

Controlling *Sparaxis bulbifera* (L.) Ker Gawl. invading a clay based wetland on the Swan Coastal Plain

Kate Brown and Kris Brooks

Environmental Weeds Action Network, c/- Swan Catchment Centre, PO Box 1906, Midland, Western Australia 6936, Australia. Email: ewan@iinet.net.au

Summary Our study site was located in one of the few remaining clay based wetlands on the eastern side of the Swan Coastal Plain, the Brixton Street Wetlands. Around 50% of the native flora at Brixton Street comprise annual or perennial herbs, many of them rare or restricted taxa. Invading populations of the South African cormous geophyte *Sparaxis bulbifera*, are one of the most significant threats to the native flora of the wetlands.

In early September 2000 herbicide trials were conducted to investigate effective control methods for *S. bulbifera*. Metsulfuron methyl (Brushhoff®, 600 g kg⁻¹ metsulfuron methyl) was applied at 2.5 g ha⁻¹ and at 1.0 g ha⁻¹ and chlorsulfuron (Glean®, 750 g kg⁻¹ chlorsulfuron) was applied at 2.5 g ha⁻¹.

All were applied with the penetrant Pulse® (1000 g L⁻¹ polydimethylsiloxane) at 2 mL L⁻¹. Herbicide was carefully spot sprayed in each treatment however as this weed grows very closely amongst the native herbs and shrubs these were also often subject to herbicide application. We therefore recorded the impact of each treatment on co-occurring native taxa.

The results of this study have important implications for weed management in urban bushland. Detailed results have been submitted for publication elsewhere. For more information please contact the authors.

Keywords Weed invasion, metsulfuron methyl, rare flora, urban bushland.

The role of boneseed in modifying native seedling recruitment in New Zealand coastal communities

Kate McAlpine and Susan Timmins

Science and Research, Department of Conservation, PO Box 10-420, Wellington, New Zealand

Summary We examined the influence of boneseed (*Chrysanthemoides monilifera* var. *monilifera*) on native seedling recruitment in four coastal sites around Wellington, New Zealand. In some areas of Wellington, islands of dense boneseed occur on hills otherwise dominated by gorse (*Ulex europaeus*). How and when does boneseed out-compete gorse in these areas, and what is the potential impact on native seedling recruitment? We selected four boneseed study sites, three of which also had gorse present. All sites had relatively intact secondary native forest within seed dispersal distance. We compared seed bank composition in each of the four boneseed sites with the nearby native populations, and monitored seedling recruitment with and without canopy disturbance in the boneseed sites. We also considered the potential effect of fire disturbance on competitive relationships by exposing boneseed and gorse seeds to a range of high temperatures. Preliminary data suggest that although native

species are still present in the seedbank of invaded sites, both boneseed and gorse germinate faster following disturbance, and so gain an early recruitment advantage. Gorse seedlings outnumber boneseed soon after disturbance, but boneseed seedlings are much larger and grow quicker, so may eventually out-compete gorse. Fire alters the competitive relationship between boneseed and gorse, depending on intensity and timing. Where boneseed out-competes gorse following disturbance this will have serious implications for native regeneration following boneseed invasion. Native species can eventually regenerate through the relatively open canopy of mature gorse, but a pure stand of boneseed is closed and dark with little seedling recruitment evident. The long-term impact of boneseed on native biodiversity may therefore be much more serious than gorse, and may justify greater attention from conservation managers.

Keywords Fire, seed bank, seedling competition.