priority species that are in most need of control.

Key words: *Arundo donax*; *Cortaderia jubata*; *Cortaderia selloana*; *Nassella trichotoma*; *Glyceria maxima*; *Tetramesa*; weed biological control

INTRODUCTION

Grasses (Poaceae) are one of the most successful angiosperm families worldwide, consisting of approximately 11 000 species (Linder *et al*. 2018). Grasslands occupy a greater land area than any other vegetation type, covering one-third of the globe and contribute to approximately 20% of