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Current agri-environmental policies dismiss varied perceptions and discourses on management of traditional rural biotopes

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ABSTRACT

Traditional rural biotopes (TRBs) are threatened habitats that host significant biodiversity and several ecosystem services, and depend on active management such as low-intensity grazing. The current study explores private landowners' decision-making on TRB management and abandonment within a social-ecological system framework. We provide insight into supporting resilience of TRB systems in the face of agricultural modernization. Using a mixed methods approach with content analysis and Q analysis, we demonstrate that TRB management fosters cultural, biological, aesthetic, and utilitarian values. These are reflected in different ways through conservationist's, profit-oriented farmer's, landscape manager's, and landscape admirer's discourses on TRB management. Overall, management reinforces landowners' place attachment, and reflects an approach to landscapes as spatial representations of cultural heritage and identity over multiple generations. Landowners consider TRB pasturage and its social-ecological outcomes motivating and rewarding. Giving up grazing cattle and perceived bureaucracy of national agri-environment scheme contribute to TRB abandonment. Landowners point out that current policies detach TRB management from what is seen as "regular agriculture", and the focus on monetary compensation bypasses the multiple values tied to TRB management. Based on our results, we suggest that promoting TRBs requires reconfiguring the current arrangement of remedial management payments and adopting a more participatory governance approach. Locally, resilience of TRB systems relies on the connections between landowners and landscapes that foster sense of place and landscape identity, which can be supported by knowledge sharing and collaborative grazing efforts among landowners.

1. Introduction

Agricultural intensification threatens maintenance of traditional farming systems, which have historically shaped a variety of rural landscapes and fostered a significant amount of biodiversity and cultural heritage in Europe (Benton et al., 2003; Plieninger et al., 2014, 2006). Consequently, there is increasing public expenditure and scientific interest in conservation of farmland biodiversity (Batáry et al., 2015; de Snoo et al., 2013; Kleijn and Sutherland, 2003). Of special conservation concern are semi-natural habitats managed by low-intensity grazing or mowing, such as different types of meadows and wood-pastures, which support several threatened species (Halada et al., 2011).

In Finland, semi-natural grasslands and wood-pastures are collectively referred to as traditional rural biotopes (TRBs). TRBs are defined as culturally influenced natural habitat complexes that are part of a traditional landscape formed through archaic rural livelihoods (Ministry of the Environment, 1992). This official definition acknowledges how ecological and social factors are intertwined in the concept of TRBs, depicting them as social-ecological systems. Yet, in practice, TRBs are detected and evaluated mainly based on ecological qualities, particularly specific vascular plant species assemblages surveyed in the field (Pykälä et al., 1994). As a result, TRBs are generally perceived through ecological patterns and processes as species-rich semi-natural habitats maintained by human-induced intermediate disturbances (e.g., Raunio et al., 2008). Ecocentric perspectives such as this permeate the scientific research concerning European agri-environmental policies targeting biodiversity conservation (de Snoo et al., 2013). Agri-environmental policies to enhance biodiversity and landscape quality are unsustainable when social-ecological interactions are unnoticed, simplified, or disregarded (de Snoo et al., 2013; Pelosi et al., 2010). Thus, a more pluralistic offset that takes social aspects into account would benefit conservation policies, management actions, and ecological outcomes (Bennett, 2016).

Despite its importance, incorporating social science into farmland biodiversity conservation efforts is challenging. The multiplicity and

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complexity of agricultural social-ecological systems makes their management an elusive task (Berkes et al., 2003; Cash et al., 2006; Pelosi et al., 2010). Since 1980s, member states of European Union started to launch agri-environmental schemes (AESs) with the principle of paying farmers for undertaking desirable conservation-oriented actions. Although the AESs aim for supporting environmentally-friendly and less intensive farming as a livelihood (Clark et al., 1997; Robinson, 2005), their benefit for biodiversity has been questioned on several occasions (Batáry et al., 2015; Kleijn and Sutherland, 2003; Robinson, 1991). Several studies have noted that if the causes of agri-environmental problems are not well understood and AESs are therefore not appropriately designed, their implementation can be ineffective or have unintended effects (Uthes and Matzdorf, 2013).

Despite their "patchy" effectiveness, AESs have become the main tool to conserve farmland biodiversity throughout Europe (Batáry et al., 2015; Kleijn and Sutherland, 2003; Uthes and Matzdorf, 2013). Due to the voluntariness of AESs, a number of studies have explored farmers' motivations to adopt the schemes. Such information is usually derived from interviews or surveys targeted to farmers either participating in AESs or not (Uthes and Matzdorf, 2013). Factors explaining AES uptake include age, likelihood of having a successor, and sufficiency of financial incentives (Prager et al., 2012; Uthes and Matzdorf, 2013); also ease of management (Morris, 2006), interest in wildlife (Herzon and Mikk, 2007; Matzdorf and Lorenz, 2010), and a will to maintain landscape aesthetics (Birge and Herzon, 2014) are important motivators. Additionally, these findings could benefit from a holistic approach that aims to synthesize a range of issues affecting farm-level decision-making. Furthermore, as studies specifically target farmers, they rarely include other landowners whose land-use decisions are undeniably important in conserving biodiversity.

One approach to better understand issues on conservation of farmland biodiversity is to study the renewal of rural social-ecological systems such as TRBs. Social-ecological systems are dynamic and deal with change; they sustain themselves as a function of the system's adaptive capacity (Berkes et al., 2003). A key property of this process is resilience: the capacity of a social-ecological system to remain within the same regime, essentially maintaining its structure and functions, despite the external perturbations or other stressors disturbing the system (Holling, 1973; Resilience Alliance, 2017). Given that the evolution of European Union's Common Agricultural Policy (CAP) has been guided by the principles of ensuring rural stability by guaranteeing occupancy of agricultural land and emphasizing the importance of small-scale and family farming (Clark et al., 1997), a resilience-oriented farm-level approach to AESs seems justified. Here a farm is seen as a social-ecological system; stressors are externally imposed ecological, social, or economic changes affecting farming, such as climate change or fluctuations in market prices; the ability of the farm enterprise to react to these changes through modifying but not giving up farm production reflects the adaptive capacity; and regimes are relatively stable combinations of farming practices that form the basis of the farmer's livelihood through alternative land uses. The role of AESs in this context is to build social-ecological resilience by supporting environmentally and socially sustainable farming practices.

Social-ecological resilience is particularly important for social groups that are dependent on ecological and environmental resources for their livelihoods (Adger, 2000). These include farmers and landowners managing TRBs. Their decisions on whether to continue TRB management or to abandon it have a direct connection to TRB conservation. Given the urgent need to increase the number of managed TRBs in order to safeguard the biodiversity dependent on them (Heikkinen, 2007; Raatikainen et al., 2017), knowledge on the resilience of TRB systems within contemporary agricultural context needs to be gathered.

In this paper, we apply a social-ecological approach to TRBs by focusing on two phenomena that reflect decision-making on TRB management on different levels: subjective perceptions and communal discourses. Bennett (2016) defines "perception" as "the way an individual observes, understands, interprets, and evaluates a referent object, action, experience, individual, policy, or outcome", and states that studying perceptions provide insight and indispensable evidence for monitoring, evaluating, and adapting conservation programs and policies. Although perceptions are subjective, they are to some extent socially influenced and thus share commonality, and are further reflected in socially shared discourses (Barry and Proops, 1999). Discourses are "structured ways of representation that evoke particular understandings and may subsequently enable particular types of actions to be envisaged" (Hugé et al., 2013). They guide practices and reflect underlying values (Benitez-Capistros et al., 2016; Hugé et al., 2013). Understanding and contextualization of discourses is a prerequisite for evaluating the social acceptability and sustainability of environmental policies (Barry and Proops, 1999; Benitez-Capistros et al., 2016; Hugé et al., 2013). Long-term effectiveness of conservation actions is ultimately enabled through local support (Bennett, 2016; de Snoo et al., 2013), and together perceptions and discourses affect the design, implementation, and outcomes of different environmental policies.

The paper is structured as follows. First, based on literature, we present how TRBs can be incorporated into a social-ecological system framework. Second, we empirically explore the resilience of TRB systems through landowners' perceptions and discourses on TRB management. Here we aim to understand the landowners' motivations for TRB management or abandonment, and investigate the role of the national AES in TRB conservation. Our driving research question is: What kinds of social-ecological factors underlie maintenance of TRBs in the context of current Finnish agriculture? We hypothesize that landowners' personal values, feeling of place attachment, and knowledge of land-use history are more important to TRB conservation than agri-environmental policies. Based on our findings, we interpret emerging new meanings related to TRBs and discuss how these fit into current governance practices. Ultimately we argue TRB management will benefit from resilience-oriented policies targeting key variables that are attendant to landowners' decision-making strategies for successful TRB management.

2. Conceptualizing management of traditional rural biotopes as a social-ecological system

Contemporary TRB management has its roots in practices of traditional 19th century subsistence farming, where cattle husbandry was based on natural resources derived from the landscape surrounding the farm (Soininen, 1974). Although social-ecological systems such as this are inherently complex, their composite parts can be identified for structural analyses (Ostrom, 2007). This conceptual partitioning is important for achieving a better understanding of the systems and developing effective policies to improve their performance (Ostrom, 2007). In the following, factors relating to contemporary TRB management are categorized into four social-ecological subsystems: resource system, resource units, governance system, and actors (Ostrom, 2009, 2007). Because of conceptual and historical similarities, we parallel TRBs with Pan-European semi-natural grasslands and woodpastures, but specify aspects particular to Finland within the text.

TRBs are special types of agricultural resource systems that are tied to long-term, low-intensity cattle husbandry. They share four key unifying characteristics: 1) dependence on mowing or low-intensity grazing (Mládková et al., 2015; Pykälä, 2000), often accompanied by other multifunctional actions such as coppicing, pollarding, and pruning (Hartel and Plieninger, 2014); 2) long-term usage as unfertilized pastures or meadows, resulting in nutrient impoverishment (Kumm, 2003; Mládková et al., 2015; Pykälä, 2000); 3) exceptional biodiversity (Halada et al., 2011; Pykälä, 2000); and 4) decline in contiguous coverage due to agricultural modernization (Plieninger et al., 2006; Raunio et al., 2008).

The resource units derived from TRBs are various. In Finland, TRBs