

Oral presentation

How to recover the health of secondary forest "Satoyama" declining by the Japanese oak wilt

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The Japanese oak wilt caused by *Raffaelea quercivora* is increasing year by year in Japan in the secondary forests surrounding rural communities, "Satoyama", from 1990s (Kuroda 2008). Based on the factors promoting the recent oak decline, the method to recover the forest health was discussed. This wilt disease is occurring in aged "Satoyama" forests that had been used for fuelwood and charcoal production and then left unmanaged from the energy revolution started in 1950s. Most oak stands are in the range of 40- to 70-year-old because the traditional coppicing by periodical cutting of 15 to 30 years intervals had stopped by 1980. An ambrosia beetle, *Platypus quercivorus* which vectors *R. quercivora* from dead to living oak trees, propagates effectively in the trunks thicker than 10cm. Due to the extensive population growth of this beetle in aged "Satoyama" forests, infested area is enlarging every year. The eradication of this disease with pesticides is almost impossible in the severely damaged area.

There is a view that damaged stands can be left untouched because those stands will recover naturally for their resilience. However, drastic change is occurring in the vegetation. Itô et al. (2008) clarified shrubs and small-tall trees, or short-lived species are dominantly replacing in the damaged stands. Deterioration of biodiversity and soil erosion are also concerned. To reduce oak mortality in "Satoyama" forests, rejuvenation of trees will be effective because vector beetle cannot propagate in the thin oak trunks. In the stands where wilt infection has not started, clear cutting (narrow area ca. 0.1ha) promotes regeneration of oak trees by the sprouting from stumps. We are recommending this method to local governments and NPOs that are trying to re-manage once abandoned Satoyama. The activities of Satoyama re-management, unfortunately, are sometimes promoting decline for the lack of knowledge on forest health. For instance, thinning of a stand leaving thick oak trees attracts *P. quercivorus*. Cut oak logs abandoned in the stands are helping propagation of *P. quercivorus*. To recover healthy "Satoyama", forest management combined with the utilization of biomass and the contribution of the people of the district will be important (Kuroda et al. 2009). The authors are conducting a social experiment to recover healthy "Satoyama" in the Kansai district. In the experiment, people of the district manage Satoyama forests by themselves cooperating with researchers who provide them with techniques suitable to recover healthy forests. In addition, the effects of biomass utilization as fuelwood in the districts are monitored.

References

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