

Suggested Herbicides*

Seedlings (tree less than 3 feet tall) should be manually removed because they can be pulled easily without leaving root fragments. Saplings and small trees should be cut and immediately treated with herbicide. Cut mature trees using a chainsaw to create a flat surface and then treat the stump immediately with commercially available herbicide.

Dry areas: Herbicides like Brush-B-Gone (triclopyr amine 8%), Brush Killer (triclopyr amine 8.8%), "Ready-to-use" Roundup (glyphosate .96%), Roundup Pro (glyphosate 41%) and Roundup Super Concentrate (glyphosate 41%) are effective and can be purchased at retail garden supply stores. These herbicides should only be used in dry areas. They may not be applied directly to water. Repeat applications may be necessary.

Wet areas: The herbicide Rodeo (glyphosate 53.8%) can be applied directly to the plant when it is growing in or over water. Repeat applications may be necessary.

Follow up is essential: Visit treated areas periodically and look for regrowth. Regrowth should be cut and immediately sprayed with herbicide.

Non-target damage: These herbicides are not selective. Be careful not to contact desirable plants with these herbicides.

Disposal: The most important plant parts of melaleuca with regards to disposal are the seed capsules. After the tree has been cut, seed capsules will dry out and release seeds. For large trees, pile up all cut vegetation and allow it to "compost" for several weeks in order to kill seeds. Carefully monitor this site for seedlings that may germinate. For smaller trees, stems with seed capsules can be bagged and disposed of or composted.

Report all new occurrences in natural areas and provide herbarium voucher specimens as described on the FLEPPC web site (address below).

For more photographs see: <http://fleppc.org>, <http://plants.ifas.ufl.edu> or *Identification & Biology of Non-Native Plants in Florida's Natural Areas* (1998, University of Florida, 800/226-1764). For more information about melaleuca, visit Florida EPPC's web site at <http://fleppc.org>.

*Read and follow all herbicide label directions. It is illegal to use a herbicide in a manner inconsistent with the label's instructions. Mention of a trade name does not constitute a guarantee or warranty of the product. There is no express or implied warranty as to the fitness of any product discussed. Any product trade names that are listed are for the benefit of the reader and the list may not contain all products available due to changes in the market.



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PLANTS BEHAVING BADLY

Melaleuca



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MELALEUCA

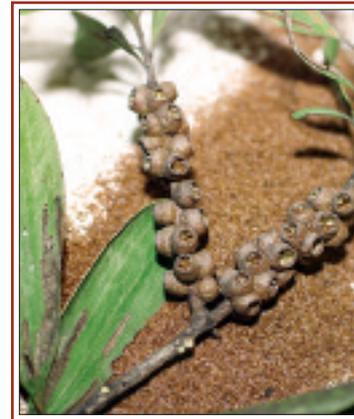
SCIENTIFIC NAME: *MELALEUCA QUINQUENERVIA*; COMMON NAME: PAPERBARK TREE, CAJEPUT TREE, PUNK TREE, WHITE BOTTLEBRUSH; DESCRIPTION: LARGE, EVERGREEN TREE, TO 100 FEET TALL; IMPACT: FORMS DENSE, IMPENETRABLE STANDS OF TREES; OUT-COMPETES NATIVE PLANTS; DESTROYS WILDLIFE HABITAT.



Be on the Lookout!

In Florida, invasive exotic plants account for as much as 31 percent of the total number of plant species. Invasive exotic plants are able to reproduce on their own and have moved beyond the influence of insects and diseases in their native land. These plants grow and reproduce freely, out-competing and displacing native plants and animals and disrupting natural processes such as fire and water flow. Invasive exotic plants have taken an aggressive hold in Florida and continue to spread at alarming rates. Florida's local, state and federal land managers are fighting a constant battle to manage invasive exotic plants on Florida's publicly-owned lands.

Melaleuca, *Melaleuca quinquenervia*, is native to Australia, New Guinea and the Solomon Islands. It was introduced to Florida in the late 1800s as an ornamental plant and later was spread across the historic Everglades in an attempt to dry up "useless swamps." Today, the tree has invaded a wide variety of natural habitats from wetland marshes and prairies to cypress domes and pine flatwoods across southern and central Florida. Melaleuca seeds are spread by wind and water and a single, mature tree can release as many as 20 million seeds per year! Melaleuca rapidly invades moist, open habitats, both disturbed and undisturbed, and forms dense, impenetrable stands of trees. These stands are so dense that only the smallest of animals can use these areas. Native wildlife is threatened because melaleuca crowds out beneficial native plants, which provide food and shelter.





Melaleuca thrives even in standing water



Spraying melaleuca stump with herbicide



Biological control damage on melaleuca flower

Melaleuca BEHAVING BADLY

WEEDBUSTERS

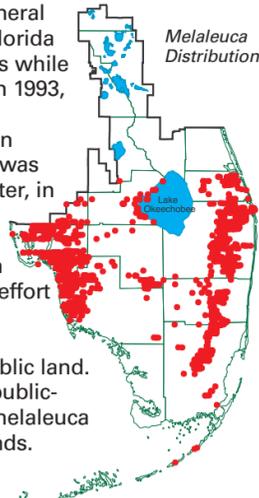
Overview of Problem

Melaleuca has been a serious weed in Florida since the early 1900s. By the mid-1900s, only 50 years after it was introduced, melaleuca had already taken over hundreds of thousands of acres of the Everglades, threatening its very existence. This rapid expansion is not surprising because in melaleuca's native range the tree thrives in wetland areas and climates similar to those found in Florida. Melaleuca is recognized as a Noxious Weed both federally and by the State of Florida. It is therefore illegal to possess, transport and/or cultivate this plant.

Melaleuca invades many habitats in southern Florida. It prefers disturbed seasonally wet sites, but also flourishes in standing water, well-drained uplands and seemingly non-disturbed areas. Melaleuca is cold sensitive but can be found as far north as Gainesville. It thrives in pine flatwoods, sawgrass marshes and cypress swamps of southern Florida. Dense melaleuca forests replace formerly treeless sawgrass marshes, disrupting historical water flows. Melaleuca is also a serious fire hazard because the oils contained within its leaves create hot crown fires that are rapidly spread.

The good news is that the extensive stands of melaleuca that were once found on publicly-owned natural areas such as Big Cypress, Lake Okeechobee marsh and the Everglades have now been drastically reduced through regional control efforts by government agencies waging battle on this tree. As a result of inter-agency efforts, almost 100,000 acres of publicly-owned natural areas were cleared of melaleuca between 1990 and 1999! The bad news is that there has been an almost equal expansion of melaleuca on privately-held lands where no control activities have occurred, resulting in no net loss of acreage of melaleuca. In fact, extensive dense forests now occur predominantly only in privately-held lands in Broward, Miami-Dade, Palm Beach, Lee, Martin and Collier counties.

Surveys conducted by the South Florida Water Management District every two years between 1993 and 2003 confirm that the general distribution of melaleuca in Florida has decreased on public lands while increasing on private lands. In 1993, 52 percent of all melaleuca in southern Florida was found on public land, while 48 percent was on private land. Four years later, in 1997, 35 percent of all live melaleuca was found on public land and 65 percent on private land. The determined effort of public land managers was directly responsible for the reduction of melaleuca on public land. Now it is time to encourage public-private partnerships so that melaleuca can be reduced on private lands.



How to Identify

Melaleuca is a large tree up to 100 feet tall with whitish, spongy, peeling bark. It has dark green narrow leaves that smell like camphor when they are crushed. It has numerous white bottlebrush flowers and clusters of woody seed capsules along the stems.

Where to Look

Infestations of melaleuca occur mostly in central and southern Florida. It has been documented in 19 counties in Florida, the northernmost counties being Brevard, Orange and Hernando. The tree most commonly invades moist habitats, but will grow in flooded conditions and dry areas, both in pristine and disturbed areas. Young trees are commonly found close to a large mother tree.

How to Stop the Spread

Melaleuca control options include preventative, herbicidal, biological, mechanical and physical methods. The overall goal of melaleuca control is to use an integrated pest management approach, since combining different management control options will provide better melaleuca control than any one method could achieve alone. This helps reduce existing infestations and limits establishment of new populations. It is important to treat small stands of melaleuca before they become substantial infestations. Early detection and treatment are critical to successful and economical management. Treatment of individual plants is the most conservative and effective approach in natural areas, but finding, reaching and treating them can be extremely time-consuming. Thus, less time-consuming and costly methods of herbicide application, such as aerially spraying herbicides, are often used.

Simply cutting the tree will not kill the stump or the roots, so regrowth will occur. Flooding does not kill mature melaleuca trees but may kill some seedlings and prevent establishment of seeds on flooded soils. Melaleuca seedlings and saplings can be killed by fire; however, mature trees are not harmed and fire actually helps release and spread seeds. Use of heavy equipment is limited because it is difficult to access remote areas of dense melaleuca and because the equipment disturbs soils and native plants.

Biological control (biocontrol) holds the key to effective long-term management of this species. Overseas searches are ongoing for biocontrol agents in melaleuca's native range. To date, two biocontrol insects have been released in Florida. In 1997, the melaleuca weevil was released and by the end of 2002 had established in 12 counties in southern Florida and has proven to be very effective. The melaleuca psyllid, released in 2002, is proving to be a good complement to the weevil because it eats older, tougher leaves, which the weevil does not favor. All biological control agents are tested for years before they are released – sometimes as long as a decade! Even then, it may take many more years before the biocontrols build up effective populations to assist in control.

For information specific to control methods for melaleuca and other invasive plant species in natural areas see the Institute of Food and Agricultural Science's (IFAS) Publication SP242, "Control of Non-native Plants in Natural Areas of Florida." Herbicides should only be applied by those knowledgeable in the use. Contact the IFAS Pesticide Information Office, (352) 392-4721, for additional information on pesticide applicator training and see IFAS Publication SP295, "Natural Area Weed Management – A Training Manual for Restricted Use Pesticide Applicators" for technical information about the use of herbicides in natural areas. To purchase IFAS publications, call (352) 392-1794 or visit: <http://ifasbooks.ufl.edu>. The Melaleuca Management Plan can be found at http://www.fleppc.org/Manage_Plans/mplan.pdf.

TAME Melaleuca

The Area-Wide Management Evaluation of Melaleuca (TAME Melaleuca) was established in 2002 as a collaborative multi-agency project under the U.S. Department of Agriculture. TAME Melaleuca will demonstrate ecologically and economically sustainable melaleuca control for both public and private land managers by applying a combination of control tactics on demonstration sites across south Florida. TAME Melaleuca will also create outreach programs for land managers, government agencies and the general public. For more information visit <http://tame.ifas.ufl.edu>.



UNWANTED: A GALLERY OF INVASIVE EXOTIC PLANTS OF SOUTH FLORIDA

