United States Department of Agriculture
Animal and Plant Health Inspection Service
Plant Protection and Quarantine

Phytophthora ramorum Program Past, Present and Future Direction

Sudden Oak Death Science Symposium
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Phytophthora ramorum Program: Past, Present and Future Direction

- P. ramorum has been a very difficult issue causing concern among stakeholders for a number of years
- Multiple regulatory and scientific meetings, reviews, analysis, consultations with stakeholders, were conducted for the past few years
- Concept paper : Proposed future direction of the *P. ramorum* Program that takes into account all of the information learned during the past several years

15 Quarantined Counties (pink)

- Trigger is disease in the environment
- All pathways are regulated

118 Regulated Counties (orange)

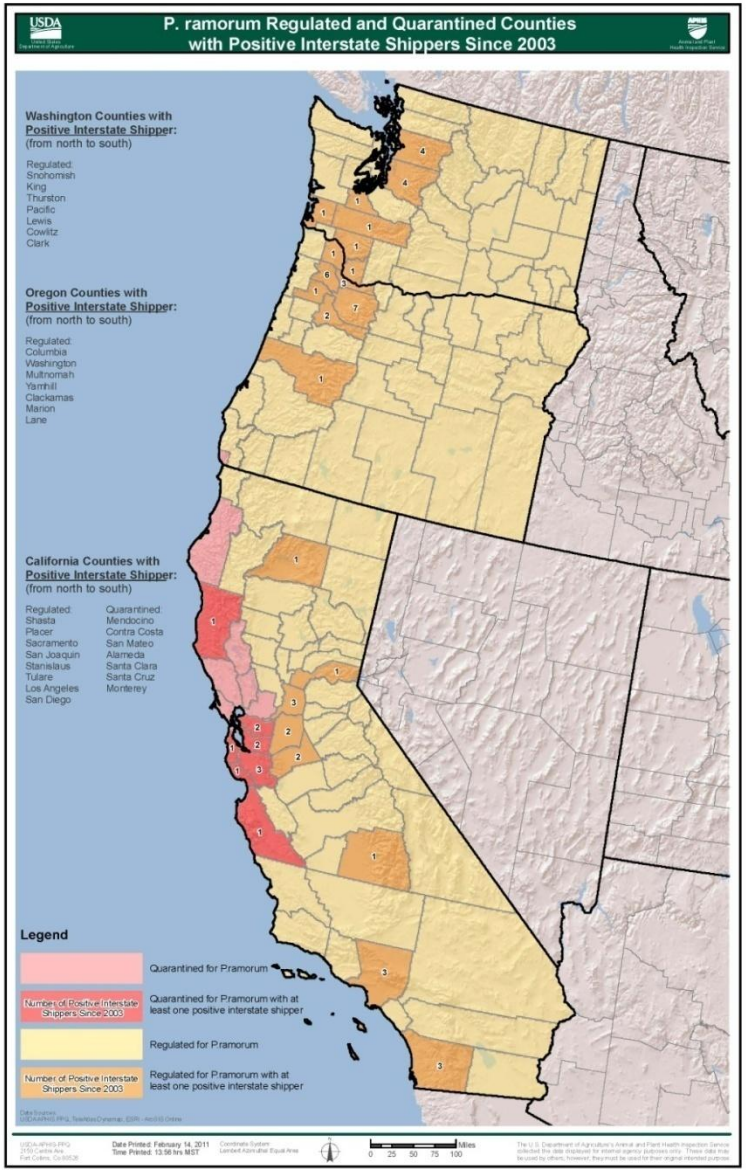
- No triggers exist
- Only nursery stock is regulated

2012 Regulatory Survey

State	Total Nurseries surveyed	Host Nurseries Surveyed	Host Nurseries positive for *P. ramorum*	Non-host Nurseries Surveyed	Non-host Nurseries positive for *P. ramorum*
California	2070	634	5	1436	0
Oregon	1334	644	8	690	0
Washington	261	142	8	119	0
	3665	1420	21	2245	0

Trends were similar in 2007, 2008, 2009, 2010, 2011

10 Interstate shippers and 11 Non-interstate shippers



Counties with Positive Interstate Shippers since 2003

State	Total number of Counties in the State	Number of Counties with *P. ramorum* detections in interstate shippers	Number of Counties with no *P. ramorum* detections in interstate shippers
CA	58	15 (26%)	43 (74%)
OR	36	7 (19%)	29 (81%)
WA	39	7 (18%)	32 (72%)
Total	133	29 (22%)	104 (78%)

Regulatory Survey – Non Regulated

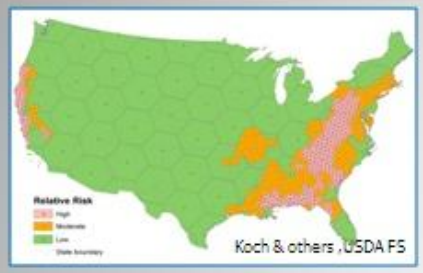
- *P. ramorum* stand alone or enhanced surveys were conducted annually in over 400 nurseries in the non-regulated states - plant, water and soil samples tested
- CAPS surveys also conducted in 11 non-regulated states.
- Training and workshops conducted to several states

Sudden Oak Death Pathogen Found in Eastern Streams

Steve Oak[1], Ed Yockey[1], and Borys Tkacz[2]

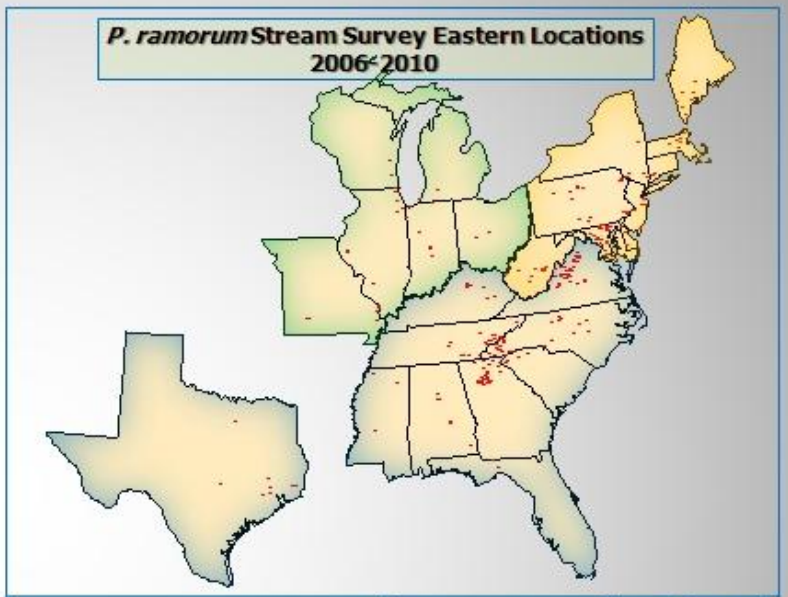
[1]USDA Forest Service, Southern Region-FHP, Asheville, NC [2]USDA Forest Service, Washington Office-FHP, Washington, D.C.

Risk projections show eastern forest ecosystems are at risk for Sudden Oak Death



Rhododendron leaf baiting of high risk streams draining infested nurseries has been employed in national early detection surveys since 2006.

***P. ramorum* Stream Survey Eastern Locations 2006-2010**



Region (States)	Year 2006	2007	2008	2009	First Half 2010	Streams Surveyed Total	Unique [1]
Northeast (9)	24	37	29	15	15	120	91
North Central (6)	0	20	15	0	2	37	30
South (10)	33	64	71	78	73	319	210
Eastern Total (25)	**57**	**121**	**115**	**93**	**90**	**476**	**331**

[1]Many streams baited in more than one year

Are streams acting as pathways for spread of *P. ramorum* into terrestrial forest ecosystems?

The number of streams in states with *P. ramorum* detections are shown by year. Once positive, no streams have reverted to pathogen-free status for an entire year.

A 2008 streamside survey in MS detected positive forest plants, but no established infection center.

Continental Dialogue on Non-Native Forest Insects & Diseases 6th Annual Meeting
Waltham, MA 5-6 October 2010

Soil, Water, Media: Non-Regulated States

State	County	Nursery	2004	2005	2006	2007	2008	2009	2010	2011
AL	Jefferson	HNH*	P	-	P	-	-	P+W	P+	-
	Shelby	JDRL*	-	-	-	-	-	P+W	-	-
	Jefferson	ANDCN*	P	-	-	-	-	-	-	-
GA	Gwinnett	PEXTB	-	-	-	P+SM	-	-	-	-
	Fulton	JDRLA	P(Tr)	P+S	-	-	-	-	-	-
	Forsyth	JDRLCU*	-	P	-	-	-	-	-	-
MS	Hinds	LKYG*	-	-	P+W	P+WM	P	P+W	-	-
NC	Mecklenburg	GOT*	-	-	-	-	P+S	P+M	P+S	-
NY	Suffolk	BST	-	-	-	-	-	-	W	-
PA	Delaware	MTGN	-	-	P+WS	P+WS	-	-	-	-
SC	Greenville	SPN	-	-	-	-	P	-	P+S	S
	Greenville	GOTL	-	-	-	-	P+SM	P+S	P+S	-
VA	Hanover	JRN	-	-	-	-	-	-	S	-
FL	Gadsden	ESPH*	-	-	-	-	P+SW	-	-	-
	Leon	ESPT	P (Tr)	-	P+SW	P	P+M	-	-	-

P: Plant; S: Soil; W: Water; M: Potting Media; Tr: Trace forward detection, Nursery Stream detections*

Consistent Themes

- The direction set forth in the White Paper is a culmination of all the input we have received over the past several years.
- Some of the clear messages we have heard include:
  - Regulate the pathogen, not just the disease.
  - Program needs to address P. ramorum in water
  - Risk based strategic use of resources to address *P. ramorum* movement in nursery stock nationally
  - Implement a system of voluntary / mandatory BMP's in positive nurseries, especially in repeat positives

Three Major Concepts Proposed

First Concept: Maintain the regulatory status of areas currently quarantined for SOD

- 14 Counties in CA and Curry County, OR
- Would clearly establish triggers for regulating and deregulating

Second Concept

- Regulate the interstate movement of host plants from nurseries that use water that has tested positive for *P. ramorum* as determined through official regulatory samples
  - Based on current data this would potentially impact a few nurseries in CA, OR, WA, MS, AL, GA, FL, NC and NY
  - The regulatory focus would be on "treatment options" of irrigation water.
  - Use alternate source of water (treated municipal water, bore well)

Third Concept

- Regulate nationally only those nurseries that ship interstate and are also confirmed for the presence of *P. ramorum* in plants, water, soil, or on any related articles
  - Would clearly establish triggers for regulating / deregulating nurseries
  - Detection of *P. ramorum* not only on plants, but also in soil and/or water would be a trigger

Third Concept (*continued*)

- Only positive nurseries would be regulated
- The majority of currently regulated nurseries (host & non-host) in CA, OR and WA where *P. ramorum* has never been detected (data 2003-2011) would be deregulated
- Repeat positive nurseries would be required to implement BMP's options based on Critical Control Points identified by a regulatory assessment team

Advance Notification Update

- FO in effect since March 1st, 2011
- Nurseries in the regulated States of California, Oregon and Washington must provide advance notification to the non-regulated States when they ship high-risk (*Rhododendron*, *Camellia*, *Pieris*, *Kalmia*, *Viburnum*) plant genera
- Inter-state shippers in 37 (out of 137) counties in CA, OR and WA, with one or more previous positive detections in an inter-state shipping nursery, are affected by the FO
- The main objectives of the FO is to facilitate rapid response, provide traceability in case of a trace incident and prioritize resources

Advance Notification Update

- Benefits, Issues, Concerns, Suggestions
  - Most of states viewed the requirement as adding an additional safeguard
  - FO has increased ability of the states to prioritize resources and provide direct traceability of incoming shipments and assisted in their surveys.
  - Additionally, the FO has assisted receiving states track a number of unlicensed establishments in their states
  - Although a burden, Industry has expressed the FO has not hindered inter-state shipments of host plant nursery stock

Advance Notification Update

- Benefits, Issues, Concerns, Suggestions (continued)
  - Concern about missing faxes, incomplete information, lack of standardization, erroneous shipment dates (working out the kinks)
  - Concern that APHIS is no longer compiling trace forward data after six months, making it difficult to verify the completeness of notifications
  - Concerns from states over burden, resources, authority and liability
  - Notifications should go to SPHD's as well so that they can maintain data
  - States are receiving shipping information on those not listed

Advance Notification Review Process

- *P. ramorum* program has completed the review through survey and have information on
  - Compliance by shipping nurseries and violations
  - Process used by the receiving states to store/file / utilize the notifications received
  - Obtain feed-back from both the industry and receiving states on the lessons learned, benefits and /or constraints
- Review to be completed before fall 2012 shipping season.

P. ramorum Program needs better science!!

- Non-chemical treatment options for soil: Steaming, biological control
- Best Management Practices that are practical, cost-effective and that can be readily adopted by nurseries
- Systems Approaches to tackle multiple pests and diseases
- Reduce movement of the pathogen into waterways and streams
- Regulations cannot solve all the current issues related to *P. ramorum*

APHIS PPQ *Phytophthora ramorum* Regulatory Program Contacts

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