

Updated
26/02/2009

CSL list of natural hosts for *Phytophthora ramorum* with symptom and location

New hosts*	Latin name	Family	Common name	Damage type*			Location(s)†	References
				F	D	C		
	<i>Abies concolor</i>	Pinaceae	White fir	✓			USA (outdoor)	COMTF (undated)
	<i>Abies grandis</i>	Pinaceae	Grand fir	✓	✓		USA (outdoor)	COMTF (undated)
	<i>Abies magnifica</i>	Pinaceae	Red fir	✓	✓		USA (outdoor)	COMTF (undated)
	<i>Acer circinatum</i>	Aceraceae	Vine maple	✓			USA (outdoor)	COMTF (undated)
	<i>Acer davidii</i>	Aceraceae	Striped bark maple	✓			Canada (nursery)	COMTF (undated)
	<i>Acer laevigatum</i>	Aceraceae	Evergreen maple	✓			UK (outdoor)	Forest Research records
	<i>Acer macrophyllum</i> ¹	Aceraceae	Big leaf maple	✓			USA (outdoor)	Garbelotto <i>et al.</i> (2003)
	<i>Acer pseudoplatanus</i> ¹	Aceraceae	Sycamore			✓	UK (outdoor)	Forest Research records
	<i>Adiantum aleuticum</i> ¹ [syn. <i>Adiantum pedatum</i>]	Polypodiaceae	Western maidenhair fern	✓			USA (outdoor)	Vettraino <i>et al.</i> (2006)
	<i>Adiantum jordanii</i> ¹	Polypodiaceae	California maidenhair fern	✓			USA (outdoor)	COMTF (undated)
	<i>Aesculus californica</i> ¹	Hippocastanaceae	Californian buckeye	✓	✓		USA (outdoor)	Garbelotto <i>et al.</i> (2003)
	<i>Aesculus hippocastanum</i> ¹	Hippocastanaceae	Horse chestnut			✓	UK (outdoor)	Forest Research records
	<i>Arbutus menziesii</i> ¹	Ericaceae	Madrone	✓	✓		USA (outdoor)	Garbelotto <i>et al.</i> (2003)
	<i>Arbutus unedo</i>	Ericaceae	Strawberry tree	✓	✓		Guernsey (nursery), Spain (nursery)	CSL records, COMTF (undated)
	<i>Arctostaphylos columbiana</i>	Ericaceae	Hairy manzanita	✓	✓		USA (outdoor)	COMTF (undated)
	<i>Arctostaphylos manzanita</i> ¹	Ericaceae	Manzanita	✓	✓		USA (outdoor)	Garbelotto <i>et al.</i> (2003)
	<i>Arctostaphylos uva-ursi</i>	Ericaceae	Kinnikinnik, bearberry	✓			USA (nursery)	COMTF (undated)
	<i>Ardisia japonica</i>	Mysinaceae	Japanese ardisia, Maleberry	✓			Canada (nursery)	COMTF (undated)
	<i>Calluna vulgaris</i> ¹	Ericaceae	Heather		✓		Poland (nursery)	Orlikowski & Szkuta (2004)
	<i>Calycanthus occidentalis</i>	Calycanthaceae	Spicebush, western sweetshrub	✓			USA (outdoor)	COMTF (undated)
	<i>Camellia spp.</i> ¹	Theaceae	Camellia	✓	✓		UK (nursery and outdoor), France (nursery), Spain	Beales <i>et al.</i> (2004b), Husson (personal)
	<i>Castanea sativa</i> ¹	Fagaceae	Sweet chestnut	✓	✓	✓	UK (outdoor)	Denman <i>et al.</i> (2005)
	<i>Castanopsis orthacantha</i>	Fagaceae	-	✓	✓		UK (outdoor)	Forest Research records
	<i>Ceanothus thyrsiflorus</i>	Rhamnaceae	Blue blossom, Californian lilac	✓	✓		USA (outdoor)	COMTF (undated)
	<i>Cercis chinensis</i>	Fabaceae	Redbud	✓			Canada (nursery) Nov 2007	CFIA March 2008
	<i>Choisya ternata</i> "Aztec Pearl"	Rutaceae	Mexican orange	✓			UK (nursery)	CSL Records (February 2008)
	<i>Cinnamomum camphora</i>	Lauraceae	Camphor tree	✓		✓	UK (outdoor)	Forest Research records

	<i>Cinnamomum</i> sp. ⁴	Lauraceae	-				Canada (nursery)	CFIA records
	<i>Clintonia andrewsiana</i>	Liliaceae	Andrew's clintonia bead lily	✓			USA (outdoor)	COMTF (undated)
	<i>Cornus capitata</i>	Cornaceae	Bentham's dogwood	✓			UK (outdoor)	PHSI, CSL Records
*Entered Jan. 09	<i>Cornus kousa</i>	Cornaceae					Canada (nursery)	CFIA records (2008)
	<i>Cornus kousa</i> x <i>Cornus capitata</i> "Norman haddon"	Cornaceae		✓			UK (outdoor)	Forest Research records
	<i>Corylopsis spicata</i>	Hamamelidaceae	Spike winter hazel	✓			Canada (nursery)	CFIA records
	<i>Corylus cornuta</i>	Betulaceae	California hazelnut		✓		USA (outdoor)	Murphy & Rizzo (2002)
*Entered Feb. 09	<i>Daphniphyllum glaucescens</i>	Daphniphyllaceae		✓	✓		Canada (nursery)	CFIA records
	<i>Distylium myricoides</i>	Hamamelidaceae	Myrtle-leaved distylium	✓			Canada (nursery)	CFIA records
	<i>Drimys winteri</i>	Winteraceae	Winter's bark	✓	✓		UK (outdoor)	CSL records
	<i>Dryopteris arguta</i>	Dryopteridiaceae	Californian wood fern, coastal woodfern	✓			USA (outdoor)	COMTF (undated)
	<i>Eucalyptus haemastoma</i>	Myrtaceae	Scribbly gum	✓			UK (outdoor)	Forest Research records
	<i>Euonymus kiautschovicus</i>	Celastraceae	Spreading euonymus, creeping strawberry bush	✓	✓		Canada (nursery)	CFIA records
	<i>Fagus sylvatica</i> ¹	Fagaceae	Beech			✓	UK (outdoor), Netherlands (outdoor)	Forest Research records, RAPRA (undated)
	<i>Frangula californica</i> ¹ [syn. <i>Rhamnus californica</i>]	Rhamnaceae	Californian coffeeberry, California buckthorn	✓	✓		USA (outdoor)	Garbelotto <i>et al.</i> (2003)
	<i>Frangula purshiana</i> ¹ [syn. <i>Rhamnus purshiana</i>]	Rhamnaceae	Cascara	✓			USA (outdoor)	Vettraino <i>et al.</i> (2006), Goheen <i>et al.</i> (2002b)
	<i>Fraxinus excelsior</i> ¹	Oleaceae	Ash	✓			UK (outdoor)	Forest Research records
	<i>Fraxinus latifolia</i>	Oleaceae	Oregon ash	✓			USA (outdoor)	COMTF (undated)
	<i>Garrya elliptica</i>	Garryaceae	Silk tassel bush	✓			UK (nursery)	CSL records
	<i>Gaultheria shallon</i> ¹	Ericaceae	Salal, Oregon wintergreen	✓			Canada (nursery), UK (nursery)	CFIA records, CSL records
	<i>Griselinia littoralis</i> ¹	Cornaceae	New Zealand privet	✓	✓		UK (outdoor)	Giltrap <i>et al.</i> (2006)
	<i>Hamamelis mollis</i>	Hamamelidaceae	Chinese witch hazel	✓	✓		UK (nursery)	CSL records
	<i>Hamamelis virginiana</i> ¹	Hamamelidaceae	Virginian witch hazel	✓	✓		UK (nursery and outdoor)	Giltrap <i>et al.</i> (2004)
	<i>Hamamelis intermedia</i> (H. <i>mollis</i> x H. <i>japonica</i>)	Hamamelidaceae	Hybrid witch hazel	✓			Canada (nursery)	Anon. (2006a)
	<i>Heteromeles arbutifolia</i> ¹	Rosaceae	Toyon	✓	✓		USA (outdoor)	Garbelotto <i>et al.</i> (2003)
	<i>Ilex purpurea</i>	Aquifoliaceae	Oriental holly	✓			Canada (nursery)	APHIS records
Dec-08	<i>Ilex aquifolium</i>	Aquifoliaceae	European Holly	✓			UK (outdoor)	CSL records (December 2008)
	<i>Kalmia angustifolia</i>	Ericaceae	Sheep laurel	✓	✓		UK (nursery) ²	CSL records
	<i>Kalmia latifolia</i> ¹	Ericaceae	Mountain laurel	✓	✓		UK (outdoor and nursery), Slovenia (nursery)	CSL records, RAPRA (undated)

	<i>Kalmia</i> sp.	Ericaceae	Species not presently known				Canada (nursery)	CFIA records
	<i>Laurus nobilis</i> ¹	Lauraceae	Bay laurel	✓			UK (nursery)	CSL records
	<i>Leucothoe axillaris</i>	Ericaceae	Fetter-bush, dog hobble	✓			Canada (nursery)	COMTF (undated)
	<i>Leucothoe fontanesiana</i> ¹	Ericaceae	Drooping leucothoe	✓			UK (nursery), France (nursery)	CSL records, Husson (personal communication)
	<i>Lithocarpus densiflorus</i> ¹	Fagaceae	Tanoak	✓	✓	✓	USA (outdoor)	Garbelotto <i>et al.</i> (2003)
Dec-08	<i>Lithocarpus glabra</i>	Fagaceae		✓			UK (nursery)	CSL Records (December 2008)
	<i>Lonicera hispidula</i> ¹	Caprifoliaceae	Californian honeysuckle	✓			UK (nursery) ² , USA (outdoor)	Garbelotto <i>et al.</i> (2003), CSL records
	<i>Loropetalum chinense</i>	Hamamelidaceae	Loropetalum	✓			Canada (nursery); USA (nursery),	APHIS records; COMTF (undated)
	<i>Magnolia denudata</i>	Magnoliaceae	Lily Tree	✓			Canada (nursery); UK (outdoor)	CFIA records; FR records
	<i>Magnolia denudata</i> x <i>salicifolia</i>	Magnoliaceae	Magnolia hybrid	✓			UK (outdoor)	Forest Research records
	<i>Magnolia figo</i> (<i>Michelia figo</i>)	Magnoliaceae	Banana magnolia (Banana shrub)	?			USA (nursery)	APHIS May 2008
	<i>Magnolia grandiflora</i> ¹	Magnoliaceae	Magnolia	✓			UK (nursery and outdoor), USA (nursery), Canada (nursery)	CSL records, COMTF (undated)
	<i>Magnolia kobus</i>	Magnoliaceae	Kobus magnolia	✓			Canada (nursery)	CFIA records
	<i>Magnolia salicifolia</i>	Magnoliaceae	Anise magnolia	✓			UK (outdoor)	Forest Research records
	<i>Magnolia stellata</i> ¹	Magnoliaceae	Star magnolia	✓	✓		UK (nursery and outdoor)	Giltrap <i>et al.</i> (2006)
	<i>Magnolia</i> x <i>loebneri</i> ¹ (<i>M. kobus</i> & <i>M. stellata</i>)	Magnoliaceae	Loebner magnolia	✓	✓		UK (nursery and outdoor)	Giltrap <i>et al.</i> (2006)
	<i>Magnolia soulangeana</i> x (<i>M. liliiflora</i> x <i>M. denudata</i>)	Magnoliaceae	Saucer magnolia	✓	✓		UK (nursery)	CSL records
	<i>Mahonia aquifolium</i>	Berberidaceae	Holly leaved barberry Oregon grape	✓			Canada (nursery)	CFIA (Aug 2007)
	<i>Maianthemum racemosum</i> [syn. <i>Smilacina racemosa</i>]	Liliaceae	False Solomon's seal	✓			USA (outdoor)	COMTF (undated)
	<i>Manglietia insignis</i>	Magnoliaceae	Red lotus tree	✓			Canada (nursery)	APHIS records
	<i>Michelia cavaleri</i>	Magnoliaceae	Michelia	✓			Canada (nursery)	CFIA records
	<i>Michelia doltsopa</i> ¹	Magnoliaceae	Michelia	✓			UK (outdoor)	Forest Research records
	<i>Michelia foveolata</i>	Magnoliaceae	Michelia	✓			Canada (nursery)	CFIA records
	<i>Michelia maudiae</i> ¹	Magnoliaceae	Michelia	✓			UK (outdoor), Canada (nursery)	CSL records, APHIS records
	<i>Michelia wilsonii</i>	Magnoliaceae	Michelia	✓			Canada (nursery)	APHIS records
	<i>Nerium oleander</i>	Apocynaceae	Oleander	✓			USA (nursery)	COMTF (undated)

	<i>Nothofagus obliqua</i>	Fagaceae	Roble beech			✓	UK (outdoor)	Forest Research records
	<i>Osmanthus decorus</i>	Oleaceae	Osmanthus	✓			Canada (nursery)	RAPRA (undated)
	<i>Osmanthus delavayi</i>	Oleaceae	Delavay osmanthus	✓			USA (nursery), UK (outdoor)	COMTF (undated); Forest Research records
	<i>Osmanthus fragrans</i>	Oleaceae	Sweet olive	✓	✓		USA (nursery), Canada (nursery)	COMTF (undated), CFIA records
	<i>Osmanthus heterophyllus</i> ¹	Oleaceae	Holly osmanthus	✓			UK (nursery), USA (nursery)	CSL records, COMTF (undated)
	<i>Osmorhiza berteroi</i>	Apiaceae	Sweet cicely	✓			USA (outdoor)	COMTF (undated)
	<i>Parakmeria lotungensis</i>	Magnoliaceae	Eastern joy lotus tree	✓			Canada (nursery)	APHIS records
	<i>Parrotia persica</i> ¹	Hamamelidaceae	Ironwood	✓	✓		UK (outdoor), Canada (nursery)	Hughes <i>et al.</i> (2006b), CFIA records
	<i>Photinia x fraseri</i> ¹ (P. glabra x P. serrulata)	Rosaceae	Fraser photinia	✓			Poland (outdoor)	Orlikowski & Szkuta (2004)
	<i>Physocarpus</i>	Rosaceae	Ninebark	?			Canada (nursery)	CFIA 2007
	<i>Pieris floribunda</i> x <i>japonica</i> ¹	Ericaceae	Mountain andromeda	✓	✓		USA (nursery)	Parke <i>et al.</i> (2004)
	<i>Pieris formosa</i> ¹	Ericaceae	Himalaya andromeda	✓	✓		UK (outdoor and nursery)	Inman <i>et al.</i> (2003)
	<i>Pieris japonica</i> x <i>formosa</i> ¹	Ericaceae	Ornamental pieris	✓	✓		UK (nursery), USA (nursery)	CSL records, Parke <i>et al.</i> (2004)
	<i>Pieris japonica</i> ¹	Ericaceae	Japanese pieris	✓	✓		UK (nursery and outdoor), France (nursery), Germany (nursery and outdoor), Poland (nursery), USA (nursery)	CSL records, RAPRA (undated), Husson (personal communication), Orlikowski & Szkuta (2004), Parke <i>et al.</i> (2004)
	<i>Pieris</i> sp.	Ericaceae	Species not presently known	✓			Canada (nursery)	CFIA records
	<i>Pittosporum undulatum</i>	Pittosporaceae	Victorian box	✓			USA (outdoor)	Hüberli <i>et al.</i> (2006)
	<i>Prunus laurocerasus</i> 'Nana'	Rosaceae	Dwarf English Laurel	✓			USA (nursery)	COMTF (undated)
	<i>Prunus lusitanica</i>	Rosaceae	Portuguese laurel cherry	✓			Canada (nursery)	COMTF (undated)
	<i>Pseudotsuga menziesii</i> ¹	Pinaceae	Douglas fir	✓	✓		USA (outdoor)	Davidson <i>et al.</i> (2002)
	<i>Pyracantha koidzumii</i>	Rosaceae	Formosa firethorn	✓			Canada (nursery)	Briere <i>et al.</i> (2005)
	<i>Quercus acuta</i>	Fagaceae	Japanese evergreen oak			✓	UK (outdoor)	Forest Research records
	<i>Quercus agrifolia</i> ¹	Fagaceae	Coast live oak			✓	USA (outdoor)	Garbelotto <i>et al.</i> (2003)
	<i>Quercus cerris</i> ¹	Fagaceae	Turkey oak	✓		✓	UK (outdoor)	Forest Research records
	<i>Quercus chrysolepis</i> ¹	Fagaceae	Canyon live oak			✓	USA (outdoor)	Murphy & Rizzo (2003)
	<i>Quercus falcata</i> ¹	Fagaceae	Southern red oak			✓	UK (outdoor)	Brasier <i>et al.</i> (2004a)
	<i>Quercus ilex</i> ¹	Fagaceae	Holm oak	✓	✓		UK (outdoor)	Denman <i>et al.</i> (2005)

	<i>Quercus kelloggii</i> ¹	Fagaceae	Californian black oak			✓	USA (outdoor)	Garbelotto <i>et al.</i> (2003)
	<i>Quercus parvula</i> var. <i>shrevei</i> ¹	Fagaceae	Shreve oak			✓	USA (outdoor)	Garbelotto <i>et al.</i> (2003)
	<i>Quercus petraea</i>	Fagaceae	Sessile oak			✓	UK (outdoor)	Forest Research records
	<i>Quercus rubra</i>	Fagaceae	Northern red oak			✓	Netherlands (outdoor)	RAPRA (undated)
	<i>Rhododendron</i> spp. ¹	Ericaceae	Rhododendron	✓	✓		UK (nursery and outdoor), Belgium (nursery), Finland (nursery), France (nursery and outdoor), Germany (nursery and outdoor), Ireland (nursery), Italy (nursery), the Netherlands (nursery and outdoor), Norway (outdoor), Poland (nursery), Slovenia (nursery), Spain (nursery), Sweden (nursery), Switzerland (nursery), Canada, (nursery), USA (nursery and outdoor)	CSL records, De Merlier <i>et al.</i> (2003), RAPRA (undated), Husson (personal communication), Cahalane (2004), Gullino <i>et al.</i> (2003), de Gruyter & Steeghs (2006), Orlikowski & Szkuta (2002), Žerjav <i>et al.</i> (2004), Morajelo & Werres (2002), Goheen <i>et al.</i> (2002a), Anon. (2006a), COMTF (undated), Garbelotto <i>et al.</i> (2003)
	<i>Ribes laurifolium</i>	Grossulariaceae		✓			UK (nursery)	CSL records Feb 2008
	<i>Rosa gymnocarpa</i> ¹	Rosaceae	Californian wood rose	✓			USA (outdoor)	Hüberli <i>et al.</i> (2004)
	<i>Rosa rugosa</i>	Rosaceae	Rugosa rose	✓			Canada (nursery)	APHIS records
	<i>Rosa</i> spp. (several different cultivars)	Rosaceae	Rose	✓			Canada (nursery)	APHIS records
	<i>Rubus spectabilis</i>	Rosaceae	Salmonberry	✓			USA (outdoor)	Goheen <i>et al.</i> (2002b)
	<i>Salix caprea</i> ¹	Salicaceae	Goat willow/sallow	✓	✓		UK (nursery) ²	CSL records
	<i>Schima argentea</i>	Theaceae	-			✓	UK (outdoor)	Forest Research records
	<i>Schima wallichii</i>	Theaceae	Chinese guger tree	✓			UK (outdoor)	CSL records; Forest Research records
Aug-08	<i>Sequoia sempervirens</i> ¹	Taxodiaceae	Coast redwood	✓	✓		USA (outdoor), UK (outdoor)	Maloney <i>et al.</i> (2002), CSL records (Aug-08)
	<i>Syringa</i> sp.	Oleaceae	Not identified to species level				Canada (nursery) France (nursery)	CFIA records, Husson (personal communication)

	<i>Syringa vulgaris</i> ¹	Oleaceae	Lilac	✓	✓		UK (outdoor and nursery)	Beales <i>et al.</i> (2004a)
	<i>Taxus baccata</i> ¹	Taxaceae	Yew	✓	✓		UK (nursery)	Lane <i>et al.</i> (2004)
	<i>Taxus brevifolia</i>	Taxaceae	Pacific yew	✓	✓	✓	USA (outdoor)	COMTF (undated)
	<i>Taxus</i> sp.	Taxaceae		✓			Canada (nursery), France (nursery)	CFIA records, Husson (personal communication)
	<i>Taxus x media</i> (<i>T. baccata</i> x <i>T. cuspidata</i>)	Taxaceae	Anglojap yew			✓	Netherlands (nursery)	de Gruyter & Steeghs (2006)
	<i>Torreya californica</i>	Taxaceae	California nutmeg	✓	✓		USA (outdoor)	COMTF (undated)
	<i>Toxicodendron diversilobum</i>	Anacardaceae	Pacific poison oak	✓		✓	USA (outdoor)	Rizzo (2003)
	<i>Trientalis latifolia</i> ¹	Primulaceae	Western star flower	✓			USA (outdoor)	Hüberli <i>et al.</i> (2003)
	<i>Umbellularia californica</i> ¹	Lauraceae	Californian bay laurel	✓			UK (outdoor), USA (outdoor)	CSL records, Garbelotto <i>et al.</i>
	<i>Vaccinium ovatum</i> ¹	Ericaceae	Californian huckleberry	✓	✓		USA (outdoor)	Garbelotto <i>et al.</i> (2003), Goheen <i>et al.</i> (2002a)
Jan-09	<i>Vaccinium myrtillus</i>	Ericaceae	Bilberry		✓		UK (outdoor)	CSL records (Jan.09)
Oct-08	<i>Vaccinium vitis-idaea</i>	Ericaceae	Cowberry	✓			UK (nursery)	CSL records (Oct. 2008)
	<i>Vancouveria planipetala</i>	Berberidaceae	Redwood ivy	✓			USA (outdoor)	COMTF (undated)
	<i>Viburnum</i> spp. ¹	Caprifoliaceae	Viburnum	✓	✓		UK (nursery and outdoor), Belgium (nursery), the Czech Republic (nursery), France (nursery), Germany (nursery), Ireland (nursery), the Netherlands (nursery), Norway (outdoor), Slovenia (nursery and outdoor), Spain (nursery), Switzerland (nursery and outdoor), Canada (nursery), USA, (nursery).	Lane <i>et al.</i> (2003), Cahalane (2004), De Merlier <i>et al.</i> (2003), Běhalová (2006), Werres <i>et al.</i> (2001), Pintos Varela <i>et al.</i> (2004), Žerjav <i>et al.</i> (2004), Heiniger <i>et al.</i> (2004), RAPRA (undated), COMTF (undated), Anon. (2006a) Parke <i>et al.</i> (2004).

*Dates of new host diagnosis recorded from August 2008 onwards or entry of new non-UK record

*F = Ramorum leaf blight (including petiole), D = Ramorum dieback, C = Ramorum canker

†Also includes situation: nursery and/or out door

¹ Koch's postulates have been successfully completed for this host.

NB Koch's postulates for *Gaultheria shallon* could only be completed on wounded leaves on the whole plant.

² These records refer to interceptions on nursery stock. The country given is where the infected plant was found but the plants were originally grown in another country that is not named here.

⁴ Symptoms not known