

A weed biocontrol programme for the Cook Islands

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Much of the Cook Islands' natural habitats and agricultural land are being threatened by invasive weeds. Consequently a five-year weed biocontrol programme started in November 2013 for the Cook Islands, funded by the Ministry of Foreign Affairs and Trade of New Zealand. Eight of the 52 worst invasive weed species were selected for the programme by a panel of regional experts in agriculture, biodiversity and biosecurity, as well as representatives from local interest groups. Five of the eight species selected are 'repeat programmes' using proven agents already available in other countries, namely giant reed, *Arundo donax* (Poaceae: Arundinoideae); Noogoora burr, *Xanthium pungens* = *X. strumarium* (Asteraceae); grand balloon vine, *Cardiospermum grandiflorum* (Sapindaceae); mile-a-minute vine, *Mikania micrantha* (Asteraceae) and strawberry guava, *Psidium cattleianum* (Myrtaceae). Red passionfruit, *Passiflora rubra* (Passifloraceae) and African tulip tree, *Spathodea campanulata* (Bignoniaceae) represent 'novel programmes' because agents have never been released against these targets, although preliminary surveys in Ghana have already identified promising candidate agents for *S. campanulata*. Published host records indicate several species of *Heliconius* butterflies (Lepidoptera: Nymphalidae) that are likely to feed on *P. rubra*, but should not attack *Passiflora* species that are grown for their edible fruits in the Cook Islands. The current programme will fund host-range testing on these *Heliconius* butterflies as well as additional surveys (beginning in March 2014) to collect and conduct host-range tests on candidate agents for *S. campanulata*. The aim is to release agents for both these novel targets during the current programme. In addition, research will be conducted on *Merremia*, *Merremia peltata*, (Convolvulaceae) for which the main objective, using DNA technologies, is to verify where it is native and where it has been introduced, and to determine whether it should be a target for biocontrol in the Cook Islands. The long-term objective is to share successful agents with other Pacific nations.

Pioneering classical biological control of invasive weeds in Brazil: piggy-backing on the successful project against rubber-vine, *Cryptostegia grandiflora*, in Australia

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Cryptostegia madagascariensis (Asclepiadaceae), most commonly known as Madagascar rubber vine, or sometimes as devil's claw, has now been recognized as a major invasive weed in the dry forests (Caatinga) of North-east Brazil. This invasion is threatening not only the unique riparian vegetation in the semi-arid areas of Ceará, Piauí and Rio Grande do Norte, but also the economically and socially important but slow-growing endemic palm species *Copernicia prunifera* (carnauba) (Arecaceae). This palm species is so iconic for the region that its illustration is included in the state flags of both Ceará and Rio Grande do Norte. Recently, a study aimed at selecting a target weed for classical biocontrol in Brazil, using a prioritization tool, led to the conclusion that *C. madagascariensis* is the top candidate for classical biocontrol in Brazil from a list including more than 100 exotic invasive plant species. An initiative involving Brazilian institutions – Universidade Federal de Viçosa, Universidade Estadual do Ceará, among others – and the international organization CABI, was launched recently and is on course to become the first example of classical biocontrol of a weed in Brazil. This target weed offers the unique circumstances of generating no conflicts of interest and allowing for 'piggy-backing' on the highly successful project developed by Queensland and CABI scientists that led to the control of rubber-vine (*Cryptostegia grandiflora*) with the rust species *Maravalia cryptostegiae* (Pucciniales) from Madagascar. It is known that there are specific strains of *M. cryptostegiae* that are highly damaging to *C. madagascariensis*. These were collected and tested on both plant species in the late 1980s and early 1990s. It is hoped that this project will pave the way for novel projects against other invasive weeds in Brazil.