FE672

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Management of Melaleuca by Residents in South Florida[1]

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The Melaleuca Management Survey

To assess the current situation and management practices for control of the invasive species Melaleuca in south Florida, a survey was conducted in 2004. This research was undertaken as part of the Areawide Management Evaluation of Melaleuca (TAME Melaleuca), in collaboration with the USDA-Agricultural Research Service and the South Florida Water Management District. Surveys were conducted for both residents and professional land managers (see companion report on results for professional managers, FE671).

For residents, a survey was used to gather information on the extent of Melaleuca infestions, area treated, methods used, expenses, the effects of Melaleuca on outdoor recreation, and general knowledge about invasive plants. The questionnaire included both English and Spanish language versions since there is a large population of non-English speaking Hispanics in south Florida. Design and implementation of the survey followed the Total Design Method (Dillman, 1978). The survey was mailed with a postage-paid return envelope and cover letter to a randomly selected sample of 5,001 households whose addresses were purchased from a market research firm (MSG, Inc.). The study area for the survey included the 10 southernmost counties in Florida: Broward, Charlotte, Collier, Glades, Hendry, Lee, Martin, Miami-Dade, Monroe, and Palm Beach (Figure 1). This area has about 2.5 million households, so the survey sample represented 0.2 percent of the population (BEBR, 2004). A total of 1,015 households responded to the survey, representing a 20 percent response rate (Table 1).

Results

Invasive Plant Awareness

Citizen awareness of non-native flora in the state of Florida is an important issue for the management of invasive plants. In this survey, a series of questions were included to gauge the public's level of knowledge about invasive plants in general and Melaleuca in particular. The vast majority of the respondents (91%) indicated they were aware that some plants and trees are not native to the state. Nearly as many (89%) indicated they were aware that non-native plants could harm local indigenous plants. A strong majority (71 and 72%, respectively) responded that they could recognize Melaleuca, and were aware it was not native to Florida.

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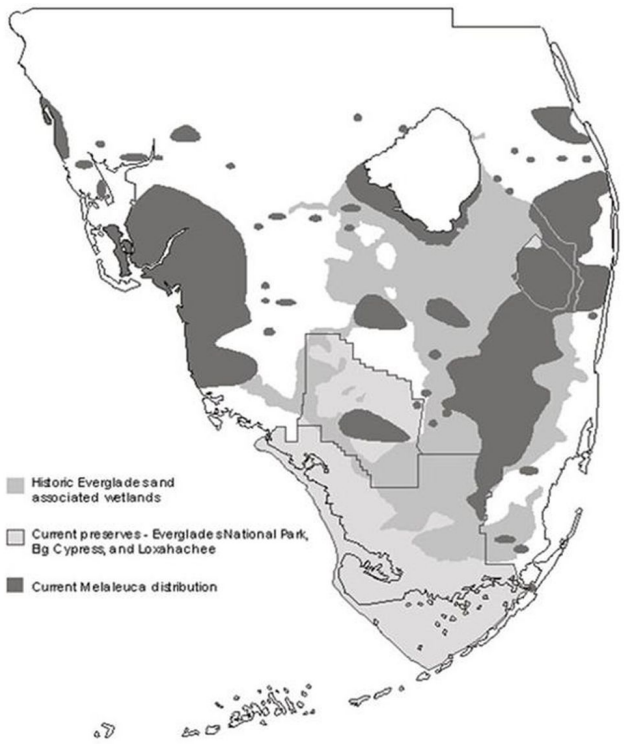

Figure 1. Map of survey area and Melaleuca distribution in south Florida (http://www.invasive.org).

Extent of Infestation

When residents were asked if they had any Melaleuca on their property, only 4 percent indicated in the affirmative. Of those who had Melaleuca, 31 percent indicated they had only one tree, 16 percent had two to five tree(s), and 31 percent had six to twenty trees. In addition, 3 percent had one-quarter to one-half of an acre of land infested, 9 percent had one to four acres, and 6 percent indicated they had five or more acres of Melaleuca on their property.

Control Methods Used

The respondents who stated that they had Melaleuca on their property were asked to indicate which, if any, of the available control methods they were currently using. Eighty-four percent of respondents indicated they had not used any control measures. Mechanical controls were used by 12 percent; foliar/soil-applied herbicides or stump treatments were each used by 3 percent; and hack-and-squirt, biological control, or biological combined with some other control treatments were each used by 1 percent of the respondents.

The respondents who had Melaleuca were also questioned regarding control methods they would be interested in learning more about. A large proportion of respondents (81%) were interested in learning more about biological controls. A majority of respondents were also interested in learning more about foliar/soil-applied herbicides (69%), stump treatments (69%), hack-and-squirt treatments (62%), and biological control combined with other methods (62%). Interest was lower for mechanical controls (50%). Some 31 percent indicated they were interested in some other method of control; however, none specified what the other methods might be.

Barriers to Control

Resident respondents were given a list of factors that might limit their ability to control Melaleuca, and were then asked to indicate which of those factors applied in their particular cases. Of those respondents who indicated any limiting factors, 56 percent said that Melaleuca was not a problem, 20 percent did not care, 19 percent were afraid of or disliked using chemicals, 15 percent did not know how to use controls, 13 percent lacked the necessary equipment, and 10 percent gave other reasons (Table 2).

Information Sources Used

Residents were given a list of sources and types of media, and then were asked from which of these they had received information on the control of Melaleuca (Table 3). The most common source of information was newspapers, reported by 59 percent of those responding to this question, followed by local/national television news (47%), and state and federal agencies (42%). Other miscellaneous sources of information mentioned by 17 percent of the respondents included word-of-mouth, park or garden club tours, public speakers, personal research, or educational classes.

Expenditures

Residential respondents were asked to indicate how much they had spent on controlling Melaleuca since owning their present property, or during the time period between 1990 and 2003, by choosing the appropriate range of values or by estimating the amount if their expenditures exceeded $500.

Ninety-three percent of residents indicated that they had spent $0 to $49. Given previous survey research, it is most likely that the majority of respondents in this category probably paid zero dollars. All subsequent expense categories had very few responses (1 or 2%). For those reporting expenses over $500, the average amount was $1,992. When these numbers were expanded to represent the entire population of households in south Florida (using midpoints of the monetary ranges), an estimated $15.3 million was spent on Melaleuca control by residents of south Florida.

Impacts on Property Values

Responding residents were asked to indicate whether and how much Melaleuca had negatively affected their property values. The overwhelming majority (95%) said it had not affected their property value. However, 5 percent reported that it had negatively affected their property value, and those values were reduced by an average of 18 percent.

Willingness to Pay for Removal/Eradication

Residents were asked to indicate the dollar amount they would be willing to pay to have Melaleuca removed or eradicated from their property. If respondents indicated a willingness to pay more than $500, they then were asked to estimate the amount. As shown in Table 4**,** an estimated 74 percent of residents indicated that they would be willing to spend $0 to $49, and since many residents previously indicated that Melaleuca was not a problem for them, the majority of respondents for this category likely would choose $0. Only a small number of individuals selected the subsequent categories. When these numbers were expanded to represent the population of households in south Florida, it is estimated that residents would be willing to spend a total of approximately $13.7 million to have Melaleuca removed from their property. This is similar to the estimated amount actually spent by the residents.

Impacts on Outdoor Enjoyment

When surveyed residents were asked whether Melaleuca had affected their enjoyment of the outdoors, 77 percent indicated that it had not affected them, while 23 percent said it had. Furthermore, 95 percent of those affected said it had negatively affected their enjoyment of the outdoors, while only 5 percent indicated it had positively affected them.

Willingness to Pay for Control in Outdoor Activity Areas

Residents were asked how much they would be willing to pay (per visit) to reduce Melaleuca in areas where they engaged in outdoor activities. They were given several ranges of amounts and, if they were willing to pay more than $25 per visit, they were asked to estimate the amount. Forty-four percent of respondents indicated they were willing to pay nothing, 8 percent would pay less than $1 per visit, 27 percent would pay $1 to $4, 9 percent would pay $5 to $9, 7 percent would pay $10 to $15, 4 percent would pay $16 to $25, 1 percent would be willing to pay more than $25, and a small number would be willing to spend an average of $100 per visit. When these numbers were expanded to represent the population of households in south Florida, the total willingness to pay to reduce Melaleuca in the areas where they engage in outdoor activities was estimated at $1.35 million.

References

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Table 1. Population and response rates for survey of residents.

	Number	Percent
Population Size	2,458,916	
Sample Size	5,001	
Total Responses	1,015	
Total Response Rate		20.0%
Responses in Spanish	72	
Response Rate in Spanish		7.1%

Table 2. Barriers to controlling *Melaleuca* by Florida residents.

Barrier	Number	Percent
Not a problem	80	56
Don't care	29	20
Infestations too small	9	6
Infestations too large	12	8
Controls won't work	5	3
Don't know how to use controls	21	15
No time to use controls	9	6
Afraid of harm to other plants	6	4
Afraid of or dislike using chemicals	28	19
Infestation inaccessible	9	6
Lack equipment	18	13
Environmental regulations	3	2
No cost sharing	3	2
Controls too expensive	5	3
Other reason	15	10

Table 3. Sources of information on *Melaleuca* received by Florida residents.

Source	Number of Respondents	Percent of Respondents
State and federal agencies	152	42
Professional organizations	44	12
Land manager observations	20	6
UF/IFAS Extension	96	27
Weed professionals	61	17
TAME Melaleuca	4	1
Land manager advice	23	6
Pamphlets or bulletins	166	28
Video cassettes or CDs	0	0
Area demonstration polts	20	3
Computer software	1	0
Website/Internet	27	5
E-mail/Direct notification	20	3
Local/National news	283	47
Newspapers	353	59
Public television	176	29
Other source(s)	103	17

Table 4. Willingness to pay for removal of *Melaleuca* by Florida residents.

Expense Range	Number of Respondents	Percent of Respondents
$1–$49	224	74
$50–$99	34	11
$100–$249	19	6
$250–$500	20	7
$500 or more	5	2