



by Amy Ferriter

*The Areawide Management and Evaluation of Melaleuca (TAME Melaleuca) is an inter-agency demonstration and implementation program funded by the United States Department of Agriculture's Agricultural Research Service (USDA/ARS). Its goal is to assess and demonstrate ecologically based, integrated melaleuca management strategies for landowners and land managers. This is the second Areawide grant in the country that has been awarded for an invasive plant (the first was TEAM Leafy Spurge; go to [www.team.ars.usda.gov](http://www.team.ars.usda.gov) for more info).*



**B**y the late 1980s, melaleuca - deemed the "Tree from Hell" - had reached crisis levels in Florida. Biologists were predicting ecological collapse in the Everglades. Indeed, melaleuca dominated almost a half million acres in South Florida and showed no signs of stopping. Early in 1990, the **Florida Exotic Pest Plant Council** and the **South Florida Water Management District** jointly convened a task force of federal, state and local land managers, scientists and others. Their charge was to develop a comprehensive, interagency plan for managing this notorious Everglades invader. The result was the first edition of the *Melaleuca Management Plan for Florida*.

In the fourteen years since its original publication, this Plan has served as a framework for agencies managing or seeking to protect natural areas infested by melaleuca. It has facilitated interagency cooperation and coordination of control efforts, improved resource utilization efficiency, enhanced public awareness of the problem and inspired legislative support.

The melaleuca management program in Florida is an example of a successful work in progress. Resource managers faced seemingly insurmountable obstacles when the fight began, but interagency cooperation has successfully turned the tide. Achieving this level of success has not been inexpensive. The melaleuca project (including biological, mechanical, chemical and physical control efforts) has cost nearly \$35 million thus far. To place this in perspective, however, it was estimated that failing to act against melaleuca would have eventually cost the region \$169 million annually in lost revenues. Ecological losses would have been immeasurable.

TAME Melaleuca is building on the success of the EPPC-sponsored *Melaleuca Management Plan for Florida*. Although

most of the work will be conducted in Florida, a portion of the project includes assessment and outreach in other areas where melaleuca has escaped cultivation and is spreading into wildlands. An area of special concern is the Commonwealth of Puerto Rico, where melaleuca is just beginning to spread into and dominate valuable wetland areas. A group of TAME Melaleuca collaborators and steering committee members traveled to Puerto Rico in November 2003. The purpose of this trip was to assess melaleuca's invasiveness in Puerto Rico and demonstrate ecologically appropriate control techniques to natural resource managers there.

TAME Melaleuca Team members met with Puerto Rican biologists, foresters and resource managers. The Florida group gave presentations that focused on the problems associated with melaleuca and described the strategy that is outlined in the *Melaleuca Management Plan for Florida*. There is still much debate in Puerto Rico as to the threat melaleuca poses to wetlands. The group asked many questions about the ecological impacts of the species, with some Puerto Rican scientists questioning the need to control this species.

The group also toured Laguna Tortuguero on the northern coast between Vega Baja and Manati municipalities. This is the largest natural body of fresh water in Puerto Rico. The demand for water resources for public supply in the interior of Puerto Rico has led to increased groundwater withdrawals in wetland areas like Laguna Tortuguero.

Melaleuca populations in these wetland areas of Puerto Rico are still relatively contained, although at least one site had what Floridian biologists commonly term "dog hair" melaleuca - sapling-sized trees that grow as thick as

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a dog's hair. Experience in Florida shows that this type of situation will become an impenetrable monoculture of trees in a short time.

Hostess Lourdes Bernier [1] playfully hugs an ornamental Melaleuca tree planted near Laguna Tortuguero. Melaleuca is still used as an ornamental in Puerto Rico and land managers often have trouble convincing the public that it is not a desirable species.

Antonio Pernas (US Department of Interior National Park Service) [2] girdles a tree with a machete, demonstrating the "hack and squirt" method for Puerto Rican land managers. The white spongy bark around the circumference of the tree must be peeled away to expose the cambium for application of a herbicide.



Dan Clark (US Department of Interior National Park Service) [3] applies herbicide to the cambium of the melaleuca tree.



Integrated Pest Management at its finest: Biological control researchers Drs.

Ted Center and Paul Pratt [4] try their hand at the hack and squirt method in Laguna Tortuguero.

Record rainfall plagued the early November Puerto Rico trip – mudslides and overflowing rivers hindered driving in some areas of the country. Floridians weed watched as large mats of "bull hyacinth" (*Eichhornia crassipes*) whipped under this bridge near Hatillo on the northern coast. [5] Police closed the bridge shortly after this picture was taken.

Floridians spotted many familiar weeds such as this Brazilian pepper (*Schinus terebinthifolius*) seedling growing amongst the melaleuca. [6]

Kudzu (*Pueraria montana*) is still commonly planted for erosion control in Puerto Rico, which somewhat alarmed the Floridians.

For more information on the TAME Melaleuca project, visit the TAME Melaleuca website at [tame.ifas.ufl.edu](http://tame.ifas.ufl.edu) or contact Amy Ferriter at the SFWMD, [aferrite@sfwmd.gov](mailto:aferrite@sfwmd.gov), 561/687-6097.



Following is a preliminary list of Puerto Rico's invasive plant species. It was assembled by an interagency group of biologists and, although it has not been finalized, the list illustrates that land managers in Puerto Rico are beginning to recognize the invasiveness of some species, many of which also are pest plants in Florida.

## LISTA PRELIMINAR PLANTAS INVASORAS EN PUERTO RICO (Preparada por Comité Interagencial)

#	Nombre Científico (Scientific Name)	Nombre Común (Common Name)	Categoría Problemática (1-5:5 más problemática)	Rapidez de Cobertura (1-5:5 mayor rapidez) (Rapidly of Coverage)	Ubicación
1	<i>Casuarina equisetifolia</i>	Pino australiano, Australian pine	1		Costas
2	<i>Eichhornia crassipes</i>	Jacinto de agua, Water hyacinth	5		Cuerpos de agua
3	<i>Hydrilla verticillata</i>	Hydrilla		3	Cuerpos de agua
4	<i>Melaleuca quinquenervia</i>	Melaleuca, Paper bark	5		Humedales
5	<i>Mimosa pellita (pigra)</i>	Catclaw, Mimosa	5		Áreas alteradas
6	<i>Pistia stratiotes</i>	Lechuguilla de agua, Water lettuce	5		Cuerpos de agua
7	<i>Schinus terebinthifolius</i>	Pimienta del Brasil, Brazilian pepper	2		Costa norte
8	<i>Panicum repens</i>	Torpedo grass	1		Humedales
9	<i>Typha domingensis</i>	Eneas, cat-tail	2		Humedales
10	<i>Albizia procera</i>	Acacia blanca, Albicia, Tall Albizia	5		Zonas agrícolas; corredores de carreteras
11a	<i>Leucaena leucoc ephala</i>	Zarcilla, Acacia pálida, Wild tamarind	1		Zonas agrícolas
11b	<i>L. leucocephala var. K-8</i>	Zarcilla, Acacia pálida, Wild tamarind	5		Zonas agrícolas
12	<i>Sesbania exaltata</i>	Sesbania	2		Humedales
13	<i>Sorghum halepense</i>	Yerba Johnson, Johnson grass	5		Zonas agrícolas
14	<i>Rotboellia cochinchinensis</i>	Yerba picante o caminadora			
15	<i>Albizia lebbek</i>	Acacia amarilla; Aroma, Thibet tree	1		Zonas secas
16	<i>Acacia farnesiana</i>	Aroma, Rayo, Cashia	3		Zonas agrícolas de ganado del sur
17	<i>Calotropis procera</i>	Calotropis, Algodón de seda, Giant milkweed	2		Zonas agrícolas de ganado
18	<i>Sida acuta</i>	Escobilla; Escoba blanca, Wire weed	2		Áreas perturbadas
19	<i>Psidium guajava</i>	Guayaba silvestre	1		Zonas agrícolas
20	<i>Prosopis juliflora</i>	Mesquite, Bayahonda	1		Zonas agrícolas del sur
21	<i>Mimosa casta</i>	Graceful mimosa	5		Zonas ganaderas
22	<i>Azadirachta indica</i>	Margosa, Neem			Suelos secos
23	<i>Hyparrhenia rufa</i>	Yaraguá falsa	2		Suelos secos
24	<i>Pennisetum ciliare</i>	Yerba Buffel	3		Zonas agrícolas con suelos calcáreos
25	<i>Alternanthera philoxeroides</i>	Yerba Caimán	4		Habitat acuático
26	<i>Pennisetum purpureum</i>	Yerba elefante, Elephant grass			
27	<i>Urochloa maxima (Panicum maximum)</i>	Yerba de Guinea, Guinea grass	3		Zonas agrícolas
28	<i>Bothriochloa pertusa</i>	Yerba huracán, Hurricane grass	3		Áreas perturbadas, pastoreo excesivo
29	<i>Pennisetum setaceum</i>	Yerba de fuente; erróneamente llamada "Pampa grass"	2		
30	<i>Brachiaria arracta</i>	Yerba Tanner	3		
31	<i>Paspalum fasciculatum</i>	Yerba Venezolana	4		
32	<i>Heteropogon contortus</i>	Yerba torcida, Twisted grass	5		
33	<i>Clitoria fairchildiana</i>	Clitoria	1		
34	<i>Solanum viarum</i>	Tropical Soda Apple	5		Área de mogotes
35	<i>Delonix regia</i>	Flamboyán			
36	<i>Spathodea campanulata</i>	Tulipán africano	2		Áreas metropolitanas y sur de la Isla
37	<i>Sterculia apetala</i>	Anacagüita	3		
38	<i>Cordia oblicua</i>	Cordia	2		
39	<i>Salvinia molesta</i>	Giant salvinia			
40	<i>Rottboelia conin</i>	Rottboelia			
41	<i>Sida rhombifolia</i>	Escoba colorada	2		
42	<i>Maesopsis eminii</i>	?	2		
43	<i>Senna siamea</i>	Casia de Siam			

### COMITÉ INTERAGENCIAL DE ESPECIES INVASORAS EN PUERTO RICO CREADO EN RESPUESTA A LA O.E. 13112

Federal Highway Administration  
US Department of Agricultura  
US Forest Service  
US Fish & Wildlife Service  
Natural Resources Conservation Service  
Environmental Protection Agency

Departamento de Transportación y Obras Públicas  
Autoridad de Carreteras y Transportación  
Departamento de Recursos Naturales y Ambientales  
Departamento de Agricultura  
Universidad de Puerto Rico  
(Estación Experimental Agrícola)

Una de las fuentes consultadas: Liogier, A.H. y L. P. Martorell. 2000. (2da. ed.) *Flora of Puerto Rico and adjacent islands: a systematic synopsis*. Editorial de la Universidad de Puerto Rico. 382 págs.