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From rationalism to reflexivity? Reflections on change in the UK Biodiversity Action Plan

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From rationalism to reflexivity? Reflections on change in the UK Biodiversity Action Plan

Anna Lawrence[1] and Star Molteno[2]

Introduction

Human survival relies on continued ecosystem functioning, access to genetic diversity for various utilitarian benefits (crop breeding, medicines) and psychological well-being associated with a connection to nature. Some of these benefits are non-excludable, while others (such as genetic diversity) are subject to attempts to privatise them. The Convention on Biological Diversity (CBD) (1992) simultaneously both globalised and nationalised the problem of biodiversity conservation, by emphasising the universal human interest but responding to that (somewhat controversially) through a focus on sovereign rights to benefits.

Because the definition of biodiversity includes genes, species and ecosystem processes, it refers to a complex mixture of goods and services which are, under various circumstances, either excludable or not, and subject to rivalrous or non-rivalrous consumption. Therefore the national biodiversity strategies and action plans that were mandated by the CBD have an ambiguous role in both protecting a national (at times private) good, and demonstrating commitment to protecting (and sharing information about) a global public good. This creates the interesting situation whereby a large and diverse range of stakeholders is involved in balancing decisions about a complex concept and resource. This chapter explores the experiences of the UK approach to this since 1992, and the ways in which the concept of reflexivity helps to analyse those experiences.

Complexity, learning and reflexivity

Environmental systems have long been managed in a reductionist way based on command and control styles of intervention (Scott 1998). Increasingly however the 'environment' or (here) biodiversity is conceptualised as 'complex' (Kouplevatskaya-Yunusova and Buttoud 2006, Lansing 2003, Olsson and Folke 2001). Complex systems are characterised by many interlinked components which relate to each other in a non-linear fashion. In other words, an effect on one part may have an

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unpredictable effect on another part because of feedback loops and emergent properties.

Management of such systems demand learning on at least two levels. We can relate these levels to the concepts of 'single-loop learning' and 'double-loop learning' developed in the field of organisational learning (Argyris and Schön 1978, Bateson 1972). Single-loop learning leads actors to modify their behaviour to adjust to goals within the status quo, while double-loop learning challenges mental models and the policies based on those, and involves learning from others as well as from one's own experience.

Applying these ideas to environmental governance, Voss and Kemp (2006) argue that sustainability requires a focus on processes rather than outcomes. A key process in this is reflexivity – a form of learning. They distinguish between first-order reflexivity and second-order reflexivity. In the former, rationalist approaches to problem solving reduce the problem to a simplified form, and end up facing new problems which were unforeseen. They see the growth of modern society as characterised by a never-ending cycle of attempts to develop solutions which in turn produce more problems. In second-order reflexivity however, cognition of the complexity of the system can lead to innovation in methods for tackling these issues which are typically more "open, experimental and learning oriented" (Voss and Kemp 2006, p. 6).

They suggest that second order reflexivity is achieved through:

- Systems analysis to cope with complexity;
- A readiness to adjust goals collaboratively as both context and understanding of the context evolve;
- Interactive strategy implementation, recognising that power is held by a range of actors, who need to work together deliberatively, to learn and implement change.

In this chapter we examine the evolving approach to biodiversity conservation in the UK, to explore the extent to which these paths to reflexivity are evident and effective. We take an empirical approach to explore the current highly dynamic situation, through analysis of documents and interviews with key actors from government and non-government organisations.

Governance strategies in the UKBAP

The UK's response to the CBD is the UK Biodiversity Action Plan (UKBAP), developed between 1994-1996 and marked by its reliance on 'target-based conservation'. The original UKBAP proposed 59 steps reflecting a more holistic view of the task of conserving UK biodiversity. Over time, this wider view narrowed to focus mostly on separate species and habitats. Scientific committees prepared the national plan in 1994, and by 1999 this included 391 Species Action Plans (SAPs) and 45 Habitat Action Plans (HAPs) (DEFRA 2006). In addition, by 1996 a framework was established for developing local biodiversity action plans (LBAPs), with 162 prepared by 2004. The UK Biodiversity Partnership (coordinated by the Joint Nature Conservation Committee (JNCC), and chaired by the Department for Environment,

Food and Rural Affairs (DEFRA)) draws together a wide range of individuals including experts, government and non-government organisation (NGO) representatives. Reporting to the Partnership is the responsibility of the UK Biodiversity Partnership Standing Committee which includes representatives of the four country Biodiversity Groups (i.e. England, Scotland, Northern Ireland and Wales), government agencies and conservation NGO (JNCC 2004). So the UK approach to biodiversity policy and implementation covers a particularly diverse range of stakeholders and scales.

The UKBAP is a document, partnership and process that relies to a large extent on three principal activities: prioritisation (of species and habitats), planning (of targets and activities), and monitoring (of inputs and achievement of targets). The approach is a prime example of a modernist (reductionist and rationalist) approach to environmental management (Adams 1997).

Reporting and revision are built into the UKBAP. The standard reporting cycle is three years, and relates to the agreed framework of species, habitats and targets. Separately, since 2005 the framework for the UKBAP has been completely revised, with two major review exercises conducted simultaneously: the Priorities Review (to reassess the species and habitats), and the Targets Review (to reassess both the targets, and approach to setting targets). Both were overseen by the Biodiversity Reporting and Information Group (BRIG) chaired by JNCC and with members from both the devolved countries and NGOs. The Priorities Review was begun 10 years after the initial UKBAP list of species and habitats was drawn up. It was seen as "an opportunity to take into account emerging priorities, conservation successes, and the large amount of new information that has been gathered over the past decade" (Biodiversity Reporting and Information Group 2007 p. 4). The Targets Review set out to reassess the published targets for existing plans, with the aims of updating targets in light of new information, re-setting time limited targets that have expired, further standardising targets and determining the different country contributions to each UK target (Biodiversity Reporting and Information Group 2007b).

The formal aspects of this evolution in the UKBAP are well documented (UK Biodiversity Action Plan 2007b). Our interest here, however, lies in the influences and processes that brought about those changes, and in particular the extent to which the process was reflexive. We address this through stakeholders' perceptions of the key stages and influences on change, from the early days of the first UKBAP, through the accumulation of data and experience, to the committees and process of recent restructuring. Our approach is based on interviews with individuals from the Biodiversity Standing Committee, from government agencies and departments as well as from non-governmental organisations (NGOs); analysis of government documents, NGO publications and correspondence between government and NGOs; and experience of participation in a training course for new biodiversity officers which included components designed to bring them up to date with new structures and debates within the UKBAP.

The key characteristics of the BAP approach are set out in a recent UK Biodiversity Partnership Standing Committee document 'Conserving Biodiversity - The UK Approach':

> The UKBAP *drew together existing instruments and programmes* for nature conservation throughout the UK, set out a series of activities for a 20 year period, and *recognised the need for specific biological targets and plans* for the recovery of *species and habitats* to help drive forward their conservation. This approach has achieved many conservation successes, and continues to provide a focus for action by *government and civil society*. (UK Biodiversity Partnership Standing Committee 2007, p. 4, emphasis added)

This process in the UK has been marked from the start, by a symbiotic relationship between government and NGOs. In the same year that the UK Government established the UK Biodiversity Steering Group, an alliance of conservation NGOs produced a report entitled 'Biodiversity Challenge' (FOE 1996; Wynne et al. 1995), which spearheaded the move towards the UKBAP's distinctive focus on 'target-based conservation' (Lindenmayer et al. 2000), and provided much of the impetus for the first round of species and habitat plans.

Stakeholders now, when invited to reflect on that first effort, are largely positive:

> The UKBAP itself is an excellent document. … it is very comprehensive. [government agency, interview 3] (an actor who was not involved in writing the first version)

> People are critics of the BAP system but without it we wouldn't have a rigorous way of assessing what action we are taking and what biological outputs we are delivering. [species based NGO, interview 4]

But they also emphasise the unavoidably *ad hoc* nature of it:

> In 1994 …people were going, you know, oh, back of an envelope, I think we could do that, … let's set down some challenging but fairly realistic targets based on gut feeling. [habitat based NGO, interview 5]

> There was a view that if you put 12 good people in a room … a bird person and an insect person and a reptile person and a plant person together, that somehow they would be able to […] come up with a sort of rule of thumb sort of list of priorities, and that's been what we've been working with for the last 10 years [government department; interview 1]

The most recent reporting round highlighted the achievements of the BAP showing that 22% of habitats and 11% of priority species are increasing, and decline is slowing for 25% of all habitats and 10% of all species. DEFRA notes not only an improvement in conservation, but also in the reporting process itself. However 'there remain significant gaps in monitoring information for UK priority species and … habitats' (DEFRA 2006).

As the partners gained experience of the approach, stakeholders began to re-assess the choice of species and habitats (the 'priorities'), the way in which the plans were structured (the 'targets' and the 'actions'), and the inclusiveness of the approach.

Although members of the BAP partnership noted in January 2007 that progress was particularly good in terms of bringing partners together, raising awareness, adopting a target based approach that was easy for stakeholders (including funders) to understand and support, and taking conservation of habitats and species beyond protected sites (England Biodiversity Group 2007), experience was showing some difficulties as well:

> The initial action plans that were written for priority species and habitats weren't very good. They weren't SMART[3]. They were bad examples at both target and action level. [government agency, interview 3]
>
> What we found in lots of cases was that the actions actually written down in the SAPs weren't actually the appropriate actions to take [species NGO, interview 4]
>
> An overview was taken that was rather species focused from the outset in 1994, and there was rather little involvement of habitat experts [government department, interview 1]

Described as 'a robust document that has stood the test of time and has driven many conservation successes' (UK Biodiversity Partnership Standing Committee 2007, p. v), the UKBAP has nevertheless changed since its inception, both in terms of structure and process. In the next sections, we describe those changes through the eyes of respondents, and explore the extent to which change is based on first-order reflexivity (adjustment within the parameters of the BAP), second-order reflexivity (more radical change of goals and organisation through the paths lists by Voss and Kemp), or other a combination of other more external factors.

Planned change: reviews and reporting mechanisms

Much of the development of the UKBAP is a result of learning mechanisms built into the plan, and of improvements in information and interactive webpage technology.

Just over 10 years from the start of the UKBAP it was decided to reassess all the targets for the current species and habitats, in the light of progress and new information. It was also an opportunity to standardise targets, encouraging lead partners to set targets following the SMART principle. In the context of devolution, targets have now been set for each country. They are nearly all 'quantified and allocated to standard categories, making assessment more objective and facilitating links to local biodiversity partnership targets'. More information is also given on how to monitor and deliver the targets (UKBAP 2007, p. 1).

Running concurrently with the targets review, but managed by a different sub-group, was a review of the species and habitats included in the UKBAP. To be included on the UK priority list, species and habitats had to meet the criteria listed in box 1.

[3] 'SMART' is an acronym widely used to refer to indicators that are Specific, Measurable, Achievable, Realistic and Time-bound

As a result of increased data and a more inclusive and systematic process, many species met these criteria and the list grew from 577[4] species and 45 habitats, to 1149 species and 65 habitats (Biodiversity Reporting and Information Group 2007).

The considerable growth in these lists has resulted in a need to adopt a more streamlined approach to developing action plans. The strategy developed for managing the longer list has been to 'signpost' the actions and group the species according to the types of delivery mechanism best suited, such as further research, application of agri-environment schemes or habitat restoration.

These reviews, which were anticipated as part of the original plan, are accompanied by moves toward more rigorous and structured reporting. The UKBAP agreed to a process of reporting on the HAPs and SAPs every three years. The first reporting round occurred in 1999 and was conducted through a paper-based questionnaire of all lead partners. In 2002 this took the form of a web-based questionnaire, this time asking for data from lead partners and LBAPs.

The most recent round in 2005 made use of a newly developed on-line reporting system called BARS (Biodiversity Action Reporting System) into which lead partners and LBAPs were asked to insert their own data. BARS was created with the aim of meeting both the internal and external reporting needs of organisations involved in the UKBAP. By bringing the data together in one place it was hoped that it would become easier to assess the achievements of plans at various levels (local, country and UK). In practice however many partners still continue to use their own internal reporting systems and only insert data into BARS when it is demanded of them. It is intended that BARS eventually replace the three-yearly reporting rounds but currently due to the lack of data in the system BARS does not yet fulfil its function as a shortcut to assessment.

All of these changes occurred within the parameters of the original BAP. Underlying this however is a change in philosophy about how to approach biodiversity conservation. This constitutes a shift of thinking to an 'ecosystem approach' accompanied by a re-examination of the relationship between HAPs and SAPs, and a rearrangement or development of the roles of the various stakeholders. These changes were still in progress at the time of interview, and were reflected more in interviews and internal documents than in officially available information. They are discussed in the next section.

More radical change: accumulated experience and external drivers

The Standing Committee attributes change in UK biodiversity policy to four principle drivers (UK Biodiversity Partnership Standing Committee 2007, p. iii):

- the need to take action to mitigate the impacts of climate change;
- the EU Gothenburg agreement in 2001 to halt the loss of biodiversity by 2010;

[4] From which 391 species plans were published.

- the findings of the Millennium Ecosystem Assessment (which highlight the relationship between ecosystems and human well-being and the need to take action to reverse ecosystem degradation by addressing causes of degradation and valuing ecosystem services);
- devolution from 1998 onwards.

Respondents from government agencies agreed that these factors had indeed supported changes not only in policy but in BAP structure and process, particularly in moves to a more landscape-based and ecosystem approach, a greater concern with monitoring and reporting, and at the same time greater organisational complexity because of devolution.

Structurally, one of the most significant changes affecting conservation in the UK since the inception of the UKBAP is the political devolution in 1998 of the four countries that comprise the UK. With this process, political power in many fields, including the environment, has been moved from the UK government to the Scottish Executive (now Scottish Government), the Welsh Assembly and the Northern Ireland Assembly, in addition to England. Each country has its own statutory agencies for biodiversity and since 2002 has written its own Biodiversity Strategy (or Environmental Strategy in Wales). Scotland has also produced its own list of priority species and habitats. Devolution has made the UKBAP more complicated. For example, the Targets Review committee developed criteria as the basis for inviting lead partners to propose new targets for SAPs and HAPs; these in turn had to be agreed in consultation with the Country Biodiversity Groups. Perhaps the most important feature of this is historic difference in geographic coverage of the NGOs:

> A country strategy focus makes it increasingly difficult for the countries to find resources to engage with the demanding UK process. NGO's, most of which are structured at a UK level, face the opposite problem and find it difficult to engage at a country level…. the consequence is that the NGOs and the country agencies fail to communicate effectively on some biodiversity issues. (JNCC 2004)

Changes in international conservation thinking are also part of the context of change in UKBAP:

> I think [climate change] is placing an absolute imperative to take an ecosystems approach because we're not working in a static world [government department, interview 1]

Those more involved with the implementation of the UKBAP, on the other hand, drew attention to the influence of cumulative experience and data. Change has been pushed by external factors, but also simply because the original plan is no longer adequate.

> When people started to do things in the field they felt that they didn't have enough information. So there are things that were done during all these years and now we realise we were being drastic… But we didn't think about it years ago. [habitat action plan representative, interview 8]

> Why there are so many new species being put forward [for the priorities review] …was actually quite easy. We've got a lot more data, so we know what's happening. [species NGO, interview 6]

It is important to recognise the level of personal commitment in this professional field. All our respondents demonstrated an emotional connection to nature and concern with the effectiveness of conservation:

> Of course experts are not only scientifically connected with their field and their group and their taxa, but they also have a strong personal connection with that, so they want it to be conserved, they think it matters, and that's great, it's harnessed a huge amount of enthusiasm [government department; interview 1]

This commitment, combined with accumulated experience of fitting in with the BAP, can translate into frustration with procedure and structure:

> It's not called the biodiversity bureaucracy for nothing, we know that it's very top heavy and very procedural […] There are huge communications issues between the four countries let alone with the English regional biodiversity forums, and then down to the LBAPs, I mean it's a leviathan [habitat based NGO, interview 5]

Accumulated concerns about the links between SAPs and HAPs, and between the national BAP and LBAPs, were raised at a meeting between the England Biodiversity Group and the then English Minister for Biodiversity, Landscape and Rural Affairs. They were summarised as:

> [the] need to recognise the strengths of BAP process; clarify roles and responsibilities, particularly in relation to the different geographical tiers, improve communication at all levels (England Biodiversity Group 2007).

The process of change

So change processes have been a mixture of planned and unplanned, a result of both formally identified external drivers and the accumulation of experience. However respondents resisted a sense of clear separation of internal and external drivers.

> It was just, I think, fortuitous … All of these things were coming through at the same time, the pressure of the 2010 targets, it just came together at the right time that enabled people to look more critically about how they were doing things [government agency, interview 2]

> I think our thinking was evolving along those lines, you know, synchronously with the [Millennium Ecosystem Assessment] so that we were starting to think the same things, and when it came out it chimed with the evolution of our ideas really [government department, interview 1]

These claims of serendipity and synchronicity complicate a simple analysis based on first-order and second-order reflexivity. However there are some clear strands in the change process: the formal, internal review (which can map on to the idea of first-order reflexivity); the accumulated experience highlighting the need to 'look more critically about how [we] were doing things' (which can map on to second-order reflexivity); and underlying all of this, more global shifts in consciousness of complexity and environmental change, with the responding move towards ecosystem thinking. In this section we look more closely at the *processes* involved in each type of change, and ask what evidence there is of second-order reflexivity.

Both the Targets and Priorities Reviews were formal procedures led by committees comprising representatives of government agencies and conservation NGOs. Although planned, by the time of the Targets Reviews, wider changes were stirring up thinking:

> What we were actually trying to get people to think about was whether they could come up with new kinds of targets that could give some sense of progress towards creating more resilient landscapes. [habitat based NGO, interview 5]

As with the Targets Review, sub-groups of BRIG were formed to lead the Priorities Review which took place in two stages. The Priority Species and Habitats Review Working Group dealt with the first stage of assembling the new list of UKBAP Species and Habitats. Specialists in each field were asked to put forward nominations for species and habitats to be included according to four selection criteria. These were filtered by the co-ordinating teams in each field. Once the list had been agreed a new Priorities Review Group was formed. This became responsible for working out implementation methods. The idea of 'signposting' the species according to type of action needed was adopted as a way of managing the vastly expanded list.

Huge resources have gone into this revision, particularly the Priorities Review (Biodiversity Reporting and Information Group, 2007), a process that all felt was necessary but somewhat traumatic. There was a strong emphasis on making the process transparent and systematic in order to avoid the criticisms of bias that arose when the original species were chosen. Respondents were well aware of the *politics* of the process – with varying levels of satisfaction:

> I think this latest review has been much more systematic, much more time has been spent on it, the criteria have been carefully applied [government department, interview 1]

> What they wanted to do with this review was try and make it more transparent and get people engaged. And perhaps we feel that we haven't quite been engaged enough. [species NGO, interview 4]

> I mean the targets took two plus years, but it was *relatively* painless and straightforward, just a lot of work. But the species and habitats priorities review has been a political nightmare. [habitat based NGO, interview 5]

At the same time as all this official internal process was taking place, responses to the accumulation of experience and bureaucracy started to emerge among the partners. This gathered momentum in a process that came to be known as 'Refreshing the BAP' and culminated in the publication of 'Conserving Biodiversity - the UK Approach' which emphasises the important of climate change and ecosystem approach (UK Biodiversity Partnership Standing Committee 2007). In December 2006 the England Biodiversity Group recognised low achievements of the UKBAP targets; internal correspondence noted that 'with only 18% of maintenance and 8% of expansion targets met it was clear that we would have to raise our game.' In the same month, one of the national habitat groups, responsible for the lowland heathland HAP, took action that contributed directly to the 'refreshing' process that is still on-going.

The Lowland Heathland HAP group invited members of the BAP partnership to an extraordinary meeting. In particular, they noted the need for clarity and synchronisation in linking strategic planning at UK level, and country, regional and local planning and delivery. They wanted particularly to define the role of HAP groups beyond simple reporting, i.e. in terms of authority and influence over the planning process; responding to communication needs at the various decision-making scales; and responsiveness to wider issues such as climate change and air pollution. These events culminated in a call from the NGOs for a meeting of this type, which fed into the ministerial meeting of March 2007 (England Biodiversity Group 2007) and the ongoing 'refreshing' process, that includes moves toward an ecosystem approach, stronger linkages between local and national BAPs, and between species and habitats.

Perhaps it is not surprising that a HAP had a key role in this process. Habitats are less tangible, are more obviously linked at various geographical scales and connect various levels of biodiversity. They therefore fit more awkwardly into classifications and priority lists (Midgley 2005) and experience any poorly articulated connections more acutely.

Evidence for second-order reflexivity

To what extent is this change process characterised by the types of cognitive restructuring described as second-order reflexivity by Voss and Kemp? Some is obviously more reactive, simply an attempt to deal with problems arising through experience; but many of the actors seem to be taking those actions in full awareness of the challenges of working with a complex system. In this section we assess the evidence for the presence of the characteristics of second-order reflexivity, namely systems analysis, iterative participatory goal setting, and interactive strategy implementation.

Systems analysis

'Biodiversity' is a term which has many meanings (Mayer 2006, Perlman and Adelson 1997), but one way in which it functions is as a heuristic, by helping us to analyse nature and its management in terms of different levels of organisation. A systemic approach sees systems as organised in sequential levels, whereby each higher level 'is more than the sum of the parts' (e.g. Gunderson and Holling 2002).

Biodiversity management, then, is systemic when the parts are seen to be connected, and organised at higher levels in ways that transcend and include lower levels (Wilber 1996). Space does not permit us to conduct a full review of the meanings of 'habitat' in relation to 'species', nor the ways in which the term 'ecosystem' has mutated in recent years (but see Bowker 2000, Midgley 2005). It will suffice here to define systems analysis as occurring when linkages within and between levels of biological organisation are recognised.

The very first formulations of the UKBAP took a wide approach in outlining the 59 steps but the work crystallised around the more limited aims of species and habitat target setting. Much of the current effort is moving to reintegrate a systems approach into the UKBAP practice. There is plenty of support among individual members of the BAP partnership for a systemic approach, but it was usually articulated by government actors:

> [In the future] there will be a lot more emphasis on the habitats, and maybe they will start to be grouped, but then you've still got the problem of the habitat thinking going on in boxes […] and actually then you need to think about what is the appropriate mosaic of woodland and heath, and what do you do about the interface, and are there places where you want to have heathland with a few birch trees scattered and is that what we need for the various butterflies and nightjars [government department, interview 1]

> Biodiversity is a multilevel thing. So by focussing on one of the levels, it doesn't matter how good it is if you are neglecting the others. We are starting to see that we can put both of them together, the species approach and the other approach. [government agency, interview 2]

Because many of the NGOs are organised around particular groups of species, such as birds, plants or butterflies, their interests can appear to work against this approach. Nevertheless NGO representatives explicitly challenged this notion:

> There is some tension within the NGO community between, let's say, habitats and species […] From my perspective the habitat groups should have targets for restoration and re-connectivity and the species should have targets for how species are recovering. [species NGO, interview 6]

> The question is not whether organisations with a focus on the units are unable to understand systems, but whether organisations that purport to care about systems can actually understand units. [species NGO, personal communication]

Importantly, many also recognised the wider context in which biodiversity planning was taking place:

> The targets that result are shared ones, belonging to the UK Biodiversity Partnership as a whole and should be considered in the context of ecosystems, climate change, the priority list review and the need to set priorities in the light of limited resources.(UK Biodiversity Action Plan 2007a)

> So the BAP approach, the target driven approach, I totally think that climate change can be accommodated within it. If you are then asking me how do we do it now, that's a different question because there is so much uncertainty. [species based NGO, interview 6]

It is this wider context, and the accompanying uncertainty about behaviour of the biodiversity system within it, that requires the second characteristic,

Iterative participatory goal setting

Our study shows that iteration is built into the UKBAP process. Some respondents expressed mock horror at the prospect of any further priorities or targets review, and the hope that they had got it right this time. Most also recognised that given the current state of knowledge, and the changing context, it should be (as one civil servant put it) 'dynamic and responsive' to both conservation needs and new information.

The accumulation of data plays a big role in this:

> I think people didn't have an alternative in the beginning because they didn't have the information to set smart targets. So we reckon that 10 years into the BAP we ought to be putting the targets right [government agency, interview 3]

However what is being reformulated here is the detail of the overall approach, what might be termed 'first order reflexivity' in Voss and Kemp's typology. The greater change, the overall approach and the significance of ecosystems thinking, comes not from reflexive processes built into the system, but is instead influenced by both experience of the UKBAP, and by international knowledge processes and the rise of the 'ecosystem services' discourse (e.g. Balmford et al. 2005, Gatzweiler 2006, Hein et al. 2006, Mooney, Cropper, and Reid 2004, Rapport 1995).

Interactive strategy implementation

Many respondents spoke enthusiastically about the success of the UKBAP in bringing together partners. Most described its structure and control as a 'partnership', which is certainly the official term:

> It's quite unusual in a way to have such a strong partnership between government and NGOs, in this sector we do actually all sit round the table and take decisions collectively. [government department; interview 1]

The collectiveness of those decisions come into question however, when the reality of power relations is discussed.

> We do need [the Biodiversity Partnership Conference] once a year to cement the partnership. There's always a bit of unhappiness about 'how did that actually influence the policy' and 'what we've taken into account', you know that's much more nebulous, but it permeates in a more fluid sort of way. [government department, interview 1]

NGOs respondents often reflected an appreciation of being 'at the table' but a belief that decisions do not ultimately rest with them.

> [SM] would you describe the BAP as democratic?
> [respondent] [laughs] No, I would describe it as a partnership. Which inevitably is not a partnership of equals. So the NGOs for example can be in a meeting and can say what they like and at the end of the day how that is minuted and how that is acted upon depends on the people who have the resources and the power to do it. And that's government. [species based NGO, interview 6]

> The way to do policy is to respond to all the consultations, but the way you get things done is by making friends with the policy makers and the ministers. [species based NGO, interview 4]

There are, therefore, differences of power – and also differences of scale. There is an interesting and possibly essential tension between what some characterised as the species interests of the NGOs, and the habitat interests of the government agencies. We see a tendency for government actors to respond to the 'bigger issues' while

> The NGOs focus on species because that's where their bread and butter is, that's their business. [Government agency, interview 2]

Not that the NGOs themselves are not a community of equals. In interviews, NGO respondents complained about the power or tactics of other NGOs. But the BAP has provided an incentive for NGOs to organise and collaborate. This first took the form of Biodiversity Challenge, the group that contributed so much to the original shape of the UKBAP. Other NGOs, some of whom felt that (for example) bird conservation organisations had too much influence in Biodiversity Challenge, contributed to pressure for a more representative forum, leading to the formation in 2000 of the Biodiversity Task Force. This sits within the coalition of the Wildlife and Countryside Link which brings together a wide range of conservation NGO's to present a united response to the Government on policy issues.

So the partnership is really a hierarchy, and complicated by devolution, which makes it four separate-but-connected hierarchies. But the government agencies need the NGOs, and the NGOs need the government agencies. None of the respondents called for either more autonomy or more power-sharing; there was a strong sense that the UKBAP is real, big, complicated, inefficient but learning; and that what partners want is greater clarity of structure, and leadership.

Conclusions

The UKBAP has changed profoundly in less than a decade, from an approach based on an *ad hoc,* convenient but subjective list of priority species, to a focus on habitats and an 'ecosystem approach'. The approach has been strongly path dependent, relying on government agencies affected by wider processes of political devolution, and NGOs with membership support based on particular components of biodiversity. Reductionist approaches such as the UKBAP have been criticised for failing to

engage with the complex realities of ecology (Abram 1996, Green 2000). However our study of change within the UKBAP draws attention to two ways in which this criticism can be seen as over-simplistic.

First, the actors are aware that they are engaging with a complex system, in which each is attempting to work with a part in collaboration with others in the context of incomplete knowledge of the system. Uncertainty is always associated with complexity, but in the case of biodiversity, it is particularly associated with those attributes that are most easily classified as a global public good – ecosystem services and resilience in the face of profound environmental change. The picture emerging from the experiences described here is not one of naïvely mechanistic bureaucrats seeking to control the public environment, but rather one of experts sensitive to the challenge, committed to sustainability, obliged to start somewhere even though as one government actor put it, 'I wouldn't start from here'.

Consequently, the approach is also protected by learning and adaptiveness. We see here a mixture of first-order and second-order reflexivity (in the terminology of Voss and Kemp). The first BAP was simplistic, 'back-of-an-envelope'; but the actors knew that. To some extent they built change into the process. Their leap-in-the-dark helped to show just how much really was hidden in the dark, and the first 10 years have channelled research and monitoring efforts to provide the new information that helps to revise the system. Many of the actors, including the bureaucrats, are ecologists, personally committed to conservation and professionally trained in systems thinking. To the extent that rational planning focuses the production of new knowledge, the actors are predisposed to take a systems overview, and revision is planned, this vast ambitious exercise is reflexive in the second-order sense. However, some of the most fundamental change was also influenced by more international discourses and processes including the Millennium Ecosystem Assessment.

This learning and adaptiveness is not all the harmonious experience that might seem to be implied. It is characterised by politics, struggle to match personal commitment to the rigidities of bureaucracy, and the complications of complexity. But from this emerge a recognition of the need for change, and a real on-going engagement with the challenges of planning and measuring change, in the context of that (social and ecological) complexity. We cannot just conclude that rational biodiversity planning is some glorious planned experiment however. Without stronger reflexivity, such an experiment would be lazy and dangerous.

Both first- and second-order reflexivity characterise the UK biodiversity planning system, and in fact we conclude that the UKBAP experience calls into question the rigid distinction between first and second-order reflexivity. Perhaps it is the case that '[s]econd-order reflexivity interrupts the automatism of executing problem-solving routines. It transcends particular rationalities, and breaks the vicious circle of first-order reflexivity' (Voss and Kemp 2006, p. 6), but it is not always planned that way. Complexity will always break through the modernistic boundaries created by rational planning. However it is difficult to understand the complexity until we impose those (imaginary) boundaries of habitat categories, species priorities and time-and-quantity-targets, and allow ourselves to see what happens.

Politics, concern for organisational survival, personal interests and a large legacy of organisational history limit the development of a systems approach and transparent deliberative participation, and some of the change in the UKBAP has been driven by external shifts in thinking. There is a real ongoing effort to grasp a more profoundly systemic way of thinking and working, to make the connections between the parts that only experience can show need to be made. The question remains, how can real reflexive governance by included more consciously in this very human context?

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Box 1. Criteria for including species and habitats in the revised priorities lists

1. International threat.
2. International responsibility (of the UK) + moderate decline in the UK.
A species that has declined by more than 25% in the last 25 years in the UK may qualify if the UK supports 25% or more of the global or European population.
3. Marked decline in the UK.
A species which has declined by 50% or more over the past 25 years qualifies under this criterion.
4. Other important factor(s).
Where a species does not qualify under Criteria 1, 2 or 3, there may still be a case for listing it as a candidate. However, evidence of extreme threat is required.

The criteria for (non-marine) habitats were:
1. Habitats for which the UK has international obligations.
2. Natural and semi-natural habitats at risk, such as those with a high rate of decline in extent and/or quality, especially over the last 20 years, or which are rare.
3. Habitats important for assemblages of key species.
4. Habitats which are 'functionally critical' i.e. those 'essential for organisms inhabiting wider ecosystems', may be useful in some cases as a supporting criterion but is unlikely to be a qualifying criterion in its own right. (Biodiversity Reporting and Information Group 2007, p78)