Review

# Interspecific communica pinewood nematode, its and associated microbes

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**Pine wilt disease (PWD) is perhaps the most serious threat to pine forests worldwide. The causative agent of PWD, the pinewood nematode (PWN), engages in a symbiotic partnership with its insect vector, the *Monochamus* beetle, as well as associated bacteria and ophiostomatoid fungi, in order to successfully infect and kill its host pine tree. This review focuses on the interspecific communication between PWN and its associated partners, and the potential role of this communication in promoting pathogenicity and invasiveness of PWN. We describe the chemical and molecular signals positively influencing the survival, reproduction, and spread of PWN. Knowledge of these signals could potentially be used to interfere with the proliferation and dispersal of PWN.**

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tor of the nematode, the *Monochamus* beetle, ssociated bacteria and ophiostomatoid blue see Glossary), which probably contribute to icity of the nematode (Box 2) [5–8]. The main eview is to summarize the complex biological among PWN, its insect vector, and associated s well as the pine tree host, and to describe ific players within different geographic loca- orld shape these interactions (Figure I in Box e understanding of these multispecies inter- potentially clarify the driving forces behind of PWN and may enable a more effective preventing further spread.

## ematode, its insect vector, and the host