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ANALYZING THE INFLUENCE OF LANDSCAPE RELATED EXPERTISE ON THE
VISUAL EXPLORATION OF LANDSCAPE IMAGES

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Landscape is more than a vast concept describing the environment we live in. It also comprises aspects such as culture, art, science, time, patterns, processes, history, identity, experiences etc. Besides, landscape is also subject to perception, which is clearly reflected by the ELC's definition of landscape: "... an area as *perceived by people*, whose character is the result of the action and interaction of natural and/or human factors". From this point of view, it is worth analyzing how people visually perceive landscapes and investigating whether or not different groups of observers see the same landscape. Of particular interest is the dichotomy between landscape experts who guide decisions concerning landscape management, and lay people who live in that landscape and experience the consequences. The commonly diverging ideas with respect to landscape management could be explained by a difference in observation of the landscape by both groups. An innovative approach to objectively measure visual observation patterns is provided by eye-tracking, a system which allows recording the point-of-regard while observing images. In this study, 21 landscape experts and 21 lay people participated in an eye-tracking experiment in which 74 landscape photographs were observed. The resulting fixation patterns were visualised in focus maps, indicating which features in the landscape photograph drew the attention. Subsequently, these maps were compared to computationally generated saliency maps, predicting the features in the photograph which will theoretically attract the attention due to their colour, orientation, intensity etc. Furthermore, we analysed how the recorded fixation positions from both groups are distributed over different time intervals. The preliminary results indicate that experts seem to visually explore the landscape images more completely, extending their visual span. Laymen, however, focus more

and longer on specific features in the photograph, restricting their field of view. These results could be helpful in participatory landscape management.

References:

1. Berto, R., Massaccesi, S., and Pasini, M., 2008. Do eye movements measured across high and low fascination photographs differ? Addressing Kaplan's fascination hypothesis. *Journal of Environmental Psychology*, 28(2), 185-191.
2. De Lucio, J. V., Mohamadian, M., Ruiz, J. P., Banayas, J., and Bernaldez, F. G., 1996. Visual landscape exploration as revealed by eye movement tracking. *Landscape and Urban Planning*, 34, 135-142.
3. Holmqvist, K., Nyström, M., Andersson, R., Dewhurst, R., Jarodzka, H., and Van De Weijer, J., 2011. *Eye tracking: A comprehensive guide to methods and measures*. Oxford: Oxford University Press.
4. Koch, C. and Ullman, S., 1985. Shifts in selective visual attention: towards the underlying neural circuitry. *Human Neurobiology*, 4, 219-227.
5. Shuttleworth, S., 1980. The use of photographs as an environment presentation medium in landscape studies. *Journal of environmental management*, 11, 61-76.