NL2 (Winterswijk, The Netherlands & Märkische Schweiz, Germany): A comparative study of visitor's visual preferences in a Dutch and German agricultural landscape

Objective

The objective of this study is to test a method to compare relative preferences of visitors for a set of generic landscape attributes in two agricultural landscapes: Nature Park Märkische Schweiz in Germany and National Landscape Winterswijk in the Netherlands. The generic landscape attributes in this study represent 1) the presence of livestock, 2) the diversity of agricultural land use, 3) the prevalence of green linear elements and 4) the prevalence of point elements in the agricultural landscape. These landscape attributes were included as they are often associated with the aesthetic and cultural functions of landscapes and are shaped by agricultural management practices. We aim to measure relative preferences for these landscape attributes by applying a choice experiment in which these attributes are visualized in a landscape image that is representative for the regional agricultural landscape context.

Methodology

In both areas, a spatial analysis was conducted to identify the extent and variation of the landscape attributes in the area to establish representative attribute levels (Figure 1). Subsequently, landscape images were digitally calibrated to visualize different attribute levels in the local landscape context. The relative preferences for the attributes of landscape management, estimated using a choice model, were compared across the case study areas and the influence of different socio-cultural characteristics on preference estimates was assessed.

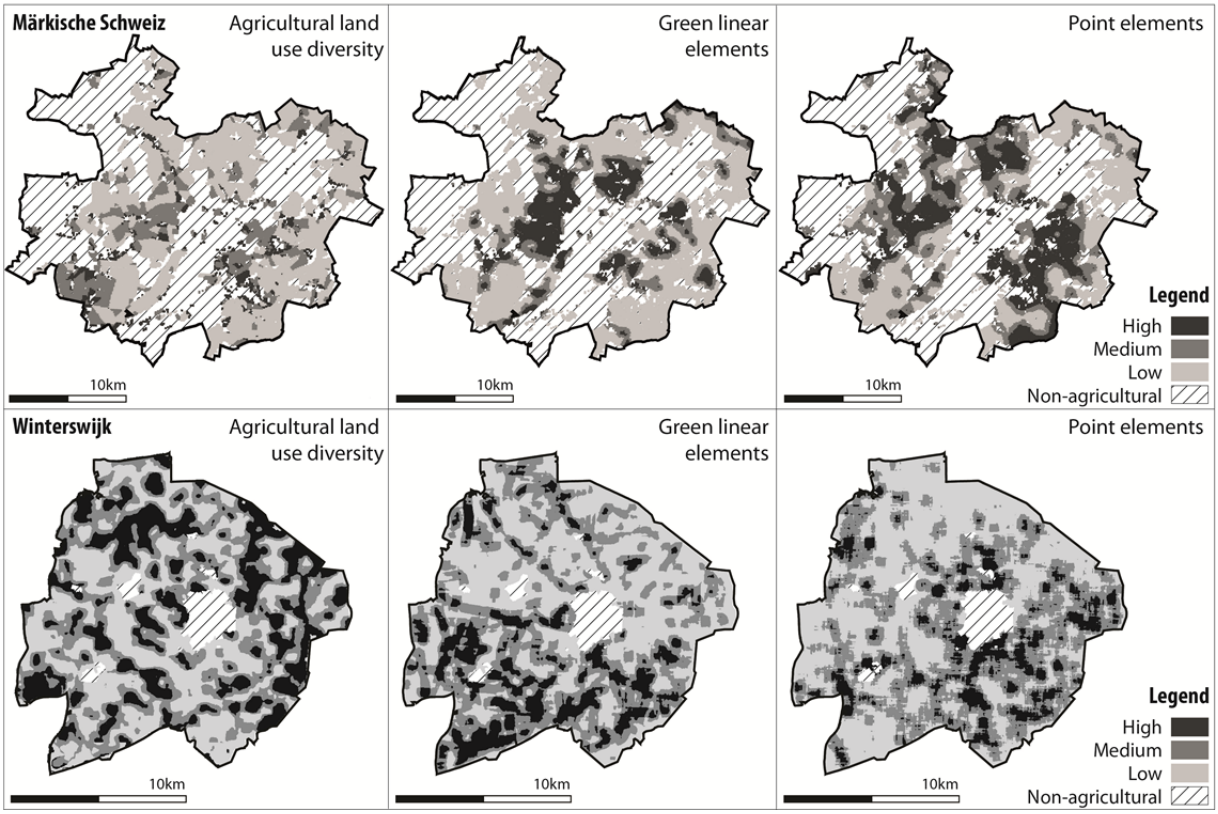

Figure 1: The spatial distribution of three of the four landscape attributes in the German and the Dutch case study area.

Results

In both case study areas, all coefficients suggest a positive relation between the medium and high levels of the considered attributes and the probability of choice. Hence, the presence of all landscape attributes in these choice experiments is evaluated positively. Except for medium agricultural land use diversity and medium linear elements in the Märkische Schweiz, all coefficients are statistically significant. As the coefficients cannot be compared directly across models because of differences in the scale parameter, we use the normalized coefficients (Figure 2) to indicate relative preferences for attribute levels. In the Märkische Schweiz, a high level of point elements is the most preferred attribute, whereas in Winterswijk a high level of linear elements is ranked highest.

Figure 3 shows the results of a market simulation exercise that estimates market shares for three landscape scenarios based on the attribute parameters presented estimated in the choice model. Calculating such scenarios for both landscapes makes it possible to compare the preferences for similar trajectories of landscape change within the context of different landscapes. The percentages indicate the share of visitors that would choose that particular landscape alternative out of these three selected alternatives. The intensification scenario (scenario 1) – with scale enlargement of the visual landscape as the result of low levels of both point and linear elements – has a comparably small market share in both areas (2% and 3%).

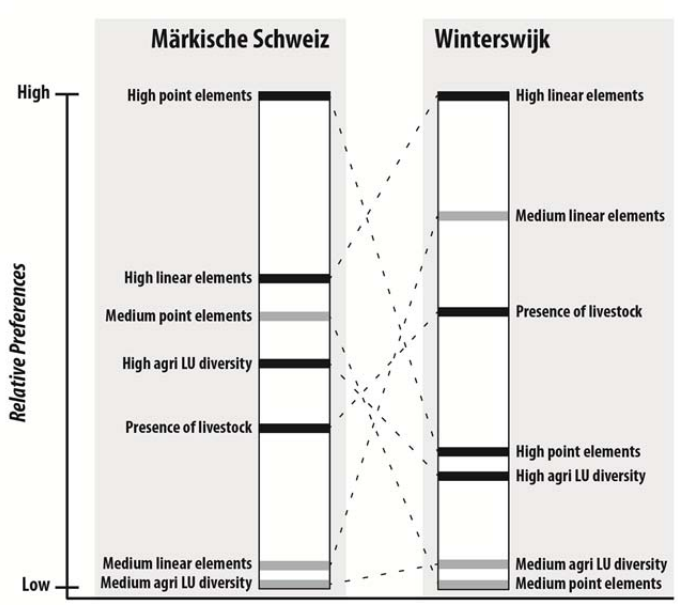

Figure 2: relative preferences for landscape attributes in the German and Dutch case study areas.

However, considerable differences between market shares in the two case study areas are observed for scenarios 2 and 3. In the Märkische Schweiz, scenario 3 has the largest market share, whereas in Winterswijk scenario 2 has the largest market share. These results indicate that in the agrarian landscape of the Märkische Schweiz, the relative importance of a high level of linear and point elements combined is higher than the relative importance of the presence of livestock. In contrast, in the agrarian landscape in Winterswijk, the relative importance of livestock as a landscape attribute exceeds the relative importance of a high level of point and linear elements.

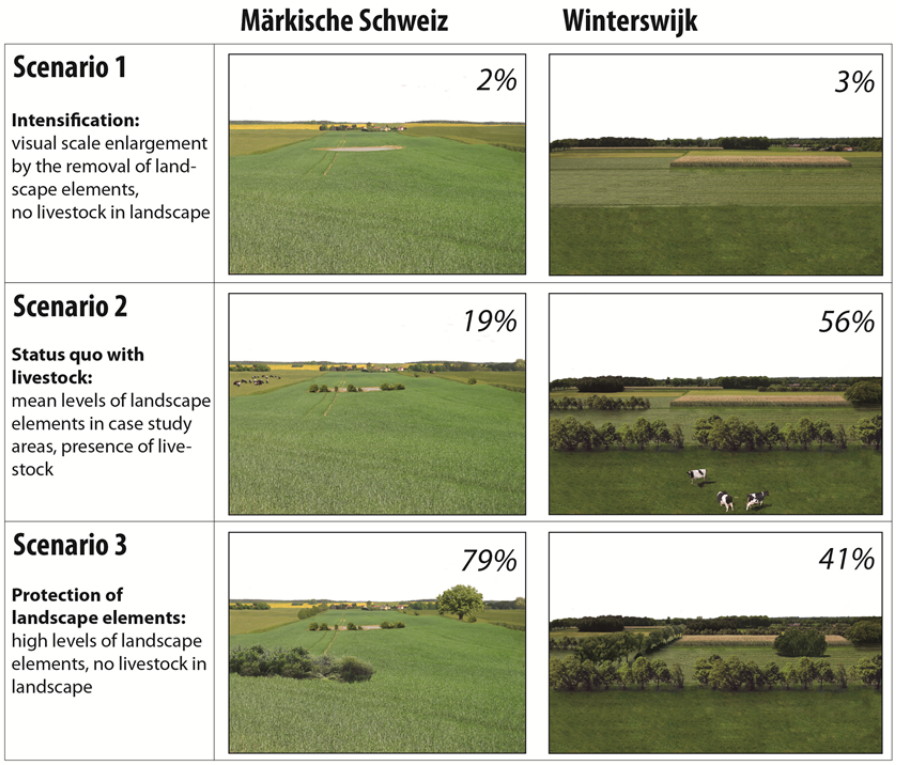

Figure 3: the market shares of different scenarios of landscape change in the German and Dutch case study.

Lesson learned & Policy Recommendations

Confirming the findings of many previous landscape preference studies (e.g. Kaplan & Kaplan 1989; Hunziker & Kienast 1999; Dramstad et al. 2006), we found that – in both case study areas – a diverse landscape with all evaluated attributes present is most preferred. However, there are notable differences between the case study areas with respect to the relative importance of the generic landscape attributes (Figure 3). In the Märkische Schweiz, high levels of point elements and agricultural land use diversity are relatively important, whereas in Winterswijk linear elements and the presence of livestock are the most important attributes.

It is likely that, to some extent, the differences in preferences are a result of the different visual appearance of landscape attributes in the Märkische Schweiz and Winterswijk. Preferences in this comparative study are therefore not absolute preferences for the landscape attributes, but rather preferences for the attribute within the context of the landscapes studied. Our results indicate that preferences for attributes of agrarian landscapes need to be assessed at a landscape scale because the relative importance of attributes is often related to the wider landscape context. At the same time, we argue that more comparative studies – measuring relative preferences for similar attributes – are essential for understanding relations between landscape attributes and visual landscape quality across different landscapes. Although there is a large amount of landscape preference studies, the results are difficult to compare and can often only be applied to the local context of the case study. Comparative studies will further help to disentangle the role of local context and generic patterns of landscape preferences across larger areas and groups of landscape visitors and users.

Reference

Van Zanten, B.T., Zasada, I., Koetse, M.J., Ungaro, F., Haefner, K., Verburg, P.H. (in review). A comparative study of visitor's visual preferences in a Dutch and German agricultural landscape. *Land Use Policy*.

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