

The genus *Quercus* is a member of the family Fagaceae, (which also includes *Fagus* (beeches) and *Castanea* (the true chestnuts)) and oaks are among the most significant trees in the northern hemisphere in terms of species diversity, ecological dominance, and economic value. Oaks dominate the temperate forests of North America and Europe as well as various temperate subtropical, and tropical forest and scrub vegetation types. The following beetle pests have all been shown to cause significant damage to native US oak species, however their impact on European oak species is so far undocumented. The International Plant Sentinel Network is therefore carrying out a survey of European oak species in US botanic gardens to gain a better understanding of the impact of these pests on European oak in order to inform the UK risk register.



Gold Spotted Oak Borer *Agrilus auroguttatus*



- Adults are bullet shaped, dark green in color and have 6 yellow spots on the wings (image 1)
- Larvae are small and white in appearance (image 2)
- Feeding larvae form galleries as they burrow through the wood (image 3)
- The borer generally spreads via infected firewood and wood products and has led to widespread losses of native oak trees in California

Two Lined chestnut borer *Agrilus bilineatus*



- Adults are dark colored with two golden stripes running lengthwise along their back (image 1)
- Larvae are light colored and up to 2.5 cm long and have two spines at the tip of the abdomen (image 2)
- Larvae construct meandering galleries which interrupt the transport of water and nutrients and eventually girdles the tree (image 3)
- Attacks generally occur in stressed or dying trees and the tree eventually dies in the 2nd or 3rd year

Polyphagous Shot Hole Borer *Euwallacea whitfordi*



- Adults are tiny, smaller than a sesame seed (2-2.5mm long) (image 1)
- Larvae are small and white in appearance (image 2)
- The beetle tunnels into the tree and spreads a *Fusarium* dieback which is caused by a fungus that disrupts the transport of water and nutrients in the tree (image 3)
- The disease is known to affect over 110 tree species including oak