STDP PROGRESS REPORT

Project Number: R8-2001-05

Project Title: Development of trap-out methods for southern pine beetles from individual trees or small infestations

Project Status: Continuing (funds are being requested for the next fiscal year to continue the project)

Expected Project Duration: 3 years

Original Expected Completion Date: FY 2004

Expected Completion Date of the Project: FY 2004

Subject: Semiochemicals 1, biological control 2, *Dendroctonus frontalis* Zimmermann, the southern pine beetle (SPB) 2

Status of Subject Species: Native.

Project Objectives: Develop techniques to trap emerging bark beetles from individual infested pines, preventing loss of additional trees, leading to a reduction in area-wide impacts and preservation of natural enemy populations. Develop alternative tactic to protect high-value, individual pines at risk of attack from southern pine beetles.

Brief Description of Project: Baited Lindgren funnel traps will be hung on infested, individual pines to collect SPB emerging or reemerging from the tree. Small emergence traps on the tree will be used to calculate the percentage of emerging SPB collected. Additional funnel traps will be hung at ca. 12 m from the infested tree to capture dispersing beetles and determine if beetles are eluding the traps on the trees. The goal is to reduce area-wide SPB populations and/or prevent infestation of at-risk pines in the vicinity of infested trees, without the need for felling and removal.

Year 1: Test the efficacy of the method and the efficiency of the traps for the collection of the emerging beetles. Test two trap heights.

Year 2: Refine technique based on year one results, e.g. increase number of traps, change trap height.

Year 3: Continue technique refinement if necessary. If technique has proven successful on individual trees infested by SPB, check expanding its applicability to small SPB infestations ($\leq$5 infested trees) or to *Ips* bark beetle infestations.

Changes to the Original Project Scope or Objectives: None

Additions to the Original Project Scope or Objectives: Identification of the correct combination of inexpensive, commercially available lures for *Ips avulsus*. Use of non-host volatiles to exclude predators from traps.

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Cooperator Involvement:

Cooperator	Role	Time Commitment
FHP technicians	Assist in treatment application, monitoring. Help count beetles collected in traps.	30 person-days annually
Southern Research Sta.	Assist in treatment application, monitoring in Louisiana	20 person-days annually
Texas Forest Service	Assist in treatment application, monitoring in Texas	20 person-days annually
National Forests	Provide field sites, report individual infested trees	Incorporated in SPB suppression and prevention activities

Products and Due Dates: The final products will be an efficacious technique to trap-out emerging SPB from single-tree infestations and recommendations on its applications. These products will be delivered at the close of the project in FY 2004.

Accomplishments to Date: This technique is designed to be employed when endemic or building populations of SPB are present. Unfortunately, no SPB infestations have been observed in Texas or Louisiana in the past 2 years. Baited trees were not attacked, and lightning struck trees were only attacked by *Ips* beetles. For this reason, I decided to test the trap-out tactic on *Ips* infested trees in spring 2001. However, the bark beetle research unit at Pineville had some questions about the proper pheromone combination to trap *Ips avulsus*, a species of primary concern. Literature reviews stated that (-)ipsdienol was the aggregation pheromone. The 97% (-)ipsdienol lures are about 6 times more expensive than the racemic lures, and we wanted to test if the more expensive lure was necessary. Field trials were conducted in Texas, Louisiana, and Florida. Funnel taps were baited with lanierone (a synergist for the aggregation pheromone) and either (-) or racemic ipsdienol. Ten traps per treatment were used at each site. The results revealed that the racemic lures caught significantly more *I. avulsus* than the 97% (-) lure when used in combination with lanierone. The results were consistent across all three states. There was a wide range in trap catch across locations, but this indicates that the racemic lure is more effective in all population densities. The cheaper racemic lure, in combination with lanierone, will be used in subsequent trap-out studies for *I. avulsus*.

In October 2001, I will establish a study in Florida. Working with Jim Meeker of the Florida Division of Forestry, we have identified areas with isolated trees infested with SPB. Traps will be installed on these traps as per the design in the study plan. We plan to treat at least twelve trees. I will also continue to bait trees in Texas and scout lightning-struck trees for SPB infestation for use in the project.

Publications: Attraction of *Ips avulsus* (Eichoff) to commercially available synthetic lures. B. L. Strom, S. R. Clarke, and L. M. Roton. (In review).

Status of Products: Given when the funding was allocated, the project is on schedule. The fall is the optimal period for use of the tactic, as SPB activity and emergence slow. If initial trials of the tactic this fall in Florida prove successful, we will expand the tests to include other times of the year. We may also run additional trapping trials to test pheromones for *Ips* bark beetles. Working with the University of Georgia, we will place non-host volatiles in the traps to exclude *Thanasimus dubius,* a major predator of SPB. Initial results demonstrated that these volatiles do not reduce SPB trap catch.

First Fiscal Year Funded: FY 2001

Funds Obligated from Beginning of Project through Current Fiscal Year:

	Item	Requested FHP STDP Funding	Received Funding	Expended Funding
EACH YEAR				
Administration				
	Travel	2500	2500	1000
Procurements	Contracting			
	Equipment			
	Supplies	6000	6000	4000
Year Totals		8500	8500	5000

Funds not Used from Previous Year:

Fiscal Year	STDP Funding Allocated	Funds Obligated	Funds Unused
2001	**8500**	**8500**	**3500**

As funds were not received until March, all funds received were not expended. With a full year planned for FY 2002 and the need to travel to Florida, all requested funds should be spent in FY 2002.

Expected Budget for Next Fiscal Year:

	Item	Requested FHP STDP Funding	Other-Source Funding	Source
EACH YEAR				
Administration	Salary		4000	FHP
	Salary		3000	SRS
	Salary		3000	TFS
	Overhead			
	Travel	2500		
Procurements	Contracting			
	Equipment			
	Supplies	6000		
Year Totals		8500	10000	

Difference between Original and Amended Requests: None

STDP Funding Needed:

Year	2002	2003
STDP	8,500	8,500
Other (FHP, SRS, TFS salaries and supplies)	10,000	10,000
Total	18,500	18,500

REQUEST FOR CONTINUED FHP-STDP FUNDING FOR PROJECT

PROJECT STATUS: Funds are requested for FY 2002 to continue the project.

ESTIMATED COMPLETION DATE: February, 2004

PROJECT NUMBER: R8-2001-04

PROJECT TITLE: Development of trap-out methods for southern pine beetles from individual trees or small infestations

ADDITIONS: Identification of the correct combination of inexpensive, commercially available lures for *Ips avulsus*. Use of non-host volatiles to exclude SPB predators from traps.

CHANGES: No major changes from the original proposal are foreseen.

FY 2002 BUDGET:

	Item	Requested FHP STDP Funding	Other-Source Funding	Source
EACH YEAR				
Administration	Salary		4000	FHP
	Salary		3000	SRS
	Salary		3000	TFS
	Overhead			
	Travel	2500		
Procurements	Contracting			
	Equipment			
	Supplies	6000		
Year Totals		8500	10000	

New FHP-STDP funding needed in FY 2002: $8,500.

Estimated FHP-STDP future funding beyond FY 2002:

Year	STDP
2003	8,500