Environmental Science & Policy xxx (2016) xxx–xxx

Contents lists available at ScienceDirect

Environmental Science & Policy

journal homepage: www.elsevier.com/locate/envsci

Conserving socio-ecological landscapes: An analysis of traditional and responsive management practices for floodplain meadows in England

J. McGinlay[a,*], D.J.G. Gowing[a], J. Budds[b]

[a] Department of Environment, Earth & Ecosystems, The Open University, Walton Hall, Milton Keynes, MK7 6AA, UK
[b] School of International Development, University of East Anglia, Norwich Research Park, Norwich, Norfolk, NR4 7TJ, UK

ARTICLE INFO

Article history:
Received 19 May 2015
Received in revised form 19 October 2015
Accepted 18 July 2016
Available online xxx

Keywords:
Conservation models
Traditional
Responsive
Adaptive
Historical management
Assessment
Stakeholders
Conservation

ABSTRACT

Contemporary practice in the conservation of socio-ecological landscapes draws on both a model of responsive management, and also on ideas about historic management. This study considered what evidence might exist for the exercise of these approaches to management in the conservation of floodplain meadows in England, in order to inform understanding and knowledge of conservation management and assessment practice.

Evidence for a model of responsive management was limited, with managing stakeholders often alternating between this model and an alternative approach, called here the 'traditional management approach', based on ideas, narratives and prescriptions of long-established land management practices. Limited monitoring and assessment appeared to undermine the former model, whilst uncertainty over past long-standing management practices undermined the latter. As a result of the relative power of conservation actors over farmers delivering site management, and their framings of meadows as 'natural' spaces, management tended to oscillate between aspects of these two approaches in a sometimes inconsistent manner.

Conservation managers should consider the past motivating drivers and management practices that created the landscapes they wish to conserve, and bear in mind that these are necessarily implicated in aspects of the contemporary landscape value that they wish to maintain. They should ensure that assessment activity captures a broad range of indicators of site value and condition, not only biological composition, and also record data on site management operations in order to ensure management effectiveness.

1. Introduction

Globally, many conservation stakeholders responsible for the management of nature protected areas commonly hold to a model of responsive or adaptive management as a valid approach for a wide range of systems, from coastal barrier islands (Carruthers et al., 2013) to fisheries (Uychiaoco et al., 2005) and European grasslands (Crofts and Jefferson, 1999; Robertson and Jefferson, 2000; Soane et al., 2012). This model relies on a cyclical process of monitoring and assessment to follow evolution of both system condition and management operations, in order to inform subsequent management decisions (Greenwood and Robinson, 2006).

Although widely practiced, researchers have critiqued the nature and quality of much conservation monitoring that is intended to inform responsive management in a range of contexts, from European derelict landscapes to African tropical forests (Usher, 1989; Sheil, 2001; Yoccoz et al., 2001; Sutherland et al., 2004; Legg and Nagy, 2006). Debates revolve around not only clarity of survey design, aims and objectives, but also the relevance of much biodiversity monitoring to management decision-making (Danielsen et al., 2005), as well as more fundamental questions of what kind of data should be collected and the utility of expert versus experiential data (Fazey et al., 2006). Some authors have noted the need to close and tighten the adaptive management cycle (Uychiaoco et al., 2005; Carruthers et al., 2013), although the impacts of management operations are not always well understood (Freese et al., 2014; Crofts and Jefferson, 1999).

Around the world, for highly valued socio-ecological landscapes (co-produced by the interaction of biophysical and social processes) that were created through historical agricultural use,

* Corresponding author.
E-mail address: jimmcginlay@hotmail.com (J. McGinlay).

http://dx.doi.org/10.1016/j.envsci.2016.07.008

researchers emphasise the role of long-standing land-management practices in maintaining such landscapes (Bignal and McCracken, 1996; Lovik, 2003; Bezak and Halada, 2010; Fischer et al., 2012; Birge and Herzon, 2014) and the threat of abandonment and loss of associated 'traditional ecological knowledge' (Prince et al., 2012; Scanga and Leopold, 2012; Babai and Molnar, 2014; Joyce, 2014). An alternative conservation-management approach, called here the 'traditional management approach', is also therefore commonly in evidence for socio-ecological landscapes. This refers to contemporary conservation-management practice based, accurately or inaccurately, on present understandings of past historical management practices. These contemporary 'traditional' management practices may or may not be the same as actual past practices. True past management practices on socio-ecological landscapes based on agriculture may also have been responsive in a range of ways or a hybrid of long-standing and newer practices (Verzijl and Guerrero Quispe, 2013; Fernald et al., 2015). However, where based on firmly held views about past practices, contemporary 'traditional' management, could preclude scope to manage landscapes responsively (Dinnie et al., 2015).

Under this model, a good understanding of past practices is required over an extended period, which may not be available. Also, each landscape constitutes a unique assemblage, whose materiality and management have varied over time and space (Sheail, 1986 Crofts and Jefferson, 1999). As Harris et al. (2006) note, future changes in the surrounding landscape and climate may well decouple the long-standing link between material condition and the past practices that created it, forcing conservationists to make a choice between preserving the landscape's material composition or its past management practices.

Both approaches therefore make logical sense but have their inherent limitations, and what is not clear is the extent to which one or the other, or a hybrid thereof, actually influence the management of the landscape. Better understanding of the functioning of such approaches, and the factors affecting their application, are required to inform conservation management, especially in light of potential climatic, land management and political economic changes. For example, for grasslands, climate change, through changes in temperatures, is likely to impact on hay cutting dates and on hay and grazing sward productivity, and through changes in rainfall patterns on flooding regime and by extension on nutrient cycling. Similarly, changes in surrounding landscape such as adjacent land use and river management may again affect flooding patterns and nutrient levels, whilst local demographics and shifts in conservation funding may affect the availability of stakeholders to be involved in conservation management. Such changes would require modifications to grassland management in order to conserve desired features.

This paper contributes to knowledge and understanding on socio-ecological landscape management effectiveness (Stoll-Kleemann, 2010; Jones et al., 2012; Vokou et al., 2014) by examining the practices of conservation actors, through the case of floodplain meadows in England. The work compares the responsive management model and what is termed here the 'traditional management' approach, asking two questions. Firstly, to what extent is there evidence of the predominance of either approach in the management of particular landscapes of conservation interest? Secondly, what are the implications and challenges of these management approaches for both the stakeholders adopting them and the landscapes being conserved?

2. Methodology

In order to address these questions, the factors and processes that determine management delivery on high conservation value grassland sites were explored. For a number of case study floodplain meadows in Lowland Central and Southern England (Table 1 and Fig. 1), the stakeholder networks that delivered management on the meadows, the factors that informed decisions about meadow management and the associated decision making processes were identified, as well as the extent to which the outcomes from meadow assessment activity or generation of knowledge and understandings about management were influential under a model of either responsive or traditional management.

The key drivers that influence the floristic composition of such floodplain meadows are well known and researched, and include the hydrological regime, the mesotrophic soil nutrient conditions and nutrient flows associated with river silt delivered by flooding patterns, and the meadow management regime (Mountford et al., 1993, 1996; McDonald, 2001; Gowing et al., 2002, 2005; Critchley et al., 2007). The broad lines of past long-standing meadow management regimes and the impact of particular management operations on the grassland sward and species composition are also well-known and researched (Crofts and Jefferson, 1999; McDonald, 2001; Gowing et al., 2002). The management regime broadly consists of a hay cut in early summer, followed by aftermath grazing in the autumn, usually with cattle.

Meadow management was investigated using mixed methods (Creswell and Plano-Clark, 2011). In order to identify the key meadow management activities, and to interrogate the range of factors and processes that influenced meadow management, a range of research methods were used including semi-structured interviews (Longhurst, 2010), participatory and non-participatory observation (Laurier, 2010) and archival research (Black, 2010). In this way, the generation of a variety of data types allowed triangulation between different sources of evidence regarding factors affecting management. Three meadows were studied in detail (Case Studies 1–3, Table 1: North Meadow, Brook Meadow and Long Mead) to generate rich data on these specific cases, with which to generate detailed understandings about the complex issues involved. In addition, a further nine meadows were studied to a lower level of detail in order to provide data against which to test the findings from the main case studies in order to improve the generalisability of any findings.

The case studies were selected to represent a degree of geographical spread across the region in which most meadows are located, as well as a range of conservation designation status, from high-profile internationally protected SAC sites to lower-profile non-statutory CWS sites (see Table 1 for definitions). However, it did not prove possible in this study to include meadow sites with no conservation stakeholder involvement at all, as the owners approached declined to participate, and so the situation regarding such meadow sites remains in question.

The stakeholder networks identified were unique to each case study site but generally comprised three essential groupings: landowner, conservation organisation or conservation-interest party, and farmer/land manager or other agricultural-interest party. One entity might fall in to more than one grouping, but at least two such entities were identified at each site. For the purposes of this analysis, the stakeholders involved in managing the case study floodplain meadows have been divided into two broad groups: conservation-orientated stakeholders whose primary interest is nature conservation, and farmer-managers whose interest is primarily agricultural. In reality, these two broad groups represent a spectrum of views, perspectives and interests that overlap to some degree. The landowner could fall into either group. Generally, large sites tended to involve more stakeholders; with for example several hay farmers and a separate grazier. However, most inter-stakeholder relationships generally consist of a primary one-to-one relationship between the conservation stakeholder or responsible landowner and each managing farmer.

Please cite this article in press as: J. McGinlay, et al., Conserving socio-ecological landscapes: An analysis of traditional and responsive management practices for floodplain meadows in England, Environ. Sci. Policy (2016), http://dx.doi.org/10.1016/j.envsci.2016.07.008