

Abundance of specialty mushrooms on managed forests - Possibility for novel income for forest owners?

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Scope and main objectives

Mushrooms are the second biggest commodity from Finnish forest according to their sales and household picking statistics. Yet commercial interest has focused on very few edible species mainly mycorrhizal.

1.  6,8-17,2 million kg/y

2.  66 000-880 000 kg/y

Size of harvested commercial crop of two main wild forest products, berries and mushrooms in Finland between 2009 and 2019

Interest towards specialty mushrooms (i.e. saprotrophic species) has increased among forest owners due to high commercial value of several species.

Interest towards chaga, Pakuri in Finnish (*Inonotus obliquus*) and Reishi (*Ganoderma lucidum*) has increased exponentially in the food industry.

Very few inventories worldwide have focused on commercial saprotrophic fungi. Our aim was to assess with an inventory the potential of these species as a novel income for forest owners.



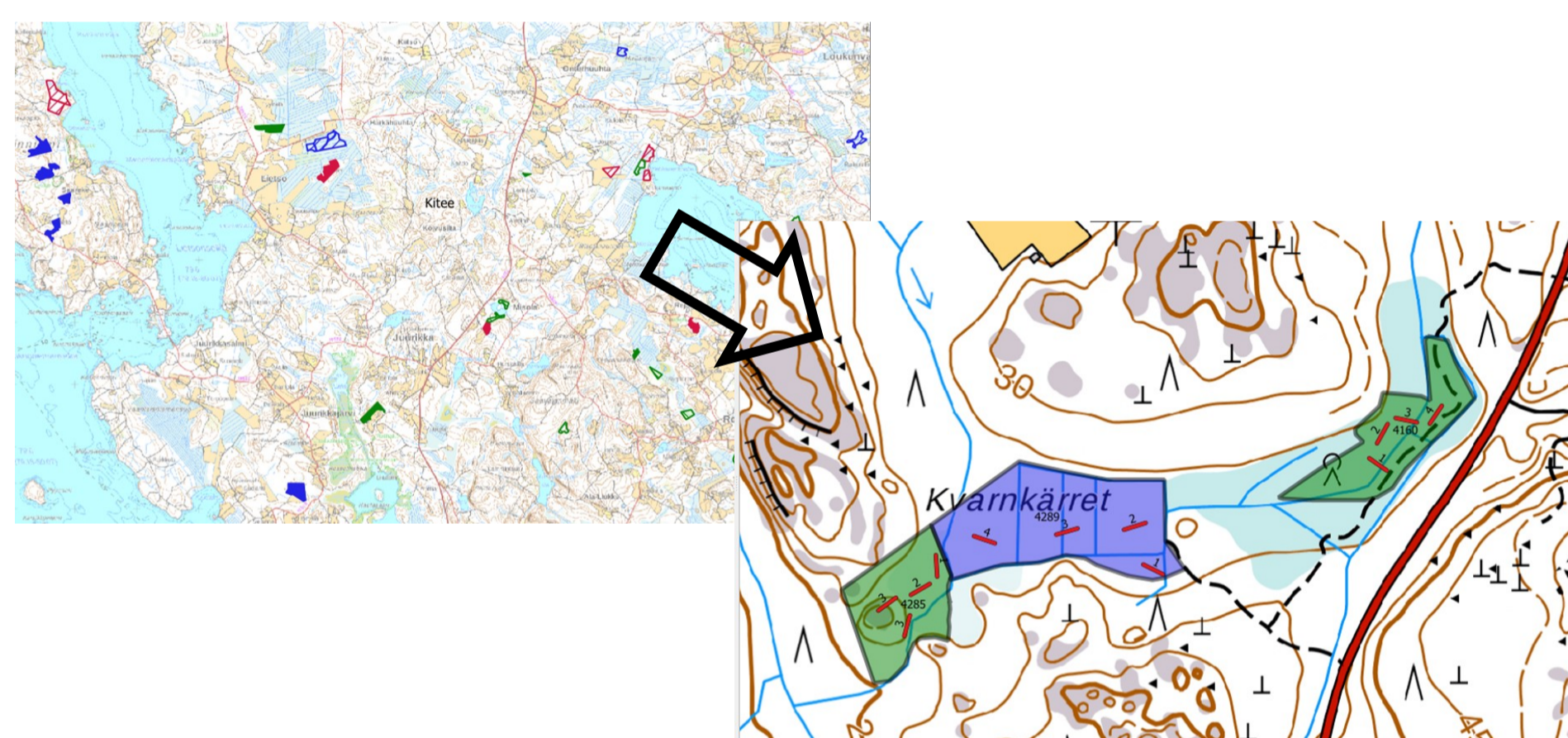
Sheathed woodtuft (*Kuehneromyces mutabilis*) on birch stump of regeneration felling site on peat land. Picture: Petro Penttinen

Material and methods

Abundance and sporocarp production of wild specialty wood-decay mushrooms in forest stands in Finland were inventoried during autumn 2020.

Six geographical locations were selected to represent a wide range of forest stand (south-north, east-west) and climatic conditions (continental and marine climate).

176 managed stands, from which four belt transects were inventoried in each of them (a total of 704 belt transects).



Map of select stands for inventory (green - regeneration felling, red - first thinning, blue - intermediate felling) and inventoried transect lines on select stands

Results

In 83 stands (47%) at least one of the inventoried wood-decay fungal species was present.

Species in order of prevalence

- F. pinicola* (46 stands (26%))
- K. mutabilis* (35 stands, 20%)
- G. applanatum* (10 stands, 6%)
- P. betulinus* (7 stands, 4%)
- G. lucidum* (6 stands, 3%).



Overall transition of forest cover between inventoried sites. First on the left regeneration felling site, on the middle first thinning and on the right intermediate felling. Pictures: Petro Penttinen

Conclusions

Saprotrophic fungi with commercial value occur sporadically and few in numbers showing no trend in occurrence and abundance in different successional stages of forests.

Commercial utilization of the naturally occurring resource can be unprofitable for forest owners.

According to our results saprotrophic fungi have no limitations in occurrence and are found in a wide variety of stands.

Systemic outdoor cultivation can increase occurrence and abundance of select species and gain novel income for forest owners.

Cultivation may be a potential practice of multi-objective forest management.

Acknowledgements

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Reishi (*Ganoderma lucidum*) on spruce (*Picea abies*) stump at intermediate felling site on peat land. Picture: Petro Penttinen