The effects of four forestry treatments on the community structure of spiders

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Motivation

Necessity of the harmonization between timber production and conservation purposes

Forest cover in Hungary: ~ 20%
Native: 63%
No management: 4%
Protected (management restrictions): 24%

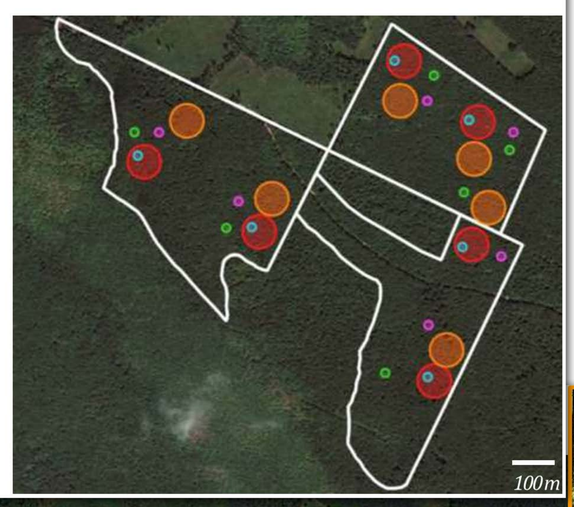
Silvicultural systems

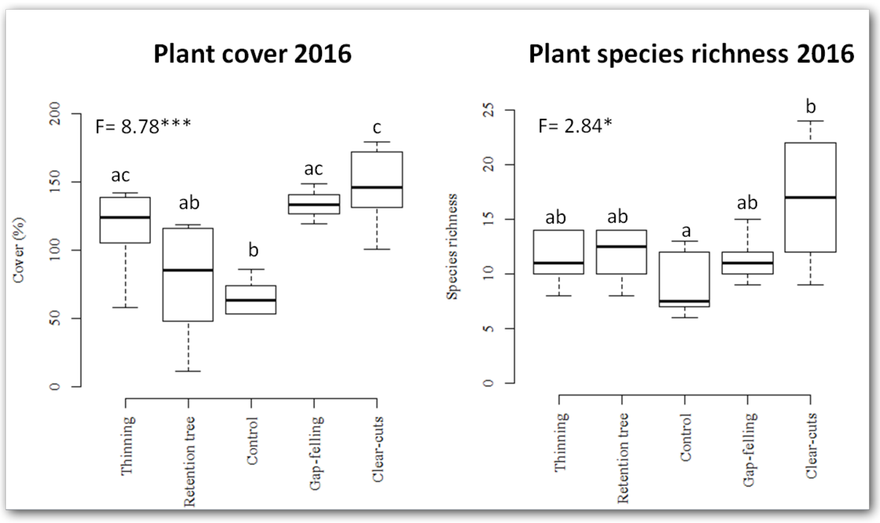
- Shelterwood system (natural regeneration)
- Clear cutting system (artificial regeneration)
- Tree or group selection (new!, ~4%)

Experimental design

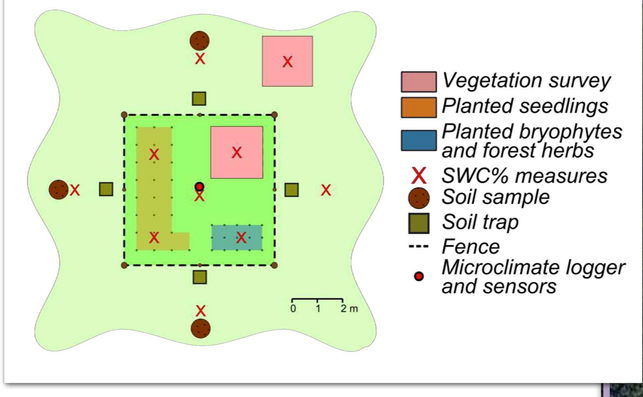
- **70 yr old *Quercus petraea*, *Carpinus betulus* stand**
- **5 treatments**
  - **thinning (d=80 m)**
  - **gap-felling (d=20 m)**
  - **clear-cutting (d=80 m)**
  - **retention-tree group (d=20 m)**
  - **control**
- **6 replicates**
- **complete block design**
- **BACI (Before-After-Control-Impact) all measurements started in 2014**

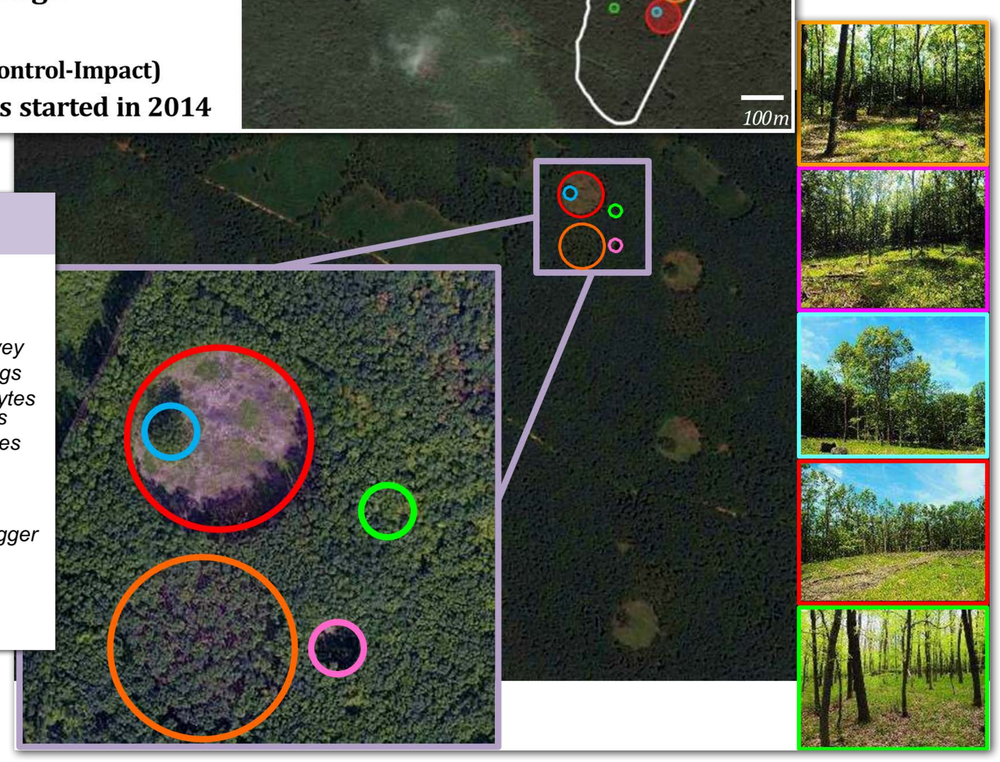
Pilis Mountains, N Hungary



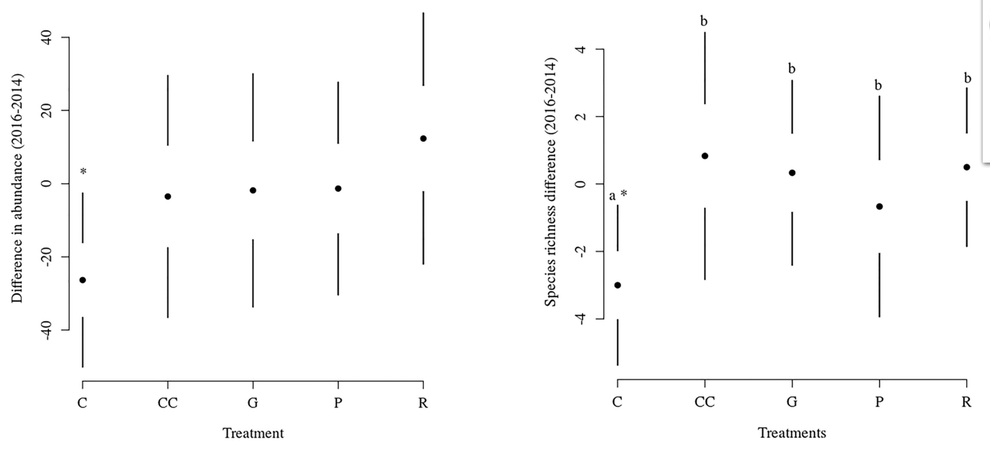


Design of a sampling unit

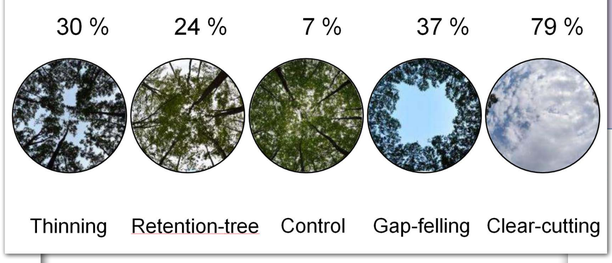




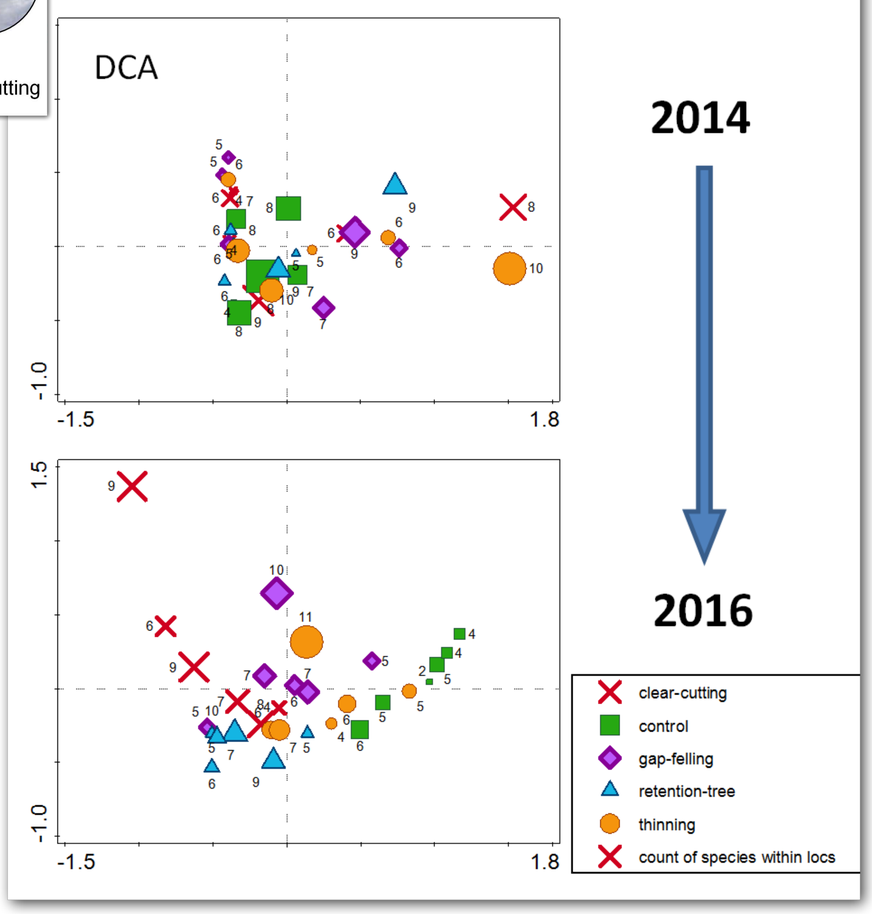
Spider density and species richness



Relative Diffuse Light



Community composition change



Discussion

- Before treatment and two years after treatment states compared (2014-2016)
- Treatments created a gradient in light and humidity environment and in undergrowth cover
- All treatments resulted in a denser vegetation by 2016 compared to control
- Spiders responded to treatments by increased density and richness
- Community composition started to separate by treatments with greatest difference between control and clear-cut

	2014	2015	2016
Adult abundance	1778	687	1654
Species number	21	21	22

Acknowledgements

The project is supported by NKFI grant (OTKA) 111887
We are grateful for assistance by Ms. Erika Botos