

Biocontrol post-release: could earlier failures lead to overlooked successes?

Iain D. Paterson¹, Zezethu Mngqeta¹ and Paul O. Downey²

¹Department of Zoology and Entomology, Rhodes University, PO Box 94, Grahamstown 6140, South Africa

²Institute for Applied Ecology, University of Canberra, Australian Capital Territory 2601, Australia
(paul.downey@canberra.edu.au)

Summary Whilst there have been several major successful biological control programs, in which the released agents devastate the target weed population, the vast majority of agents have been less successful, with the actual status of many released agents being either unknown or unconfirmed. Often this absence of evidence of the agent's establishment in the field is subsequently described as an actual 'establishment failure' which often results in no further evaluations or research on the agent being undertaken. Surprisingly given the large number of these 'failed' agents, or agents whose release status is unknown, there has been little impotence shown to reassess such agents and confirm and document their actual status, or determine and describe the reasons why they failed to establish and therefore seemingly discarded as an agent. Here we re-examined one such agent (*Phenrica guerini*)

released on *Pereskia aculeata* in South Africa. *Phenrica guerini* was first released in 1991. Based on preliminary post-release evaluations from a subset of sites, it was concluded in 1997 that due to poor establishment rates that further releases of the agent be halted. Interestingly additional releases were subsequently made of the agent 12 years later, without any post-release evaluations. In 2014 a dedicated survey showed the early decision to halt the program may have been premature. Based on this example combined with an examination of the status of numerous other agents we believe that there may be many other overlooked successes, which if documented could have positive ramifications for the science and control of weeds.

Keywords Post-release evaluations, biological control, *Phenrica guerini*, establishment.