# The Current Situation With *Phytophthora ramorum* in England and Wales[1]

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**Abstract**

Since the first finding of *Phytophthora ramorum* in England in April 2002, an intensive campaign, supported by the European Community (EC) and national legislation, has been conducted to locate and eradicate all interceptions and outbreaks of *P. ramorum*. A summary of the findings made during these surveys is presented, along with an initial analysis of progress towards eradication.

*Key words: Phytophthora ramorum*, sudden oak death, hosts, symptoms of infection, surveillance, eradication

## Introduction

Surveillance for *Phytophthora ramorum* in England and Wales commenced in July 2001 and the first finding of the pathogen was confirmed on a nursery in England in April 2002. In response to this finding, emergency national legislation was adopted in May 2002, followed by EC legislation in November 2002. These official controls currently include a ban on the import of susceptible host material from affected parts of the USA and plant passporting controls on the movement of *Rhododendron*, *Viburnum* and *Camellia* within the European Union (EU). Member States in the EU are also required to conduct official surveys and to take action at least to prevent the spread of *P. ramorum*.

In the United Kingdom (UK), intensive surveillance has been conducted by the Plant Health and Seeds Inspectorate (PHSI) and by the Forestry Commission and Forest Research. Similar surveillance has also been conducted in Scotland and Northern Ireland. Within England and Wales, PHSI aim to make at least one visit each year to all commercial premises that trade in susceptible material, with wholesale nurseries receiving at least four visits a year. Targeted surveys of parks, gardens and 'wild' locations have also been undertaken, some in partnership with other agencies such as English Nature, and the Forestry Commission have made two random surveys of woodlands in 2004. In addition, a targeted programme of port inspections has been made to monitor intra-community trade.

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Action is taken to eradicate all findings of *P. ramorum* in the whole of the UK. At nurseries and garden centres, all infected plants, and susceptible hosts within a 2m radius are destroyed, and susceptible plants grown within a 10m radius are held for at least three months and monitored for signs of infection. Whilst under official hold these plants must not be sprayed with anti-*Phytophthor*a fungicides, in order to prevent symptom suppression. In addition, hygiene measures are required and a programme of follow up visits is implemented. Eradication action is also required against findings at managed and unmanaged sites, such as parks, gardens and wild areas.

## Hosts and Symptoms

*P. ramorum* has been found on a range of ornamental plants and trees at nursery and retail premises, and on managed (e.g. parks and gardens) and unmanaged land. Non-tree, plant species found to be infected in England and Wales include: *Camellia* spp., *Hamamelis* spp., *Kalmia latifolia*, *Laurus nobilis*, *Leucothoe fontanesiana*, *Pieris* spp., *Rhododendron* spp., *Syringa vulgaris*, *Taxus baccata* and *Viburnum* spp. Characteristic symptoms of infection are leaf blight, and dieback of infected shoots. Dieback has only occasionally been observed in *Camellia, Kalmia and Syringa*, however, and has not yet been noted on *Laurus nobilis* or *Leucothoe spp*. In addition, *Griselinia littoralis*, *Magnolia spp.*, and *Parrotia persica* are recently discovered hosts, for which Koch's postulates have yet to be completed. All three new genera exhibit leaf blight, with *Griselinia littoralis* and *Magnolia x soulangeana* showing evidence of dieback also.

Mature specimens of the following trees have been found to be infected: *Aesculus hippocastanum, Castanea sativa, Drimys winterii, Fagus sylvatica, Fraxinus excelsior, Nothofagus sp., Quercus cerris, Quercus falcata, Quercus ilex, Taxus baccata* and *Umbellularia californica*. Leaf blight has also been a characteristic symptom of *P. ramorum* in trees, with examples recorded on *Castanea sativa, Drimys winterii, Fraxinus excelsior, Quercus ilex, Taxus baccata* and *Umbellularia californica*. *Castanea sativa*, *Quercus ilex* and *Taxus baccata* have also exhibited some young shoot dieback. Lethal bleeding cankers have been observed on *Aesculus hippocastanum, Fagus sylvatica, Nothofagus obliqua, Quercus cerris* and *Quercus falcata*.

## Outbreak Statistics and Trends

A total number of 462 outbreaks has been recorded up to the end of December 2004 at 398 sites. Of these, 376 outbreaks (at 324 sites) have been found at nurseries and garden centres, and 86 outbreaks (at 74 sites) have been on managed/unmanaged land. Eradication has been more successful at commercial premises, where 82 percent of outbreaks have been eradicated, than in managed/unmanaged land, where to date only 27 percent of outbreaks have been eradicated.

Several encouraging trends have been observed when comparing inspection figures between 2003 and 2004 For example, despite a 66 percent increase in number of inspections, the number of new outbreaks found decreased by 30 percent, and the number of findings on passported material fell by 89 percent. Furthermore, the percentage of sites at which *P. ramorum* was confirmed also dropped between 2003 and 2004. For nurseries and garden centres, the percentage of sites affected was 5.1 percent in 2003 and 3.0 percent in 2004, and for managed/unmanaged land, the percentage of sites affected was 8.0 percent in 2003 and 3.9 percent in 2004.

In summary, import and plant passporting controls appear to have reduced substantially the amount of *P. ramorum*-infected material moving in commercial trade. Good progress has also been made at eradicating *P. ramorum* from nurseries and garden centres, although repeat findings of *P. ramorum* on commercial premises continue to cause concern. In contrast to commercial premises, eradication of *P. ramorum* from parks, gardens and wild areas appears to be a more protracted process.