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REASSESSING THE THREAT POSED BY PINWOOD NEMATODE (*BURSAPHELENCHUS XYLOPHILUS*) TO UK FORESTRY: EXPLORING ALTERNATIVE VECTORS AND NOVEL DETECTION TOOLS

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Pine wilt disease (PWD) is one of the most serious threats to conifer forestry worldwide. The disease is caused by the pinewood nematode (PWN), *Bursaphelenchus xylophilus*, which has formed novel phoretic associations with different species of cerambycid beetles, in the genus *Monochamus*, in each new country in which it has become established. Despite extensive border surveillance and containment efforts in the affected countries, PWD continues to spread. Pinewood nematode has been intercepted on infested material entering UK ports and processors, and this is expected to increase in frequency in the coming years. In contrast to continental Europe where PWN has already established, the UK has no indigenous *Monochamus* species, but it is unclear as to whether these absences preclude the establishment of PWN. The UK has genera of beetles (incl. *Tomicus*, *Hylobius*, and *Pissodes*) which, like *Monochamus*, carry out maturation feeding on healthy plant tissues, and could enable infection via primary transmission of the nematode in the absence of *Monochamus*. These genera and other cerambycids are known to vector related *Bursaphelenchus* spp. PWN aggregates toward their *Monochamus* vectors in the pupal stage using volatile organic cuticular compounds (VOCCs) from the beetle cuticle. We present plans for a new PhD project that will examine the fidelity of the *Monochamus*-PWN relationship, and the potential of alternative vector species to facilitate the spread of PWN in the UK. The project will characterise and compare the specific cuticular profiles of *Monochamus* species to candidate vector species. In addition, PWN will be exposed to a range of beetle life stages from putative vector species, both with and without the co-presence of *Monochamus* in choice/no choice arena experiments. This research will investigate the potential to develop a PWN VOCC lure to offer an efficient in-field surveying method.