A comparative study of visitor's visual preferences in a Dutch and German agricultural landscape

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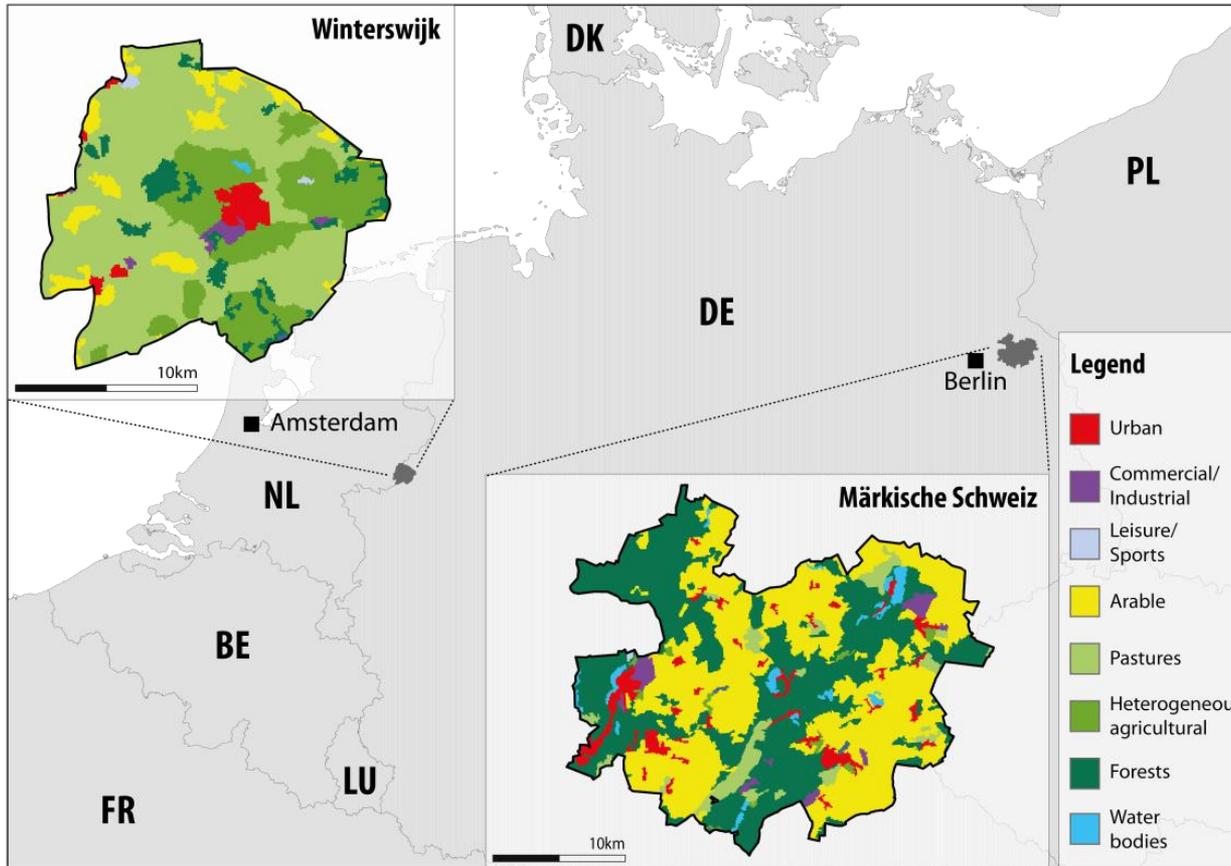**Winterswijk**

Märkische Schweiz

Introduction

- Agricultural landscapes deliver Cultural Ecosystem Services (recreation, inspiration, tourism)

- Many studies on landscape preferences → context specific

Aim:

- Compare two regions → common study design
- Set of generic landscape characteristics (= attibutes)
- Estimate relative preference in agricultural landscapes among visitors
- Influence of socio-cultural backround?

The Case Study Regions

Winterswijk   Märkische Schweiz

The Case Study Regions

Winterswijk

- "Kulisse landscape" with a lot hedgerows and treelines
- Low ice-pushed ridges with numerous lowland brooks
- Small and dispersed agricultural plots
- Well developed tourism
- Retirees from rural/peri-urban areas → overnight stays
- Visitors not familiar with landscape

Märkische Schweiz

- Fragmented, mosaic-like, semi-open landscape
- Hilly terrain
- Lakes, forest, farmland
- Large farm sizes (229 ha per farm)
- Less developed tourism
- High-educated urban dwellers from Berlin → daytrips
- Visitors very familiar with landscape

The Research Design

Stated preference analysis

- Trade-off analysis between the visual value of different landscape attributes (Visual Choice Experiment)

- Development of photorealistic representations of landscape choice cards

- Differentiation of **4 attributes** in **3 levels** (high, medium, low) respectively **2** (available / non-available):

    - Grazing livestock
    - Diversity of agricultural land use
    - Linear green elements
    - Point green elements

Base landscape

Visualizations

Visualizations

Results

Preferences for landscape attributes

- General high preference for high abundance of all kind of landscape attributes
- But also significant differences between them
- Different ranking of preference between CSAs

Table 2. Multinomial logit model estimations and attribute ranking.

Attribute	Level	Winterswijk		Märkische Schweiz	
		Coefficient	Rank	Coefficient	Rank
Livestock	present	1.3***	3	0.8***	5
Agri LU diversity	medium	0.3***	6	0.1	7
	high	0.6***	5	1.1***	4
Linear elements	medium	1.6***	2	0.2*	6
	high	2.1***	1	1.4***	2
Point elements	medium	0.2***	7	1.3***	3
	high	0.7***	4	2.2***	1

→ Higher coefficients correspond to higher preference

Results

Influence of socio-cultural background variables

- Full model → effect of variables on preference for landscape attribute levels
- Restricted model: backward stepwise regression → just significant influences (p<0.10)

Table 3. Summary of Random Parameter Logit Model (restricted), showing the influence of socio-cultural variables on preferences.

Socio-cultural variable	Wintersweijk		Märkische Schweiz	
	Preference	Attribute	Preference	Attribute
Urban	-	High Diversity		
	-	Medium Lin. Elements		
Familiarity			- - -	Medium Lin. Elements
			- -	High Lin. Elements
			+ +	Medium Point Elements
Cyclist/Hiker	- -	High Point Elements	-	High Lin. Elements
Relation to agriculture	+ + +	Livestock		
Education	+ +	Medium Diversity	+ +	Medium Diversity
			+ + +	High Diversity
			+ +	Medium Point Elements
			+	High Point Elements

+/-, ++/--, +++/--- → Significance at 10%, 5%, 1% level

Discussion

- Independent from landscape context:

  - Highly educated visitors have higher preference for the most preferred landscape attributes (point in MS, linear in WW)

    → Role of awareness and perception of cultural landscape features

  - Intensification, homogenization and vanishing of wooden elements → negative impact on preference

- Explanation for differences in preferences

  - Different cultural landscapes („Kulisse landscape" with cattle vs. mosaic like landscape with natural ponds)

  - Different familiarity with the landscape

Conclusions

- Relationship between landscape attributes and preferences is largely determined by by landscape context characteristics

- More comparative studies needed using same study design/generic set of landscape attributes

  → disentangle the role of local context and generic patterns

Thank you!

Papers:

- van Zanten et al. (in review) A comparative study of visitor's visual preferences in a Dutch and German agricultural landscape. Land Use Policy.

- Haefner et al. (in preparation) A visual choice experiment on agricultural landscape preferences from a user perspective in the Märkische Schweiz, Germany. JEPM.