Confirming host-specificity predictions for *Oxyops vitiosa*, a biological control agent of *Melaleuca quinquenervia*

P.D. Pratt, M.B. Rayamajhi, T.D. Center and P.W. Tipping
USDA/ARS, Invasive Plant Research Laboratory, 3205 College Avenue, Fort Lauderdale, FL 33314, USA

An underlying assumption of weed biological control asserts that laboratory-based host-specificity testing accurately predicts the realized host range of herbivores after release. We tested this assumption for the Australian weevil, *Oxyops vitiosa*, which was introduced into Florida (USA) for the biological control of *Melaleuca quinquenervia*. A series of common garden experiments were conducted to determine if *O. vitiosa* would exploit species predicted to be non- or suboptimal hosts in host-range tests. Adult immigration into replicated common gardens was influenced by species, with >90% of individuals located on *Melaleuca* hosts. While adults alighted on 78% of the test plants, oviposition was restricted to *Melaleuca* species and the exotic *Psidium guajava*. All stages of *O. vitiosa* larvae were observed on the three *Melaleuca* species while only first instars occurred on *P. guajava*. Mean larval densities were greatest for *M. quinquenervia*, which represented 92% of all larvae observed. The residency time for marked weevils placed on test species was greatest for *Melaleuca* congeners, which also recruited 98% of all recovered weevils. Felling the *M. quinquenervia* stand that surrounded a common garden resulted in high levels of immigration within the study plots, but feeding and oviposition on non-target plants were nonexistent. These results support the premise that risk assessments based on physiological host ranges are conservative when compared to realized ecological host ranges.

Biological control of the ivy gourd, *Coccinia grandis* (*Cucurbitaceae*), in the Mariana Islands

G.V.P. Reddy,1 J. Bamba,2 T.Z. Cruz1 and R. Muniappan1

1University of Guam, Western Pacific Tropical Research Center, Mangilao, GU 96923, USA
2University of Guam, Agriculture and Natural Resources, Cooperative Extension Service, Mangilao, GU 96923, USA

The invasive plant, ivy gourd, *Coccinia grandis*, is of African origin and was introduced to Guam and Saipan in the 1980s. It has occupied more than 200 ha in different parts of Guam and about 2000 ha of Saipan. A biocontrol program has been initiated in Guam and Saipan by introducing the natural enemies *Melittia oedipus* Oberthor (Lepidoptera: Sessidae), *Acythopeus burkhartorum* (Coleoptera: Curculionidae) and *Acythopeus cocciniae* (Coleoptera: Curculionidae). The Animal and Plant Health Inspection Service of the US Department of Agriculture has accepted the list of species used for host-specificity tests in Hawaii, and it was decided that the endemic species, *Zehnaria guamensis* (*Cucurbitaceae*), be tested in Guam. Host-specificity tests of these biocontrol agents were conducted at the quarantine facility in Guam. In May 2003, *A. cocciniae* was field-released in Guam and Saipan. It has established in both islands and caused defoliation of *C. grandis* by the larval mining of the leaves. *Acythopeus burkhartorum* was field-released in Guam in October 2004 and on Saipan in February 2005. Its field establishment on Guam has been confirmed, and its establishment in Saipan is yet to be verified. Host-specificity tests on *M. oedipus* are being carried at the University of Guam Quarantine facility.