MACKERRICHER STATE PARK - PHYTOPHTHORA RAMORUM IN A NEW FOREST TYPE

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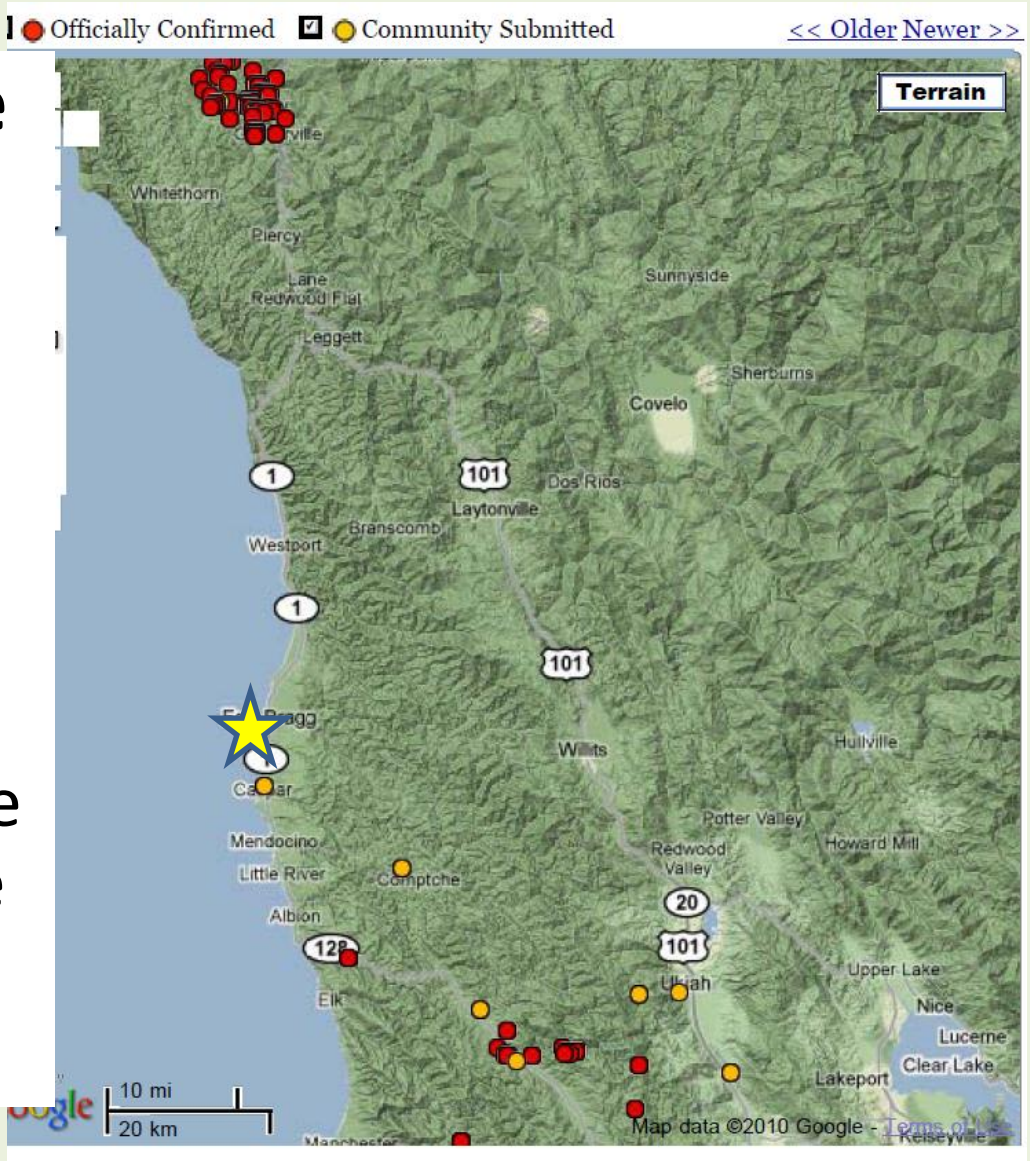
SOD Confirmed

- SOD first suspected at MacKerricher State Park campsite #69 by Jack Mashall, CalFire Forest Pathologist;
- UC Davis lab results confirmed *Phytophthora ramorum* on May 29, 2009

MacKerricher site location:

22 miles NNW of nearest SOD infection (bay tree along Hwy 128 approx 3.5 miles inland)

15 miles north of the nearest watercourse baiting site at Little River



(map adapted from OakMapper - http://www.oakmapper.org/oaks/index)

Forest Type at MacKerricher SP

- Closed-cone Pine Forest (Bishop and Shore Pines)
- Tanoak is a minor component
- No California bay

Strategic goals

- Control outlying infestation – similar to treating remote fire hotspots
- Minimize spread of SOD to new areas and reduce on-site infestation – removing all symptomatic trees, not using firewood on-site or transporting it, top dressing soil with pine chips, reestablishing rocked surface for parking spur
- PUBLIC EDUCATION program

Developing the Treatment Strategy tailored for site specific, long term reestablishment of pine forest in a campground setting….

- Jack Marshall surveyed for symptomatic trees and other hosts (only tanoak and huckleberry showed symptoms), consulted with UC Researchers and Advisors
- Dr. Dave Rizzo and Kamyar Aram (UC Davis) provided on-site guidance, searched for symptoms, discussed removal and buffers
- Dr. Matteo Garbelotto (UC Berkeley) recommended use of Agri-Fos and group/single tree treatments of oaks
- Stephen Bakken, State Park Forester provided pine forest management direction based on long range veg management plan for MacKerricher: no underburning due to shallow roots and soils, select leave trees to maintain windfirmness

Implementation

- Press release developed through Katie Palmieri, COMTF
- Jack Marshall completed leave tree mark in small groups and single tree selections per Dr. Garbelotto's input and park specifications (wind firm, cost, screening)
- CalFire and CCC dropped trees – October before Thanksgiving week
- CDC crews lowered cut stumps to facilitate herbicide treatment and assisted with wood removal
- CDC and CalFire dropped pines marked for campsite hazard reduction to use wood chips
- Infected tanoaks burned in air curtain burner by State Park Maintenance Operators

Table 1. Tanoak mortality and SOD symptomatic live trees in Pinewood West and Pinewood East Campgrounds, MacKerricher State Park.

Site #	Tree #	Dead	Live w/ Symptoms	dbh inches	Bearing[1]	Distance feet
69	1	X		11.0	28	9.4
	2	X		10.8	86	11.2
	3	X		2.4	66	14.5
	4	X		13.0	36	42.2
	5		X	8.9	66	18.0
	6		X	16.3	64	37.7
	7		X	-----	48	75.0
	8		X	17.7	80	95.5
68	1	X		11.2	330	21.7
	2		X	11.0	260	61.0
67	1	X		8.5	68	55.0
66	1	X		12.8	50-75	65-92
	2	X		16.5	50-75	65-92
	3	X		9.8	50-75	65-92
	4	X		5.4	50-75	65-92
	5	X		3.7	50-75	65-92
	6	X		8.3	---	Adj. to
	7					
	8					
39	1					
	2					
Total	21					
Ave.						

[1] Compass set to z
reference point is

Jack Marshall – survey, design, documentation, photos, sanitation, etc.

CalFire S212 Faller Class

California Conservation Corps
Chainsaw Training

Chris Lee demonstrating Agri-Fos injection

Cut Stump Treatment - Glyphosate Herbicide

Bill Maslach, State Park Environmental Scientist

Air Curtain Burner

Thank you to the Collaborators...

- Jack Marshall, CalFire
- CalFire Faller Class S212 and liaison
- CCC tree falling as training opportunity
- CDC crews
- Dr. Dave Rizzo, Kamyar Aram, and Dr. Mateo Garbelloto
- UCCE Humboldt/Del Norte – Chris Lee (injectors and how to)
- Katie Palmieri (COMTF) - press release
- State Park District Maintenance, Ranger, Environmental Staff and Park Foresters in Sacramento
- CalTrans

Kamyar Aram taking samples