

Effects of Varying Levels of Forest Thinning on *Tricholoma magnivelare* (American Matsutake)

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Poster Abstract

Commercial matsutake mushroom (*Tricholoma magnivelare*) harvest in the Pacific Northwest is common in Lodgepole Pine (*Pinus contorta*) forests. Insufficient ecological knowledge of the mycorrhizae and mycelium has challenged monitoring of this resource. Among many management issues are concerns over logging practices, a lack of information on the ecology and habitat requirements of American Matsutake, and the potential effects of the type and intensity of matsutake harvest on future mushroom productivity. Lodgepole Pine and mixed-conifer stands provide habitat for growing and harvesting matsutake mushrooms, but these stands have developed dense understories that can increase the risk of wildfire and disease. The Deschutes National Forest in central Oregon, USA, is implementing a plan to reduce the risk that insects, disease, and wildfire will lead to large-scale loss of forest resources. Our study will monitor the effects of the vegetation treatments (tree thinning) on shiros of *Tricholoma magnivelare* by directly sampling soil and mycorrhizae obtained from plots established throughout the project area. To minimize impact on soil hyphae, all tree-thinning experimental areas were designated for logging with snow cover present and by use of a feller-buncher to yard whole trees to landings. Four blocks were established. Each block contained three forest cover-types with treated and untreated areas. Thirty shiros of matsutake per experimental unit were identified, and four soil samples were taken from each shiro. Due to volcanic glass in these soils, it was not possible to amplify DNA using extraction techniques that require bead beating or vortexing. In response, we developed a quick, inexpensive modification of Xin's plant extraction methods. These extractions were then PCR'd using unpublished primers developed by B. Bravi that specifically amplify *T. magnivelare*. To date, only pre-treatment samples have been collected. Logging over snow was completed the winter of 2010/2011, and post-treatment sampling will occur in fall 2011.

Keywords: thinning, Lodgepole Pine, American Matsutake, mycorrhizae.

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