Forestry Commission *Phytophthora ramorum* 2020 surveillance and observations - England

After several years of a decreasing disease trend, conducive weather conditions in 2019 contributed to the expansion of *Phytophthora ramorum* in England in 2020, including findings in new geographical areas. Of significance were new or increased instances of infected larch (*Larix* spp.) in more easterly areas of England, including the Peak District and the East Midlands. Some of this infection was locally significant, with severe larch mortality. Additionally, high levels of larch infection were observed in northwest England, in many cases with intense symptoms and mortality. Observed spread in the north and east midlands correlated with significant rainfall in this area over the second half of 2019.

New findings were made in larch close to the Welsh border in the West Midlands and the Forest of Dean. Observations of infection continued to be well distributed across the southwest of England, whilst further limited spread was observed in the southeast.

In total, 2020 surveillance identified 274 woodland sites with infection present or suspected. Statutory Plant Health Notices (SPHNs) are being issued; to date these are requiring affected owners to fell a net total of 1,070 ha (2,644 ac) of larch - the highest since 2010 (1,178 ha, 2,911 ac). As has always been the case, EU1 was the only lineage identified from English samples.

The established pattern of larch infection associated with historic local *Rhododendron ponticum* infection was observed, highlighting the continuing epidemiological importance of *R. ponticum* as a host. There were also occasional *Phytophthora kernoviae* findings in this host species in southwest England. Additionally, *P. ramorum* infecting bilberry (*Vaccinium myrtillus*) was identified on a few sites, and it is important not to discount the significance of this sporulating host species.

Figure 1. Infected Bilberry (*Vaccinium myrtillus*).

Figure 2. Infected *Rhododendron ponticum*

Initiation of the 2020 aerial survey programme was delayed to allow modifications to aircraft and operating procedures to meet COVID-19 social-distancing requirements. Adaptations included installation of an internal bulkhead to separate the front cockpit and rear crew cabin and reducing the on-board observer crew from three to one. The overall impacts were that surveys took longer to

complete whilst covering a reduced area per flight. However, by September the modified surveillance programme had comprised 21 survey flights and managed to monitor 34,806 ha (86,007 ac) of larch.

No dedicated survey flights targeting sweet chestnut (*Castanea sativa*) woodland were undertaken in 2020 due to the increased surveillance workload highlighted above. Despite this, a small number of infections in sweet chestnut were identified during larch-focused survey activity, particularly in the southwest but also in increasing numbers in the north and midlands. Felling of affected trees will be undertaken under SPHN.

Other observations during the survey program included a continuation of the increase in larch dieback attributable to large larch bark beetle (*Ips cembrae*). This is likely due to prolonged droughts and warm summers in recent years. A small number of larch sites were identified with co-occurrence of *I. cembrae* and *P. ramorum*. Research investigating the possibility of any interaction between these two pests is planned.

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