



Historical oblique aerial photographs as a powerful tool for communicating landscape changes



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ABSTRACT

This paper reports on a potential new form of data generation and data display to be used for communicating landscape change at local scales, utilizing a huge collection of oblique aerial photographs held by the Royal Library in Copenhagen. The collection contains local scale imagery covering all parts of Denmark recorded between 1930 and 1990 and thus has the potential to illustrate the changes which took place in the rural landscape as a whole after the Second World War, in ways which are suited for use at local scales. Taking into account that landscape change normally happens at a slow rate relative to the perceptive scale of humans, with fine grained changes taking place continuously in local settings, images of this kind present themselves as a way for the general public to become aware of changes which might otherwise be overlooked. To a still more urbanized population where most people do not have an every-day experience with rural landscape change, the images may be a starting point for a renewed engagement with landscapes, not just perceived as a scenery, but rather as a process of interaction with the environment. In order to inform a wider range of people, in competition with other types of information, the imagery provides a point of reference – a single farm or landscape known to the users – which people without specific training in landscape research can relate to. The use of a crowdsourcing approach in data generation on a webgis application means that the broader public is both involved in the creation of the data and in the discussion about the changes observed, which become visible when comparing old aerial photographs to the present landscape. In combination with the very local nature of the aerial photographs, this opens up the possibility that the images could serve as a communicational bridge between “abstract” scientific knowledge about landscape change (e.g. change in hedgerow density per year) and the local landscapes where people are living. As such, the approach described in this paper may contribute to the objectives set out in the European landscape convention to facilitate an increased understanding of landscape issues among the public through a democratic learning process. The article concludes, that this approach has a huge potential, although some difficulties exist, relating to the challenge of maintaining a focus on the landscape when using a form of communication which is dialogue-based and relatively unstructured compared to approaches embedded within conventional learning environments.

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Introduction

The European landscape convention and public participation

Traditional landscape assessment and planning has been a subject for experts and administrative authorities. An important step has been to overcome the widespread static view on the landscape as a mere scenery, instead adopting a dynamic view on the landscape as a process of interaction of man and nature with their

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environment (Hägerstrand, 1993). Typically, the scientific representation of landscape changes has been based on quantitative, formalized landscape monitoring procedures (Brandt et al., 2003, 2002) in form of statistics on land use and land cover changes (Agger and Brandt, 1988; Brandt et al., 2001a) or changes in different indices of landscape metrics (Brandt and Holmes, 1995). However the ratification of the European landscape convention (ELC) by most European countries is an important step towards a more integrated and inclusive management of the European landscapes (Council of Europe, 2000a). In parallel with its broad and holistic approach to landscape, the convention highlights the need for raising awareness in the public about landscape management issues through educational activities suited to support landscape management and planning. The explanatory report of the ELC calls for a participatory approach towards landscape planning and management, by including the broader population directly in the planning process (Council of Europe, 2000b). It is a fundamental task to raise the awareness about landscape related issues in the population in order to qualify and stimulate public participation while facilitating democratic and lasting improvements to current landscape management practices. The explanatory report is criticized for focusing mainly on formal training and education in order to achieve this goal based on a top-down perspective (Jones and Stenseke, 2011; Jones, 2007; Olwig, 2007). Although some multi-directional engagement with the local population can be developed, through professional assessments, such as demonstrated in a recent study of Landscape Character Assessment reports in England (Butler and Åkerskog, 2014), these kind of reports still very much remain a tool for the professional planners and policy makers. However it has been demonstrated, that various forms of narrative and semi-structured material can be used in communicating landscape related issues to the broader public, such as landscape histories, which have constituted an important aspect of communication about landscape change in connection with participatory planning processes in the Netherlands (Baas et al., 2011) and as a tool for raising the historical awareness about landscapes (Palang et al., 2011). They focus on the concepts of landscape biographies as a tool for relating the more complex issues of landscape oriented problems with the scale of local landscapes, where people can relate to them. Another approach using historical material has been applied in France, where historical aerial photographs were used to visualize landscape change to the local population (Michelin et al., 2011). These examples illustrate both the necessity and the usefulness of using historical material in a very graphic way to illustrate often rather abstract changes of the local landscape (e.g. in the form of changes in different indices of landscape metrics) in a way which locals can relate to.

The European landscape convention and the Danish experience in public involvement

The implementation of the ELC in Denmark has until now mostly focused on developing methods and datasets for the management of rural areas from an administrative point of view. Different development projects have been carried out in order to produce these datasets such as the digital atlas of cultural environments in Denmark (Møller et al., 2005) and a Danish adaption of the landscape character assessment (LCA) method (Caspersen and Nellemann, 2005). Although this has certainly enhanced the planning capabilities of the authorities it has not created a framework for presenting data about the cultural landscape which is needed in order to enable the involvement of local people in the planning process (Møller and Stenak, 2006). In 2007 the Danish Ministry of Environment published a guideline for LCA as a framework for planning of the open landscape (Miljøministeriet, 2007). However, not mandatory the LCA method has been or is under

implementation in 47 out of 98 municipalities in Denmark (Bugge, 2014; Pears, 2014). Recently a growing attention has been devoted towards the broader and more inclusive implementation of the LCA in local planning and a demonstration project was carried out at the municipality of Langeland, focused on using a landscape atlas as a way of communicating the LCA to the local population, while also getting feedback, including local knowledge into the LCA and the further work with the local landscape planning (Naturstyrelsen, 2013; Rasmussen et al., 2013). In a Danish case study Caspersen (2009) found that a participatory process in connection to LCA could enhance the local awareness of the local landscape and at the same time enrich the LCA with local embedded information. In recent years, developments in information technologies has led to reduced costs of digitization and created new opportunities for utilizing the historical material held in the collections of museums, archives and libraries, by presenting landscape data in a digital environment, such as the Danish web-based Historical Atlas (Foreningen Historisk Atlas, 2013). The digitization of these collections, which hold vast amounts of spatial and non-spatial data about landscape histories, has mostly been driven by the ambition of cultural institutions to improve the outreach of their collections and reduce the cost of manual retrieval of the historical material. However, as illustrated in the following, there is potential for using such material as a support for landscape planning and management.

Research objectives

The objective of this article is to discuss the usefulness as well as potential pitfalls of a newly developed Danish online application for geo-locating and displaying historical oblique aerial photographs through a web portal, as a tool to be used for public involvement and education on the local landscape in relation to the ELC objectives implemented through LCA. What is the current use of the application? Are the historical landscape data fostering a reflection on change in the landscape as a sort of self-education, by the users? What are the potential and possible constraints of the application for supporting the objectives set by the ELC?

Material and methods

Material

The empirical background of the article is the digital collection of oblique aerial photographs held by the National Collections Department at the Royal Library in Copenhagen and data derived from the online presentation application which makes the collection available to the public. The main data source which has been derived from the application is the user database, where data about the type, magnitude and temporal distribution of actions taken by users of the system are stored. Key data parameters include the identification of unique users and their actions and the number and geographical location of images which they have been working with. Data on the overall use of the application was derived from Google Analytics in a survey set up November 4th 2013 to May 4th 2014. In addition to this, as the focus of this article is on the potential for public involvement and education on landscape processes, as a background for participation in landscape management, we have also included a number of semi-structured data sources derived from the comments on the pictures made by the users, which relate to the pictures themselves, but also to discussions about the pictures on a private Facebook site about the project and on the official forum where the application is hosted.

The portal "Denmark seen from the air"

The usefulness of aerial photographs has been recognized within ecological management as a valuable source for historical analysis

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