

# Evaluation of the Upland Ecosystem Service Pilots: Annex 3. South Pennines

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# Foreword

Natural England commission a range of reports from external contractors to provide evidence and advice to assist us in delivering our duties. The views in this report are those of the authors and do not necessarily represent those of Natural England.

## Background

The Upland Ecosystem Service Pilots, located in Bassenthwaite Catchment in the Lake District, the South Pennines and the South West Uplands, were developed as demonstration projects to understand how the ecosystem approach could be applied in practice. Evaluation helps us to understand what's working and what needs improving in order to inform future policy and delivery. This report, evaluating the South Pennines Pilot, accompanies a synthesis evaluation for all three pilots.

Lessons learnt from this evaluation are relevant to the development and implementation of new environmental and conservation policy and practice, including implementation of Natural England's Conservation Strategy and the Government's 25 Year Environment Plan, especially the development of local natural capital plans. The findings from the evaluation are pertinent to current policy and practice because the pilots:

- Focussed on natural capital and the ecosystem services, exploring the benefits provided from a place.

- Provide an example of partnership projects developing a shared mapped evidence based and delivery plans at a landscape scale.
- Involved a wide range of stakeholders in their collaborative development, including farmers, land owners, water companies, environmental organisations, National Parks, private businesses and local people.

The pilots pioneered the application of the ecosystem approach in a place. They explored: understanding how the natural environment functions and underpins our well-being; involving people in decision making and valuing the benefits that we get from the natural environment.

Nationally the work has contributed to the further development of work on the ecosystem approach including, for example, through the development of the Ecosystem Approach Handbook, mapping ecosystem services and natural capital, further work on place-based payments for ecosystem services, informing the work of the Defra Pioneers.

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### Further information

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# Evaluation of Upland Ecosystem Services Pilot Project

SOUTH PENNINES PILOT EVALUATION – FINAL REPORT

# Natural England

Evaluation of Upland Ecosystem Services Pilot Project, South Pennines Pilot Evaluation, February 2018

A report by CAG Consultants

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## CONTENTS

Executive Summary .....	9
Introduction .....	9
Key Findings .....	9
Conclusions .....	14
<b>1 Introduction .....</b>	<b>16</b>
Introduction to the pilot projects .....	16
Pilot selection.....	16
Introduction to the South Pennines pilot project .....	17
Pilot boundary .....	17
Aims and objectives.....	20
Governance.....	20
Pilot project activity.....	21
Aims of the research .....	24
<b>2 Methodology.....</b>	<b>25</b>
Evaluation questions.....	25
Methodology .....	25
A theory based approach.....	25
Qualitative research.....	25
Review of project documentation.....	26
Data analysis.....	26
Research Ethics .....	26
Challenges and limitations .....	26
Time elapsed between completion of project and evaluation .....	26
Inconsistent approach to the presentation of project documentation.....	27
Limited size of qualitative sample .....	27
<b>3 Findings.....</b>	<b>29</b>
Spatial and temporal scales .....	29
Research question: To what extent has the ecosystem approach and decision making been applied at appropriate spatial scales? .....	29
Research question: To what extent did the pilot take into account the timescales needed for processes to implement the ecosystem approach? .....	31

Partnership and participatory engagement.....	32
Research question: To what extent did a participatory approach involve a range of stakeholders' perspectives? .....	32
Research question: To what extent did the participatory process influence the development of the integrated delivery plan?.....	35
Research question: To what extent did the pilot include evidence from a range of disciplines?.....	36
Research question: What aspects of partnership and governance enabled agreement on a shared plan and achievement of project outcomes? .....	39
Economic considerations .....	40
Research question: To what extent did the pilot consider the need to understand and manage the ecosystem in an economic context? .....	40
Research question: To what extent did economic valuation inform decision-making? ....	41
Outcomes .....	42
Research question: What were the inputs to the Pilot in terms of staff time and funding, for Natural England and other partners?.....	42
Research question: To what extent has the participatory approach resulted in attitudinal and behavioural change? .....	43
Research question: To what extent did the delivery Plan influence the environmental outcomes and deliver multiple benefits? .....	44
Discussion .....	47
Ambition, scope and timescales .....	47
Engagement.....	47
Programme coordination .....	48
Planning for delivery .....	48
4     Conclusions.....	50
To provide practical examples demonstrating how the ecosystem approach could be applied on the ground.....	50
To use a consultative ecosystem approach to define land and water management based upon stakeholders' perceptions of the best options. ....	50
To demonstrate that investment in the natural environment can result in multiple benefits (carbon, water, food, biodiversity, recreational and landscape benefits). ....	51
To work in partnership to deliver a range of ecosystem services in a cost-effective way and link these services to the beneficiaries.....	51
References .....	52
Appendices .....	54
Appendix A: Theory of Change .....	54

Appendix B: Topic guide for use with project staff and stakeholders .....	55
Appendix C: Topic guide for use with national programme staff .....	60
Appendix D: Matrix for documentation review .....	63
Appendix E: Stakeholder participation in the Pilot steering group and workshops .....	65



## Executive Summary

### Introduction

Between the summer of 2009 and March 2011 Natural England ran three upland ecosystem pilots in order to demonstrate how the principles of the 'ecosystem approach' (Convention on Biological Diversity, 2018) could be applied in practical land management settings. The pilot areas were Bassenthwaite (in the Lake District National Park), the South Pennines and the South West Uplands.

The pilots were innovative in nature and were intended:

- To provide practical examples demonstrating how the ecosystem approach could be applied on the ground.
- To use a consultative ecosystem approach to define land and water management based upon stakeholders perceptions of the best options.
- To demonstrate that investment in the natural environment can result in multiple benefits (carbon, water, food, biodiversity, recreational and landscape benefits).
- To work in partnership to deliver a range of ecosystem services in a cost-effective way and link these services to the beneficiaries.

This report presents the findings from an evaluation of the South Pennines pilot project. It includes an assessment of how successful the pilot was in delivering against its key aims, together with reflections on key learning points.

Research for the evaluation included a review of project documentation and a series of in-depth interviews with ten individuals involved in the pilot (at the local level) and four Natural England staff involved in the management of the overall upland ecosystem services pilot programme. Owing to the passage of time since the completion of the pilots in March 2011, most interviewees were unable to recall their experiences of the pilot in any detail and when questioned tended to respond in general terms. This limited the ability of the evaluation to explore identified issues in any detail, but interviewees were able to offer high-level insights, and in many cases the views offered were consistent with insight generated from the review of project documents.

### Key Findings

The evaluation was guided by a series of high level research questions. Key findings are reported below under these headings.

#### ***Research question: To what extent has the ecosystem approach and decision-making been applied at appropriate spatial scales?***

Whilst the South Pennines pilot area encompassed the whole of the South Pennines National Character Area (NCA), a small number of catchments were the focus of much of the pilot's work. The interviews revealed some support for this approach. The wider pilot area gave the ability to appreciate the services at a high level. Alongside this, the focal catchments were felt by interviewees to have been well suited to the more detailed work.

However, the scale and complexity of the pilot area (in terms of data, ecology and stakeholder interests) presented significant challenges to the assessment of ecosystem services. Even within the focal catchments, the work was challenging and the delivery plan was confined to consideration of land management in only two focal catchments. These were also the only catchments for which economic valuation was completed.

The evaluation findings suggest that there was a need for greater clarity about the objectives, i.e. what was to be delivered at the pilot area level and what was to be delivered at the catchment level, and for earlier clarity about the selection of areas for more detailed activity.

***Research question: To what extent did the pilot take into account the timescales needed for processes to implement the ecosystem approach?***

The project officer-led phase of the South Pennines pilot was intended to be complete by March 2011, after which it was then planned that the outcomes from the pilot would be fully integrated into regional delivery models. Progress with actions was far slower than planned or anticipated and, as a result, time pressures impacted on the nature and scope of the work eventually undertaken. There appear to have been a number of contributory factors, including:

- A change in project officer in early 2010;
- The scale and complexity of the pilot area (as discussed above);
- Uncertainty over the focus catchments (as discussed above); and
- Difficulties in securing data for mapping and valuing the services provided, including commercial confidentiality issues associated with water company data (which we understand led to some valuation data being withheld).

Project work towards the end of the pilot became extremely compressed, and both the delivery plan and economic valuation were eventually completed after the cessation of the pilot.

Some interviewees suggested that the timescales for the pilot were unrealistic from the outset, both in terms of its objectives and the collaborative process by which it intended to achieve those objectives.

***Research question: To what extent did a participatory approach involve a range of stakeholders' perspectives?***

The wide range of organisations involved in the South Pennines pilot was viewed by some interviewees as an important achievement given the time and resources that were available.

However, the wider public do not appear to have been engaged in the pilot workshops, and some interviewees suggested that a lack of engagement with private landowners was a key weakness of the pilot as it undermined the potential for future delivery.

More generally, far less formal engagement, particularly in the form of steering group meetings and workshops, seems to have been conducted than might have been originally envisaged, given that the pilots were intended to be founded on a participatory approach. This may reflect the timescale issues discussed above but some stakeholders also suggested that limited resources constrained their ability to engage, particularly as the pilot progressed and became more focused on the economic valuation activity.

Natural England's intention was that local pilot officers would work as facilitators or catalysts rather than as project managers, but in practice they appear to have played an active role in the delivery of project activity. Interview findings suggest that they very much managed and drove the work of the pilot in conjunction with national colleagues.

***Research question: To what extent did the pilot include evidence from a range of disciplines?***

The findings from the document review indicate that evidence from a wide range of disciplines was utilised at each stage of the pilot. A detailed baseline assessment (Natural England, 2011) was completed, drawing on a large body of evidence from a range of disciplines covering supporting services, provisioning services and cultural services.

Although water quality and biodiversity were, perhaps, the key drivers which the pilot was based around, evidence on cultural services featured strongly as the pilot progressed. Pennine Prospects were commissioned to carry out surveys and focus group work with local communities to determine what the South Pennines means to them (Research Box, 2011). The delivery plan is informed by the findings from this study, along with the very wide range of other data sources utilised in the baseline assessment.

***Research question: What aspects of partnership and governance enabled agreement on a shared plan and achievement of project outcomes?***

The documentation review suggests that considerable work was invested at an early stage of the pilot in identifying, engaging with and building support from a wide range of stakeholders. This culminated in a steering group meeting in 2010. The minutes suggest that the meeting resulted in Natural England being given a mandate to prepare the baseline assessment of services and beneficiaries and also gained commitment from partners to provide support in the form of time and data.

However, although it is clear that a functioning steering group was established, the overall approach to governance and management of the pilot is unclear. The lack of a clear governance structure and the lack of clarity around roles and responsibilities of key partners was acknowledged in internal documentation (e.g. Natural England, 2010c).

The geography of the pilot area was cited in the interviews as presenting a challenge in terms of establishing effective governance of the pilot, as it did not align with the geographic remit of partner organisations.

It is clear that the partnership formed for the purposes of the pilot ceased to meet at the end of the pilot, although some interviewees reported that some relationships have been

sustained and built on since the pilot ended, including through ongoing projects inside and outside the pilot area.

***Research question: To what extent did the pilot consider the need to understand and manage the ecosystem in an economic context?***

The project plan for the pilot clearly indicates a recognition of the economic context and work was undertaken to establish the economic benefits of potential changes to upland management practices. This was particularly the case in terms of the potential economic benefits of improvements to water quality; both of the water companies in the pilot area conducted research on this and engaged in the valuation activity.

The valuation exercise appears to have been extremely challenging, both methodologically and in terms of data availability. Detailed economic valuation work was eventually completed for two of the focal catchments and was published as a Natural England research report (Harlow and others 2012) and a peer reviewed paper (Clarke and others 2015). This work has subsequently proven to be influential. However, the original Pilot aim of establishing a payments for ecosystem services (PES) scheme was overly ambitious, as shown by subsequent Defra work on PES pilots (Defra 2016).

***Research question: To what extent did economic valuation inform decision-making?***

As noted above, detailed economic valuation work was completed for two of the focal catchments (Harlow and others 2012, Clarke and others 2015). The published reports provide a cost-benefit analysis based on the valuation of projected provision of ecosystem services for two different future land management scenarios.

It is not clear how the valuation work or other economic analysis, e.g. by Yorkshire Water, was used to inform the delivery plan. Although the valuation work was referenced in the delivery plan, the work was completed after the delivery plan was developed. We do not know the extent to which the valuation work validated the proposals contained in the delivery plan but it seems clear that the delays in completing the valuation exercise meant that it was not possible for the outputs to be utilised in informing decision making within the pilot.

***Research question: What were the inputs to the Pilot in terms of staff time and funding, for Natural England and other partners?***

Inputs by Natural England included a full-time project officer. Other regional staff were also reported as having invested significant amounts of time into the pilot. Nationally, Natural England invested national programme team staff time, via the Major Projects Manager and Project Manager, and Natural England economists. Time inputs were also made by a wide range of partner organisations, but such inputs were not recorded and stakeholders interviewed for this research were unable to recall their inputs in any detail.

Project documentation records a number of other inputs to the South Pennines pilot, including project partners commissioning research to support the work of the pilot. A budget for additional research like this was provided by Natural England.

The findings from the evaluation indicate that resource constraints may have been a significant limiting factor on engagement with the pilot, particularly for partner organisations. A number of interviewees referred to the challenge of finding the resources to fully engage in the pilot and this situation appears to have worsened as the pilot progressed and the work became more complex and time-consuming.

***Research question: To what extent has the participatory approach resulted in attitudinal and behavioural change?***

Interviewees could not attribute significant attitudinal and behavioural change to the pilot, which may be partly explained by the delay between the pilots' activity and this evaluation. However, the South Pennines pilot does seem to have had an impact in terms of the extent to which economic valuation of ecosystem services has been subsequently utilised within some of the stakeholder organisations involved.

Most interviewees suggested that they were familiar with the ecosystem approach prior to their involvement in the pilot. However, it was recognised that the pilot offered the opportunity to take the approach to a new level through practical application at the local level. This was particularly the case in terms of the work on economic valuation. This was valued by some of the stakeholders owing to the challenges associated with ascribing monetary value to ecosystem benefits. The pilot's work on economic valuation is, perhaps, therefore its most important legacy, as it appears to have influenced and been built on by some of the organisations involved in future project work locally and more widely.

***Research question: To what extent did the delivery Plan influence the environmental outcomes and deliver multiple benefits?***

The Delivery Plan sets out eight key land management actions for the next 25 years. However, it is clear that no mechanism was established to take forward the plan. Instead, it was hoped that the information and data generated by the pilot would provide the evidence needed to influence the future delivery of partner organisations and provide a steer for Natural England staff in particular.

As a result of the project officer-led phase of the pilot ending abruptly, interviewees were cautious in attributing any outcomes to the pilot. We have no empirical evidence to indicate the extent to which the delivery plan influenced future delivery by partner organisations but interview respondents suggested that its impact on delivery may have been relatively limited.

Some interviewees suggested that there had been some indirect environmental outcomes from the pilot in terms of providing evidence for future project funding bids in the area. There was also reference in the interviews to a subsequent pilot which went on to explore payments for ecosystems services (Quick and others, 2013). This research used the South Pennines as a case study. The research also included a technical appendix (Birnie and Smyth 2013), which was a case study on the development of carbon metrics for potential markets for carbon storage and sequestration by peatlands. This technical appendix informed the development of the UK Peatland Code (IUCN 2017), which is 'a voluntary standard for UK peatland projects wishing to market the climate benefit of peatland restoration'.

## Conclusions

### ***Did the pilot provide examples demonstrating how the ecosystem approach could work on the ground?***

The pilot provided examples of how the ecosystem approach could be applied, although these examples were at a much smaller scale (two catchments) than originally intended. It should also be noted that these were theoretical examples, i.e. the pilot did not reach the stage of implementing an ecosystem approach but provided a high-level indication of how such an approach might be implemented. Much longer timescales (including long term resource for on-going governance and partnership working) and more focused spatial scales would have been necessary for the pilot to have been able to move into implementation.

### ***Was there evidence of the use of a consultative ecosystem approach to define land and water management based upon stakeholders' perceptions of the best options?***

The pilot adopted a consultative ecosystem approach and engaged a very wide range of stakeholder organisations from a wide range of sectors. Challenges were experienced in engaging with landowners and with the wider public, and this is linked to the challenge of working across such a large and complex pilot area. More generally, the scope of engagement appears to have declined as the pilot progressed. This may have been due to the increasing complexity of the work of the pilot as it moved into economic valuation activity, but constraints on partner organisations to engage was also a factor. The pilot appears to have faced a Catch-22 in that partners needed to be sufficiently incentivised to remain engaged, but the nature and scale of the benefits could not be established until significant levels of engagement had taken place. The result of these challenges was that Natural England worked less as facilitators or catalysts, as was originally intended, and more as project managers, albeit with a consultative approach

### ***Did the pilot demonstrate that investment in the natural environment can result in multiple benefits (carbon, water, food, biodiversity, recreational and landscape benefits)?***

The pilot, particularly through its work on economic valuation, demonstrated that investment in the natural environment can result in multiple benefits. This economic valuation was highly valued by some of the stakeholders involved because ascribing monetary value to benefits was seen as a very challenging aspect of the ecosystem approach. The pilot's work on economic valuation is, perhaps, therefore its most important legacy, as it appears to have influenced and been built on by some of the organisations involved in future project work.

### ***Was there evidence of partnership working to deliver a range of ecosystem services in a cost-effective way and link these services to the beneficiaries?***

The pilot did not work in partnership to deliver a range of ecosystem services in a cost-effective way and link these services to the beneficiaries. Although a delivery plan was produced, which focused on two catchments within the pilot area, this was high-level and was not accompanied by any mechanisms or governance structures to ensure that the actions were taken forward. As the delivery plan itself noted, it was '*dependent upon the voluntary uptake of various existing mechanisms to deliver benefits*' (Natural England, 2011b).

On the basis of the evidence from this evaluation, no environmental impacts can be directly attributed to the pilot, although the outputs were utilised in future project development and funding bids, including the establishment of a Local Nature Partnership for the South Pennines.

The pilot did lead to subsequent work on the development of payments for ecosystem services, including work on carbon metrics which informed the UK Peatland Code (IUCN 2017). Defra's 25-year Plan Pioneer projects are known to be making use of the valuation work from the pilot. The extent of a wider legacy in terms of attitudinal or behavioural change is unclear. Interviewees referred to ongoing work on ecosystems services or the related concept of natural capital but were unsure of the role that the pilot had played in this. One of the water companies involved reported that the ecosystem approach was now factored into all of their investment decisions and felt that the pilot had made some contribution to this, particularly by providing evidence of multiple benefits.

The current business planning (for AMP7) being carried out by the water companies may provide further opportunities to utilise the learning from the South Pennines pilot. Interviewees also referred to the increasing prominence of natural flood management, which may become an increasingly valued service of the uplands and drive further interest in the work carried out by the South Pennines and the other upland ecosystems pilots.

## 1 Introduction

### Introduction to the pilot projects

- 1.1 Between the summer of 2009 and March 2011 Natural England ran three upland ecosystem pilots in order to demonstrate how the principles of the 'ecosystem approach' (explained below) could be applied in practical land management settings. The pilot areas were Bassenthwaite (in the Lake District National Park), the South Pennines and the South West Uplands. This report is an evaluation of the South Pennines pilot project.
- 1.2 Natural England established the pilots in order to improve understanding of the practicalities of adopting the ecosystem approach and ultimately to encourage a more widespread adoption of the ecosystem approach. The ecosystem approach is defined by the Convention on Biological Diversity as being:
- 'a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way.'*<sup>1</sup>
- 1.3 Examples of areas of land or water being managed in line with the ecosystem approach were rare at the time that the pilots were established - and remain so.
- 1.4 Specifically, the pilots were intended:
- To provide practical examples demonstrating how the ecosystem approach could be applied on the ground.
  - To use a consultative ecosystem approach to define land and water management based upon stakeholders' perceptions of the best options.
  - To demonstrate that investment in the natural environment can result in multiple benefits (carbon, water, food, biodiversity, recreational and landscape benefits).
  - To work in partnership to deliver a range of ecosystem services in a cost-effective way and link these services to the beneficiaries.

### Pilot selection

- 1.5 Natural England elected to establish the pilots in upland landscapes as, whilst recognising that all types of landscape would be expected to gain from the application of an ecosystem approach, certain characteristics of upland environments made them particularly suitable as pilot sites:

*'Upland environments provide a suite of easily recognised and valuable ecosystem services (for example, carbon storage, water supply, timber, food and recreation).'*  
(Waters, R and others, 2012)

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<sup>1</sup> See <https://www.cbd.int/ecosystem/description.shtml>, accessed January 2018

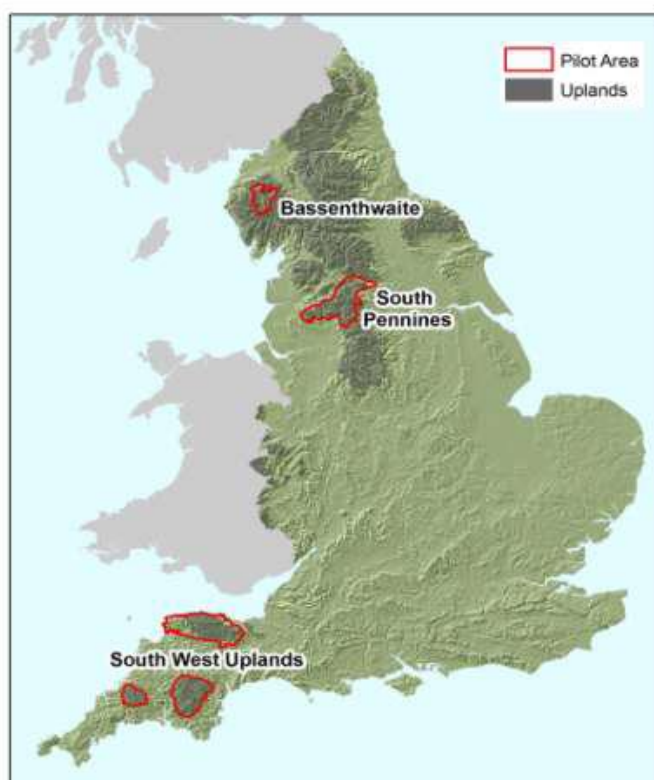


- 1.6 Natural England Regional Directors with upland sites in their region, were asked (by the pilot programme manager) to volunteer potential pilots. In order to be eligible for consideration regional offices were expected to provide staff resource (in the form of a full-time project officer) and to be able to identify an existing local partnership through which the pilot would be able to establish connections with local partners and stakeholders. The final selection of pilots was made by the national programme manager.
- 1.7 For the South Pennines pilot the local partnership was Pennine Prospects. On its website Pennine Prospects is described as ‘a unique rural regeneration company that aims to promote, protect and enhance the built, natural and cultural heritage of the South Pennines’<sup>2</sup>. The company was established in 2005 to act as a ‘champion’ for the South Pennines. Company membership comprises six local authorities: Bradford, Calderdale, Kirklees, Lancashire County, Oldham and Rochdale along with Natural England, United Utilities and Yorkshire Water, the National Trust and Northern Rail.

## Introduction to the South Pennines pilot project

### Pilot boundary

- 1.8 The South Pennines pilot boundary is shown in Figure 1 below.



**Figure 1:** Location of South Pennines and other upland ecosystem pilots (Waters, R. and others, 2012, p.4)

<sup>2</sup> <https://www.pennineprospects.co.uk/about>, accessed February, 2018

- 1.9 The pilot covered the whole of the South Pennines National Character Area 36<sup>3</sup> and the original intention was to map existing service provision across this area. However, it was also intended that there would be a more detailed focus on a small number of case study areas, at the level of individual catchments.
- 1.10 This pilot area was put forward because Natural England staff resource was available to build on existing relationships with Pennine Prospects. Alongside this, there was significant water company (Yorkshire Water) activity and concern for water quality, and pre-existing joint work with Natural England. Yorkshire Water were exploring catchment management and the potential benefits it could provide for water quality. The pilot offered an opportunity to explore this potential further and to link water company investment with agri-environment schemes.
- 1.11 An internal report entitled 'Delivery on the Ground' described an opportunity within the Southern Pennines:
- “to apply the Millennium Ecosystem Service approach to parts of the Yorkshire Water catchment utilising AMP5 [Asset Management Period 5] funding to fulfil catchment management for water colour reduction. Practical implementation backed with thorough R&D have been planned over the next five years including grip blocking, management of heather burning and vegetation manipulation. For this project three sites have selected that feed into three separate water treatment plants (WTP) Chello, Oldfield and Longwood which have been identified of having high Dissolved Organic Carbon (DOC) levels”* (Natural England, 2009).
- 1.12 In addition to water quality the pilot area also provided an opportunity to focus on cultural services (a key focus for Pennine Prospects) and was adjacent to and easily accessed from several nearby major conurbations. Not being a National Park, the area provided a useful comparator to the other two pilot areas. Finally, there were also a number of pre-existing projects in the area which were focused on delivering multiple benefits and it was hoped the pilot would build on these. This included the Watershed Landscapes project<sup>4</sup> being delivered by Pennine Prospects and project work being led by Natural England.
- 1.13 Three catchments were selected at first for focused project activity. These served three different water treatment plants (WTP) which were identified as having high levels of DOC (dissolved organic compounds) levels and which, it was hoped, would benefit from changes to upland management. They are listed below, along with a description of the reasons for their selection (taken from Natural England, 2009c):
- Stean Moor – an area historically linked to high DOC levels and feeding into Chello WTP (owned by Yorkshire Water). This catchment was chosen because the site had

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<sup>3</sup> National Character Areas (NCAs) divide England into 159 areas, each of which is defined by a particular combination of landscape, biodiversity, geodiversity and economic & cultural characteristics.

<sup>4</sup> A £3m project which ran from 2009-2013 and which improved access, restored landscape features and created new habitat in the South Pennines.

very deep peat, had already undergone extensive grip blocking<sup>5</sup> and an extensive programme of monitoring and analysis (of the impacts on water quality) was underway. There was thought to be potential to improve the biodiversity of an important wildlife resource, as well as contributing to flood mitigation. The catchment was outside of the pilot area but was believed to be exporting services into the pilot area;

- Keighley Moor –chosen because it had deep peat, high wildlife value and a high proportion of Site of Special Scientific Interest (SSSI), Special Area of Conservation (SAC) and Special Protection Area (SPA) designations. It also had a range of livestock farming systems, was in a AMP 5 catchment for Yorkshire Water and there was a good range of academic research with some well-established monitoring in the catchment; and
- Marsden Moor – owned by the National Trust. Chosen because of its proximity to visitor attractions, and because it was believed to be contributing to high DOC levels leading to increased treatment costs at Longwood WTP (Yorkshire Water). The status of this catchment within the pilot was unclear to us. It was referred to as one of the three catchments initially selected in 2009 but was then referred to as being under consideration in the July 2010 monthly progress report. In March 2011 the Moors for the Future Partnership published a report on the mapping of bare peat distribution within this catchment. The report (Moors for the Future Partnership, 2011) recommended that stakeholder engagement be undertaken to identify the ecosystem services provided by the catchment. We do not know if this was taken forward, or the extent to which it was influenced by the pilot, but it does suggest that this catchment did not remain a focal catchment during the period of the pilot itself.

1.14 A fourth catchment (Worsthorne Moor) was added in late 2009. This includes Hurstwood Reservoir, owned by United Utilities. Worsthorne was reported (Natural England, 2009c) to have been chosen because it had an extensive area of deep peat, high amenity value (and a willingness to improve it further), high wildlife value and high proportion of SSSI, SAC and SPA designations. It was in an AMP 5 catchment for United Utilities.

1.15 A fifth catchment, Ilkley Moor, although not referenced in the early documentation, is included in the document on 'Priority Catchments'. Ilkley Moor was said to have been chosen because of its high amenity value, high frequency of Scheduled Monuments and high wildlife value, reflected in SSSI, SAC and SPA designations. Also, there was a programme of works planned to restore priority habitats and protect archaeological features following a wild fire event.

1.16 A further catchment, Rivington, was reportedly chosen because of its exceptionally high amenity value.

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<sup>5</sup> Grips are man-made drains which were dug across upland peatlands, mostly in the mid-20th century, to improve the land for agriculture.

1.17 Later documents such as the baseline assessment (Natural England, 2011) reveal that the scope was subsequently reduced to a primary focus on two catchments – Keighley Moor and Worsthorne. These were the only two catchments, for which sufficient data was felt to be available to complete the economic valuation exercise.

### Aims and objectives

1.18 In line with the principles of the ecosystem approach it was intended that the pilot should be locally led and establish its own locally focussed objectives. Local aims and objectives for the South Pennines pilot were described in the Natural England document entitled *Delivery on the Ground* as follows:

*'The primary aim of establishing a pilot to look at ecosystem services is to determine the economic benefits of sustainable land management within the Southern Pennines*

*Objectives:*

*To establish a cross cutting partnership with expertise and research to provide leadership on the provisioning, regulating, cultural and supporting services.*

*To undertake a desk top study of the Southern Pennines to map the economic service provision as present leading to identification of opportunities for the future and beneficiaries.*

*Using RDPE [Rural Development Programme for England] and AMP5 resources implement management on the ground at three moorland sites with comprehensive before and after R&D and provide a robust economic evaluation of the findings'* (Natural England, 2009).

### Governance

1.19 All three of the upland ecosystem pilots were managed as a single programme by a central Natural England team, consisting of two full time staff – a programme manager, and a project manager.

1.20 Whilst each pilot was expected to be led by local partnerships, it was expected that, local Natural England staff would provide project management support. The South Pennines pilot had a full-time project officer throughout its life, although the post-holder changed in early 2010.

1.21 A local steering group was established, and this group first met In February 2010. Membership of this group included:

- Yorkshire Water
- Pennine Prospects
- Government Office for Yorkshire & the Humber
- National Trust

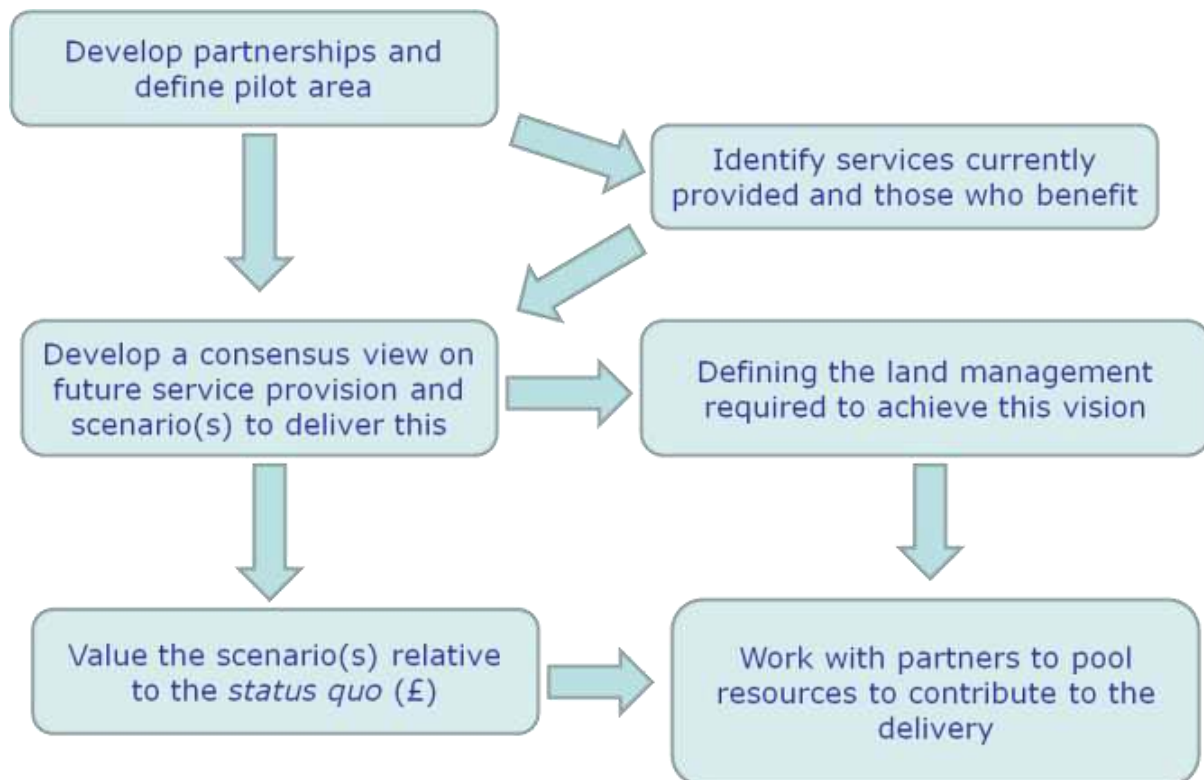
- Environment Agency
- Moorland Association
- Countryside Land and Business Association
- National Farmers Union
- Moors for the Future
- Forestry Commission
- British Waterways
- Primary Care Trust
- Natural England
- United Utilities
- Lancashire County Council
- Leeds University
- Yorkshire Peat Project

1.22 Pennine Prospects were the existing partnership in the area and it was expected that the pilot would complement their activity. Pennine Prospects did put significant officer time into the pilot and their networks were utilised in the engagement process. However, they did not have any dedicated budget for engaging in the pilot and this reportedly constrained their ability to engage with the pilot particularly during its later stages.

1.23 There was also a technical working group, whose primary responsibility appears to have been to complete the economic analysis of options for future service provision in the catchments.

### Pilot project activity

1.24 Natural England anticipated that all of the ecosystem pilots would evolve in line with local circumstances and priorities, but initially anticipated that they would follow a similar development path – as shown in **Figure 2**.



**Figure 2:** The project steps that each pilot was expected to follow<sup>6</sup>

1.25 **Table 1** below, extracted from a progress summary document dated February 2010, provides an indication of the intended activities in the South Pennines pilot. The third column summarises our understanding of the action that was taken.

**Table 1:** Milestones and actions for the pilot

Milestone	Action required	Action taken
Regional partnerships established with governance structure	Secure commitment from partners to projects	A steering group was formed and terms of reference agreed. Following the change of project officer, a technical working group was also formed, which specifically focused on developing the economic valuation work. A wide range of stakeholders were also engaged in the pilot. This is discussed further in this report. We do not have records which would indicate the number and frequency of meetings.
	Agree terms of reference and governance structure	
	Identify regional stakeholders and potential collaborators (beyond partnership)	
	Establish regular meetings/communications	
	Review partnership composition	
Regional project scale	Define potential project area	The project area was agreed,

<sup>6</sup> Ibid, p.5

and geographical scope agreed with partnership	Review area with partners (with reference to services targeted)	although uncertainty about the focal catchments seems to have persisted throughout much of the pilot.
	Share boundaries among partners (GI shape files)	
Assessment and mapping of existing ecosystem services	Identification of current service provision	A detailed baseline assessment document was produced (but not published) in March 2010, drawing on a wide range of data sources, and outlining current service provision. Mapping of data was carried out, with extensive mapping (at pilot and catchment level) included in the baseline assessment and some catchment-level mapping in the delivery plan.
	Collation of geographical information on each service identified both within NE and with partners	
	Assessment of suitable proxies for services with no current data	
	Agree generic mapping approach across three projects	
	Gap analysis of missing data (is there something crucial missing? - how can we fill that gap)	
	Mapping the information onto GIS	
	Quality control of mapping information (is what it's showing us sensible?)	
Assessment and agreement of favoured option	Agree suite of services sought	The delivery plan indicates the ecosystem services and benefits that would be delivered by each of the proposed actions.  There is limited evidence of formal work with partners to agree a way forward. Only one workshop and two steering group meetings are referred to in project documentation, although there was a participatory process beyond this.
	Define land management options linked to service provision	
	Identify 'reference' areas where these exist (where the service is already being provided)	
	Define scenarios for future service provision	
	Work with partners to agree option to take forward	
Identification and mapping of service beneficiaries complete	Identify (current and potential) beneficiaries for each service	We found limited evidence relating to this stage of the process but the baseline assessment contains a table outlining the range of services, the related beneficiaries, the
	Develop approach for mapping these beneficiaries	
	Map the beneficiaries	

	Categorise beneficiaries (by location, group etc.)	location of the service benefit and the type of payment linkage that is derived from the services. Note that these relate to the existing ecosystem service provision. We are not aware of this data being mapped.
Land/water management delivery plan agreed	Define land management options linked to service provision	A delivery plan, setting out 8 key land management changes which maximise the delivery over the next 25 years, was produced (but not published) in July 2011. It explains why action is needed, which partners could deliver it and potential sources of funding.
	Identify 'reference' areas where these exist (where the service is already being provided)	
	Identify land management changes required at relevant scale in each pilot	
	Identify mechanisms to deliver land management changes	
	Develop delivery plan for project area (including opportunities and constraints)	

## Aims of the research

- 1.26 The overarching aim of the evaluation was to assess how effective the South Pennines pilot was in applying the ecosystem approach. Natural England required that this be done through an assessment of:
- What happened/what was done differently in the Pilot?
  - What difference did it make?
  - What worked, to what extent and for whom?
  - Why and under what conditions?
  - What didn't work?
  - Were there unintended consequences?



## 2 Methodology

### Evaluation questions

2.1 Natural England set the following questions for the evaluation:

- 1) To what extent has the ecosystem approach and decision-making been applied at appropriate spatial scales?
- 2) To what extent did the pilot take into account the timescales needed for processes to implement the ecosystem approach?
- 3) To what extent did the participatory process influence the development of the Integrated Delivery Plan and achievement of outcomes?
- 4) To what extent did the pilot include evidence from a range of disciplines?
- 5) What aspects of partnership and governance enabled agreement on a shared plan and achievement of project outcomes?
- 6) To what extent did the pilot consider the need to understand and manage the ecosystem in an economic context?
- 7) To what extent did economic valuation inform the decision making?
- 8) What were the inputs to the Pilot in terms of staff time and funding, for Natural England (NE) and other partners
- 9) To what extent did the participatory process result in attitudinal & behavioural change?
- 10) To what extent did the Delivery Plan influence the environmental outcomes?

2.2 These questions have been used to structure the findings section of the report (Section 3).

### Methodology

#### A theory-based approach

2.3 The evaluation adopted a theory-based approach. Such approaches involve seeking to understand and explore the assumptions which underlie the links between the inputs to a project and the outputs and outcomes from the project. It involved the development of a theory of change for the pilots. The theory of change (appendix A) sought to provide a comprehensive description of how the pilots were intended to deliver their intended outcomes. This theory was then utilised to inform the design of the research tools.

#### Qualitative research

2.4 Semi-structured interviews were conducted with key stakeholders from each pilot. This included: relevant Natural England staff, partners in the pilots and other stakeholders/informed observers. The interviews were guided by topic guides (appendices B and C), designed to explore key research questions, sub-questions and assumptions in the theory of change.

2.5 In addition, in-depth interviews were conducted with Natural England staff involved at the programme (national) level. A separate topic guide (appendix C) was utilised for these interviews, which focused particularly on comparing and contrasting the three pilots.

### Review of project documentation

2.6 Project documentation relating to each of the pilots was provided by Natural England. This included published documents, as well as internal emails and other documents such as progress reports. To review these sources, we broke down the research questions for each pilot into a series of sub-questions (informed by the theory of change), and these then formed the basis of a matrix (appendix D) for the purposes of systematically reviewing the documentation and capturing the findings.

### Data analysis

2.7 The qualitative data generated by the interviews and documentation reviews was coded against the research questions and sub-questions. This allowed for the identification of common themes in the research findings. This was triangulated with secondary data, particularly the previous evaluation of the pilots carried out by Natural England.

### Research Ethics

2.8 All research was conducted in accordance with the principles of Government Social Research (GSRU, undated). In summary these require that all research undertaken for UK Government organisations should ensure:

- Sound application and conduct of social and market research methods.
- Appropriate dissemination and utilisation of findings.
- Participation based on valid consent.
- Enabling participation.
- Avoidance of personal harm.
- Non-disclosure of identity and personal harm.

## Challenges and limitations

### Time elapsed between completion of project and evaluation

2.9 This evaluation was conducted more than six years after the completion of pilot activity. This posed particular challenges for the qualitative research with some potential respondents being unavailable for interview and many of those that were available finding it difficult to recall the pilots in any detail. Several noted that there had been a number of other initiatives around at that time (and since) and that this meant they were not always sure that, when recalling their experience of the partnership, they were not confusing it with another initiative. The overall impact of this was that responses to interview questions tended to focus on respondents' general impressions and experiences of the pilots, and to be light on details, for example in terms of their recollections of decision-making processes.

2.10 The passage of time has also made it difficult to consider the counter-factual, that is what would have happened in the absence of the pilot, in a meaningful way. As noted in paragraph 2.9, interview respondents reported the existence of multiple other initiatives and reported that some of these were informed by or based, at least some extent, on the ecosystem approach. It was also reported that the ecosystem approach has been popularised via technical articles and other media in the years since the completion of the pilot. The net result of this is that respondents were unable to be clear on the extent to which some of the reported project outcomes could be attributed to the pilot.

### **Inconsistent approach to the presentation of project documentation**

2.11 An extensive range of documentation was made available for review. This provided considerable useful detail although the records were inconsistent in their approach and often failed to record key details. For example, whilst decisions were recorded in workshop reports, they did not always record why a decision had been made or how. Other inconsistencies included: the name of the author was not included on all documents, records of attendees were not recorded for all meetings and some dates were missing. There was also a general lack of monitoring data.

2.12 Another key challenge was that the documentation did not provide a complete project narrative. For example, the outcomes of actions agreed in a workshop or meeting were difficult to track and in some cases references to an agreed activity subsequently disappeared from the project record.

2.13 A further challenge with the South Pennines pilot was inconsistency in the labelling of catchment areas in the pilot. 'Oldfield' and 'Keighley' are understood to have been used to refer to the same place. Similarly, 'Stean Moor' and 'Upper Nidderdale' appear to have been used interchangeably (Stean Moor is in Upper Nidderdale). Further complexity is added by the changes in focal catchments, as discussed in paragraphs 1.13 to 1.17.

2.14 The absence of a clear project narrative and record of activity means that it has not always been possible to provide a clear picture (in the evaluation) of what did and did not happen and why.

### **Limited size of qualitative sample**

2.15 As noted in paragraph 2.9, a number of potential interview respondents were unavailable for interview. In some cases, individuals had retired or moved into other organisations (in the period since the completion of the project). In other cases, potential respondents indicated that they did not wish to participate in the interview, suggesting that too much time had elapsed. This meant that fewer respondents were interviewed than originally planned (10 instead of 14), reducing the range of views available to the researchers. The limited number of respondents also poses challenges for reporting, as it is more difficult to preserve the anonymity of individual

respondents. In mitigation, and in order to conform with Government social research principles, some comments and potential quotes, likely to enable identification of individuals, have not been included in this report. Whilst this may have reduced the ability of the research team to provide respondents insight on some topics it has not prevented reporting of key findings or conclusions.

### 3 Findings

#### Spatial and temporal scales

**Research question: To what extent has the ecosystem approach and decision making been applied at appropriate spatial scales?**

3.1 Whilst the pilot area encompassed the whole of the South Pennines NCA, the baseline assessment and delivery plan explain that focal catchments were selected based on where there were more environmental data available. The baseline assessment (Natural England, 2011) suggests that a focus on a small number of catchments enabled the pilot to *'better reflect the biological pathways and process, when considering the impact of changes against the status quo'*. Working at this scale, the report argues, allowed the Pilot to have *'much more meaningful and relevant dialogue and debate with partner organisations and local people'*.

3.2 The interviews revealed some support for this approach. The wider pilot area gave the ability to appreciate the services at a high level, particularly those which operate across a wide area such as the cultural services, and the area was seen to function as an entity in landscape terms. Alongside this, the focal catchments were felt by interviewees to have been well suited to the more detailed work.

3.3 However, minutes from the steering group indicate that the scale and complexity of the pilot area presented significant challenges:

*'The work in the South Pennines is made more complex by the existence of the watershed and the 80+ sub-catchments, together with the very large population in the surrounding conurbations that benefit from the various services provided.'*

3.4 Interview findings also confirm these challenges, particularly since data for the pilot area was reportedly scarce:

*"South Pennines is an enormous area but it is not data-rich and it doesn't function as ecological unit or as a cultural unit".*

3.5 This issue is also acknowledged in the delivery plan (Natural England, 2010b), which reports that the size of the pilot area and the paucity of detailed data caused considerable difficulty when trying to assess the ecosystem services at this scale.

3.6 The July 2010 progress report states that there was a:

*"Consensus emerging amongst partners and academics that mapping the beneficiaries of South Pennine Pilot is likely be a difficult exercise due in part to its physical geography."*

- 3.7 The baseline assessment (Natural England, 2011) states that the political geography and topography cause considerable difficulty when trying to assess the ecosystem services of the pilot area.
- 3.8 A further challenge referred to by stakeholders was the scale and complexity of stakeholder interests across the pilot area. This was compounded by a reported mismatch between the geography of the existing partnership (Pennine Prospects) and the pilot area. These issues had an impact on stakeholder engagement, which is explored further below.
- 3.9 As a result of these challenges, the delivery plan was confined to consideration of land management in the focal catchments, and two of these catchments in particular Keighley and Worsthorne, which were the only catchments for which economic valuation was completed. The other three focal catchments received less attention, due to data challenges, but the delivery plan suggested the potential to roll out the approach to these catchments in the future.
- 3.10 The selection of the focus catchments also proved problematic. It took a significant amount of time to identify and reach agreement on these focus catchment areas. Even as late as July 2010, there was uncertainty about them, with five having been agreed on and a sixth still under consideration.
- 3.11 The May 2010 Progress Summary document (Natural England, 2010c) suggests a lack of clarity about the spatial scale(s) of the pilot. It concluded that:
- “there is still no agreed pilot area within the more general NCA boundary”.*
- 3.12 In reflecting on all three pilots, one stakeholder commented that the areas:
- “need to be large enough to be meaningful but small enough to manage and get people around the table to talk”.*
- 3.13 The pilot met both of these criteria through its work at the South Pennines level coupled with the catchment-level work. However, there may have been a need for greater clarity about the objectives, i.e. what was to be delivered at the pilot area level and what was to be delivered at the catchment level. There clearly was an expectation that service provision would be mapped across the whole pilot area but the extent of this is unclear. Some stakeholders also indicated that they had an expectation that the detailed catchment-level work would be ‘up-scaled’ to the whole pilot area.
- 3.14 Whether it was a failure to deliver on the objectives, or a lack of clarity around the objectives (and particularly the balance between pilot-level and catchment-level activity), it led to frustration on the part of some stakeholders. For example, one respondent stated:
- “The overarching element didn’t really deliver”*

**Research question: To what extent did the pilot take into account the timescales needed for processes to implement the ecosystem approach?**

3.15 The 'Delivery on the Ground' document (Natural England, 2009), which sets out proposals for the South Pennines pilot, includes a Gantt chart for the period August 2009 to July 2010, which provides an indication of the intended timescales at the outset of the project. This included:

- Identifying the pilot area and identifying and signing up key partners in August and September 2009;
- Agreeing the services to focus on by November 2009;
- Capturing data to quantify services by January 2010;
- Agreeing a methodology for service valuation by January 2010; and
- Carrying out valuation of services between February and May 2010.

3.16 The Gantt chart also includes works in three catchments from November 2009, which we understand were planned to be taken forward irrespective of the pilot.

- At Stean Moor, works were scheduled over a two-year period from November 2009, funded by RDPE, with R&D funded by Natural England, Yorkshire Water and the Environment Agency.
- At Keighley Moor, works were scheduled for Winter 2009/2010, funded by Yorkshire Water.
- At Marsden Estate there was a phased programme of works scheduled up to 2013, funded by RDPE, with a contribution from the National Trust.

3.17 For each of these catchments, the document sets out the current land use, current beneficiaries, potential services and potential beneficiaries.

3.18 Internal emails suggest that the aim was to conclude the 'project phase' by March 2011, i.e. by then it was planned that the outcomes from the pilot would be fully integrated into regional delivery models.

3.19 It is clear from meeting minutes and other internal documentation that progress with actions was slower than planned or anticipated and that Natural England and other partners were concerned about this. Time pressures impacted on the nature and scope of the work undertaken, with the pilot becoming more targeted in its work. For example, minutes from the July 2010 steering group indicated that the scope of the valuation work needed to be curtailed due to its complexity and the shortage of data. There appear to have been a number of contributory factors:

- A change in project officer in early 2010;
- The scale and complexity of the pilot area (as discussed paragraphs 3.3 to 3.8);
- Uncertainty over the focus catchments (as discussed paragraphs 1.13 to 1.17); and

- Difficulties in securing data for mapping and valuing the services provided, including commercial confidentiality issues associated with water company data (which we understand led to some valuation data being withheld).
- 3.20 Project documentation also indicates that project planning toward the end of the pilot became extremely compressed. Notes of a project planning meeting from January 2011 indicate that the baseline assessment, final valuation report, draft delivery plan, monitoring strategy and project evaluation were all scheduled for completion in February and March 2011. To give an indication of the challenges faced and the knock-on impacts on timescales, the baseline assessment was originally due for completion in April 2010.
- 3.21 The delivery plan was eventually completed in July 2011 after the cessation of the pilot. It was not completed by the pilot project officer but by another member of Natural England staff.
- 3.22 Some interviewees suggested that the timescales for the pilot were unrealistic from the outset, both in terms of its objectives and the collaborative process by which it intended to achieve those objectives.

*“We were very naïve about how long it would take to make things happen. We thought it would be 12 months or so before we could start monitoring“.*

*“The pilot was supposed to result in payment for ecosystems services within 18 months. It was pie in the sky”.*

*“Collaborative working takes a huge amount of time and effort. It was very ambitious. We have some principles for collaboration and one of those is about recognising the time that this involves.”*

- 3.23 The pilot did not progress to a point where the implementation stage could then proceed, and a number of interviewees suggested that it would have needed considerably longer to reach that point.

## Partnership and participatory engagement

### Research question: To what extent did a participatory approach involve a range of stakeholders' perspectives?

- 3.24 Early documentation from the pilot indicates that a significant number of meetings were held with potential partners, with a view to forming a steering group. This included:
- Yorkshire Water
  - Pennine Prospects
  - GOY&H
  - National Trust
  - Environment Agency



- Moorland Association
- CLA (Countryside Land and Business Association)
- NFU (National Farmers Union)
- Moors for the Future
- Forestry Commission
- British Waterways
- Primary Care Trust

3.25 Later documents indicate that further partners were added because of the addition of the Rivington and Worsthorne catchments. These were:

- United Utilities
- Lancashire County Council

3.26 Different partners were involved in different catchments. The document outlining priority catchments<sup>7</sup> indicates the following key partners in each of the catchments at the time:

- Stean Moor – Environment Agency; Yorkshire Water; Leeds University; Durham University; Yorkshire Peat Project; Stean Moor Commoners Association; and Dales Rivers Trust.
- Ilkley Moor - Pennine Prospects; Bradford District Council; English Heritage; and RSPB.
- Oldfield - Yorkshire Water; NFU; RSPB; Cranfield University; Leeds University; Heather Trust; and Environment Agency.
- Worsthorne – United Utilities; RSPB; Pennine Prospects.
- Rivington – United Utilities; and Pennine Prospects.

3.27 The wide range of organisations involved was viewed by some interviewees as an important achievement given the time and resources that were available.

3.28 An important step in the intended process that the pilots were expected to follow was the identification of current and potential beneficiaries of the ecosystems services provided by the pilot area. A table of beneficiaries is referred to in the project documentation, which suggests that this exercise was carried out, but it is not clear precisely how this exercise was conducted.

3.29 The wider public do not appear to have been engaged in any of the workshops. However, Pennine Prospects, funded by Natural England, commissioned Research Box to carry out surveys and focus group work with local communities to determine what the South Pennines meant to them in terms of cultural ecosystem services (Research Box 2011). This went on to inform the delivery plan. For example, an action to restore traditional linear features such as hedges and dry stone walls was justified partly on the finding from this research that such physical factors were a key positive

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<sup>7</sup> Anonymous and undated so not included in the references

influence on cultural services. Actions relating to 'Communications and Engagement' and 'Interpretation and Learning' were also informed by this research.

3.30 Some interviewees suggested that a lack of engagement with private landowners was a weakness of the pilot. The NFU were engaged as representatives of farmers in the area and it was reported that a tenant farmer was involved in the Keighley catchment, but the pilot did not appear to have engaged with landowners beyond this. Pennine Prospects were reported to be less well connected to this group of stakeholders. A further issue was the sheer number and complexity of landowners across the pilot area.

*"There were thousands of individual farmers. We couldn't involve all of them"*

3.31 This was compounded by a perception that the pilot wouldn't have generated immediate benefits for them:

*"I would say that the true private landowners were under-represented. They tend to be quite polarised – from one man subsistence-type people through to extremely wealthy people. Both have their challenges and the working styles are so different. Neither are used to sitting in a room and working collaboratively on something that doesn't have immediate benefits."*

3.32 This suggests that the engagement work carried out by the pilot may not have been sufficiently tailored to the needs and working styles of this particular group, a group which was important in terms of securing delivery of the plans generated by the pilot.

3.33 Interviewees suggested a number of other stakeholder groups who might have been engaged further, including:

- Local authorities;
- Wildlife trusts;
- RSPB; and
- Primary Care Trusts.

3.34 Far less formal engagement, particularly in the form of steering group meetings and workshops, seems to have been conducted than might have been originally envisaged given that the pilots were intended to be founded on a participatory approach. This may reflect a decision which was reported in internal emails on the national project. Following a project board teleconference in November 2009 to resolve a number of governance/timescale issues, it was determined that the

*"project structure and governance needs to be appropriate but secondary to focused delivery".*

3.35 It may also reflect the fact that the local partnership, Pennine Prospects, were constrained in terms of their resource and scope to engage in the work of the pilot.

*“They didn’t have the resource to drive it... They weren’t used as the delivery mechanism...Initially they were very important but as the project got increasingly complex, they played less of a role. They pump-primed it but it built from there”.*

- 3.36 It was suggested that the potential for working through an existing partnership body in the area was not fully realised:

*“I don’t think we used Pennine Prospects as well as we might have done. We recognised they were a useful organisation but I don’t think we got that relationship right. We didn’t get it clear from the outset how we would work alongside them. We didn’t formalise the relationship. I would characterise it as a confused relationship... At points they felt like a contractor who were doing stuff for us.”*

- 3.37 Other stakeholders also reported struggling to justify the time commitments which the pilot required, particularly as it progressed towards the economic valuation stage and became more complex.

*“The economic work was time-consuming - deciding what you would measure before and after, finding the transfer values, the wider engagement. We were involved in the workshops but it started taking up more time than we could give. We are very delivery-focused, the pilot was heavy on debate and discussion.”*

- 3.38 Natural England’s intention was that local pilot officers would work as facilitators or catalysts rather than as project managers, but in practice they appear to have played an active role in the delivery of project activity. Interview findings suggest that they very much managed and drove the work of the pilot in conjunction with national colleagues. One stakeholder, reflecting on the approach of all three of the pilots suggested that in the South Pennines:

*“it probably felt less like a partnership and more like Natural England doing a project and consulting people”.*

**Research question: To what extent did the participatory process influence the development of the integrated delivery plan?**

- 3.39 Few interviewees were able to recall many specific details of the participatory process. The documentation from the pilot indicates that the following key meetings/workshops took place:

- January 2010 – regional stakeholder group (no further detail on membership of this group, how it relates to steering group) to identify regional stakeholders and potential collaborators;
- February 2010 – initial steering group meeting to raise awareness of ecosystems services and build partner support for the pilot;

- February 2010 – partner workshop to gain a shared view on the current services provided by the catchment and which services they might wish to enhance; and
- July 2010 – second steering group meeting.

3.40 Following the engagement in early 2010, there then appears to have been a hiatus, which may have stemmed from the change in project manager. The Progress Summary from May 2010 (Natural England, 2010b) reported that there had been no partnership meetings or workshops. It goes on to say that it was feared that key partners may disengage due to a lack of progress.

3.41 The interviews suggest that there was a participatory process beyond the meetings listed above but it may be that this did not include the kind of pilot-wide workshops that were originally envisaged.

3.42 Few stakeholders could recall the production of an integrated delivery plan. This is likely to reflect the fact that the plan was produced following the formal completion of the pilot. We understand that the plan was completed by another member of Natural England staff, after the project officer-led phase had finished, and that there was no wider consultation as part of this.

3.43 The late delivery of the document is likely to have undermined the potential for engagement, as we know from the interviews that engagement with the pilot dropped away significantly at the end of the pilot period. Even those who were aware of the plan had limited knowledge of how it was developed.

*“I don’t know if there was consensus. I have a copy of the plan but I’ve no idea what happened to it, how it was signed off.”*

**Research question: To what extent did the pilot include evidence from a range of disciplines?**

3.44 The findings from the document review indicate that evidence from a wide range of disciplines was utilised at each stage of the pilot, as outlined below.

3.45 Slides from the first steering group meeting in February 2010 include several maps with different data superimposed, which indicate the wide range of disciplines from which evidence was drawn in the early stages of the pilot. The data includes:

- land covered by Environmental Stewardship agreements;
- landscape types;
- condition of blanket bog on SSSIs;
- peat habitats;
- water abstractions;
- raw water colour;
- water quality;
- grouse shooting activity;
- density of breeding ewes;
- woodland over 10ha in area; and

- perceived tranquillity.

3.46 The baseline assessment (Natural England, 2011) indicates that a large body of evidence from a range of disciplines was drawn upon to establish the existing ecosystem service provision within the pilot area. This included the following, listed under the ecosystem service type being assessed (underlined):

- Supporting services
  - Soil condition, soil drainage and soil texture maps from the NSRI (National Soil Resources Institute at Cranfield University);
  - Yorkshire Peat Project data sampling points map (which aims to ‘*evidence how best practice land management, and restoration techniques such as reseeded bare peat, installing peat dams and consolidating deep peat areas can enhance the Ecosystem Services associated with peatland habitats*’ (p7));
  - Geological information;
  - the Integrated Management Strategy and Conservation Action Plan (IMSACAP) which was produced for the area (SPA/SAC) in 1998 by Pennine Prospects;
  - the good practice manual for landowners (Pennine Prospects, 2011);
  - Habitat distribution map (showing habitat type using landscape audit data from the Peak District National Park);
  - National Vegetation Classification Phase 1 Habitat Survey Map using JNCC (Joint Nature Conservation Committee) Phase 1 habitat survey handbook codes, Natural England;
  - Special Areas of Conservation (SAC) and Special Protection Areas (SPA) map from Natural England;
  - Sites of Special Scientific Interest (SSSI) Condition Assessment map from Natural England;
  - Biodiversity Action Plan (BAP) Priority Habitats map from Natural England;
  - Biodiversity Action Plan (BAP) Deciduous Woodlands map (Natural England);
- Provisioning services
  - Agriculture Census Data 2008;
  - Density of Breeding Ewes map (Defra);
  - Agri-Environment Schemes map (Natural England);
  - Planned Agri-environment Schemes map (Natural England);
  - National Inventory of Woodland and Trees (woodland over 10ha map and woodlands and trees map [the Inventory is produced by Forestry Commission]);
  - Average Annual Rainfall (1941 – 1970) map (Meteorological Office);
  - Sub-catchments boundary map (Environment Agency);
  - Raw Water Colour map (United Utilities);
  - Oldfield WTW (Water Treatment Works) Raw Water Colour 1990 to 2008 graph (United Utilities);
  - Yorkshire Water AMP5 (Asset Management Plan) Catchments map [catchment management plan] (Yorkshire Water);

- Annual Mean Wind Speed 25m above Ground Level map (Department for Business, Innovation and Skills);
- Number of Wind Turbines map (no source given).
- Regulating services - Nitrogen Exceedance (2010) map (Centre for Ecology and Hydrology);
- Upland Deep Peat Soils map (British Geological Survey);
- Areas of Deep Peat Current Condition table (no source given);
- Floodzone 3 map (Environment Agency);
- Catchment Flood Management Plans (CFMPs) map (Environment Agency);
- River Waterbody Catchments and sampling points map (Environment Agency);
- Water Framework Directive Overall Ecological Status map (Environment Agency).
- Cultural services
  - Southern Pennines National Character Area - map of landscape character types (from the SCOSPA (Standing Conference of South Pennines Authorities) 1998 assessment);
  - Tranquility 2006 map (Campaign to Protect Rural England);
  - Scheduled Ancient Monuments map (English Heritage);
  - Scheduled Ancient Monuments at Risk map (English Heritage);
  - Access to the Countryside map, including National Trails, Public Rights of Way and Countryside Rights of Way (all Natural England) and National Cycle Networks (Sustrans);
  - MENE (Monitor of Engagement with the Natural Environment) survey 2009 data;
  - STMWPM 2004 data [no explanation of the abbreviation is given but this appears to be a survey about visitor spending, reasons for visiting the area, perceptions of the South Pennines countryside among local people];
  - Angling Licenses map (Environment Agency);
  - Digital River Network map (Environment Agency).

3.47 The report also includes a map showing the distribution of the population (Population by Lower Super Output Area, Office of National Statistics) in the South Pennines Pilot area to help identify potential service beneficiaries. In addition to the mapping and data used for the whole pilot area, some other data were used to assess ecosystem services within the two focal catchments. These included:

- Catchment Colour Risk map (Yorkshire Water);
- Erosion risk map (Environment Agency);
- Fine sediment risk in channels (Environment Agency);
- River Worth Floodzones and Properties at Risk map (Environment Agency).

3.48 Although water quality and biodiversity were, perhaps, the key drivers which the pilot was based around, evidence on cultural services featured strongly as the pilot progressed. Internal emails indicate that Pennine Prospects carried out a scoping project on health service provision from ecosystems in the pilot area, and the possible

links to primary care trusts. They were also commissioned to carry out surveys and focus group work with local communities to determine what the South Pennines means to them. This work, funded by Natural England, was undertaken by Research Box and published as a Natural England Commissioned Report (Research Box, 2011). The delivery plan is informed by the findings from this study, and a range of other data sources. Although the delivery plan is incomplete and the data sources informing the various actions are not fully listed, it is clear that the baseline assessment document was utilised and data is included from a wide range of disciplines spanning supporting services, provisioning services, regulating and cultural services.

**Research question: What aspects of partnership and governance enabled agreement on a shared plan and achievement of project outcomes?**

3.49 The documentation review suggests that considerable work was invested at an early stage of the pilot in identifying, engaging with and building support from a wide range of stakeholders. This culminated in a steering group meeting in 2010. The minutes of this meeting suggest that strong support for the pilot was expressed and the meeting included a facilitated workshop to allow partners to engage in early decisions relating to the pilot. The minutes suggest that the meeting resulted in Natural England being given a mandate to draft the pilot area's services and beneficiaries (this is understood to refer to the baseline assessment) and also gained commitment from partners to provide support in the form of time and data.

3.50 However, although it is clear that a functioning steering group was established, the overall approach to governance and management of the pilot is unclear. It is not clear, for example, what the relationship was between 'the partnership' and 'the steering group', and the relationship between the pilot and Pennine Prospects was reportedly unclear. The May 2010 progress summary (Natural England, 2010c) stated that:

*"The pilot lacks a clear governance structure; the relationship and allocation of responsibilities with Pennine Prospects needs clarifying further."*

3.51 The geography of the pilot area was cited in the interviews as presenting a challenge in terms of establishing effective governance of the pilot. It was suggested that the geography of the pilot area was not recognised by many partners. This reportedly held up the decision-making process as those involved had to keep checking back with colleagues who covered other parts of the pilot area. For example, it was reported that there were three Environment Agency teams covering the pilot area.

3.52 It is clear that the partnership steering group formed for the purposes of the pilot, ceased to meet at the end of the pilot, although some interviewees reported that some relationships have been sustained and built on since the pilot ended, including through ongoing projects inside and outside the pilot area. This is explored further below.

## Economic considerations

### Research question: To what extent did the pilot consider the need to understand and manage the ecosystem in an economic context?

3.53 The project plan for the pilot clearly indicates a recognition of the economic context. Actions listed in the June 2010 Project Plan include:

- Evaluate the current payment mechanism which may be able to afford the desired environmental change/management;
- Identify shortfalls in the current funding regime/ economic markets;
- Scope and define potential new funding sources;
- Assess the implications of potential new funds within the pilot areas; and
- Set up and inform new agreements and implement works associated with enhancement of ecosystem services.

3.54 As already noted, the economic drivers for the water companies were pivotal to the selection of the focus catchments and the hope was that, if the approach was shown to be effective, it could be:

*“rolled out across water catchments and thus reducing the operating costs at existing water treatment plants or building new ones” (Natural England, 2009).*

3.55 One of the key aims of the pilot locally was to determine the economic benefits, to the water companies and others, of sustainable land management in the uplands of South Pennines.

3.56 To support this, Yorkshire Water commissioned a study to evidence the link between increased water colour, DOCs and land management practices inside the Oldfield catchment. In the July 2010 progress report, United Utilities are also reported to have produced detailed information on the value of current ecosystems services and were willing to commission more information. The two water companies worked together to provide a valuation of the benefits of catchment management for water supply in the focal catchments, which fed into the valuation report.

3.57 Other work referenced with an economic element includes Pennine Prospects carrying out surveys and focus group work with local communities to determine what the South Pennines means to them, in order to inform the valuation process (Research Box, 2011). However, it was not possible to directly include this qualitative evidence in the quantitative monetary valuation assessment of Harlow and others (2012).

3.58 The valuation exercise appears to have been extremely challenging. A pilot update email from November 2010 suggests that the challenge was not simply about securing the necessary data but also determining how to conduct the valuation, and what data was needed. The email refers to the economic valuation being:



*“the most technically challenging step, requiring not just economic expertise, but also a good understanding of what proposed land management changes are likely to do in terms of changing ecosystem service provision.”*

- 3.59 That this aspect was challenging is, perhaps, not surprising given the innovative nature of the exercise. Nevertheless, uncertainties around the data required and how it would be used did provoke frustration among partners (as evidenced, for example, in the July 2010 progress report) and may have made them cautious about engaging more fully.
- 3.60 Detailed economic valuation work was eventually completed for two of the focal catchments. This was innovative work, undertaken by the Natural England national project manager, Natural England economists and the pilot project officer, in collaboration with Yorkshire Water and United Utilities (Harlow and others 2012).
- 3.61 The valuation work assessed and valued changes in ecosystem service provision under two different future land management scenarios, comparing these to a counterfactual. The method used marginal valuation and value transfer (sufficient resources were not available to pay for primary data collection) based on Defra best practice (Eftec, 2010). This work was published as a Natural England research report (Harlow and others 2012) and a peer reviewed paper (Clarke and others 2015). This work has subsequently proven to be influential, something which is explored later in the report. However, the original Pilot aim of establishing a payments for ecosystem services (PES) scheme was overly ambitious, as shown by subsequent Defra work on PES pilots (Defra, 2016).
- 3.62 Consequently, the pilot did not reach the stage of establishing any system for payments associated with ecosystems services. The baseline report (Natural England, 2011) did include a table that identifies possible payment linkages between various services and their beneficiaries (that is, direct market, indirect market, institution or none) but the systems to enable such linkages to be made were not developed.

**Research question: To what extent did economic valuation inform decision-making?**

- 3.63 As noted in paragraph 3.60, detailed economic valuation work was completed for two of the focal catchments (Harlow and others 2012, Clarke and others 2015) and this is referred to briefly in the delivery plan. The published reports provide a cost-benefit analysis based on the valuation of projected provision of ecosystem services for two different future land management scenarios.
- 3.64 It is not clear how the valuation work or other economic analysis, for example, by Yorkshire Water, was used to inform the delivery plan. Although the valuation work was referenced in the delivery plan, the previous evaluation report (Waters and others 2012) suggested that the work was completed after the delivery plan was developed and:

*“as such was important for validating decisions and securing investment”*.

3.65 We do not know the extent to which the valuation work validated the proposals contained in the delivery plan but it seems clear that the delays in completing the valuation exercise meant that it was not possible for the outputs to be utilised in informing decision making within the pilot. The valuation work was considered ground-breaking by some interviewees and had influence beyond the pilot area and the pilot period, as explored below.

## Outcomes

### Research question: What were the inputs to the Pilot in terms of staff time and funding, for Natural England and other partners?

3.66 Inputs by Natural England include a full-time Natural England project officer; other regional staff were also reported as having invested significant amounts of time into the pilot.

3.67 Time inputs were also made by a wide range of partner organisations, but such inputs were not recorded and stakeholders interviewed for this research were unable to recall their inputs in any detail.

3.68 Nationally, Natural England invested national programme team staff time, via the Major Projects Manager and Project Manager, and Natural England economists. National staff were involved in a range of meetings, workshops and research which helped inform the work of the individual pilots. For example, a workshop with a group of experts, including academics, was held in January 2010, with the aim of exploring the science underpinning the pilots and the approach to monitoring and evaluation.

3.69 Project documentation also shows that Natural England commissioned:

- Cranfield University to scope potential monitoring and modelling approaches for the three pilots (Bellamy and others, 2011)
- A project with York University (following initial work by Cascade Consulting) on ecosystem services transfer (EST), which is a systematic literature review evidence base of the impact of different land management interventions on ecosystem services (Waters and others, 2016); and
- Case studies, which involved reviewing a suite of existing landscape scale projects, e.g. the Great Fen Project, to determine and quantify what they provided in terms of other benefits (carbon storage, water quality etc). These were intended as lowland examples to complement the upland pilots (Tinch and others, 2012).

3.70 Project documentation records a number of other inputs to the South Pennines pilot in particular:

- Yorkshire Water (YW) reportedly agreed to commission external consultants to survey Keighley Moor (Oldfield Catchment) to provide more info about habitats and levels of impact they will sustain;

- Yorkshire Water committed to commissioning Cranfield University to evidence the link between increased water colour, DOCs and land management practices inside the Oldfield Catchment;
- Moors for the Future undertook to use volunteers to record the extent and condition of the peat resource inside the pilot area; and
- The Environment Agency agreed to undertake some simple modelling work to provide an indication of changes to flood risk from land management interventions in the Keighley management.

3.71 The findings from the evaluation indicate that resource constraints may have been a significant limiting factor on engagement with the pilot, particularly for partner organisations. A number of interviewees referred to the challenge of finding the resources to fully engage in the pilot and this situation appears to have worsened as the pilot progressed and the work became more complex and time-consuming. In the July 2010 progress report, one partner is reported as having:

*“very limited resource and may not be able to participate as fully as they initially envisaged (they have had difficulty in completing agreed undertakings), this is likely to place greater demands upon Natural England.”*

**Research question: To what extent has the participatory approach resulted in attitudinal and behavioural change?**

3.72 Interviewees could not attribute significant attitudinal and behavioural change to the pilot, which may be partly explained by the delay between the pilots’ activity and this evaluation. However, the South Pennines pilot does seem to have had an impact in terms of the extent to which economic valuation of ecosystem services has been subsequently utilised within some of the stakeholder organisations involved.

3.73 Most interviewees suggested that they were familiar with the ecosystem approach prior to their involvement in the pilot. However, it was recognised that the pilot offered the opportunity to take the approach to a new level through practical application at the local level. This was particularly the case in terms of the work on economic valuation at a local level, for example one interview respondent noted that:

*“It was more a recognition of what we were doing already, and quantifying it... That was always the difficult element.”*

3.74 This was valued by some of the stakeholders owing to the challenges associated with ascribing monetary value to ecosystem benefits. The pilot’s work on economic valuation is, perhaps, therefore its most important legacy, as it appears to have influenced and been built on by some of the organisations involved in future project work.

*“I used that [economic valuation work] quite extensively to make the case for what I was doing around blanket bogs and upland forestry. Those economic outcomes were really useful to us, particularly in funding bids.”*

*“The ecosystem approach wasn't embedded in any organisation as a result of the pilot but it raised the profile of the approach and developed valuation evidence that was useful.”*

- 3.75 Interviewees referred to ongoing local and national work on ecosystem services or the related concept of natural capital but were unsure of the role that the pilot had played in this. Natural Capital was not a commonly used term at this time but has become more prominent since the establishment of the Natural Capital Committee in 2013. It was suggested in the interviews that the valuation work had been utilised in the current Pioneer projects which have been established as part of the 25-year Environment Plan.
- 3.76 One of the water companies reported that the ecosystem approach was now factored into all of their investment decisions. They noted that they were clear that their interest in the ecosystem approach preceded the pilot, that they had already carried out considerable work on it and that they would have continued to pursue this interest regardless of the pilot. Nevertheless, they did feel that the pilot contributed to the development of the ecosystem approach within the organisation by providing evidence of multiple benefits. This was key from their perspective because much of their approach is determined by their customers' willingness to pay and this could be enhanced by taking into account the wider benefits of upland management.
- 3.77 The interview findings highlighted some factors which are seen as significant barriers to the ecosystem approach being adopted. There is no evidence to indicate that these barriers were successfully addressed in the pilot. The barriers included:
- Persuading landowners to work together, particularly in the context of complex land ownerships;
  - Challenges in aligning funding from different sources, particularly because of spending rules; and
  - Organisational politics, with some organisations perceived as wanting to protect a discrete role in order to avoid losing funding to other organisations.
- 3.78 One stakeholder reflected on the timing of the pilots and suggested that, at the time, there was far less focus than there is now on cross- agency working and on stakeholder engagement. The implication was that this made the work of the pilots more challenging.

**Research question: To what extent did the Delivery Plan influence the environmental outcomes and deliver multiple benefits?**

- 3.79 The Delivery Plan sets out eight key land management actions for the next 25 years which the author suggests could maximise the potential of land to deliver ecosystem

services within the South Pennines National Character Area. These are outlined in **Table 2**.

**Table 2** Actions, key partners and potential funding – South Pennines delivery plan

<b>Action</b>	<b>Key partners</b>	<b>Potential funding</b>
Reduction of burning to restore Blanket Bog;	Natural England (NE) and United Utilities (UU) staff resources needed to ensure adherence	HLS (High Level Stewardship) and SCaMP - (United Utilities' Sustainable Catchment Management Programme, which is a partnership between UU, RSPB and other stakeholders and aims to reduce water quality risk through sustainable catchment management)
Favourable management of upland heath;	UU are currently undergoing an area of bare peat mapping exercise	HLS and SCaMP
Restore Hydrological Integrity;	UU undertaking survey to identify distance of grip blocking required	Potentially HLS or SCaMP. Pennine Prospects' and UU's Heritage Lottery Fund (HLF) bids
Achieve Sustainable Grazing;		HLS and a range of other options and schemes
Increase woodland cover in defined locations;		HLS, Forestry Commission's 'English Woodlands Grant Scheme' and potentially the Environment Agency (EA) and utilities
Reinstate linear features;		HLS
Communication and Engagement; and		on-going programmes run by partners e.g. Pennine Prospects, Watershed Landscape, local authorities, National Trust, utilities, landowners
Interpretation and Learning		Watershed Landscape project, on-going programmes by local authorities, National Trust, UU, Yorkshire Water (YW)

3.80 No mechanism was established for monitoring the delivery and outcomes from the delivery plan so there is very little data on the extent to which any of these actions were progressed. However, it is clear that no mechanism was established to take forward the plan. Instead, it was hoped that the information and data generated by the pilot would provide the evidence needed to influence the future delivery of partner organisations and provide a steer for Natural England staff in particular. Minutes from a January 2011 project planning meeting indicate, for example, that the delivery plan

was intended to provide a 'map' of the ecosystems services provided and the objectives for land management.

- 3.81 As a result of the project officer-led phase of the pilot ending abruptly, interviewees were cautious in attributing any outcomes to the pilot:

*"The delivery plan is still there but it wasn't taken forward. I don't know if it was even completed. It may have transferred to individual partners".*

*"The concept was sound and it still is. I still use the report, for example for funding bids... These are small, opportunistic gains but none of the strategic change that we desired".*

- 3.82 An email update from January 2011 indicated that the proposed land management interventions had been developed:

*"in conjunction with the South Yorkshire Land Management Team who are now working to ensure that these interventions are delivered on the ground".*

- 3.83 We have no empirical evidence to indicate the extent to which this took place but one interview respondents suggested that its impact on delivery may have been relatively limited.

*"I don't think the concept was sufficiently evolved, or maybe we weren't upskilled enough... We couldn't translate from theory to application. It didn't feed down to local delivery. There were always other local targets that were more important".*

- 3.84 Some interviewees suggested that there had been some indirect environmental outcomes from the pilot, for example it was reported that the pilot had helped inform the Watershed Landscape Project. This was a project run by Pennine Prospects and it was suggested that the pilot enabled them to promote the project and use it to help make the case for valuing the area beyond just the landscape value. It was also suggested that the outcomes from the pilot were useful in successfully bidding for Local Nature Partnership status for the South Pennines in 2012.

- 3.85 There was also reference in the interviews to a subsequent pilot which went on to explore payments for ecosystems services. This referred to the research commissioned by Defra and Natural England to explore how place-based payments for multiple ecosystem services might work in an upland area (Quick and others, 2013). This research used the South Pennines as a case study, specifically to build on the work of the ecosystem services Pilot. The research also included a technical appendix (Birnie and Smyth, 2013), which was a case study on the development of carbon metrics for potential markets for carbon storage and sequestration by peatlands. This technical appendix informed the development of the UK Peatland Code (IUCN, 2017), which is 'a voluntary standard for UK peatland projects wishing to market the climate benefit of peatland restoration'.

## Discussion

### Ambition, scope and timescales

- 3.86 The interview findings suggest that the pilot is now viewed by many as having been overly-ambitious in terms of:
- The level to which the ecosystem approach could be implemented within the available timescales. The change in project officer reportedly resulted in a significant change of direction for the pilot, which had an impact on the feasibility of the timescales associated with the project plan. Even taking this significant change, and its associated impact, into account however, the findings suggest that the intentions for the pilot, in terms of providing a practical demonstration of the implementation of an ecosystems approach, were overambitious.
  - Although this is not entirely clear from the stated objectives, there was clearly an expectation among stakeholders that the pilot would lead to implementation, including a system of payment for ecosystem services. The challenges and complexities associated with this appear to have been underestimated, particularly in terms of: compiling the data and agreeing an approach to value services; gaining buy-in from beneficiaries; and identifying and aligning funding streams. The pilot did however lead to subsequent work on the development of payments for ecosystem services, including work on carbon metrics which informed the UK Peatland Code (IUCN, 2017).
  - The spatial scale at which the pilot could effectively deliver. The original intention was to identify and value all services in the pilot area, something which proved far more challenging than anticipated. The more limited scope of the delivery plan suggests that such an approach was adopted in the end, but the original more ambitious scope is likely to have contributed to the project delays and to the partial disengagement of some partners, thereby undermining the impact of the eventual delivery plan. The challenges presented by the scale and complexity of the chosen pilot area were compounded by the misalignment between the geographies of the pilot area and those of key stakeholders, which impacted on the ability to complete the intended work of the pilot. The selection of focal catchments was a useful way of addressing this fundamental challenge but considerable uncertainty and a lack of clarity about the choice of catchments continued throughout much of the pilot period.

### Engagement

- 3.87 Although considerable discussion took place with a wide range of partners, and many of these partners committed significant levels of time and data to the work of the pilot, there was not a clear sense from the interviews of the pilot being a genuine partnership, i.e. organisations working collectively towards a shared set of aims and objectives. Instead, the impression given is of a Natural England-driven project, upon which a wide range of organisations were consulted. This may have been partly due to the approach adopted by Natural England but constraints on the ability of partner organisations to engage also appear to have been a contributory factor.

3.88 This highlights a fundamental challenge for projects of this nature. They are reliant on in-depth engagement with partners, but to secure and sustain this engagement, partners need to be sufficiently incentivised, i.e. to be clear that there are substantive potential benefits from engaging. However, in this case the nature and scale of the benefits could not be established without significant initial investment. This is a 'Catch-22' which needs to be considered in future similar work, particularly since the constraints on engagement are probably far greater now, due to budget cuts in many organisations, than they were at the time of the pilots.

### Programme coordination

3.89 The project documentation indicates that some stakeholders were concerned about a lack of coordination between the pilot and other Natural England activity. The July 2010 progress report states that partner bodies had complained about being:

*“swamped by different schemes and initiatives from within the Natural England stable”.*

3.90 This links to the challenge of aligning and combining funding streams but may also have been impacted by changes afoot within Natural England. We understand that significant structural changes and budget cuts were being planned for the organisation during the pilot period and this may have impacted on the coordination of the pilots and on the confidence of Natural England staff and other stakeholders to commit to them. For example, the July 2010 progress report states that:

*“Regional (North West and Yorkshire & Humber) staff are being given many messages as to what will be the future direction of the organisation. If ecosystem services is part of that future (and I believe it is!) it may be good to produce some robust internal messages from [name redacted] which we can put to local teams etc.”*

### Planning for delivery

3.91 It is understood (from discussions with Natural England) that the pilot would develop an integrated plan, the implementation of which would be supported by the development of a simplified, shared funding scheme. The fact that the pilot ended before any such integration of funding took place meant that many of the intended longer-term outcomes could not be delivered.

3.92 A key assumption underpinning the evolution of a shared approach to project funding was that partners were involved in the development of and signed up to the integrated plan. In practice the delivery plan was produced with very limited consultation after the officer-led stage of the pilot and was never finalised or published. As a result, the hoped for buy-in from partners was not secured and, when the project officer post ended, the work of the pilot ended as it had not reached the stage where partners were willing to commit the resources that would have made this possible.

*“It was a really good initiative. It got some really good traction. Then it just came to an end. The funding ended. I don't recall any planning for an exit strategy”.*



3.93 Some of the project documentation indicates that partners were concerned, early in the pilot, about insufficient planning for delivery beyond the life of the pilot, and this may have hindered the extent of their willingness to engage in the pilot.

3.94 Natural England were aware of the issue during the pilots. An internal email in November 2010 suggested that the pilots' programme staff:

*“spoke with regional directors for the three pilots to agree a process for embedding the work into local delivery so that the work that has been carried out with partners is not lost as the formal project concludes and Natural England's structures change”.*

3.95 The extent and outcomes of these discussions are unclear but it may be that the changes in structure within Natural England hindered the potential to follow through on them.

3.96 Minutes from a January 2011 project planning meeting may indicate a subtle change in ambition. They suggest that the intention subsequently became for the pilot to provide 'information' which would influence the ongoing work of partner organisations.

3.97 Whilst the outputs from the pilot appear to have had some influence, as discussed in paragraph 3.85, it is apparent that ongoing mechanisms were needed for the delivery plan to be taken forward:

*“It's a decision support tool... There needs to be agent of change to move from theoretical benefit to delivering real benefit”.*

## 4 Conclusions

4.1 The upland ecosystem pilots were intended:

1. To provide practical examples demonstrating how the ecosystem approach could be applied on the ground.
2. To use a consultative ecosystem approach to define land and water management based upon stakeholders' perceptions of the best options.
3. To demonstrate that investment in the natural environment can result in multiple benefits (carbon, water, food, biodiversity, recreational and landscape benefits).
4. To work in partnership to deliver a range of ecosystem services in a cost-effective way and link these services to the beneficiaries.

4.2 The evidence gathered during this evaluation indicates that the South Pennines pilot made significant progress in achieving the first three of these objectives but did not deliver the final objective.

### **To provide practical examples demonstrating how the ecosystem approach could be applied on the ground.**

4.3 The pilot provided examples of how the ecosystem approach could be applied, although these examples were at a much smaller scale (two catchments) than originally intended. It should also be noted that these were theoretical examples, that is, the pilot did not reach the stage of implementing an ecosystem approach but provided a high-level indication of how such an approach might be implemented. Much longer timescales (including long term resource for on-going governance and partnership working) and more focused spatial scales would have been necessary for the pilot to have been able to move into implementation.

### **To use a consultative ecosystem approach to define land and water management based upon stakeholders' perceptions of the best options.**

4.4 The pilot adopted a consultative ecosystem approach and engaged a very wide range of stakeholder organisations from a wide range of sectors. Challenges were experienced in engaging with landowners and with the wider public, and this is linked to the challenge of working across such a large and complex pilot area. More generally, the scope of engagement appears to have declined as the pilot progressed. This may have been due to the increasing complexity of the work of the pilot as it moved into economic valuation activity, but constraints on partner organisations to engage was also a factor. The pilot appears to have faced a Catch-22 in that partners needed to be sufficiently incentivised to remain engaged, but the nature and scale of the benefits could not be established until significant levels of engagement had taken place. The result of these challenges was that Natural England worked less as facilitators or catalysts, as was originally intended, and more as project managers, albeit with a consultative approach.

**To demonstrate that investment in the natural environment can result in multiple benefits (carbon, water, food, biodiversity, recreational and landscape benefits).**

4.5 The pilot, particularly through its work on economic valuation, demonstrated that investment in the natural environment can result in multiple benefits. This economic valuation was highly valued by some of the stakeholders involved because ascribing monetary value to benefits was seen as a very challenging aspect of the ecosystem approach. The pilot's work on economic valuation is, perhaps, therefore its most important legacy, as it appears to have influenced and been built on by some of the organisations involved in future project work.

**To work in partnership to deliver a range of ecosystem services in a cost-effective way and link these services to the beneficiaries.**

4.6 The pilot did not work in partnership to deliver a range of ecosystem services in a cost-effective way and link these services to the beneficiaries. Although a delivery plan was produced, which focused on two catchments within the pilot area, this was high-level and was not accompanied by any mechanisms or governance structures to ensure that the actions were taken forward. As the delivery plan itself noted, it was '*dependent upon the voluntary uptake of various existing mechanisms to deliver benefits*' (Natural England, 2011b).

4.7 On the basis of the evidence from this evaluation, no environmental impacts can be directly attributed to the pilot, although the outputs were utilised in future project development and funding bids, including the establishment of a Local Nature Partnership for the South Pennines.

4.8 The pilot did lead to subsequent work on the development of payments for ecosystem services, including work on carbon metrics which informed the UK Peatland Code (IUCN, 2017). Defra's 25-year Plan Pioneer projects are known to be making use of the valuation work from the pilot. The extent of a wider legacy in terms of attitudinal or behavioural change is unclear. Interviewees referred to ongoing work on ecosystems services or the related concept of natural capital but were unsure of the role that the pilot had played in this. One of the water companies involved reported that the ecosystem approach was now factored into all of their investment decisions and felt that the pilot had made some contribution to this, particularly by providing evidence of multiple benefits.

4.9 The current business planning (for AMP7) being carried out by the water companies may provide further opportunities to utilise the learning from the South Pennines pilot. Interviewees also referred to the increasing prominence of natural flood management, which may become an increasingly valued service of the uplands and drive further interest in the work carried out by the South Pennines and the other upland ecosystem services pilots.

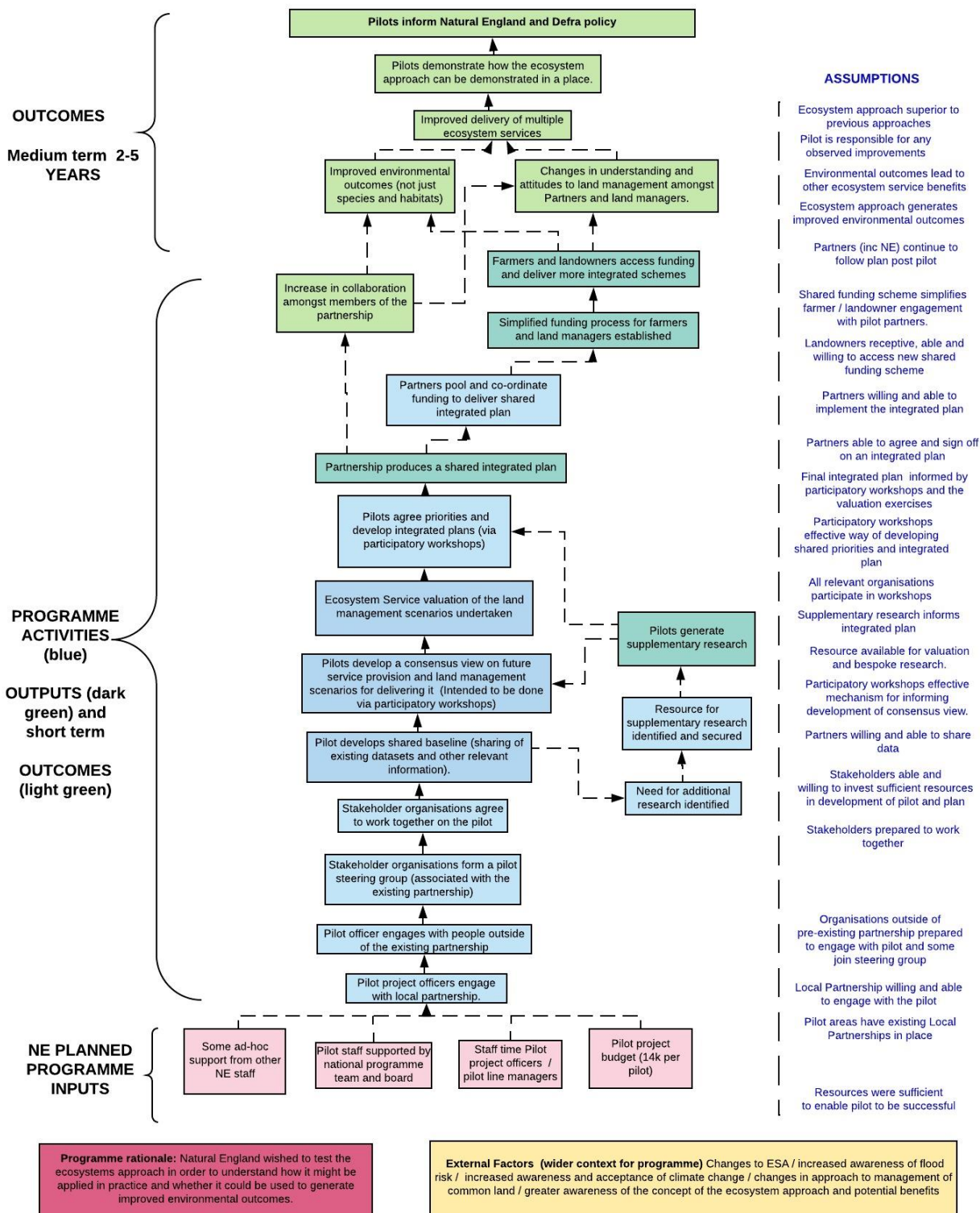
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# Appendices

## Appendix A: Theory of Change



## Appendix B: Topic guide for use with project staff and stakeholders

Question number (from RfQ)	High level research question (shown in grey) and Interview questions	Probes/supplementary questions
	<b>Context</b>	
	Could I ask you to introduce yourself and to describe your professional role / occupation (current and at the time of the project).	
	How did you come to be involved in the pilot and what was the nature of your involvement?	<p>Did they have a specific role? For example were they a member of the pilot steering group.</p> <p>What sort of activities did they take part in? E.g. did they participate in workshops and if so which ones?</p> <p>Were they involved in the pre-existing partnership [Pennine Prospects / Upland] prior to the project commencing?</p>
	How familiar are you with the ecosystem approach?	Were you familiar with the approach prior to your involvement in this project?
a	<b>What are the inputs to the Pilot in terms of staff time and funding, for Natural England and other partners?</b>	
	What inputs did you and your organisation contribute to the pilot?	Check for staff time, funding, other in-kind contributions
	Overall, including the resources invested by Natural England, were the resources available sufficient to enable the pilot to be successful?	If not, what impact did this have on the pilot and how much more resource (of what type) do they feel was needed.
	What role did the existing partnerships play in enabling, facilitating and driving the pilots?	May want to talk to pilot project managers first to ensure that understand what the existing partnerships were.
	Overall how important were the existing partnerships in each area in supporting and driving forward activity in the pilot area?	
b	<b>To what extent did the participatory approach involve a range of stakeholders' perspectives?</b>	
	Do you think that the projects involved all of the stakeholders relevant to your area?	<p>Do you think others should have been involved and if so who?</p> <p>Why were they not involved?</p> <p>Would the outcomes have been different if</p>

		they had been?
	Do you think that the pilots approach and in particular the participatory approach was effective in securing buy in?	If YES what was it about the approach that worked. If NO why not?
<b>c</b>	<b>To what extent has the participatory process influenced the development of the Integrated Delivery Plan and achievement of outcomes?</b>	
<b>d</b>	<b>To what extent did the Pilot include evidence from a range of disciplines?</b>	
<b>j</b>	<b>To what extent did economic valuation inform the decision making?</b>	
<b>If not sufficiently addressed above</b>	Which participatory workshops did you attend and were they were well attended?	If they did NOT attend why was this. If they feel they were NOT well attended. Why was this.
	Did the activities and tools used in the participatory workshops help to link services to beneficiaries?	Note: mainly applies to the mapping workshop.
	Did you feel that the workshops were effective in engaging stakeholders in the development of the pilot?	If YES were there particular reasons why. If NO why not. Probe for issues such as lack of time / effectiveness of facilitation / absence of key stakeholders.
	Were the participatory workshops informed by evidence developed specifically for the pilot, for example valuation?	If YES what was the evidence and where did it come from.  If valuation evidence was used to what extent did this inform decision making?  If NO were there any obvious evidence needs / gaps and if so why were these not addressed?
	Was the Pilot able to achieve a consensus view and did this inform the integrated plan?	What were the main challenges involved?
	Do you think that partners and other stakeholder organisations were able to effectively contribute to the setting of priorities for the Pilot and the development of the integrated plan?	If YES how was this achieved. Probe the role of the workshops, also examine if stakeholders were able to contribute in other ways.  If NO, what prevented this?



<b>e</b>	<b>What aspects of partnership and governance enabled agreement on a shared plan and achievement of project outcomes?</b>	
	What were the governance arrangements for the pilot.	Was there a steering group.  If YES how was it formed and who was involved (probe to see if included people NOT involved in the pre-existing partnerships.)
	What worked well, and less well, with the partnership and governance arrangements?	Did people attend. Was engagement constructive.
	Have the partnerships and stakeholder relationships established through the Pilot endured?	In what form?  What sorts of activities are they engaged in? To what extent are they linked to the work of the Pilot?
<b>f &amp; h</b>	<b>To what extent did the Pilot take into account the timescales needed for processes to implement the ecosystem approach? To what extent did the Pilot consider the timescales required to achieve outcomes and impacts at different spatial scales?</b>	
	What sort of future planning period were pilots working to?	
	Do you think the timescales were sufficient to allow the ecosystem approach to be implemented?	If not, which, if any, aspects of the ecosystem approach were not able to be fully implemented?
<b>g</b>	<b>g) To what extent has the ecosystem approach and decision making been applied at appropriate spatial scales?</b>	
	At what spatial scale did the pilot operate?	How was this agreed?
	Do you think the project operated at the right spatial scales?	If NO please explain.
<b>i</b>	<b>To what extent did the Pilot consider the need to understand and manage the ecosystem in an economic context?</b>	

	To what extent do you think the pilot considered the need to understand and manage the ecosystem in the context of organisations business and financial imperatives?	If NO please explain  If YES please explain
<b>k</b>	<b>To what extent has the participatory process resulted in attitudinal &amp; behavioural change?</b>	
	To what extent is the ecosystem approach understood / used in your organisation?	In what way? (e.g. increased partnership working, pooling of resources, working across different scales, consideration of wider stakeholder groups, changes in attitudes to land management etc.)
	Has your / your organisation's understanding of the ecosystem approach improved as a result of participation in the pilot?	
	Have you identified any changes to the ways that you or others in your organisation think or work as a result of this project? (e.g. increased partnership working).	[Note the question is about thinking <u>and</u> working.]  Why?  Do you view these changes as being beneficial?  Are there any conflicts between these different ways of thinking and working and your other priorities?  Was/is further support needed to enable you or your organisation to implement these changes?
	Have you identified any changes to the ways that those in other organisations think or work as a result of this project?	E.g. Do you think this project led to a more integrated way or working in your area?
	In what ways did the project contribute to these changes?	
	Are there any external factors may have contributed to these changes?	E.g.'s of external factors: changes in approach to management of common land, growing awareness generally of concept of ecosystem approach, increased awareness and acceptance of climate change
<b>l</b>	<b>To what extent has the Delivery Plan influenced the environmental outcomes and delivered multiple benefits?</b>	
	Did the pilot develop an Integrated delivery plan?	

	To what extent do you think the pilot was successful in applying the ecosystem approach?	If possible response should be illustrated with examples.
	What do you consider to have been the main benefits of this project?	Which individuals/groups most benefit from these benefits? In what ways?  What role did the Delivery Plan in delivering these benefits?
	Have pilot partners made changes in their use of funding?	For example pooled funding schemes.  If YES has this benefited partners and or their stakeholders?  If YES in what ways?
	Are you able to identify any environmental outcomes that you feel have been delivered or influenced as a result of this project?	To what extent do you think these are the result of the project and the delivery plan?  Would these outcomes have occurred anyway?  Do the environmental outcomes extend beyond species and habitats?  To what extent are these outcomes measurable?
	Have there been any unexpected outcomes either positive or negative?	These may be positive or negative.
	Overall how would you describe your experience of this project?	Were there any particular aspects that you felt were particularly useful or not useful?  What were the main learning points for you?
	Do you think that Pilot demonstrates how the ecosystem approach can be demonstrated in a place?	Do you consider it to be superior to previous approaches?  If YES why.
<b>Close</b>	<b>Please close by thanking them for their participation and ask them if they would like to check our notes of the conversation prior to them being used in the research.</b>	

## Appendix C: Topic guide for use with national programme staff

Question number	High level research question / Interview question	Probes/supplementary questions
	<b>Context</b>	
	Could I ask you to introduce yourself and to describe your professional role / occupation (current and at the time of the project).	Check on extent familiar with and involved with ecosystem approach.
	In what way(s) were you involved in the pilots?	Did you have a specific role?
	How much time and resource did you invest in the pilots?	Check for staff time, funding, other in-kind contributions.
b	<b>What are the key differences across the areas in terms of approaches and impact and why?</b>	
	Based on your understanding of the pilots briefs, did they proceed as planned / expected?	If NO please expand on your answer; i.e. were things done differently; were activities omitted?
	If the pilots differed significantly in their approach please explain how.	Issues of interest include: <ul style="list-style-type: none"> <li>- differences in project governance.</li> <li>- differences in the level and extent of stakeholder engagement and participation</li> <li>- differences in approach to developing the project baseline</li> <li>- differences in approach to developing the integrated plan</li> <li>- OTHER significant differences (e.g. choice of spatial scale / timeframe)</li> </ul>
	What were the reasons for any identified differences?	
	What impact, if any, do you feel that this had on the pilot?	Probe for impacts on: process; buy in; outputs; impacts.
a	<b>What are the key outcomes from each pilot?</b>	
	What would you say were the principal outcomes from the pilots?	How do they differ between the three areas? What are the principal reasons for these differences?  To what extent were these outcomes a result of the pilots? Might some of them have been achieved anyway?  To what extent are these outcomes measurable?  To what extent have the outcomes been sustained?

	What were the main benefits and beneficiaries and did they differ between the three projects?	What are the principal reasons for any differences?
	Were there any unexpected outcomes from the pilots, either positive or negative?	
	Overall to what extent do you feel that the three pilots were successful in applying the ecosystem approach?	Need to allow time for respondent to consider all 3 pilots (where they have such insight).
c	<b>How important were participatory ways of working in achieving stated aims in each area?</b>	
	How effective was the participatory approach in securing stakeholder engagement in each pilot?	Was the approach more or less effective in the different pilots? If YES why was this? What impact did this have on outcomes?
	Based on your understanding of how the participatory approach was applied are you able to identify any strengths or weaknesses of the approach?	If YES are these due to the approach or to the way it was applied?
d	<b>How important were existing partnerships in each area in driving forward actions and additional stakeholder involvement? (Comparisons around governance in each area and what difference that made to outcomes)</b>	
	What role did the existing partnerships play in enabling, facilitating and driving the pilots?	
	Overall how important were the existing partnerships in each area in supporting and driving forward activity in the pilot area?	What were the reasons for any reported differences? E.g. strength/commitment of local partnerships / key players etc. What impact did this have on outcomes?
e	<b>How were environmental outcomes captured in each area? What mechanisms were (in place/put in place) to achieve these?</b>	
	Did you measure outcomes from the pilots?	Important to probe how confident the respondent that outcomes can be attributed to the activities of the pilot? I.e. would something have happened anyway and if so would it have happened in the same way without the pilot.

g	<b>How are national and local priorities incorporated into the pilots in each area? (tensions around national/local?)</b>	
	How did the pilots identify their priorities (for the integrated plan)?	Probe to understand what mechanisms or rationales were applied.
	To what extent did the pilots include environmental, social and economic priorities?	
	To what extent did the pilots take into account local, regional or national priorities?	<p>Were you aware of any tension between the pursuit of local / regional / national objectives?</p> <p>How did this differ between the three areas and why?</p> <p>What impact did this have on outcomes?</p>
h	<b>What was the role of economic valuation in the three areas? To what extent did it help to inform decision making?</b>	
	To what extent did the three pilots consider the need to understand and manage the ecosystem in the context of business and financial imperatives?	<p>How did this differ between the three areas and why?</p> <p>What impact did this have on outcomes?</p>
	What was the role of economic valuation in the three areas? To what extent did it help to inform decision making?	<p>How did this differ between the three areas and why?</p> <p>What impact did this have on outcomes?</p>

## Appendix D: Matrix for documentation review

<b>Issue: Spatial and temporal scales</b>	<b>Prompts</b>
To what extent did the pilot take into account the timescales needed for processes to implement the ecosystem approach?	<ul style="list-style-type: none"> <li>- what planning time horizon did the pilots work to?</li> <li>- did the pilots have enough time to deliver against their aims and objectives?</li> </ul>
To what extent has the ecosystem approach and decision making been applied at appropriate spatial scales?	At what geographic scale did the pilots operate
<b>Issue: Partnerships and participatory engagement</b>	<b>Prompts</b>
What were the inputs to the Pilot in terms of staff time and funding, for Natural England and other partners?	We want to collate any evidence in relation to the time spent by individual partners and any financial contributions they may have made.
To what extent did the pilot include evidence from a range of disciplines?	We want to understand what type of evidence was used in the development of the pilots. Eg soil maps, biodiversity data etc.
To what extent did a participatory approach involve a range of stakeholders' perspectives?	We want to collate any information available regarding the range of individuals and organisations involved in the pilots. It would be useful to know how many people were involved / in what they were involved in and to have an idea of who was involved (general public and organisations).
How effective was stakeholder engagement?	Did anyone report any views on this?
What aspects of partnership and governance enabled agreement on a shared plan and achievement of project outcomes?	It would be useful to understand what types of governance were in place to manage the pilots and who sat on any steering groups / sub-groups etc.
<b>Issue: Economic Considerations</b>	<b>Prompts</b>
To what extent did the pilot consider the need to understand and manage the ecosystem in an economic context?	It would be useful to know what steps if any the pilots took to ensure consideration of business issues. Eg the compatibility of environmental objectives with farming etc. Information on workshops and reports would be

	useful.
To what extent did economic valuation inform decision-making?	Were any Valuation reports developed by the pilots, if so how many and how were they used?
<b>Issue: Outcomes</b>	<b>Prompts</b>
What outcomes can be associated with the pilot?	Outputs include reports / outcomes are environmental / social and economic benefits generated as a result of the pilots.
To what extent has the participatory process resulted in attitudinal and behavioural change?	It would be useful to understand if there is any evidence of changes in practice and attitude as a result of participation in the pilot.
To what extent did the participatory process influence the development of the integrated delivery plan?	It would be useful to know how many participatory workshops were run, what types of activity they engaged in, who and what the workshops were for, who attended and to collect any views that may have been expressed regarding the usefulness or otherwise of the workshops.  ALSO do we know if the workshops influenced the Integrated Plans?
To what extent did the delivery Plan influence the environmental outcomes and deliver multiple benefits?	Linked to the above it would be useful to understand if there is any information available concerning the ways in which the pilots led to changes in organisational practices and any evidence of impact - we are interested in types of impact and who benefited.
How successful were the pilots in applying the ecosystem approach?	Please capture any views that people may have expressed about this issue.
<b>GENERAL</b>	
Direct drivers (reasons for engaging with the pilots)	
Barriers	
Enabling and success factors (things that help to deliver success)	
External factors that enable or constrain (PEST factors)	
Unintended consequences	
Other points of interest	



## **Appendix E: Stakeholder participation in the Pilot steering group and workshops**

We have documentation on only one workshop. This was in February 2010 and is described as a partner workshop on the current services provided by the catchment and which services they might wish to enhance. We do not have a record of attendance.

Minutes from the steering group, suggest the following were members:

- Yorkshire Water
- Pennine Prospects
- Government Office for Yorkshire & the Humber
- National Trust
- Environment Agency
- Moorland Association
- Countryside Land and Business Association
- National Farmers Union
- Moors for the Future
- Forestry Commission
- British Waterways
- Primary Care Trust
- Natural England
- United Utilities
- Lancashire County Council
- Leeds University
- Yorkshire Peat Project