Dynamics of pine wilt disease incidence in a mixed plantation of resistance and susceptible families of *Pinus densiflora* and *P. thunbergii*

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Pinus densiflora and *P. thunbergii* are major native tree species for afforestation in Japan. The pinewood nematode, *Bursaphelenchus xylophilus*, which causes pine wilt disease, has been heavily damaging the pine forests. Coping with the disease, a resistant breeding project starting in 1978 has established resistant clones of the two pine species. The naturally pollinated seedlings of the resistant clones have been planted for reforestation in western Japan. To evaluate the field performance of the seedlings, we investigated the annual incidence of pine wilt disease from 2007 in a 15-year-old, mixed plantation of resistant and susceptible families of *P. densiflora* and *P. thunbergii*. The cumulative mortality of pine trees increased from 4 to 59 % during the study period. We also investigated population density of the vector beetle, *Monochamus alternatus*, using screen traps from 2009 to 2011. The number of trap catches in 2010 and 2011 were 1.9 and 3.5 times as large as that in 2009. We discuss the epidemics of pine wilt disease with relation to host tree resistance and vector population.

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