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Location: tbc (Rhodes / Stellenbosch / Pretoria)
Level of project: Doctoral
Working title: The risks associated with the trans-national spread of classical biological control agents

Background

The use of classical biological control has been one of the few success stories in the management of biological invasions, leading in several cases to the reduction in impacts caused by invasions to a level where no other management interventions occur. However, there are risks inherent in the process. These are dealt with through a well-developed international best practice to determine host-specificity and the likelihood of unintended impacts. National legislation is in place in many countries to allow the import of biological control agents that pose little risk to the country and provide substantial benefits.

Classical biological control agents do not, however, respect national boundaries, and can spread between countries. This has created substantial benefits (e.g. control is region-wide), but also poses risks if neighbouring countries value the target invasive organism or alternative hosts of the biological control agents.

The purpose of this project will be to determine the historical, current, and potential future extent of the issue, investigate the potential in a few case studies (e.g. the cactus moth, *Cactoblastis cactorum,* and the cochineal insect, *Dactylopius opuntiae,* on invasive alien Cactaceae, and the biological control agents released to control cochineals that are agricultural pests of cultivated cactus crops), and develop guidelines for how these issues could be best incorporated into existing risk analysis frameworks.

The project would suit a candidate with experience in biological control or risk analysis, a good foundation in biology and particularly entomology, and an ability to develop biologically realistic models that can been interpreted in terms of meaningful policy outcomes.

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Further Reading

Pratt PD, Center TD. (2012). Biocontrol without borders: the unintended spread of introduced weed biocontrol agents. Biocontrol 57: 319-329. http://dx.doi.org/10.1007/s10526-011-9412-4