

Manuel M. Mota · Paulo Vieira  
 Editors  
**Pine Wilt Disease: A Worldwide Threat to  
 Forest Ecosystems**



The pinewood nematode (PWN), *Bursaphelenchus xylophilus*, the causal agent of pine wilt disease (PWD), is a serious pest and pathogen of forest tree species, in particular among the genus *Pinus*. It was first reported from Japan in the beginning of the XXth century, where it became the major ecological catastrophe of pine forests, with losses reaching over 2 million m<sup>3</sup>/ year in the 1980s. It has since then spread to other Asian countries such as China, Taiwan and Korea, causing serious losses and economic damage. In 1999, the PWN was first detected in the European Union (EU), in Portugal, and immediately prompted several government (national and EU) actions to assess the extent of the nematode's presence, and to contain *B. xylophilus* and its insect vector (*Monochamus galloprovincialis*) to an area with a 30km radius in the Setúbal Peninsula, 20 km south of Lisbon. International wood trade, with its political as well as economic ramifications, has been seriously jeopardized. The origin of the population of PWN found in Portugal remains elusive. Several hypotheses may be considered regarding pathway analysis, basically from two general origins: North America or the Far East (Japan or China). World trade of wood products such as timber, wooden crates, pallets, etc... play an important role in the potential dissemination of the pinewood nematode. In fact, human activities involving the movement of wood products may be considered the single most important factor in spreading of the PWN. Despite the dedicated and concerted actions of government agencies, this disease continues to spread. Very recently (2006), in Portugal, forestry and phytosanitary authorities (DGRF and DGPC) have announced a new strategy for the control and ultimately the eradication of the nematode, under the coordination of the national program for the control of the pinewood nematode (PROLUNP). Research regarding the bioecology of the nematode and insect as well as new detection methods, e.g., involving real-time PCR, has progressed since 1999. Inter-national agreements (GATT, WTO) and sharing of scientific information is of paramount importance to effectively control the nematode and its vector, and thus protect our forest ecosystems and forest economy.



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