Stakeholder selection as a precondition for successful participatory processes

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Abstract

There is a growing awareness that effective management of socio-ecological systems requires close collaboration between research disciplines, policy-makers and stakeholders at all levels to strike a balance between different (potentially conflicting) perspectives and objectives. To facilitate this, a range of participatory research methods have emerged in recent years that have gained mainstream acceptance in many policy and research circles. For example, the UN Convention to Combat Desertification (1994) emphasises the role of local communities, public participation is a core requirement of the Water Framework Directive, and the UK Government Department for International Development has adopted the Sustainable Livelihoods Approach for its research programme. However, the limitations of participatory research are increasingly being recognised. For example, participatory research can reinforce existing privileges, and group dynamics can discourage minority perspectives from being expressed.

Appropriate stakeholder selection is a key challenge for participatory research. Participatory approaches to conflict management must be as inclusive as possible to avoid marginalising stakeholder groups, and this is a challenge with the small sample sizes that are usually used to attain depth of understanding in participatory research. On the other hand participatory process can only be legitimate and effective if it represents all sides of the debate. The participatory literature proposes a variety of ways to select representative participants, but few of those are without problems. To address these challenges, this paper proposes an approach to select participants who are: a) representative of the wide stakeholder community; b) likely to engage constructively in dialogue; and c) are well known and respected enough to diffuse ideas from this dialogue to a wide social network. By targeting the involvement of these individuals in a participatory process, it may be possible to attain 'better' quality resource management strategies, ones which reflect the multiple values and knowledges of stakeholders. In addition to techniques and tools for stakeholder engagement soft factors such as language differences, trust, continuity and problem focus are key elements of successful processes. This paper provides some learning experiences form a case study of natural resource conflicts in the UK's Peak District National Park.

Introduction

Landscapes are complex systems that face a variety of pressures. In spite of this complexity, natural resource management has often been guided by mono-disciplinary initiatives that rarely harness the local knowledge of stakeholders who live in and interact with these landscapes. Despite the proliferation of post-Rio (UNCED, 1992) rhetoric, there are still few examples of truly interdisciplinary, participatory natural resource management initiatives, particularly in the developed world. Acknowledging this, researchers and policy makers are exploring new approaches based on combining knowledges from natural and social scientists and stakeholders (Nygren, 1999; Thomas and Twyman, 2004; Dougill et al., 2006; Reed et al., in press).

The literature identifies three key reasons why participation is important. The first reason is *substantive* and incorporates ideas that stem from a post-normal science perspective (Functowicz and Ravetz 1991), which justify broad democratic participation and open dialogue. The second reason is *normative* and refers to value judgments as to 'what ought to be' in a democratic society, suggesting that participation provides transparency, accountability and legitimacy to adaptive management processes. The final reason is *pragmatic*, suggesting that adaptive management can achieve effective, appropriate and efficient outcomes with public participation, and in doing so, appeases a greater proportion of stakeholders.

The first reason in favor of greater participation was summarized by Fiorino (1990), who argues that 'lay' judgments are often as useful, or indeed more so, than those of 'experts'. In other words, lay people are the real experts of their local worlds (Backstrand, 2004) and in valuing knowledges, logics and epistemologies from a range of sources, a more complete overview of a given situation can be attained. 'Lay' people may see problems, issues and solutions that 'experts' might miss, while such 'lay' participation can reveal a level of sensitivity to social, ethical and political values that cannot be attained through 'expert' models (Middendorf and Busch, 1997). In the indigenous knowledge literature (sometimes referred to as local knowledge or traditional ecological knowledge), numerous academics cite examples of how 'lay' people develop nuanced insights into their socio-ecological environment and elaborate sustainable management strategies through processes of practical experimentation, trial and error, and experience (e.g. Mahiri, 1998; Sullivan, 2000; Reed and Dougill, 2002; Ecology and Society 2004: special edition on traditional ecological knowledge). This demonstrates that people are not passive system components and that they actively respond to uncertainty and change, managing the landscapes in which they are situated (Vogel and Smith, 2002). While some commentators question the part local knowledge should play in today's dynamic and globalized world (e.g. Krupnik and Jolly, 2002; Doolittle, 2003; Briggs and Sharp, 2004), others argue that knowledges evolve as part of knowledge-practice-belief systems and cannot be separated from their context of generation (Berkes, 1999). Hence, local inputs are central to adaptive management processes.

The second (normative) argument for the importance of participation suggests that top-down approaches violate democratic ideals: in principle, the consent of 'the governed' should be obtained by 'the governing' in a society in which power is shared. Citizens have a wish, moral right and/or duty to participate in initiatives that affect their lives (Rahman, 1993), and indeed, public participation is regarded as the 'proper and fair conduct of democratic governments in public decision-making activities' (Shepherd and Bowler, 1997: 725). Political concerns may also be used to justify the need for participation, such as the wish to empower previously marginalized groups of society.

The final (pragmatic) argument is based on the premise that 'lay' participation in decision-making affords legitimacy and ultimately leads to better results and sustainability (cf. Arheimer et al., 2004). By meaningfully engaging local people and making their inputs

central, increased program efficiency, relevance, equity and inclusion will follow, resulting ultimately in more sustainable management (Larson and Ribot, 2004). This is particularly pertinent when consensually agreed targets need to be reached (e.g. Arheimer et al., 2004). Commensurate with this is the desire of 'the governing' to gain access to relevant information, networks or target groups (Geurts and Mayer, 1996). In some cases, this could not occur without the participation of 'the governed'.

Stakeholder Selection

The above reasons for adopting a participatory approach to resource management, although helpful in clarifying the importance for including a wide range of stakeholders, do little in helping one think through the practical issues of *what* is a stakeholder and *how* does one select and involve stakeholders? Relevant stakeholders are those who have a vested interest or "stake" in the issue being considered. Welp (2000: 9) provides four characteristics to define a stakeholder:

> A stakeholder can be defined broadly as one who: (a) is affected by or affects a particular problem or issue and/or (b) is responsible for problems or issues and/or (c) has perspectives or knowledge needed to develop good solutions or strategies, and/or (d) has the power and resources to block or implement solutions or strategies.

Selecting relevant stakeholders is a challenging process for a number of reasons: i) certain stakeholder groups may be historically marginalised from management decisions, and may therefore be difficult to identify or involve; ii) strong pre-existing conflicts between different groups may preclude a willingness to join a deliberative process. In addition, participatory research tends to make use of small groups for in-depth deliberation and mutual learning. Such small groups preclude the use of random, stratified sampling, thus creating the additional problem of 'representativeness'. Alternative strategies for identifying relevant stakeholders are needed to make efficient use of smaller samples. The issue then, is how to get a small but representative sample?

Stakeholder analysis has emerged as one such strategy, as it can be used at a variety of scales (Matikainen, 1994). It is used by researchers to identify stakeholders, characterise their interests, evaluate their perceptions of the process or project, determine the relative influence of different stakeholders and devise appropriate strategies to obtain (or reduce obstacles to) their support. Stakeholder analysis is a flexible, context-specific tool that focuses on the complex interlinkages between specific problems and actors that characterise natural resource management (Chevalier, 2001).

Conducting a stakeholder analysis involves preparatory work, such as developing an understanding of the cultural and social context before moving on to identify the resource management problem or issue, and the relevant stakeholders for this problem/issue (Reed et al., in press). Once these initial steps are taken, one may proceed in identifying relevant stakeholders, a process that in itself is often protracted and iterative, involving a mixture of largely qualitative methods such as snowball sampling, semi-structured interviews, archival research and the use of secondary sources (Varvasovszky and Brugha, 2000; Chevalier, 2001). This iterative process arises from the need to verify that all stakeholders are indeed relevant, and a researcher might need several rounds of going out into the field and speaking with potentially relevant stakeholders, until one feels confident that all have been identified. Once the relevant stakeholders have been identified, data can be gathered to investigate the stakeholders' interests and views with regards to the issue in question, which in turn will help the researcher identify similarities of interest and areas of conflict (Ramirez, 1999).

In conducting a stakeholder analysis, some authors also suggest studying the social interactions that link stakeholders together, and how such social interactions are structured (Ramirez, 1999). In particular, they suggest looking at how stakeholders form strong or weak bonds with one another, and how certain stakeholders can emerge as more popular or powerful actors (Eames, 2005; Ramirez, 1999). Such a look at the social ties that link stakeholders together can thus further elucidate the social context in which resource management occurs. In doing so, one can make better informed decisions on how to approach particular stakeholders, and how to involve these stakeholders in effective participatory resource management.

Social Networks

Although social networks are beginning to be discussed within the context of resource management (e.g. Dougill, et al., 2006; Lockie, 2006; Ramirez, 1999) there has been no systematic review of the role of social networks in resource management. In addition, the literature does not suggest how to quantitatively measure social networks for the purposes of stakeholder analysis. Quantifying stakeholders' social networks would complement and strengthen stakeholder analysis by helping practitioners better identify marginalised groups and powerful individuals.

Social networks are comprised of *actors* (also referred to as 'nodes') who are *tied* to one another through socially meaningful *relations* (Wellman and Berkowitz 1988). These relations are then analyzed for structural patterns that emerge among these actors (Wellman and Gulia 1999). Thus, an analyst of social networks looks beyond attributes of individuals to also examine the relations among actors, how actors are positioned within a network, and how relations are structured into overall network patterns (Scott 2000; Wellman and Gulia 1999).

Within the social networking literature, much emphasis is given to the ways in which networks influence individuals' actions, attitudes, and thoughts. In particular, research has shown that actors who are close to one another (e.g. geographically, emotionally, professionally, or via common interests and hobbies) tend to influence one another's attitudes and behaviours (Friedkin, 1998; Marsden and Friedkin, 1994). In addition, certain network structures can also influence certain learning behaviours. For example, if the network is relatively insular and cohesive, composed of strong ties among stakeholders, such a network is most likely characterised by a lot of trust and reciprocity, although at the same time, individuals within such a network have decreased chances of being exposed to new information. Thus, the chances for learning something new in such a network structure decreases rapidly. Exceptions to this tendency would be a cohesive network of individuals where willingness to learn innovative ideas were a group norm, or a cohesive network where certain individuals also held links to outsiders, thus enabling individuals within this network to benefit not only from the trust that emerges from its cohesive core, but also from the new information flowing in from the outside sources (Burt, 2001; 2005).

In a similar fashion, a network holding a number of cliques, i.e. cohesive sub-groups that are relatively isolated from one another, could be characterised by a variety of polarised views and information. Such cliques would benefit from the creation of communication ties across clique boundaries to facilitate the exchange of new information and ideas. Actors who form such ties across these cliques or otherwise disconnected segments of the network are considered powerful individuals; these actors sit in between different sources of knowledge and information and thus 'broker' knowledge from one section of the network to another (Burt, 2001; 2005). They are the cohesive 'glue' holding the network together (Granovetter, 1973).

Finally, research has shown that certain kinds of information travel better through certain kinds of ties. Two actors who share a strong tie (such as family members or close friends) are

more likely to offer emotional support, help in times of emergency, and exchange of resources (Wellman and Frank, 2001). Actors sharing a weak tie (such as colleagues or acquaintances) are more likely to exchange new types of information such as job opportunities, helpful advice, or new strategies for achieving their goals (Granovetter, 1973; Burt, 2005).

Taken together, this research thus provides valuable insights into our discussion on stakeholder analysis for natural resource management. If stakeholders are embedded in cohesive, homogenous groups, then the likelihood that they will encounter opportunities to engage with new ideas decreases. Individual stakeholders who are isolated from the larger community may be in a similar situation. In contrast, stakeholders who interact with a wide range of other types of stakeholders are in better positions to assimilate new knowledge into current practice.

Thus, practitioners and researchers interested in identifying stakeholders can uncover these potentially helpful and problematic social configurations to develop interventions that support meaningful interaction. Further, in the context of sustainable resource management, understanding how stakeholders are influenced by their social networks can help researchers and policymakers better understand how views of land management are formed, diffused, and how they can be changed.

Case Study: The Peak District National Park

Established in 1951, the Peak District National Park (subsequently termed Peak District) was the UK's first National Park. It is situated at the southern end of the Pennine Hills (Figure 1), straddling four Government regions (East Midlands, West Midlands, North West, Yorkshire and Humber) that together contain around 48% of England's population, making it one of the world's most visited national parks with over 22 million visitors a year (Peak District National Park, 2004). In addition to the demands that these visitors put on the landscape, the area has a resident human population of 38,000 (Office of National Statistics, 2003). As with many other UK uplands, the Peak District has undergone significant demographic changes. Many new residents have moved to the Park to retire or to purchase holiday homes while younger, unskilled workers have been priced out of local housing markets. This has created labour shortages for traditional land management practices. Both farming and grouse-shooting activities operate at the margins of financial viability, and are reliant on agricultural subsidies. Some 93% of the Park qualifies for funding under the European Commission Directive for special assistance to Less Favoured Areas (75/268).

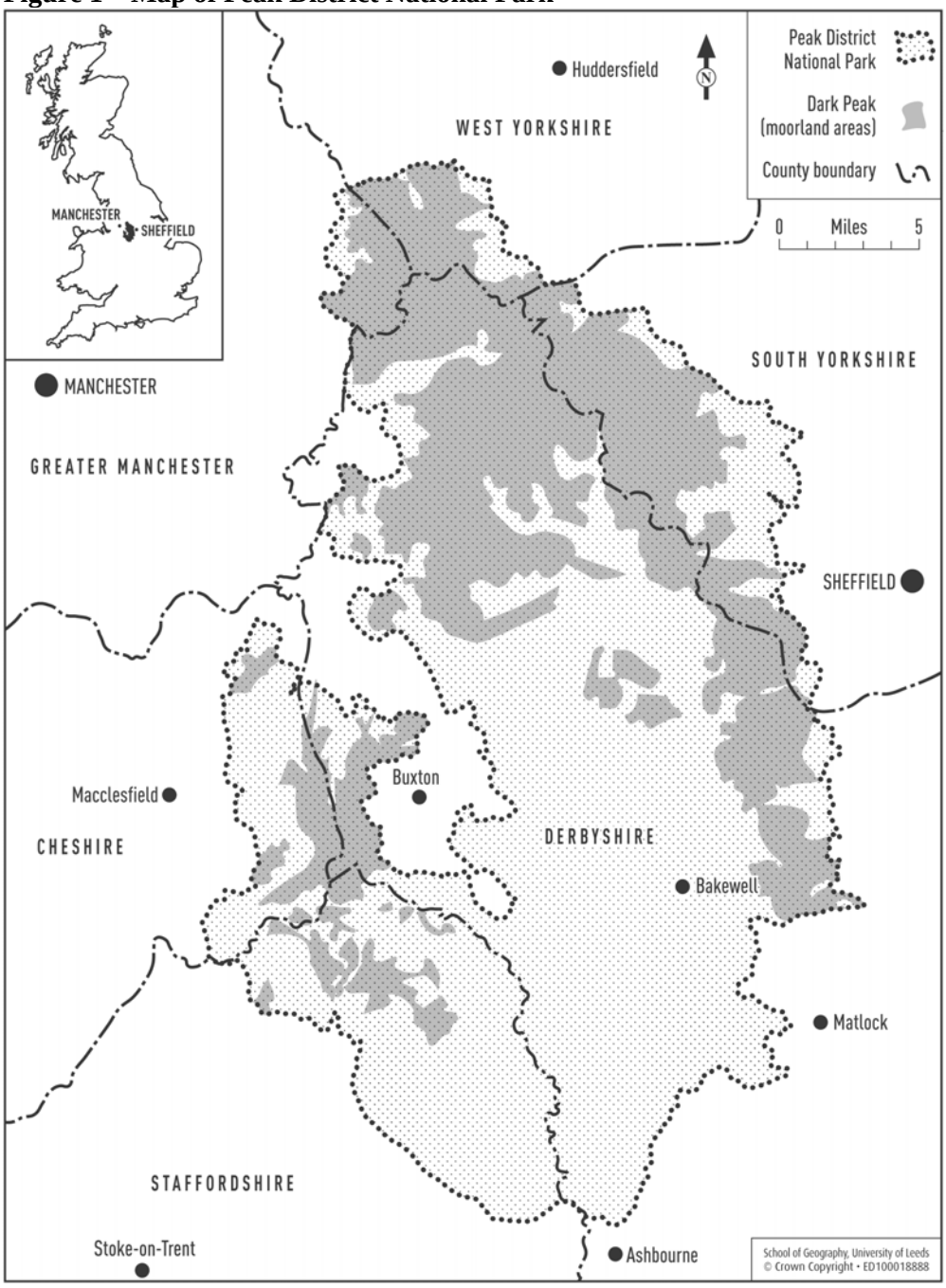
The Park also contains two Environmentally Sensitive Areas that provide payments to land managers to maintain certain landscapes, wildlife or historical features. Of particular ecological interest is the Dark Peak area, characterised by extensive heather moorland and blanket bog habitats, surrounded by enclosed pastures in deep, narrow valleys. Blanket bogs are ecological communities characterised by cotton grasses, sphagnum mosses and dwarf shrubs. They form on flat or gently sloping land that is subjected to heavy and infrequent rainfall over acid peat that is over half a metre deep. Dry heaths represent another major habitat and are dominated by dwarf shrubs (typically heather, crowberry and bilberry). These are generally found on well-drained slopes with acidic and infertile soils. Both these habitats are internationally important, being recognised as key biodiversity habitats (UK Biodiversity Steering Group, 1995), containing a number of "Sites of Special Scientific Interest" (SSSI) (English Nature, 2003), and listed in the EU's Habitats Directive (92/43/EEC) as requiring special conservation measures as "Special Areas of Conservation" (SAC) and "Special Protection Areas" (SPA).

Changes to the farming subsidy system are currently progressing with reform of the EU's Common Agricultural Policy (CAP). The CAP reform has replaced output-based subsidies with Single Farm Payments for "environmentally sensitive agriculture" that rewards farmers

for using more sustainable management practices and promoting wildlife habitat (Lowe *et al.*, 2002). Rural land managers are also trying to adapt to the EU's Water Framework Directive, which requires all inland waters to be in "good status" by 2015. This demands significant changes to land management practices in order to reduce polluting runoff and limit the amount of erosion from upland catchments.

This complex and changing background makes the Peak District typical of a range of rural settings within and outside the UK where traditional upland management is under pressure. This made the Peak District a relevant locale in which to apply and refine a multi-stakeholder participatory process. In addition, considerable logistical support is available in this region from a partnership project "Moors for the Future" (www.moorsforthefuture.org.uk). This organisation combines governmental bodies, non-governmental institutions and the three water companies based in the region and aims to identify suitable approaches for restoring some of the degraded and eroded moorland found in the Peak District.

Figure 1 – Map of Peak District National Park



Despite awareness from policy makers of the environmental and economic importance of this region, serious problems exist. For example, even though approximately 80% of Peak District moorlands are designated as Sites of Special Scientific Interest, many of these areas are classified as being in an "unfavourable condition". This is due to a range of pressures including overgrazing and the use of inappropriate burning methods that fail to maintain the ecologically diverse and economically productive mix of young and mature stands of heather and other dwarf shrubs (English Nature, 2003).

One reason these problems persist is that the broad range of stakeholders place complex and competing demands on the landscape while current management practices fail to integrate the range of social, economic and environmental pressures. Another problem is that our understanding of the natural processes within these landscapes remains limited, with reductionist scientific approaches unable to provide improved understanding on a landscape scale. Consequently, there is a need for management plans that can adapt to social values and changing scientific understanding. This requires all stakeholders (e.g. recreational users, land managers, regulators, decision-makers and researchers) to work together so that different sources of knowledge can be integrated and reconciled. Such co-operation has the potential to minimise the risk of conflicts, not just between traditionally conflicting ecological and economic values but also among environmental management interests (Walters, 1997). However, collaboration between stakeholders, and in particular between researchers and rural stakeholders, is often limited by a lack of effective communication and hence mutual learning (Lee, 1999). As yet, there is no consensus on how to integrate scientific and local knowledge and perceptions (Abelson *et al*., 2003), let alone on how to incorporate such diverse opinions into policy or land management advice (Folke *et al*., 2002).

Identifying stakeholders and issues

As mentioned earlier, identifying stakeholders through stakeholder analysis is an iterative, circular and challenging process. Although some literature suggests first identifying the management issue or problem (Varvasovszky and Brugha, 2000), and then proceeding on to identifying your stakeholders, we found this sequence rather difficult. Our challenge can be summarized by the following questions we asked ourselves: Do we let the *issues* identify the stakeholders? If so, how do we know we are focussing on the most relevant issues? Alternatively, do we let the *stakeholders* identify the issues? If so, how do we know we have got the right stakeholders?

We tackled this problem through an iterative process of stakeholder analysis combined with semi-structured interviews and SNA. We started by conducting a stakeholder analysis focus group with members of the Moors for the Future management team and two key stakeholders they had identified. To avoid bias arising from the initial focus group composition, focus group data were triangulated through semi-structured interviews with eight stakeholders, each representing different land management views, who had not participated in the focus group. The aim of the focus group and subsequent interviews was to: i) identify and evaluate the proposed aims of the project in order to ensure it was focussing on relevant issues; and ii) identify and categorise stakeholders.

During the focus group and subsequent interviews, it was suggested that the project needed to focus more strongly on a single issue in order to achieve its aims within the time available. There was near unanimous agreement that heather burning was the most important land management issue facing those who live and/or work in the Park. It was relevant to the Government's ongoing and highly contentious review of the Heather and Grass Burning Code, and it was a complex issue that integrated socio-economic and biophysical components of rural change.

The focus group and interviews also identified over 200 stakeholder organisations and their stakes in heather burning. In addition, the stakeholders were organized into stakeholder group categories. Information was elicited about the most effective way for researchers to gain these stakeholders support and active involvement in the process. Successive interviews resulted in the addition and sub-division of some of our stakeholder group categories. The final list of groups was then checked with participants from the initial focus group and those who had been interviewed at the beginning of the triangulation process. The eight stakeholder group categories that emerged from this process included the following: Water companies; Recreation industries and organizations; Agricultural community; Conservationists; Grouse moorland stakeholders (subdivided into owners/managers and game keepers); Tourism related enterprises; Forestry agencies; and Statutory bodies. In addition, the 38,000 Peak District residents were involved indirectly through representatives of democratically involved parish councils, neighborhood groups and 'one-issue' interest groups.

This information on relevant issues and stakeholder groups was then used to guide our snowball sample. A total of 24 individuals were identified using a "snowball" sample (Bryman, 2001) starting from contacts identified in the stakeholder analysis focus group and subsequent interviews. A total of 22 interviews were conducted with these individuals (some were conducted with pairs). These interviews were used to deepen our knowledge of the current needs and aspirations of those who work, live and play in the Park, and explore their concerns for the future with regards to burning and land management more generally. From this, we identified current and future drivers of change and developed a range of future scenarios and sustainability indicators for the uplands of the Park. With regards to burning, a number of themes emerged from these interviews. For example, the desire of grouse moor and farming stakeholders to retain as much management flexibility as possible provided a counterpoint to calls from conservation stakeholders for tighter burning regulation. The need for more effective communication, trust and collaboration between different stakeholder groups in order to develop shared understanding and practice also emerged as a recurrent theme. These themes are illustrated in Box 1.

These semi-structured interviews were then followed by a social network analysis (SNA) with as many as possible from the original group (it was possible to re-interview 20 out of the original 24 respondents, plus an additional two respondents were identified to supplement this sample, making a total of 22 interviews for the SNA). The network analysis was conducted for two purposes; a) to help us make decisions on whom to include in the future social learning process, and b) to provide baseline data that could be compared with future data to assess whether attitudes and relations had changed as a result of social learning.

Social network analysis (SNA)

We approached our 22 stakeholders using structured telephone interviews to gather network data on two types of relations: 1) The frequency of communication among stakeholders, and 2) the extent to which stakeholders perceive other stakeholders as holding similar views as their own with regards to upland management. Prior to focusing on these relations, however, we used a 'name generator' question to outline the boundary of our network (Wasserman and Faust, 1995). The exact phrasing of this question is found below:

> Do you communicate with anyone from (stakeholder group named here) on upland management issues in the Peak District National Park? Please list up to five names.

We asked our respondents this question for each of the eight main stakeholder groups (section 5.1). Respondents nominated individuals for each stakeholder group, resulting in a total number of 147 nominations. In one instance, respondents nominated the same individual under different categories (grouse and agriculture). We placed this individual under

agriculture in line with the majority of respondents. The network of these 147 individuals is shown in Figure 2.

Figure 2 shows individual stakeholders represented as nodes. The lines connecting the nodes represent communication ties, and the arrows on the lines represent stakeholders nominating other stakeholders as someone they communicate with on land management issues. The network shown in Figure 2 has a core-periphery structure, where a portion of the individual stakeholders (those appearing in the core) appear well connected with one another, and a larger proportion of individuals existing around the periphery and tending to only be connected with one individual. Network scholars note that these peripheral individuals are important for bringing new ideas into the network's core (Burt, 2001; 2005), yet for our purposes, we were more interested in locating those stakeholders who communicate with one another on a frequent basis. Locating who communicates frequently with whom would help us uncover the more stable network of communication ties (Ramirez, 1999), and this would help us locate cliques, less connected groups, and individual stakeholders who were more connected to the network than others. Towards this end, we focused our attention on data gathered from follow-up questions based on this initial, 'name generator' question.

Frequency of communication

To get a more precise understanding of how frequently these stakeholders communicated with one another, a follow-up question was asked:

> How often do you communicate with this person? (Daily, Weekly, Monthly, 1-2 times a year)

This question was repeated for each name generated by the previous question. From these data, we were able to draw four networks (daily, weekly, monthly, and 1-2 times a year). We then collapsed three of these networks together to show stakeholders who communicate on a monthly or more frequent basis (Figure 3).

In Figure 3, stakeholders that communicate with others on an occasional basis appear on the bottom-left side of the graph as 'isolates' from the overall network. The remaining stakeholders have been grouped according to their stakeholder group. Stakeholders are represented as 'nodes' in the graph, and the relative size of these nodes indicates how often a stakeholder sits between two other stakeholders who are themselves disconnected, with larger nodes representing stakeholders who are more often occupying this 'between' position. In Figure 3, three stakeholders from the grouse group (group D) and one conservationist (group B) are relatively larger in size, which means these stakeholders connect many others across different sections of the network. When we form our focus groups in the future, we will therefore try to involve these more "between" stakeholders, as they will most likely help assist us in bringing different views to the table as well as diffusing views outward into the larger network.

Figure 3 also shows the existence of cliques in the network. These cliques are detected through viewing the high number of communication ties linking different stakeholder groups together. For example, the conservation group (group B) forms a clique with the water utilities group (group E). Conservationists also form a clique with grouse moor owners (group D). Agriculture (group A) and grouse (group D) likewise form a clique. Recreation however, is the least connected group in this network, as it has ties to only two other groups in the network.

These findings were shared with some of the stakeholders at a recent conference (Prell *et al.*, 2005) where feedback reinforced our interpretations of how groups were isolated while some stakeholders were well connected. Some in the audience argued that our graphs might have

looked different had we interviewed different stakeholders. Although we partly concede to this criticism, the overall reaction from those present at this conference suggested to us that our findings largely coincided with stakeholders' own perceptions. For example, one of the recreation stakeholders challenged the finding that her group was relatively isolated from the rest of the network. She suggested that the results would have been very different had we interviewed her colleague, whom she considered to be the most active and communicative recreationalist. However, this colleague was in fact one of our respondents, suggesting that our identification of recreation as a marginalised clique was in fact correct. Identifying these cliques will likewise inform our future social learning activities: we will put stakeholders together who do not frequently communicate with one another in an attempt to bridge across these communication divides, and thus encourage mutual learning.

Similarity of views

A final network question we asked our 22 respondents focused on stakeholders' perceptions on others' land management views. As shown in Box 1, conflicting themes regarding burning emerged from our qualitative interviews with stakeholders. Despite clear differences of opinion regarding burning, we wanted to examine how stakeholders saw one another's positions and views regarding upland management in general. To what extent did conflicts over burning transfer to larger, more general land management concerns? This was an important question for us, as we wanted to engage many of these same stakeholders in dialogue about wider land management issues later in our research (i.e. beyond the one-year Scoping Study). To what extent was there common ground for us to build this dialogue upon, and by identifying key differences of opinion, could we avoid inflaming existing conflict? In addition to this, if social learning fosters an appreciation of the legitimacy of others' views as the literature suggests (Forester, 1999), then this question could provide us with a baseline from which to determine the extent that people's perceptions of each others views change over the course of our project. Thus, the following final social network question was asked:

> To what extent do you feel you and (this person) share similar views about upland management issues in the Peak District National Park? (A lot, Somewhat, Not at all)

This question was repeated for all individuals who were nominated from question one. Three different networks emerged, one network composed of "not at all" overlapping views, one composed of "somewhat" overlapping views, and a final one composed of "a lot" overlapping views. Figure 4, below, shows these three networks:

Figure 4 shows the networks based on 'not at all' similarity of views, 'somewhat' similarity of views, and 'a lot' similarity of views. In all three networks, the isolates (i.e. stakeholders who are not part of the network) appear on the left. With the 'not at all' network, six sub-groups emerge. These sub-groups are composed of individuals from various stakeholder groups, and as the direction of the arrows show, none of these stakeholders' views of one another are reciprocal, i.e. if a stakeholder thinks s/he has highly dissimilar views with another stakeholder, this impression is not reciprocated. With the 'somewhat' similarity of views network, the ties linking across stakeholder groups are more plentiful, and three of these ties are reciprocated, indicating instances where stakeholders mutually feel they share an overlap in their views regarding land management. Finally, the 'A lot' network is the most well connected of the three. In addition, five of the ties are reciprocated, again indicating a (albeit) small group of stakeholders who *mutually* feel they share a lot of similarity in their views regarding land management. The other unreciprocated ties are indicators of stakeholders' individual impressions of the extent to which their views overlap with others.

We find both these reciprocated and unreciprocated ties important for our work: reciprocated ties are a strong indicator that stakeholders have a solid, mutual understanding of one another.

We will be interested to see whether the number of reciprocal ties increases overtime. If such an increase in reciprocal ties were to occur, across any of the three networks displayed above, this would act as an indicator to us that mutual awareness of one another's views is indeed increasing, and whether or not this increase in awareness relates to the sort of social learning interventions we will be conducting is an issue we will be looking out for through use of: i) additional questionnaires and interviews; and ii) further network analyses.

Nonetheless, unreciprocated ties also hold valuable information; such ties indicate how, at this point in time, stakeholders view themselves in relation to others. We are happy to see that, as shown in Figure 3, a high proportion of stakeholders feel their views overlap strongly with others. Given the polarisation of views about burning that we had uncovered in our interviews (see Box 1), we had expected the first two networks, those focusing on "not at all" and "somewhat", to be the more pronounced, i.e. that more of the respondents would have chosen these two answers for characterizing their relations with others. However, the network based on "a lot" of overlapping views proved to be the most well-connected. Thus, while heather burning may be a highly controversial topic, views on upland management in general seem to provide enough common ground for different stakeholder groups to participate in a serious dialogue with one another over many areas of mutual concern. We are therefore hopeful that our future participatory activities with stakeholders will result in meaningful dialogue that may facilitate social learning.

Feedback from stakeholders about these findings suggests general agreement with these results and their implications. During a focus group with stakeholders at the end of our Scoping Study, one participant summed up a view that was expressed by a number of people during follow-up telephone calls and meetings:

> "This is the first time all these people have sat round the same table with each other. Until this project came along, I don't think any of us would have believed we'd be sitting here." [Gamekeeper]

There appears to be a good foundation for future work that can build relationships and trust between different stakeholders, and foster learning about the issues that are relevant to them in greater depth. Further, the stakeholders represented in the "not at all" graph will be taken into consideration for our future research: these stakeholders appear to be in conflict with one another, and as such, future social learning activities need to be carefully designed so as not to exacerbate this conflict.

Our stakeholder analysis and SNA have provided us with a good foundation for future work with these stakeholders. In the next phase of our research, we will use SNA results to select participants to take part in further social learning activities. After our three year project is completed, we will be conducting a second SNA to see if relations have change across the cliques and whether impressions of others' views regarding land management have shifted.

Conclusion

This paper began by considering the importance of participation in natural resource management. We have incorporated participatory techniques into our research in the Peak District for substantive and pragmatic reasons. Local stakeholders possess a wealth of lay knowledge that would otherwise be unavailable to researchers. By integrating local inputs with scientific knowledge the effectiveness of proposed management and policy options for the Peak District should be enhanced. At the same time participation should go some way towards legitimising the process, leading to more sustainable outcomes.

This paper has proposed methods for improving stakeholder representation. We have used SNA to understand the social interactions through our case study research in the Peak District

National Park. We have combined this with stakeholder analysis to select participants for inclusion in the participatory process who are: a) representative of the wider stakeholder community; b) likely to engage constructively in dialogue; and c) who are well known and respected enough to help translate dialogue into action at least within their respective spheres of influence. By targeting the involvement of these individuals it may be possible to enhance the efficiency and effectiveness with which natural resource management goals are achieved.

In our case study, we used stakeholder analysis to identify eight key groups from which we interviewed stakeholders. SNA showed that although some stakeholder groups have little regular contact with each other, the majority of individuals from each group perceive that there is considerable overlap between their views on upland management and the views of those they know from other groups. Thus, while views on heather burning may be highly polarised, views on upland management in general seem to provide enough common ground for multi-stakeholder dialogue.

There are some limitations to our approach. As part of a wider stakeholder analysis, SNA can help describe important aspects of the social context for natural resource management. SNA can characterise social interactions in a network, and quantify changes in relationships between actors. It is also possible to use SNA to locate people's perceptions of each others' views on land management and to see how such perceptions change over time. We do not advocate, however, that SNA offers a *full* understanding of stakeholders' views and perceptions; such an understanding would involve the use of in-depth interviews and/or focus groups. Further, SNA does not measure whether stakeholders are *reflecting* on new ideas, and/or *doing* new activities; these are social phenomena that SNA fails to observe.

Social network analysis and stakeholder selection are only two possible tools for stakeholder engagement. This paper addresses the sorts of questions that these tools can help answer, such as: who are the relevant stakeholders? How do these stakeholders view one another and relate to one another? Additional questions that we wish to answer in future research include the following: to what extent are individuals incrementally acquiring new knowledge, skills and capabilities (Sweringa and Wierdsma, 1992)? Are individuals reflecting on their learning from the participatory process and evaluating their underlying assumptions, and to what extent does this lead to new patterns of behaviour (Kolb, 1984; Sweringa and Wierdsma, 1992)? And finally, to what extent does this challenge or change the values and norms that led to their former assumptions and behaviour (Sweringa and Wierdsma, 1992)? Such questions can be addressed through a mixture of quantitative and qualitative methods, and by combining these with stakeholder analysis and SNA it may be possible to evaluate the learning process in participatory resource management research.

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Box 1: Polarised stakeholder views on heather burning in the Peak District National Park

> "I think perhaps the moors are over-burnt and not respected from the point that they are driven too hard…for the purpose of the grouse… Some of the moors down here…are profitable and they are looking for more and more and more…But it becomes like any mono-culture then: if you're driven so single-mindedly by one thing, that tends to knacker nature. That's the problem."
>
> Conservation stakeholder

> "The heather moorlands…are there because of grouse shooting. Full-stop. Whether we like it or not, grouse shooting is the raison d'etre."
>
> Grouse moor stakeholder

> "I know the moors are burned now for the grouse but a lot of other wildlife is living alongside the grouse and thriving because of it, not just because of the burning but because of the game keeping… and that benefits all the other birds".
>
> Agricultural stakeholder

> "…at the moment there is a conflict between English Nature and the people who manage fires, that we need to sort out. It's a big thing; its probably the most important thing."
>
> Conservation stakeholder

(for more detailed outputs from this phase of the research, see Reed et al. (2005) and Dougill et al. (2006)).

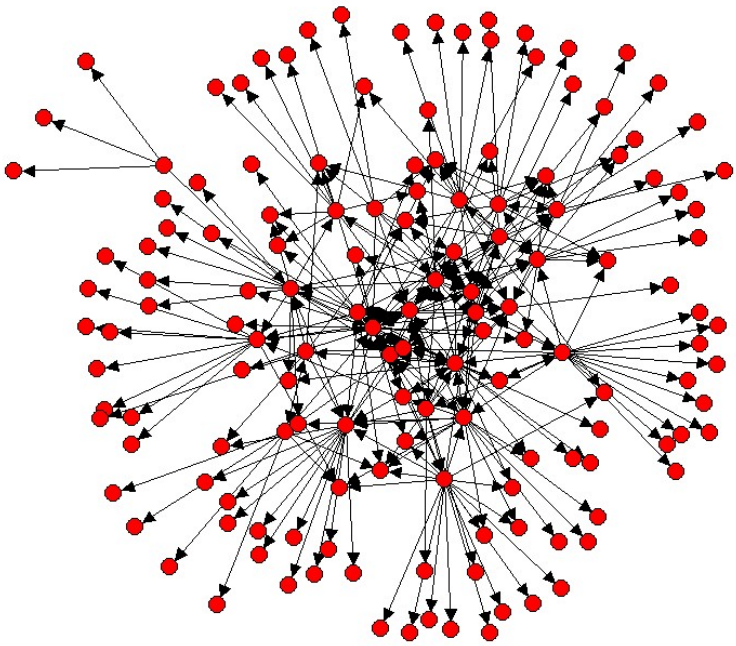


Figure 2: General communication network for stakeholders (Note: Individual stakeholders are represented as nodes. Lines connecting the nodes represent communication ties, and the arrows on the lines represent stakeholders' nominations of others)

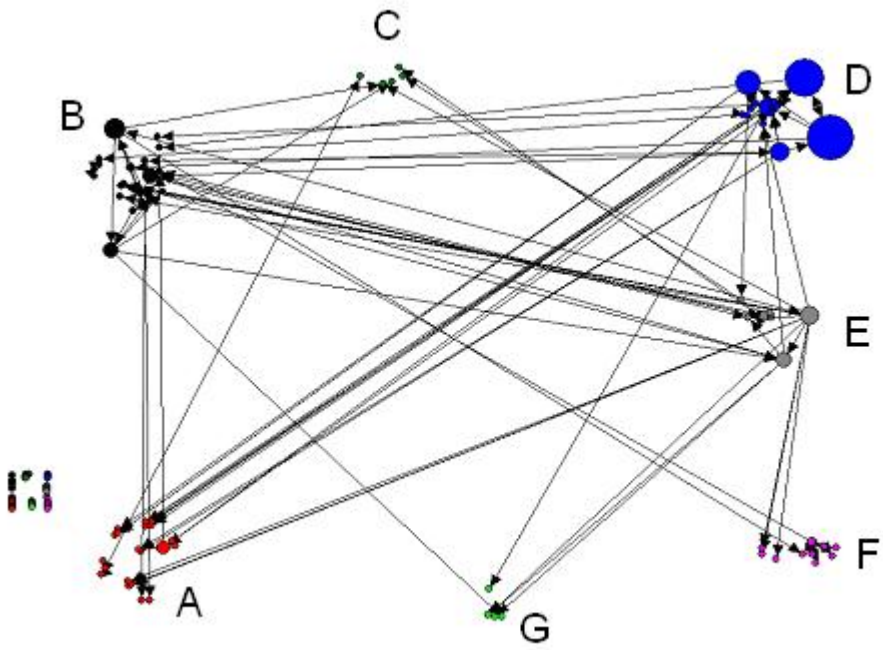


Figure 3: stakeholders who communicate on a monthly or more frequent basis (Note: individual of stakeholders are clustered together according to stakeholder groups, with a = agriculture; b = conservationists; c = statutory bodies; d = grouse; e = water utilities; f = recreation and tourism; g = forestry. The remaining isolates are clustered together at the bottom left of the graph.)

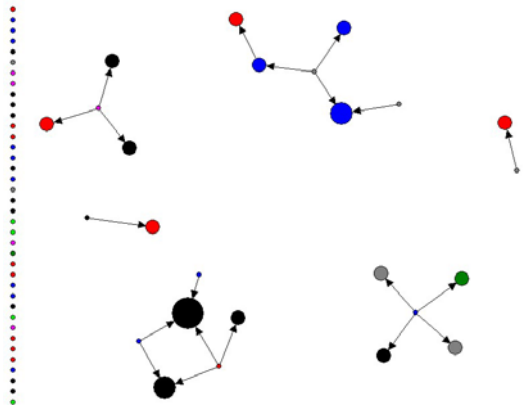
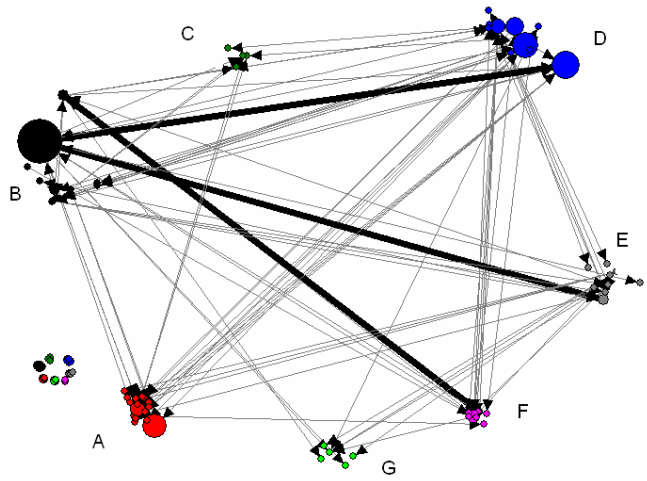
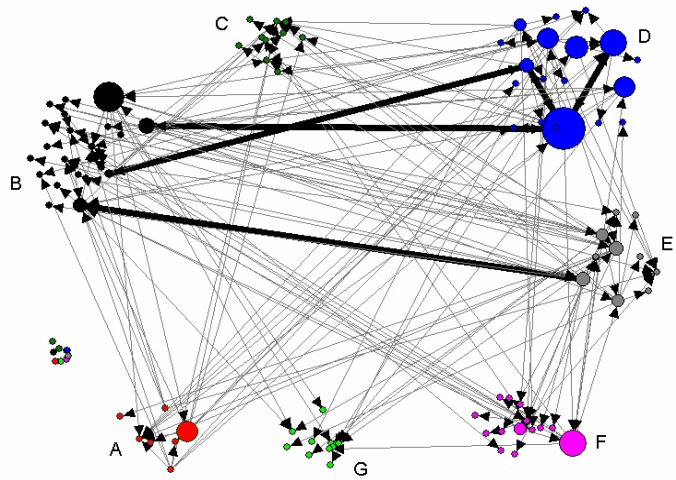
Network composed of stakeholders perceiving ‘Not at all’ similarity in views	
Network composed of stakeholders perceiving ‘Somewhat’ similarity in views	
Network composed of stakeholders perceiving ‘A lot’ similarity in views	

Figure 4: stakeholders who share "not at all", "somewhat", and "a lot" of similar views about land management issues. (Note: individual of stakeholders are clustered together according to stakeholder groups, with a = agriculture; b = conservationists; c = statutory bodies; d = grouse; e = water utilities; f = recreation and tourism; g = forestry. Isolates appear to the left of each network. Reciprocated ties are indicated by thick lines, unreciprocated by thin lines.)