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## **The Australian Sawfly *Lophyrotoma zonalis*, a Potential Agent for Control of *Melaleuca quinquenervia* in Florida**

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The Australian wetland tree, *Melaleuca quinquenervia*, threatens native ecosystems in southern Florida by forming dense forest monocultures. An extensive grass wetland, the Everglades, is the target of a massive restoration program that might fail if melaleuca and other invading weeds are not controlled. In 1997, an Australian weevil, *Oxyops vitiosa*, was released in southern Florida to destroy the young leaves of *M. quinquenervia*. It is hoped that heavy leaf damage will stunt growth and delay flowering, especially on seedlings and saplings. However, a large proportion of the infestation consists of mature trees over 20 m tall. Mature trees in Queensland, Australia, are sometimes defoliated by the larvae of a pergid sawfly, *Lophyrotoma zonalis*. Host range tests demonstrated that the sawfly is safe to release in Florida, and state and federal permission to do so has been requested. Female sawflies emerge with a full complement of eggs that they insert into the margins of mature leaves. Young instars feed gregariously, but later instars feed individually or in small groups. Older larvae completely devour the leaves. Pupation chambers are made in the soft bark or at the interface with the wood, which damages the trunk and branches. Emerging females mate and crawl upward to the leaves. Although females can fly, they appeared in the greenhouse to be more interested in ovipositing immediately when acceptable leaves were available. In the absence of adapted natural enemies, sawfly populations should increase rapidly, if they establish. Two or three generations a year are expected. Although stressed trees are usually considered the ones most damaged by defoliating insects, damage from the pupation chambers of this sawfly might turn out to be more important than defoliation.

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## **The Planthopper *Megamelus* sp. (Homoptera: Delphacidae), a Promising Candidate for the Biological Control of Water Hyacinth**

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In 1995, a revived interest for biocontrol of water hyacinth directed investigations to the screening of old candidates and the search for new ones. The need to protect pickerelweed (*Pontederia cordata*) in the U.S. for its ecological values, demands monophagous agents, those that will attack water hyacinth only. For this reason, highly

damaging candidates have had to be rejected and chances to find monophagous organisms were consequently diminished. Homopterans, in general, had been neglected in the past because of their common trend to polyphagy. However, the planthopper *Megamelus* sp. appears to be specific enough to be safe for pickerelweed. Two species of *Megamelus* have been found associated with water hyacinth and relatives. One attacks most Pontederiaceae but shows a strong preference for *Pontederia cordata*. The second species seems restricted to *Eichhornia crassipes*. The degree of specificity of both species was observed in the field and the laboratory. Here, the insects moved freely between several pools with different Pontederiaceae, making their choices in a quasi natural situation. *Megamelus* so-called *pontederiae* developed on *E. crassipes*, *E. azurea*, *P. cordata cordata*, *P. cordata lancifolia*, *P. rotundifolia*, and *P. subovata*. The other, *Megamelus* so-called *eichhorniae*, developed only on water hyacinth. Neither variety of pickerelweed (Argentina, U.S., and South Africa), was attacked. This species of *Megamelus* reached very high populations in the laboratory pools despite its eggs being heavily parasitized by two species of Mymaridae and its nymphs and adults by a Drynidae. In the field, frequent predation by Carabidae and Staphylinidae was observed. If devoid of its natural enemies, *Megamelus* sp. seems to have the potential for reaching high populations. Thus, it is considered a very promising candidate for biological control of water hyacinth.

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## Control of Alismataceae Weeds in Rice using the Mycoherbistat Fungus *Rhynchosporium alismatis*

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The fungus, *Rhynchosporium alismatis* (Oudem.) J.J. Davis is pathogenic to several weed species in the Alismataceae and is being investigated as a bioherbistat for use in alternative control strategies for management of *Alisma lanceolatum* and *Damasonium minus* in temperate Australian rice crops.

*Rhynchosporium alismatis* sporulates on a range of solid and liquid media.

Nutrient composition of liquid-shake cultures significantly influenced conidial production after 6 d at 25°C. Lima bean broth at pH 7.5 produced the largest number of viable and infective conidia (4.99 x 10<sup>7</sup>/ml). pH, *per se*, did not appear to affect yield directly. The medium in which an isolate was grown had a significant effect on the virulence of the resulting conidia as measured by disease severity scores in leaf discs of *A. lanceolatum* after 3 and 13 d. There was a significant difference between isolates, produced in the same medium, in the subsequent rate of disease development.

Sporulation, germination, and germ-tube length were greatest at 25° and 30°C. Lesion development on leaf tissue was greatest at 25°C but reduced at temperatures > 30°C. Fungal isolate DAR 73158 and lima bean broth are considered to be the combination of choice for further studies to explore the fitness of conidia produced in small-scale biofer-

mentors.

In addition to conidia, *R. alismatis* produces chlamydo-spores in culture. Large numbers ( $3.6 \times 10^6 \text{ cm}^{-2}$ ) were produced on potato dextrose agar within 8-15 d. Sixty percent of chlamydo-spores, 8 d to 3 mo old, germinated within 24 h at 30°C, producing up to 4 germ-tubes. One-month-old chlamydo-spores were pathogenic to excised leaf discs of *A. lanceolatum* and *D. minus*.

The effects of the disease vary with the plant age; in adult plants it causes mostly necrosis and chlorosis on aerial parts, while in juveniles it significantly reduces plant growth. Preliminary tests have indicated that synergy between the fungus and sublethal doses of chemical herbicides may exist, which could enhance further the suppressive effects on juvenile plants. Current research is focusing on the effect of the fungus in reducing the competitiveness of these weeds.

As well as seedling death or significant growth suppression, *R. alismatis* infection of inflorescence stalks caused significant reductions in seed weight and viability in *D. minus*. A 49% reduction in seed weight was recorded when 80% of the stalk was infected. The number of nodes and florets per plant was not affected. The fungus was seed-borne at low levels.

Twenty-eight species of aquatic plants in the Alismataceae and related families and 39 cultivars of 25 species of agriculturally important plants were tested for their reaction to inoculation with conidial suspensions of *Rhynchosporium alismatis* under glasshouse conditions. *R. alismatis* produced lesions in species of *Vallisneria*, *Triglochin*, and *Marsilea*, but the fungus was only re-isolated from *Vallisneria*. Scattered infrequent lesions developed on leaves of barley, oats, triticale, lupine, soybean, lettuce, and tomato, but the pathogen was only re-isolated from lesions on soybean cv Bowyer. Emphasis on sampling any areas of discoloured tissue resulted in a much higher rate of re-isolation of *R. alismatis*. Cucurbits and tomato were the most susceptible plants, based on the frequency of re-isolation of the pathogen. There was no progression of disease in any of the infected plants and infection did not appear to influence plant growth and development. The use of this pathogen as a mycoherbistat for Alismataceae weeds is considered to pose a negligible risk to crops grown adjacent to, or in rotation with, rice crops in southern Australia.

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## **Biological Control of Water Hyacinth Using Plant Pathogens: Dual Pathogenicity and Insect Interactions**

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*Eichhornia crassipes* (water hyacinth) is one of the worst aquatic weeds and continues to pose problems worldwide in spite of continuous efforts, both chemically and mechanically, to control it. There is an ongoing biocontrol programme against this weed in South Africa but it is recognised that using a suite of agents is necessary to bring this

plant under control. The aim of this study was to test all possible interactions of *Acremonium zonatum*, *Alternaria eichhorniae*, and *Cercospora piaropi*, including the interaction of the water hyacinth weevil, *Neochetina eichhorniae*, and the individual pathogens. Sterile birdseed was inoculated with a spore suspension of each pathogen and allowed to incubate for 10d. Inoculated plants (three seeds/leaf) were incubated in a dew chamber in the glasshouse at 28°C for 7d. The original seeds were then removed and reinoculated with a different seed inoculum and incubated as before for a further 7d. Single pathogen inoculations were used as controls. The interaction between *N. eichhorniae* and individual plant pathogens was studied by inoculating plants, which the insects had fed upon, with a  $1 \times 10^5$  spores/ml suspension and incubating as above for 21d. Results showed that lesion diameters were greater when using a combination of pathogens than lesion diameters using individual pathogens only. The *C. piaropi* + *Alt. eichhorniae* combination showed larger lesion diameters than *C. piaropi* + *Acr. zonatum* combination. There was very little difference in lesion diameter measurements between the *Acr. zonatum* + *Alt. eichhorniae* and *Alt. eichhorniae* + *Acr. zonatum* combinations. The results of the insect: pathogen combination inoculations were inconclusive. Further trials are currently being conducted. An integrated weed management approach, using a combination of pathogens and insect agents combined with chemical and mechanical control to achieve sustainable, practical levels of control appears to be essential for effective control of water hyacinth.

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## **Distribution of *Salvinia molesta* D.S. Mitchell in the U.S., and the Status of Using *Cyrtobagous salviniae* Calder and Sands for Its Control**

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Populations of *Salvinia molesta* D.S. Mitchell, a South American free-floating aquatic fern with the potential to be a serious weed, have recently become established in the U.S. In 1995, the plant was first reported outside of cultivation at a pond in southeastern South Carolina. The 1.5 acre population in South Carolina was eradicated, but other infestations of the plant are being reported weekly in the U.S. Plants were observed at a school-yard demonstration pond in Houston in 1997, and it has been sighted in three major river drainages in Texas and Louisiana. The invasiveness of *S. molesta* is cause for alarm because it grows rapidly, forming dense mats that choke lakes and waterways. A single plant can produce a thick mat covering more than 100 square kilometers in three months. *Cyrtobagous salviniae* Calder and Sands, a weevil from southeastern Brazil, has shown promising results for control and management of *S. molesta*. Overseas releases of *C. salviniae* have often given complete control of *S. molesta* in tropical areas of Australia, India, Namibia, Papua New Guinea, and Botswana. With the successes observed overseas, *C. salviniae* has the potential for managing *S. molesta* infestations in the U.S.

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## New Directions for the USDA-ARS, Australian Biological Control Laboratory

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The United States Department of Agriculture, Agricultural Research Service, [Australian Biological Control Laboratory \(ABCL\)](#) has historically conducted foreign exploration for biological control agents of *Hydrilla verticillata*, hydrilla, and *Melaleuca quinquenervia*, the paperbark tree. We are expanding our research efforts to include exploration and testing of [natural enemies](#) of *Lygodium microphyllum*, Old World climbing fern. *Lygodium microphyllum* is an invasive weed in the Florida Everglades and Australia is part of its native range. Strategically, the ABCL is well located to conduct biological control research on weeds of Australian, Southeast Asian, and Western Pacific origin, including *Casaurina* spp., Australian pine; *Cupaniopsis anacardiodes*, carrotwood; and *Paederia foetida*, skunk vine.

ABCL is also expanding its role as a scientific liaison with research organizations and biological control researchers in Australia. Cooperative research has been facilitated with researchers at the Commonwealth Science and Research Organization (CSIRO), University of Florida and University of Adelaide to investigate the biology and evolutionary relationships of the *Melaleuca* gall-making *Fergusunina* fly and *Fergusobia* nematode.

Our research focus is on exploration for natural enemies, characterization of [agents](#) using both classical systematics and molecular methods, insect and plant ecology, field host range surveys, and host range testing. The goal of the research is to gain a better understanding of the weed and the full array of potential biological control agents within their native ranges. Ultimately, a greater diversity of agents can be discovered and investigated, thus increasing the potential for success in the biological control programs we support.

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## Feeding and Oviposition Preference of *Galerucella* spp. in *Lythrum*

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A field experiment was designed to address whether *Galerucella californiensis* L. or *Galerucella pusilla* Duftschmid discriminately feed and oviposit on *Lythrum* spp. in a free

choice acceptability study when offered a selection of weedy populations of purple loosestrife (*Lythrum salicaria* L.), horticultural cultivars, or the native, winged loosestrife (*Lythrum alatum* Pursh). Plants were placed into screened cages in a random arrangement. One mating pair of *Galerucella* spp. per plant was placed into each screened cage, allowed to oviposit and feed for ten days and then removed. The number of egg masses and level of adult feeding varied among weedy populations of purple loosestrife and horticultural cultivars. Of the cultivars, 'Morden Pink' had the highest amount of adult feeding and oviposition. *L. alatum* and 'Morden Rose' (a hybrid created by crossing *L. alatum* and Morden Pink) had the lowest. These results demonstrate variable performance of *Galerucella* spp. on different populations and cultivars of purple loosestrife included in the study.

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## **Viability and Germination Success of *Tamarix* (Tamaricales:Tamaricaceae) Seeds in the South of France and the Potential for Biological Control Using a Fungal Pathogen**

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*Tamarix* L. seedlings are rare in southern France. This is in contrast to the situation in Arizona, California, and Texas where *Tamarix ramossissima* Ledebour seedlings are so dense that they choke waterways and native plants and are considered serious weeds. As part of the USDA biological control of *Tamarix* program, the germination of *Tamarix* seeds from southern France and America was studied at the European Biological Control Laboratory. *Fusarium chlamydosporum* Wollenw. & Reinking was isolated from the ungerminated Montpellier *Tamarix parviflora* CD. seeds. *Tamarix* seeds challenged with *Fusarium* averaged 40% germination, (24-64%); controls averaged 62%, (40-80%). Field experiments with seeds, untreated, treated with insecticide, with fungicide, and with both, were carried out in 1994. Significantly more treated seeds germinated. In 1996 *T. ramossissima* seeds from Arizona, Nevada, and New Mexico were germinated on sterilized and non-sterilized local soil in Montpellier. Zero-91% of control seeds germinated in petri dishes, 15-84% on unsterilized soil, and 32-63% on sterilized soil. Germination rates were significantly higher than those recorded for French seeds: 15-25% for *T. gallica* L. and < 3% for *T. parviflora*. There was no apparent difference between germination rates on sterilized and non-sterilized soil. The *Fusarium* species may be seed borne and have potential as a biological control agent of *Tamarix*.

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## The Successful Biological Control of the Water Fern *Azolla filiculoides* in South Africa

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*Azolla filiculoides* Lamarck (Pteridophyta: Azollaceae) is a small, aquatic fern, first recorded in the Oorlogspoort River, Colesburg, South Africa in 1948. It is now found in at least 136 localities throughout South Africa. The weed reduces the quality of drinking water, increases siltation of rivers and dams, and reduces the water surface area for recreation and water transport. Clogging of water pumps and drowning of livestock are additional weed effects. The frond-feeding weevil, *Stenopelmus rufinasus* Gyllenhal (Coleoptera: Curculionidae), was released as a biocontrol agent of *A. filiculoides* in 1997. Here we report on the post release evaluation of this insect. Floating field cages were used to determine weevil population dynamics and their effect on plant growth. In the cages, the weevil populations increased rapidly and the *Azolla* material was cleared within a period of six weeks. Field surveys were conducted at more than 50 sites. Of these, approximately 48% were cleared within 12 months. Dispersal of the weevil up to 38 km in six months in the eastern Free State Province was recorded. The rapid rate of increase of the weevil and the corresponding decline in *A. filiculoides* populations at a number of sites throughout the country indicates that the likelihood of successful biological control of the weed in South Africa is excellent.

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## Factors Limiting Populations of the Native Milfoil Weevil, a Control Agent of Eurasian Watermilfoil

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The milfoil weevil (*Euhrychiopsis lecontei*) is a specialist watermilfoil herbivore, native to North America. During the summer, all life stages subsist on submersed watermilfoil and 3-5 generations can be produced. Adults move to shore in fall to overwinter in shoreline leaf litter. The weevil has been shown to control Eurasian watermilfoil (*Myriophyllum spicatum*) via stem mining in laboratory, tank, and mesocosm studies, as

well as at some field sites. At other sites the weevil has failed to persistently control Eurasian watermilfoil, often because weevil densities remain low. Thus, it is important to identify factors that limit weevil populations. Two sites, Lake Auburn and Smith's Bay of Lake Minnetonka, were surveyed for shoreline and in-lake densities in spring and fall from 1993-1998. Fall (November) and spring (April) average shoreline densities (0.2m<sup>2</sup> soil samples) ranged from 1 to 340 adults/m<sup>2</sup>. Overwinter mortality appeared low and rarely exceeded 50%. In-lake densities (larvae, pupae and adults) ranged from 1 to 40/m<sup>2</sup> in spring (June) and 0 to 12/m<sup>2</sup> in fall (September). Shoreline densities at the two sites were significantly correlated over time ( $r = 0.9$ ), suggesting broader scale climatic control of shoreline densities; however, in-lake densities were not correlated. Spring in-lake densities may be related to shoreline densities, but fall densities were not. Given the relatively low overwinter mortality and their high reproductive potential, failure to build high summer populations seems more related to in-lake factors. At these sites, weevil densities often decrease over the summer rather than increase. Adult weevils stocked into open plots failed to establish in two lakes. Fish enclosure experiments at one lake suggest that excluding sunfish enhanced the establishment of stocked weevils. Fish predation is likely one important factor limiting weevil densities, although host-plant resistance also deserves attention.

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## Biological Control of Purple Loosestrife - Cooperative Implementation

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Purple loosestrife (*Lythrum salicaria*, L.) is an invasive foreign weed that has taken over many wetland habitats in the northeast and central states. It poses a serious threat to wetland areas in many western states. A native to Europe, the plant was well established by the 1830's on the northeast coast. The plant suppresses and replaces native plants and eventually alters and changes the structure of the wetland, further eroding the native habitat. The large expanses of purple loosestrife threaten various endangered species, such as the native bulrush (*Scirpus longii* Fern), dwarf spikerush (*Eleocharis parvula*) (Roemer and J.A. Schultes) and the bog turtle (*Clemmys muhlenbergi* Schoepf). A leaf-feeding beetle (*Galerucella californiensis* L.) that attacks purple loosestrife was reared on sleeved purple loosestrife plants in the greenhouse at Mission. The harvested adults were released into field insectary sites in 16 states: Connecticut, Delaware, Iowa, Indiana, Kansas, Massachusetts, Maine, Missouri, Nebraska, New Hampshire, North Dakota, Pennsylvania, Rhode Island, Virginia, Vermont, and West Virginia. The root boring weevil (*Hylobius transversovittatus* Goeze) was received into quarantine from collections made in Germany. The eggs from these weevils are being used to inoculate potted looses-

trife plants with resulting adults to be released into field insectary sites. Foreign collections of a flower head weevil (*Nanophyes marmoratus* Goeze) were imported from collectors in Germany, cleared through quarantine and released at field insectary sites in Connecticut, Colorado, Iowa and Nebraska. All of these releases are intended to help establish collectable populations in cooperating states.

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## Experiments to Test the Effect of Disturbance by Feral Animals on Establishment of *Mimosa pigra*

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*Mimosa pigra* L. (Mimosaceae), or mimosa, is native to tropical America, but has become widespread throughout the world's tropical wetlands. In Australia, mimosa forms impenetrable, nearly monospecific thickets over an area of more than 800 km<sup>2</sup>, greatly reducing the diversity of native plants and animals. It competes with pastures, hinders mustering, and prevents access to water. The rapid spread of mimosa in the 1970's has often been attributed to overgrazing and disturbance by water buffaloes. Experiments are described that test the hypothesis that disturbance from feral animals creates ideal conditions for establishment of mimosa seedlings. Results from disturbance treatments set up along the edge of a stand of mimosa indicate that [disturbance enhances the mimosa establishment](#). Seed-addition experiments revealed that the numbers of seedlings that established was increased by the addition of seed, confirming that the rate of mimosa invasion is also seed-limited. Under these circumstances, feral animal control and introduced [seed-feeders](#) should reduce the rate of mimosa invasion into new areas.

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## Biological Control of Old World Climbing Fern (*Lygodium microphyllum*)

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Old World climbing fern (*Lygodium microphyllum*) is an invasive weed in south Florida where it threatens many wetland communities in the Everglades ecosystem. *L. microphyllum* is native to wet areas in the Old World tropics and subtropics, from west

Africa to eastern and southern Africa, and eastern India through southeast Asia to northern Australia and the Pacific to Tahiti. The fern entered Florida as a commercial ornamental plant and was first documented to have become naturalized in 1965. However, its explosive growth and rapid spread are relatively recent and it is now causing concern because of its dominance of native vegetation in many communities. *L. microphyllum* is considered to be a good target for biological control. First, it belongs to a taxonomically isolated group, not closely related to native or economic plants in Florida. Second, the plant is not known to be a weed in its native range, apart from an unconfirmed report of weedy tendencies in Malaysia. Third, non-biological control methods are environmentally damaging and too expensive to use on the scale required to control the plant. Our biological control program is currently focused on surveys for natural enemies of *Lygodium* species in *L. microphyllum*'s native range, including Australia, Southeast Asia and West Africa. Preliminary surveys in Southeast Asia and Australia have identified promising natural enemies, including pyralid moths and sawflies. Searches for natural enemies of New World tropical *Lygodium* species will also be made to find *Lygodium* specialist herbivores that may be employed as 'new association' biological control agents for *L. microphyllum*. Host specificity research will be conducted in our Brisbane, Australia and Gainesville, Florida, laboratories. Comparative ecological studies of the fern in Florida, where it is a problem exotic, and in Australia, where it is a well behaved native, are planned to better understand these differences.

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## Towards the Biological Control of Japanese Knotweed?

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Japanese knotweed, *Fallopia japonica* (= *Reynoutria japonica* = *Polygonum cuspidatum*) is a member of the family Polygonaceae of which there are about 40 genera worldwide containing more than 800 species. It is native to Japan, China, and Korea where it occurs as a component species in the early stages of succession on lava flows. This plant was imported in Europe and North America in the 19th Century as an ornamental and, after naturalization around the turn of the century, its spread can be said to have been explosive. Its vegetative habit and preference for riparian habitats and disturbed areas has led to rapid colonisation alongside waterways and derelict land. The characteristic dense, monospecific stands often outcompete and exclude native plants. This paper outlines the problems posed by the weed and the ineffectiveness of current control methods together with their associated costs. Potential conflicts of interest are dealt with and a comparative review of the natural enemies in the native vs. the introduced range (UK) is made. Future challenges are outlined and the opportunity for a consortium-funded collaborative programme is emphasised. Classical biological control is recognised as the only cost-effective, environmentally sensitive, and sustainable approach to controlling Japanese knotweed in the United Kingdom and yet it still remains the forgotten alternative.

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## Sequestration of *Melaleuca quinquenervia* Defensive Chemistry by *Oxyops vitiosa* and Its Relevance to Biological Control of Weeds

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*Oxyops vitiosa* (Coleoptera: Curculionidae) is a classical biological control agent feeding on *M. quinquenervia* foliage. The larvae smell strongly like the volatiles produced by their host and are all rejected by the imported fire ant. Evidence for the chemical nature of the defense was found by applying one larval equivalent of larval washes to kibbled dog food. Ant consumption was dramatically reduced compared with solvent treated controls. Analysis of this material suggests that host plant compounds are sequestered. Larval host range may be influenced by several factors including host plant chemistry and natural enemies. Possibly the sequestered compounds responsible for the predator defense are only available in *M. quinquenervia*. These compounds and the protection they provide may limit this herbivore to *M. quinquenervia* and closely related species with similar chemistry. By sequestering and defending themselves from predators, this herbivore may be exploiting an enemy-free space that would not be available on other hosts. The same compounds that impart protection in *O. vitiosa* larvae may not be present when feeding on other species, for example the *Callistemon* spp. or *Myrica cerifera*. This information would not be derived from laboratory-based host testing where predators are excluded. However, we found that larvae fed leaves from these species were equally protected as those fed *M. quinquenervia*. Possibly, the sequestered compounds are similar among these plant species, although *M. cerifera* is distantly related. Alternatively, the larval behavior of covering themselves with plant compounds of various origins may impart general protection from predators.

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## Host Range Testing of the Psyllid, *Boreioglycaspis melaleucae* (Homoptera: Psyllidae), for Control of *Melaleuca quinquenervia* (Myrtales: Myrtaceae)

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*Melaleuca quinquenervia*, a tree native to Australia, New Guinea, and New Caledonia, has become a major pest in the state of Florida, USA. *Melaleuca* grows well in natural areas such as the Everglades and in disturbed areas such as roadsides. In both

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situations, it outcompetes native vegetation and develops into monocultures. Melaleuca also grows well in developed areas such as golf courses and lawns where individual trees can grow as tall as 30m. Each tree can produce millions of seeds and can resprout from a stump if cut down. Herbicides and other control measures have not been sufficient to stop the spread of melaleuca. Natural enemies of melaleuca may help in its control and in halting its spread. Host range tests of three natural enemies have been conducted in quarantine in Florida, USA. *Boreioglycaspis melaleucae*, a sap-sucking psyllid, is the most recent one to be tested. Tests of the host range of *B. melaleucae* were conducted from December 1997 to June 1999 following preliminary tests in Australia. Oviposition and development tests were conducted on 38 myrtaceous species and seven non myrtaceous species. Five plants of each species were tested except for four species where fewer than five plants were available. In those cases, plants were retested with different colonies. Oviposition tests on cuttings were conducted on 18 non-myrtaceous species. *B. melaleucae* laid eggs on most species, some eggs hatched, but in only three *Callistemon* species did nymphs live longer than a week (laboratory development time on melaleuca was four weeks). *B. melaleucae* did not complete a generation on any other test species except for *Callistemon rigidus*. Efforts to colonize *B. melaleucae* on *C. rigidus* failed. On melaleuca, the adults caused no apparent damage but nymphal feeding killed young and older leaves and stems and sometimes entire plants.