The first genuine root-attacker (*Longitarsus* sp., Coleoptera:Chrysomelidae: Alticinae) for *Lantana camara*

D.O. Simelane

ARC–Plant Protection Research Institute, Private Bag X134, Pretoria, 0001 South Africa

Despite the establishment of 11 leaf-, flower-, fruit- and shoot-attacking insect agents, biological control of *Lantana camara* L. (lantana) in South Africa is not sufficiently effective. Not only does this shrub compensate for insect damage, the populations of lantana biocontrol agents also decline during autumn or winter, particularly in areas prone to frost and drought. In the present initiative against lantana, the South African biological control program is targeting niches not affected directly by natural enemy attack. Accordingly, a flea beetle, *Longitarsus* sp., was collected from *L. camara* in Mexico and introduced into quarantine in South Africa because of its ability to damage the root system, a niche not exploited by any of the previously introduced lantana biocontrol agents. The *Longitarsus* sp. larva is highly damaging to the roots, leading to reduction in plant growth rate, which could in turn hamper flower and seed production. Host-range tests were carried out on 52 plant species in 11 families. Only 11 plant species, all in the family Verbenaceae, supported complete development of the root beetle during no-choice tests. The root beetle showed a very strong preference for *L. camara* during paired-choice and multi-choice tests. The narrowing of the host range, particularly during the multi-choice tests, demonstrated that the 10 marginally suitable plant species attacked during the no-choice tests were only attacked due to the inability of the insect to exercise its real host-selection ability under laboratory conditions. Under natural conditions, its host range is expected to be confined to the target weed. It was therefore concluded that this root feeder is sufficiently host-specific to *L. camara* and poses no threat to non-target plant species. Application for permission to release this agent was submitted to the relevant authorities.

Biological control of ragwort (*Senecio jacobaea*): monitoring nontarget impacts of *Cochylis atricapitana* and *Platyptilia isodactyla* on native Australian *Senecio* species

K.A. Snell[1] and D.A. McLaren[2]

[1]Department of Primary Industries, Keith Turnbull Research Institute, PO Box 48, Frankston, Victoria 3199, Australia

[2]Cooperative Research Centre for Australian Weed Management

Despite rigorous host-range and specificity testing before the approved release of a biological control agent, there is still a great need to monitor the post-release safety of non-target species. This is to ensure that biological-control programs are delivering their intended outcomes without causing any detrimental impacts upon non-target species. Laboratory host-specificity testing before release of the ragwort (*Senecio jacobaea*) crown boring moths, *Cochylis atricapitana* and *Platyptilia isodactyla,* had shown some low-level feeding damage to several native *Senecio* species. To monitor any potential non-target impacts, six sites across Victoria where *C. atricapitana* and *P. isodactyla* have established were sampled to determine whether any non-target native *Senecio* species were being attacked by these biological control agents. Native *Senecio* plants were collected at each of the six sites, whilst bolting ragwort plants and rosettes were collected from three and four sites, respectively. Thirty native *Senecio* and bolting ragwort specimens and 15 ragwort rosettes were randomly collected from each of the available sites. In total, 180 native *Senecio* plants, 90 bolting ragwort plants and 60 ragwort rosettes were assessed in detail for attack by *C. atricapitana* and *P. isodactyla*. The visible signs of damage to individual plants were recorded, whilst the pupae and larvae found in individual plants were identified and recorded to determine agent attack rates. The presence of pupae and larvae from a common native moth *Patagoniodes farinaria* were also recorded. The direct attack upon ragwort by *C. atricapitana* and *P. isodactyla* was found to be quite high, but there was no evidence of any direct attack upon non-target

native *Senecio* plants. Damage was notable for 54.5% of the native *Senecio* plants sampled with 15.3% of this damage caused by the native moth *Patagoniodes farinaria* and the rest by other unidentified insect agents. Of the ragwort plants damaged, definite attack (presence of an agent) by *C. atricapitana* or *P. isodactyla* occurred upon 100% of the rosettes and 51% of the damaged bolting and flowering ragwort plants. The results from this study support the results obtained during detailed host-specificity studies, which indicated that *C. atricapitana* and *P. isodactyla* are host-specific to *S. jacobaea* and therefore pose a very low risk to the native flora.

Host specificity of *Megamelus scutellaris* (Hemiptera, Fulgoromorpha, Delphacidae), a potential agent for the biological control of waterhyacinth

A.J. Sosa,[1] H.A. Cordo,[1] M.A. Szudruk,[1] M.C. Hernandez[1] and M. Hill[2]

[1]South American Biological Control Laboratory, USDA–ARS, Bolivar 1559 (B1686EFA) Hurlingham, Buenos Aires, Argentina

[2]Department of Zoology and Entomology, Rhodes University, PO Box 94, Grahamstown, 6140, South Africa

The host range of *Megamelus scutellaris* was studied in the laboratory using two types of multiple-choice test (including and excluding water hyacinth), and one type of non-choice test. In the first multiple-choice test, plants other than Pontederiaceae were used, whereas in the second one only Pontederiaceae were used. For the non-choice test, five species and two varieties in the Pontederiaceae were included, and this test included maize and rice. These last two plants were included because they are host of many species of Delphacidae. Feeding damage was difficult to quantify, so the preference for each plant was indirectly measured using an index that related the number of insects on a given plant and the number of insects alive in the cage used. Mortality was also measured. When given a choice, *M. scutellaris* significantly preferred waterhyacinth to other plants and it did not show preference to a particular plant when waterhyacinth was absent. The mortality after 48 hrs in the tests where waterhyacinth was present was significantly lower than those where waterhyacinth was absent. In the non-choice trial, *M. scutellaris* reached the adult stage on only three plants: waterhyacinth, *Pontederia cordata lancifolia* and *P. rotundifolia*. However, nymphal mortality was lower, and the duration of the whole immature stage was significatively shorter in waterhyacinth than on the other two plants. These results, along with the fact that, despite extensive surveys, *M. scutellaris* has been recorded from waterhyacinth in only Argentina and Brazil, indicate that the insect is monophagous and a safe agent to be introduced into other countries for the biological control of this weed.

Realized host-specificity testing of *Bruchidius villosus* (Coleoptera: Chrysomelidae) in Europe

Thierry Thomann and Andy Sheppard

CSIRO European Laboratory, Campus International de Baillarguet, 34980 Montferrier-sur-Lez, France

Bruchidius villosus, a broom seed feeder, was introduced into New Zealand in 1987 from the UK and from New Zealand into Australia in 1995 as a biological control agent against Scotch broom (*Cytisus scoparius*) a leguminous shrub native to Europe. Introduction followed extensive testing in the UK, New Zealand and Australia that showed it to be host specific. Contrary to test results, *Bruchidius villosus* was found emerging from pods of tagasaste (*Chamaecytisus palmensis*), an exotic fodder species closely related to broom, in New Zealand in 1999. The same year, a field trial of the host range