

An Overview of *Phytophthora ramorum* in Washington State¹

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Phytophthora ramorum, the exotic water mold that causes sudden oak death and ramorum shoot blight, was first detected in Washington State on ornamental nursery stock in 2003. Since then, three lineages (NA1, NA2, and EU1) have been detected in a total of 49 nurseries in western Washington (fig. 1).

The number of positive nurseries has decreased since a high of 25 in 2004 (fig. 2). During the past eight years, most positives are repeat nurseries.

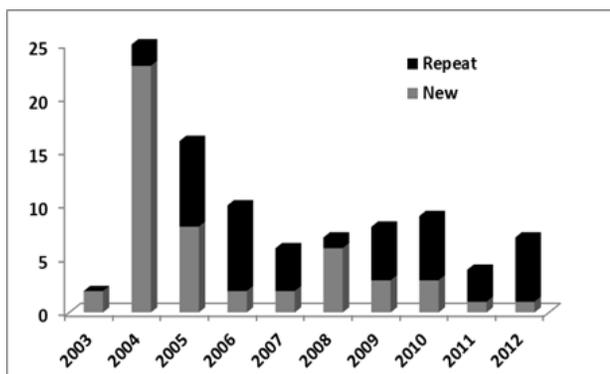


Figure 2—Yearly number of new and repeat positive nurseries in western Washington, 2003 to May, 2012.

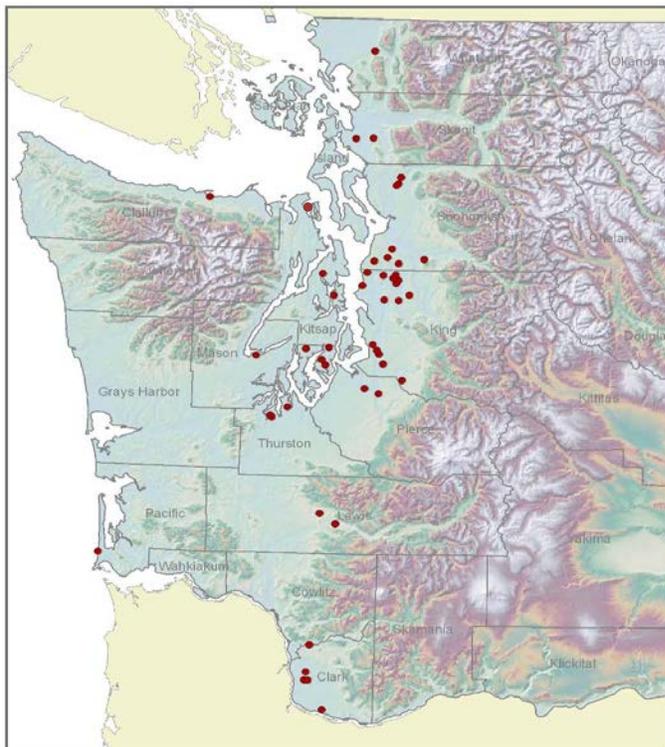


Figure 1—*Phytophthora ramorum*-positive nursery sites in western Washington, 2003 to May, 2012.

In 2006, stream baiting revealed that *P. ramorum* had spread from a nursery in Pierce County into a nearby stream. Subsequent yearly stream baiting has resulted in the detection of *P. ramorum* in a total of 11 drainage ditches and/or streams in five western Washington counties (fig. 3). Genotype analysis indicates that all three lineages of this pathogen have spread into waterways and that contamination of waterways has typically resulted from spread of inoculum from nearby positive nurseries. Stream baiting has also shown that once a waterway becomes infested, it remains infested even after successful mitigation steps have eliminated the pathogen from infested nurseries.

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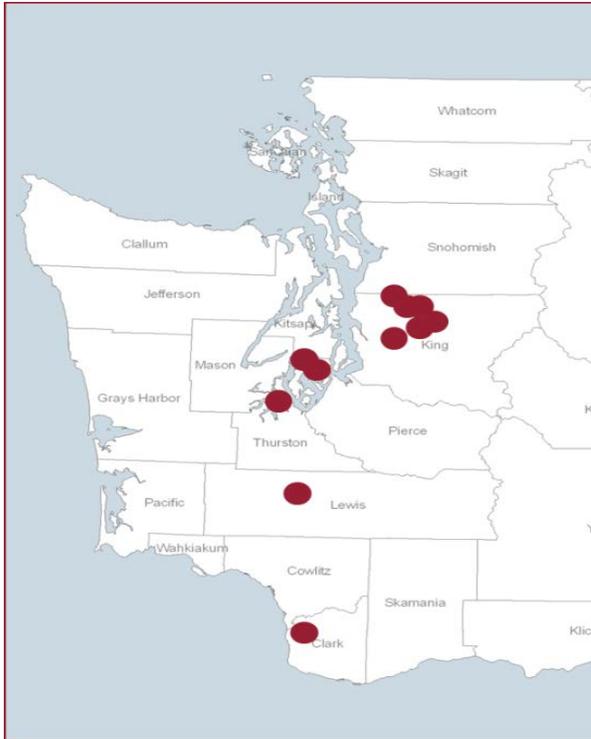


Figure 3—Locations of drainage ditches and/or streams where *Phytophthora ramorum* has been baited since 2006.

In the spring of 2009, infested ditch water resulted in the infection of salal (*Gaultheria shallon* Pursh) plants along the perimeter of another nursery in Pierce County. This represents the first time the NA2 lineage has been detected on plants outside of a nursery. In 2010, additional plants were positive at the nursery and ditch water continued to be positive along its perimeter. Composite soil samples collected from along the ditch were also positive in 2010, making this the first location in Washington with evidence that inoculum has spread from a nursery in water, resulting in the contamination of soil and infection of natural vegetation. In addition, positive soil has also been detected at three trace-forward sites where infected plants from a nursery in Thurston County had been planted in the landscape.

The Washington State Department of Agriculture (WSDA) is continuing to monitor nurseries for *P. ramorum* as required by the Confirmed Nursery Protocol, but as of 2012, will no longer monitor waterways and streams outside of nurseries. Stream baiting is still being conducted by the Washington Department of Natural Resources (DNR), with

initial 2012 sampling being done on 10 watercourses in 5 counties. In addition to leaf baiting, DNR will be working with the USDA Forest Service on “Bottle of Bait” protocols to assay each of the streams for *P. ramorum*.

Acknowledgments

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