

Eradication strategies using biocontrol agents as proxy invasive species

Hester E. Williams^{1,2}, Dr Darren Ward^{1,2}, Dr Ekehard Brockerhoff³

¹Auckland University, ²Landcare Research, ³Scion Research

Invasive species increasingly threaten ecosystems, food production and human welfare worldwide, but not all species entering a new environment become established. Successful establishment is hampered by several factors that put small populations at risk of extinction; among these are environmental variability, demographic stochasticity and Allee effects. Allee effects may arise from intrinsic biological traits of the species, or its interactions with its host, natural enemies or other aspects of its environment. My studies will focus on biocontrol agents of the invasive plant *Tradescantia fluminensis*, as a model system of invasive plant-feeding insects. Using a range of field and mesocosm experimental approaches I will determine those factors that impede initial establishment, and that can be manipulated to drive the population density below the Allee threshold where it would proceed to extinction. In the presentation I will provide a review of the key factors that affect establishment and extinction of small founder populations and give an overview of the experimental approaches used in the project.