

**Population genetics and sustainable harvest of *Tricholoma matsutake* mushrooms using traditional ecological knowledge and microsatellite DNA markers.** (Oral Presentation)

Anthony [Amend](#)

Department of Botany and Ecology Evolution and Conservation Biology, University of Hawai'i at Mānoa, USA

**Introduction**

*Tricholoma matsutake* has been consumed as a luxury edible mushroom for centuries. Recent declines in Japanese Matsutake have led to imports of this and other closely related taxa from throughout the northern hemisphere. In Shangri-la County, northwest Yunnan province, China, *T. matsutake* has quickly become the foremost non-timber forest product, comprising up to 60% of the county's income.

**Objectives**

This study examines the population structure and reproductive biology of *T. matsutake* and the perceived notion that over-harvest of young mushrooms diminishes spore rain.

**Methods**

Mycorrhizas and environmental data were collected from fifteen rhizospheres in each of three replicated (N=9) *Pinus densata*-dominated forest plots of distinct age brackets (old growth, ~50yo, and ~20yo). Rhizosphere size, genetic diversity, and spatial autocorrelation tests within populations are used to characterize reproductive strategy. Geo-referenced mushrooms from surrounding populations will be extensively sampled and characterized by allele frequency to enable estimates of population structure and gene flow. Finally, *T. matsutake* spore rain will be compared among forest ages and various local conservation strategies using a Real Time PCR analysis of airborne basidiospores.

**Results**

Ongoing laboratory work has resulted in successful amplification of several moderately polymorphic microsatellite DNA loci from silica-dried mycorrhizas.

**Conclusion**

This study provides an objective evaluation of extant conservation strategies. *Tricholoma matsutake* may be used as a model system to examine the interaction between international NTFP markets, local knowledge and population genetics.

**Keywords:** NTFP, ectomycorrhiza, Eastern Himalayas

**Presenting author:** Anthony Amend: [Amend@hawaii.edu](mailto:Amend@hawaii.edu)

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