

MISSISSIPPI'S COMPREHENSIVE PROGRAM FOR SOUTHERN PINE BEETLE PREVENTION: EXTENSION FORESTRY'S ROLE AND THE ECONOMIC CONTRIBUTION

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The southern pine beetle (SPB), *Dendroctonus frontalis* Zimmermann, has a history as an extremely damaging pest to southern pine forests (Coulson and Klepzig 2011). Extension Forestry at Mississippi State University (MSU) initiated the SPB Prevention Program in collaboration with the Mississippi Forestry Commission to reduce the threat of SPB outbreak through education and thinning activities. Funding came from the USDA Forest Service for the years 2006-2009 and 2011, and the American Recovery and Reinvestment Act (ARRA) for 2010.

As background, Extension Forestry at MSU has a long history of conducting educational outreach activities to landowners, foresters, and loggers. There is a statewide network of 68 county forestry associations. We have had great success using the tax roll to advertise short courses and workshops (Londo and others 2008). Educational programming for SPB Prevention included evening presentations, short courses, workshops, radio shows, and site visits.

For the SPB Prevention Project, we conducted 260 educational programs to 12,457 participants and distributed 134,277 copies of publications. In addition, we made 359 site visits. Expenditures for educational outreach 2006-2011 (table 1) were nearly \$1.54 million. This included funding for three staff positions, travel, meals at programs, and mensuration equipment for county forestry associations. Topics presented under the project included SPB biology and prevention, pine plantation thinning, forest health, species selection, prescribed burning, thinning cost share, and site visits.

In 2008, the SPB Prevention Project expanded to include a thinning cost-share program. That year the cost shares were available for north Mississippi and went statewide in 2009. The first thinning could be pre-commercial or commercial. The thinning cost share targeted pine stands with medium to high beetle-hazard rating. Most approved stands were commercially thinned, and about 5 percent were pre-commercially thinned.

From table 1, total expenditures for the thinning cost share was over \$1.81 million, paid to landowners, loggers, and foresters. For the years 2008, 2009, and 2011, thinning was completed on 17,755 acres of pine stands for SPB prevention through this project. In these years, \$1,283,968 cost shares were paid to forest landowners. However, since 2011, the project scope has been limited to south Mississippi.

For the year 2010 only, American Recovery & Reinvestment Act (ARRA) funds provided cost sharing to foresters and loggers for job retention but not to landowners. Already-scheduled stands for first thinning were used pay cost shares to these professionals. Pine stands approved for thinning cost share required a Mississippi Forest Stewardship plan, which was subsidized with ARRA funds. Stewardship plans on 91,932 acres were completed with \$229,830 paid in cost shares to foresters, retaining 57 jobs. That year, first thinning was done on 3,709 acres paying \$296,738 to loggers and retaining 232 jobs.

Meanwhile, input-output analysis using the IMPLAN software (Minnesota IMPLAN Group

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Table 1--Summary statistics for the SPB Prevention Project

Year	Educational outreach	Thinning cost share	Budgeted thinning
	-----\$-----		acres
2006	238,619	0	0
2007	304,792	0	0
2008	309,169	334,494	6,276
2009	299,108	300,892	6,110
2010	285,663	526,568	0
2011	101,418	648,582	5,369

Table 2--Input-output analysis for 2008-2009 thinning cost share

Impact type	Employment	Labor income	Value-added	Output
		-----\$-----		
Direct Effect	32.0	1,326,365	2,171,828	7,328,337
Indirect Effect	28.5	1,141,825	1,855,765	4,860,042
Induced Effect	20.8	633,763	1,254,354	2,195,103
Total	81.3	3,101,953	5,281,947	14,383,482

2010) was conducted to estimate the total economic activity resulting from direct, indirect, and induced impacts of thinning activities and cost-share payments. Direct effects resulted from demand changes within this sector. Indirect effects reflected response of other market sectors for goods and services to initial spending in the targeted sector. Induced effects occurred from consumer spending in the targeted sector for goods and services. Each effect was estimated for employment, wages, output, and value-added processing.

The total cost for the SPB Prevention Project in 2008 and 2009 was \$1,243,663 (table 1). The economic impact of the SPB project on the Mississippi forest economy was \$14,383,482 in employment, wages, value added processing, and sector output for each impact of direct, indirect, and induced effects (table 2). The program had a benefit/cost ratio of 11.6, which

was very favorable. Overall, the SPB Prevention Project has been highly beneficial to Mississippi's forest health as well as its forest economy.

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