



Melaleuca, *Melaleuca quinquenervia*: An Emerging Success

Economic and Ecological Impact: The invasive Australian tree *Melaleuca quinquenervia* was introduced into the United States early last Century. It currently infests about 1.5 million acres in Florida's Everglades and bordering pasture and wetlands areas, and expands at about 15 acres per day. In addition, melaleuca threatens the biodiversity of Florida's Everglades which, because it is so unique, has been designated a World Heritage ecosystem. Current economic losses from melaleuca have been estimated at about \$170 million/year. Classical biological control, using host-specific biological control agents from Australia, is the safest and most economical option for sustainable management of melaleuca. A large consortium of Federal, State, local and private sector customers and stakeholders have joined to support biologically based management of melaleuca.

Significant Accomplishments: ARS scientists at the Invasive Plant Research Laboratory in Ft. Lauderdale, Florida, are developing a biologically based integrated weed management program for melaleuca. The first biological control agent for melaleuca, the weevil *Oxyops vitiosa* (Fig. 1) was released in April 1997 at 11 key melaleuca-infested sites in Florida. The original 1,600 individuals released have produced millions of offspring. *Oxyops* is already impacting melaleuca at release sites (Fig. 2) and is spreading to other locations.



Fig. 1. Adult of the melaleuca weevil (*Oxyops vitiosa*).



Fig. 2. Impact of *Oxyops vitiosa* on growing tips of melaleuca.

In February 2002, about 8,000 melaleuca psyllids (*Boreioglycaspis melaleucae*), the second biological control agent for melaleuca, were released near Ft. Lauderdale, Florida (Fig. 3). They now number in the billions, and are significantly impacting melaleuca wherever it occurs in Florida (Fig. 4). In fact, melaleuca stands are nearly gone from public lands. The biological control agents have reduced seed production by up to 90%, reduced stand densities by >70%, strongly curtailed sapling growth, and reduced the overall invasiveness of melaleuca. Melaleuca management is the subject of a new ARS Areawide Pest Management Program called **The Areawide Management Evaluation of Melaleuca** (TAME Melaleuca; <http://tame.ifas.ufl.edu/>).



Fig 3. Adult (left) and nymphs of the melaleuca psyllid (*Boreioglycaspis melaleucae*), a sap-sucking natural enemy of melaleuca.



Fig 4. Damage produced by the melaleuca psyllid.

This type of damage is now widespread at field sites in Florida.

Future: Impacts of the weevil and the psyllids will continue to be monitored for several years. Other natural enemies from Australia are also being considered for possible introduction in the future.

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Contact: Dr. Ernest S. Delfosse, USDA-Agricultural Research Service, National Program Leader for Weed Science, 5601 Sunnyside Avenue, 4-2238, Beltsville, MD 20705-5139. Telephone: 301-504-6470. E-mail: esd@ars.usda.gov.