

**Report on the 1st Forestry Commission Woodland
Survey 2006 to Assess the Level of Incidence of *Phytophthora ramorum*
and *Phytophthora kernoviae* in Devon**

**Forestry Commission
Plant Health
Edinburgh**

Summary

Between July and September 2006, the Forestry Commission (FC) undertook a survey in Devon of **71** woodlands and woodlands associated with heritage gardens, which were in admixture with rhododendron and/or *Vaccinium*, and which had not previously been inspected either by the FC or the Plant Health & Seeds Inspectorate (PHSI) of Defra. **72** 10km squares were inspected, with at least one woodland or woodland associated with heritage garden in each square surveyed. A further **3** 10km squares contained no woodland and **2** squares had already been inspected by PHSI. Samples were analysed from three sites with symptomatic plants, but no positives were found.

Background

Phytophthora ramorum is a fungus-like pathogen, which has been identified as the causal agent for the condition known in the USA as Sudden Oak Death. The first evidence of it in Britain was found during April 2002 on a viburnum but since then it has been found mainly on rhododendrons in nurseries and garden centres. In November 2003 the first evidence of an established tree having the disease was confirmed in Sussex. Further infections were subsequently confirmed on trees in historic gardens in Cornwall. Rhododendrons were present on all of these sites.

Between **January and April 2004** the first major FC *Phytophthora ramorum* survey was carried out, focusing on locations where rhododendron was found growing in admixture with trees. Britain was divided in to high risk and low risk areas based on climatic data. A total of 1348 sites were identified for the survey of which 1217 were high risk sites. In England, 395 sites were surveyed, in Wales, 310, and in Scotland 512. This was complemented by surveys on a further 131 low risk sites in England and Scotland. (NB: all sites in Wales are classed as high risk).

A total of 335 samples showing symptoms of the disease were collected. Samples were sent either to the Central Science Laboratory (CSL) in York or the Scottish Agricultural Science Agency (SASA) in Edinburgh. All samples were tested and found to be NEGATIVE.

Significant areas of infection were identified in Cornwall by PHSI while carrying out survey work, including surveys in woodlands associated with heritage gardens, and it was decided that the FC's survey programme would continue in England and Wales during **Summer and Autumn 2004** with 109 plots inspected in 94 10km grid squares. Samples were taken from 73 locations and none proved positive. During August 19 water bait samples were taken and 3 of these proved positive for *P. ramorum*. It was agreed that we would not continue with a formal programme of surveys in Scotland, where Pest Risk Analysis indicated a low level of risk, although ad-hoc sampling would be carried out as part of surveyors' normal duties.

During the latter part of 2004, while surveying for *P. ramorum*, a second and previously unknown *Phytophthora*, now formally named *P. kernoviae*, was discovered in Cornwall, affecting rhododendron and some trees. A Management Zone was set up to contain the disease and this is defined in the Plant Health (*Phytophthora kernovii* Management Zone) (England) Order 2004. The pathogen was also found in a nursery in Cheshire, although this outbreak was quickly eradicated, and in five locations in South Wales. At four of these locations the outbreaks have largely been contained, and in the fifth, a private garden, the one infected plant was removed and destroyed. In 2006 *P. kernoviae* was found on a single 150-year old *Rhododendron ponticum* in a historic garden in Cumbria. The infected rhododendron has now been destroyed. During 2005 and 2006 further outbreaks of both *P. ramorum* and *P. kernoviae* were discovered in Cornwall following intensive surveys by PHSI, including a number of sites in the Tamar valley close to the Cornwall/Devon border, known to contain *P. ramorum*. To supplement PHSI's surveys, especially those near the Devon/Cornwall border, the FC undertook a survey in Devon of woodlands and woodlands associated with heritage gardens, in admixture with rhododendrons and/or *Vaccinium*, which had not previously been inspected. This work was carried in **August and September 2006**.

Since the first surveys in 2004, the Forestry Commission has undertaken the 1st and 2nd **National Re-Survey of Woodlands** as well as a **New Woods Survey in Cornwall** (2005) and this **New Woods Survey in Devon** (2006). The reports for all of these can be found on the Forestry Commission website www.forestry.gov.uk/planthealth

Objective of the Survey

While the main outbreak of both *P. ramorum* and *P. kernoviae* has been in West Cornwall, the discovery by PHSI of *P. ramorum* close to the Devon/Cornwall border prompted the FC to undertake further survey work in woodlands and woodlands associated with heritage gardens in Devon. This would help to determine whether either pathogen is still confined to Cornwall or whether it has now spread in to the neighbouring county.

Sampling Protocol & Timetable

This survey was carried out by the FC's Technical Services Unit (TSU) based in Exeter. The FC would normally operate independently of PHSI, but as *P. ramorum* had been found so close to the Devon border, it was agreed that the two organisations would work closely together and combine the results of their respective surveys so that a clearer picture of the spread of the pathogens in Devon and Cornwall could be established. The TSU drew up a list of sites they wished to inspect ensuring that they excluded any woods which they had inspected in 2004. Any samples collected would be sent to CSL by the PHSI team based at Polwhele, Truro. The results of any samples, as well as details of the woods surveyed, would be sent to the FC/PHSI team at Polwhele, who would map the information using GIS. The protocol produced by Dr Steve Lee in December 2003 and subsequently amended by Dave Tracy in 2005 was again implemented for this survey. While Dr Lee's protocol specifies that the number of woodlands to survey in each 10km square is dependant on the gross area of woodlands in each square (minimum 1, maximum 4), for this

survey at least one woodland in each square, in admixture with rhododendron and/or *Vaccinium spp.* would be surveyed. Full details of the survey procedure is included in **Survey Plan 01/06-07** written by Dave Tracy.

¹ Prior to formal naming, *Phytophthora kernoviae* was referred to both as *P. kernoivii* and *P.* Taxon C

Sample Data Summary

TABLE 1

No of 10km grid squares in Devon looked at	No of squares with woodland	No of squares with no woods	No of squares Inspected by PHSI	No of woods surveyed	No of Sites sampled with LFD's	No of sites showing positives with LFD's*	No of sites from which samples sent to CSL
72	67	3	2	71	11	3	3

* = Lateral Flow Devices

All samples sent to CSL for analysis were found to be negative.

Conclusion

This survey has ensured that every grid square in Devon, where there are woodlands in admixture with rhododendron and or/*Vaccinium*, has been inspected. That the survey has thrown up no new positives for either pathogen is encouraging but with largely only one wood in each square surveyed, this only provides us with a snapshot of the situation and does not prove that the county is free of the pathogens.

Next Steps

Following a meeting in Exeter in early October, it was agreed that further inspections of previously unsurveyed woods in Devon should be undertaken. This will take the form of intensive surveys of sites that are associated with plant movement, heritage gardens and regular recreational activity, where movement through these woods has the potential to transmit the diseases. These will mainly be along the south Devon coast and valleys. However some of the larger estates along the north and south Devon coasts may also be targeted. This work will take place between October and mid-November and the report will be published on www.forestry.gov.uk/planthealth

Acknowledgement

The Forestry Commission wishes to acknowledge the full co-operation and support given to its surveyors by woodland owners or their managers who were approached for permission to survey their land.

**Plant Health Service
Forestry Commission
Silvan House
231 Corstorphine Road
Edinburgh
EH12 7AT
November 2006**

