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## **(120) Inhabitation of the Pinewood Nematode and Its Vectors in the Tsunami-damaged *Pinus thunbergii* and *P. densiflora* trees**

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The tsunami (tidal wave) following the Great East Japan Earthquake on March 11, 2011, devastated vast areas of seacoast forest, mainly composed of the Japanese black pine (*Pinus thunbergii*), and red pine (*P. densiflora*). Needle chlorosis occurred not only in severely damaged trees but also in those without conspicuous external damage. We investigated presence/absence of *Monochamus alternatus* and *Bursaphelenchus xylophilus* in the pine trees with discolored foliage in the tsunami-damaged seacoast forests, to evaluate the potential of the trees as the source of infection of pine wilt disease (PWD).

*B. xylophilus* was rarely detected in the wood samples collected from the dead trees in November 2011, except for the trees that was considered to have been latent infected and died after the tsunami. *P. thunbergii* trees grown along the shoreline were severely damaged by the tsunami and most of them died promptly. In the stands behind the frontline forests, small *P. thunbergii* trees suppressed by the canopy trees and then flooded with sea water from tsunami tended to die shortly after the disaster. Those trees were hardly attacked by *M. alternatus*. In contrast, most of *P. densiflora* trees became declined after the tsunami and kept stressed condition through the summer. Such trees were, resultingly, infested by *M. alternatus*, when there were PWD damaged trees from which adult sawyers emerge in the vicinity.

Emerging adults of *M. alternatus* from the infested trees in the following year often carried *B. xylophilus*, though we could not detect it in those trees in the November survey. Since the *P. densiflora* trees seemed to be debilitated by sea water flooding, not because of *B. xylophilus* infection, it is unlikely that the trees harbored the nematode before *M. alternatus* adults' oviposition. The nematode was possibly transmitted to the tsunami-damaged trees when *M. alternatus* adults laid their eggs onto them. Consequently, tsunami-induced damage in seacoast pine forest may facilitate the spread of PWD epidemic when the forest is composed of *P. densiflora* and PWD damaged trees have already been there.