

#### **O-4. Pine (*Pinus densiflora*) Deadwood Act as Hotspots for Seedling Regeneration after Pine Dieback Caused by Pine Wilt Disease**

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Forest dieback caused by tree diseases often generate huge amounts of deadwood. The decay process of deadwood is crucial for biodiversity in forest ecosystems. Wood decay types, traditionally categorized into white and brown rots, are the consequences of fungal decay activities and strongly affect biotic communities inhabiting deadwood, including tree seedlings. Given that fungal community is affected by climatic conditions, it is important to evaluate the occurrence patterns of the decay types along a geographical range to understand forest dynamics in wide spatial scale. In 30 sites covering a latitudinal gradient in Japan, I examined the effects of environmental variables on the occurrence of wood decay types in logs of *Pinus densiflora*, which was severely damaged by Pine Wilt Disease in last century. Among the wood decay types, the frequency of brown rot was negatively correlated with latitudinal gradient, whereas white rot was negatively correlated with MAT. These results suggested that activity of brown rot fungi is more prominent in the warmer lower-latitude areas than in the cooler higher-latitude areas in pine log decomposition. I also examined the effects of wood decay type on seedling densities of 14 tree species growing on pine logs and found that responses to brown rotted wood was considerably different among tree species. These results suggested that pine deadwood act as hot spots for variety of tree seedlings and that functional diversity of wood decay fungi is important to prepare diverse regeneration sites for seedlings after forest dieback.