

Herbicidal control of environmental weeds from sub-Antarctic Macquarie Island

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Summary Macquarie Island in the sub-Antarctic is an inhospitable place for weeds due to its remote location and severe climate. Only three species of non-native environmental weeds are well established in this World Heritage Area – *Poa annua* (winter grass), *Stellaria media* (chickweed) and *Cerastium fontanum* (mouse ear chickweed) – where rabbits, rats and mice were recently eradicated. Attention has now turned to understanding the ecology of the non-native plants and potential for their control. The efficacy and selectivity of several herbicides was tested on the target weed *S. media*, the other two dominant weeds and several co-occurring native grasses and herbs under simulated cold sub-Antarctic climatic conditions (between 5 and 10°C) *ex situ* at the University of New England's

cold climate research facility, Armidale, NSW. The most effective post-emergent herbicides tested for *S. media* control were glyphosate and linuron, both of which showed reduced damage to several of the native species, particularly at lower application rates. The most effective pre-emergent control of *S. media* was achieved with simazine, although linuron also significantly reduced weed emergence and growth. Effective and selective herbicidal control of *S. media* appears achievable under sub-Antarctic conditions. Field testing on Macquarie Island is now required to confirm these findings.

Keywords Environmental weeds, eradication, *Stellaria media*, *Cerastium fontanum*, *Poa annua*.