



## News Release

### NEW SUDDEN OAK DEATH INTRODUCTION INTO UK DESPITE QUARANTINE EFFORT: A FOURTH LINEAGE FOUND

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**Contact:**

**Katie Palmieri**  
**Public Information Officer**  
**(510) 847-5482**

CALIFORNIA--British forestry scientists have identified a fourth genetically distinct lineage of *Phytophthora ramorum* (the pathogen known to cause Sudden Oak Death) which is causing devastating tree diseases in the United Kingdom (UK) and the United States (US). In the US, Sudden Oak Death is devastating oaks and tanoaks along 14 coastal California counties as well as Curry County, Oregon. In the UK, including Northern Ireland and many western parts of Great Britain (especially southwest and northwest England, south Wales, and southwest Scotland), *P. ramorum* is causing 'ramorum disease,' which is causing dramatic mortality in Japanese larch trees.

The increasing intensity of the *P. ramorum* outbreaks in the UK led researchers to analyze samples from the new findings further, which resulted in the discovery of a fourth, genetically distinct lineage of the pathogen.

Announced recently at the 5<sup>th</sup> Sudden Oak Death Symposium in California, Clive Brasier, an emeritus professor with the Forestry Commission's Forest Research agency, said he believed that the previously unknown European Type 2 (EU2) lineage had been recently introduced into southwest Scotland and Northern Ireland, based on genetic analysis.

"We are still uncertain about the pathway by which the new lineage has arrived in the UK, and we are still trying to assess the extent of its distribution," Professor Brasier said. "We have tremendous biosecurity concerns, including this new form of *P. ramorum*. Over the past year alone in the UK we have discovered chestnut blight, Asian longhorn beetle, Chalara dieback of ash, and several other invasive forest pests."

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Three *P. ramorum* lineages were known to exist before the discovery: EU1 and North American types 1 and 2 (NA1 and NA2). The EU1 lineage has primarily been found in European nurseries and forests, and has caused the current epidemic on larch throughout much of Great Britain. However, it has also been recovered from several US West Coast nurseries and waterways. The NA1 lineage is most commonly found in California's infected forests, but has also been recovered in some US nurseries, and the NA2 isolate, which is found in US nurseries, has also been detected in a couple of Washington waterways. Based on genetic analysis, these three lineages are considered separate, unique introductions, with each estimated to have arrived in its primary country during the 1990s.

Research on the four lineages indicates that the pathogen emanates from some unknown center of origin. Each is a distant relative of the others, having diverged hundreds of thousands of years ago. Reuniting the lineages through trade and long-distance plant movement could have unknown and unintended consequences. The comingling of these lineages increases potential for sexual recombination, possibly creating more virulent strains.

"This pathogen has been moved around the world and introduced into Europe and North America at least four times, and the likely vehicle for these introductions is nursery stock," Professor Brasier said. "The latest introduction into the UK is particularly frustrating, because a major effort to implement effective phytosanitary (plant health) measures has been underway for some time. Unfortunately, these pests and pathogens are often effective at evading the measures in place to protect trade and our forests from these new, unwanted arrivals.

"Really, the larger issue highlighted here is the need for a two-fold program, which includes: developing and implementing protocols that take unknown pathogens into consideration to help those in affected industries mitigate for them as much as possible; and increasing public awareness of invasive species issues. It is going to take a collective effort to successfully deal with this, but if done properly, we will save forests and prevent millions of dollars from being lost to often futile reactive responses."

In the US, SOD has been found killing coast live oak, California black oak, Shreve's oak, canyon live oak, and tanoak in the forests where *P. ramorum* is found. It also affects nearly 125 other plant species worldwide. To date in California, more than a million trees have died and at least another million are currently infected.

**MORE...MORE...MORE**

For more information about *P. ramorum* in the US, go to [www.suddenoakdeath.org](http://www.suddenoakdeath.org); in Great Britain go to [www.forestry.gov.uk/pramorom](http://www.forestry.gov.uk/pramorom); and in Northern Ireland go to [www.dardni.gov.uk/forests-service](http://www.dardni.gov.uk/forests-service).

#### **NOTE TO EDITOR**

- Despite its common name in North America, the UK's native oak species (*Quercus robur* and *Q. petraea*) have been little affected by *P. ramorum*. However, it has proved particularly destructive to Japanese larch (*Larix kaempferi*) in the UK since it was first found to be the cause of significant mortality in this species in England in 2009. Larch trees also produce huge numbers of infective *P. ramorum* spores, which spread into the local environment through wind and rain events. To date, more than 3 million larch trees have been compulsorily felled in the UK in an effort to bring the disease under control.

#### **MEDIA CONTACTS**

- US - Katie Palmieri, California Oak Mortality Task Force, (510) 847-5482; [kpalmieri@berkeley.edu](mailto:kpalmieri@berkeley.edu)
- UK - Charlton Clark, British Forestry Commission/Forest Research, +44 131 314 6500; [charlton.clark@forestry.gsi.gov.uk](mailto:charlton.clark@forestry.gsi.gov.uk)

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