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Research article

The case of conflicting Finnish peatland management – Skewed representation of nature, participation and policy instruments

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ABSTRACT

Peatlands that are close to a natural state are rich in biodiversity and are significant carbon storages. Simultaneously, peat resources are of interest to industry, which leads to competing interests and tensions regarding the use and management of peatlands. In this case study, we studied knowledge–management interactions through the development of participation and the resulting representation of nature (how nature was described), as well as the proposed and implemented conservation policy instruments. We focused on the years 2009–2015, when peatland management was intensively debated in Finland. We did an interpretative policy analysis using policy documents (Peatland Strategy; Government Resolution; Proposal for Conservation Programme) and environmental legislation as central data. Our results show how the representation of nature reflected the purpose of the documents and consensus of participants' values. The representation of nature changed from skewed use of ecosystem services to detailed ecological knowledge. However, simultaneously, political power changed and the planned supplementation programme for peatland conservation was not implemented. The Environment Protection Act was reformulated so that it prohibited the use of the most valuable peatlands. Landowners did not have the chance to fully participate in the policy process. Overall, the conservation policy instruments changed to emphasize voluntariness but without an adequate budget to ensure sufficient conservation.

1. Introduction

In the northern hemisphere peatlands cover 350 million hectares (Strack, 2008). Peatlands are significant carbon storages, but they also emit greenhouse gases depending on temporal variation and management (Strack, 2008). Management of peatlands can be regulated on the national level by policy instruments that can prevent actions that alter nature, and they can decrease the harmful effects or improve the state of nature. Different policy instruments form combinations (Doremus, 2003). For example, current protected areas alone would not ensure conservation goals, but multiple conservation actions - focusing on ecological connectivity, restoration, management of natural resources, partnering and informing - are also needed for increasing the effectiveness of conservation (Liberati et al., 2016). Voluntary policy instruments have become more common, partly because of dissatisfaction with regulation (Jordan et al., 2003), and because of tensions between the rights of land owners and conservation needs. While mandatory instruments can produce more effective results, they often lack acceptability (Kamal et al., 2014). However, with voluntary instruments the selection of sites is not (only) based on conservation values. There is limited research on how a combination of nature conservation instruments are selected on the national level and how they are implemented during a policy process.

Discussions on nature reflect different aspects of nature; these representations may be human or nature centric. In this article, we use the concept of the representation of nature to focus on how nature is described and reflected in policy documents. Representation means the description of someone or something in a particular way. Representation of nature can refer to actual drawings and how our understanding of nature depends on them (Charmantier, 2011) or to more abstract social constructions of nature such as metaphors (Kwa, 1987). Different representations of nature are based on various knowledge types, and thus reflect different understandings of nature including those based on ecological and social sciences or layman knowledge. In this article, we explore the role of ecological knowledge in nature representations. In ecology, the generally used representation

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of biodiversity divides it into genetic diversity, species diversity and habitat diversity (Wilson, 1988). An alternative representation of nature – a concept of ecosystem services – was formed to make nature's benefits to humans more understandable to decision makers (Costanza et al., 1997; Jordan and Russel, 2014; Millennium Ecosystem Assessment, 2003).

Conservation science has approached the link between knowledge and management with the concept of the research–implementation gap, which means for example that a network of priority conservation areas has been scientifically selected, but the network has not been established in practice (Knight et al., 2008; Sutherland et al., 2004). This problem has been addressed with operational models like the Systematic Conservation Planning in order to improve the use of scientific knowledge in practice. However, the underlying linear science transfer model, which describes that scientific knowledge is transferred into practical actions, has been criticized because it undervalues power and does not consider the fact that science is socially embedded (van Kerkhoff and Lebel, 2006). Social embeddedness means, for example, that a shared understanding of nature between scientists and policy-makers can help to gain funding from policy to research programmes (Kwa, 1987). Increased knowledge of environmental degradation and communicating this knowledge to decision makers has led to legal commitments to multilateral environmental protection (Haas, 2004). However, choosing policy instruments is not (only) a question of ecological knowledge as there are multiple simultaneous objectives for policy, including democracy, freedom of individuals, the common good and individual profit. Often actors have different values regarding nature and therefore different interests in how to use the land. Participation in decision-making for environmental management can increase legitimacy, improve design, integrate various interests, optimize implementation, increase public acceptance and foster social learning (Luyet et al., 2012). In practice, policy solutions are defined by the most powerful actors (Juntti et al., 2009). Power relationships may fluctuate or be unclear, and different groups can use different types of knowledge to support their aims. The use of evidence in policy processes is complex and dynamic (Adams and Sandbrook, 2013), and the links between the representation of nature in policy documents and policy instruments need more empiric exploration.

Designing Finnish peatland policy is an example of political controversy between natural resource use and preservation of pristine ecosystems; a policy process where the need for conservation supported by ecological knowledge and the importance of voluntary participation have been simultaneously highlighted. We studied Finnish peatland conservation between 2009 and 2015, when policy priorities evolved and peatland policy underwent intense changes. Through this case study, we aimed to increase understanding of conservation policy processes. We focused on the following research questions:

1) What kinds of representations of nature did the policy process produce?
2) What kinds of combinations of policy instruments did the policy process produce?
3) How did the participants comment on potential implications of instrument combinations for nature and management?

2. Materials and methods

2.1. Case - peatland management in Finland

Peatlands are defined as areas where there is an over 30 cm thick layer of peat on the surface. They are wetlands where partially decomposed organic material forms peat in the absence of oxygen. Peatlands are hydrological entities within rain catchment basins and therefore drainage or extraction in one part can alter the whole peatland area. More than two thirds of the Finnish carbon reservoir is estimated to be in peat (Turunen, 2008). About a third of Finnish land cover is peatland, but the area of peatland habitats has decreased and their quality has been degraded (Rassi et al., 2010). About 1.2 million hectares i.e. 13% of Finnish peatlands are conserved. The conservation status of peatlands is poorest in southern Finland (Rassi et al., 2010). In the south peatlands are mainly privately owned, whereas in the north the majority of peatlands are owned by the state.

Finnish peatlands have been used for centuries: they have been transformed by agricultural use, while peat extraction for energy use started in the 20th century. In the 1960s and 1970s the government paid for ditching to increase timber production (Ministry of the Agriculture and Forestry, 2011). More than half of the peatland area have been drained for forestry and less than one percent is used for peat extraction (Turunen, 2008). However, recently, drainage for forestry has almost ceased (Rassi et al., 2010), whereas peat extraction threatens many large valuable peatlands. Peat extraction has caused conflicts over water quality and biodiverse areas between industry and nature-oriented non-governmental organizations (NGOs) (Jokinen et al., 2016). Though, water quality is not in the main focus of this study. Also questions on how to consider carbon storage or intact peatland area, which is not necessarily very biodiverse, are not agreed. ‘Everyman's right’ means that anyone can walk or ski on peatlands, pick berries or camp temporarily; peatlands are widely used for recreation and have cultural values.

Many policy instruments are used to govern peatlands. Environmental permits for peat extraction based on the Environmental Protection Act (EPA, 527/2014) prevent actions that are harmful to nature and reduce harmful effects. The Nature Conservation Act (NCA, 1096/1996) is the main act preserving biodiversity. For example nature conservation programmes and regulation concerning strictly conserved nature values (e.g. listed species) prevent actions that alter nature. Previous peatland conservation programmes were made in 1979 and 1981. Land-use planning is guided by spatial planning instruments; in this study, important instruments are the National Land-Use Objectives and the Regional Plans, according to the Land Use and Building Act (132/1999). The Forest Biodiversity Programme (Government of Finland, 2014, 2008) offers voluntary participation opportunities for conservation in forest areas that match ecological criteria. It has succeeded in overcoming social conflicts in conservation (Paloniemi and Varho, 2009). Environmental subsidy agreements and nature management projects offer landowners incentives to improve their land. Peatland restoration aims to restore hydrological aspects of the land to facilitate the development of vegetation toward its natural state.

2.2. Peatland conservation policy and actors in Finland 2009–2015

Next, we present key policy changes during 2009–2015. The composition of parties in Finnish governments altered during the study period (Table 1). In February 2009, the Minister of Agriculture and Forestry (the Centre Party) appointed a working group to prepare a national strategy for the sustainable use of peatlands. The working group consisted of several actors from different interest groups (Table 2). Economic sector institutions and energy sector advocacy organizations were included. The working group published a Peatland Strategy in February 2011 (Ministry of the Agriculture and Forestry, 2011).

The Government Resolution on the Sustainable Use and Protection of Peatland (from here on Government Resolution) was accepted by the government on 30 August 2012. The Government Resolution was based on the Peatland Strategy. Notably, a new statutory Peatland Conservation Programme for about 100,000 ha was proposed and its planning process started in 2012. Its preparations started with a new group (Table 2). Participants were partly from the same background organizations as those in Peatland Strategy but included ecologists from universities and fewer actors from economic sector.

In autumn 2014, dramatic changes took place in peatland policy after the Greens left the government and the Minister of the