

Carolyn Lusk BSc (Ecology) 2004, PGDipApplSc (Natural Resource Management) 2005, M AgriSc with Distinction (Agriculture) 2012.

I am a technician employed by AgResearch in the Pest & Weed Management Team at the Science Centre in Lincoln, Canterbury, where I have been since 2007. Lincoln is a University town situated about 20 kms South of Christchurch on the Canterbury Plains. The research of this team focusses on novel techniques for managing pests and weeds in pastoral farming systems and encompasses traditional methods using pesticides and cultural techniques as well as classical and inundative biocontrol.

I am mainly working in two State funded (MSI) programmes; Undermining Weeds which is concerned with pastoral weeds giant buttercup, Californian thistle and nassella tussock, and Beating Weeds II which has a focus on weeds of natural ecosystems. Some examples of the research in Undermining Weeds I have been involved with are; testing two novel fungal biocontrol agents on Californian thistle, mowing Californian thistle in the rain to enhance its demise, measuring impacts of Californian thistle on pastoral systems, giant buttercup ecology studies, nassella tussock ecology and dispersal studies and testing a new herbicide for nassella tussock. In Beating Weeds II my work has involved monitoring outcomes of management projects for *Tradescantia fluminensis* and evaluating herbicides for this weed.

I have just completed a MAgriSci degree with Massey University which focussed on the evolution of herbicide resistance of giant buttercup to flumetsulam. I carried out dose-response trials on 15 populations of giant buttercup, with differing past exposures to flumetsulam using three herbicides. My study provided good evidence for resistance to flumetsulam that has evolved through repeated use and showed a resistant population could survive 25 times the recommended rate of this product and the LD₅₀ was over 5 times that of a susceptible population. This finding, together with the earlier discovery of phenoxy herbicide resistance with the same weed species, means there are few options left for managing resistance.

I will use my CAWS Early Career Researcher travel scholarship to attend the Global Herbicide Resistance Challenge in Perth, in February 2013, to present the results from my thesis. This international conference is a highly relevant forum where many of the worlds' leading scientists in herbicide resistance will be present. I hope to gain further knowledge on this topic to help our future research into better understanding and managing resistance in giant buttercup.

