

“Now Who Decided That?": Experts and the public in biodiversity conservation

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Abstract

After the 1992 UN Biodiversity Convention, a raft of strategies emerged from the local, national and supranational levels attempting a harmonized response. This harmonization was sought – amongst other ways – by interpreting biodiversity according to a global scientific discourse. Although often holistic and integrative in their aspirations, in practice these strategies largely followed the same conceptualization of reifying and protecting the natural world as if distinct from the human world. More recent policies have underlined the importance of holistic and participatory principles in biodiversity governance – a welcome evolution – yet still the practitioner realm experiences a gap between intent and practice in achieving harmonized outcomes.

This paper uses ethnographic research conducted by this author and others, and practitioner reflections, to make the argument that the conventional ‘globalized’ scientific discourse of biodiversity can compromise its local relevance, and consequently the degree of public and stakeholder participation. A science studies perspective is used to help address how interpretations of biodiversity at the local level appear to be value-laden rather than scientific, but since this is what gives them currency and significance, marginalizing them can be to the detriment of “successful” conservation. An analysis is then made of some current programmes in conservation and land management that explicitly try to combine lay knowledge and professional expertise: that aspire to public engagement, stakeholder participation *and* “sound science”. Conclusions are drawn about how a scientific discourse can influence the extent of participation, and thoughts are offered about how future policies might successfully encapsulate different interpretations of nature.

Summary Paper

1. Outline and main argument

As a contribution to the debate about increased participation in biodiversity conservation, this paper offers ideas and reflections using a science studies perspective. Making an analysis from this perspective allows the relationship between people, nature and science to be explored, and the role of scientific knowledge within participation (moreover, its role in the *lack* of participation) to be considered. It is argued that participatory approaches in biodiversity conservation need to engage more critically and effectively with the relationship between people, nature and science.

This paper begins by reviewing briefly the holistic aspirations of the 1992 UN Convention on Biological Diversity (hereafter the Biodiversity Convention), and the recent UN Millennium Ecosystem Assessment objectives. These aspirations reveal a

common tension within land management and natural resource policies – a tension that arises from wanting to encompass different understandings of the environment, using input from different ‘knowledges’, whilst maintaining an objectification of nature borne out of science. In recent years there has been a welcome evolution towards using the ecosystems approach to underpin biodiversity programmes, but still the hegemony of science in policy-making can be as much a constraint as a help. Insights from science studies research suggests this may reflect wider social and political concerns about science in general as about biodiversity science in particular, but the policy-making realm overlooks this at its peril. Evidence presented here indicates that the hegemony of science can leave lay people feeling marginalised, compromising the holistic aspirations made in the Biodiversity Convention and elsewhere, and problematising recent institutional moves to greater accountability and transparency. Thus, the main argument made here is that participatory approaches in biodiversity conservation need to engage more effectively with the relationship between people, nature and science. A tentative suggestion is that this might be addressed by envisaging a ‘continuum of involvement’, within which this relationship is a key determinant of the participatory approach chosen.

2. Policy evolution since the Rio Earth Summit

Even before the Biodiversity Convention was signed in 1992, its definitions and aspirations were contentious. Fiona McConnell, a key British diplomat in the six years spent negotiating the Convention, reflected that delegates remained unclear about the Convention’s objectives and principles right up until the end of negotiations (McConnell, 1996). Its reception in the conservation realm was equally uncertain, raising diverse comments such as:

‘It sounds fresh, yet eternal; exciting, yet fundamental. Biodiversity has arrived, with real political clout’. (Minter, 1996; 1), and

‘Biodiversity is an awful American word which causes most people’s eyes to glaze over with boredom or confusion or both’. (Lyster, 1996; 5).

A momentum for policy evolution thus grew, to address the tensions that were emerging between the Convention’s holistic aspirations and the reductionist implementation policies of signatories. These tensions were reinforced by the different understandings of biodiversity between and within signatory states, and because of the international political agenda for harmonization and the social and physical difficulties in achieving this.

The momentum for policy evolution culminated in the UN Millennium Ecosystem Assessment (MA), whose twelve principles and five points of operational guidance emphasized the role of the ecosystems approach in biodiversity conservation. The ecosystems approach gives particular recognition to how the benefits that flow from ecosystem services are distributed: whilst it is essentially a scientific method grounded in ecosystems ecology, the MA asks it to consider all forms of relevant information, including scientific, indigenous and local knowledge, innovations and practices. The key policy evolution was the move towards adaptive and integrative management, based on societal choice, to promote sustainable equitable resource use and conservation. By articulating the relationship between biodiversity and sustainable development, and by reinforcing the principle from the 1992 Convention that biodiversity conservation requires different kinds of knowledge, the MA makes clear the interdependency between humans and the environment, between social and physical. Fourteen years after the Biodiversity Convention was written, biodiversity conservation might thus be conceptualised as a tripartite framework of ecosystems, sustainable development and human well-being.

What might thus be called the 'human ecology turn' in biodiversity conservation clearly requires greater participation by a wider range of people. Some reflections on this from a science studies perspective are now offered.

3. Some reflections on scientific knowledge in social policies, and the ramifications for participation

If biodiversity conservation is conceptualised as a tripartite framework, with policies needing to link ecosystems, sustainable development and human well-being, then a new relationship between science and social policies must form, with public participation as a key element. Science studies offers some useful reflections on the contradictions that may arise if there remains – as has previously been the case – an overt reliance on scientific knowledge to guide what are essentially social policies.

To an extent this overt reliance is changing, in the UK at least. Alongside greater institutional recognition of the value of lay knowledge and wider public participation, the past ten years have seen more public discourse about the environment and an emerging political remit for policies to be based on accountable, transparent, 'sound science'. The 'crisis in confidence' in science and mistrust about its political appropriation, widely felt in the UK in the 1990s (see House of Lords Science and Technology Select Committee, 2000, and British Association, 2002) may now be receding. Participation and dialogue initiatives are publicly funded, science outreach programmes are widespread and imaginative, and government policies are regularly offered for public consultation.

Yet there is still cause for circumspection because more complex issues are unresolved. Questions need to be asked about the availability of information, and the assumptions made about that information – what scientific or technical knowledge is available in the public realm, and what sources or research programmes it comes from. Questions also remain about how participatory approaches can represent different understandings of the environment, whether one form of knowledge is (or should be) privileged over others, and how a balance between local context and 'trans-local' harmonization can be struck. The globalized, scientific discourse of biodiversity remains potent – its promotion as a universal cause with science as its world-wide *modus operandi* is a large part of what makes the Biodiversity Convention substantial. Moreover, in the technocratic culture of the UK at least, science is positioned to represent the interests of both nature and people. But this can compromise its local relevance, and consequently the extent and success of public and stakeholder participation. Whilst biodiversity at the 'global' level is still promoted as a largely scientific issue, at the local level it might be more usefully understood as a value-laden issue.

Indeed, this is a large part of what gives biodiversity currency and significance at the local level, so marginalizing such 'value' understandings could be to the detriment of "successful" conservation. Hence the role of science – and the contradictions within it – subtly but crucially influences participatory approaches to biodiversity conservation, and the aspirations of the Convention, the MA, and other implementation policies still have to fully come to terms with this. As the empirical evidence presented below indicates, academic research and accounts from the policy world reveal disparities between expert (scientific) and lay (non-scientific) understandings of the environment, and differences over what biodiversity protection 'is' and what it 'could be'. There are many different views on what constitutes biodiversity protection, and they are not mutually exclusive:

conservation, preservation, land management, natural resource planning, sustainable development, etc. These different views may reflect different opinions on the efficacy of recent conservation strategies: in the UK the established tradition of conservation policies as reactive and managerial, underpinned by an inherent reliance on science, remains influential still.

For as long as this remains the case, biodiversity policies face an innate problem. A body of academic research suggests that biodiversity science is often driven by practical problems, but these may arise from issues of epistemology – the politics of knowledge - not issues of expertise or application *per se*. At the global level, some argue that whilst science can be seen as a universal discourse, it can also be appropriated to serve political interests (Yearley, 1996, and Guay, 2002). Likewise, at the regional level, whilst the EU tries to harmonize its environmental data systems and policies, huge geophysical and socio-cultural differences mean classifications get modified and re-interpreted between levels (Waterton, 2002). Nationally (specifically the UK), science-based conservation policies have been favoured for over 40 years, but this could be because their ethos of measuring and classifying sits well with economic and political targets (Eden, 1996, and Garritt, 2001). At a smaller scale still, conservation at the local level in Britain still relies on the system known as Sites of Special Scientific Interest (SSSI), but its scientific criteria have long been shown to sometimes reflect non-scientific decisions (Pye-Smith & Rose, 1984, and Samuel, 1998) leaving both the current conservation system, and efforts to improve it, open to criticism (recent work includes Evans, 2004, and Watts & Selman, 2004). Together, these political and epistemological constraints to biodiversity protection are revealed through more subtle problems; Soberon (2002) suggests, for example, a lack of ownership rights, lack of markets for biodiversity goods or services, lack of co-ordination by government institutions, and perverse incentives.

Moreover, comments from the policy realm suggest that tensions over the politics of knowledge still remain. The institutions charged with implementing biodiversity policies are often government agencies, within which appeals for change may be rare. Contradictions and ambiguities thus remain at all levels of policy-making: although the rhetoric of inclusion and 'bottom-up' perspectives and priorities increases, still 'top-down', science-based policies and designations are positioned as representing the interests of nature and people.

Some of the ways in which these issues affect public participation in a local conservation arena are illustrated by the case study below, first carried out in the mid-1990s, and recently re-visited. Its findings are still highly relevant in the debate about public participation, and the subsequent section augments them with a brief review of more recent research by other authors. Together they make the case for participatory approaches in biodiversity conservation to engage more critically and effectively with the relationship between people, nature and science.

4. Case study of Morecambe Bay

Morecambe Bay in North-west England is a place of great natural importance and a busy working environment – two factors that make it a good place to gauge what influences public participation in biodiversity protection. Its 360 km² of sands and mudflats create a highly scenic landscape, reveal spectacular sunsets and support huge flocks of migrating birds. The Bay also hosts a nuclear power station, a nuclear submarine and shipyard, a gas field, a large chemicals plant, as well as fishing, farming and tourism industries.

It is noted in the UK Biodiversity Action Plan as a place deserving protection for its high biodiversity. A local sustainability strategy called the Morecambe Bay Strategy - published in 1996 and still 'live' today - was promoted by the EU as a benchmark for how to implement the Habitats Directive in a coastal environment, and by association was seen as a way to implement the UN Biodiversity Convention and Agenda 21 (Commission of the European Community DG XI, 1997, and Morecambe Bay Partnership, 1998).

The case study is based on over four years of fieldwork involving various ethnographic methods. Primarily this involved conducting semi-structured interviews with 37 purposively selected individuals who believed they had a claim in local conservation issues, alongside many other informal conversations. It also included going on guided walks, visiting exhibitions, attending conferences and meetings, using information from local newspapers and other locally-published sources. Outlined below are some key findings and verbatim quotes which between them highlight tensions when there is an overt reliance on science to underpin land and resource management programmes. Interviewees are identified by a moniker relating to their participation in the Morecambe Bay conservation arena.

4.1 Conservation can be understood in starkly different ways

The way that experts – those working for government agencies, conservation groups and local authorities, for example – understood conservation might be summarised thus:

- Land management was seen in terms of a small-scale, scientific interpretation of nature, and according to detailed biological descriptions of individual habitats and species, and non-human interactions - in other words, according to the tenets of population ecology
- Some thought the public needed educating about conservation
- Expertise was recognized by scientific credentials – this was based on the premise that because the public were not generally conversant with ecological concepts then they would be unable to separate objective from emotive reasons for land management decisions.

For example, whilst one expert said:

“I can perceive that many people aren't aware at all of biodiversity - they don't recognize the complexity of the situation. I think people are aware of wildlife because of the media and such.” (Government Agency Officer #1),

a married couple living in Morecambe said:

“We understand biodiversity as the variety of life and ecological interdependencies.” (Residents #3)

Underlining this contrast, the lay people spoken to for this research – those people not professionally connected with making decisions about land and resource management – understood conservation very differently from the experts:

- They were very articulate about conservation and land use, taking an active, long-term perspective
- They generally took a wider 'ecosystemic' view of the Bay, considering species, habitats, physical and aesthetic characteristics and how they affect people. They understood well the implications of notions like sustainability but discussed it in their own terms
- They were sceptical about the value of scientific expertise and whether it could address *their* concerns about the environment, like pollution, radiation, seabed dredging, coastal defences and land use. Moreover, it was often said that conservation schemes failed to represent what *they* thought

was important in the local environment because of political rather than scientific decisions.

Excerpts from semi-structured interviews illustrate this further, for example:

"The Bay has changed recently – lots of channels have appeared. The daily Seacat [hydrofoil boat working out of the small port of Heysham] brings a tidal wave before it, and perhaps this has caused the channels. The channels came at the same time as the Seacat." (Resident #2)

"There have been gangs of Liverpool mussel men in the Bay, completely scraping the floor and wiping all the beds out. If you ask a Morecambe musseller, he'll say that he isn't doing it, and he'd rather that the stocks lasted." (Amateur naturalist #2).

4.2 An environment can be evaluated very differently

Over the years of this research, many different evaluations of Morecambe Bay emerged. Of interest to the debate over public participation is whether one evaluation gets priority over others, and how this might shape the opportunities for meaningful wider engagement. The point here is not to suggest that any one evaluation is correct and the others are somehow wrong, but to identify a source of tension and misunderstanding.

One evaluation of the Bay – an 'expert' evaluation - is that written into the notification schedule for the Morecambe Bay Special Area of Conservation (SAC), the designation arising from the EU Habitats Directive. This identifies Morecambe Bay as important for reasons such as:

'The intertidal flats support a range of community types from those more typical of open coasts (mobile, well-sorted fine sands), grading through sheltered sandy sediments, into estuarine sands and finally low-salinity muds within the estuaries themselves. The infaunal communities have particularly high numbers of various polychaete worms, bivalve molluscs (particularly the baltic tellin *Macoma balthica*) and amphipod crustaceans. Given the size of the sediment flats the extent of these communities is very large and they provide essential support to internationally important populations of waders and wildfowl.' (English Nature, 1994).

It makes an interesting comparison to the collected responses given at a meeting of the Morecambe Bay Conservation Group, an informal group of stakeholders and members of the public that met a number of times each year to discuss the Bay's management. A meeting in 1997 was deliberately participative, asking the public audience to write on 'sticky notes' their responses to the question "What do you value about Morecambe Bay?". The replies can be summarised as:

Landscape - changing views, sunsets, space, rural tranquillity
Variety - of landscape, seasons, rocks and vegetation, wildlife
Activities - walking, sailing, geography, history, fresh air
People - sense of identity, of usage, of friendliness.

In other words, there are clearly different understandings of the same environment – a diversity that meaningful participatory approaches need to help articulate. Moreover, it became clear that participatory approaches must also be explicit about what the outcomes of participation are: results such as those given below show that involvement was influenced by ambiguity about how to address the relationship between science, politics and people.

4.3 The relationship between science, politics and people must be addressed

Throughout this research, both experts and lay people were very candid about the politicisation of science in conservation, land use and resource management. This perhaps reflects the relationship of familiarity and openness that grew over the years that I was involved in the Morecambe bay conservation arena, and – importantly – it also reflects the high level of personal engagement that those working in the Bay were prepared to give.

The relationship between science, politics and people within the Morecambe Bay conservation arena might be summarised thus:

- Lay people were sceptical about the source of scientific expertise and about the content of scientific messages
- Technical information was perceived by lay people (and some experts) as being of little significance because it wasn't related to contextual understandings of the environment
- Most experts felt frustrated – they knew 'the system' wouldn't let them deal with wider issues like pollution or infrastructure
- Lay people felt disenfranchised – they were discouraged by the continual reference to science in the conservation arena
- Valuable stakeholders 'on the ground' (e.g. farmers) were dismissive of policy efforts
- Whilst many actors aspired to inclusion, the eventual (mostly non-intentional) marginalization of non-scientists meant that cohesion was achieved by being exclusive. The inclusive local strategy process began to look elitist.

Many comments were made to this effect in semi-structured interviews, such as:

"A few years ago, the youth employment programme went to clear up a nearby woodland, and completely cleaned it up – there were no logs or leaves or anything left. Now who decided that?" (Resident #1)

"It's as if we're not expected to be concerned about these things. There's a lot of apathy because people have tried for so long to get things changed... it's like banging your head against a wall." (Farmer #2)

"The locals are irate because they're disenfranchised by official bodies. They can only voice concerns through [local campaigner] or the local press." (Archaeologist #1).

Despite this, public or 'experiential' events about the Bay remained popular, illustrated by a high turnout at, for example, the meetings of the Morecambe Bay Conservation Group or local naturalist groups, at open days and exhibitions, and on the cross-Bay guided walks. These all helped to foster (or reaffirm) a sense of place and interest in how the Bay was managed, but it was unclear whether they showed how people could make a 'meaningful' contribution. In other words, these public or experiential events didn't necessarily allow lay people to contribute to a dialogue about managing the Bay. Informal networks and relationships seemed to be strengthened, in turn reinforcing a sense of identity, but the outcomes for lay participants may only have been a sense of purpose and altruism - decisions and initiatives did not directly arise from their contributions. In sum, there needed to be clarity within the decision-making and implementation process about the scope and significance afforded to non-scientific contributions, and about the outcomes for lay participants.

5. Similar findings

Since this fieldwork in Morecambe Bay was carried out, similar findings have been published; together they offer useful insights about how participation in biodiversity conservation might be taken forward. These other findings will be reviewed in more detail in subsequent publications: below is only a very brief outline of their bearing for this paper.

Firstly, there is research that underlines the value of identifying and engaging with non-scientific understandings of the environment when measuring its importance to people's lives and well-being. Scott (2001) used the LANDMAP technique in Welsh rural landscapes, and O'Brien (2005) looked at the social and cultural values of woodlands and trees in urban and rural areas in parts of England. Like the case study of Morecambe Bay offered above, these both demonstrated that it is vital to consider personal and community identity in relation to a local environment, and this is revealed through clear public attachment and positive contributions.

Secondly, a growing body of research shows that land and resource management is more effective and coherent when it is appropriate and responsive to local conditions and needs, helping local stakeholders feel genuinely empowered. Work by Roe (2000), Johnston & Soulsby (2001), and O'Rourke (2005) shows that local people make a valuable contribution to management frameworks but their knowledge needs to be incorporated through realistic means and contexts. As seen in Morecambe Bay, there may be potential for communication and collaboration, but disparate perceptions could stop this happening.

Finally, even amongst people who do participate, there can be scepticism and alienation about the outcome of their efforts. The findings at Morecambe Bay are echoed in, for example, Macnaghton *et al* (1995), Davies (2001), Harrison & Haklay (2002) and Kitchen *et al* (2002). The reasons for disenchantment, disengagement, apathy, 'learned helplessness' and deviant behaviour – towards institutions and towards the environment - tell an equally important story. The outcomes of participation – be they anticipated or unexpected, or even 'non-outcomes' - need to be properly incorporated into decision making and implementation processes.

6. Addressing the role of expertise in biodiversity: a continuum of involvement?

To briefly recap the claims made in this paper:

- Science is still the hegemonic form of expertise in biodiversity conservation – there is still a quest for objectivity, reinforced by the political quest for harmonization within and between countries
- Contemporary policies have echoes of traditional disciplinary divisions - some techniques and processes are deeply ingrained and may continue unchallenged
- Yet there is evidence that science can be appropriated to fulfil other agendas, for example political or commercial interests, or can lead to non-experts or lay participants feeling marginalized from the policy-making process.

In other words, the hegemony of science may compromise meaningful participation for non-scientific lay people. This leads to the question: Given the high status of science in biodiversity programmes, how can lay people participate meaningfully?

Theoretically, there needs to be discussion and clarity about

- what lay participation is meant to achieve

- the availability of information, and the assumptions made about that information
- how to recognize and assess meaningful participation
- how different types of expertise can be encapsulated and can complement each other
- the extent to which science is looked on to provide technical insight and solutions, and how lay expertise can complement that

In other words, there is a genuine, democratic role for lay participation to work alongside the scientific contribution. Participatory approaches may thus be useful vehicles for generating lay-expert dialogue which identifies new 'policy space' – to resolve environmental disputes, address risk management, explore human-nature resilience, and improve the credibility of the policy-making process.

Practically, imaginative co-methods are needed that can complement science in the 'new' wider remit of biodiversity. Biodiversity isn't a closed issue – even more inherent uncertainties remain if it is now conceptualized as a tripartite framework of ecosystems, sustainable development and human well-being. Such co-methods should strive to:

- Engage people by allowing a sense of ownership and outcome, e.g. management groups, concessions / permits, linking conservation to small-scale commercial resource use
- Use as a cue the ways in which people themselves choose to explore, learn and appreciate, e.g. desire lines, allotments and community gardens, public events run by lay experts
- Allow people to use different voices, e.g. *ad hoc* community groupings, oral histories, art/ photographic accounts, and be prepared to see silence or dissent as instructive.

If participatory approaches can do this, then the knowledge base that they reveal can help ensure policies are locally appropriate, pragmatic, and sustainable. Whilst a local participation event may articulate specific 'local' knowledge, this can help identify, explore and address more general political and epistemological constraints to biodiversity conservation. The 'local-ness' of lay knowledge need not render it irrelevant on a larger scale, and there is a close connection between "universal" and "place-based" knowledge (Bäckstrand, 2003).

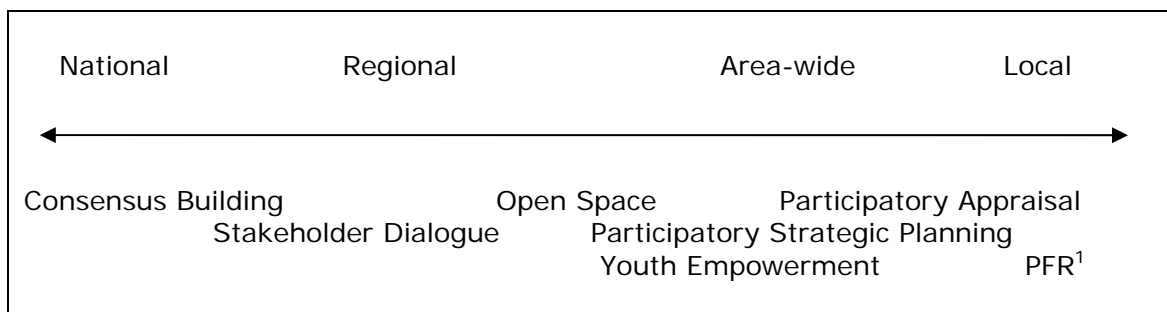
In other words, the opinions, questions and demands of lay participants may better reveal the social processes that are the root cause of biodiversity loss. It is reminiscent of Beck's call for more alternatives and a greater social rationality in decision making (Beck, 1992), and of the notion of 'extended peer review' (Functowicz and Ravetz, 1991), whereby quality control is afforded by multiple stakeholders. The insights from science studies also shows the need to address the socio-political milieu that supports a science-mediated reductionism that overlooks, rather than deals with, social and moral complexities (Rayner, 2003). This is unlikely to be encapsulated by one method alone – instead, to encourage dialogue, consensus building and the inclusion of different types of knowledge there may need to be different levels of participation, operating simultaneously. Tentatively, this might be conceptualised as a continuum of involvement, a programme of different participatory approaches that lie outwith the usual hierarchies.

In the first instance, two 'usual hierarchies' might be considered: governmental-administrative, and epistemological. The former will dictate some elements of the participatory approach, by determining the availability of funding, timetable for public consultation, etc. Thus it sets a *context* for the continuum, but doesn't

necessarily demand that participatory approaches are shaped to lie within it. Making some link between a set of approaches and a governmental-administrative body could help underline where the outputs of participatory approaches are to go: who will be charged with dealing with them and translating them into policy outcomes. The diagram below indicates four governmental-administrative levels, but this is merely illustrative.

To consider the second hierarchy – that of knowledge and how it is represented and institutionalised - demands more thought, and this will be done in manuscripts subsequent to this conference paper. For now, it is proposed as a schema by which to address a number of issues highlighted here: the political remit for harmonization, the practicalities of incorporating both scientific and non-scientific input, the need to address feelings of scepticism, alienation and apathy arising from a 'science-society' divide. Crucially, the continuum needs to incorporate approaches that attract people at the very local level or in the immediate realm, *and* retain those participants who want to contribute further.

Over thirty participatory approaches appear to be in common use, and they are usefully detailed in Involve (2005), which in recent months has been held up as a blueprint for public participation in the UK. It offers a useful way to see which approaches might engage more effectively with the relationship between people, nature and science. Of those described by Involve, the diagram below indicates seven participatory approaches which might do this in particular, and tentatively envisages them sitting on a continuum of involvement thus:



These ideas will be explored further in subsequent manuscripts, but are offered here as an indication of what a science studies approach can offer discussions on participation in biodiversity conservation. If biodiversity is conceptualized as a tripartite framework, then wider and meaningful involvement becomes crucial, and incorporating a science studies perspective can help make participatory approaches more effective.

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¹ PFR stands for Planning For Real.

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