

# 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 19<sup>th</sup> century?
- Did the disappearance of coppicing start already in the 19<sup>th</sup> century?
- What were the possible drivers of change?

## Data sources and methods

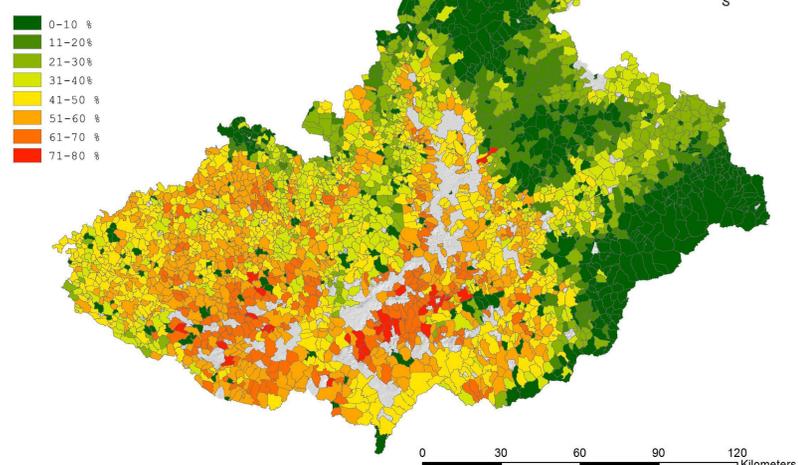
- Middle Ages: *Landtafel*, charters. MaxEnt model of the probability of the presence of coppicing in individual parishes with environmental variables: mean annual temperature, elevation, precipitation
- 18<sup>th</sup> century and 19<sup>th</sup> century: Josephian cadastre, estate estimations, stable 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

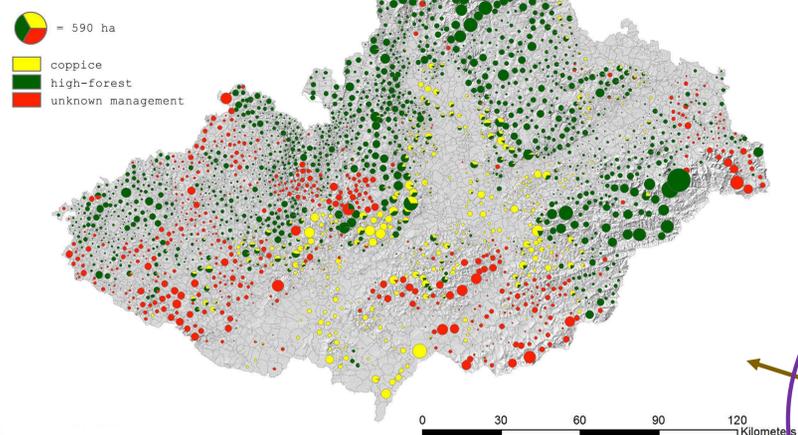


Moravia and Silesia (Czech Republic)  
ca. 27,000 km<sup>2</sup>, 3570 settlements

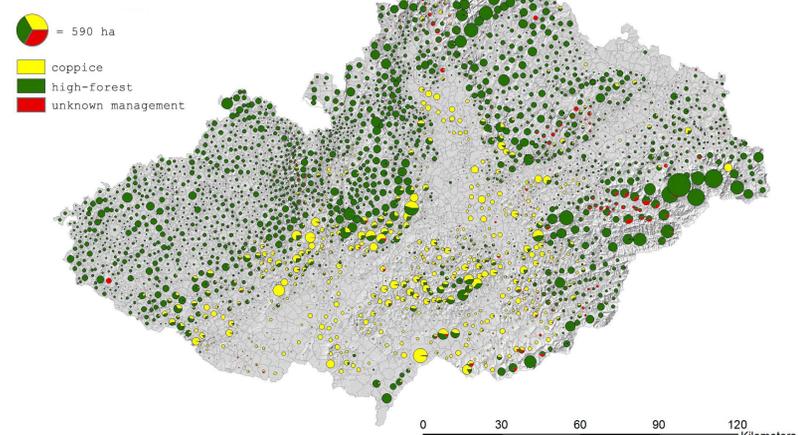
Modelled probability of coppicing in the 14<sup>th</sup>-16<sup>th</sup> centuries



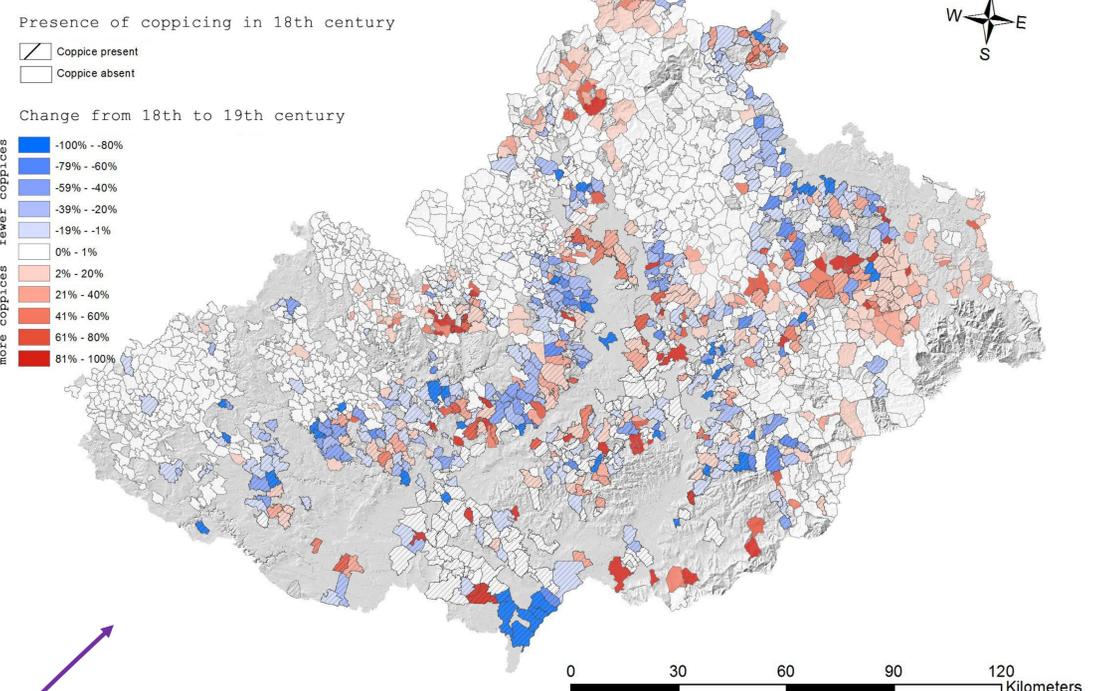
Size and management of forests in the 18<sup>th</sup> century



Size and management of forests in the 19<sup>th</sup> century

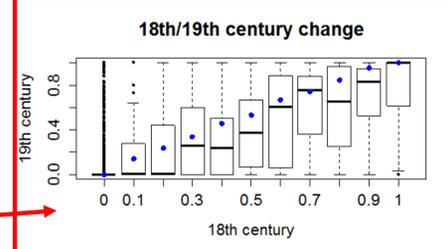


Changes in the proportion of coppices in parishes



## Results and discussion

1. The overall spatial distribution of coppicing was remarkably stable from the Middle Ages until the 19<sup>th</sup> century.
2. However, the changes that eventually led to the disappearance of coppicing were visible already in the mid-19<sup>th</sup> 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 (18<sup>th</sup>-19<sup>th</sup> 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.



Model	Variable	R <sup>2</sup> 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