Effects of forest continuity on wood-inhabiting fungi

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Structure

• Introduction
• Study questions and hypothesis
• Materials & methods
  – Study species
  – Study sites
  – Sampling design
  – Measured variables
• Preliminary results
• What next?
Forest continuity

• **Availability of a suitable habitat for the target species or the target species community over a long period of time** (Nordén et al. 2014).
  
• “connectivity in time”

• Less studies
  
  – Quantification of population processes over time
  
  – Lack of good quality data on historical habitat availability

• Higher species richness and specialist species
Different levels of continuity

Local continuity
• longevity of an individual patch of suitable habitat
• contrary of habitat turnover
• increases colonization probability

Landscape-level continuity
• A network of available habitat pathces within a region or a landscape over time
• connectivity $\rightarrow$ metapopulation dynamics
1. How does forest continuity on
   (i) microhabitat level
   (ii) stand level
   affect the communities of wood-inhabiting fungi?

• Longer continuity → more abundant and diverse
dead wood resources → more species
• Community turnover
Study questions & hypothesis

2. Are the effects of these levels different for fungal groups with different ecological status?

• Some species more sensitive than others
  – E.g. parasites, habitat specialists..
MATERIALS & METHODS
Study species

Ascomycota
- Discomycetes
- Micarea (lichenized fungi)
- Mycocalicariales
- Pyrenomycetes

Functionally & taxonomically diverse groups

Basidiomycota
- Agaricales
- Corticioid fungi
- Dracrymycetales
- Polypores
Study sites

- 14 sites in central Finland
- Conservation areas
- Natural / management history ➔ different continuities
Data sampling

- Standing dead wood of *Pinus sylvestris*
- 5 trunks / site → 70 in total
- all visible fungi sampled
CONTINUITY

Microhabitat level

How long has the habitat patch been available?

Stand level

Is there a network of these habitat patches through time?

Age at death

Years from death

DW m³/ha

DW diversity
RESULTS
Species

- 107 species
Microhabitat continuity

![Histogram of Age at Death](image1)
- Mean = 150
- Std. Dev. = 64.961
- N = 46

![Histogram of Years from Death](image2)
- Mean = 31.13
- Std. Dev. = 15.406
- N = 53
Stand continuity
Inspections of single species

Decomposer

Parasite of lichens & algae

$p = 0.033$

$p = 0.047$
What next?

• General linear model
  – Which variables are best to explain the number of species?

• Ordination analysis
  – No big variation in the number of species
    → turnover
  – Which variables explain best to explain the turnover?
Thank you!