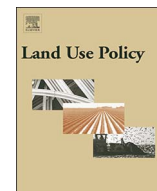




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Woodlots, wetlands or wheat fields? Agri-environmental land allocation preferences of stakeholder organisations in England and Ontario

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ABSTRACT

Society's increasing demands for a multitude of products and services are putting pressure on a finite land base, resulting in potential competition between agricultural and environmental interests. Stakeholder organisations wield considerable power in determining land allocation and the pursuit of different land-use objectives. Through the use of an inductive, qualitative methodology this study analyses the agri-environmental land-use preferences of organisational level actors operating in two comparable cases: England, UK and Ontario, Canada. The use of a comparative approach allowed for the illumination of differences and similarities within the preferences of stakeholders from like jurisdictions, which may not be evident from the analysis of a single case. In each case, semi-structured interviews, coupled with a photo-elicitation exercise, were used to explore preferences relating to agri-environmental integration (land-sharing) or separation (land-sparing). We found that the preferences of stakeholder organisations are more similar than might be expected with actors from both cases generally preferring a land-sharing approach in principle. However, a deeper look at stakeholder preferences provides a series of obstacles for achieving such a landscape model including differing views on: (1) the interpretation of integration and separation in practice, (2) conversion of land into agricultural production, (3) environmental restoration of arable land, (4) ownership of farmland, and (5) public access to nature on private farmland. The research uncovers what representatives from key organisational stakeholders see as their preferred solution for reconciling competing land-use objectives and thereby sheds light on the contextual suitability of land sparing/sharing expanding beyond production/biodiversity optimisation into social considerations.

1. Introduction

Rural landscapes around the world are facing pressure to deliver a multitude of products and services, while remaining environmentally sustainable. A growing global population, coupled with demand for new products such as bioproducts and biofuels, is putting pressure on agricultural land to deliver an ever increasing amount of food, fuel, and fibre (Foley et al., 2011; Godfray et al., 2010). Meanwhile, urbanisation, climate change, and other factors are decreasing the availability of land forcing agricultural intensification, or expansion, and pushing it against environmental land uses with the potential to displace habitat and other areas of environmental conservation (Smith et al., 2010). This competition between society's demands on agriculture and the environment is a major challenge, for both developing and developed countries, with the two land-uses having been described as being on a "collision course" (Sayer et al., 2013, p. 8349). For instance, it has been estimated that as much as 1 billion hectares (ha) of land may need to be cleared globally by 2050 in order to accommodate increasing demand

for agricultural production (Tilman et al., 2011). These challenges have been recently reflected in the Sustainable Development Goals (SDG) set out by the United Nations in 2015. Indeed, meeting these goals will require a fundamental reconsideration of the allocation of agricultural and environmental uses, on a finite land base, in order to provide more agricultural products and services from less land and with less impact.

Land-sharing and *land-sparing* have been proposed as two approaches to manage agricultural production and environmental protection in the spaces where actors compete over the best use of rural land. The approaches are on opposing ends of the land allocation continuum, with land-sharing representing an integration of agriculture and the environment, and land-sparing representing a separation of these land-uses. There is much debate in the literature surrounding which approach is best able to optimally achieve society's agricultural and environmental objectives, with authors such as Green, Phalan and Balmford advocating for land-sparing (see Green et al., 2005; Phalan et al., 2011a; Phalan et al., 2014; Phalan et al., 2011b) and authors such as Fischer advocating for land-sharing (see Fischer et al., 2014, 2011,

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2008). This paper is not intending to choose a side in the debate, but rather use the concept as a device for organising participant preferences. It is intended that the results will also contribute to advancing social science research within the land-sparing vs. land-sharing debate, and help to understand where stakeholder preferences fit within assessments of optimal land allocation.

Moreover, much research on sustainable land allocation, including within the land-sparing and land-sharing framework, has been approached from a positivist angle to assess the optimal landscape design for a given region (Clough et al., 2011; Dorrough et al., 2007; Egan and Mortensen, 2012; Gordon et al., 2007; Hodgson et al., 2010; Mastrangelo and Gavin, 2012; Phalan et al., 2011b). This approach has been criticised for neglecting the social challenge of sustainable land-use, and for lacking engagement with stakeholders with diverse preferences and objectives, which may actually be more challenging to manage than the scientific considerations (Firbank, 2005, p. 172; Mascia et al., 2003). Recognising this challenge, other authors have also recently studied the perspectives of stakeholder organisations in land-use conflict (Steinhäuser et al., 2015; Villamor et al., 2014), such as a recent study of stakeholder preferences for land-sparing/land-sharing within Swedish forestry (Nordén et al., 2017).

In seeking to understand the social aspect of sustainable land allocation, this study set out to explore the preferences of stakeholder organisations operating within the realms of agriculture and/or the environment. The research uncovers what representatives from key organisational stakeholders see as their preferred solution to reconciling competing visions on the use of land between agriculture, and the environment, and thereby sheds light on the contextual suitability of either approach beyond production/biodiversity optimisation. As advocated by Firbank (2005), it is essential to engage with, and understand, the views of a range of stakeholders interested in pursuing sustainable land allocation if we are to achieve an outcome suitable to all parties. Stakeholder organisations wield considerable power in determining land allocation and the pursuit of different land-use objectives. These organisations lobby policymakers, influence public opinion through advocacy, and even work directly with farmers/landowners to influence individual land management decisions through education, outreach and financial incentives. These ‘middle actors’ play an important role in influencing ‘top’ and ‘bottom’ actors which may provide an inlet for change, however are often overlooked in land-use research (Parag and Janda, 2014).

This study utilised a comparative approach in order to illuminate differences and similarities within the preferences of stakeholders from like jurisdictions, which may not be evident from the analysis of a single case. We investigated the cases of Ontario, Canada and England in the United Kingdom, two jurisdictions each grappling with the challenge of managing agricultural and environmental spaces, though for varying lengths of time. While England has long been confronted with land-use competition amongst a range of alternative uses, Ontario is increasingly experiencing a similar phenomenon. An increasing population, and historically sprawling development patterns, have provided the impetus for a series of land-use plans to control growth, and protect high quality farmland and sensitive ecosystems of national importance. Nevertheless, the question remains as to how agricultural production can co-exist with environmental conservation, particularly in southern Ontario where numerous actors with different land-use objectives compete for the same space. Given their similar political cultures, planning systems and property rights regimes, there is potential that Ontario may look to England’s experience to find lessons and identify potential policy instruments. On the other hand, as the UK transitions out of the European Union it will be important to understand the preferences of stakeholders in the design of new policies, as well as identify jurisdictions with similar preferences from which to draw ideas and experiences.

Overall, this research found that participants across, and within, cases generally agreed with the principle of integrating agricultural and

environmental objectives within the same area, reflective of the land-sharing approach. Indeed, taken together, participants within both cases seemed to agree on the pursuit of a heterogeneous landscape, where corridors of habitat through farmland are established, specifically on marginal areas of farms, connecting blocks of larger intact habitat, particularly in sensitive ecosystems. This level of agreement across cases is an important finding taken alongside previous research from Marr et al. (2016) whose own comparison of land-use policy documents, and corresponding policymaker preferences in England and Ontario, found notable differences. This suggests a potential disconnect between stakeholder preferences and policymaker preferences within these cases, appearing more pronounced in the Ontario case where there is a clear slant towards land-sparing within formal land-use policy (Marr et al., 2016). Nevertheless, in spite of the stated preference for an integrated approach, this research also identified deeper disagreements between, and within cases, which pose challenges for the pursuit of a widely accepted approach to agri-environmental land allocation.

1.1. Agri-environmental policy context

Before moving into a detailed analysis of the preferences of stakeholder organisations, when it comes to agri-environmental land allocation, we first thought it instructive to introduce the agri-environmental policy context in each case area (see (Marr et al., 2016) for a detailed comparison of approaches to agri-environmental land use policy). While there are similarities in the approaches and instruments utilised in both cases, there are also important differences. The approach to agri-environmental land use policy in Ontario has been described as leaning towards a land-sparing approach, whereas in England the approach is more indicative of land-sharing (Marr et al., 2016). Indeed, within Ontario’s approach, agricultural and environmental land-uses are typically addressed separately with an effort to maintain large contiguous blocks dedicated to either use. This can be seen in the ‘fortress conservation’ approach inherent in protected landscapes (e.g. Provincial Parks) or, as an example, the distinction between the Agricultural System and Natural System within the *Greenbelt Plan (2017)*. Moreover, when compared to the English case, there is much less emphasis on agri-environmental programs to encourage environmental features on farms, particularly if they result in decreased production (Atari et al., 2009).

In contrast, England’s approach may be best described as leaning towards land-sharing. This includes a more multifunctional view of the countryside and less physical separation of agricultural or environmental spaces in protected landscapes (e.g. both uses are permitted within National Parks). In England’s policy there is also much more involvement at the farm scale and particularly the encouragement of on-farm environmental features through agri-environmental schemes. However, the recent end of the Entry Level Stewardship (ELS) scheme and the introduction of the Countryside Stewardship (CS) scheme has resulted in a shift from a ‘broad and shallow’ approach to a ‘deep and narrow’ approach to agri-environmental schemes in England (Darragh and Emery 2017). The anticipated result of this change is a considerable reduction in the number of participating farmers, and an estimated reduction in the land enrolled in agri-environmental schemes from 70% to around 35–40% of England’s total agricultural area (Mills et al., 2017). That said, England’s policy approach still may be described as adhering to a post-productivist, or multifunctional agricultural paradigm that is reflected in the design of its agri-environmental land-use policy (Marr et al., 2016).

2. Methods

In order to examine the agri-environmental land allocation preferences of stakeholder organisations we conducted 24 semi-structured interviews with representatives of agricultural and environmental organisations operating in England or Ontario. Interviews were conducted

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