



Methodological and Ideological Options

Mapping value plurality towards ecosystem services in the case of Norwegian wildlife management: A Q analysis

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ABSTRACT

For many deep-rooted resource conflicts where the cultural component of ecosystem services (ES) is strong, standard monetary valuation may be methodologically difficult and not always meaningful. A deeper understanding of the value plurality of key stakeholders may be called for to develop acceptable policies. We use the Q method to analyse the perceived and actual trade-offs related to Norwegian wildlife management, a source of prominent conflict in Norway. We identify and classify distinct arguments in the wildlife management debate following the ES framework, and use the Q method to explore extant/prominent narratives characterising stakeholders' perceptions of the importance of arguments about biodiversity and ES. Finally, we reflect on whether and to what extent the Q method can contribute to our understanding of resource conflicts, underlying values, and ES trade-offs. Three clear narratives appeared: Pro-sheep grazing (cultural), pro-carnivore conservation (intrinsic) and a middle position emphasising recreational hunting (utilitarian). Despite considerable disagreement among narratives, the Q analysis also revealed areas of common ground useful for developing acceptable policies. Given the inherent complexity of socio-ecological systems, it is useful to draw from a diverse toolbox of methods, including the Q method for ES analysis.

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1. Introduction

There is currently great interest among academics and policy-makers in assessing the diverse values of biodiversity and ecosystem services (ES). The Millennium Ecosystem Assessment (MEA) (2005) and the Economics of Biodiversity and Ecosystem Services (TEEB) initiative, started a process of “recognizing and demonstrating” the potential (economic) value of ecosystem service benefits (Kumar, 2010). The next step was seen to be the design of policies that can “capture” such values in decision-making (TEEB, 2010). However, for many ES conflicts this process may not be straightforward. Firstly, there are often deep-rooted conflicts over rights and resources, a situation that does not lend itself to standard monetary valuation of costs and benefits (Spash, 2013). In such situations, there is a need for a deeper understanding of the value plurality underlying the different positions of various stakeholders (Martin-Lopez et al., 2014). Secondly, while economists may be good at defining an environmental conflict and analysing it theoretically, relatively less emphasis is traditionally put on investigating how implementation of policies among affected stakeholders may succeed (Barry and Proops, 1999). For this, a much better understanding of stakeholder positions, the values underpinning these, and their relation to ES is required.

One of the most prominent conflicts in ES and biodiversity management in Norway (and Scandinavia) is the conflict over the way wildlife and wildlands should be managed. In Norway, only a small part of the land area (5%) has been converted to agricultural land. The remaining area is about equally divided into forest and alpine tundra. The forests are intensively exploited for timber production and exploited for hunting. The main game species in forested areas are moose (*Alces alces*), red deer (*Cervus elaphus*) and roe deer (*Capreolus capreolus*). Most forest areas are also used for free-grazing (without fencing or shepherding) of domestic sheep. Conflicts exist between these activities, with wild ungulates involved in vehicle collisions, as well as damaging forests and crops (Kjøstvedt et al., 1998; Olaussen and Skonhøft, 2011). A higher degree of controversy still has emerged in the last 25–30 years as large carnivores have been allowed to begin a recovery (e.g. Linnell et al., 2010). The return of the wolf (*Canis lupus*), Eurasian lynx (*Lynx lynx*), wolverine (*Gulo gulo*) and brown bear (*Ursus arctos*) to this multi-use ecosystem has sparked a wide range of conflicts. These include renewed depredation on livestock (Kaczensky, 1999), real and perceived competition with hunters for shared prey (Melis et al., 2010), and a diversity of social conflicts where large carnivores have become symbols for a diversity of wider conflicts (Skogen and Kränge, 2003). Discussions over large carnivore management involve a wide range of stakeholders at local, national and even international levels. Additionally, the institutions to govern decision making with large carnivores are highly political in nature and have undergone constant evolution from being centralised to being de-centralised in recent years.

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Ex post facto compensation is paid for livestock killed by carnivores and both lethal control and hunting are heavily used to limit the numbers and distribution of large carnivores, which is regulated through a strict zoning policy (Linnell et al., 2005b). The different species groups combined (sheep, wild ungulates, large carnivores) are important components of a wide range of diverse ES that are valued and experienced in very different ways by stakeholders at different scales. The conflicts run much deeper than just a matter of distribution of market-based costs and benefits. It is more based on normative issues, touching on the extent to which the Norwegian landscape is viewed primarily as an arena for recreation, the production of timber or meat (both domestic and wild), or for the conservation of wildlife and biodiversity (Skogen et al., 2006). Hence, numerous arguments (economic, social, ethical and philosophical) are used to form and support opinions among stakeholders.

Classic environmental valuation studies, for example using stated preference methods such as contingent valuation, to value the public benefits of wildlife conservation often run into methodological problems, since conservation is often seen as a public good or service for some (typically urban populations) and “bad” or a disservice for others (typically rural populations) (Bohara et al., 2001; Bostedt, 1999). Furthermore, a more fundamental problem is that the trade-offs people are asked to make in stated preference surveys, for example, may not be meaningful in situations where ecosystem complexity is high and a plurality of values and underlying motives are involved (i.e. incommensurability, multiple dimensions) (Frame and O'Connor, 2011; Iniesta-Arandia et al., 2014). For ES with a strong cultural component, standard economic valuation may be particularly challenging (Barrena et al., 2014; Chan et al., 2012; Daniel et al., 2012).

In this study we take up the challenge raised by ecological economists such as Barry and Proops (1999) and Swedeen (2006) to analyse resource conflicts more in depth using the Q method, a tool for discourse analysis (Addams and Proops, 2000; Brown, 1980; Webler et al., 2009). Although the topic of wildlife management and ES lends itself well to the use of the Q method, such applications are still rare and the study is the first of its kind in Norway (Chamberlain et al., 2012; Mattson et al., 2006; Rastogi et al., 2013). Thus, in this Q study, we make the links between the different arguments used in the Norwegian wildlife management debate, and the underlying values (monetary and non-monetary) and the full range of ES categories using the Common International Classification of Ecosystem Services (CICES).¹ Specifically, we address two main questions: (1) What are the positions (narratives) that characterise stakeholders' perceptions of the importance of arguments about biodiversity and ES associated with wildlife management?; and (2) To what extent can applying the Q methodology contribute to our understanding of the resource conflict, the underlying values, and ES trade-offs?

2. Method, Data Collection and Analysis

2.1. Q Methodology

Q methodology is a form of discourse analysis that originates from the field of psychology and which has been adopted in a range of fields (Baker et al., 2006; Barry and Proops, 1999; Curry et al., 2013; Davies and Hodge, 2007, 2012; Swedeen, 2006). It combines both quantitative and qualitative data through statistical analysis to explore different opinions that exist about a topic. Q methodology does not allow for generalisations about the representativeness of different opinions within a larger population (which is an aim of general population surveys). It does however, give insights into the range of opinions that exist about some topic within a sample population, and how those opinions differ and converge. As such, the Q method lends itself well to the study of

the importance of ES and associated values across stakeholder groups within the Norwegian wildlife management debate and to capture the nuances in opinions. This may be valuable when searching for common ground for the implementation of acceptable and feasible policy options, and as a basis for stakeholder (Cuppen et al., 2010) and deliberative processes (Walton, 2013), or the use of decision-support tools such as multi-criteria decision analysis (Swedeen, 2006).

A Q study typically involves several steps. The two most critical steps to secure a good quality in study design include the selection of Q statements (Q-set) and participants (P-set). The Q-set commonly derives from a so-called concourse of statements and a good Q-set is broad in scope to cover all the different aspects, both positive and negative, of the topic under review. In addition, the Q statements should be intelligible and allow for differing interpretations by the participants. Similarly, while it is a prerequisite in Q methodology that the participants must be knowledgeable about the topic of the study, the P-set should aim to be inclusive of different stakeholders.

2.2. Identification of Stakeholders

Relying on 25 years of experience of working within the field of wildlife management in Norway, including the organisation of multiple stakeholder participation processes and supported by decades of social science research we deliberately selected the most relevant stakeholder organisations considering their relative importance and interests in the management of sheep, moose, roe deer, wolf, lynx and bears.² The criteria we used for including interest groups was that the stakeholders should be influential or have a pronounced interest in the topic of our study, that they should be organised (e.g. we did not go after individuals), and that the different interest groups should represent the diversity in views that existed about the topic in south-eastern Norway. To verify that all possible stakeholders had been considered for the analysis, and that no key stakeholder groups had been overlooked, we searched for additional groups through various printed and internet sources. Additionally, we consulted wildlife experts and social scientists working within the field to ensure capturing any potentially missing stakeholders. The identified key organisations represented the interests of farmers, hunters, forest owners, nature and carnivore management, animal welfare and nature conservation, tourism, and sheep farming. We selected informants based on their functions and relative importance within the organisations, thus reflecting their knowledge about the topics and the area of this study. We contacted informants primarily through e-mail, and when they were willing to participate in the study, we performed interviews personally.³ We limited our study to representatives from the organisations' national level bodies and from regional divisions from South-eastern Norway. South-eastern Norway is the only part of Norway where wolves, bears and lynx occur together, and the area of most intensive forestry and game management (roe deer and moose) with widespread sheep farming, and contains sharp gradients from urban to rural areas, thus providing the widest diversity of stakeholder views within a shared ecosystem.

2.3. Statements That Reflect Ecosystem Services and Underlying Values

Aiming to cover the extant range of positive and negative opinions, facts, and assumptions about the management of sheep, moose, roe deer, wolf, lynx and bear, in south-eastern Norway we first sampled a range of arguments and value statements that we found on our focus species. We searched printed and online scientific- and popular publications, blogs, information sites and newspapers for arguments/

² We deliberately excluded red deer, wolverine and semi-domestic reindeer management issues to reduce the complexity of the study and keep it more focused on the prevailing conditions within the south-eastern boreal forest area of Norway.

³ Due to our confidentiality agreements we will not further specify who the informants were or where they came from.

¹ <http://cices.eu/>.

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