

Patterns of change in the extent of coppicing at the landscape scale



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Introduction and questions

- Coppicing was once widespread but is now virtually absent in the study area
- How did the extent of coppiced forests change from the Middle Ages until the 19th century?
- Did the disappearance of coppicing start already in the 19th century?
- What were the possible drivers of change?

Data sources and methods

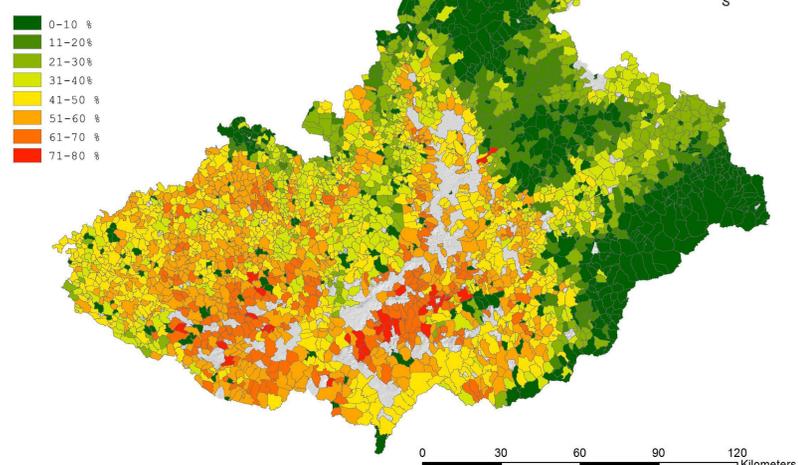
- Middle Ages: *Landtafel*, charters. MaxEnt model of the probability of the presence of coppicing in individual parishes with environmental variables: mean annual temperature, elevation, precipitation
- 18th century and 19th century: Josephian cadastre, estate estimations, stable cadastre, *Forststatistik von Mähren und Schlesien*. Data on forest size and management available for individual parishes
- Linear and generalized additive models in R were used in the analysis of changes

Study area

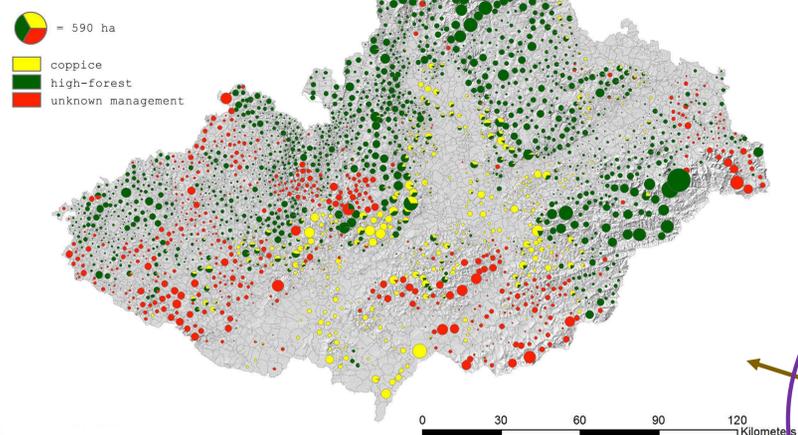


Moravia and Silesia (Czech Republic)
ca. 27,000 km², 3570 settlements

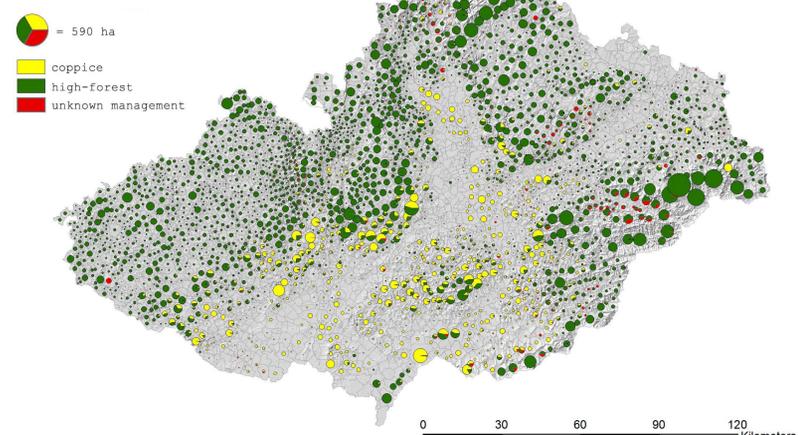
Modelled probability of coppicing in the 14th-16th centuries



Size and management of forests in the 18th century



Size and management of forests in the 19th century



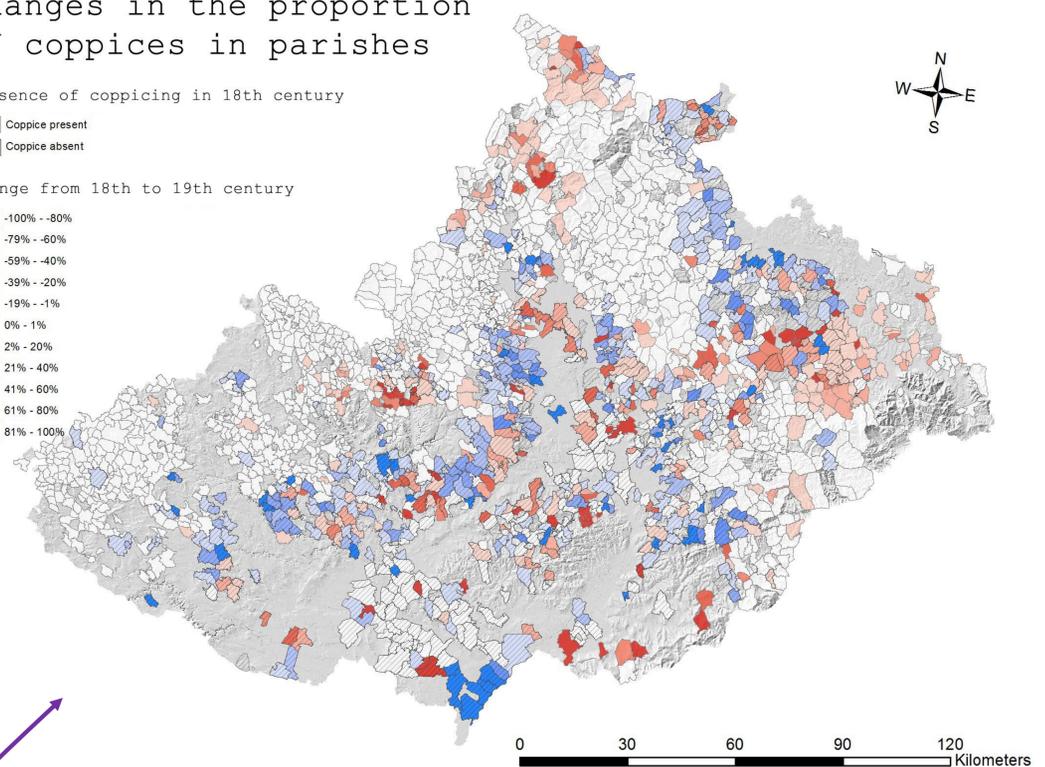
Changes in the proportion of coppices in parishes

Presence of coppicing in 18th century

Legend: Coppice present, Coppice absent

Change from 18th to 19th century

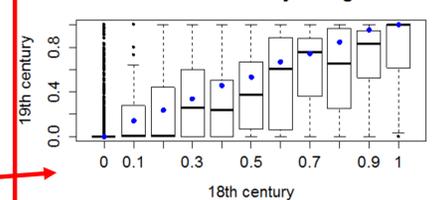
Legend for change: Blue for 'more coppices' (from -100% to -1%), white for '0% - 1%', and red for 'fewer coppices' (from 2% to 100%).



Results and discussion

1. The overall spatial distribution of coppicing was remarkably stable from the Middle Ages until the 19th century.
2. However, the changes that eventually led to the disappearance of coppicing were visible already in the mid-19th century.
3. The proportion of coppiced forests in individual parishes decreased especially in the transition zone between coppices and high-forests. Nonetheless, quite a few parishes experienced a growth in the relative and/or absolute amount of coppices.
4. No significant relationships were found between coppice changes (18th-19th centuries) and environmental factors (elevation, precipitation, temperature). Changes were arguably driven by (so far unknown) socioeconomic factors, such as population dynamics or by differences in recording techniques.

18th/19th century change



Model	Variable	R ² adj.	p-value
linear model	coppice change ~ temp	0	0,36
	coppice change ~ elev	-0,0004	0,92
	coppice change ~ prec	-0,0002	0,53
GAM model	coppice change ~ temp	0,002	0,36
	coppice change ~ elev	-0,0005	0,93
	coppice change ~ prec	0,0008	0,47