

**TITLE: Evaluation Monitoring of Annosus Root Disease Impacts in Sporaxed and non-Sporaxed Conifer Stands in Southern California Recreation Sites**

**LOCATION:** State, private and federal lands in southern California urban interface areas

**DURATION:** Year 1 of 3 year project

**FUNDING SOURCE:** Base Plan

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**PROJECT OBJECTIVES:**

- 1) Establish long-term monitoring plots within selected southern California conifer stands on private, state and federal lands where hazardous fuels removal occurred in the last 5 years. Plots will be located in stands where Sporax<sup>®</sup> was used as a preventive treatment and in stands where Sporax<sup>®</sup> was not used.
- 3) Evaluate and monitor plots for *H. annosum* occurrence, rates of spread, symptom progression, rate of tree mortality, and impact.

**JUSTIFICATION:**

**a. Linkage to Detection Monitoring:** This proposal directly relates to the ecological impacts of drought and fire-caused mortality on wildland vegetation condition in a largely urban setting of Southern California, and addresses the Base Evaluation Monitoring criteria “Insects and diseases – deviations from expected damage levels.” FHM Detection Monitoring data may detect increased mortality, but would be inadequate for assessing root pathogen-caused mortality.

**b. Significance in terms of geographic scale, biological impact, and/or political importance:** Drought, bark beetles and 2003 fires were a significant event in southern California in terms of geographic extent, suppression costs, loss of human life and property, and will have long lasting impacts on the wildlands as well as the urban centers adjacent to them. Major fires in the fall of 2003 in southern California consumed some 723,000 acres of wildlands, primarily within the wildland urban interface areas. About 123,000 acres within these fire areas were in a forested condition, having tree cover of 10 percent or more.

Annosus root disease, caused by *Heterobasidion annosum*, is widespread and damaging in southern California recreation and high use sites. The disease results in mortality of conifers, which creates hazard trees, depletes vegetative cover, and adversely affects wildlife habitat. The disease is easily prevented by use of Sporax<sup>®</sup> on freshly cut stump surfaces. Studies show that in eastside pine *H. annosum* incidence was greatly reduced in boraxed stands vs. non-boraxed stands. On National Forest System lands in southern California, direction (FSM 2303.14 R5 supplement 2300-92-1) is to treat all freshly cut conifer stumps, regardless of diameter. In contrast, the NRCS' environmental document allows for treatment of stumps 12" or greater in diameter. Furthermore, in many cases conifer stumps on federal, state and private lands in portions of southern California were not treated at all during the removal of hazardous fuels caused by the extensive drought-caused mortality and wildfire in recent years because of the perception that treatment was not necessary or too expensive. The probable consequences of not using Sporax<sup>®</sup> is expected to be future chronic tree mortality, loss of vegetative cover, stressed trees susceptible to bark beetle attack, creation of hazardous trees and associated cost of removal, and limitations on what vegetation can be successfully planted on the infested landscape. The actual consequences of not using Sporax<sup>®</sup> need to be monitored and documented in order to provide scientific data to support the need for stump treatment to reduce future adverse impacts of *H. annosum* on management objectives. Establishment of permanent plots needs to be done now, while records of where preventive treatment of stumps was and was not done are still available.

**c. Probability that this project will be successfully completed:** The project has a high probability of successful completion. Federal and State agencies in southern California have completed cooperative projects in the past, have on-going cooperative agreements, and a contractor experienced with annosus root disease is available for the work.

## **DESCRIPTION:**

**Background:** This project will quantify annosus root disease occurrence, severity, and impacts within stands where conifer stumps were treated with Sporax<sup>®</sup> and stands where stumps were not treated. Information obtained from monitoring root disease progression and impact in treated and non-treated areas will be used to develop guidelines that will help to predict future disease impacts.

**Methods:** Information on record at three National Forests (San Bernardino, Cleveland, and Angeles), California Department of Forestry, and NRCS will be perused to locate areas where Sporax<sup>®</sup> was and was not used in recent (2002 to present) fuels reduction thinnings and hazardous tree removal. Appropriate stands will be located and monumented by written description and gps recordings. The total number of stands located will depend on availability and accuracy of records, but it is anticipated that a minimum of 10 areas where Sporax<sup>®</sup> was used and 10 areas where it was not will be monumented. In each area, long-term monitoring plots will be established. Stumps will be mapped and tagged in each plot. Initial data taken in each plot will include species and diameter of stumps present and visual evidence of root disease (thin, chlorotic crowns, mortality). Discs will be cut from stumps with a range of diameters, incubated, and

examined for the presence of the imperfect state of *H. annosum*. Stump tissue will be plated on media to determine presence of *H. annosum*. Plots will be monitored for disease progression annually for at least three years using FHM funding, and periodically thereafter over the next 10 years as part of FHP and CDF normal forest health monitoring.

**Products:** The major product will be a report to forest managers and landowners summarizing the impact of *H. annosum* in stands where Sporax<sup>®</sup> was used vs. stands where it was not. Information on efficacy of treating a range of stump diameters will be included. A cost/benefit analysis of Sporax<sup>®</sup> treatment will be provided. Results will be summarized in annual progress reports, posters presented at annual FHM national meetings, a final comprehensive report, and presentations to landowner and professional groups, including FHM.

**Schedule of Activities:**

Activity	Spring/ Summer 07	Fall/ Winter 07	Spring/ Summer 08	Fall/ Winter 08	Spring/ Summer 09	Fall/ Winter 09
Locate Stands	X					
Establish Plots	X					
Isolations From Stump Tissue		X				
Monitor Plots			X		X	
Analyze Data		X		X		X
Annual Reports		X		X		X

**COSTS:**

Year	Item	Requested FHM Funding, \$	Other-Source Funding, \$	Source
<b>FY 2007</b>				
Administration	Salary	0	18,000	CDF, FPM*
	Overhead	0	0	CDF, FPM
	Travel	3,500	2,000	CDF, FPM
Procurements	Contracting	9,000	0	
	Equipment	1,500	0	
	Supplies	1,000	1,000	CDF, FPM
Total		15,000	21,000	

\* California Department of Forestry, Forest Pest Management

**FY 2008** Cost: \$10,000 (contracting reduced to \$5,500; no equipment costs, other source same)

**FY 2009** Cost: \$10,000 (contracting reduced to \$5,500; no equipment costs; other source same)