Decline and mortality of European oak ecosystems has been reported since the early 20th century. Among the various contributors to decline are species of Phytophthora, particularly *P. cinnamomi*, which is known to be involved in Iberian oak decline. However, recent investigations have shown there are a variety of other Phytophthora species associated with oak trees in Europe and Turkey.

Surveys of Phytophthora in oak forests in Europe and adjacent countries yielded a diverse assemblage of species including: *P. cinnamomi*, *P. cambivora*, *P. citricola*, *P. gonapodyides*, *P. megasperma*, *P. cactorum* and *P. cryptogea*. In addition, five new species were discovered; *P. quercina*, *P. europaea*, *P. uliginosa*, *P. psychrophila* and *P. pseudosyringae*, some other taxa await description. Some species occurred over a broad geographic area while others were isolated from specific locations. The two most common species were *P. quercina* followed by *P. citricola*.

Phytophthora species associated with oak trees probably require different site conditions to thrive in forest soils. The exotic pathogen *P. cinnamomi* was only recovered once in Turkey and never in Austria. In related studies, in Germany *P. cinnamomi* was not found but frequently was encountered in Italy and parts of France. Its recovery may indicate an existing climatic limit for the pathogen. Other Phytophthora species such as *P. gonapodyides* and *P. uliginosa* were encountered on sites where aquatic habitats and hydromorphic soils exist and *P. psychrophila* was associated to non-hydromorphic soils. *P. quercina* and *P. citricola* were isolated from sites with the greatest variation in site characteristics (e.g. soil type, soil moisture and pH). This may explain their wide distribution and frequent recovery over a wide geographic area. Noteworthy, *P. quercina* was recovered on very dry sites where Phytophthoras usually do not thrive.
The type of symptoms in *Phytophthora*-infected oak forests usually appears without mortality suggesting, at least for some species, a natural association. In addition to the surveys in throughout Europe, studies in Turkey revealed some evidence that the most common species *P. quercina* is probably co-evolved with oak species occurring on a wide range of oak ecosystems including endemic forests. However, associated Phytophthoras could play a greater role under conducive soils and may cause more damage to their hosts under stress conditions.