INVESTIGATING

THE PUBLIC BENEFITS OF LITTLE ASBY COMMON

MULTIPLE CAPITALS ACCOUNT

On behalf of Friends of the Lake District

By

Environmentors Ltd (Prof. Lois Mansfield)

Friends of the Lake District (J Darrall, L Partington, K Wilshaw)

Executive Summary

Friends of the Lake District (FLD) are a charity who campaign for the landscapes of Cumbria owning 12 areas of land across the county, including Little Asby Common near Orton. FLD's work includes commenting on policy proposals and plans, from national to local, demonstrating best practice on our land and feeding this experience back into our policy work, and engaging the public in the outdoors and landscape issues.

Landscape is multi-faceted; it includes the use of all the senses and provokes a range of emotions, it also has a range of different attributes, including natural and cultural. Their policy responses and land management consider all landscape attributes, one element does not automatically trump another, for example, nature over culture, but this may of course change depending on the specific site or plan/proposal situations.

Recognising a change in the current policy environment regarding landscape management and its related attributes, Friends of the Lake District seek to understand better the multiple benefits and values of their organisation's assets. Whilst FLD have always been philosophically against the quantification and monetarisation of landscapes and their elements, we recognise a change is underway, consequently it is best to learn as much about it as we can and experience it, to increase wider understanding as to how it is done and operates. Specifically, Natural Capital Accounting has found traction in government, policy and increasingly with UK landscape management organisations, but there is yet to be recognition and an accounting methodology for other types of capital in the landscape.

This study focuses on testing a prototype Multiple Capitals Landscape Framework from the previous work for Wain *et al* (2021, a-d) and Mansfield (2021) to create a Multiple Capitals Landscape Account by applying the concepts to one of FLDs sites, Little Asby Common, East Cumbria within the Yorkshire Dales National Park.

Landscape & Multiple Capitals

At its simplest, capital refers to the point 'when resources or assets are invested to create new resources' (Flora *et al*., 2004). We can invest this capital as individuals, communities and/or societies to create a better standard of living and quality of life to make us more resilient and adaptable to change. In other words, capitals should be perceived as a positive benefit encompassing environmental resources, our own individual capabilities and capacity, how we work together to solve challenges, our culture and where we get the wherewithal to make change happen to improve our circumstances.

A range of capitals are recognised by society (Hodgson, 2014), the most well-known of which are natural capital (such as ecosystems, species and geodiversity) and social capital ('the glue that holds society together'). Other forms of capital include human (knowledge and skills), cultural (structures and processes created through human endeavour) and financial (for example money).

Each of these capitals have many individual components (*dimensions*) which work in isolation or collectively. These dimensions can improve or deteriorate, they can shape or be shaped by place, space or time (past, present and future), influence or influenced by endogenous or exogenous processes, and support and be shaped by individuals, groups or organisations. In other words, capitals and their dimensions can encourage the creation of new resources and develop current

ones, whilst at the same time working in a homeostatic integrated way to support each other or less desirably, deteriorate, undermining positive sustainable resource use.

The concept of multiple capitals and their dimensions can be applied to landscape spatially and temporally, particularly where society has managed and adapted the environment to create a range of semi-natural habitats (Green, 1985). Consequently, it is evident that human capital and when people work collectively, social capital, are also important for the shaping of such a landscape. The evolving product, therefore, is a cultural landscape, constituting structures and processes which are adapted to and created in response to an environment, and form the cultural capital of a place. Whilst, historically, much of our cultural landscape was shaped though subsistence living, since the mid 16th Century, the ability to create surplus to sell has led to a capitalist mode of production which has in turn created landscapes supported by financial capital.

With multiple capitals interacting to create our landscape, society can then benefit from a range of goods and services produced from such interactions, which are referred to as ecosystem services. The corollary is that UK and other state's cultural landscapes are landscapes derived from and supported by multiple capitals and their dimensions, which in turn provide ecosystem services from which society can benefit. In turn, society can choose to pay for these services, but do so we must create markets from which to sell. Thus, we need a way to financially value capitals and their ecosystem services.

To demonstrate how to create a Multiple Capitals Landscape Account, this report is structured as follows:

1. A Review the 'proof of concept' of Landscape Multiple Capitals Framework (LMCF) developed by Wain et al (2021 a - d) and Mansfield (2021) [Section 2]
2. Employing the LMCF to develop a Multiple Capitals Landscape Account [Section 2]
3. The methodology to calculate an Account [Section 3]
4. Calculation of a Multiple Capitals Account for Little Asby Common [Section 4]
5. A critical review the process [Section 5]
6. Conclusions & Recommendations [Section 6]

Landscape Multiple Capitals Framework

Previously commissioned work for Natural England (Wain *et al*., 2021 a-d; Mansfield, 2021) developed a conceptual framework relating a multiple capitals approach to landscape and landscape change. After reviewing the current knowledge base, a set of five capital definitions and their dimensions (sub-components) were agreed, and these latterly fed through directly into the accounting phase of this piece of work (Box and Table over).

The conceptual framework phase created a mechanism to disaggregate an existing landscape into different capitals and their dimensions to which a range of real landscape attributes could be linked. An example is shown next.

Box – Agreed Definitions of the Five Capitals

- **Natural -** The aspects of the natural environment that provide benefits to people. England's varied natural environment, its ecosystems, geodiversity and landscapes, provides people with a wide range of benefits, upon which human wellbeing depends. These include food, clean water and air, the regulation of climate and hazards such as flooding, thriving wildlife and cultural and spiritual enrichment (Wigley et al., 2021).

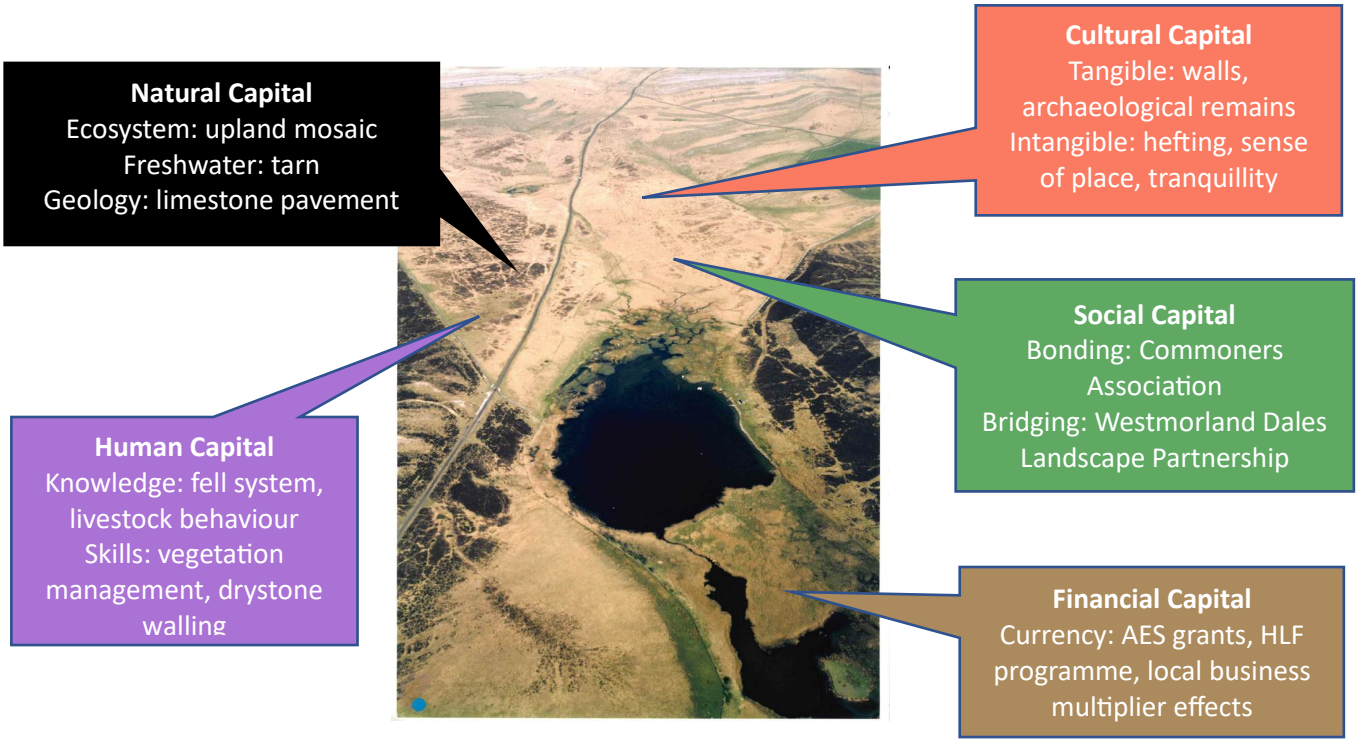
- **Human** – the knowledge, skills, competencies and attributes embodied in individuals thatfacilitate the creation of personal, social and economic well-being (OECD, 2001).

- **Social -** the networks of relationships among people who live and work in a particular society, enabling that society to function effectively. Networks together with shared norms, values and understanding that facilitate cooperation within and among groups (OECD, 2001).

- **Cultural -** The many and diverse ways people - in a specific geographical and socio-economic context – deal with and influence nature and natural resources. Cultural capital is made up of tangible (building, structures and locations) and intangible (ideas, practices, beliefs, traditionsand values) assets.

- **Financial –** assets that exist in a form of currency that can be owned or traded, including (but not limited to shares, bonds and banknotes.

Capital	**Dimensions**
Natural	Ecosystems Species Freshwater Land Minerals Air Oceans Natural functions and processes Geodiversity Landscapes
Human	Education (formal and informal) Knowledge, skills & work experience Traditional practices & core belief systems Practices Motivations Empathy Life experiences Relationships & social learning
Social	Relations of trust – values and trust, organisations Reciprocity and exchange – communication channels, membership Common rules and norms – social norms Connectedness, networks and groups: Bonding – within communities of interest locally Bridging – between communities of interest locally Linking – between communities of interest local to external
Cultural	Tangible structures Private goods Common-pool goods Collective goods Tool goods Buildings Boundaries Historic monuments Contemporary built environment Intangible activities Practices and processes, recreation Sense of place, way of life Perception - sight, sound, smell, touch Inspiration, escapism, relaxation, spiritual Contemporary capitals Buildings Equipment Infrastructure (such as roads, ports, bridges, and waste and water treatment plants)
Financial	Currency - Shares, bonds, banknotes Crypto currency - Carbon trading, natural capital accounting

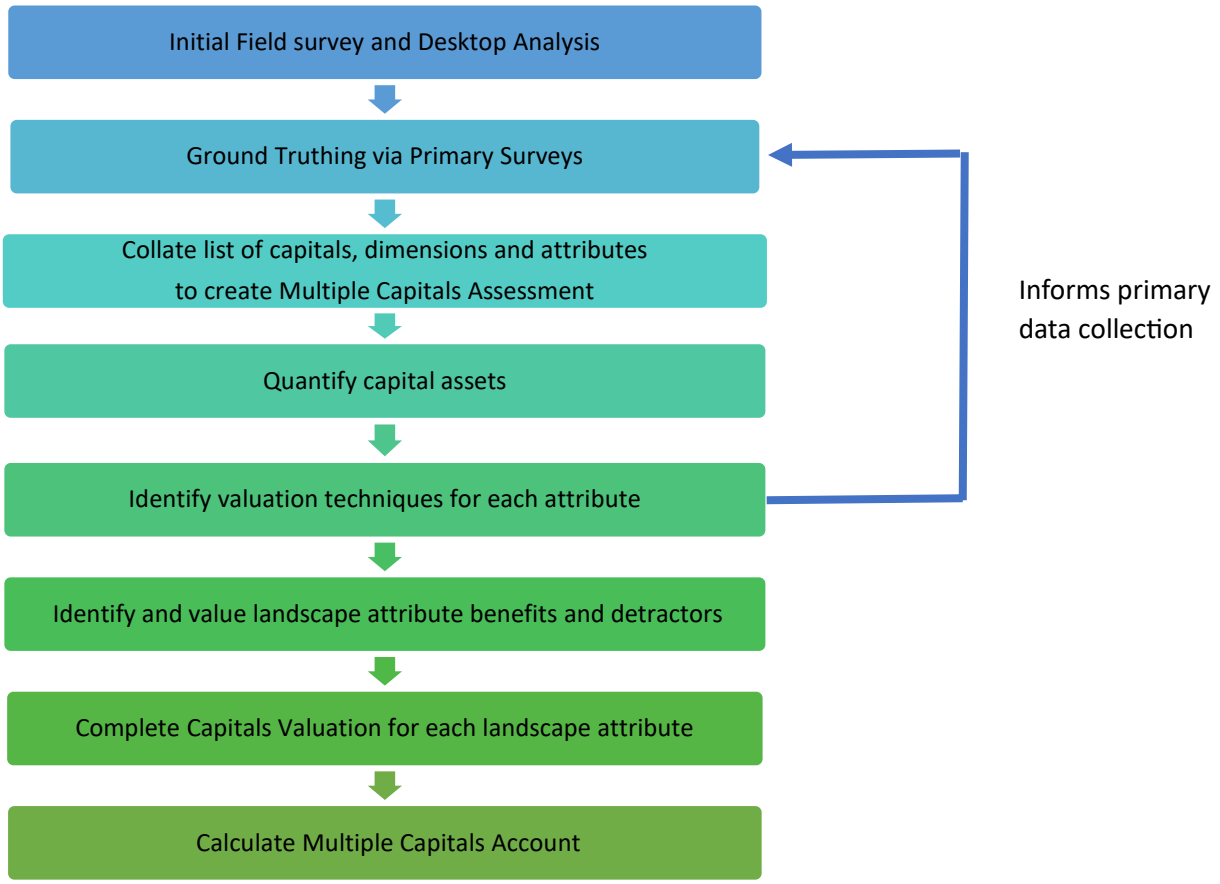


This imagery can then be re-formatted as a table in preparation for identifying all attributes for each attribute, measurable indicators can then be identified to relate to a valuation methodology and ultimately the multiple capital accounting process - this work.

Capital	Dimension	Landscape Attribute
Natural	Ecosystems	Upland moorland mosaic
	Freshwater	Sunbiggin Tarn (Quantity & Quality)
	Geodiversity	Limestone Pavement
Human	Knowledge	Fell system
		Livestock behaviour
	Skills	Vegetation management
		Drystone walling
Social	Bonding network	Commoners associations
	Bridging network	Partnership organisations
Cultural	Tangible	Field walls & system
		Archaeological Features
	Intangible	Hefting
		Sense of Place
		Tranquillity
Financial	Currency	AES grants
		HLF Programme
		Local Business Multiplier Effects

Methodology: Employing the LMCF to develop a Multiple Capitals Landscape Account

The above process to identify capitals, dimensions and landscape attributes was applied to Little Asby Common using a combination of field survey and desktop secondary data analysis. Ground truthing of the results used an online survey, a Commoner's survey and two workshops, which also provided an opportunity to derive missing valuation data.



Ground truthing was supported by a review of Natural Capital Accounting (NCA) methodologies. Whilst still evolving, these provided us with an approach to follow to value other capitals and their attributes. A range of databases exist summarising methods and valuation techniques (eg. ENCA, 2021; HMRCs Green Book, DCMS Cultural Capital and the ONS, 2021) supported by an evolving academic literature. These sources can act as launch point for valuation, particularly where capital appropriation has occurred; for example, recreation and volunteering, are better classified under human and social capital respectively.

Using all these sources three overarching valuation methods were available to us:

- *Direct Market value* – this refers to items with monetary value already extant. For example, livestock sale prices or gross margins per ha/Livestock Unit or salary information
- *Benefits transfer* – monetary values are gleaned from other databases or past studies for similar or near similar capital assets or attributes eg. Christie & Rayment (2012) developed a system for SSSI habitats
- *Indirect Market Valuation* – applying selected techniques to gather monetary values from primary survey, such as stated preference (eg Contingent Valuation Method) or revealed preference.

The most appropriate valuation technique could then be selected for each attribute.

A useful CVM method is 'Willingness to Pay' (WTP) which can be used as a proxy measure when no other valuation tool is available. WTP asks people how much they are willing to pay for X or Y to generate a value (Willis *et al.,* 1993). The method has a long history of application in many contexts and is recognised by the HMRC's Green Book as valid. Having said this, it is important to

appreciate it has several weaknesses related to bias if not careful in design and requires a large primary data set to be gather of at least 300 respondents. Consequently, FLD ran an online survey, a Commoner's survey and two workshops to supplement field work and desktop analysis.

The final phase of the process was to devise a data collation and mapping system for all the landscape attributes and their valuations. The following proforma, adapted from Yorkshire Water (2021), was devised for this task:

Capital		Which main class of capital attribute belongs to		
Dimension		Capital dimension		
Attribute		Landscape attribute		
Indicator		**Method**	**Unit**	**Source**
A	Name of attribute to be measured	Methodological approach for quantification and/or condition	Units of measurement	Primary data from LAC survey OR secondary source of published data
B	Several indicators may be needed			
C	Often the monetisation method	Using Direct Market Value, Benefits Transfer or Indirect Market Valuation	£	As per attribute
Asset/Stock		**Calculations**		
A		Assets in terms of quantity eg hectares of habitat, no. of people		
B		Assets in terms of quality eg different carbon capture values by habitat		
Monetary Flows		**Calculations**		
B		Cash value identified from method (could be primary or secondary source)		
Total Benefit (£)		Formula used to calculate cash value eg = A x B x C		
Total Detractor (£)		Formula used to calculate cash value		
£ Value		Actual cash value (identified as difference between benefit/ detractor)		
Notes on methodological calculations				
Notes here which define terms and variables used in calculations. AND/ OR A space to be used to update methodological developments from new studies				

Three types of account were then calculated:

- Account A – Total Maximum Value (Public Responses ie all WTP & Direct Market Values and infilled with Benefit Transfers)
- Account B – Total Threshold Value (Max. Benefit Transfers, Direct Market Values and gaps infilled with total land area WTP from surveys when no other methodology is available)
- Account C – Total Minimum Value (Min. Benefit Transfers, Direct Market Values and gaps infilled with direct WTP from surveys when no other methodology is available)

For each account, **Benefits** (positive effect) and ***Detractors*** (negative effect) where calculated for each landscape attribute. For example, for SSSI habitats a benefit would relate to those units in favourable condition and a detractor, those which were not.

Results: Primary Survey

Two hundred and forty-four survey responses were received. Of the 237 people that answered the question, 178 (75%) had visited Little Asby Common, while 59 had never visited (25%). Typically, those who visit, walk and enjoy views, nature & bird watch. Of those who carried out some form of recreation, the majority did so once or twice a year closely followed by those going once or twice week, or for between 30 mins and 2.5 hours.

With respect to Willingness to Pay, four benefit groups (natural, cultural, human and social capitals) and a range of their attributes were explored. Overall, respondents valued human capital the most (£1615.97 [total value from all respondents]), followed by cultural (£1460.32), social (£1217.51) and then natural (£1132.00). Of the 33 attributes measured by WTP the most valued landscape attribute was 'Drystone walls' (Cultural - £2777.10) and the highest ranked Natural Capital attribute was 'Wildlife Species', ranked seventh (£1823.00). The least valued was Arts & Literature (Cultural - £535). These WTP results contradict the last question in the survey where respondents were asked to rank the five 'benefits' (capitals) from most valued to least subjectively. In this instance, the most valued 'benefit' was natural followed by human, cultural, social and lastly financial. At this point, it is hard to ascertain why subjective and objective valuations provided different results.

Results: Multiple Capitals Landscape Account

Total Financial Value for Little Asby Common for 2022/23 ranged from:

£61.2m (public perception dominated) to £20.2m (Benefits Transfer dominated).

Where:

Cultural Capital (£55.2m to £17.3m)

Natural Capital (£2.93m to £1.19m)

Human Capital (£1.92m to £726K)

Social Capital (£1.15m to £1.12m)

Financial Capital (£876K all scenarios).

Lessons Learnt

With respect to engaging with the public the online survey was the most effective method but needed more time overall and/or a longer lead in time to educate the potential respondent pool.

There were some issues with the public understanding how to allocate a figure through a WTP methodology and philosophical challenges related to placing a financial value on non-market goods. The character of the survey population may have biased the results as these were generated from FLD databases of members, friends, and mailing lists. Conducting a similar exercise with the wider public would be of benefit for comparative purposes. Sharing business information from the commoners proved difficult, hence for some accounting lines, published data from 'Nix' (Redman, 2023) were used.

Utilising WTP led to the well-recognised challenges of bias, embedding and sample size along with a financial inflation derived from public perception, in comparison with other valuation techniques. Through the application of different valuation techniques, the same landscape attributes could have different values. This was overcome by calculating three different types of Multiple Capital Landscape Accounts.

By using a Multiple Capitals Approach, appropriation of capital dimensions and attributes into Natural Capital Accounting was avoided and this helped to limit double accounting.

Creating multiple accounts and asking respondents to subjective rank the different benefits (capitals) allowed for comparison between actual and relative valuation. The outcomes of this were: Natural Capital is valued the most subjectively; Cultural capital valued the most objectively, and Financial Capital the least, via both methods. The corollary is that non-market goods are valued more than direct market value goods in this landscape.

The accounts produced form a single baseline year and do not include extrapolation into the future nor employ a discounting rate of 3.5%. Data acquisition, processing and manipulation was a protracted and intricate operation.

Policy Context

Applying a multiple capitals framework to Little Asby Common and the calculation of a Multiple Capitals Landscape Account has demonstrated that there is a need to represent and value more than Natural Capital in a landscape if we are to fully recognise and manage the range of benefits such an area provides for society, and which we value. This is supported by the forthcoming research programme devised by DCMS for Cultural Capital and the interrelationship between the two; this is especially important for our rural landscapes, as originally shown by Swanwick's (2002) Landscape Wheel, the voluminous literature on socio-ecological systems and the Multiple Capitals 'Proof of Concept' work by Wain *et al*. (2021 a-d) and Mansfield (2021). For both Natural and Cultural Capital it is crucial to factor in human and social capital as these latter provide the knowledge, skills and collaborative co-operation shaping our countryside and landscapes, and protecting our habitats and species. These other capitals cannot and *must not be ignored* and neglected but should form part of a wider rural policy to address contemporary agendas of biodiversity loss and climate action. Our complex land ownership and property rights milieu mean partnership between owners and managers is the only way forward to secure our environment for future generations.

To support the maintenance and development of these four capitals the fifth, financial capital needs to reflect a wider portfolio of capital and revenue opportunities. Currently, beyond walls

and barns, there is little public goods financial support on offer through the new Agri-Environment package of SFI and ELMS to do so. Given the Multiple capital Landscape Account results for Little Asby Common we believe this is an oversight which needs rectification quickly. It is not appropriate to wait for the outcomes of the DCMS Cultural Capitals project; the current seismic changes rural land management is undergoing is already negatively affecting its cultural, social and human capital where commoning practice and process is being eroded in the neighbouring Lake District (Mansfield & Lock, 2023). Both ELMS and SFI need to reflect the full package of capital support, because in not doing so it will undermine the very biodiversity loss and climate change we seek to address.

There are ample examples from now defunct agri-environment schemes in England and other parts of the UK, which can be drawn upon to develop better cultural, social and human capital elements to ELMS & SFI. Examples include (Mansfield, 2011; 2018):

- UX1 option under the Uplands Entry Level Scheme provided payment for maintaining a hefted flock.
- Farmer agri-environment training workshops were compulsory as part of the Countryside Management Scheme in Northern Ireland from 2006-2013)
- Foddering and gathering payments Sheep Wildlife Enhancement Scheme on the North York Moors SSSI in 2006
- Sense of Place and other social capital projects as part of LEADER+ between 2007 and 2013

Admittedly, the shape of our current AES package in England is not helped by the fact that Natural Capital and Farm payments come under the auspices of DEFRA and cultural heritage under that of DCMS. Cross departmental grants schemes are unheard of in the UK, but they do exist and function well in other countries. For example, the Japanese have created umbrella legislation that allows the different Ministries to pool their resources and create cross-department grant schemes to improve economic, cultural and social resilience in their uplands by using ‘rice’ as a multifunctional focus (Mansfield, 2019).

The importance of a multiple capitals approach to landscape management can no longer be side lined if we want to reverse biodiversity loss, and support economically and socially thriving rural cultural landscapes. Multiple Capitals Landscape Accounting provides the baseline from which we can effectively value and address our landscape challenges.

Recommendations

1. Accept landscapes are a product of multiple capitals and that true natural capital (avoiding appropriation) is the fundamental building block of landscape.

2. Adopt a Multiple Capitals Assessment for Landscape and it’s process of change.

3. Adopt a Multiple Capitals Landscape Accounting system to closer reflect the realities of landscape management and change.

4. Select alternative landscape types and commission comparator studies to check efficacy of process including a wider public WTP survey.

5. Commission research to develop better techniques to measure and financially value human and social capital to avoid double accounting and be more accurate.

6. Actively acknowledge the Public's perception that cultural capital is of at least equal importance as natural capital.

7. Develop a cross-Departmental rural landscape fund which supports all types of capital development with the aim to recover nature, address climate change and support cultural landscapes, whilst at the same time building resilience in rural communities.

8. Extend ELMS to include human, social and cultural capital prescription and project funds.

June 2023

Main author: Environmentors Ltd (Prof. Lois Mansfield)

Friends of the Lake District (J Darrall, L Partington, K Wilshaw)

Acknowledgements

With thanks to the Little Asby Commoners, the local community and everyone who filled in the questionnaire surveys. The author would also like to thank the Westmorland Dales Partnership for their provision of data. With special thanks to Natural England for their financial contribution and research interest towards this pilot project.

Contents

List of Figures

List of Tables

1 INTRODUCTION

1.1 Capitals and Friends of the Lake District

Friends of the Lake District (FLD) are a charity who campaign for the landscapes of Cumbria. We own 12 areas of land across the County, including Little Asby Common near Orton. Our work includes commenting on policy proposals and plans, from national to local, demonstrating best practice on our land and feeding this experience back into our policy work, and engaging the public in the outdoors and landscape issues. Landscape is multi-faceted; it includes the use of all the senses and provokes a range of emotions (Figure 1). It also has a range of different attributes, including natural and cultural. Our policy responses and land management consider all landscape attributes, one element does not automatically trump another, for example, nature over culture, but this may of course change depending on the specific site or plan/proposal situations.

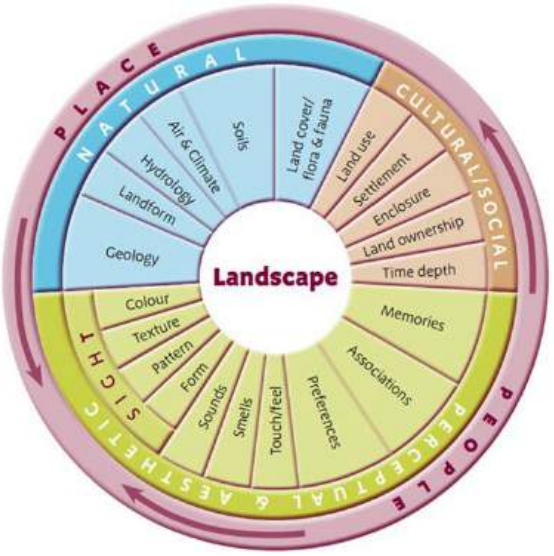


Figure 1 – The Landscape Wheel (Swanwick, 2002)

The policy context in which FLD are working is changing rapidly; carbon credits, biodiversity net gain, nutrient neutrality and natural capital assessments are key developing agendas. All these rely on putting a quantitative figure on things, some of which are hard to quantify. FLD have always been philosophically against the quantification and monetarisation of landscapes and their elements. One person's beautiful landscape could be another person's unattractive landscape. One person's day of heaven in a place could be another's hell. Having said this, the direction of travel is set, the Government want to bring in more private money to the environmental and land management sector, and to do that benefits and deliverables have to be quantified and in turn, monetarised. As a campaigning organisation we may be against this in principle, but it will happen, so it is best to learn as much about it as we can and experience it, so perhaps we can improve how it is done and operates.

FLD commissioned a natural capital assessment of all its landholdings in 2002/23. We wanted to experience the process, but also see what the results were for our land holdings. In doing this, we became increasingly frustrated that the methodologies for such assessments never included any elements of the cultural landscape or took account of the skills and time of those who

maintained such landscapes, or of their contribution to the communities and economies in which they lived. Such assessments were only looking at the benefits of one aspect of our landscapes, what about the other elements which are equally important?

A chance conversation with Prof Lois Mansfield where we discussed these issues revealed that she and colleagues had developed a theoretical model for Natural England that could measure all the elements and attributes of landscape – known as multiple capitals approach. This had never been tested, so we proposed that the theoretical model could be applied in practice to FLD's Little Asby Common and put this proposal to Natural England, leading to this piece of work.

1.2 A 'Multiple Capitals' Framework for Landscape

At its simplest, capital refers to the point 'when resources or assets are invested to create new resources' (Flora *et al*., 2004). We can invest this capital as individuals, communities and/or societies to create a better standard of living and quality of life to make us more resilient and adaptable to change. In other words, capitals should be perceived as a positive benefit encompassing environmental resources, our own individual capabilities and capacity, how we work together to solve challenges, our culture and where we get the wherewithal to make change happen to improve our circumstances.

A range of capitals are recognised by society (Hodgson, 2014), the most well-known of which are natural capital (such as ecosystems, species and geodiversity) and social capital ('the glue that holds society together'). Other forms of capital include human (knowledge and skills), cultural (structures and processes created through human endeavour) and financial (for example money).

Each of these capitals have many individual components (*dimensions*) which work in isolation or collectively. These dimensions can improve or deteriorate, they can shape or be shaped by place, space or time (past, present and future), influence or influenced by endogenous or exogenous processes, and support and be shaped by individuals, groups or organisations. In other words, capitals and their dimensions can encourage the creation of new resources and develop current ones, whilst at the same time working in a homeostatic integrated way to support each other or less desirably, deteriorate, undermining positive sustainable resource use.

The concept of multiple capitals and their dimensions can be applied to landscape spatially and temporally, particularly where society has managed and adapted the environment to create a range of semi-natural habitats (Green, 1985). Consequently, it is evident that human capital and when people work collectively, social capital, are also important for the shaping of such a landscape. The evolving product, therefore, is a cultural landscape, constituting structures and processes which are adapted to and created in response to an environment, and form the cultural capital of a place. Whilst, historically, much of our cultural landscape was shaped though subsistence living, since the mid 16th Century, the ability to create surplus to sell has led to a capitalist mode of production which has in turn created landscapes supported by financial capital.

With multiple capitals interacting to create our landscape, society can then benefit from a range of goods and services produced from such interactions, which are referred to as ecosystem services. The corollary is that UK and other state's cultural landscapes are landscapes derived from and supported by multiple capitals and their dimensions, which in turn provide ecosystem services from which society can benefit. In turn, society can choose to pay for these services, but

do so we must create markets from which to sell. Thus, we need a way to financially value capitals and their ecosystem services.

1.3 *Valuing Landscape*

Since the UN Millenium Ecosystem Assessment (2001) and its UK counterpart, UKNEA (2011 & 2014), there has been an increasing interest by academics and policy making communities to attach economic value specifically to natural capital and ecosystem services. The argument is that by appending value this enables decision-making about how resources are deployed to become more equitable, cost effective and sustainable, (TEEB, 2011a/b). In doing so, a more accurate cost-benefit analysis can be provided which takes account of both market and non-market goods[1]. To support this, over the last ten years there has been an explosion in research designed to develop methodologies to place financial value on ecosystem services, and given their relationship with capital, a desire to value natural capital as well. Current thinking by Natural England shows this relationship as a stepwise diagram, referred to as the *Natural Capital Asset Logic Chain* (Wigley et al., 2021) (Figure 2), where capitals are known as assets or stocks, and ecosystem services and benefits derived, as flows.

Figure 2 - Natural Capital Asset Logic Chain (Wigley et al., 2021)
Reproduced under the UK GovernmentOpen Licence Agreement v3

Arguably, if such a methodological approach can be applied to natural capital, then a similar valuation process can be utilised for the other capitals. The corollary of such an exercise would produce a multiple capitals account, which can be used to:

- Enable society to recognise the total financial value of a project, site or activity,
- Create a baseline to monitor the effectiveness or additionality of some form of management,
- Enable decision makers to weigh the total capital costs and benefits of proposed schemes to make more informed rounded decisions.

[1] Market goods & non-market goods – market goods are those items we can purchase which have a obvious financial value. Non-market goods are those items to which is it has been hard traditionally to append a financial value which people will willing pay eg biodiversity.

1.4 Aims & Objectives of this Study

Overall aim:
To calculate a Multiple Capitals Account for a known landscape unit by testing the multiple capitals conceptual framework devised by Mansfield (2021) and Wain et al., (2021a-e) for Natural England.

Objectives:

1. Identify the capitals, dimensions and attributes operating on Little Asby Common within a landscape context

2. Develop a database of capital attribute valuations using primary and secondary data

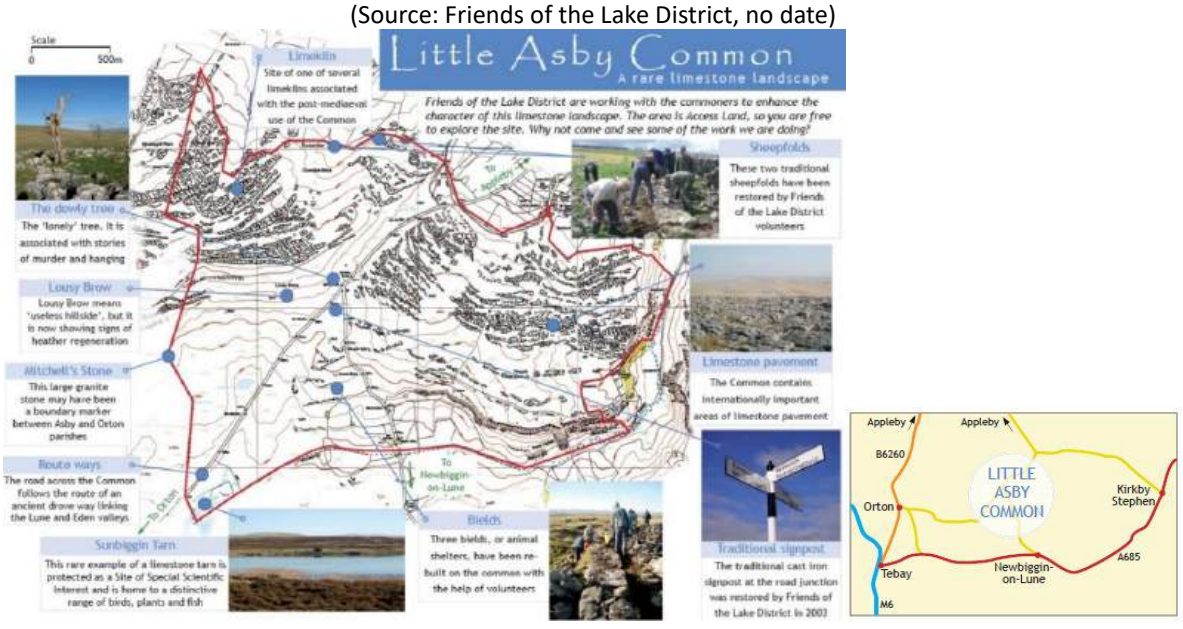
3. Calculate multiple capitals account for Little Asby Common

4. Critically review the methodology and account

1.5 Little Asby Common: a brief site description

Little Asby Common is an area of 464ha of registered common land, to the east of Orton in East Cumbria (Figure 3). It was purchased in January 2003 and 200 common rights were subsequently purchased to aid the management of the common. The previous owner bought the Common from the Appleby Castle Estate in the 1960s as he saw shooting and limestone extraction potential when he bought it.

Figure3 – Little Asby Common
(Source: Friends of the Lake District, no date)



Landscape Character and Context

Little Asby Common is located within the Orton Fells landscape character area, described within the Yorkshire Dales National Park Landscape Character Assessment (Sheilsflynn, 2020). The common straddles the High Limestone Plateau and Upper Lune Valley local character types (Figure 4). The High Limestone Plateau is a tilted upland plateau with extensive stretches of

characteristic karst scenery. The Upper Lune Valley is an east-west aligned valley of the upper Lune, fed by tributaries that flow from the Howgill Fells to the south.

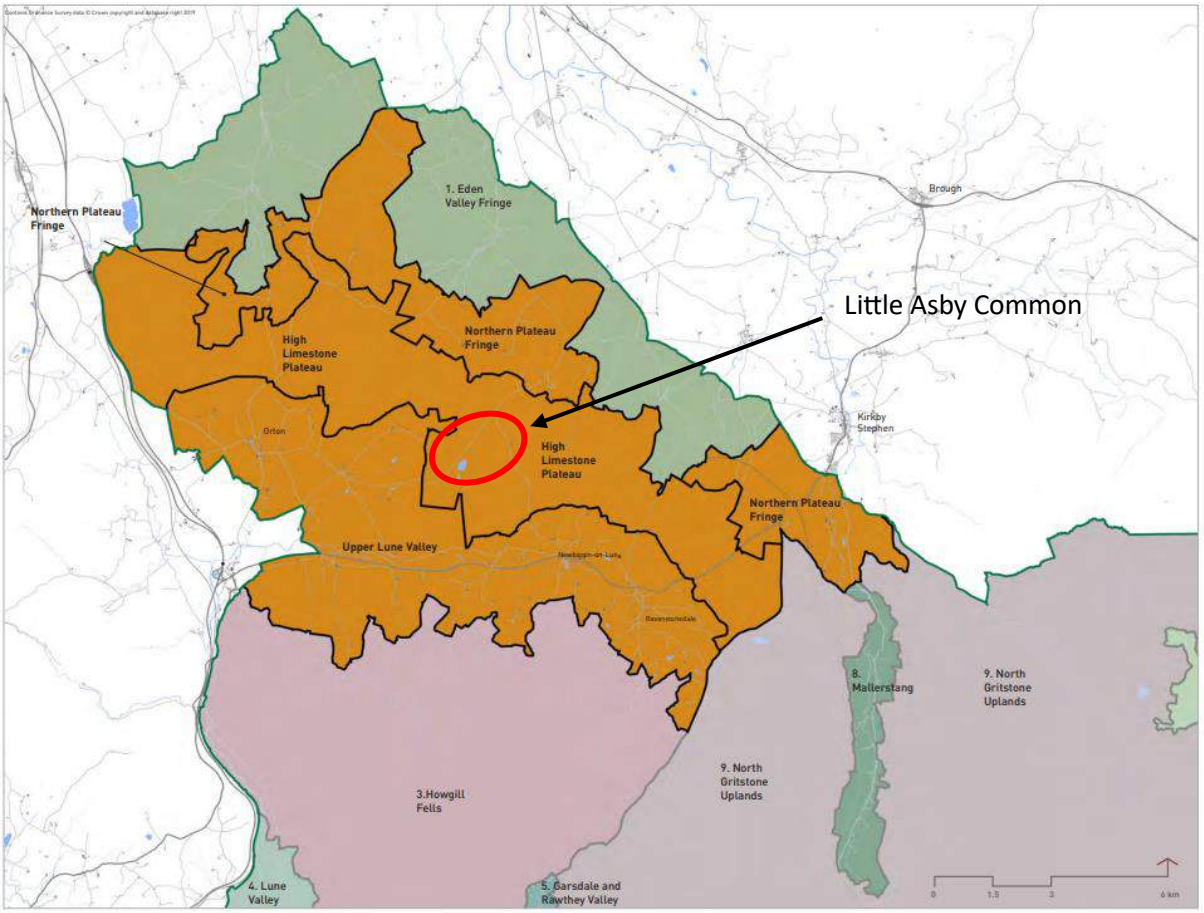


Figure 4 Orton Fells Landscape Character Area
(Source: Yorkshire Dales National Park Landscape Character Assessment)

Landscape Character Assessment (Natural England, 2014) is an established method for assessing and describing the natural, cultural/social, perceptual and aesthetic attributes of landscape and how they manifest as distinctive landscape characteristics. Landscape character assessments and landscape character areas can provide a holistic and spatial context in which to apply an evaluation of the multiple capitals that work together in shaping and influencing the landscape.

Detailed description of the unique natural, cultural and perceptual features of the Orton Fells can be found in the full online published character assessment. The key characteristics of the Orton Fells landscape character area are described as:

- Wide, open and sweeping upland plateau landscape of heather moorland and limestone grasslands interspersed with extensive limestone pavements, rocky outcrops, scars and screes.
- Upland plateau is fringed by rolling moorlands and hills where there is a transition from upland rough pastures to improved grassland on lower slopes

- Pastures on the slopes of the upland plateau are bound by a prominent rectilinear network of drystone walls on slopes of local limestone.
- Largely treeless on the higher land; broadleaved woodlands in narrow gills, alongside the River Lune floodplain and associated with occasional halls and small conifer plantations and shelterbelts on parts of the moorland fringe.
- Villages within Lune Valley; elsewhere settlement is dispersed in the form of hamlets and isolated farmsteads
- A small number of long straight roads cross the upland; walled drove roads connect settlements to the moorland.
- Evidence of early settlement on the upland plateau, with stone circles, cairns, burial mounds, field systems and settlements.
- Long panoramic views out to the dramatic landforms of the surrounding upland landscapes.

Geology

The bulk of the common is made up of limestone pavement and crags, but at the western end, this is overlain by clay all the way down to Sunbiggin Tarn. Little Asby Scar, overlooking Potts valley is part of the Potts Beck Limestone Formation, which overlies the Ashfell Limestone Formation. Both are part of the Great Scar Limestone Group, which formed in the Carboniferous Period when northern England was covered in shallow tropical seas. On one crag there is a Local Geological Site, internationally important which represents the boundary between two subdivisions of the Carboniferous Period. One of these, the Asbian substage, is even named after this area. Potts Valley itself has existed since before the last major glaciation, which was at its height around 26,000 years ago. The valley once drained the Howgills, before the upper Lune Valley formed, and is now occupied by the small 'misfit' Potts Beck.

Landscape and access designations

Following a campaign by Friends of the Lake District and subsequent work with partners such as Natural England, the Yorkshire Dales National Park Authority and local communities, on 1 August 2016, Little Asby Common and its surroundings became part of the Yorkshire Dales National Park. This we felt rectified 70 years of the area being forgotten, with no landscape designation at all for the common and wider area.

In terms of access, as common land, the area is also classed as open access land under the Countryside and Rights of Way Act 2000 allowing access to people on foot. The common is crossed by the Lakes to Dales cycle route, the Coast-to-Coast Cycle route, and the Coast-to-Coast national trail.

Nature conservation and habitats

Little Asby Common and Sunbiggin Tarn are designated as a Site of Special Scientific Interest (SSSI), being part of the Sunbiggin Tarn and Moors and Little Asby complex (Natural England Site Citation). They are also part of a Special Area of Conservation. The area is also subject to a Limestone Pavement Order.

There are four main types of habitat on the Common: limestone pavement, limestone grassland, heather moorland, and Sunbiggin Tarn, which is one of only three marl tarns in NW England. A third of it is owned by Friends of the Lake District, with the rest being owned by the two neighbouring commons. Sunbiggin Tarn is within the SSSI and SAC.

Sunbiggin Tarn has been subject to a number of surveys: A 2013 report by Allan Pentecost which investigated the algae and sediments in the Tarn to try and establish the causes of its enrichment; and a 2020 report by Lancaster University - Sunbiggin tarn and Moors and Little Asby Common SSSI water quality monitoring survey.

Archaeology

FLD commissioned a phase 1 archaeology study in 1994. This revealed 194 archaeological sites of varying ages, the majority of which were unknown before the study. 196 archaeology phase 1 sites identified. One of the features identified was a co-axial field system crossing the common. This is a very rare find in NW England and is something more commonly found in SW England (Oxford Archaeology North, 2004).

This was followed in 2008 by a phase 2 survey of 6 groups of features.

More recent work has shown that there has been activity on the Common for around 12,000 years. This has been uncovered through several surveys (walkovers, drones and geophysics), archaeological excavations and an auger survey. The excavations took place in September 2021 and 2022 and included keyhole trench excavations and an auger survey of 6 cores that was taken through the sediments at the edge of Sunbiggin Tarn. The results show that the landscape would have appeared very differently in the Mesolithic period (10,000-4,000 calBC). The pollen assemblage from the core indicated an environment of abundant mixed woodland vegetation, dominated by hazel-type, oak, elm, birch, pine and finally alder. From the early Mesolithic onwards, humans were using fire deliberately to clear trees, and there is evidence to infer grazing animals that were possibly being hunted.

Subsequently, there are decreases in Elm in the Neolithic period (4,000-2,200 calBC) and evidence that arable farming began in this period, earlier than previously expected. There was continued clearance of vegetation in the Bronze Age (2,600-700 calBC) and of stone from land with a cairnfield dated to the early Bronze Age. A small barbed and tanged arrowhead has also been diagnostically dated to this period. It is of white flint from the chalk Wolds (north-east or midlands) which demonstrates a degree of movement across the landscape and trade (as well as possible continued hunting activity). The co-axial field system has been dated to the mid-late Bronze Age.[2] The surviving traces consist of roundhouses and livestock enclosures, evidence of pastoral farming, but also subtle evidence of terracing for arable farming. This is evidence of widespread, organised farming across this landscape. By the end of the Bronze Age evidence infers a largely open environment of sedge moorland with perhaps isolated stands of certain tree species and scrub. We have not found any evidence for activity in the Iron Age and Romano-British periods. However, in the Iron Age the climate was much cooler that in the Bronze Age, and there was a general trend of people moving from the uplands to more low-lying lands. The walls have been dated back to the Anglo-Saxon period to around 1700:

See

https://www.friendsofthelakedistrict.org.uk/news/little-asby-through-the-keyhole-season-one-review

https://www.friendsofthelakedistrict.org.uk/FAQs/4th-august-round-house-to-long-house

https://www.friendsofthelakedistrict.org.uk/news/little-asby-through-the-keyhole-season-one-review

Cultural heritage

The area is registered common land (CL)015) and is communally grazed by 7 active commoners (with three inactive graziers – including Natural England and FLD). There have been several attempts to enclose the common in the late 1800s, but they were unsuccessful. The commoners graze a mixture of cows and sheep – see below. They range from those from one term local farming families, the majority, to younger couples who moved into the area 20 years ago. No one from outside E Cumbria is involved, however. The commoners all live locally, the furthest away being Appleby and family members work locally. Interviews with the commoners indicate a long-term decline in commons grazing with memories of hefting and gathering hundreds of sheep fading into the past. However, this farming is still a way of life (for many) that involves the whole family and its many generations. In contrast to the evidence from the prehistoric and medieval periods, one interviewee said, 'No never grown crops, no'. In addition, dairying has declined, and most working farmers don't remember the days of wintering cattle in byres. Remaining buildings rarely have a use and are expensive to maintain.

In terms of wider cultural heritage, there is a Dowly Tree named on maps. It has now died but is surrounded by lots of fables and a poem was written about it by poet Michael Ffinch many years ago. Many of the place names have been recorded and the phase 1 archaeology survey report the history back to monastic times with links in particular to Byland Abbey.

See https://www.friendsofthelakedistrict.org.uk/Handlers/Download.ashx?IDMF=fd26900c-fd2d-4396-81e1-003194819c5d

Agri-environment schemes

This area of the county, unlike the nearby Lake District (with its Environmentally Sensitive Farming scheme), did not have a history of agri environment schemes until the introduction of the original Countryside Stewardship, then Environmental Stewardship Scheme, particularly Uplands Entry Level and the Higher Level Schemes. The common had become sheep dominated and cows had not grazed the common for as long as anyone could remember. Defra had been concerned about overgrazing around 2000 but the common losing all its stock to foot and mouth disease in 2001 stopped this. Natural England approached the commoners in 2008 as they were concerned about declining condition of the three contiguous upland limestone commons (Little Asby, Crosby Garrett, Crosby Ravensworth). In 2009 the common entered an HLS scheme for ten years, but this has since been rolled over. Four commoners are paid to remove their sheep altogether and instead graze the common part of the year with cows. The rest graze with sheep.

The agreement has included monitoring and annual spraying, plus some limited capital items.

Easements and wayleaves

A water pipeline runs across the common under the road, and there is an overhead electricity power line crossing the common.

Westmorland Dales Landscape Partnership

FLD and partners had a desire to build on the 1 August 2016 extension of the Yorkshire Dales National Park. We wanted to pump prime the extension area with an uplift in skills, knowledge, investment and activity, much of which it had missed out on by being outside a designated landscape. As such Friends of the Lake District and the Yorkshire Dales National Park were successful in obtaining a Heritage Lottery Fund (now the Heritage Fund) grant to establish the Westmorland Dales Landscape Partnership. This funding has covered a development and then a delivery Scheme, covering the years 2017 to 2024. The delivery phase alone has a value of £3.45 million, made up of lottery funding, partners' funding and volunteer time.

The Vision of the partnership project is to "unlock and reveal the hidden heritage of the Westmorland Dales, enabling more people to connect with, enjoy and benefit from this inspirational landscape". The Scheme set out to reveal the hidden heritage of the Westmorland Dales; a remote and beautiful limestone landscape, historically much travelled, but rarely explored. By unlocking and revealing the rich heritage of the area, it will encourage people to linger and connect with this inspirational landscape. The Scheme has recorded, interpreted, conserved and managed the exceptional natural and cultural heritage of the area, which we saw as providing an essential foundation for the "new" National Park. It has brought together communities, farmers and businesses, and helped build a stronger socio-economic base benefitting the future care and conservation of the area. We have shared the distinctiveness of this special place with visitors, ensuring it is a place where people linger, learn and return.

The Scheme has had four overarching objectives:

- Revealing the area's hidden heritage;
- Conserving what makes the area special;
- Engaging people in enjoying and benefitting from their heritage
- Sustaining the benefits of the scheme in the long-term

Projects have been undertaken under all these objectives. Little Asby Common has in particular directly benefitted from several projects: Little Asby Through the Keyhole – conducting drone and magnetometry surveys and two seasons of excavations of archaeological features; the Dry Stone Walls projects which has surveyed some of the walls on the commons; and the Revealing the Foundations project which has produced a leaflet on the limestone geology of the common and designated a site as a Local Geological Site. Volunteers have been trained to help with the survey work. This has led to even more knowledge about the archaeology of the Common and helped establish a network of skilled volunteers.

1.6 Summary

Recognising a change in the current policy environment regarding landscape management and its related attributes, Friends of the Lake District seek to understand better the multiple benefits and

values of their organisation's assets. Whilst Natural Capital Accounting has found traction in government, policy and increasingly landscape management organisations in the UK, there is yet to be recognition and an accounting methodology for other types of capital in the landscape.

This study focuses on testing a prototype multiple capitals landscape assessment from the previous work for Wain et al (2021, a-d) and Mansfield (2021) to create a Multiple Capitals Landscape Account by applying the concepts to one of FLDs sites, Little Asby Common, East Cumbria.

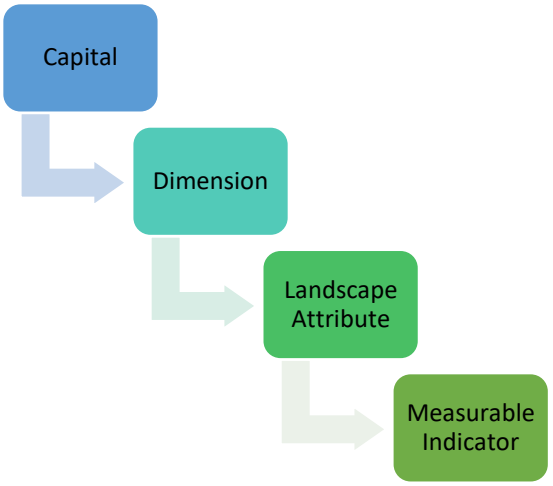
To demonstrate how to create a Multiple Capitals Landscape Account, this report is structured as follows:

- Review the 'proof of concept' of Landscape Multiple Capitals Framework (LMCF) developed by Wain et al (2021 a -e) and Mansfield (2021) [Section 2]
- Employ the LMCF to develop a Multiple Capitals Landscape Account system [Section 2]
- Devise a methodology to calculate an Account [Section 3]
- Calculate a Multiple Capitals Account for Little Asby Common [Section 4]
- Critically review the process [Section 5]
- Conclusions & Recommendations [Section 6]

2 REVIEW:
A MULTIPLE CAPITALS CONCEPTUAL FRAMEWORK FOR LANDSCAPE

In this section we will briefly review the Multiple Capitals conceptual framework developed by Mansfield (2021) and Wain *et al.* (2021 a-d) in relation to landscape. This takes us through the first three stages of moving from theoretical concept to real-life application (Figure 5).

Figure 5 – Multiple Capitals Landscape Framework: Theory to Practice



The second part of this review will explore how to move from landscape attribute to measurable indicators to prepare a multiple capitals account (MCA).

2.1 A Review of the previous piece of work's outcomes

Previously commissioned work for Natural England (Wain *et al*., 2021 a-d; Mansfield, 2021) was designed to develop a conceptual framework relating a multiple capitals approach to landscape and landscape change. The work was conducted in four main phases, first, to review previous salient multiple capitals models and frameworks; second, to critically review a range of case studies exploring different aspects of a multiple capitals approach; third to agree a set of capital definitions and their dimensions (sub-components); and finally propose a multiple capitals conceptual framework for landscape and test it theoretically.

2.1.1 *Previous models, frameworks and case studies*

Initially we explored how the NCEA natural capital framework addresses other capitals along with an analysis of the relationship between Swanwick's (2002) well-known landscape wheel (Figure 1). In this respect, a great deal of UK research has focused on the character and value of natural capital as proposed by the Natural Capital Committee (2014) and its relationship with ecosystem services (Figure 2). This has been adopted and applied extensively by Natural England, for example, in the formulation of their Natural Capital Atlas (2020), to support the production of Ecosystem Services and to help recover biodiversity.

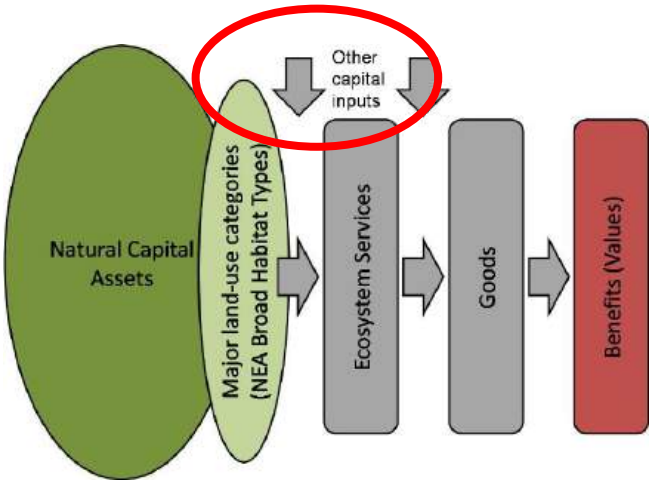


Figure 6 – Relationship between Natural Capital, Other capitals and Ecosystem Services
Reproduced under the UK GovernmentOpen Licence Agreement v3

Figure 6 is important as it draws our attention to other capitals (red circle), but the illustration provides a perceptual disservice in that it suggests they are of lesser importance to the production of ecosystems services. This was confirmed by a range of case studies explored as part of the Wain et al (2021a-e) and Mansfield (2021) work for Natural England commission. Two examples can demonstrate this; the existence and maintenance of coppice woodland is reliant on coppice knowledge and skills. Human capital is therefore crucial. A second example is upland mosaic habitat through commons management, here groups of individuals come together to manage large expanses of this habitat for productive, regulatory and supporting ecosystem services, they work collectively and collaboratively; consequently, social capital can be equally important.

From these two illustrations we can see that natural capital needs human and social capital to manage, maintain and increasingly, recover, a range of semi-natural habitats in England produced through human endeavour. This tripartite package of capitals was recognised over fifteen years ago by Matthews & Selman (2006) and by Selman & Knight (2006:297) in relation to socio-ecological systems;

> *'if we are to produce sustainable landscapes, we need to pursue inter – or trans-disciplinary approaches (Tress & Tress, 2001) that re-connect social and economic entrepreneurship with environmental processes and patterns. In this regard, the multi-faceted phenomenon of 'landscape' can be seen as an amalgam of 'capitals'.*

Our conclusions from the 2021 study were that NCEA frameworks apply a 'black box' approach and that the landscape wheel (Figure 1) considers natural and cultural capital only. The report moved on to review the following multiple capital conceptual frameworks:

- Bebbington's 5 capital model
- Sustainable Livelihoods Framework
- Community Capitals Framework and allied upward spiralling
- Socio Ecological Systems

There were three overarching conclusions we drew from this first stage review of these frameworks:

- There are no capital frameworks to draw upon directly with respect to landscape, but those critiqued here have aspects of value for landscape character monitoring and latterly NCEA.
- Landscape is a product of multiple capitals.
- Capitals support the development of each other.

To this we should add the recent developing research framework by DCMS (UKRI, 2022) who are investigating the character of cultural capital with a £4.5m national research project over the next few years. With Research Stream E ('overlaps between natural capital and culture and heritage capital') this will lead to an exploration of interrelationship and no doubt, the need for clearer division between the two.

The DCMS work is particularly important regarding the development of a multiple capitals account (this study) because it will help address unconscious appropriation of other forms of capital by Natural Capital work. Figure 2 shows that the NCEA driven framework places natural capital as the main driver for ecosystem services. The result of this is that dimensions of other capitals have been subsumed under the wider umbrella of natural capital; examples of which include recreational activities, volunteering and cultural structures such as drystone walls (eg Holt, 2018; RSPB, 2017). Whilst there is nothing wrong with this initially, with better and more holistic recognition of the full range of capitals responsible for creating and maintaining landscape, a phenomenon known as double accounting can begin to occur (Lui *et al*., 2010).

Double accounting refers to the way in which phenomenon A is measured twice because it is part of the character of phenomena B and C, so in measuring B and C separately we count A twice. An example would be a drystone wall which has embedded in it, aspects of natural (geology and homes for biodiversity), human (knowledge and skills to build a wall) and cultural (tangible feature forming part of a farmed upland landscape) capital. There is even scope to argue whether the wall is cultural and/or financial (for agricultural purposes) capital; probably depending on one's objectives of the valuation exercise. These multiple capital assets and flows of a drystone wall were examined by Powell *et al.* (2019) in a valuation study for Historic England. Given the importance of double accounting this will be returned to later in this project as part of the calculation of the multiple capitals account.

The review also indicated we need to ensure we address the following for our proposed model: definitions and dimensions of capitals; the function of the conceptual framework and the value of upwards spiralling with respect to landscape change; the components to include in such a framework, and the relationships between conceptual dimensions and reality.

The case studies critique from the review directed our attention to:

- how to convert theory to practice
- using statistical modelling to measure capital
- measuring human and social capital – this example uses agri-environment schemes
- measurement of social capitals beyond networks
- cultural capital dimensions & valuation – various examples including DCMS CHC

This part of the critical review re-enforced that there is a need a set of *standardised definitions for capitals and their dimensions.* Second, we should *integrate the DCMS CHC framework* into the

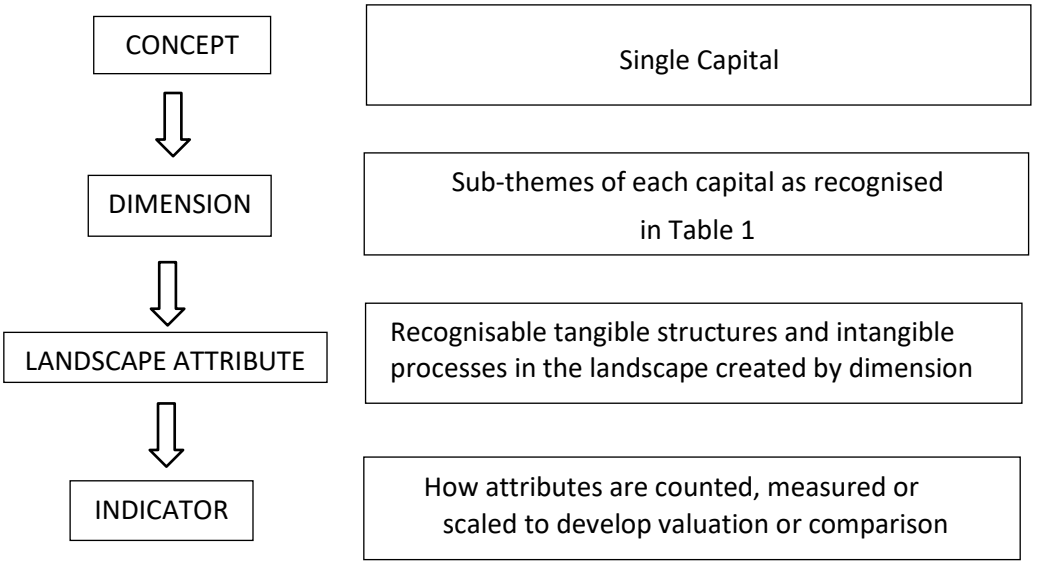
overarching concept and cultural capital dimensions and should include (if not already) sense of place, cultural heritage, inspiration, escapism, relaxation, spiritual, learning and recreation. Third, the framework needs to *Re-enforce the role of multiple capitals* most notably the importance of social and human capital for landscapes; and that bonding and bridging social capital is important. Fourth, to *convert theory into practice* we should employ Tveit *et al*.'s (2006) tool (concept > dimension > landscape attribute > indicator); avoid use of statistical tools; use expert & local knowledge; ensure the ability to build bridging social capital exists and develop trust. Finally, *future work* should include: tools to measure intangibles; improve our knowledge on social and human capital (apart from networks), and employ stated preference techniques where appropriate.

Tveit *et al's* (sic.) work allows for the conversion of theoretical capital dimensions (sub-components) into a series of real-world measurable attributes using an abstraction process which originally was designed to enable measurement of visual landscape character (see Annex A). It identified four levels of information which converted concept into measurables:

concept >> dimension>> attribute >> indicator

This process was adjusted for landscape and multiple capitals as shown below in Figure 7.

Figure 7 – Adjusted Abstraction Process
from Tveit et al's (2006) visual landscape character study



2.1.2 Agreed definitions of capitals and their dimensions

The following definitions were accepted for each capital:

- **Natural -** The aspects of the natural environment that provide benefits to people. England's varied natural environment, its ecosystems, geodiversity and landscapes, provides people with a wide range of benefits, upon which human wellbeing depends.

These include food, clean water and air, the regulation of climate and hazards such as flooding, thriving wildlife and cultural and spiritual enrichment (Wigley et al., 2021).

- **Human** – the knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being (OECD, 2001).

- **Social -** the networks of relationships among people who live and work in a particular society, enabling that society to function effectively. Networks together with shared norms, values and understanding that facilitate cooperation within and among groups (OECD, 2001).

- **Cultural -** The many and diverse ways people - in a specific geographical and socio-economic context – deal with and influence nature and natural resources. Cultural capital is made up of tangible (building, structures and locations) and intangible (ideas, practices, beliefs, traditionsand values) assets.

- **Financial –** assets that exist in a form of currency that can be owned or traded, including (but not limited to shares, bonds and banknotes.

Dimensions (sub-components) of each capital were generated through an extensive literature review, the outcomes of which are summarised on Table 1.

It was agreed this list should be adjusted to accommodate new information as it was forthcoming. For example, financial capital in Table 1 describes only two streams of finance. Money can find its way into landscape management from varied avenues. It may well be important to include grant payments, as well as private funds of the land manager or owner, donations, people's wills and external private equity/ sponsorship, the latter of which is beginning to creep in for various reasons. Further inclusions should be here salaries, taxes, pensions and profits (Yorkshire Water, 2021).

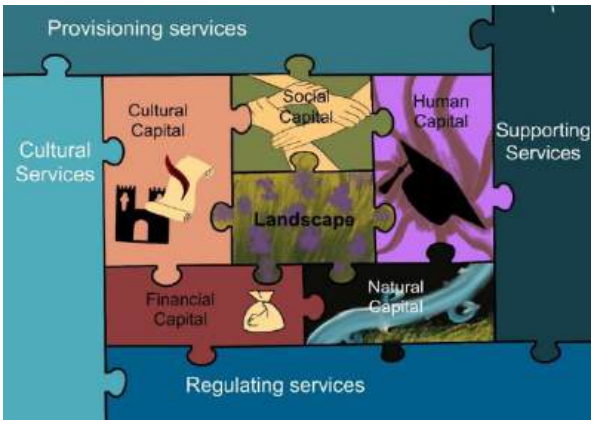
2.1.3 Landscape Multiple Capitals Assessment Framework

The overall summative work of Wain et al. (2021 a-e) and Mansfield (2021) started from the premise of the inter-relationship between multiple capitals and ecosystem services simply illustrated in Figure 8.

Table 1 – Accepted Dimensions of Capitals from Wren (2021) study

Capital	**Dimensions**
Natural	Ecosystems Species Freshwater Land Minerals Air Oceans Natural functions and processes Geodiversity Landscapes
Human	Education (formal and informal) Knowledge, skills & work experience Traditional practices & core belief systems Practices Motivations Empathy Life experiences Relationships & social learning
Social	Relations of trust – values and trust, organisations Reciprocity and exchange – communication channels, membership Common rules and norms – social norms Connectedness, networks and groups: Bonding – within communities of interest locally Bridging – between communities of interest locally Linking – between communities of interest local to external
Cultural	Tangible structures Private goods Common-pool goods Collective goods Tool goods Buildings Boundaries Historic monuments Contemporary built environment Intangible activities Practices and processes, recreation Sense of place, way of life Perception - sight, sound, smell, touch Inspiration, escapism, relaxation, spiritual Contemporary capitals Buildings Equipment Infrastructure (such as roads, ports, bridges, and waste and water treatment plants)
Financial	Currency - Shares, bonds, banknotes Crypto currency - Carbon trading, natural capital accounting

Figure 8 – Relationship between Capitals & Ecosystem Services

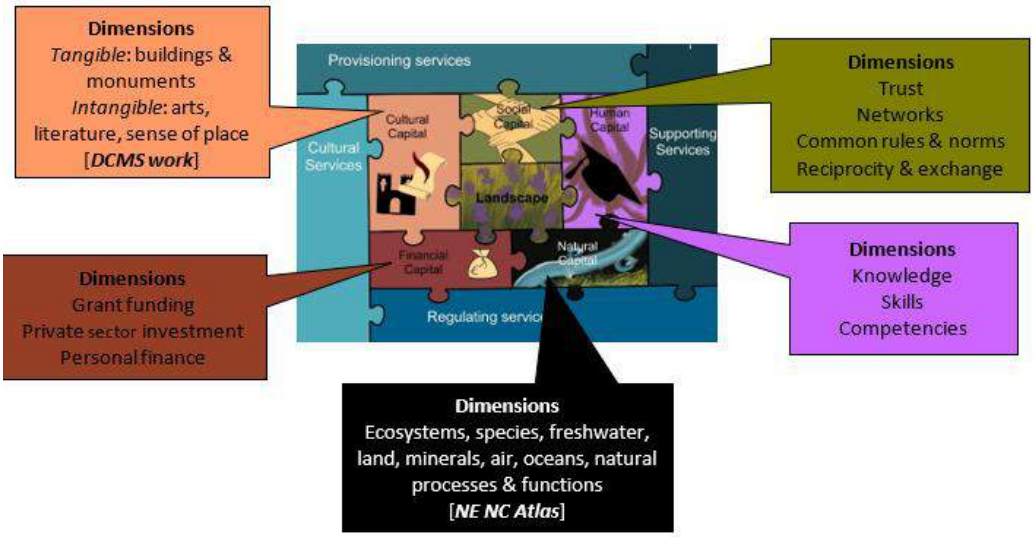


Following the steps outlined in Figure 6 above, by moving through them, a landscape could undergo a Multiple Capitals Landscape assessment, rather than just a Natural Capitals Assessment.

With the ability to undertake this, the appraisal would then logically allow for a **Multiple Capitals Landscape Account** (MCLA) to be calculated.

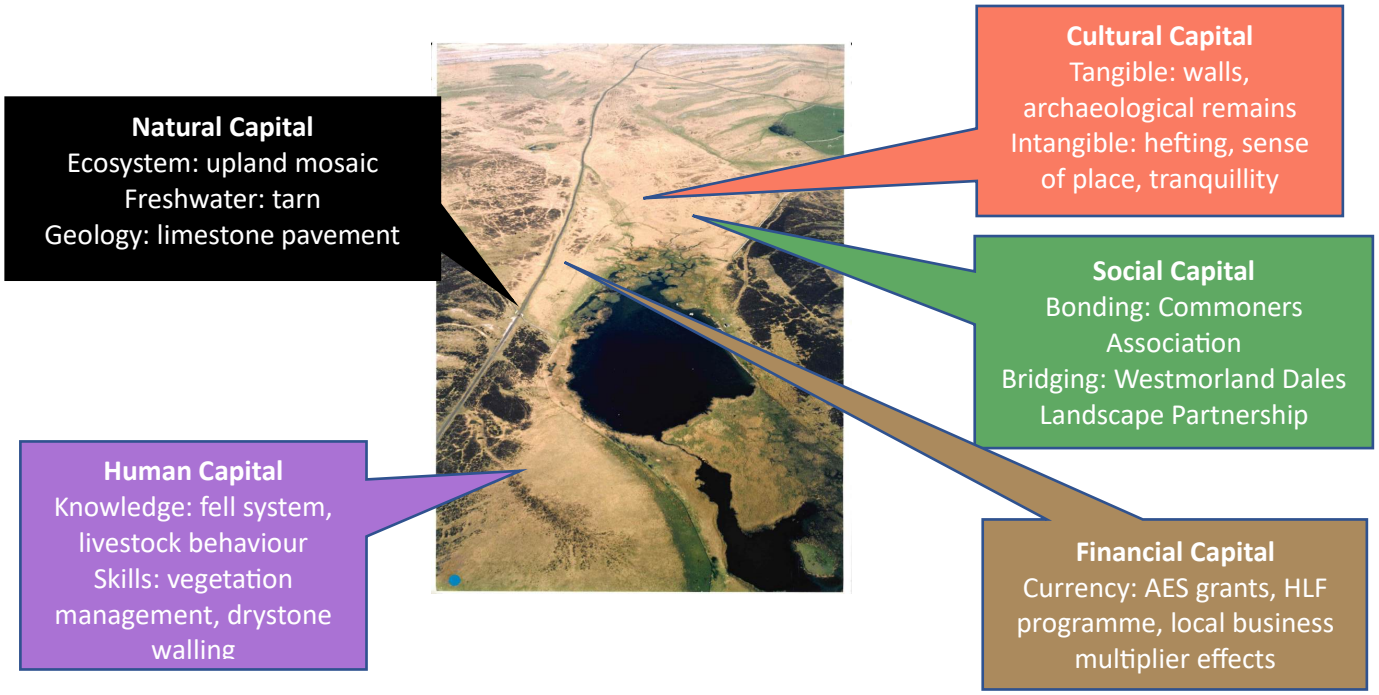
The next step was to identify which dimensions (sub-components of capital) were theoretically relevant to landscape (Figure 9).

Figure 9 – Dimensions of Capitals in relation to Landscape



To move from dimension to landscape attribute in the conceptual framework paper, landscape imagery was used to demonstrate the method. An example for Little Asby Common is shown in Figure 10.

Figure 10 – Relating Capitals, Dimensions and Attributes to a Landscape



This imagery can then be re-formatted as a table (Table 2) in preparation for identifying attributes (and ultimately the multiple capital accounting process - this work). At this stage, new evidence from fieldwork, photo imagery or other forms of survey can add to the list of dimensions and attributes.

For each attribute, measurable indicators should then be identified.

Table 2 – Attribute Extraction from Figure 9

Capital	Dimension	Landscape Attribute
Natural	Ecosystems	Upland moorland mosaic
	Freshwater	Sunbiggin Tarn (Quantity & Quality)
	Geodiversity	Limestone Pavement
Human	Knowledge	Fell system
		Livestock behaviour
	Skills	Vegetation management
		Drystone walling
Social	Bonding network	Commoners associations
	Bridging network	Partnership organisations
Cultural	Tangible	Field walls & system
		Archaeological Features
	Intangible	Hefting
		Sense of Place
		Tranquillity
Financial	Currency	AES grants
		HLF Programme
		Local Business Multiplier Effects

Dimensions and attributes were also converted into a real-life scenario as a systems diagram to

demonstrate how capitals and their dimensions interact with each other to create a landscape in front of us, in this example Langdale, Cumbria (Figure 11).

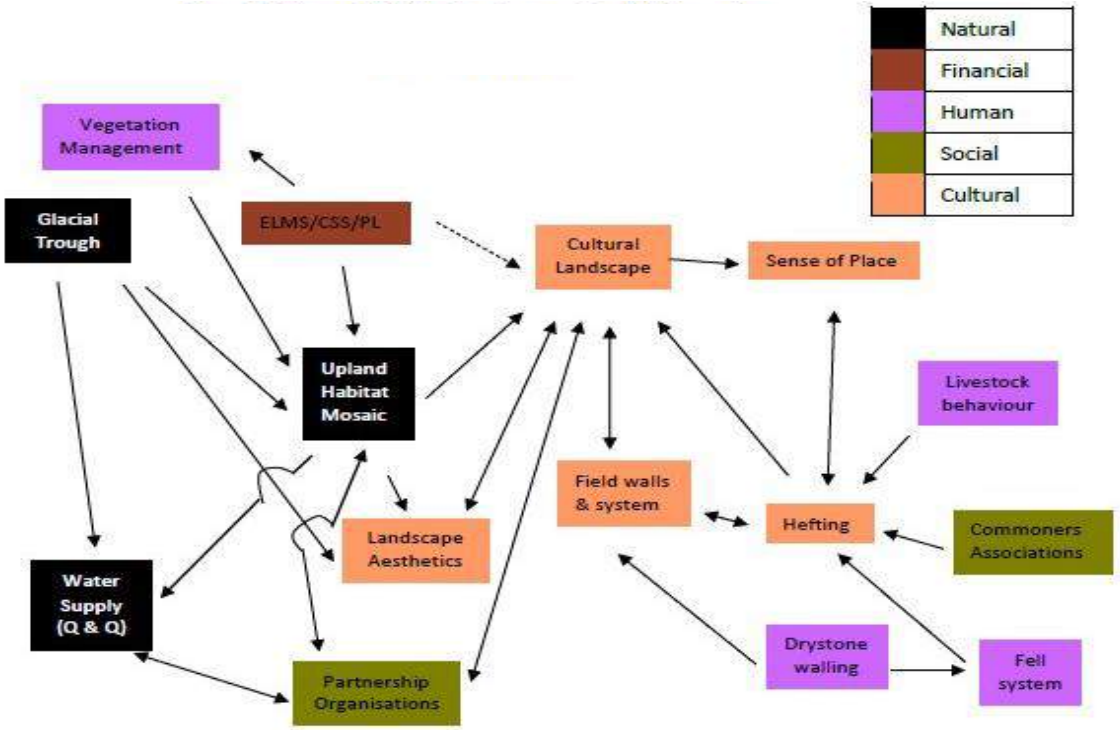
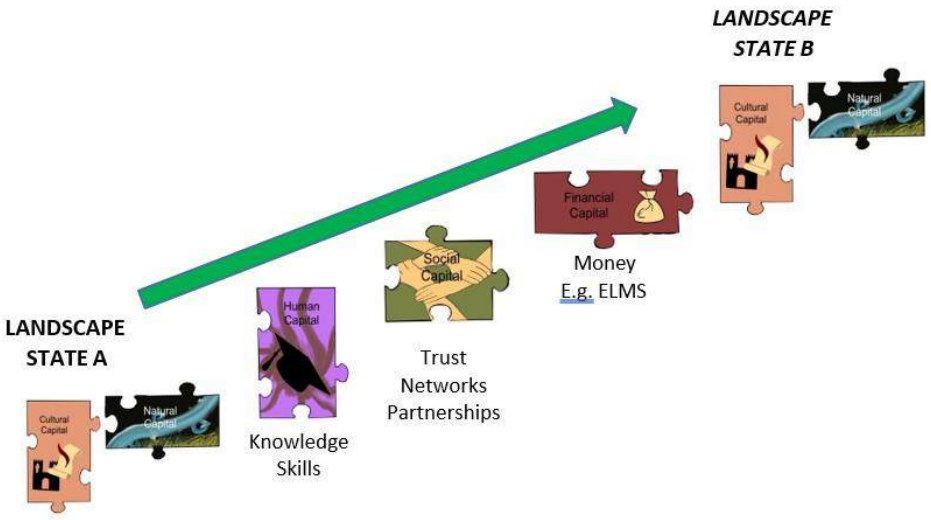


Figure 11 – The Interrelationship between Capitals in Langdale, Cumbria
(Taken from: Mansfield, 2021:76)

For completeness here, the final element of the work (Wain *et al.,* 2021 a-d; Mansfield, 2021) considered how such a multiple capitals landscape framework could be applied to landscape change (Figure 12). Such an approach was able to show how different capitals are involved along the change journey (State A current to State B desired) enabling the creation of a Multiple Capitals tool to monitor and implement effective landscape change.

Figure 12 - Applying a Landscape-Capitals Framework for Landscape Change



The report ended by considering how we could combine the dimensions (sub-components

of the capitals) and their attributes and temporal change in a landscape. We suggested THREE ways of expressing temporal change in capital attributes in a landscape, with appropriate symbols Table 3):

- *Strength* of attribute – the relative importance of the attribute in this landscape
- *Direction* of attribute – whether it is improving, declining or there is no change
- Whether the attribute is *enabling or blocking* the management of the landscape

Such an exercise would help with the shift of a Landscape from State A to State B by helping target capital resources and activities.

Table 3 – Capitals and Landscape Change symbology

Strength & Direction of Capital				Enabling or Blocking	
Strength		Direction			
Strong		Improving		Enabling	
Medium		No change		Blocking	
Weak		Decline			

2.2 *Creating a Multiple Capitals Landscape Account through the Application a Landscape Multiple Capitals Assessment*

As noted earlier, once a landscape has undergone a **Landscape Multiple Capitals Assessment** (LMCA), rather than just a Natural Capitals Assessment, this will allow a **Multiple Capitals Landscape Account** (MCLA) to be calculated. This addresses the final step in Tveit *et al's* (2006) abstraction process, to create a set of indicators. In turn these indicators will be used to measure and cost each capital attribute. To appreciate this transition, this section reviews relevant aspects of natural capital accounting and transferable lessons for formulating an MCA.

Pearce (1984) was the first to really consider how we value natural resources; in that we mean a resource's worth, usefulness or importance to someone. He was interested in how and when we use these resources, particularly when many are finite in quantity and human action can impact on quality through degradation or poor use. He was trying to understand how we make choices between using or protecting one resource or another.

He acknowledged that some of these resources had a financial (cash) value attached to them, such as timber or food, referred to as **market goods**. Many environmental resources did not have financial value, for example biodiversity or clean air. The latter are referred to by environmental economists as **non-market goods** and is particularly true of certain types of resources known as:

- *public goods* – when a resource in consumed by one person it does not diminish the amount of it consumed by another. Eg fresh air.
- *common property resources* – resources used and managed by communities, not individuals, which can deteriorate. Eg a 'common' in law

Finally, Pearce (sic.) asked how to choose which resources to use and which to protect, which do we value over another, or how do we compare or rank market (cash priced) and non-market (non-priced) phenomena together. To resolve this, there has been an enormous amount of research on how to place financial value on non-market goods and services (eg. ENCA Data Service Handbook, 2021). The main argument for this is that these resources will be undersupplied in the economy if not.

The initial focus by academics and policy makers has focussed on how to calculate value for natural capital. This has been driven by the main conclusions of the MEA (2001), the recognition of the importance of ecosystem services for humanity, the climate change and biodiversity loss crises, and the need to value non-market goods on a level playing field with market goods to enable more effective cost-benefit analysis for developments. Many systems, methods and techniques have been developed, as a result, to financially value natural capital (see Bagstad *et al*., 2021; ENCA, 2021).

Natural Capital Accounting (NCA) methodologies, whilst still evolving, can provide us with an approach to follow to value other capitals, their dimensions and attributes. There are many examples of where NCA has been applied in the UK (the ENCA database refers to many). Three locally relevant examples include the RSPB (2017) for their national estate in England, a study by Facciolo et al (2023) for Dartmoor and Exmoor National Parks and Cumbria Wildlife Trust (Holt, 2018) for their Eycott Hill Nature Reserve. In addition, Natural England, working with other partners, have developed comprehensive database of studies which have developed a range of approaches to value different types of capital and ecosystem service (ENCA, 2021). There is also information about methodological approach in the HMRC's Green Book (2022) and in ONS (2021) guidance. These sources will be used where possible to allow for comparison with other NCAs.

Depending on how capitals are defined, the reports and databases noted above include attributes which are not strictly speaking natural capital; for example, recreation and volunteering, could better classified under human and social capital respectively. Having said this, these materials provide reputable ways to value various capital attributes relevant to this study, through application of a *benefits transfer* approach.

The downside of all of these, including the ENCA database, is that there is very little which explores mechanisms to value other forms of capital. To the author's knowledge, there has been only one attempt in the UK to value more than just natural capital and create a multiple capitals account (Yorkshire Water; 2021). On face value, this would suggest that we could transfer their entire methodology into our Little Asby Common valuation assessment. Unfortunately, closer inspection shows that many of the valuations are focused on business efficiency, driven by Yorkshire Water's corporate and land management strategies (Yorkshire Water, 2020/2021). The approach does, however, provide two useful tools:

- Valuation techniques for financial capital, regarding salary analysis
- Provision of a draft valuation proforma for the Little Asby Common valuation exercise

Table 4 provides an adapted annotated proforma valuation, which will be employed for Little Asby Common. This allows the production of a Capitals Valuation Catalogue.

There are opportunities to use Benefits Transfer from natural capital accounting exercises through capital and dimensions appropriation as noted above. Consequently, some examples may exist for recreation and volunteer input. For other capitals, aspects of social capital valuation exist through application of the *Social Value Engine*, a tool developed by Rose Regeneration (https://socialvalueengine.com/ Accessed: 07/01/23). There is also a comprehensive methodology for valuing the ecosystem services of a drystone wall (Powell *et al*., 2019) supported by Historic England which encompasses a range of capitals and their dimensions (Table 5).

2.2.1 *A note on Attributes, Benefits & Detractors*

It is important to continue to refer to the various capital elements in the landscape as attributes to suggest neutrality until each is assessed as beneficial or detrimental to the Common. Current thinking for NCA considers the flows to be benefits, however, there are situations where attributes will be measured that detract from the overall situation. Examples of this could be JNCC unfavourable condition, inappropriate recreational activities or overgrazing. Maintenance costs will also need considering, for example the RSPB (2017) study calculated these as 'losses' in their final Natural Capital Accounts.

Salaries are an interesting attribute because they can be beneficial as well as detrimental. In terms of Little Asby Common, the Westmorland Dales Landscape Programme staff should be perceived as beneficial as they have added value to the Common as well as increased spend in the local community through housing rent, everyday living expenses etc., in the surrounding buffer zone, which have recycled back into the local economy (such as the LM3 methodology; NEF, 2002). Salary contributions of other people working on the Common may not be perceived in the say way.

The other main attribute to consider as either a benefit or detractor is agri-environment scheme (AES) grant funding. Whilst it is not the intention here to rehearse the full complexities of whether AESs support or hinder agriculture in the uplands, some thought needs to be given to whether AESs should be part of the benefit calculation or detractor figures.

AES financial capital is an important element of rural landscapes in any part of the UK or European neighbour. For example, in the Lake District, the adjacent National Park, to the study site in this report, an economic analysis by Wallace & Scott (2018) found that income streams into farming businesses were tripartite; 40% from farm enterprises, 30% from diversification and 30% from AESs. It suggests that AES grants enable farming businesses, particularly in uplands, to continue to function and as subsequently provide a range of capitals and ecosystem services (Mansfield, 2018). Many farmers recognise the money as another income stream which partially offsets estate maintenance allowing the 'books to balance' and allow the main enterprises to continue. With respect to other land use objectives, they provide opportunity to create, maintain or recover semi-natural habitats, a main driver for Natural England regarding current SSSI condition.

Conversely, some farmers see AES grants as a drain on their finances, because they operate on a profit foregone system, as well as forcing them to extensify operations reducing profits or even complete tasks they would not do normally diverting them from the core business. In the NCA

studies used as part of this review which focus on the value of natural capital, unfortunately none of them include AES as part of their calculations.

Capital		Which main class of capital attribute belongs to		
Dimension		Capital dimension		
Attribute		Landscape attribute (**can be benefit or detractor**)		
Indicator		**Method**	**Unit**	**Source**
A	Name of attribute to be measured	Methodological approach eg benefits transfer/ WTP How the attribute can be measured	Units of measurement	Primary data from LAC survey OR secondary source of published data
B	Several indicators may be needed			
C	Often the monetisation method			
Asset/ Stock		**Calculations**		
A		Assets in terms of quantity eg hectares of habitat, no. of people		
B		Assets in terms of quality eg different carbon capture values by habitat		
Monetary Flow		**Calculations**		
B		Cash value identified from method (could be primary or secondary source)		
Total Benefit (£)		Formula used to calculate cash value eg = A x B x C		
£ Value		Actual cash value		
Notes on methodological calculations				
Notes here which define terms and variables used in calculations. AND/ OR A space to be used to update methodological developments from new studies				

Table 4 – Annotated Capitals Valuation Proforma for Little Asby Common

Table 5 – A comparison of Drystone Walls Ecosystem Services from Powell *et al.* (2019) and a Multiple Capitals Framework

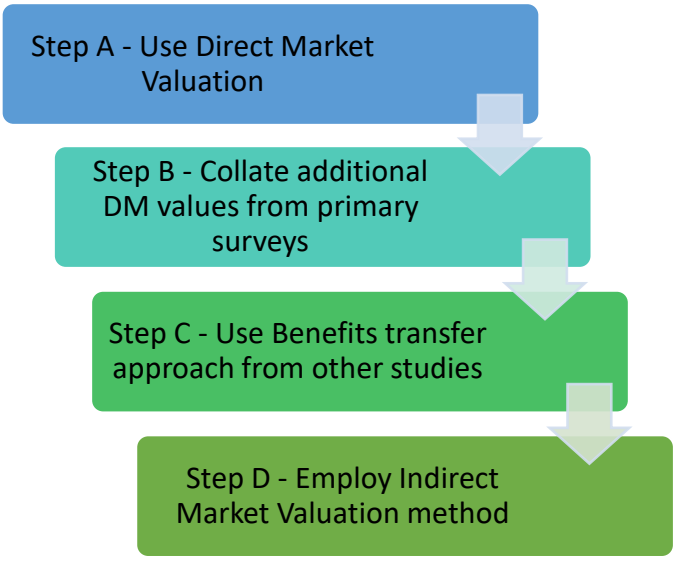
WALL ECOSYSTEM SERVICE FUNCTION from Powell et al (2019)	**CAPITAL EQUIVALENCY**	
	Capital	***Dimension***
Sense of Place: (Time depth, Inter-relationship, Legibility)	Cultural	Intangible
Contribution to landscape	Cultural	Tangible
Maintenance & reinvigoration of skills	Human	Skills
Job Creation	Human	Labour
Habitat value	Natural	Ecosystems
Long term Habitats	Natural	Ecosystems
Separation for livestock mgt	Financial	Business
Shelter	Financial	Currency
Ownership management	Social	Trust & Networks
Overland flow	Natural	Natural Functions & Processes
Gap restoration	Human	Skill
Maintenance costs	Financial	Currency

A decision, therefore, needs to be made whether this study includes AES grant as a benefit or a detractor. FLD see the grant as a benefit. Before the commoners went into HLS, NE paid for them to have an economic business assessment to understand more fully the impacts of the HLS on their farm business. FLD did not wish anyone to enter a scheme that would have a detrimental impact on their business. Some of the commoners have ceased grazing sheep altogether and now graze only cows. Others have altered their farming practices very little and continue to graze sheep as previously. Each commoner had a choice about what level of change their wished to make to their existing practices. All of them welcome the scheme and are keen for it to continue, suggesting they see it as positive.

2.2.2 Valuation Options

Valuation is a time-consuming process, complicated by the multiplicity of techniques now available to calculate monetary value. There is, nevertheless, a hierarchical approach which we can adopt to increase accounting efficiency. This approach operates by employing a stepwise selection process for each landscape attribute identified from the Multiple Capitals Landscape Assessment (Figure 13).

Figure 13 – Valuation Technique Selection Process



- *Step A: Direct Market value* – this refers to items with monetary value already extant. For example, livestock sale prices or gross margins per ha/Livestock Unit or salary information
- *Step B: Direct market values from primary survey* - additional spend (£) data gathered from a primary survey. For example, visitor spend in local businesses.
- *Step C: Benefits transfer* – monetary values are gleaned from other databases or past studies for similar or near similar capital assets or attributes, this is how the ENCA data base (2021) works. For example, Christie & Rayment (2012) calculated the value of different SSSI habitats.
- *Step D: Indirect Market Valuation* – applying selected techniques to gather monetary values from primary survey, the range of which is outlined on Table 6.

The options outlined on Table 6 have a range of pros and cons, however the main one is the amount of time and therefore cost to execute each one. Stated Preference is the most expensive

Table 6 – Summary of Options to Measure Non-Market Goods

(Taken from Mansfield 2021, Table 4.13)

Method	Details	Ease of Calculation	Ecosystem Service Examples
DIRECT			
	Market prices (£/ euro etc..)	☺	Food, fish, timber
INDIRECT			
Market Alternatives	*Replacement costs* – how much for an alternative, usually a man made solution	☺	Building and operating a water purification plant rather than improving water quality at source through catchment management
	Damage cost avoided – what protection is offered by this ecosystem service	☺	Planting a wood to sequester carbon
	Production function - what happens to production value when we change the inputs	😐	Soil deterioration requiring fertiliser application as well as structural amelioration
Surrogate markets	*Hedonic Price Method* - the price of a marketed good is related to its characteristics, or the services it provides.	☹	Recreation and leisure that affect the price of residential properties Air quality
	Travel Cost Method – cost of visiting a site in terms of travel and time	😐	Recreation & leisure
Stated Preference	Contingent Valuation Method – how much is someone willing to pay for the ecosystem service	😐	All services
	Choice Experiment – menus of combined options of ecosystem services with different outcomes	☹	All services
Participatory	Asking members of a community to determine the importance of an intangible ecosystem service	☺	All services
Benefits Transfer	Borrowing of transferring values from current studies	☺/😐	As per original study

as it requires primary data collection from surveys; next revealed preference, as this requires the researcher to identify appropriate proxies and thus needs to be competent in the discipline field. The cheapest and quickest is to use benefits transfer, but this can create issues with not comparing like with like, hence why it forms Step 3 in Figure 13.

Once these techniques have been applied and values derived, the final step is to feed the answers into a complete economic valuation of the situation.

2.2.3 A brief review of Stated Preference as a method

For this Multiple Capital Account (MCA), the preferred technique from Table 6 is to employ the *Stated Preference* (SP) technique to resolve Step 4, when no direct method or benefit transfer can be found. SP is designed through creating a constructed hypothetical market of the economic value on which someone will place on £X or £Y on the good or service using concept known as Willingness to Pay (WTP). This is derived via questionnaire survey using either Contingent Valuation or Choice Experiment.

Contingent Valuation Method (CVM) asks people how they will behave in a certain hypothetical situation; known as their **stated preference,** typically using WTP to generate a value (Willis et al. 1993). White and Lovett (1999) used this method to establish how much people in the UK would pay for national park landscapes, and found it was £119 per household per annum. Given that there are about 25 million households in the UK, that means the public are willing to pay £2.975 billion per annum, rather more than the current budget of national parks. The technique has been used extensively to calculate the public's WTP for environmental goods produced by farmers in Environmentally Sensitive Areas (e.g. Willis and Garrod, 1994; Bullock and Kay, 1997).

The WTP method requires a questionnaire to gather the data. The researcher sets up a plausible scenario. They then ask how much a person will:

- pay for a positive change or to avoid a negative change (willingness to pay)

  or, depending on the circumstances

- accept as compensation for the perceived negative change (**willingness to accept**: WTA).

The researcher then chooses how they will elicit the monetary value from the respondent. There are several ways to do this:

- a bidding game – asking a series of questions to make people increase or decrease their offer
- payment cards – a list of set values
- open-ended – simply ask the respondent 'how much would you pay for…..? '
- dichotomous choice – please choose A or B

A sample of people is then interviewed and their average WTP or WTA is calculated from their responses. The technique has been used widely in relation to the multifunctional benefits of forestry including investigations into saving forests from timber extraction, how much people will

pay to partake of recreation in woodlands, paying for conservation in forests and how much would people pay for agroforestry to aid in reducing eutrophication.

Two contrasting examples are Marston Vale Community Forest (Maxwell, 1994) and the Dalby Forest of North York Moors National Park (White & Lovett, 1999). In Marston Vale, the WTP of the public to experience various environmental activities in the forest was explored. Using a sample size of 100 households in villages and towns surrounding the Forest, chosen at random from the electoral role (total popn. 128,000). Households were provided with a map of the forest and a description of plans. Four CVM scenarios posed: hire a rowing boat, visit a nature trail, pay an entrance fee for whole forest, or make an annual payment to trust fund. They were then asked what their maximum WTP from the offered scenarios would be, and how often they would use it for that amount. The latter allowed the researchers to calculate a mean WTP per year and WTP for year for the population of the local area. Given the size of the community forest, these data represent between £1656 and £2208 per hectare, which are the amounts a government should afford to invest, if it were to match the public's valuation of the forest!

In contrast, the Dalby Forest investigation explored the environmental preferences of foresters and public for certain types of forest stand (a block of trees). The researchers developed a replanting scenario of 100ha of Forestry Commission woods using one commercial (Sitka spruce) and four conservation planting regimes (leftover windblown, Douglas Fir, shelterbelt, and mixed forest) all with commercial value. They asked the respondents to choose between the Sitka and the others as a first step, and then if they selected other conservation options, what would they be 'WTP for increased taxes to pay for the 100ha, to offset commercial loss. Under this WTP the respondents were offered: 10p, 50p, £3, £10 or £20' as their choices. The results showed that foresters and the public did not vary statistically in their WTP:

- Windblown – foresters £10.12, public £10.15
- Douglas Fir – foresters £11.66, public £11.71
- Shelterwood – foresters £7.86, public £8.02
- Mixed forest – forester £8.61, public £8.64

Further analysis of recreational or biodiversity preferences showed that the public preferred the recreational types whereas the Forest staff the biodiversity options. This is an interesting result as it brings us back to consider whose preferences therefore count when planning for new planting, and thus we need to balance the various stakeholder attitudes.

Of course, as with all techniques there are pros and cons. On the plus side WTP is a well-established, accepted technique that can be used for market and non-market goods and services, and it is relatively simple to operate. But it has been identified as open to:

- bias (error and inaccuracy) – usually the difference between what people say they will do and what they actually do;
- sampling bias – whom we choose to interview
- problems with questionnaire design – the order of questions may cause one answer to colour another;
- embedding – should the good be valued on its own or part of a larger package?

- respondents may give a ridiculous figure as a protest vote and distort the findings

Given these issues, other more encompassing techniques are now favoured, such as *Choice Experiment* (sometimes called *Choice Modelling*). In this process respondents are presented with a series of alternative outcomes to make a preferred choice. Each alternative is made up of a series of **attributes** with various levels attached. The attributes with their levels are then combined as a package (known as a *choice*) and survey respondents select their choice. For example, the attributes could be: Upland vegetation (heather moorland and bog) and Cultural heritage. Then for each attribute the following levels are attached; change in upland vegetation area by –12%, –2% and +5% and for cultural heritage - rapid decline, no change and much better. The choices developed from these two attributes and their levels would be nine possible combinations/choices (-12% & RD, -12% & NC, -12% & MB, -2% & RD etc.). To run a Choice Experiment to elicit people's preferences for the management of an area there are several steps to go though (Table 7), which makes the process complex.

There are, of course, various advantages and disadvantages to employing this procedure; the greatest benefit is that is allows the investigator to combine various factors together which reflects reality more with respect to managing an area. Unfortunately, there are also many issues with the process, least of all its use of various software programmes to formulate the combinations of choices to offer to the survey respondents and the analysis. Furthermore, there is a limit to how many attributes and levels respondents can cope with. We could overlook an attribute and leave it out by mistake, or we may combine the wrong set of attributes. Other critical commentators of the process suggest that 'the whole may <u>not</u> be equal than the sum of the parts'; in other words, a combined set of attributes may not give the desired overall outcome or a particular combination may produce additionality not previously identified. Given the statistical complexity of the procedure is it probably best to get in a consultant to run the survey and provide the analysis, and to ensure we understand what the output is telling us.

Having said all this, Choice Experiment has been used for a huge range of studies including recreational choices, deer stalking preferences in Scotland, valuation of ESAs, preferences for different woodland landscapes, paying for public goods in English SDAs, options for replacement for the replacement of the Hill Farm Allowance and so on. An example of using choice modelling was conducted by McVittie *et al.* (2005) to explore the public's preferences to public goods in upland areas. They summarised the qualities of uplands as *upland landscape, traditional farm management* and *community culture*, and within each of these they had a range of attributes:

- upland landscape – scenic views, traditional buildings, peace and tranquillity, wildlife;
- traditional farm management – family farms, farming skills;
- community culture – local culture and social networks.

The attributes and qualities, in pairs, were then graded by respondents on a sliding scale, as shown in Table 8 over. The attributes (and the qualities separately) were weighted according to their relative importance identified by five difference groups of people (rural, remote rural, urban, Manchester and Cumbria).

The weightings were then statistically tested to see if significant differences occurred between the five sample groups. The analysis demonstrated that the Manchester sample had a significant preference for the 'upland landscape' quality, in contrast to their Cumbrian counterparts who preferred 'traditional farm management' and 'community culture'. They concluded:

Table 7 – Setting Up Choice Modelling

Aim of investigation:	Hanley & Colombo (2009): Determining the social benefits of a new policy moving from HFA to public goods in the uplands of England with a secondary aim which explored regional willingness to pay for landscape features produced by upland farmers				
Geographical focus	SDAs in NW England, Yorkshire & the Humber, West Midlands and South West focusing on those people who live in these areas and not visitors (cf. study by McVittie *et al.*; 2005, which did)				
Stage	**Description**	**Example**			
Selection of Attributes	Identification of various attributes of the good to be valued usually developed through literature research and focus group. Usually one attribute is WTP.	*Refined list from original 14:* Heather moorland & bog Rough grassland Mixed & broadleaved woodland Field boundaries Cultural heritage* Increase in tax payment by your household per year (WTP)			
Assignment of Levels	Levels selected are feasible, realistic, non-linearly spaced and cover ranges suggested by the focus group. A baseline status quo is usually included. Photos may be used here if it helps people understand a visual change.	HM & bog Rough grassland M & B woods Field boundaries C. heritage* WTP	-12%, -2%, +5% -10%, +2%, +5% +3%,+10%, +20% Every 1km, 50m or 100m or 200m restored Rapid decline (RD) No change (NC) Much better (MB) £2,£5,£10, £17,£40, £70		
Choice of Experimental Design	Statistical design theory is used to combine the levels of attributes together into a number of alternative scenarios/ profiles to present to respondents. Specialist software develops these using what is known as *Fractional Factorial Design*.	Six choice cards based on combinations of four policy options which physically manifest themselves: Option A - current policy to act as *status quo*. Option B - agri-environment based, Option C - environment focused, Option D – upland support was withdrawn entirely.			
Construction of choice sets	The profiles identified from the experimental design are grouped into *choice sets* to put into a survey.	*Example of one card's alternatives*:			
			Opt A	Opt B	Opt C
		HM & bog	-2%	+2%	-2%
		Rough grassland	-10%	-2%	-2%
		M & B woods	+3%	+10%	+10%
		Field boundaries	100m	200m	50m
		C. heritage*	RD	NC	MB
		WTP	£0	£20	£10
Measurement of preferences	A mechanism is employed to allow respondents to select their choices eg ratings, rankings or choices	Respondents made a choice from three alternatives posed at any one time.			
Estimation procedure	Use of specialist statistical regression analysis, a process known as LOGIT is typically used	Random Parameter LOGIT model which allows for a range of peoples tastes around the mean results			

*Cultural Heritage defined as: presence in landscape of traditional farm buildings, keeping of traditional breeds and maintaining traditional farming practices eg shepherding with sheep dogs

Table 8 - Farmers' perceptions of the benefits of upland farming and those of the public of Cumbria and Manchester

Qualities	Attributes	Cumbria farmers	Cumbria public	Manchester public
Traditional Farm Management	Traditional farming skills	1	5	6
	Small family farms	2	4	8
Community Culture	Strong local culture	3	2	5
Upland Landscape	Traditional buildings and stone walls	4	6	7
	Wildlife	5	1	1
	Community culture	6	3	3
	Scenic views	7	8	4
	Peace and tranquillity	8	7	2

(Source: McVittie *et al.* 2005).

> 'Geographical qualities of the uplands (scenic views and wildlife) are considered to be more important to people living outwith upland areas. This suggests a disassociation between upland areas and the role of farming in providing public goods.' (McVittie *et al*. 2005: 25)

McVittie *et al.* (sic) also calculated the respondents' Willingness to pay (WTP) for upland goods, deriving a figure of £1.15 billion for the whole UK (£47 per household), a lot more than the £153m spent on LFA support in 2004 (Defra, 2005).

2.3 Review Summary

Previously commissioned work for Natural England (Wain *et al*., 2021 a-e; Mansfield, 2021) developed a conceptual framework relating a multiple capitals approach to landscape and landscape change. The work was conducted in four main phases with the following outcomes:

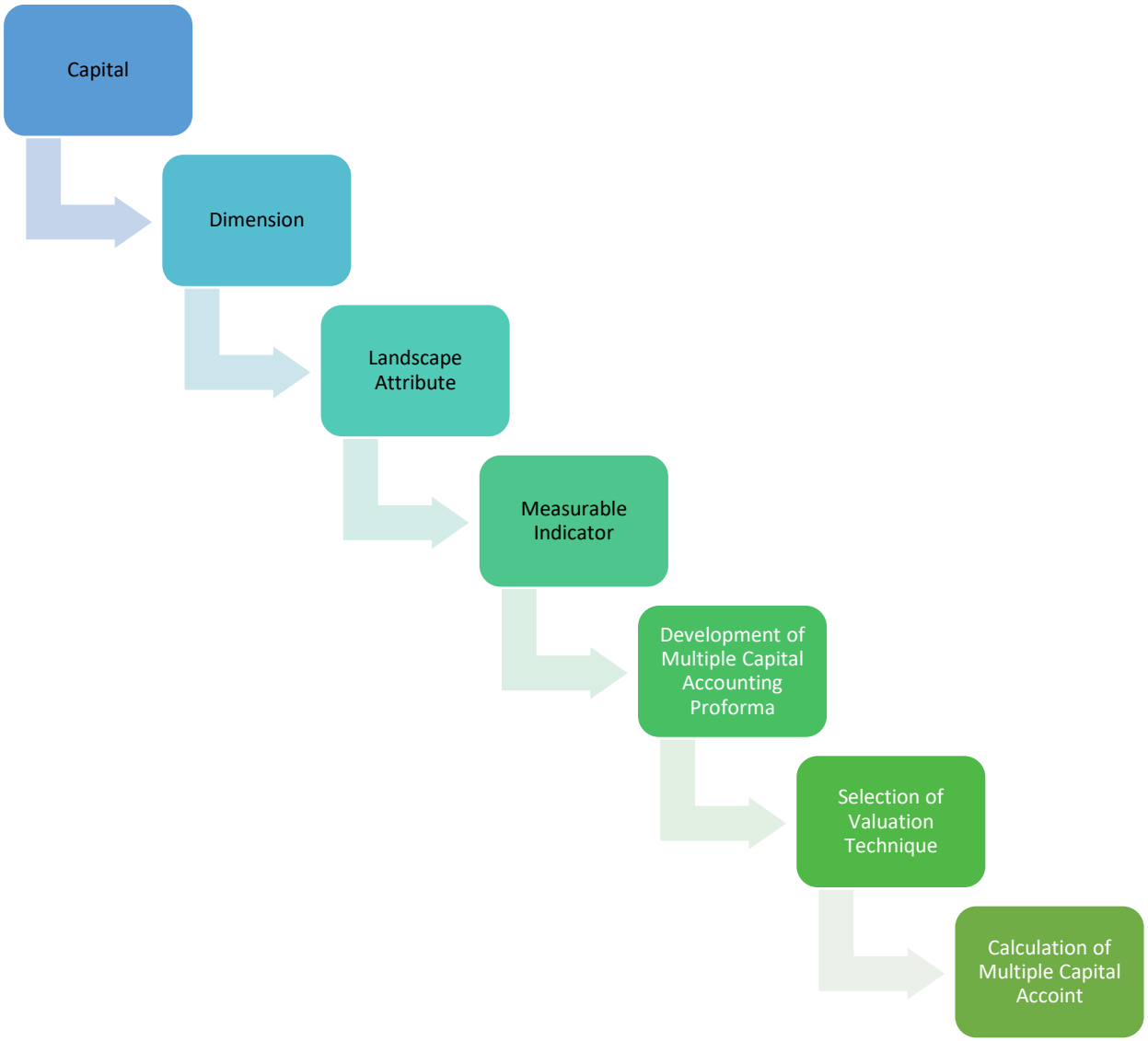
- The design of a multiple capital landscape conceptual framework
- An abstraction process to convert theory into practice using:

  Concept >>> dimension >>> attribute >>> indicator
- The development of a multiple capitals landscape framework

This piece of work has moved these ideas forward focusing on the development of a methodology to move from attribute to indicator and ultimately multiple capital landscape valuation and accounting. It draws on previous research into Natural Capital Accounting, extant databases and the application of stated preference techniques through Willingness to Pay in order to do so.

Based on this two stage review, Figure 14 outlines the updated process to create a Multiple Capitals Landscape Account.

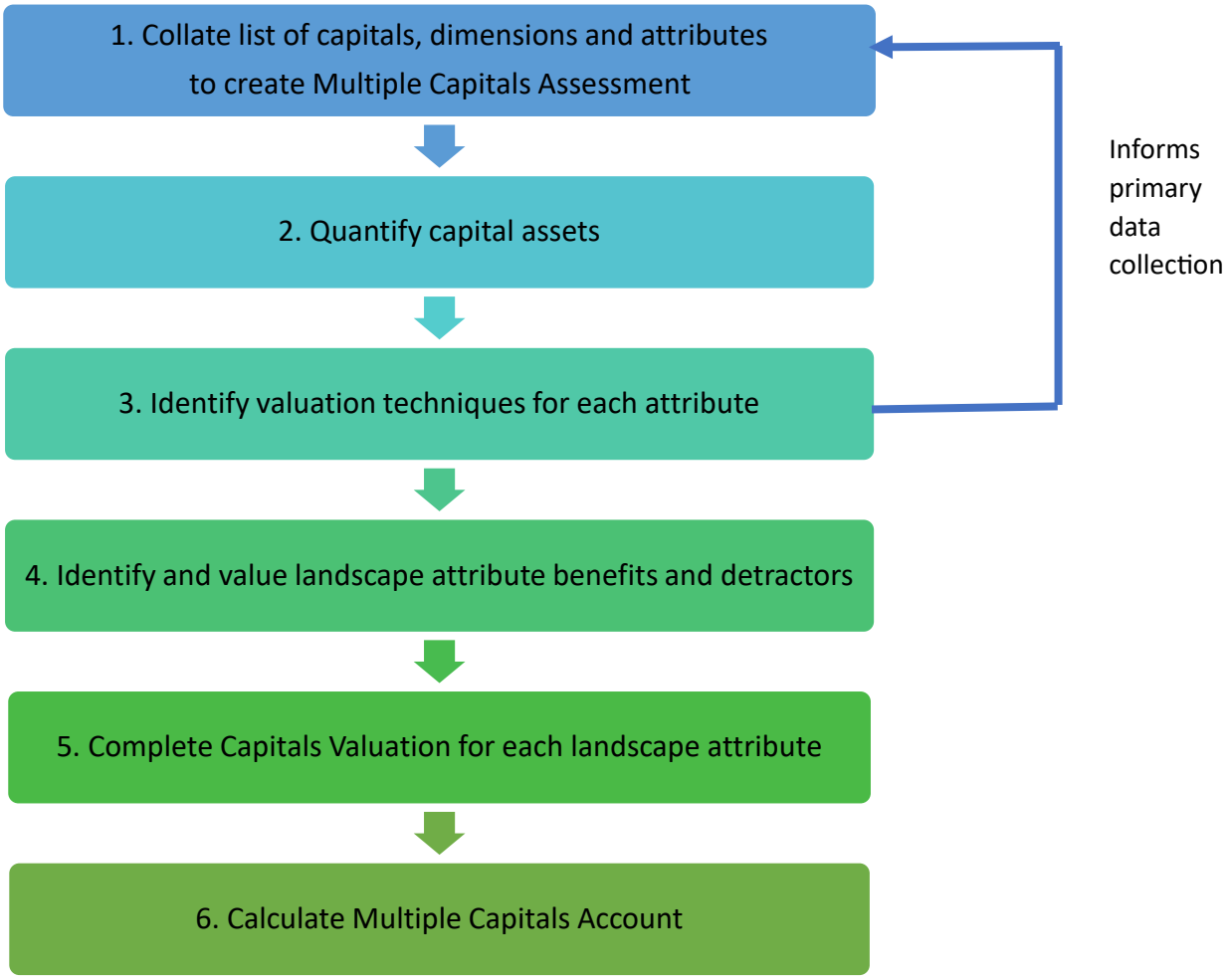
Figure 14 – Multiple Capital Landscape Assessment conversion to Multiple Capitals Account



3 METHODOLOGY

The main aim of this methodology is to calculate a Multiple Capitals Account for Little Asby Common. To accomplish this, there are six methodological stages which follow Figure 15.

Figure 15 – Process to Calculate Multiple Capitals Account



3.1 Collation of master list of capitals, dimensions, and landscape attributes

A range of data were used to collate information to enable the development of a Multiple Capitals Account. The process allowed for the move from theoretical ideas to landscape attributes ending in the creation of a re-worked Multiple Capitals Assessment specifically for Little Asby Common. Data were collected from various sources:

- *Field visits (primary data)* – field walking and photography followed by desktop analysis (see Annex 2) with initial consideration of capitals, dimensions and attributes present.
- *Secondary data* collated from a range of documents pertaining to the ownership and management of Little Asby Common held by FLD, and from a wider document search online.

- *Primary data surveys* - In order to collect people's thoughts on what they value about Little Asby Common, Friends of the Lake District devised two surveys.

In order to collect people's thoughts on what they value about Little Asby Common, Friends of the Lake District devised two surveys.

Initially the plan was to have a different survey for different groups/audiences, eg Commoners, visitors and tourists, local residents, and organisations/stakeholders. These were to be completed via face-to-face events, one for each group/audience, plus an online survey. When we started devising the survey, these initial ideas changed. We decided that it was important for each user group survey to have several questions in common so the data would be more comparable and easier to analyse as a whole. Together with the tight timescales for the work meaning we could not do a long promotion for the events, this led us to change our thinking and devise one survey for all the user groups, with a specific survey unique to the commoners. We also decided to focus predominantly on the online survey, with three face to face events, including one with the commoners, to encourage survey responses.

a) Devising the Surveys

For the methodology to work properly, we included a series of questions focused on all the types of capital/benefit and asked the respondents to in effect say what they were willing to pay for each one. Questions were a mix of quantitative, which could be auto analysed, and qualitative. We began with some opening questions about the common and if/how often people visited it. This was then followed by questions relating to each type of capital, with the wording in the survey referring to 'benefits' for ease of understanding:

- Natural -benefits the natural environment gives us
- Cultural – the cultural benefits from the common
- Social - enjoying doing things with others, relationships and engagement
- Personal - the benefit of Little Asby to you as an individual person (wellbeing, skills, fitness, improving mental health)
- Financial - money spent in the local area whilst enjoying LAC/money generated by the common

Initially we thought we would have two sections, the first asking what people valued about the Common in terms of the types of capital above, the second listing all the things they valued and asking them to put a monetary value on those benefits. However, when we started devising the survey, we found it worked better to split the types of capital and ask people to value them after each set of capitals. The valuation method selected for this element was 'Willingness to Pay'.

Questions were illustrated by photos for each type of benefit and the elements within it, eg habitat, recreation, limestone pavement, views, etc. Longer open-ended questions also required analysis to identify keywords or themes for other aspects of the research. This survey is in Annex C.

A separate survey was devised specifically for the commoners, although they were also encouraged to fill in the general survey. This focused on trying to establish how important their activities on the common are to their business as a whole, and also how much they contribute to the local community and wider businesses. This survey is in Annex D.

b) Survey platforms

A number of different online survey platforms were considered and assessed according to their functionality including factors such as question types provided (eg ranking, open ended etc), cost, number of questions allowed, number of responses allowed, ability to upload photos, etc. We opted for paying to use SurveyMonkey for a month as this would allow us to use as different question types and as many photos as we wished which was really important to give people a visual feeling for all the different benefits we wanted them to think about, especially for people who had not visited the common. It also gave us unlimited questions and replies.

We created a page on the Friends of the Lake District website about the project and a link through to the online link to SurveyMonkey. See https://www.friendsofthelakedistrict.org.uk/news/what-do-you-think-is-special-about-little-asby-common-news

c) Promotion

With a short timescale to meet as the research contract was agreed in December 2022, with the draft final report to be delivered to Natural England by the end of March 2023. As such, advertising for the drop in events in advance was very limited. Despite this, we lodged adverts with the relevant parish magazines in December, asking people to hold the dates and look out for more information.

This was followed up by various communications through the end of January and February 2023:

- Emails to all Friends of the Lake District members and contacts, asking them to fill in the survey and/or join us at the drop in events. 9513 people reached.
- Emails to all the contacts and volunteers in the Westmorland Dales Landscape Partnership Project asking them to fill in the survey and/or join us at the drop in events. 914 people reached.
- Social media posts with the same information which were regularly repeated through the survey period. FLD Facebook posts had a direct reach of 2500 receiving posts or via feeds or shares. FLD Twitter feed reached 11,380 receiving via shares or feeds.
- Mentions in other FLD communications, eg Postcard from the Lakes newsletter which went out every two weeks. Reached 9297 people.
- Press release issued to over 100 local and national contacts.
- Word of mouth at meetings and events.

The survey was online for a month, closing on Feb 26th.

d) Face to face events

Three face to face events were held for the local community and commoners:

- Great Asby Village Hall on Feb 8th, 3– 6.
- Orton Market Hall on Feb 8th, 6.30 – 8
- Private meeting for Little Asby Commoners on Feb 8th, 7pm in a farm kitchen.

For the two drop in events, we printed off A3 maps and associated pictures for each type of benefit the common provides. We had copies of the survey that could be filled in, and also laptops linking to the online survey so it could be completed there and then. There were also print outs of the link to the website and survey for people to take home. Two to four Friends of the Lake District staff were on hand to help and answer questions and drinks and cake were available for people. In total 10 people came to Great Asby, and 5 people to Orton.

For the commoners meeting, all the commoners were invited to the meeting the week beforehand. They were sent a letter explaining the reasons behind the survey and how important it was we captured their thoughts. We reiterated that although we were asking for personal financial information, this was totally confidential and could not be attributed to them in any way. They were sent a copy of the survey for Commoners that they could fill in beforehand, or bring to the meeting to go through there. They were also sent the public survey and link to the online survey and encouraged to fill it in.

f) Data analysis

Response data was downloaded and split into two spreadsheets straight from SurveyMonkey. These showed all responses received in one spreadsheet, with the second showing the responses by question. Some calculations were required to process the data further to value the benefits received from the activities carried out. For example, it was necessary to multiply the number of times an activity was carried out per year and by the number of hours it was carried out to produce a total value for the number of hours per year each activity was carried out by all respondents.

To prepare the data for the willingness to pay analysis it was necessary to check that the responses were all valid and ensure consistent data. For example, some valuations included pound signs or written words which needed removing/changing to ensure a single figure was provided. There were also a few respondents who had misunderstood the task and gave each of the benefits they had selected £100 each. To ensure consistency with the other responses it was necessary for us to then divide the £100 equally between all the benefits that they had valued at £100.

With respect to recreational visits, to keep it simple when asking people how often they did a certain activity on the common during the year and for how long they did this activity, time range classes of hours were provided for how long they carry out the activity (e.g. 3-3.5 hours) and short description for how often such as ‘one a year’, ‘a few times a year’ or ‘a few times a month’. To analyse the data consistently we agreed to take the upper time range, e.g. for 3-3.5 hours we

chose 3.5 hours. For the number of times a year, we agreed that 'a few' would mean 3 times a year/month/week.

The survey results were analysed using the usual range of graphs and charts to understand the dataset more fully. With respect to WTP, they displayed as box and whiskers graphs to appreciate the range of the WTP expressed by respondents.

Development of Little Asby Common Multiple Capitals Assessment – this was drawn from a combination primary and secondary data. Initial identification of capitals and dimensions from field work, formed the basis of the FLD respondent surveys through the feedback loop as shown in Figure 14 above. The respondent survey also contained 'Other' categories to allow for respondents to include their own ideas of benefits the initial Multiple Capitals Assessment may have overlooked. The results of this initial exercise are show in Annex B.

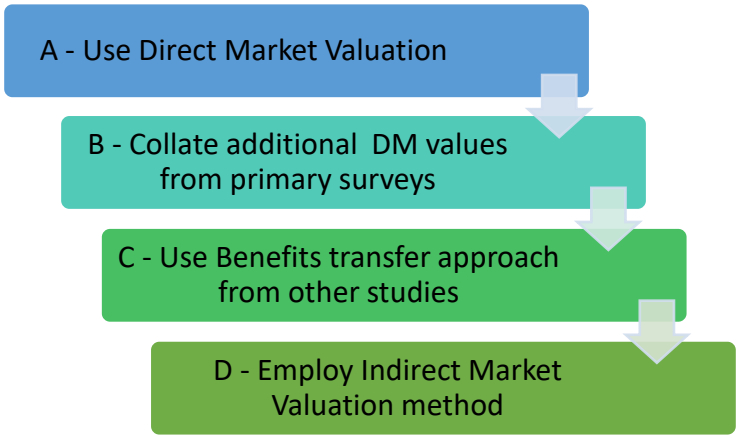
3.2 Capital Asset/Stock quantification

For this part of the process, data derived from secondary sources were collated regarding:

- Location – to check landscape attributes were within or on the boundary of Little Asby Common.
- Extent – GIS was used to confirm areas and lengths for geographical attributes. The respondent surveys provided the number of respondents and participants who answered questions. These numbers could vary from one part of the survey to the other, as some where behavioural or directed at specific groups of individuals. These were considered when calculating the Multiple Capitals Account.
- Condition of landscape attributes as derived from condition surveys where applicable, for example vegetation SSSI unit surveys conducted on behalf of the commoners and FLD as part of their HLS agreement.

3.3 Identify valuation techniques

To value each attribute (monetary flow) using in order of priority (Figure 13 repeated for convenience):



NB. It is important note that there are feedback loops within this methodology at this point. For example, Step 3 decisions on valuation approaches and techniques will need to be fed into Step 1 to allow for surveys to be collate appropriate data. These data are shown on Table 9.

Table 9 – Selection of Valuation Techniques

Capital	Dimension	Landscape Attribute	Indicator	Valuation technique(s)
Natural	Geodiversity	Limestone Pavement	Public perception	WTP
Natural	Ecosystems	Habitats	Value of SSSIs	Benefits transfer WTP
Natural	Air	Air Quality	Air quality purification Public perception	Benefits transfer WTP
Natural	Natural Processes & Functions	Carbon Sequestration	Carbon sequestered Public perception	SV of Carbon and Carbon sequestered by Habitat WTP
Natural	Ecosystems	Species	All species + ferns bar other lower plants	Counts from CBDC & LAC vegn monitoring
Natural	Freshwater	Water storage & flood mgt.	Public perception	WTP from survey
Human	Labour	Site Management	Volunteer numbers	HLF day rate
Human	Labour	Site Management	WDLP staff programme and projects	Salary info from WDLP
Human	Labour	Site Management	FLD staff - WD and LAC oversight	Salary info from Indeed
Human	Labour	Site Management	NE staff - UELS, CSS, SSSI tasks	Salary info from NE
Human	Labour	Site Management	Contract values	Contracts issued by WDLP, FLD or Commoners Assn
Human	Well being	Volunteer well being	Volunteer days and lengths	WDLP records QALYs & METs
Human	Well being	Visitor Recreation Well being	Visits made and lengths	WTP of public QALYs & METs
Human	Skills	Drystone walling	Maintenance costs Maintenance costs	CS rates Local walling rate
Human	Education	Discovery & learning	Public perception	WTP from survey
Human	Education	Social learning	Educational visits, group activities, organised events,	WTP from survey

			research & field trips	
Social	Recreation	Picknicking	Public perception	WTP from survey
Social	Common Rules & Norms	Communal grazing	Public perception	WPT from survey
Social	Bonding Network	Commoners Association	Commoners Meetings	FLD records
Social	Reciprocity & Exchange	Commoners labour	Commoners Labour	Commoners survey & Redman (2023)
Social	Reciprocity & Exchange	Volunteers	SROI	Social Value Engine™
Social	Bridging Network	Local community (minus Commoners)	SROI	Social Value Engine™
Cultural	Practices & processes	Communal Grazing	Public Perception	WTP from survey
Cultural	Recreation and Sport	Visitor Visits	Visitor visit value	Benefits transfer
Cultural	Landscape Aesthetics	Vistas & views	Public perception	WTP from survey
Cultural	Landscape Aesthetics	Tranquillity	Public perception	WTP from survey
Cultural	Landscape Aesthetics	Openness & Wildness	Public perception	WTP from survey
Cultural	Heritage	Archaeology	Public perception	WTP from survey & field reports
Cultural	Heritage	Built heritage	Public perception	WTP from survey & field reports
Cultural	Heritage	Drystone Walls	Public perception ESS Assessment	WTP from survey Powell et al., (2018)
Cultural	Heritage	Art & Literature	Public Perception	WTP from survey
Cultural	Access	Pathways & cycleways	Public perception	WTP from survey
Cultural	Inspiration	Inspiration	Public Perception	WTP from Survey
Financial	Currency	Public grants	UELS, HLS etc… Financial value	Agreement contract
Financial	Currency	Farm gross margins	Financial value	Redman (2023)
Financial	Currency	Multiplier effects (farm business)	Money spent by farm businesses in local economy	Commoners Survey
Financial	Currency	Utilities	Wayleaves and Easements	Financial value
Financial	Currency	Multiplier effects (local shops)	Money spent in local shops	LAC survey

3.4 Identify and value landscape attribute detractors

These will reduce the positive benefits of Little Asby Common and have been identified by the team as:

- Horse Riding – illegal on the common
- Camper vans overnight parking – illegal on the common
- JNCC Unfavourable Condition of habitat.
- Maintenance of landscape attributes, such as spraying contracts
- HLF grant – one year

3.5 Complete Capitals Valuation

- Table 10 is constructed for each landscape attribute (by completing re-inserted for each attribute. This is adapted slightly from the original earlier.

Table 10 – Capitals Calculation Proforma for each Landscape Attribute

Capital		Which main class of capital attribute belongs to		
Dimension		Capital dimension		
Attribute		Landscape attribute		
Indicator		**Method**	**Unit**	**Source**
A	Name of attribute to be measured	Methodological approach for quantification and/or condition	Units of measurement	Primary data from LAC survey OR secondary source of published data
B	Several indicators may be needed			
C	Often the monetisation method	Using Direct Market Value, Benefits Transfer or Indirect Market Valuation	£	As per attribute
Asset/Stock		**Calculations**		
A		Assets in terms of quantity eg hectares of habitat, no. of people		
B		Assets in terms of quality eg different carbon capture values by habitat		
Monetary Flows		**Calculations**		
C		Cash value identified from method (could be primary or secondary source)		
Total Benefit (£)		Formula used to calculate cash value eg = A x B x C		
Total Detractor (£)		Formula used to calculate cash value		
£ Value		Actual cash value (identified as difference between benefit/ detractor)		
Notes on methodological calculations				
Notes here which define terms and variables used in calculations. AND/ OR A space to be used to update methodological developments from new studies				

3.6 Calculate Multiple Capitals Account

Using the proforma below (Table 11), capital calculations will go in either as:

- **Benefit** - positive effect of a landscape attribute
- ***Detractor*** – negative effect from a landscape attribute derived from Step 4

The account is then calculated like a budget sheet.

Table 11 – Multiple Capitals Account (example)

Capital	**Dimension**	**Attribute**	**Benefit (£)**	***Detractor (£)***
Natural	Air	Air purification	£XXXXX	
Financial	Currency	Grants		*£XXXXX*
…..				
		Total Natural Capital		
		Total Human Capital		
		Total Social Capital		
		Total Cultural Capital		
		Total Financial Capital		
Total Benefits (£)				
Total Detractors (£)				
TOTAL MULTIPLE CAPITAL VALUATION				

Three types of account were calculated:

- Account A – Total Maximum Value (Public Responses ie **all WTP & Direct Market Values and remaining Benefit Transfers**)
- Account B – Total Threshold Value (Max. Benefit Transfers, Direct Market Values and **gaps infilled with total land area WTP from surveys when no other methodology is available**)
- Account C – Total Minimum Value (Min. Benefit Transfers, Direct Market Values **and gaps infilled with direct WTP from surveys when no other methodology is available**)

For **Account C**, the valuation was a direct transposition of the financial values stated on the original survey form; thus, for some benefits respondents were asked to value per hectare, structure, or artefact etc. For others, there were no units, and it was a straight valuation in £.

3.7 Comparison of various capital calculations

Four areas of landscape attribute calculation will also be explored where several methods of calculation are available. These include:

- Drystone walls
- Carbon Sequestration
- Recreation – visitor value

- Wellbeing – where various values of 1 QALY are used in different works

3.8 Methodology Summary

There are six methodological stages to calculate the Multiple capitals Landscape account for Little Asby Common:

1. Collation of the list of capitals, dimensions and attributes found on Little Asby common,
2. Quantify these assets,
3. Identify which valuation techniques are available for each attribute,
4. Identify and value the landscape attribute benefits and detractors,
5. Complete a capitals valuation for each landscape attribute,
6. Calculate the Multiple Capitals Landscape Account.

4 RESULTS

4.1 Little Asby Common Respondents Survey: overview

Two hundred and forty four survey responses were received. Of the 237 people that answered the question, 178 (75%) had visited Little Asby Common, while 59 had never visited (25%).

Details of the survey can be viewed in Annex E, here we outline the main findings:

- 86% who answered, walk on the common, 76% enjoy the views, 58% enjoy nature or bird watching, 23 % walk a dog and 21% cycle.
- Of those who carried out some form of recreation, the majority did so once or twice a year closely followed by those going once or twice week, or for between 30 mins and 2.5 hours.
- About 20% felt they belonged to the local community around the common
- 10% had engaged in some form of training, educational activity or visit
- With respect to Willingness to Pay, four benefit groups (natural, cultural, human and social capitals) and a range of their attributes were explored categorised using the dimensions master table (Table 1) and financial capital used direct market valuation.
- Of the four WTP capitals explored, overall the total economic value ascribed by all respondents ***on average*** valued human capital the most (£1615.97), followed by cultural (£1460.32), social (£1217.51) and then natural (£1132.00).
- Of the 33 attributes measured by WTP the top five most valued landscape attributes were: Drystone walls (Cultural - £2777.10), Volunteering (Human - £2520.33) and Mental Health (Human - £3575.00), Archaeology (Cultural - £2430.00) and Well being (Human - £2205.00).
- The highest ranked Natural Capital Attribute was Wildlife species, ranked seventh (£1823.00) after Tranquillity (Cultural - £2180.03).
- These WTP results contradict the last question in the survey where respondents were asked to rank the five 'benefits' (capitals) from most valued to least subjectively. In this instance, the most valued 'benefit' was natural followed by human, cultural, social and lastly financial.
- Using direct market valuation techniques, respondents generated about £500, 000 for the local community as a multiplier effect and the farm businesses about £140,000 per year.

The WTP valuations were used in the calculation of all three Multiple Capitals Accounts to varying degrees as follows:

- Account A – Total Maximum Value (Public Responses ie **all WTP**, Direct Market Values & remaining Benefit Transfers) [including WTP for habitats and not Benefits Transfer]
- Account B – Total Threshold Value (Max. Benefit Transfers, Direct Market Values and **gaps infilled with total Ha WTP from surveys when no other methodology is available**)
- Account C – Total Minimum Value (Min. Benefit Transfers, Direct Market Values **and gaps infilled with direct WTP from surveys when no other methodology is available**)

4.2 Multiple Capitals Landscape Valuations

Multiple Capitals Account A

Little Asby Common: Total Maximum Value 2022/23

(Public Responses ie all WTP, Direct Market Values & remaining Benefits Transfers)

Capital	Dimension	Attribute	Benefit (£)	*Detractor (£)*
Natural	Geodiversity	Limestone Pavement + Geology	484,090.09	
Natural	Ecosystems	Habitats [1]	848,412.43	
Natural	Air	Air Quality	598,220.45	
Natural	Natural Processes & Functions	Carbon Sequestration	368,706.46	
Natural	Ecosystems	Species	329,968.43	
Natural	Freshwater	Water storage & flood management	297,290.56	
Human	Labour	Site Management (Volunteers)	13,600.00	
Human	Labour	Site Management (WDLP staff)	4,885.10	*1,234.64*
Human	Labour	Site Management (FLD staff)	1,734.68	*350.48*
Human	Labour	Site Management (NE Staff)	444.22	*119.60*
Human	Labour	Site Management (Contractors)	79,877.00	*4,357.00*
Human	Well being [2]	Volunteer wellbeing	39,950.23	
Human	Well being [2]	Visitor Recreation well being	214,108.26	*66.30*
Human	Skills [3]	Drystone walling	669,600.00	
Human	Education	Discovery & Learning	778,910.72	
Human	Education	Social Learning	112,475.32	
Social	Recreation & sport	Picknicking	0	
Social	Common Rules & Norms	Communal grazing	777,029.61	
Social	Bonding Network	Commoners Association	1,702.80	
Social	Reciprocity & Exchange	Commoners labour	26,396.37	*5,680.29*
Social	Reciprocity & Exchange	Volunteers SROI [4]	128,626.35	
Social	Bridging Network	Local community (minus Commoners) SROI [4]	181,250.00	
Cultural	Recreation and sport	Visitor visit value [5]	181,047.36	*96.12*
Cultural	Landscape Aesthetics	Dark Skies	256,449.74	
Cultural	Landscape Aesthetics	Vistas & views	736,888.30	
Cultural	Landscape Aesthetics	Tranquillity	1,030,369.38	
Cultural	Landscape Aesthetics	Openness & Wildness	930,027.91	
Cultural	Heritage	Archaeology & Built Heritage	1,029,024.88	
Cultural	Heritage	Local History & place names	1,043,116.48	
Cultural	Heritage	Drystone Walls	37,190,923.20	

Cultural	Heritage	Arts & Literature	252,862.40	
Cultural	Recreation & Sport	Access	12,032,729.60	
Cultural	Inspiration	Inspiration	505,724.80	
Financial	Currency	Grants	38,539.17	*813,739.50*
Financial	Currency	Farm gross margins	191,168.00	
Financial	Currency	Multiplier effects (farm business)	137,182.50	
Financial	Currency	Utilities	8141.00	
Financial	Currency	Multiplier effects (local shops)	501,438.00	
		Total Natural	2,926,688.42	*0.00*
		Total Human	1,915,585.53	*6,128.02*
		Total Social	1,115,005.13	*5,680.29*
		Total Cultural	55,189,164.05	*96.12*
		Total Financial	876,468.67	*813,739.50*
Total Benefits (£)			**62,022,911.80**	
Total Detractors (£)				***825,643.93***
TOTAL MULTIPLE CAPITAL VALUATION			**61,197,267.87**	

(1) Uses WTP generated from online survey, hence do detractor for condition
(2) Well Being calculation uses The Green Book QALY value of £60,000
(3) Uses Drystone Walling Association walling rates
(4) SROI uses Social Value Engine™
(5) Uses NEVO methodology

Multiple Capitals Account B :

Little Asby Common: Total Threshold Valuation 2022/23

(Max. Benefit Transfers, Direct Market Values and gaps infilled with Total WTP from surveys when no other methodology is available)

Capital	Dimension	Attribute	Benefit (£)	*Detractor (£)*
Natural	Geodiversity	Limestone Pavement & Geology	484,090.29	
Natural	Ecosystems	Habitats [1]	375,159.42	*263,940.12*
Natural	Air	Air Quality	3114.54	
Natural	Natural Processes & Functions	Carbon Sequestration	54,356.13	
Natural	Ecosystems	Species	329,968.43	
Natural	Freshwater	Water storage & flood management	297,290.56	
Human	Labour	Site Management (Volunteers)	13,600.00	
Human	Labour	Site Management (WDLP staff)	4,885.10	*1,234.64*
Human	Labour	Site Management (FLD staff)	1,734.68	*350.48*
Human	Labour	Site Management (NE Staff)	444.22	*119.60*
Human	Labour	Site Management (Contractors)	79,877.00	*4,357.00*
Human	Well being [2]	Volunteer wellbeing	39,950.23	
Human	Well being [2]	Visitor Recreation well being	214,108.26	*66.30*
Human	Skills	Drystone walling [3]	669,600.00	
Human	Education	Discovery & Learning	778,910.72	
Human	Education	Social Learning	112,475.32	
Social	Recreation & sport	Picknicking	0	
Social	Common Rules & Norms	Communal grazing	777,029.61	
Social	Bonding Network	Commoners Association	1,702.80	
Social	Reciprocity & Exchange	Commoners labour	26,396.37	*5,680.29*
Social	Reciprocity & Exchange	Volunteers SROI [4]	128,626.35	
Social	Bridging Network	Local community (minus Commoners) SROI [4]	181,250.00	
Cultural	Recreation and sport	Visitor visit value [5]	181,047.36	*96.12*
Cultural	Landscape Aesthetics	Dark Skies	256,449.74	
Cultural	Landscape Aesthetics	Vistas & views	736,888.30	
Cultural	Landscape Aesthetics	Tranquillity	1,030,369.38	
Cultural	Landscape Aesthetics	Openness & Wildness	930,027.91	
Cultural	Heritage	Archaeology & Built Heritage	1,029,024.88	
Cultural	Heritage	Local History & place names	1,043,116.48	
Cultural	Heritage	Drystone Walls	4,149,608.07	
Cultural	Heritage	Art & Literature	252,862.40	
Cultural	Recreation & Sport	Access	12,032,729.60	
Cultural	Inspiration	Inspiration	505,724.80	

Financial	Currency	Grants	38,539.17	*813,739.50*
Financial	Currency	Farm gross margins	191,168.00	
Financial	Currency	Multiplier effects (farm business)	137,182.50	
Financial	Currency	Utilities	8141.00	
Financial	Currency	Multiplier effects (local shops)	501,438.00	
		Total Natural	1,543,979.37	*263,940.12*
		Total Human	1,915,585.53	*6,128.02*
		Total Social	1,115,005.13	*5,680.29*
		Total Cultural	22,147,848.92	*96.12*
		Total Financial	876,468.67	*813,739.50*
Total Benefits (£)			**27,598,887.62**	
Total Detractors (£)				***1,089,584.05***
TOTAL MULTIPLE CAPITAL VALUATION			**26,509,303.57**	

(1) Uses Christie et al (2011) SSSI valuations with detractors for unfavourable condition

(2) QALY value is £20,000

(3) DSW uses Drystone Walling Association walling rates

(4) Uses Social Value Engine™

(5) Uses ORVal Valuation method

Multiple Capitals Account C :

Little Asby Common: Minimum Valuation 2022/23

(Benefit Transfers, Direct Market Values and gaps infilled with direct WTP from surveys when no other methodology is available)

Capital	Dimension	Attribute	Benefit (£)	*Detractor (£)*
Natural	Geodiversity	Limestone Pavement & Geology	126,261.74	
Natural	Ecosystems	Habitats [1]	375,159.42	*263,940.92*
Natural	Air	Air Quality	3114.54	
Natural	Natural Processes & Functions	Carbon Sequestration	54,356.13	
Natural	Ecosystems	Species	329,968.43	
Natural	Freshwater	Water storage & flood management	297,290.56	
Human	Labour	Site Management (Volunteers)	13,600.00	
Human	Labour	Site Management (WDLP staff)	4,885.10	*1,234.64*
Human	Labour	Site Management (FLD staff)	1,734.68	*350.48*
Human	Labour	Site Management (NE Staff)	444.22	*119.60*
Human	Labour	Site Management (Contractors)	79,877.00	*4,357.00*
Human	Well being [2]	Volunteer wellbeing	13,316.00	
Human	Well being [2]	Visitor Recreation well being	71,369.42	*66.30*
Human	Skills [3]	Drystone walling	427,338.72	
Human	Education	Discovery & Learning	1648.00	
Human	Education	Social Learning	112,475.32	
Social	Recreation & sport	Picknicking	0	
Social	Common Rules & Norms	Communal grazing	777,029.61	
Social	Bonding Network	Commoners Association	1,702.80	
Social	Reciprocity & Exchange	Commoners labour	26,396.37	*5,680.29*
Social	Reciprocity & Exchange	Volunteers SROI [4]	128,626.35	
Social	Bridging Network	Local community (minus Commoners) SROI [4]	181,250.00	
Cultural	Recreation and sport	Visitor visit value [5]	123,410.56	*65.52*
Cultural	Landscape Aesthetics	Dark Skies	542.59	
Cultural	Landscape Aesthetics	Vistas & views	1559.90	
Cultural	Landscape Aesthetics	Tranquillity	2180.03	
Cultural	Landscape Aesthetics	Openness & Wildness	1967.73	
Cultural	Heritage	Archaeology & Built Heritage	1,029,024.88	
Cultural	Heritage	Local History & place names	2207.00	
Cultural	Heritage	Drystone Walls	4,149,608.07	
Cultural	Heritage	Art & Literature	535.00	

Cultural	Recreation & Sport	Access	12,032,729.60	
Cultural	Inspiration	Inspiration	1648.00	
Financial	Currency	Grants	38,539.17	*813,739.50*
Financial	Currency	Farm gross margins	191,168.00	
Financial	Currency	Multiplier effects (farm business)	137,182.50	
Financial	Currency	Utilities	8141.00	
Financial	Currency	Multiplier effects (local shops)	501,438.00	
		Total Natural	1,186,150.82	*263,940.92*
		Total Human	726,688.46	*6,128.02*
		Total Social	1,115,005.13	*5,680.29*
		Total Cultural	17,345,413.36	*65.52*
		Total Financial	876,468.67	*813,739.50*
Total Benefits (£)			**21,249,726.44**	
Total Detractors (£)				***1,089,554.25***
TOTAL MULTIPLE CAPITAL VALUATION			**20,160,172.19**	

(1) Uses Christie et al (2011) to value SSSI habitats with detractor for unfavourable condition

(2) QALY value is £20,000

(3) DSW uses Countryside Stewardship walling rates

(4) Uses Social Value Engine ™

(5) Uses ORVal Valuation method

4.3 Summary of Results

Two hundred and forty-four survey responses were received. Of the 237 people that answered the question, 178 (75%) had visited Little Asby Common, while 59 had never visited (25%). Typically those who visit, walk and enjoy views, nature & bird watch. Of those who carried out some form of recreation, the majority did so once or twice a year closely followed by those going once or twice week, or for between 30 mins and 2.5 hours.

With respect to Willingness to Pay, four benefit groups (natural, cultural, human and social capitals) and a range of their attributes were explored and respondents *on average* valued human capital the most (£1615.97), followed by cultural (£1460.32), social (£1217.51) and then natural (£1132.00). Of the 33 attributes measured by WTP the most valued landscape attribute was 'Drystone walls' (Cultural - £2777.10) and the highest ranked Natural Capital attribute was 'Wildlife Species', ranked seventh (£1823.00). The least valued was Arts & Literature (Cultural - £535). These WTP results contradict the last question in the survey where respondents were asked to rank the five 'benefits' (capitals) from most valued to least subjectively. In this instance, the most valued 'benefit' was natural followed by human, cultural, social and lastly financial.

The three ONE YEAR Multiple Capitals Landscape Accounts calculated:

Total Financial Value for Little Asby Common for 2022/23 ranged from:

£61.2m (public perception dominated) to £20.2m (Benefits Transfer dominated).

The highest valued capital in all three scenarios was:

Cultural Capital (£55.2m to £17.3m)

Followed by:

Natural Capital (£2.93m to £1.19m)

Human Capital (£1.92m to £726K)

Social Capital (£1.15m to £1.12m)

Financial Capital (£876K all scenarios).

5 LESSONS LEARNT

In this final section, we will critically review lessons learnt from the process of developing a Multiple Capitals Landscape Account. Particular areas we will focus on are: engaging with the public, utilising WTP, the application of different methods to calculate the same landscape attribute, capital appropriation and double accounting, relative vs. actual value, and data acquisition.

5.1 Engaging with the Public

In section 3 (Methodology), our early thinking about the relative weight we put on the surveys versus the workshops as the main way of engaging people changed as we developed the surveys. Initially we thought that our main way of collecting responses would have been via the workshops, but our desire to have as many common questions as possible between the various types of audiences, coupled with the short timescales and therefore limited promotion opportunities turned this round.

Online surveys

We were pleased with the level of responses to the online surveys, with 244 responses received, and with the number of complete surveys with few questions skipped. People found the questions where they had to **assign a value to the benefits the hardest and some wrote in the 'comments' section that they were philosophically uncomfortable with this aspect** and therefore did not provide a value. This issue was also raised by every person that attended one of the drop-ins, with some concerned about **putting a price on things that are inherently difficult to value**. Some people just divided the notional £100 up by the number of benefits they had selected in the previous question to get a value. There were also some respondents who had misunderstood the task and gave each of the benefits they had selected £100 each. To ensure consistency with the other responses it was necessary to divide the £100 equally between all the benefits that they had valued at £100.

One issue with the survey was people selecting activities that they carried out on the common, but not selecting how often or for how long. To include these data and value the benefits of these activities, we decided to take value of 1 for the number of times a year they carried out this activity and a value of 1 for how many hours they spent doing this activity, unless there was something written in the comments section that would indicate otherwise. In most cases this will have underestimated the amount of time spent doing that activity on the common during the year.

Finally, there is also the challenge of the **character of the survey population**. Given limited time, we chose to use our known networks of membership, local community connections, the public who engage with WDLP and our known associates in the landscape conservation field. Arguably these people were self-selecting and should be better informed than the general public. Thus, another time we would look to canvas a sample from the general population, although the logistics of accessing such a group can be problematic.

Commoners survey

We recognised **commoners may be reticent to come to a meeting** where personal information about their business was requested, and one not linked to the regular business of the common. Despite this, two commoners filled in the survey and the meeting with them enabled us to probe their answers more and find out how typical they may be of all the commoners. This allowed us to put more weight on their answers than might otherwise have been the case. Whether sending the survey and information out in advance caused low attendance or not is debatable – it would always be a balance between giving them the chance to gather information needed in advance, versus putting them off when they saw it was personal information.

Workshops

The **attendance at the workshops was low** but not unexpected given the short lead in times and it being early February. Despite that, the majority of the people who attended had not filled in the survey. Most had questions for us about the motivation behind the research and concerns about valuing things that are inherently difficult to value. Many struggled with the idea of putting a price on nature and heritage. The drop-ins gave us a good opportunity to talk to them in detail about what we were doing and why. Those that attended then went on to complete the survey and many said they would inform family, friends or neighbours about the project.

5.2 Utilising Willingness to Pay

The Stated Preference technique of WTP outlined in Section 2.2.3 has several recognised weaknesses. **Bias** derived from the difference between what people say they will do and what they actually do, is probably the hardest to eliminate and this survey was no different. It could also be argued that the survey had a sampling bias as the sample was drawn from known FLD contact lists and the local community using the common. We would argue that not everyone surveyed was either aware of the common nor had visited it. In fact, of the survey respondents, 25% had never visited it. If we had more time, it would have been interesting to extract the answers provided by this group and compare them to those that knew or used the common to see if any variation existed.

Problems with order of questions in questionnaire design can cause answers to colour one another. The character of the survey asked for WTP answers for single different benefits, but a bias could have emerged as we asked about natural capital first proceeding onto other forms of capital people may not have heard about previously. Lack of knowledge may thus have caused bias, but to overcome that we separated different capitals into different questions so that people were required to address each main capital on its own merits.

Of course, people could choose not to answer questions and on occasion people did that, but more out of protest at placing financial worth on something than due to lack of prior knowledge. Only three people gave what was in effect a protest vote by writing ‘natural capital was incalculable’ and refuse to engage with the process.

Embedding can also be issue, where an individual can have difficulty in identifying the *particular* value that they attach to one *particular* thing which is embedded in a collection of similar things. For example, valuing species in comparison to habitat, of which the former is part of the latter.

To a certain extent, these issues are reason why some researchers advocate Choice Experiment over single WTP and Contingent Valuation Method. Having said this our exercise was not a traditional cost-benefit analysis, where WTP is used to ask people to choose between option A or B, merely how much do you value A or B?

Sample size can be an issue. Research has shown that a respondent count of 300 is needed to reach a point where people begin to come up with similar patterns of answers. This survey reached 244, which given the limited window of opportunity and the size of the site (472ha) is felt to be representative.

A final reflection on WTP relates to how its use does or does not **distort the calculation of a Multiple Capitals Account**. This was tested using Accounts A, B and C. Account A used WTP as much as possible with any gaps filled in by Direct Market Values and Benefits Transfers. Accounts B & C were the complete reverse, whereby WTP as used to plug the gaps, where other calculation techniques were not available. The results of the three Accounts are shown in Table 12.

Table 12 – Comparison of Valuations via different Account methodologies

Capitals	**Account A**		**Account B**		**Account C**		**Subjective Prioritization Ranking Q27.**
	Max. WTP Public Perception driven	*Rank*	*Benefits Transfer driven & Min. WTP (whole site)*	*Rank*	*Benefits Transfer driven & Min. WTP (by unit)*	*Rank*	
Natural	2.93m	2	1.54m	3	1.19m	2	1
Human	1.92m	3	1.92m	2	726K	4	2
Social	1.12m	4	1.12m	4	1.15m	3	4
Cultural	55.18m	1	22.58m	1	17.29m	1	3
Financial	876K	5	876K	5	876K	5	5
TOTAL VALUATION	***61.2m***		***26.5m***		***20.2m***		

This comparative analysis shows that whilst there is a **substantial difference in the final account value** by a factor of three, **cultural capital remains the most valued of the five types**. It is nevertheless, the total financial value of cultural capital which changes the most through the application of different techniques, this is accounted for mainly by a single landscape attribute that of drystone walling, a phenomenon discussed next.

5.3 Applying different techniques to calculate the same landscape attribute

In several instances different techniques were applied to calculate the value of the same landscape attribute to see the effect. Whilst WTP was used in many instances, this is not the main

consideration here as this as dealt with holistically in Section 5.2, here we are interested in comparison. These are summarised in Table 13 for convenience.

It is evident that the **public value landscape attributes much more highly than through more objective methodologies**. Part of this is caused by the inherent weaknesses in the WTP method as discussed about, having said this, it is important to recognise how much the public (who pay for UK landscape management via their taxes) rate our landscape.

With respect to recreational well-being, whilst preparing this report the Author found three factors in use. It is of interest that HMRC's Green Book values a QALY three times as much as NICE do. For Visitor Visit Value, the discrepancy in calculation can partly be attributed to the age of Sen et al's (2014) work (now 9 years old, probably older due to length of time from research to publication). It is of greater interest the variable valuation between ORVal and NEVO, probably due to different variables used in the final calculations. However, both of these are not that useful for localised capitals accounting, as they use very high-level spatial figures which lack the granularity of local data.

Table 13 – A Comparison of Accounting via Different Techniques

Technique	Source	Value
Valuing SSSI Habitats		
Choice Experiment	Christie & Rayment (2012)	112,218.50 (1)
WTP	LAC survey	848,412.43
Air Quality		
P10	White, C. et al. (2015)	3114.54
WTP	LAC Survey	598,220.45
Carbon Sequestration		
Social Value of Carbon	Forest Research UK	54,356.13
WTP	LAC Survey	368,706.46
Recreational Well Being		
QALY (£20k)	NICE	71,369.42
QALY (£25k)	Yorkshire Water	89,211.78
QALY (£60k)	The Green Book	214,108.26
Visitor Visit Value		
Technique 1	ORVal	123,345.04
Technique 2	Sen et al 2014	89,211.78
Technique 3	NEVO	214,10826
Drystone Walling Skills		
Direct Market value	Drystone Walling Assn.	669,600.00
Direct Market value	Countryside Stewardship Rate	427,338.72
Drystone walling Cultural value		
WTP	LAC Survey	37,190,923.20
Technique 2	Powell et al. (2019)	4,149,608.07

(1) – includes a detractor as SSSI units not in favourable condition

The last two pairs of comparisons relate to Drystone Walling. The first pair for walling skills, used the costs of all maintenance based on the market rate (Drystone Walling Association) and the Stewardship Rate. The DSWA rate came in at roughly 30% higher than the CS rate. This discrepancy is not a surprise as it is common knowledge that the CSS walling rate is well below market rate operating on a profit foregone philosophy.

The second accounting comparison compares the public's WTP for walls in a cultural landscape with a carefully calculated process developed by Powell *et al.* (2019). Whilst there is evidently a huge distortion between the two sets of figures, it is instructive to note that Powell et al.'s (sic) method did not include a financial value for public perception. At the same time a closer examination of the variables shows that their method contains a wide number of different capitals, dimensions, and their attributes. So, it could be argued some double accounting may be going on. Having said this, Powell's work is looking at Ecosystem Services and NOT capital. The former deals with flows, the latter with assets.

5.4 Capital Appropriation and Double Accounting

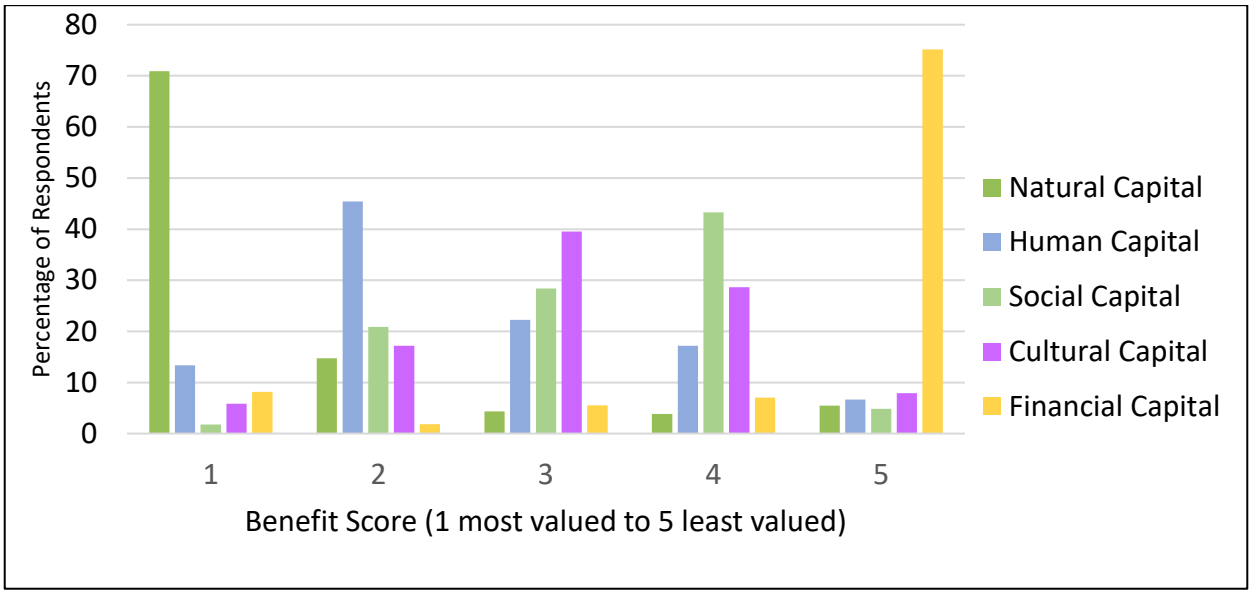
Throughout this work, there has been the constant spectre of **capital appropriation which can lead to double accounting** as explained in Section 2.1.1 (p17). Natural Capital Accounts often appropriate other capitals or their dimensions (eg RSPB, 2017; Holt, 2017). This Multiple Capital Account has thus, using the previously agreed capitals dimensions master list from Wain *et al*. (2021, a-e) allocated many accounting lines normally found in NCAs into different capitals. This has enabled some elimination of double accounting with which an NCA can be beset. In other instances, it has been difficult to eliminate the double accounting effect, for example through the application of Powell *et al's* (sic.) valuation of drystone walls in relation to maintenance costs (human capital in a cultural capital accounting line). As accounting techniques improve it is hoped these will gradually disappear.

5.5 Relative vs. Actual Values

As noted above, appending a value to 'benefits' in the survey caused some people concern, either philosophically or mechanistically. To overcome the latter, we asked them to spend £100 to set some parameters, but this can distort how people value landscape attributes in relation to one another.

Regarding the philosophical point, we countered this at the end of the survey (Q.27), by asking people to simply rank in order of priority the five main benefits (capitals) of natural, cultural, social, human and financial with respect to how they valued them. Their responses are shown in Figure 16.

Figure 16 – Valuing Benefits: Scores by Little Asby Common Survey Respondents



Apart from the obvious **Rank 1 prioritisation of natural capital by most people** (71%) and financial capital as the least valued (Rank 5) by most people (74%), the pattern is quite complex to disentangle. To overcome this, as noted in the survey data analysis in Annex E, descending point scores were allocated to each rank response (ie. Highest valued at rank 1 scored 5 and so on). A weighted score for each rank for a capital was calculated, and then a Total Score (Table 14).

Table 14 – Weighted Scores for Ranked Capitals

Rank	**1**	**2**	**3**	**4**	**5**	**SCORE TOTALS**
Natural Capital [(1)]	122	24	7	6	9	748
Cultural Capital	10	28	64	45	13	457
Social Capital	3	34	46	68	8	433
Human Capital	23	74	36	27	11	584
Financial Capital	14	3	9	11	124	255

(1) Example Natural Capital: Total Score = (122 x 5) + (24 x 4) + (7 x 3) + (6 x 2) + (9 x 1)

This weighted score system, shows that **Natural Capital as valued the most important** by survey respondents, followed by Human Capital, then Cultural, Social and finally Financial. The ranking of **Human Capital second**, is most likely due to people's perception of the value of such sites for their recreational value, and mental health & well-being, based answers to other questions in the survey. Interestingly these Human Capital attributes are usually the first to be included as flows into Natural Capital Accounting systems beyond the standard biodiversity assets. As such it would mean cultural capital would move into the second ranked place if we had not separated out human capital here.

Another noticeable feature is that this subjective ranking question places natural capital as the most valued in contrast to the multiple capital accounting system which identified cultural capital (by whatever financial valuation). Whichever way, round natural and cultural capital sit in the

rankings, both subjective ranking and objective accounting re-enforces one of the original reasons to develop financial values for non-market goods. – that they lack comparative valuation system. In fact, these accounts show **financial capital as the least valued in both objective valuation and subjective methods.**

Thus, whether through a subjective ranking system or an objective multiple capitals account, it is evident that **non-market goods are valued more than direct market value goods in this landscape.**

5.6 Data acquisition, processing and manipulation

In order to complete this multiple capitals account a large amount of data were required. Natural England have spent time collating previous studies to form a central database to be used through benefits transfer (ENCA). A similarity project has been initiated by DCMS regarding cultural capital. Unfortunately, both these databases were of limited value for this 'multiple capitals' landscape accounting exercise. There is also some debate in the academic literature about using Benefits Transfer, as it can be spatially and temporally specific to the study at hand.

Consequently, considerable time was spent identifying other techniques to quantify and account for other capitals and their dimensions. Key alternative sources included the Social Value Engine designed by Rose Regeneration, the quantification of health benefits using METs and QALYs (Christie & Rayment, 2012) and the multiple capitals account methodology developed by Yorkshire. Water. Unfortunately, the latter only supplied helpful methodologies for human capital salaries as most of their accounting process did to consider landscape. In future, this phase should be less time consuming. For other capitals, new proxies needed developing, such as Commoners labour, which need more work.

The lack of accounting techniques meant that there was a heavy reliance on WTP, which whilst accepted by HMRC's Green Book as a recognised cost-benefit analysis technique, has its own flaws (see Section 5.2). Using WTP also meant that the team had to formulate and execute a public survey in a limited short time scale, which ideally needed to be longer. Manipulating these data into a format which could be used for the accounting phase added more time to the process. Having said this, it is inevitable such a process will need to be replicated for other multiple accounts in future especially as exercises in WTP, as a Benefits Transfer, will be spatially and temporally specific.

Once the data were gathered and manipulated, the data needed to go through a third stage of processing to calculate each landscape attribute budget line. This too, was time consuming, as some techniques were complex requiring several variables and manipulations to create a financial value. It is important to note that this process was to create a baseline and, as a result, does not extrapolate in to the future nor include a discounting factor (typically 3.5% per year).

Overall, **data acquisition, processing and manipulation was a protracted and intricate operation.**

6 CONCLUSIONS & RECOMMENDATIONS

6.1 Multiple Capitals Landscape Account

The aim of this project was to calculate a Multiple Capitals Account for a known landscape unit by testing the multiple capitals conceptual framework devised by Mansfield (2021) and Wain *et al.,* (2021a-d) for Natural England. Working with Friends of the Lake District, a Multiple capitals Landscape Account was calculated for a single baseline year for Little Asby Common, which has enabled FLD to financially value the common's full range of public benefits. This was achieved through a step-wise process of the identifying capitals, dimensions and attributes operating on the common, calculating of a series of financial valuations for each attribute and a final account.

Valuations employed a combination of Direct Market value, Benefits transfer and Stated Preference (Willingness to Pay) techniques, supported by an online survey, a Commoners survey and workshops. Two hundred and forty-four survey responses were received. Of the 237 people that answered the question, 178 (75%) had visited Little Asby Common, while 59 had never visited (25%). Typically those who visit, walk and enjoy views, nature & bird watch. Of those who carried out some form of recreation, the majority did so once or twice a year closely followed by those going once or twice week, or for between 30 mins and 2.5 hours.

With respect to Willingness to Pay, four benefit groups (natural, cultural, human and social capitals) and a range of their attributes were explored and respondents *on average* valued human capital the most (£1615.97), followed by cultural (£1460.32), social (£1217.51) and then natural (£1132.00). Of the 33 attributes measured by WTP the most valued landscape attribute was 'Drystone walls' (Cultural - £2777.10) and the highest ranked Natural Capital attribute was 'Wildlife Species', ranked seventh (£1823.00). The least valued was Arts & Literature (Cultural - £535). These WTP results contradict the last question in the survey where respondents were asked to rank subjectively the five 'benefits' (capitals) from most valued to least. In this instance, the most valued 'benefit' was natural followed by human, cultural, social and lastly financial.

Three Multiple Capitals Landscape Accounts calculated the:

Total Financial Value for Little Asby Common to be from:

£61.2m (public perception dominated) to £20.2m (Benefits Transfer dominated).

The highest valued capital in all three scenarios was:

Cultural Capital (£55.2m to £17.3m)

Followed by:

Natural Capital (£2.93m to £1.19m)

Human Capital (£1.92m to £726K)

Social Capital (£1.15m to £1.12m)

Financial Capital (£876K all scenarios).

6.2 Lessons Learnt

With respect to engaging with the public the online survey was the most effective method but needed more time to execute. There were some issues with the public understanding how to allocate a figure through a WTP methodology and philosophical challenges related to placing a financial value on non-market goods. The character of the survey population may have biased the results, thus conducting a similar exercise with the wider public would be of benefit for comparative purposes. Sharing business information from the commoners proved difficult, hence for some accounting lines, published data from 'Nix' (Redman, 2023) were used.

Utilising WTP led to the well-recognised challenges of bias, embedding and sample size along with a financial inflation derived from public perception, in comparison with other valuation techniques. Through the application of different valuation techniques, the same landscape attributes could have different values. This was overcome by calculating three different types of Multiple Capital Landscape Accounts.

By using a Multiple Capitals Approach, appropriation of capital dimensions and attributes into Natural Capital Accounting was avoided and this helped to limit double accounting.

Creating multiple accounts and asking respondents to subjective rank the different benefits (capitals) allowed for comparison between actual and relative valuation. The outcomes of this were: Natural Capital is valued the most subjectively; Cultural capital valued the most objectively, and Financial Capital the least, via both methods. The corollary is that non-market goods are valued more than direct market value goods in this landscape.

The accounts produced form a single baseline year and do not include extrapolation into the future nor employ a discounting rate of 3.5%. Data acquisition, processing and manipulation was a protracted and intricate operation.

6.3 Policy Context

Applying a multiple capitals framework to Little Asby Common and the calculation of a Multiple Capitals Landscape Account has demonstrated that there is a need to represent and value more than Natural Capital in a landscape if we are to fully recognise and manage the range of benefits such an area provides for society, and which we value. This is supported by the forthcoming research programme devised by DCMS for Cultural Capital and the interrelationship between the two; this is especially important for our rural landscapes, as originally shown by Swanwick's (2002) Landscape Wheel, the voluminous literature on socio-ecological systems and the Multiple Capitals 'Proof of Concept' work by Wain et al. (2021 a-d) and Mansfield (2021). For both Natural and Cultural Capital it is crucial to factor in human and social capital as these latter provide the knowledge, skills and collaborative co-operation shaping our countryside and landscapes, and protecting our habitats and species. These other capitals cannot and *must not be ignored* and neglected but should form part of a wider rural policy to address contemporary agendas of biodiversity loss and climate action. Our complex land ownership and property rights milieu mean partnership between owners and managers is the only way forward to secure our environment for future generations.

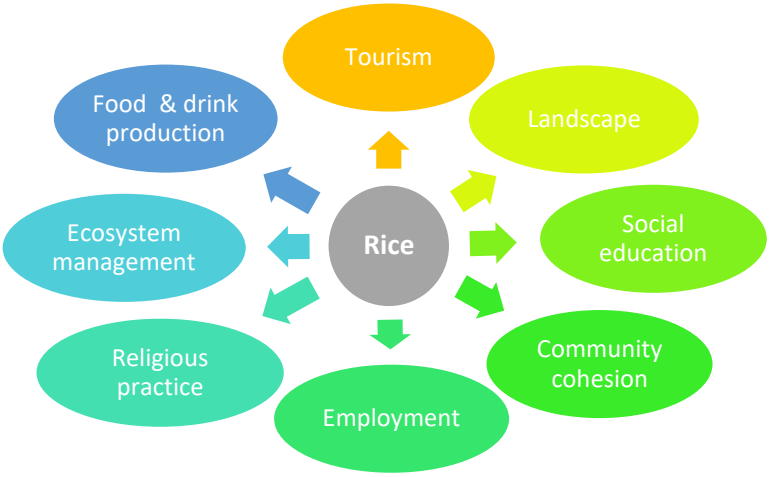
To support the maintenance and development of these four capitals the fifth, financial capital needs to reflect a wider portfolio of capital and revenue opportunities. Currently, beyond walls and barns, there is little public goods financial support on offer through the new Agri-Environment package of SFI and ELMS to do so. Given the Multiple capital Landscape Account results for Little Asby Common we believe this is an oversight which needs rectification quickly. It is not appropriate to wait for the outcomes of the DCMS Cultural Capitals project; the current seismic changes rural land management is undergoing is already negatively affecting its cultural, social and human capital where commoning practice and process is being eroded in the neighbouring Lake District (Mansfield & Lock, 2023). Both ELMS and SFI need to reflect the full package of capital support, because in not doing so it will undermine the very biodiversity loss and climate change we seek to address.

There are ample examples from now defunct agri-environment schemes in England and other parts of the UK, which can be drawn upon to develop better cultural, social and human capital elements to ELMS & SFI. Examples include (Mansfield, 2011; 2018):

- UX1 option under the Uplands Entry Level Scheme provided payment for maintaining a hefted flock.
- Farmer agri-environment training workshops were compulsory as part of the Countryside Management Scheme in Northern Ireland from 2006-2013)
- Foddering and gathering payments Sheep Wildlife Enhancement Scheme on the North York Moors SSSI in 2006
- Sense of Place and other social capital projects as part of LEADER+ between 2007 and 2013

Admittedly, the shape of our current AES package in England is not helped by the fact that Natural Capital and Farm payments come under the auspices of DEFRA and cultural heritage under that of DCMS. Cross departmental grants schemes are unheard of in the UK, but they do exist and function well in other countries. For example, the Japanese have created umbrella legislation that allows the different Ministries to pool their resources and create cross-department grant schemes to improve economic, cultural and social resilience in their uplands by using 'rice' as a multifunctional focus (Figure 17, Mansfield, 2019).

Figure 17 – The Multifunctional Values of Rice Heritage in Japan
(Source: Mansfield, 2019)



The importance of a multiple capitals approach to landscape management can no longer be side lined if we want to reverse biodiversity loss and support economically and socially thriving rural cultural landscapes. Multiple Capitals Landscape Accounting provides the baseline from which we can effectively value and address our landscape challenges.

6.4 Recommendations

1. Accept landscapes are a product of multiple capitals and that true natural capital (avoiding appropriation) is the fundamental building block of landscape.

2. Adopt a Multiple Capitals Assessment for Landscape and it's process of change.

3. Adopt a Multiple Capitals Landscape Accounting system to closer reflect the realities of landscape management and change.

4. Select alternative landscape types and commission comparator studies to check efficacy of process including a wider public WTP survey.

5. Commission research to develop better techniques to measure and financially value human and social capital to avoid double accounting and be more accurate.

6. Actively acknowledge the Public's perception that cultural capital is of at least equal importance as natural capital.

7. Develop a cross-Departmental rural landscape fund which supports all types of capital development with the aim to recover nature, address climate change and support cultural landscapes, whilst at the same time building resilience in rural communities.

8. Extend ELMS to include human, social and cultural capital prescription and project funds.

Lois Mansfield, June 2023

ENVIRONMENTORS

REFERENCES

Ainsworth, B.E., Haskell, W.L., Herrmann, S.D., Meckes, N., Bassett, D.R., Tudor-Locke, C., Leon, A.S., 2011. '2011 compendium of physical activities: a second update of codes and MET values.' *Med. Sci. Sports Exerc*. 43 (8), 1575e1581.

Bagstad KJ., Ingram JC., Shapiro CD., La Notte A., Maes J., Vallecillo S., Casey CF., Glynn PD., Heris MP., Johnson JA., Lauer C., Matuszak J., Oleson KLL., Posner SM., Rhodes C., Voigt B (2021) 'Lessons learned from development of natural capital accounts in the United States and European Union' *Ecosystem Services* Vol.52 https://doi.org/10.1016/j.ecoser.2021.101359

Biner A., Bateman IJ., Day B (n.d.) '*Natural Environment Valuation Online tool (NEVO).'* Accessed at: https://www.leep.exeter.ac.uk/nevo) on 23/2/23

Bullock C.H. and Kay J. (1997) 'Preservation and change in the upland landscape: the public benefits of grazing management.' *Journal of Environmental Planning and Management* Vol. 40: 315–34.

Burton R., Mansfield L., Schwarz G., Brown K. and Convery I. (2005) '*Social Capital in Hill Farming'.* Report to the International Centre for the Uplands: Hackthorpe: Cumbria.

CBDC (2021) : https://www.cbdc.org.uk/CumbriaLGS/Leaflets/8_018.pdf

Cherry J & Cherry PJ (1987) '*Prehistoric Habitation Sites on the Limestone Uplands of Eastern Cumbria*' Research Series Vol 2 Cumberland & Westmorland Antiquarian & Archaeological Society, Titus Wilson & Son: Kendal

Christie M & Rayment M (2012) 'An economic assessment of the ecosystem service benefits derived from the SSSI biodiversity conservation policy in England and Wales' *Ecosystem Services* Vol 1 p70 to 84.

DEFRA (2000) '*Little Asby Common, Cumbria: Vegetation & Grazing Management Evaluation 2000*' Resource Planning team, Leeds RPT (Envtl cross compliance)

Department of Environment, Food and Rural Affairs (2005) '*Securing the Future – delivering the UK Sustainable Development Strategy*.' Cmnd6476 HMSO: London

DEFRA (2021) '*Enabling a Natural Capital Approach Guidance*.' Accessed at: https://www.gov.uk/government/publications/enabling-a-natural-capital-approach-enca-guidance/enabling-a-natural-capital-approach-guidance on 13/04/23

ENCA (2021) *Data Services Handbook* Enabling a Natural Capital Approach guidance - GOV.UK (www.gov.uk)

Faccioli M., Zonaveld S., Tyler CH. & Day B. (2023) 'Does local Natural Capital Accounting deliver useful policy and management information? A case study of Dartmoor and Exmoor National Parks' *Journal of Environmental Management* Vol 327 https://doi.org/10.1016/j.jenvman.2022.116272

Flora CB., Flora JL & Fey S (2004) *Rural Communities: Legacy and Change*, Second Edition Boulder:Westview

Friends of the Lake District (undated) : Little Asby and Sunbiggin Tarn history

https://www.friendsofthelakedistrict.org.uk/Handlers/Download.ashx?IDMF=fd26900c-fd2d-4396-81e1-003194819c5d

Green B (1985) '*Countryside Conservation'* George Allen & Unwin: London

Hanley N and Colombo S (2009) 'The economic value of landscapes in the uplands of England', Ch. 18 in Bonn A, Allott T, Hubacek K and Stewart J, *Drivers of Environmental Change in Uplands*, pp. 323–38. Routledge: London.

HMRC (2022) '*The Green Book'* Accessed at: https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-governent/the-green-book-2020 on 13/04/23

Hodgson G (2014) 'What is capital? Economists and sociologists have changed its meaning: should it be changed back?' Cambridge Journal of Economics Vol38.5 p1063 to 1086

Holt A. (2018) '*Eycott Hill Nature Reserve natural capital accounts'* Report prepared for Cumbria Wildlife Trust.

https://www.friendsofthelakedistrict.org.uk/Handlers/Download.ashx?IDMF=8990458e-02f4-4bc6-94ea-f87ab5f01616

Johnson DS (2022) '*Drystone Walls Survey Project report*' Westmorland Dales Landscape Partnership: Tebay. Microsoft Word - drystone walls survey final report.docx (friendsofthelakedistrict.org.uk)

Lui S., Constanza R., Farber S. & Troy A. (2010) 'Valuing Ecosystem Services: Theory, Practice and the need for transdisciplinary synthesis' *Ecological Economics Reviews* Vol. 1185(1) 54 to 78

Mansfield L (2011) '*Upland Agriculture and the Environment*.' Badger Press: Bowness on Windermere.

Mansfield, L. (2018) '*Managing Upland Resources: New Approaches for Rural Environments*'. Whittles Publishing: Dunbeath.

Mansfield (2021) '*Multiple capitals conceptual framework development, key findings and proof of concept.'* Unpublished report to Natural England.

Mansfield L (2019) '*Valuing Cultural Capital: Place-based Rural Development for Hill Farming Opportunities from Japan'* Winston Churchill Fellowship Trust & Princes Countryside Fund

Mansfield L & Lock M (2023) *'Lake District World Heritage Farm Baseline Survey 2022'* On behalf of the Lake District Partnership: Centre for National Parks & Protected Areas: University of Cumbria, Ambleside & Lake District WHS team, LDNPA: Kendal

Matthews R & Selman P (2006) 'Landscape as a Focus for Integrating human and environmental processes.' *Journal of Agricultural Economics* Vol 57.2 p199 to 222

McVittie A., Moran D., Smyth K. and Hall C. (2005) *Measuring Public Preferences for the Uplands.* Final report. International Centre for the Uplands: Hackthorpe, Cumbria.

Maxwell S.K. (1994) 'Valuation of Rural Environmental Improvements using Contingent Valuation Methodology: a Case Study of the Marston Vale Community Forest Project' *Journal of Environmental Management* Vol 41(4) p385 to 399

Millenium Ecosystem Assessment (2001) various volumes

Natural Capital Committee (2014) '*Towards a Framework for Defining and Measuring Changes in Natural Capital. Working Paper 1.* Accessed at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/516946/ncc-working-paper-measuring-framework.pdf on 14/04/23

Natural England (2014) An Approach to Landscape Character Assessment Accessed at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/691184/landscape-character-assessment.pdf on 08/06/23

Natural England : Sunbiggin Tarn and Moors SSSI citation (undated): https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1007193.pdf).

Natural England (2020) Natural Capital Atlases. Peterborough accessed at: http://publications.naturalengland.org.uk/publication/6672365834731520 27/05/21

New Economics Foundation (2002) '*The Money Trail: Measuring your impact on the local economy using LM3*' NEF: London. [an online version is now available at: https://www.lm3online.com/]

Organization for Economic Cooperation and Development (2001) '*The Well Being of Nations: theRole of Human and Social Capital*.' OECD: Paris Accessed: 25/06/15 at: http://www.oecd.org/site/worldforum/33703702.pdf

ONS (2021) 'UK natural capital accounts methodology guide: 2021' ONS: London. Accessed at:https://www.ons.gov.uk/economy/environmentalaccounts/methodologies/uknaturalcapitalaccountsmethodologyguide2021 on 13/04/23

Oxford Archaeology North (2003) '*Little Asby Scar and Sunbiggin Tarn Common, Eden District, Cumbria, Archaeological Survey*.' For Friends of the Lake District.

Oxford Archaeology North (2004) '*Phase 1 Archaeology Survey of Little Asby Common.* ' For Friends of the Lake District.

Pearce D (1984) '*Economic values and the natural world*.' Earthscan Publications Ltd: London

Pentecost, A (2013) : A report on the current status of Sunbiggin Tarn, Cumbria with reference to the epiphytic algal flora, surface sediment chemistry and nutrient concentrations in the Tarn and its feeder springs.

Powell J., Lake J., Gaskell P., Courtney P., & Smith K (2019) '*Developing an ecosystem approach – drystone walls*' research Report Series no43/201, Historic England.

Redman G (2023) '*John Nix Pocket book for Farm Management*' Agro Business Consultants Ltd: Melton Mowbray

RKS ADAS Ltd (2018) '*PGIS Data Analysis*' Abingdon, Natural England contract 1050161

Rose Regeneration (2022) '*Social Value Engine™*' Accessed at: https://socialvalueengine.com/ on 23/03/23.

Selman,P and Knight, M (2006) On the nature of virtuous change in cultural landscapes: exploring sustainability through qualitative models, *Landscape Research*, 31(3), 295-308

Sen A., Harwood AR., Bateman IJ., Munday P., Crowe A., Brander L., Raychaudhuri J., Lovett AA., Foden J., Provins A (2014) 'Economic Assessment of the Recreational Value of Ecosystems: Methodological Development and National and Local Application' *Environmental Resource Economics* Vol 57 p233 to 249

Sheilsflynn (2020) Yorkshire Dales National Park Landscape Character Assessment' Accessed at: https://www.yorkshiredales.org.uk/about/landscape/landscape-character-assessment/ on 09/06/23

Stephen C. Maberly, Mitzi M. DeVille, J. Ben James, Patrick O. Keenan & Stephen J. Thackeray (2020) '*Sunbiggin tarn and Moors and Little Asby Common SSSI water quality monitoring survey*. Lancaster University

Swanwick C. (2002) Land Use Consultants '*Landscape Character Assessment Guidance'* The Countryside Agency & Scottish Natural Heritage.

TEEB (2011a) ', The Economics of Ecosystems and Biodiversity in National and International Policy Making. Edited by Patrick ten Brink. Earthscan: London and Washington. Accessed at: https://teebweb.org/publications/teeb-for/national-and-international-policymakers/ on: 14/04/23

TEEB (2011b) TEEB Manual for Cities: Ecosystem Services in Urban Management. The Economics of Ecosystems and Biodiversity (TEEB): Geneva. Accessed at: https://teebweb.org/publications/teeb-for/national-and-international-policymakers/ on: 14/04/23

Tveit M Ode Å & Fry G (2006) 'Key concepts in a framework for analysing visual landscape character'. *Landscape Research*, 31:3, 229-255

UK National Ecosystem Assessment (2011) ' *The UK National Ecosystem Assessment Synthesis of the Key Findings*' UNEP-WCMC: Cambridge Accessed at: http://uknea.unep-wcmc.org/ on: 14/04/23

UK National Ecosystem Assessment (2014) The UK National Ecosystem Assessment: Synthesis of the Key Findings. UNEP-WCMC, LWEC, UK. Accessed at: http://uknea.unep-wcmc.org/ on: 14/04/23

UKRI (2022) '*Research Culture and heritage capital with an interdisciplinary team'* Research culture and heritage capital with an interdisciplinary team – UKRI

University of Exeter (2018) '*Outdoor Recreation Valuation Tool - ORVal'* Accessed at: https://www.leep.exeter.ac.uk/orval/ on 01/04/23

Wain J., Mansfield L., Wren G & Charlton J (2021 a-e) '*Relationship of Landscape with the Natural Capital Approach And Five Capitals Model*' A study prepared for Natural England, made up of 5 individual papers:

Wren G (2021) '*Relationship of landscape with the natural capital approach and five capitals model: literature review'* report prepared by: Wren Consulting Ltd

Charlton J (2021) Relationship of landscape with the natural capital approach and five capitals model: Case Studies' Heritage Naturally

Mansfield L (2021) 'Multiple Capitals Conceptual Framework Development: Key Findings and Proof of Concept.' CNPPA: University of Cumbria

Wain J (2021) '*Landscape Survey Approach For NCEA Fieldwork And Future Landscape Change Monitoring'* Motmot Consulting Ltd

Wain J (2021*) 'Landscape Character Assessment: A Framework For Integrating The Mapping And Assessment Of Habitats And Natural Capital Assets And Condition'* Motmot Consulting Ltd.

Wallace & Scott (2018) '*Impact of Brexit Scenarios on Grazing Livestock Farms in the LDNP*.' Newcastle University

White P. and Lovett J. (1999) 'Public preferences and willingness to pay for nature conservation in the North York Moors National Park.' *Journal of Environmental Management*, Vol. 55(1): 1–33.

White MP, Elliott LR., Taylor T., Wheeler BW., Spencer A., Bone A., Depledge MH., Fleming LE (2016) 'Recreational physical activity in natural environments and implications for health: A population based cross-sectional study in England' *Preventive Medicine* Vol 91 p383 to 388

Wigley, S., Paling, N., Rice, P., Lord, A., and Lusardi, J. (2021) '*National Natural Capital Atlas: Mapping Indicators*' Natural England Commissioned Report Number 285. 2nd Edition.

Willis K., Garrod GD. & Saunders CM. (1993) '*Valuation of the South Downs and the Somerset Levels and Moors Environmentally Sensitive Area Landscapes by the General Public*.' Research report to MAFF, Centre for Rural Economy, Dept of Agricultural Economics and Food Marketing, University of Newcastle Upon Tyne.

Willis K. and Garrod G.D. (1994) 'The ultimate test: measuring the benefits of ESAs', Ch. 9 in Whitby M (ed.), *Incentives of Countryside Management: the case of environmentally sensitive areas.* CAB International: Wallingford

Yorkshire Dales National Park Authority (2021) '*LCA1: Orton Fells Landscape Character Assessment'* Accessed at: https://www.yorkshiredales.org.uk/wp-content/uploads/sites/13/2021/02/02-Orton-Fells.pdf on 13/04/23

Yorkshire Water (2020) '*Better Land, Better Lives: Our Land Strategy'* Yorkshire Water: Leeds

Yorkshire Water (2021) *'Our Contribution to Yorkshire 2020/21' Methodology Report*.' Yorkshire Water: Leeds

ANNEXES

ANNEX 1 – Tveit *et al.*'s (2006) Visual Landscape Character 'Abstraction' Process

Concept	Dimensions	Landscape Attributes	Potential Indicators
Stewardship (Sense of order and care, contributing to a perceived 'ideal' situation. Human activity through active management.)	Sense of order Sense of care Upkeep	Signs of use/non use Vegetation succession Buildings & linear features management detail Drainage Waste	% abandoned land and stage of succession Status of maintenance of buildings Management type and frequency Length & condition of linear features Presence of waste Wet areas in crop fields Presence of weeds
Coherence (unity of the scene through repetition of colour and texture)	Harmony Unity/holistic Land use suitability	Land use Water Pattern	% of land use matching natural conditions Water presence and its spatial location Repeating colours and patterns
Disturbance (Lack of contextual fit with features deviating from the context)	Lack of contextual fit Lack of coherence	Extraction Natural disturbance Constructions	Number of disturbing elements % area impacted by disturbance Visibility of disturbing elements
Historicity (Historical continuity as palimpsest and richness relating to amount, condition and diversity of cultural elements)	Continuity Richness	Visible time layers (palimpsest) Cultural elements eg grave mounds Traditional agricultural structures	Presence of cultural element Shape & type of linear features Age Number of time layers % area of historical continuity Presence of traditional land use and pattern
Visual scale (Visual quality through the idea of 'landscape rooms' and landscape preference)	Visibility Openness 'Grain' size	Topography Vegetation Man made obstacle	'Viewshed' size 'Viewshed' form Depth of view Degree of openness 'Grain' size Number of obstructing objects

Imageability (Qualities of the landscape present in totality or through	Spirit of place *Genius loci* Uniqueness	Spectacular elements Panorama Landmarks	Viewpoints Presence of spectacular/ iconic elements Presence of historical elements and patterns

elements, landmarks and special (natural & cultural) features which make landscapes distinguishable and memorable)	Distinctiveness vividness	Water Iconic elements	Presence of water bodies % area of moving water
Complexity (Diversity and richness of landscape elements and features.	Diversity Variation Complexity of pattern & shape	Linear features Point features Land cover Land form	Number of objects and types Evenness index Dominance index Diversity indices Shape diversity Size variation indices Heterogeneity indices Edge density Aggregation indices
Naturalness (Closeness to a perceived natural state)	Intactness Wilderness Natural Ecologically robust	Natural feature Structural integrity of vegetation Vegetation/ land cover type Water Management Patch shape Edge shape	Fractal dimension Vegetation intactness % area with permanent vegetation cover Presence of water % area water Presence natural feature Lack of management Management intensity (type and frequency) Naturalism index Degree of wilderness
Ephemera (Elements and land cover types changing with season or weather)	Seasonal change (human or natural) Weather related change	Land cover/vegetation Animals Land use (activity) Water (colour reflections & waves) Weather	% of land cover with seasonal change Presence of animals Presence of cyclical farming practices % area of water Projected and reflected images Presence of weather characteristics

(taken from Tveit *et al*., 2006: 238 to 246)

ANNEX 2 - FIELD SURVEY RESULTS

& INITIAL MULTIPLE CAPITALS ASSESSMENT

MONITORING FORM : Natural Capital										
Dimension				Benefit					Detractor	
	Natural Capital Dimension								Evidence Log	
Landscape Attribute	Ecosystem	Species	Freshwater	Land	Minerals	Air	Natural Functions & Processess	Geodiversity	Photo/site visit	Desk Study
SSSI Unit 5 Little Asby Heathland (122.18ha) Fav. Marginal (2018)										NE SSSI unit assessment 2009
SSSI Unit 6 Grange scar & Muddy Gill (155.07ha) UF rec (fail 2018)										NE SSSI unit assessment 2009 Marshall (2018)
SSSI Unit 7 Little Asby Scar (193.89ha) UF rec (fail 2018)										NE SSSI Unit assessment 2009 Marshall (2018)
Limestone Pavement (54.1ha)									Aerial images, field survey	Limestone Pavement (54.1ha)
Calcareous grassland and pavement 58% (CG9 and 10)										Report 2000
Acid grassland 29% (U5)										DEFRA 2000
Heather grassland mosaic 10% (U5/H12)										DEFRA 2000
Heather >25% cover 3% (U5)										DEFRA 2000
Marl tarn (Sunbiggin) [unit 10] Unfav declining									Aerials, images, site survey	Natural England Site Description 1994 plus SSSI condition register
Schwingmoor (Spear Pots)									Site survey	
Landscape Aesethetics										RKS ADAS ltd (2018)
Tranquiliity										RKS ADAS ltd (2018)
Black headed gull colony										NE site Description 1994 now gone.
Fodder production										DEFRA 2000

325t of DM @£108/t										Nix 2023
Carbon sequestration Suggests only area of Unit 5 (Little Asby Heathland)										Landis Soilscapes 122.18ha categorized as 'high'
Vistas and Views									Site visit	

MONITORING FORM : Human Capital

Dimension		Benefit		Detractor	

Landscape Attribute	Human Capital													Evidence Log	
	Education (formal)	Education (informal)	Knowledge	Skills	Work experience	Traditional practices	Core belief systems	Motivations	Empathy	Life Experiences	Relationships	Social Learning	Well being	Photo/Site visit	Desk Study
Graziers and livestock management = 7															
FLD staff															
Westmorland Dales staff															WD LP website (4y8m 1 fte x 4, 4y2m 0.6 fte x 2)
Natural England (SSSI staff)															
Natural England (HLS & UELS staff)															
Westmorland dales volunteers															WD LP website
Westmorland Dales Apprenticeships															WD LP website
Walling maintenance														Field evidence	UELS/HLS funds
WD LP drystone wall survey / Little Asby Survey volunteers (season 1)															WD LP website
WD LP drystone wall survey / Little Asby Survey volunteers (season 2)															WD LP website
WD LP our common heritage project															WD LP website
WD LP Little Asby OAN school session and site visit															WD LP website

Rebuilding the bields on the common														Field observation	
Running the wall surveys															WD LP website & Johnson (2002)
Oxford North Archaeology survey initial															FLD records, OAN report 2003
Visitor Learning															RKS ADAS Ltd 2018
Food production														livestock	Commoners Assn/ AES

MONITORING FORM : Social Capital

Dimension		Benefit		Detractor	
	Social Capital			Evidence Log	
Landscape Attribute	Relations of Trust	Reciprocity & Exchange	Commons rules & norms	Bonding network	Bridging network	Linking network	Social learning	Images/ site visit	Desk Study
Commoners Association									ToR and minutes
Westmorland Dales LP project Locals Commoners Visitors Other stakeholders Staff									Website & programme documents
Heft management system									Heft map & commons agreement
WD LP Our Common Heritage project									WD LP Website
WD LP Little Asby Arch Surveys season 1 and 2									WD LP website

MONITORING FORM : Cultural Capital Tangible

Dimension		Benefit		Detractor	
Phenomenon	**Cultural Capital: Tangibles**			**Evidence Log**	
	Private goods	**Common Property goods**	**Collective goods**	**Tool Goods**	**Buildings**	**Boundaries**	**Historic Monuments**	**Equipment**	**Infrastructure**	**Utilities**	**Images/site visit**	**Desk study**
Archaeological Sites Grade 1 (3) Grade 2 (48) Grade 3 (139) Grade 4 (1)												Oxford Archaeology North (2003)
Drystone walls											Site evidence	
Telegraph line & 12 poles											Image	BT Wayleave
Water main												UU wayleave
Electricity												UU wayleave
Static Caravan park											Little Asby Village	
The common												Commons Registration Act
WD LP Little Asby through the keyhole												WD LP website
WD drystone wall survey												WD LP website
WD Drystone wall survey in Asby Parish												WD LP website
WD traditional farm buildings survey (query LM3 historic building project for ESAs)												WD LP website
WD small scale heritage features survey												WD LP website
WD LP Our Common Heritage												WD LP Website
Local History												RKS ADAS Ltd 2018

Table MONITORING FORM : Cultural Capital Intangibles

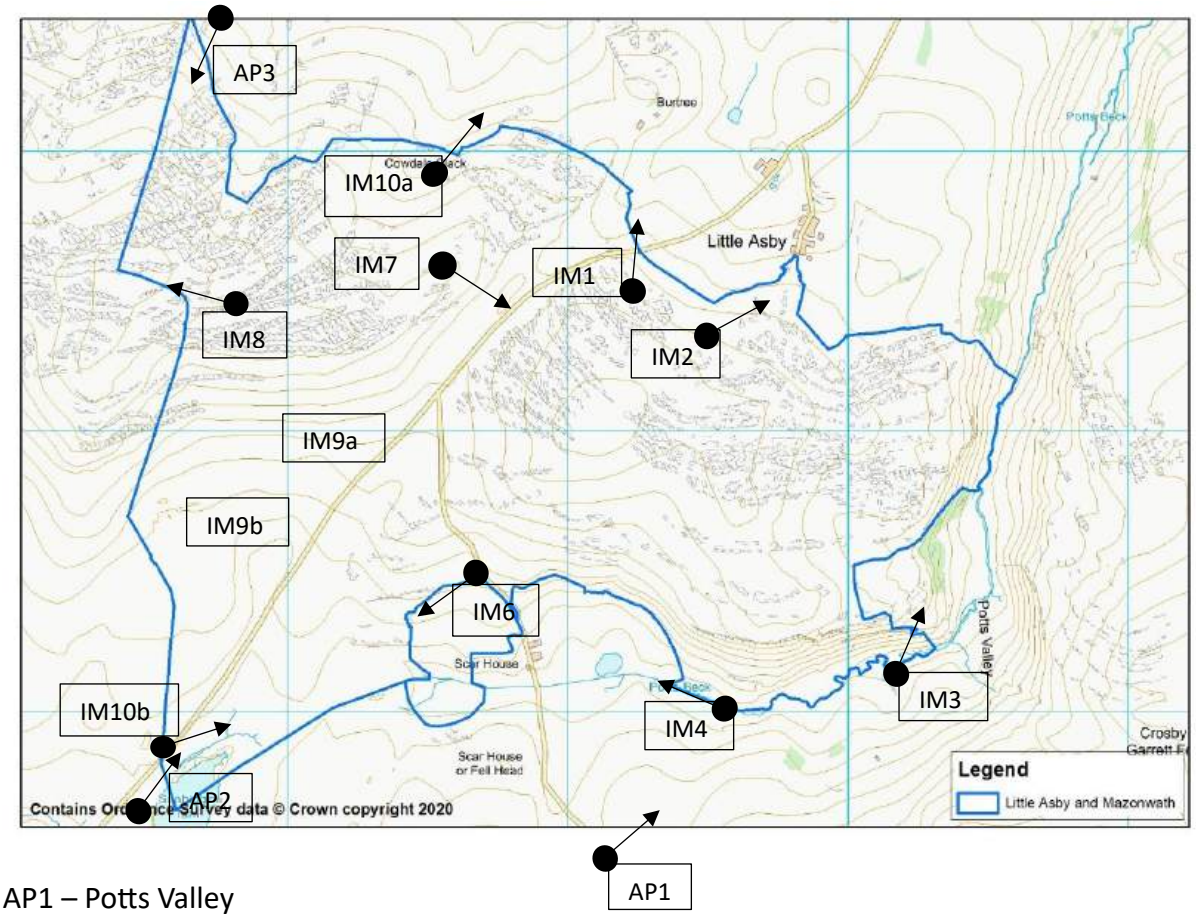
Dimension		Benefit		Detractor	
	Cultural Capital: Intangibles			Evidence Log	
Landscape Attribute	Practices	Processes	Recreation/sport	Sense of place	Way of life	Perception	Inspiration & relaxation, spiritual	Images/site visit	Desk study
Heft management									Commoners Association
walking								Site observations	Open Access Act 2005 RKS ADAS Ltd 2018
Bird watching								Regular site observations	Starlings caused verge damage RKS ADAS Ltd 2018
Overnight wild motorhomes								Regular site observations	
Horse riding								Regular site observations	RKS ADAS Ltd 2018
Other common rights ??									Commons Register *
WD LP Skills for the Future									WD website
WD LP Drystone wall survey									WD websiite
WD LP Interpreting the Wdales									WD website
WD LP Celebrating and Engaging									WD website
WD drystone wall survey									WD website
WD Our Common Heritage									WD P website
Local History									RKS ADAS Ltd 2018
Tranquillity								Site visit	RKSADAS Ltd 2018
Vistas & views								Site visit	

MONITORING FORM : Financial Capital

Dimensions		Benefit		Detractor	

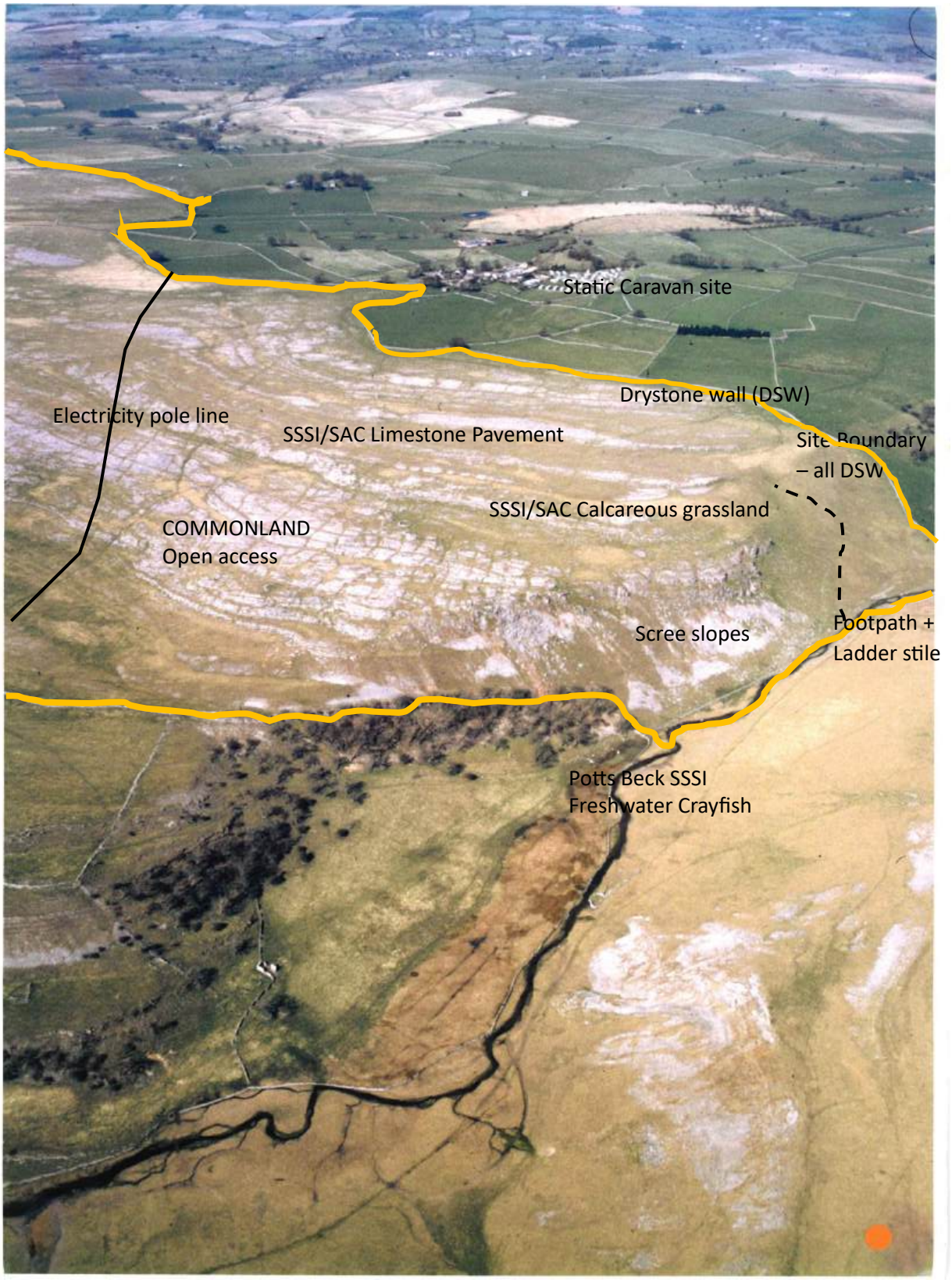
	Financial Capital							Evidence Log	
Landscape Attribute	Public Grants	Personal funds	Carbon credits	Private sponsorship	Charitable grants	Private gain (profits)	Salaries	Images/ site visit	Desk Study
Salaries of WDLP staff proportionalised									WDLP HR data
Salaries deductions (taxes/pensions/NI)									
HLS & UELS Grants									FLD/ Commoners Assn agreements
FLD other funds ???									
Love your landscape small project funds for individuals & locals									WD website
WD Landscapes Partnership									WD website
Food production – lamb & beef/ Gross margins from farms proportionalised								Site obsn	AES agreement Nix (2022)

PHOTOMONITORING POINTS

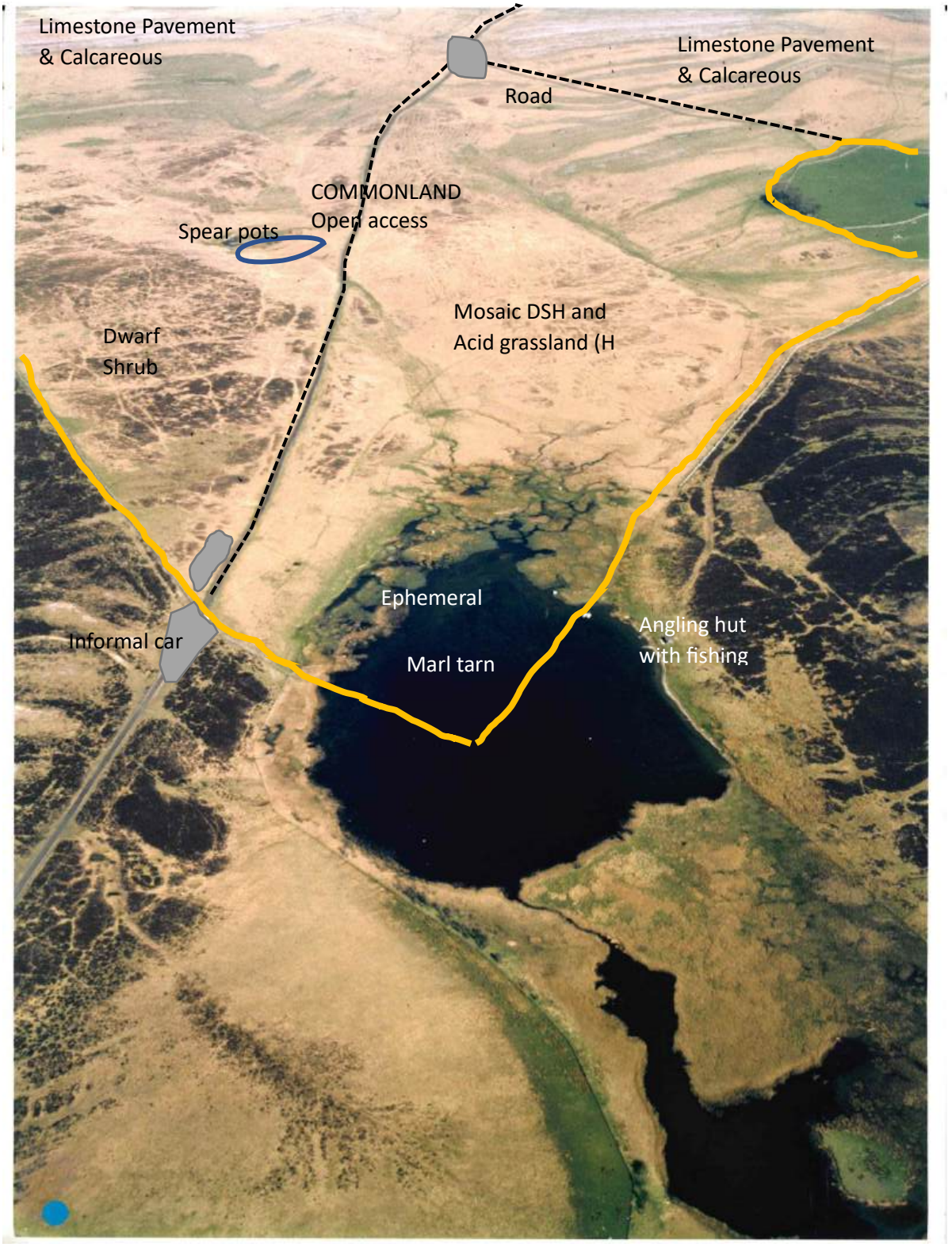


AP1 – Potts Valley
AP2 – Sunbiggin Tarn
AP3 – Mudy Gill Plain
IM1 – Towards Eden Valley
IM2 – Towards Little Asby
IM 3 – Potts Valley Ladder Stile
IM4 – Potts Valley towards Armadale Wood
IM5 – Across to site from Starling Hills intake
IM6 – Towards Sunbiggin from Kelleth Road
IM7- Limestone Pavement,Little Asby Scar
IM8 – Wall configuration towards MuddyGhyll
IM9- unusual landscape features a) Spear Pots Schwingmoor b) Dolines
IM10 – Vistas a) Sunbiggin to Crosby Garrett Fell b) Across the Eden Valley

AERIAL PHOTOGRAPHY 1 - Potts Valley



AERIAL PHOTOGRAPH 2 – Sunbiggin Tarn


Limestone Pavement
& Calcareous
Road
Limestone Pavement
& Calcareous
COMMONLAND
Open access
Spear pots
Mosaic DSH and
Acid grassland (H
Dwarf
Shrub
Ephemeral
Angling hut
with fishing
Informal car
Marl tarn

AERIAL PHOTOGRAPH 3 – Muddy Gill plain

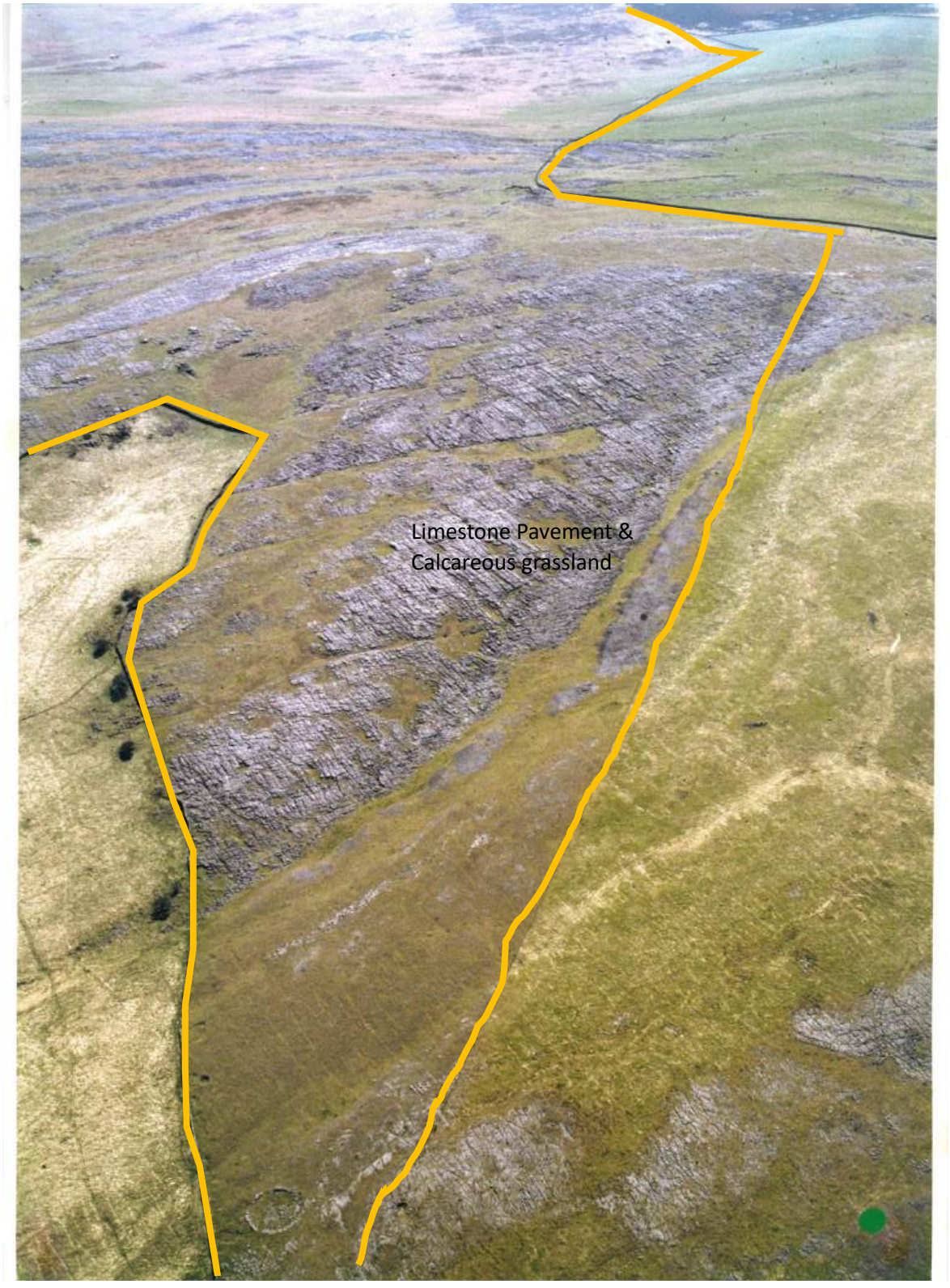


IMAGE 1 – Towards the Eden Valley

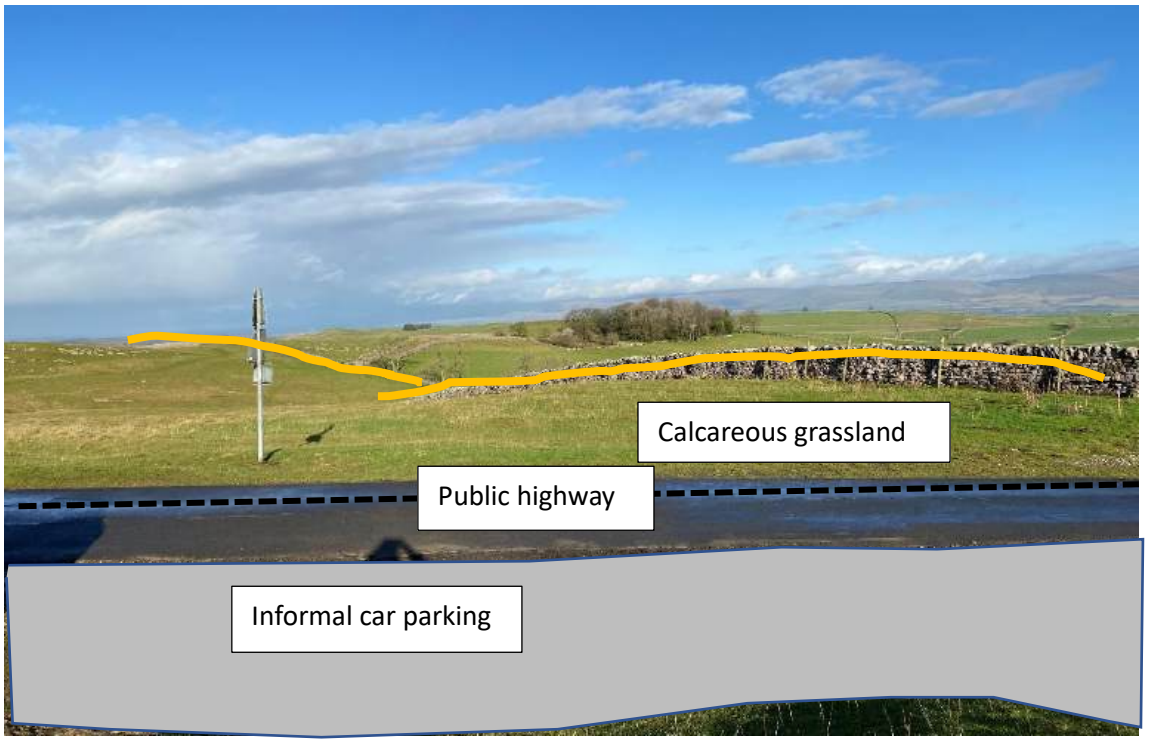


IMAGE 2 – Towards Little Asby

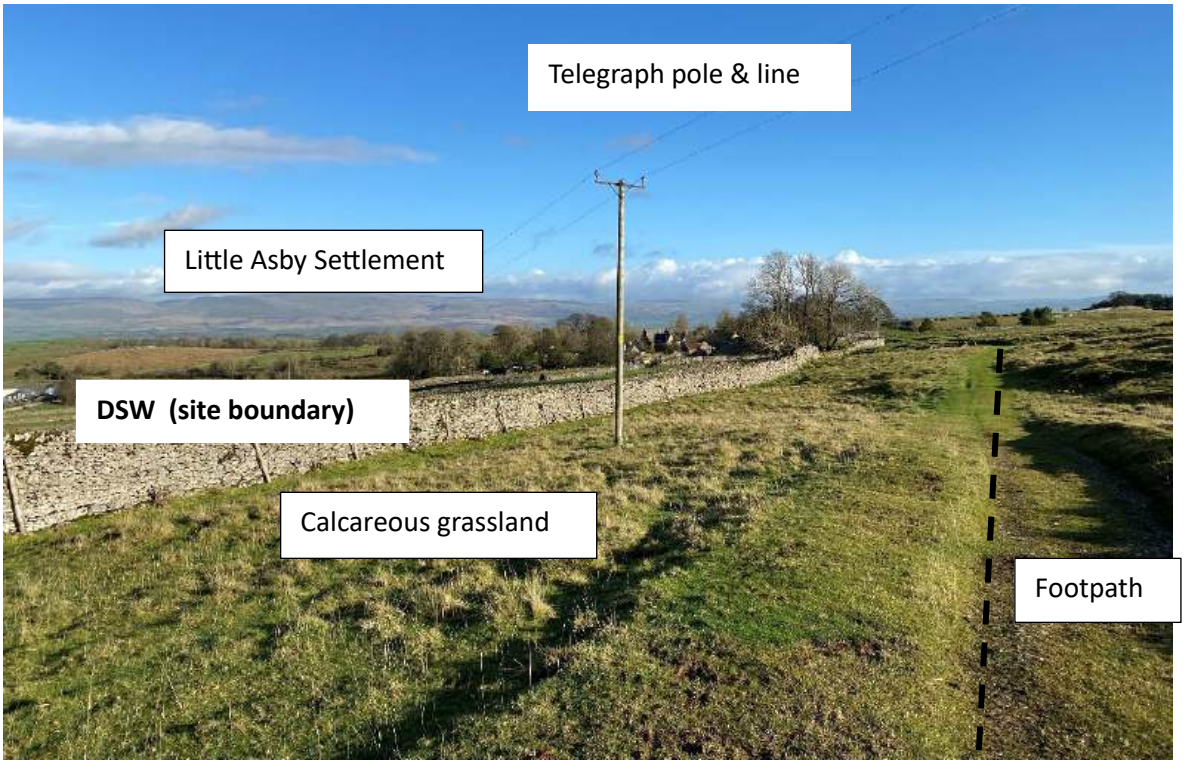


IMAGE 3 - Potts Valley, Ladder Style

IMAGE 4 – Potts Valley towards Armadale Wood

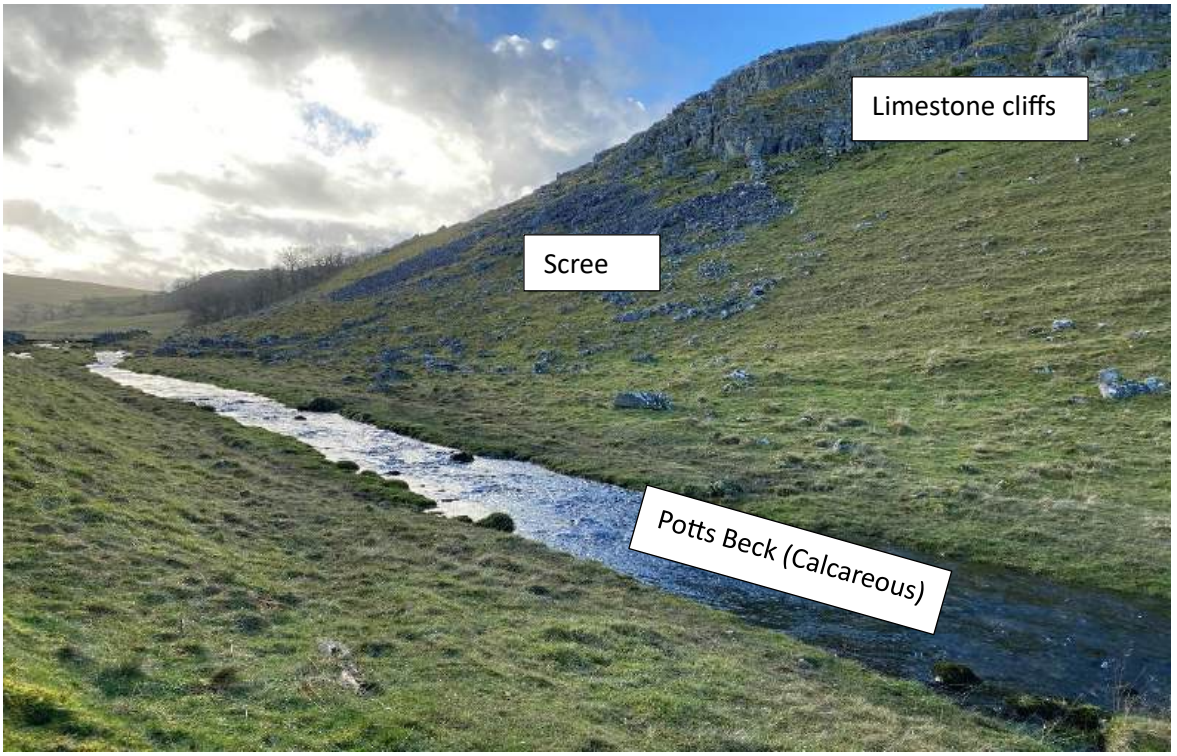


IMAGE 5 – Across to LAC from Starting Hills Intake

IMAGE 6 – Towards Sunbiggin from the Kelleth Rd

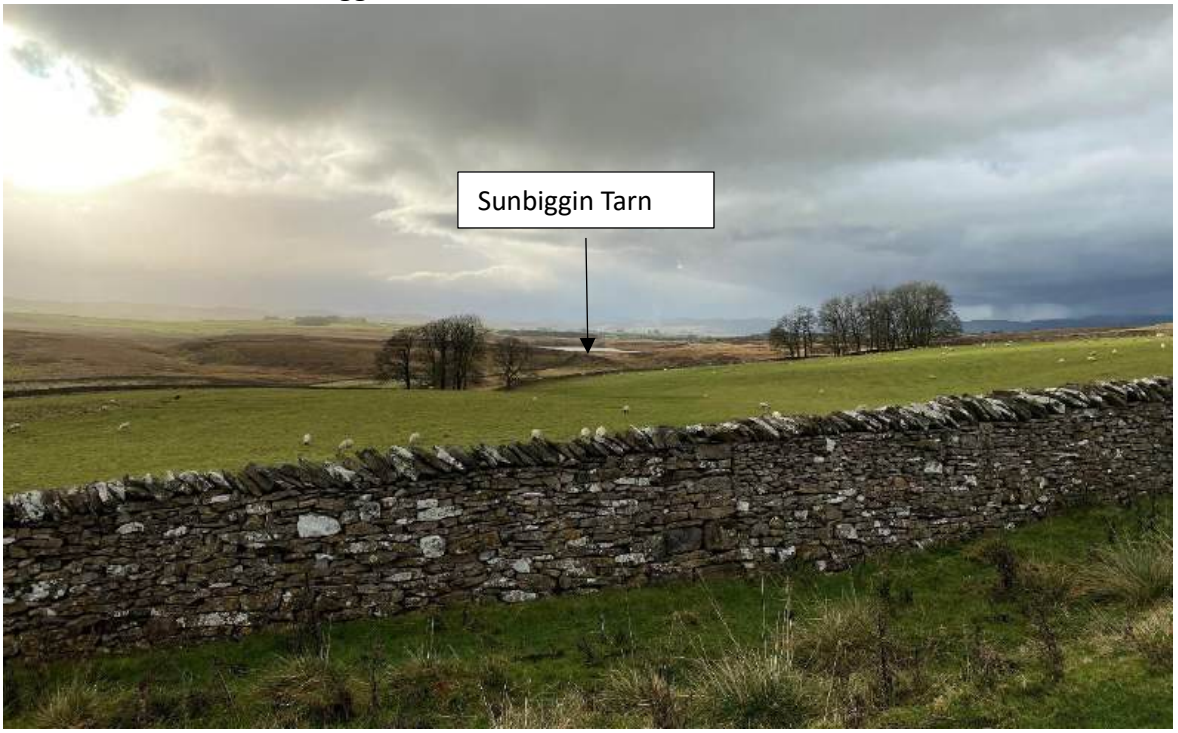
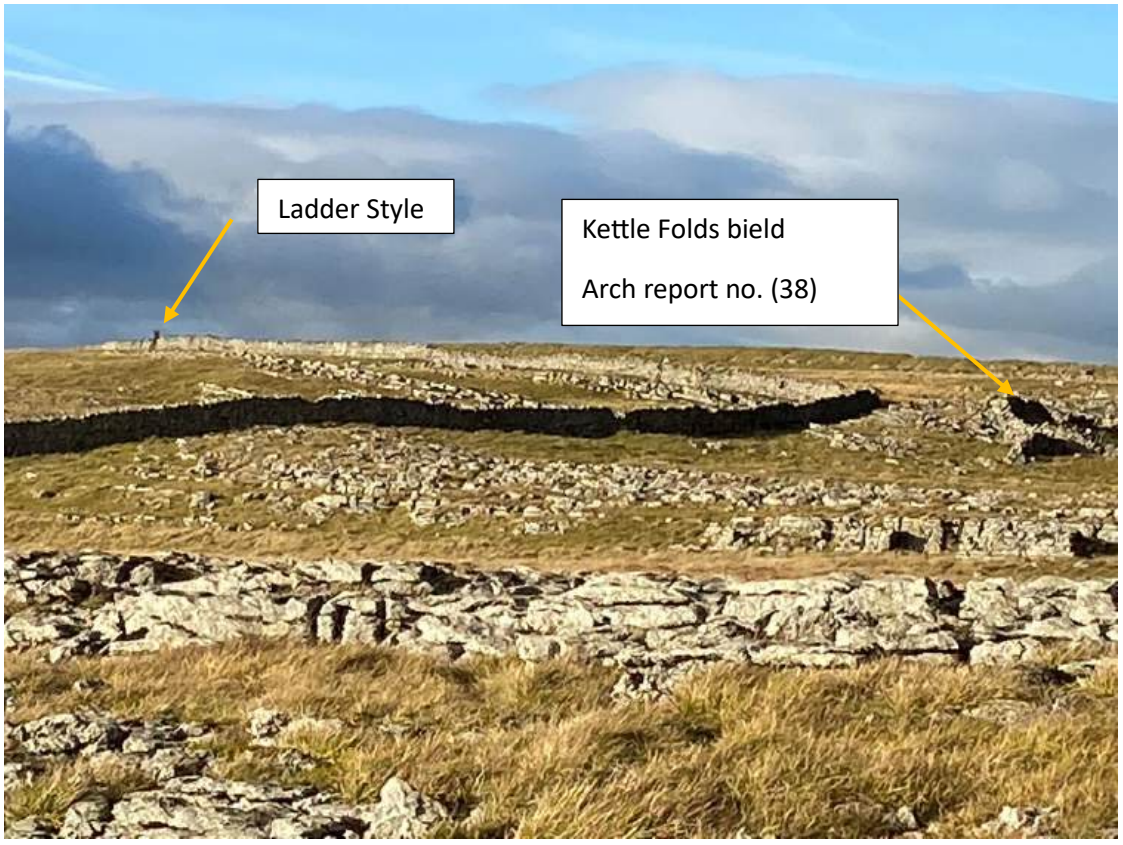


IMAGE 7 – Limestone Pavement, Little Asby Scar

IMAGE 8 – wall configuration towards Muddy Gill Plain



IMAGES 9 – Unusual landscape features

9a Schwingmoor

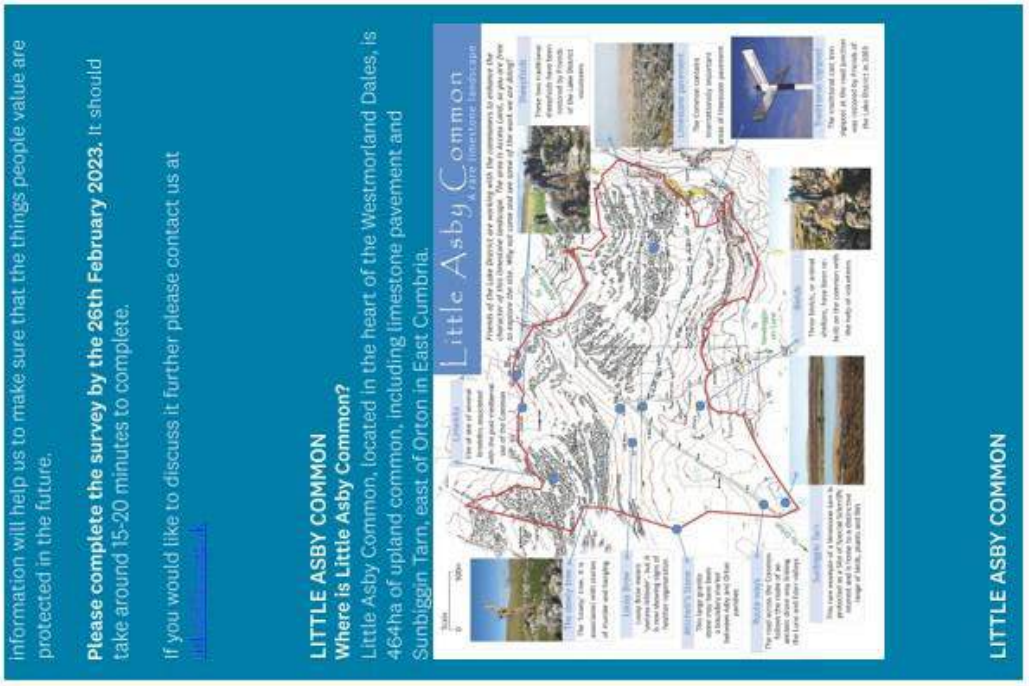
9b Dolines

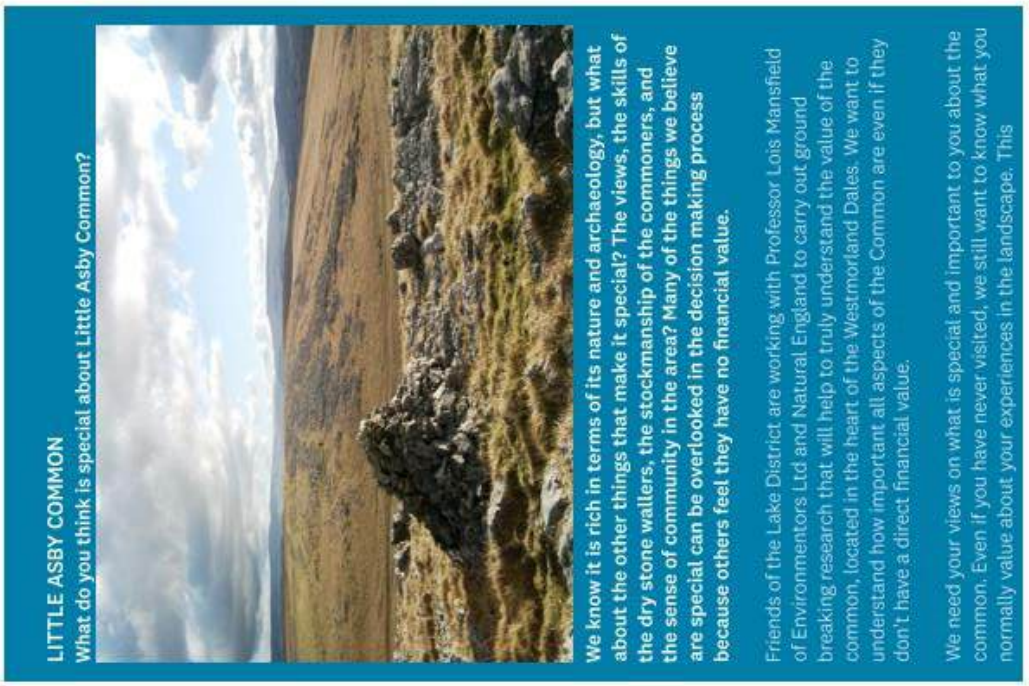
IMAGES 10 – Vistas & Views

10a Sunbiggin to Crosby Garrett Fell

10b – Across Eden Valley

ANNEX C – LITTLE ASBY COMMON RESPONDENTS SURVEY





About you

The following questions will help us to understand your involvement in Little Asby Common and how important it is to you.

1. Have you ever been to Little Asby Common?

- Yes
- No

2. If you have never been to Little Asby Common, why not? (please now go to question 7)

3. Please select the type of visitor you are

	Select
Local resident	
Resident in Cumbria	
Visitor from elsewhere in the UK	
International visitor	
Volunteer	

Other (please specify)

4. If you have visited, what do you normally do there? (Some of these activities may not be allowed on the Common, but we would still like to understand their role in how much you value the Common)

	Select
Walking	
Dog walking	
Enjoy views	
Nature & bird watching	
Running	
Cycling	
Volunteering	
Fishing	
Camping overnight (illegal)	
Horse riding (illegal)	

Other (please specify)

5. How often do you carry out each activity?

	Every day	A few times a week	About once a week	A few times a month	Once a month	A few times a year	Once a year	Other
Walking	●	●	●	●	●	●	●	●
Dog walking	●	●	●	●	●	●	●	●
Enjoy views	●	●	●	●	●	●	●	●
Nature & bird watching	●	●	●	●	●	●	●	●
Running	●	●	●	●	●	●	●	●
Cycling	●	●	●	●	●	●	●	●
Volunteering	●	●	●	●	●	●	●	●
Fishing	●	●	●	●	●	●	●	●
Camping overnight	●	●	●	●	●	●	●	●
Horse riding	●	●	●	●	●	●	●	●
Other	●	●	●	●	●	●	●	●

Other (please specify)

6. For how long do you normally carry out each activity?

	Less than 30 mins	30mins - 1 hour	1.5 - 2 hours	2 - 2.5 hours	2.5 - 3 hours	3 - 3.5 hours	3.5 - 4 hours	4 - 4.5 hours	4.5 - 5 hours	5 - 5.5 hours	5.5 - 6 hours	Other
Walking	●	●	●	●	●	●	●	●	●	●	●	●
Dog walking	●	●	●	●	●	●	●	●	●	●	●	●
Enjoy views	●	●	●	●	●	●	●	●	●	●	●	●
Nature & bird watching	●	●	●	●	●	●	●	●	●	●	●	●
Running	●	●	●	●	●	●	●	●	●	●	●	●
Cycling	●	●	●	●	●	●	●	●	●	●	●	●
Volunteering	●	●	●	●	●	●	●	●	●	●	●	●
Fishing	●	●	●	●	●	●	●	●	●	●	●	●
Camping overnight	●	●	●	●	●	●	●	●	●	●	●	●
Horse riding	●	●	●	●	●	●	●	●	●	●	●	●
Other	●	●	●	●	●	●	●	●	●	●	●	●

Other (please specify)

7. Please provide your postcode
This information will be used to understand how far people travel to visit Little Asby Common.

8. If you live near Little Asby Common does it contribute to your sense of community?

- Yes
- No
- Occasionally
- N/A

Please explain your answer

LITTLE ASBY COMMON
About you

9. Do you participate in any local or voluntary organisations which affect Little Asby Common directly?
For example, Little Asby Common Commoners Association, Westmorland Dales volunteer group and other activities, Orton, Asby or Ravenstonedale Parish Council, Local history society, Friends of the Lake District etc

- Yes
- No

Please name any organisations you participate in and and say how often you go to them in a year

10. If you participate in a group directly related to Little Asby Common, do you feel your physical and mental welfare benefits from being a member of the group?

- Yes
- No
- Sometimes
- N/A

Please explain your answer

11. Have you completed any training courses run by the Westmorland Dales for Little Asby or surrounding area? If so, which ones? e.g. Archaeology training, wall surveys?

- Yes
- No

If so, which ones?

LITTLE ASBY COMMON
Benefits of Little Asby Common

Little Asby Common provides many benefits for all of us. This includes things such as wide open spaces and views which walkers enjoy, through to carbon sequestration and the provision of food from the grazing of sheep and cattle. The following questions will help us to get a full picture of what the Common provides and what people value the most.

LITTLE ASBY COMMON

12. **Natural benefits – The natural environment of the Common gives us many benefits.**
Which of the following do you value? (please select as many as required)


Clean air/ fresh air


Tranquillity/ peacefulness


Sunbiggin tarn


Habitats e.g. Heather moorland


Food production


Views & vistas


Wildlife


Carbon storage

13. **Natural benefits continued...**
Which of the following do you value? (please select as many as required)


Limestone pavements


Openness


Wildness


Geology


Water storage/ flood management


Dark skies

☐ None of the above

14. Other

LITTLE ASBY COMMON
Valuing the natural benefits
Many of the things we believe are special about Little Asby Common can be overlooked in the decision making process because others feel they have no financial value. We want to understand how important all aspects of the Common are even if they don't have a direct financial value.

To understand the true value of the Common to people it is sometimes

necessary to put a financial value on things that cannot normally be valued in this way. Our research is looking at people's willingness to pay for the benefits of the Common that do not have a financial value, e.g. fresh air, fitness, learning. This is purely a theoretical task to help us understand how all benefits contribute to the local economy and the health and well being of the local community. It will allow these benefits to be more accurately compared to the sort of direct financial benefits that decision makers are more familiar with.

Please estimate your theoretical willingness to pay for these benefits per year and per unit (where stated).

15. Thinking about the things you ticked/valued above, if you had £100 a year to spend on maintaining these things, how would you spend it? Please state your answer in pounds and pence per year and per unit (where stated). You do not need to spend in whole pounds and you do not need to spend all the money.

Clean/ fresh air	
Tranquillity/ peacefulness	
Habitats (per hectare)	
Food production (per hectare)	
Views & vistas	
Wildlife (per species)	
Carbon storage (per hectare)	
Limestone pavement (per hectare)	
Openness	
Wildness	
Geology	
Water storage/ flood management (per hectare)	
Dark skies	
Other	

LITTLE ASBY COMMON
Benefits of Little Asby Common

16. **Cultural benefits - The cultural heritage benefits of the Common.**
Which of the following do you value? (Please select as many as required)


Archaeology


Communal grazing


Dry stone walls & boundaries


Built heritage e.g. sheepfolds


Local history, legends & traditions


Art & literature


Routeways/ trading routes


Place names

☐ None of the above

17. Other

LITTLE ASBY COMMON
Valuing the cultural benefits

18. Thinking about the things you ticked/valued above, if you had £100 a year to spend on maintaining these things, how would you spend it? Please state your answer in pounds and pence per year and per unit (where stated). You do not need to spend in whole pounds and you do not need to spend all the money.

Archaeology (per artefact)	
Communal grazing (per hectare)	
Dry stone walls & boundaries (per metre)	
Built heritage e.g. sheepfolds (per structure)	
Local history, legends & traditions	
Art & literature	
Pathways & cycleways (per metre)	
Place names	
Other	

LITTLE ASBY COMMON
Benefits of Little Asby Common

22. **Personal benefits - This is the personal benefit of Little Asby Common to you (wellbeing, skills, fitness, improving mental health).**
Which of the following do you value? (please select as many as required)


Drystone walling skills


Fitness benefits


Mental health benefits


Skills from volunteering


Employment due to volunteering


Inspiration


Discovery & learning

☐ None of the above

23. Other

LITTLE ASBY COMMON
Valuing personal benefits of Little Asby Common

24. Thinking about the things you ticked/valued above, if you had £100 a year to spend on maintaining these things, how would you spend it? Please state your answer in pounds and pence per year and per unit (where stated). You do not need to spend in whole pounds and you do not need to spend all the money.

Drystone walling skills	
Fitness benefits	
Wellbeing benefits	
Mental health benefits	
Skills from volunteering	
Employment due to volunteering	
Inspiration	
Discovery and learning	
Other	

LITTLE ASBY COMMON
Valuing the benefits of Little Asby Common

25. **Financial benefits - Money spent in the local area whilst enjoying Little Asby Common.**
When you visit LAC do you spend any money in the following businesses? If so how much?

	Less than £10	£11-£50	£51-£100	£101-£500	More than £500
Local shops	●	●	●	●	●
Pubs	●	●	●	●	●
Cafes	●	●	●	●	●
Accommodation	●	●	●	●	●

Other (please specify)

26. How often do you visit local businesses?

	Every day	Once a week	A few times a month	Once a month	A few times a year	Once a year
Local shops	●	●	●	●	●	●
Pubs	●	●	●	●	●	●
Cafes	●	●	●	●	●	●
Accommodation	●	●	●	●	●	●

Other (please specify)

LITTLE ASBY COMMON
Ranking the benefits
We want to know what matters most to you in terms of the natural, cultural, social, personal or financial benefits of Little Asby Common.

27. Thinking about all the benefits you value above, please rank Natural, Cultural, Social, Personal and Financial to show how much you value each category of benefits.

- Natural benefits
- Cultural benefits
- Social benefits
- Personal benefits
- Financial benefits

28. Is there anything else you would like to tell us about your experiences at Little Asby Common, its benefits and what you think is special?

LITTLE ASBY COMMON
Thank you for completing the survey
If you would like more information about the project, Little Asby Common or Friends of the Lake District please get in touch at info@fld.org.uk

For example, Little Asby Common Commoners Association, Westmorland Dales volunteer group and other activities, Orton, Asby or Ravenstonedale Parish Council, Local history society, Friends of the Lake District etc

ANNEX D : Commoners survey

Your farm business

What type of stock do you have out on the common, and how many of each type?

Do you spring or autumn calve and how any animals? (tick)

Spring	*How many animals*	*Autumn*	*How many animals*

How much time do you spend working on things to do with your common grazing – stock management of stock on the fell, wall maintenance, etc – DAYS A WEEK

Activity	*Number of days per week*
Checking stock and stock maintenance	
Gathering	
Breeding	
Shearing	
Paperwork	
Wall repairs	
Other - add	

We are interested in working out how much your business benefits from the commons component of your entire business, as many non farming people do not see the importance of it for your business.

Thinking about your farm business, what % of your business does the common account for - % of stock on there compared to on your inbye or other land; time or costs..

----------%

Roughly how much is your annual gross margin?

£_____

Roughly what % of your gross margin do you derive from the common grazing?

____%

The wider community and businesses

What businesses do you use locally and roughly how much do you spend annually on each one?

Business	*£ spend per year*
Accountant	

Farm adviser	
Feed merchant	
Fencer	
Waller	
Contractor (spraying, hay timing, etc)	
Agricultural supplier, eg Relphs	
Auction mart – Kirkby Stephen	
- Other	
Other – list below	

How many people are employed on the farm – family members, other employees and full or part time and what do they spend their time doing, eg shepherd v farm labour

Family member	*Other employees*	*Jobs they do*

Local community

Do any of your family (children/grandchildren) go to the local school, if so which?

_____

Are you involved in any clubs, groups or organisations in the local area, and if so what and where? (eg pub club, parish council, local history society, etc). Please say how often you go to them in a year

What	*Where*	*How often go in a year*	*Directly affects the common (tick)*
Little Asby Commoners Ass			
Local history group			
Parish Council			
Pub club			
Westmorland Dales volunteer			
Westmorland Dales survey group			
Other - list			

Do you feel your physical and mental welfare benefits from being a member of a group directly related to LAC?

_____

Do you feel that you belong to your local community/neighbourhood?

_____

Do you feel you live in a 'good place' ie nice, safe, good environment?

_____

Have you completed any training courses run by the Westmorland Dales project for Little Asby Common and if so, which ones, eg archaeology training, wall surveys?

_____

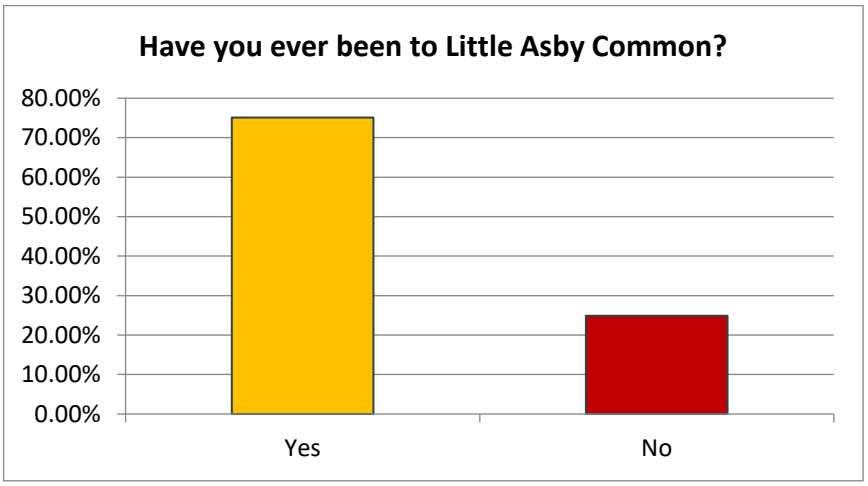
Do you think the Westmorland Dales project has improved FLDs reputation on Little Asby Common?

_____

ANNEX E: LITTLE ASBY COMMON SURVEY ANALYSIS

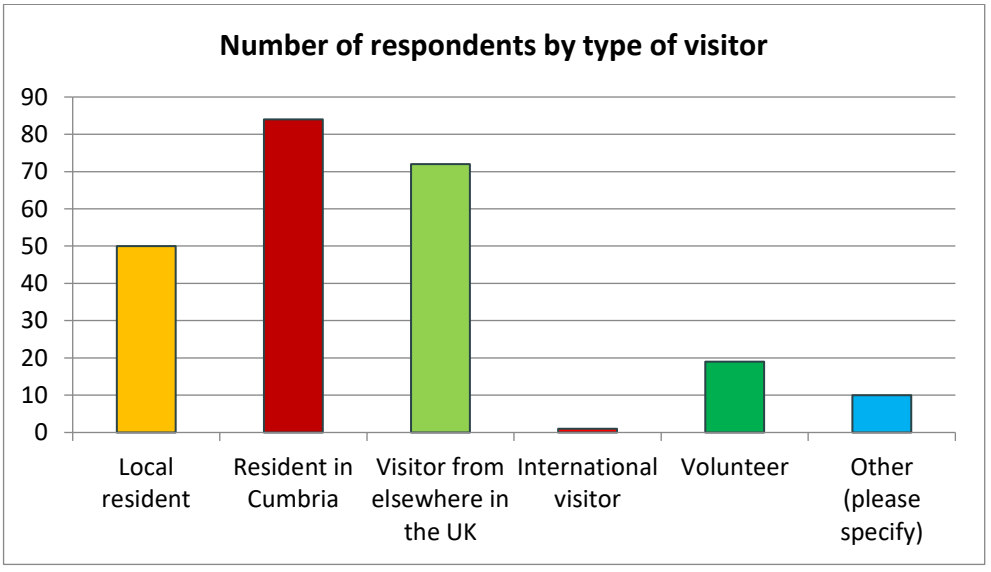
About the respondents

Two hundred and forty four survey responses were received. Of the 237 people that answered the question, 178 (75%) had visited Little Asby Common, while 59 had never visited (25%).



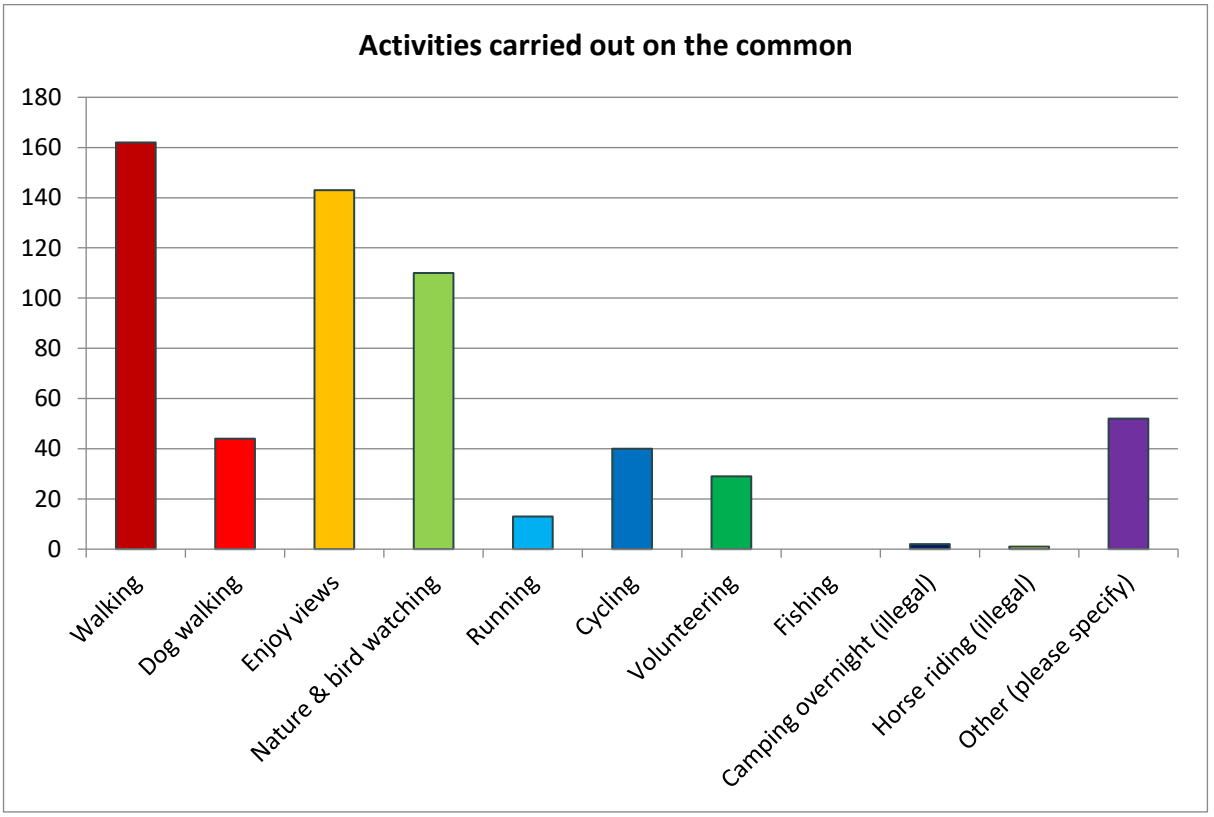
Fifty one respondents provided reasons for why they had never visited. The main reason respondents gave was that they had never heard of it, with 21 people stating this as their answer. Most stated that they would now visit, because of the research. Eleven people said they usually visited other areas of Cumbria or the Lake District. Other answers given were that it was too far, they did not have the time, it was too remote, or they had just never thought about it.

Two hundred and eleven respondents selected an answer for the type of visitor they considered themselves to be. The majority were residents from Cumbria, with 84 selecting that answer. Seventy two were residents from elsewhere in the UK, 50 were local residents and 19 were volunteers. Those that selected 'other' mainly worked on the common in some capacity, either with Friends of the Lake District/ Westmorland Dales Project or carrying out research.

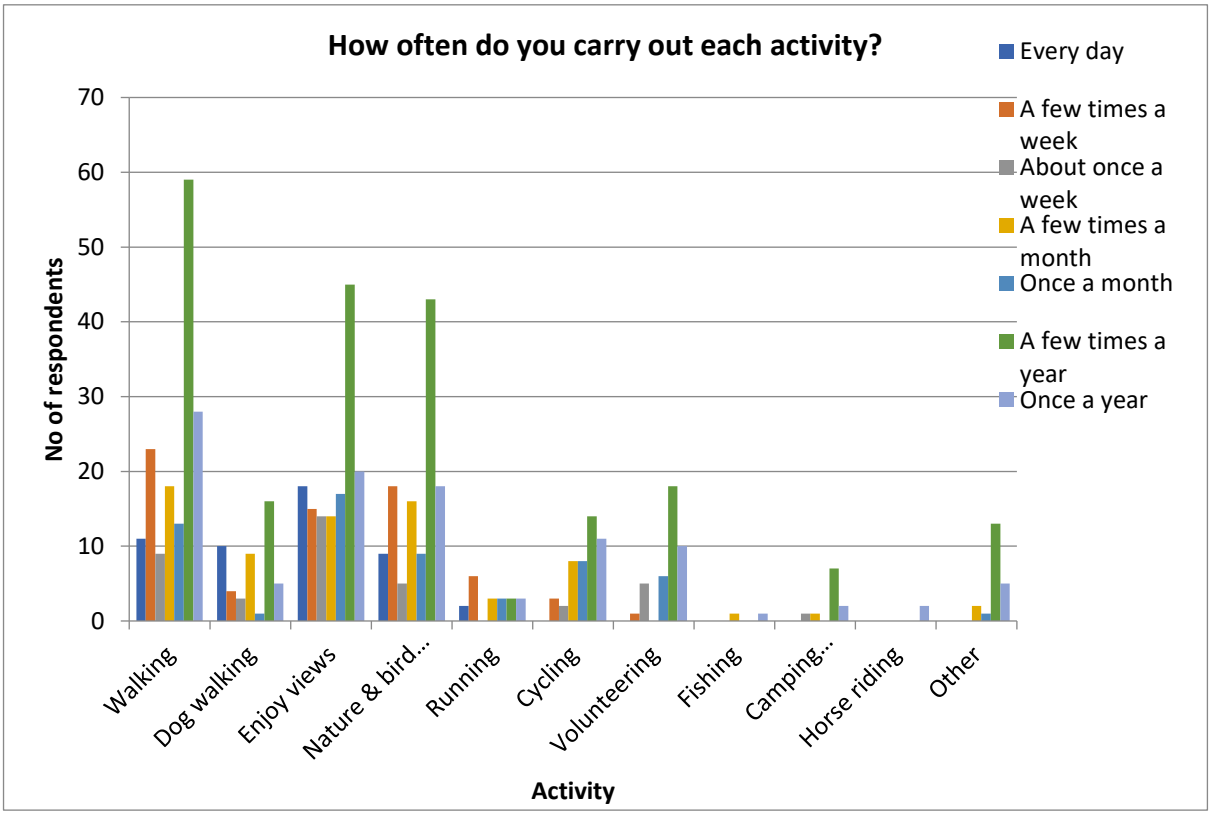


Activities carried out on Little Asby Common

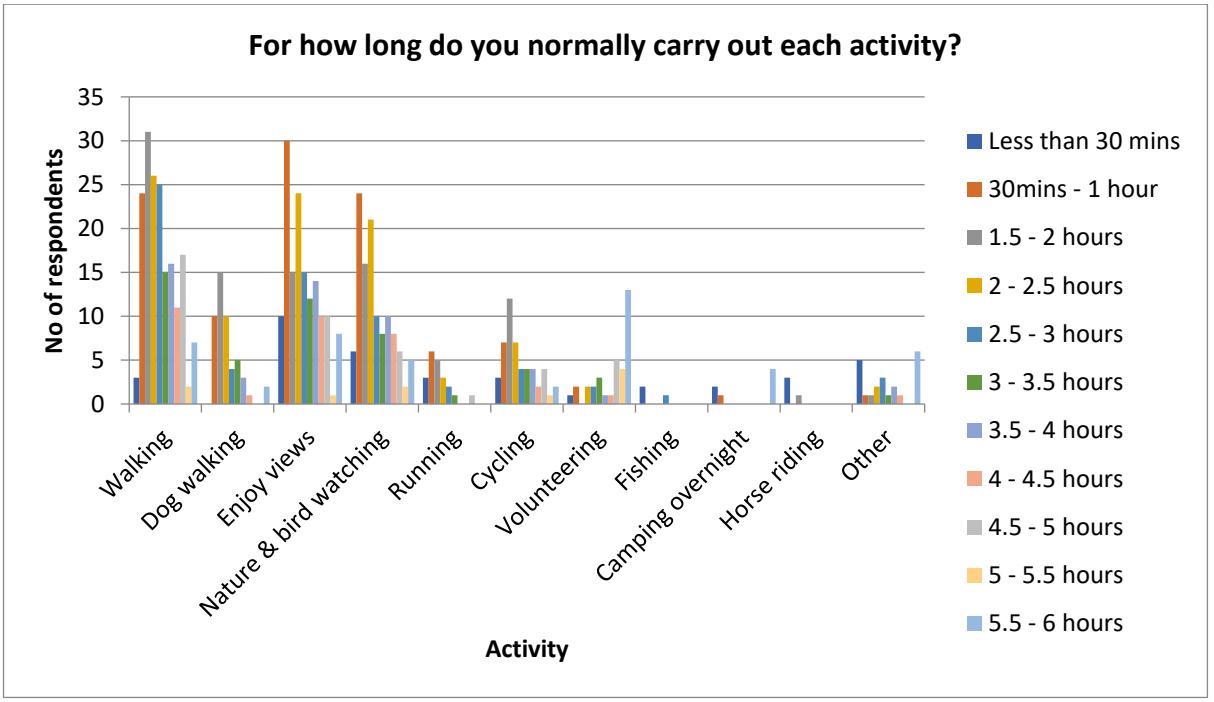
Respondents were asked to select the activities they usually carried out on the common. They were allowed to select multiple activities. Eighty six percent of those that answered the question walk on the common, 76% enjoy the views, 58% enjoy nature or bird watching, 23 % walk a dog and 21% cycle. The majority of those stating an answer for 'other' said they visited for work, educational trips, the geology or archaeology, art or photography, picnics and one stated they visited for their wedding photographs.



Respondents were asked to select how often they carried out each activity. The graph below shows that most people carry out the activity they selected a few times a year or once a year. Fewer people carry out activities more frequently. The activities that are more popular on the common, such as walking, enjoying the views and nature watching, do include people carrying out the activity more frequently than less popular activities.



The length of time respondents carried out each activity is shown in the graph below. This was multiplied by how often they carry out the activity to determine the number of hours people participate in the activity per year.



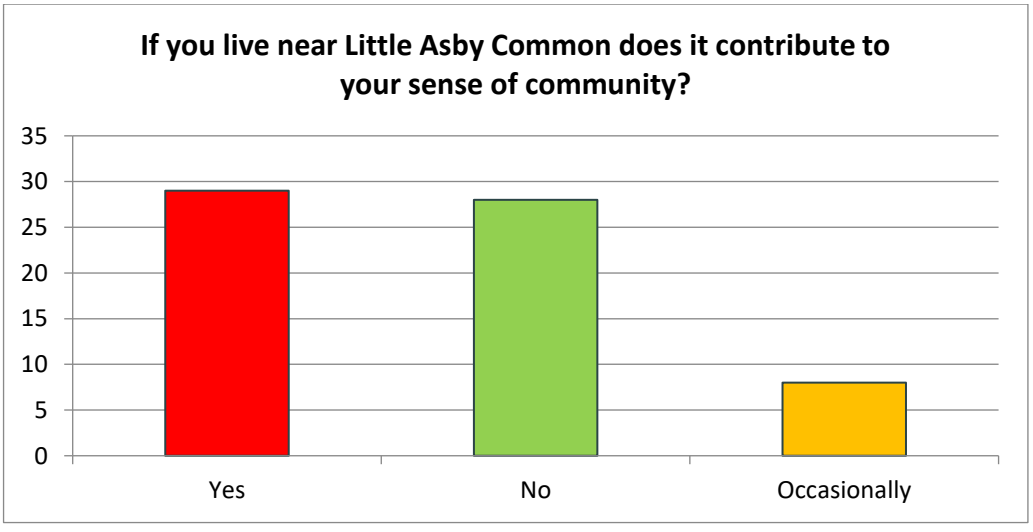
Training at Little Asby Common

Twenty three respondents had completed training courses run by the Westmorland Dales for Little Asby Common or surrounding area. These courses were:

- Drystone walling survey
- Drystone walling
- Traditional Farm Building Survey
- Archaeology / Little Asby Through The Keyhole
- Archaeology survey
- FLD Leaders Landscape Training
- Grasses
- Guided walks
- Geological investigations
- Test pitting in Ravenstonedale.
- 2 leader training days that covered archaeology, wall infrastructure, work of the commoners, geology.
- Basket weaving
- Oral history project

Benefits of living near Little Asby Common

Those that live near Little Asby Common were asked if living nearby contributed to their sense of community. While the responses were even in terms of 'yes' or 'no', 66 people provided additional comments. Many of these comments expressed their pride at living near the common and talked about how local residents sometimes socialise together on the common. Others felt, that although they live close by, they did not live close enough to feel a part of the community.



Seventy Six respondents stated that they participate in local or voluntary organisations which affect Little Asby Common directly. The groups that respondents are involved with are:

- Friends of the Lake District (49 respondents)
- Westmorland Dale Landscape Partnership (18 respondents)

- Other environmental charity/organisation e.g Cumbria Wildlife Trust, RSPB, Friends of the Dales (16 respondents)
- Local history societies (10 respondents)
- Archaeology groups (6 respondents)

Of those that are involved in a group directly related to Little Asby Common, 55 said they felt physical or mental welfare benefits from being a member of a group.

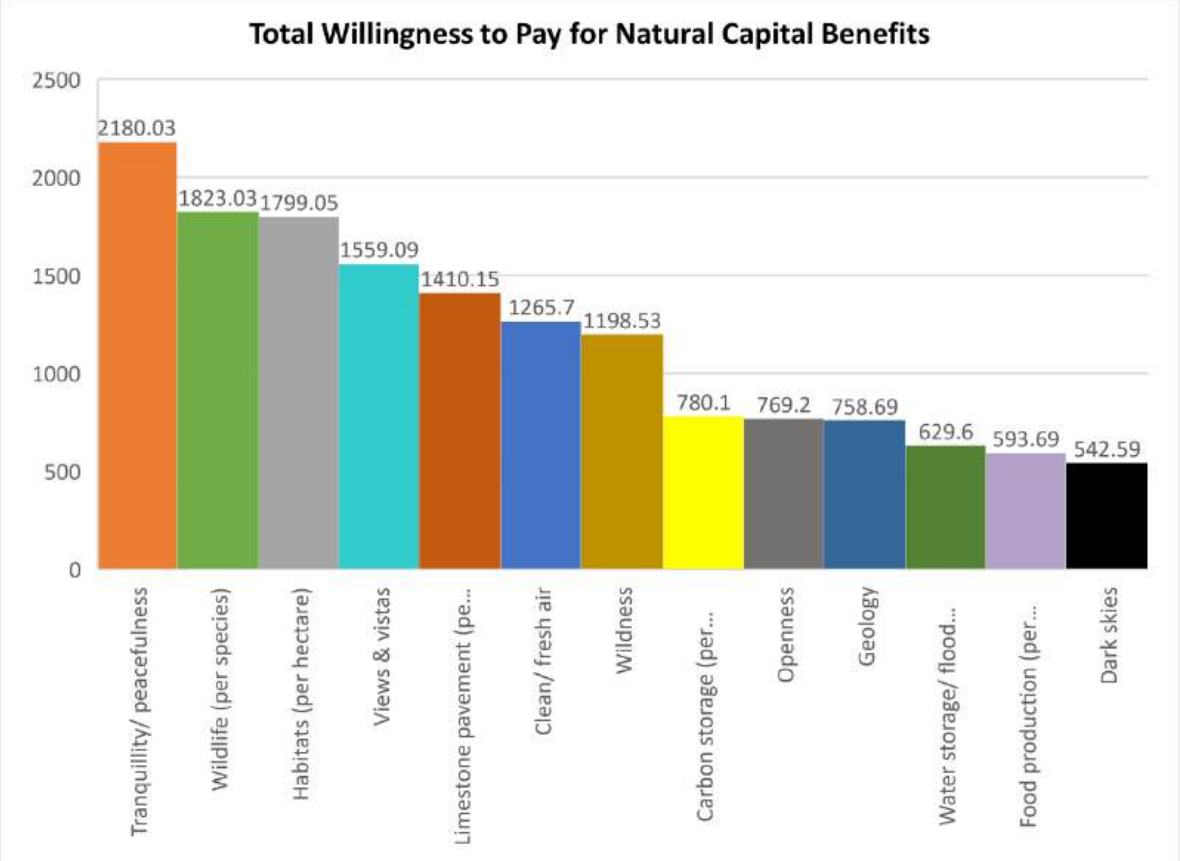
Willingness to Pay

Questions 12-23 asked people to select the benefits they valued for each type of capital. They were then asked how much they would be willing to pay to maintain the benefits by sharing £100 between those they selected.

Total amount allocated

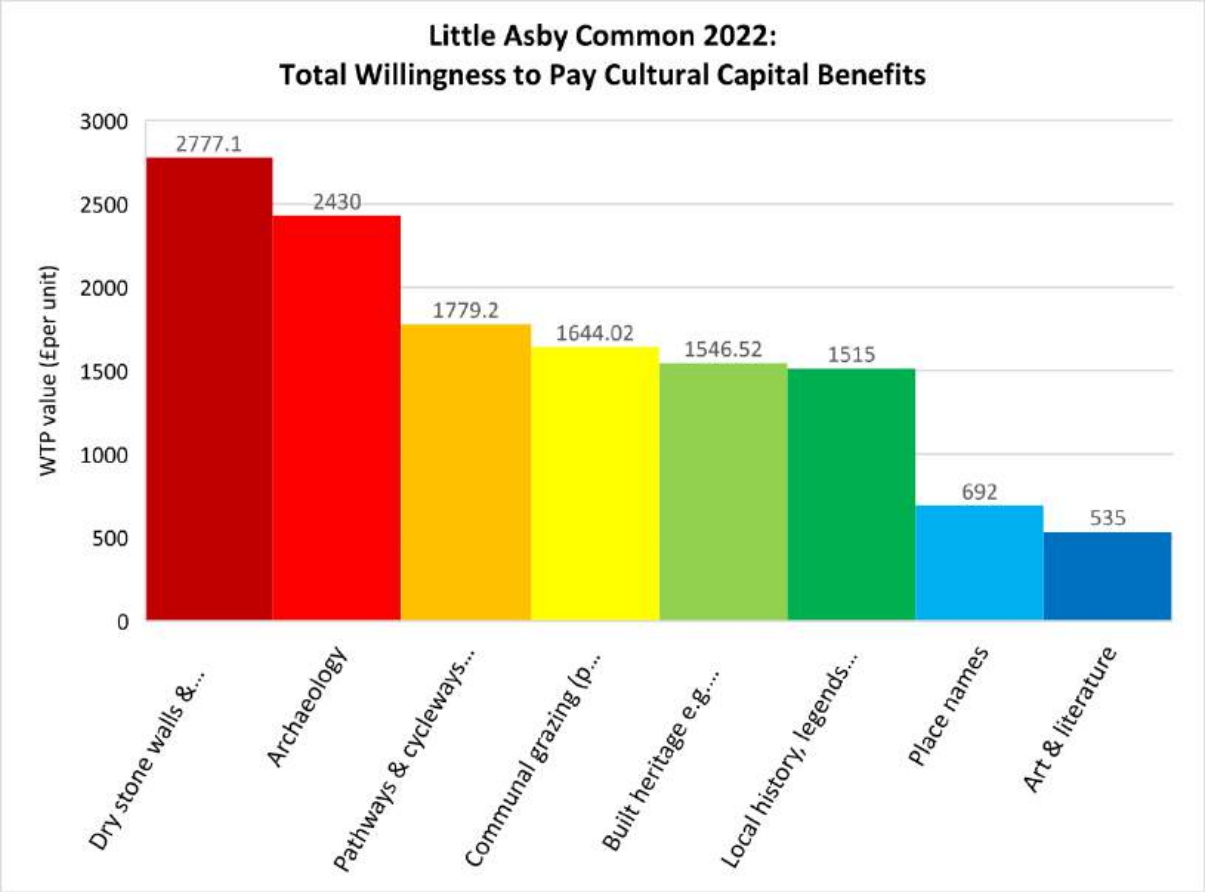
The following graphs illustrate the total amount of money allocated to each main benefit by all respondents that valued that benefit.

For ***natural capital***, the benefit with the highest amount of money allocated to it was tranquillity/ peacefulness with the total amount allocated by all respondents totalling £2180.03. This was followed by wildlife (£1823.03), habitats (1799.05), views and vistas (£1559.09) and limestone pavement (£1410.15).

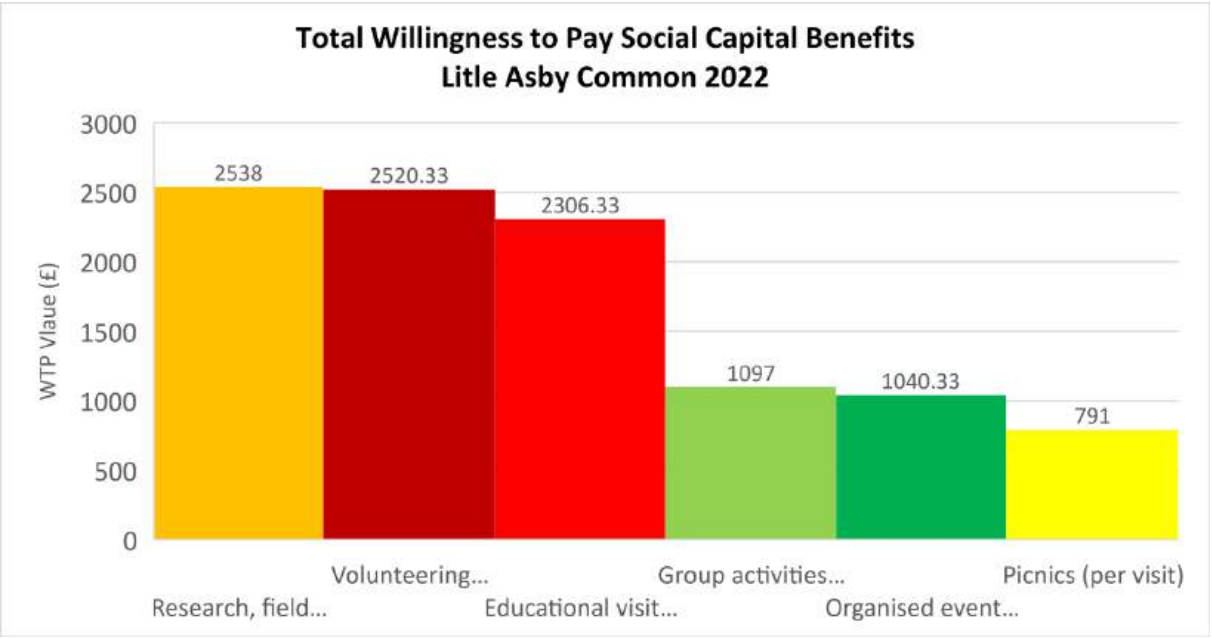


For ***cultural capital*** the graph below shows that the benefit with the highest amount of money allocated was drystone walls with the total amount allocated by all respondents totalling

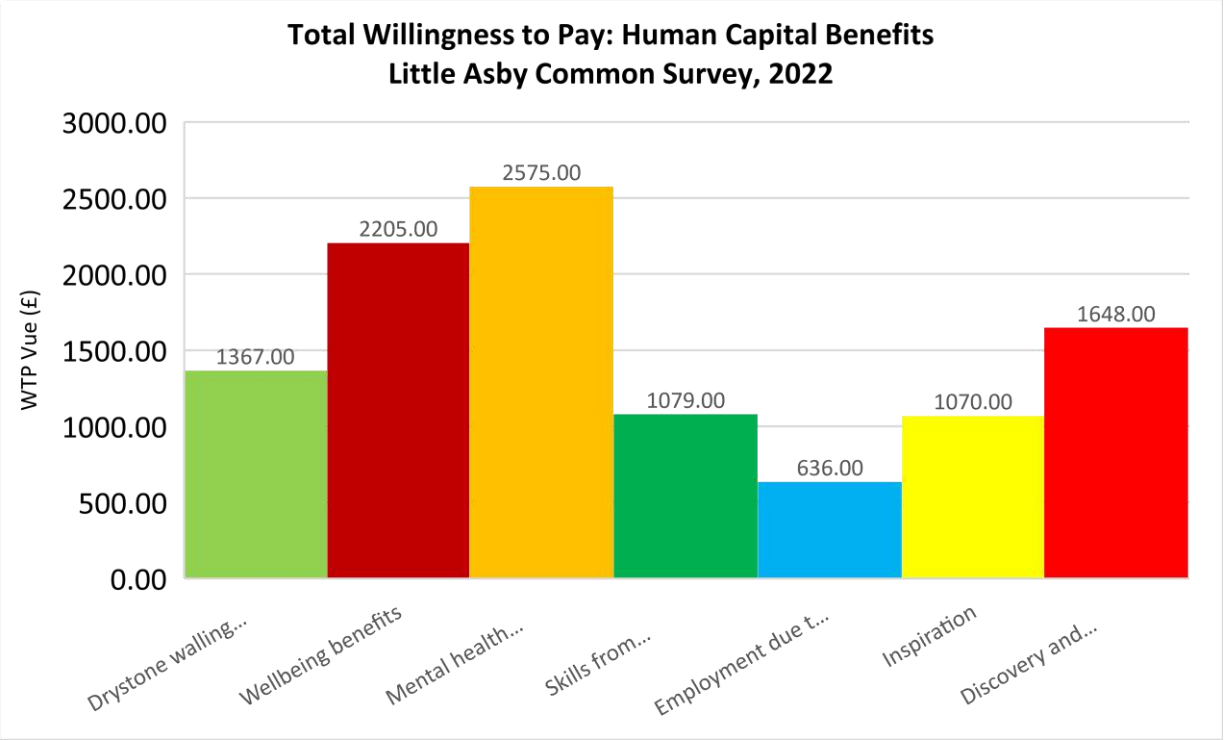
£2777.10. This was followed by archaeology (£2430), pathways and cycleways (£1779.20), communal grazing (£1644.02) and built heritage features (£1546.52).



For ***social capital***, 'research, field trips and studies' was allocated the highest amount of money, with £2538. This is closely followed by volunteering opportunities (£2520.33) and educational visits (£2306.33).

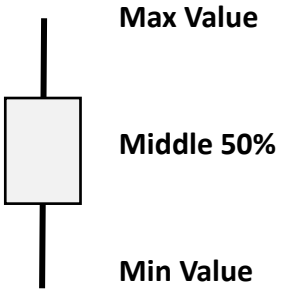


For ***human capital,*** the mental health benefits of Little Asby Common received the highest amount of the funds available with all respondents willing to pay £2575. This was followed by the wellbeing benefits (£2205), discovery and learning (£1648) and drystone walling skills (£1367).



Range of payments

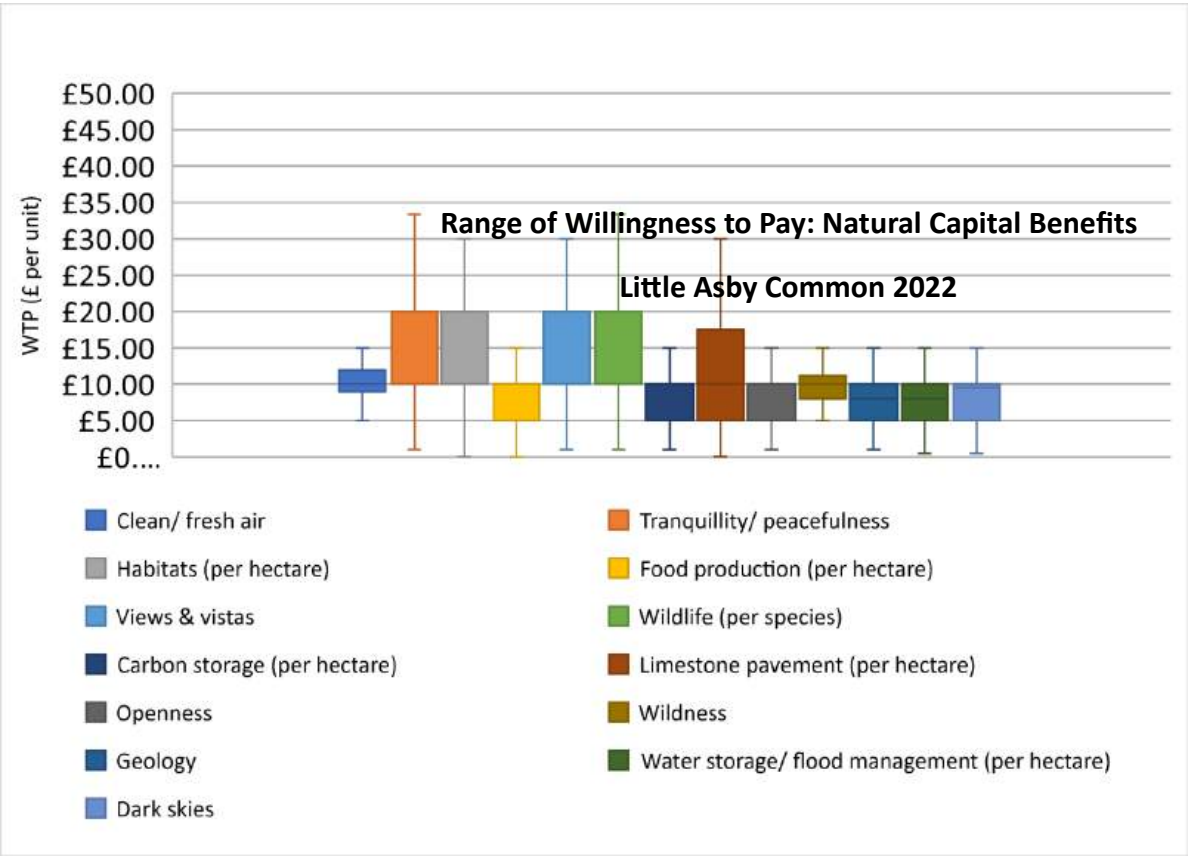
The following graphs show the range between the amounts allocated by each respondent, from the maximum to the minimum values allocated from the £100 to each benefit and the Interquartile Range (middle 50%).

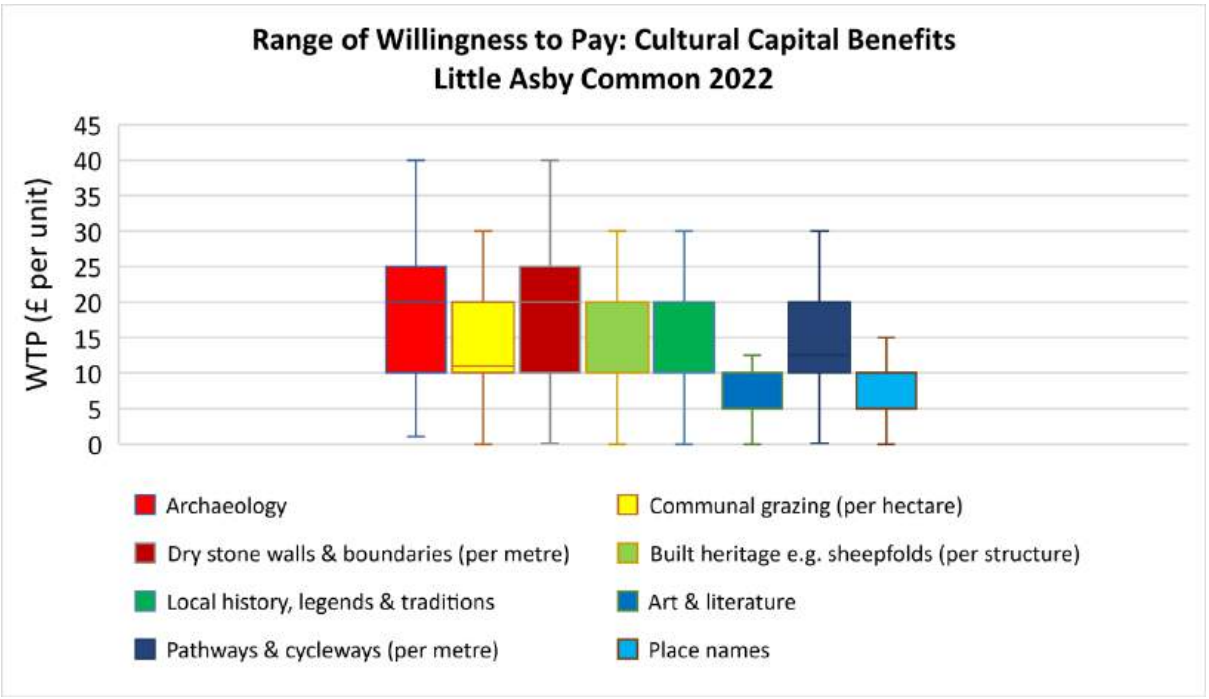


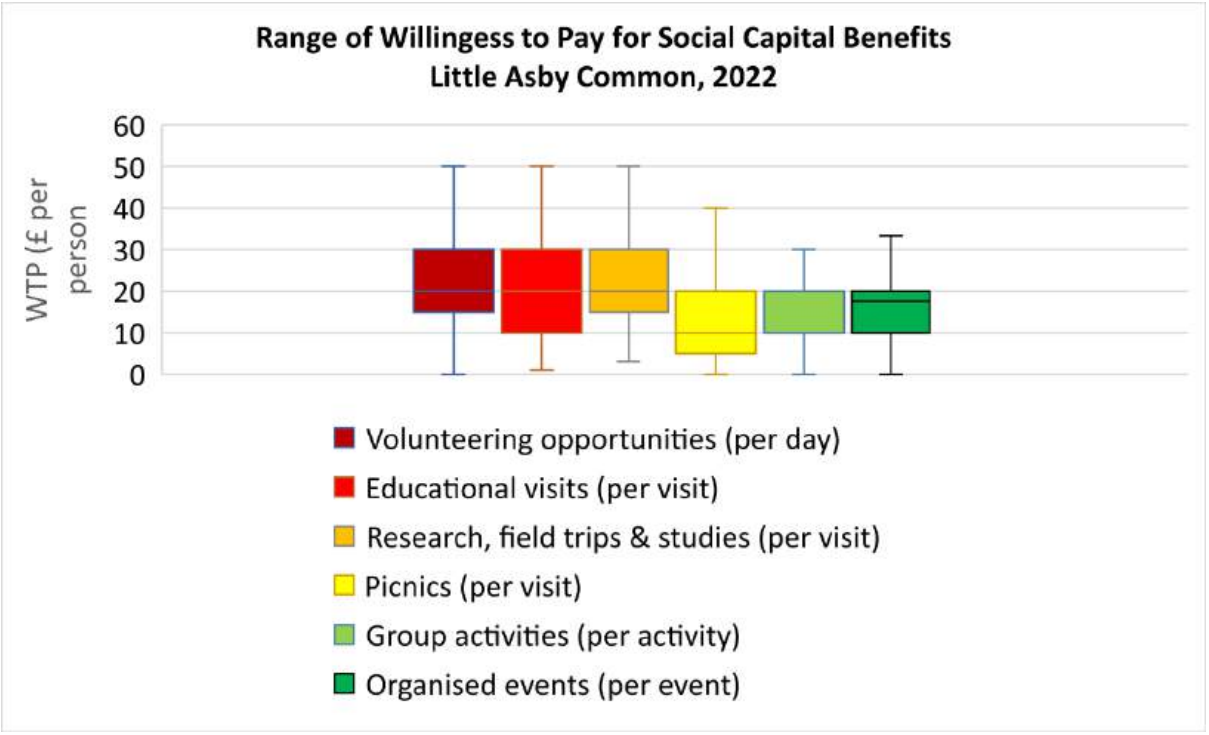
A range of values were given by each respondent to each benefit. For example, the maximum amount given to mental health benefits was £50 whilst the minimum value was £5. For tranquillity and wildlife, the maximum amount given by respondents was £33.30 and the minimum amount given was £1. Another example which shows a wide range is for drystone walls which were given a maximum of £40 per m whilst the minimum was £0.

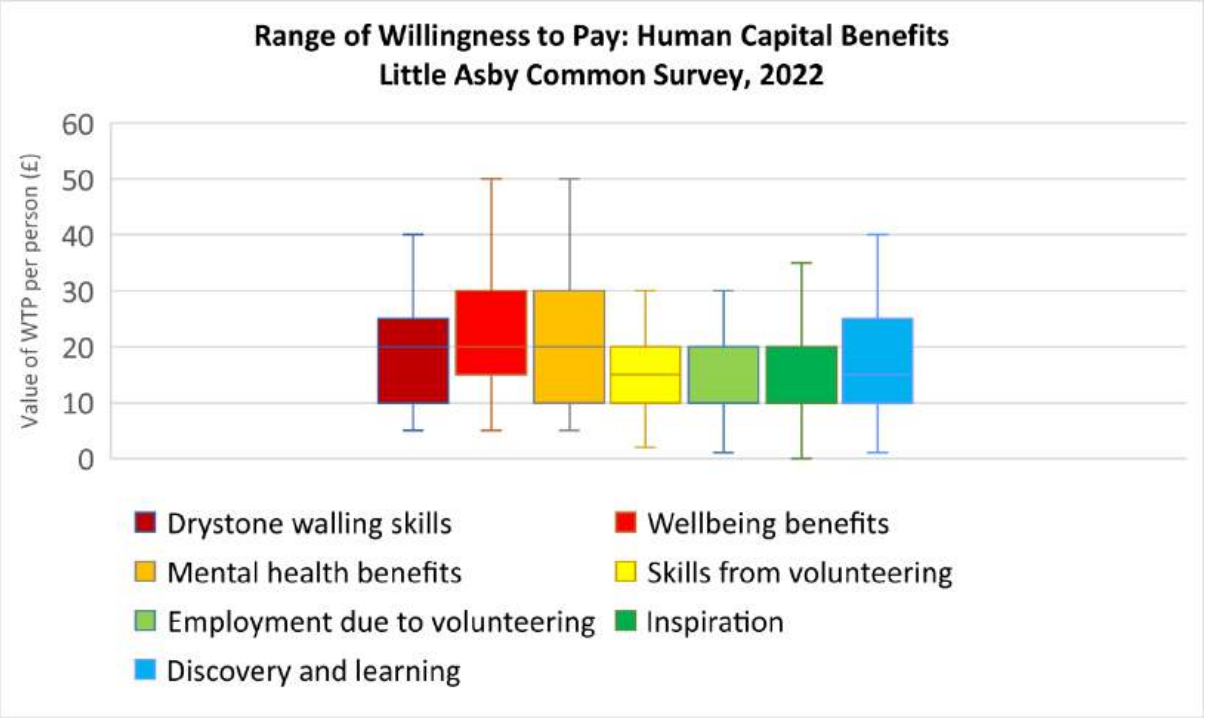
This illustrates the range of views between respondents and the subjective nature of the willingness to pay method derived from individual perceptions and attitudes.

These data were used to calculate the Capitals Account, please see Annex F.


Range of Willingness to Pay: Natural Capital Benefits
Little Asby Common 2022
WTP (£ per unit)
£50.00
£45.00
£40.00
£35.00
£30.00
£25.00
£20.00
£15.00
£10.00
£5.00
£0....
Clean/ fresh air
Tranquillity/ peacefulness
Habitats (per hectare)
Food production (per hectare)
Views & vistas
Wildlife (per species)
Carbon storage (per hectare)
Limestone pavement (per hectare)
Openness
Wildness
Geology
Water storage/ flood management (per hectare)
Dark skies


Range of Willingness to Pay: Cultural Capital Benefits
Little Asby Common 2022
WTP (£ per unit)
45
40
35
30
25
20
15
10
5
0
Archaeology
Communal grazing (per hectare)
Dry stone walls & boundaries (per metre)
Built heritage e.g. sheepfolds (per structure)
Local history, legends & traditions
Art & literature
Pathways & cycleways (per metre)
Place names

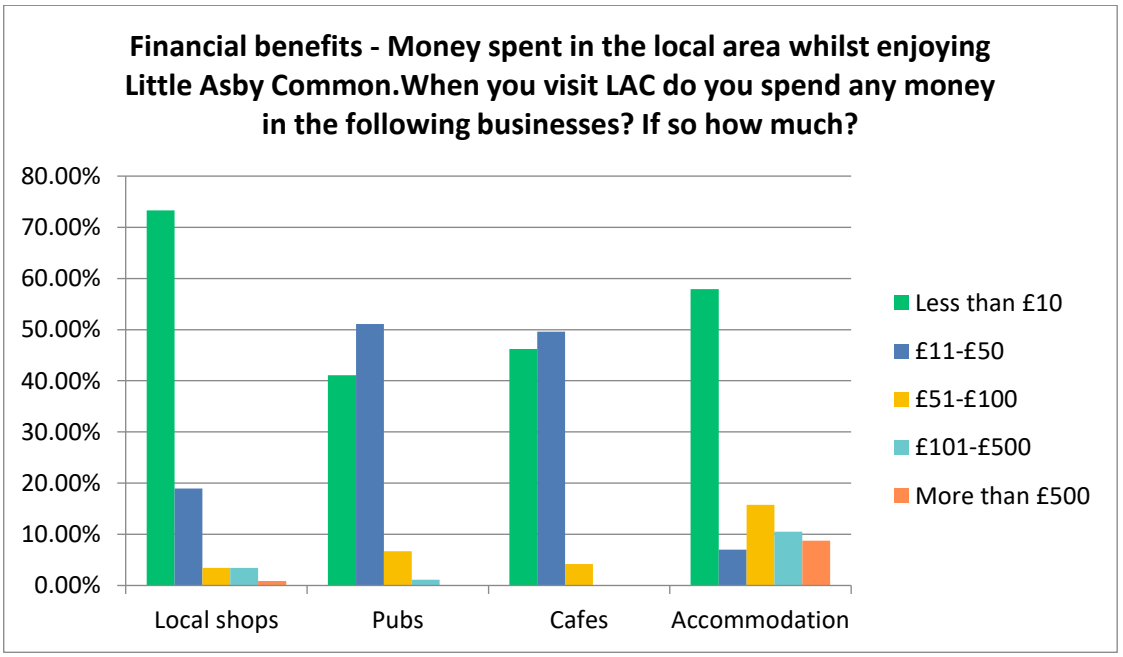

Range of Willingess to Pay for Social Capital Benefits
Little Asby Common, 2022
WTP (£ per person
60
50
40
30
20
10
0
Volunteering opportunities (per day)
Educational visits (per visit)
Research, field trips & studies (per visit)
Picnics (per visit)
Group activities (per activity)
Organised events (per event)

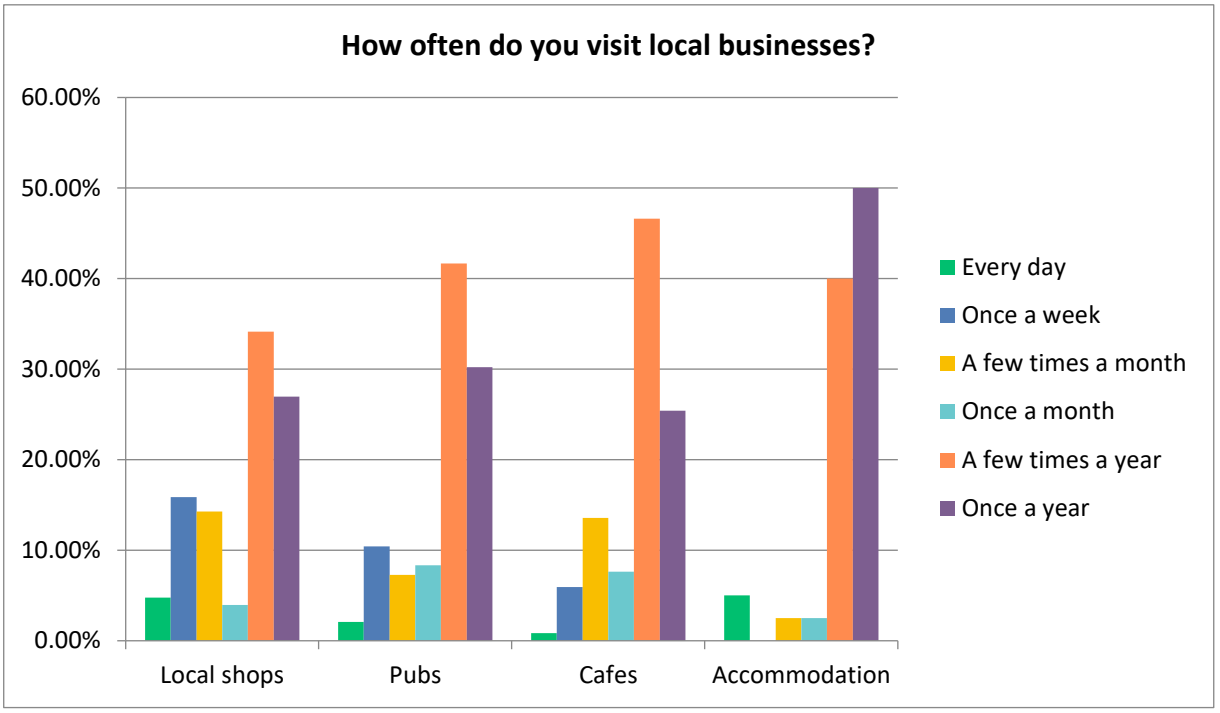


Financial benefits

'Willingness to Pay' was not used to understand the financial benefits of the common. Instead, respondents were asked if they visited any local businesses whilst spending time at Little Asby Common. They were asked to estimate how often they visit the businesses and how much they usually spend.

The graph below shows that most people spend smaller amounts of money in local businesses, with most respondents spending less than £10 in local shops and less than £50 in pubs and cafes. People generally do not visit frequently, with most visiting just a few times a year or once a year.

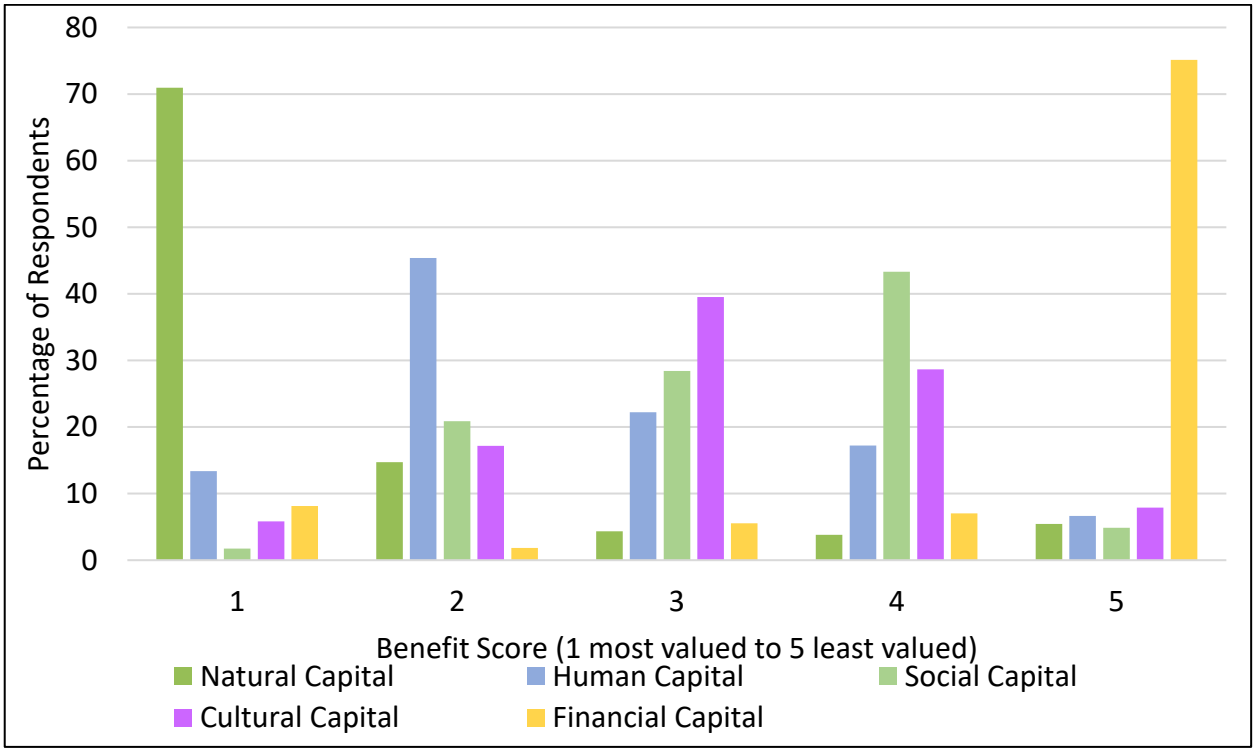




The data for how much people spend in local businesses and how often they spend money in those businesses was multiplied together to give a value for the amount of money spent per year and used in the Capitals Account.

Subjective valuation of Benefits

A final question in the survey, asked respondents to rank each set of benefits (capitals) in relation to each other from most valued to least as shown in the graph below:



The results of this exercise were then manipulated using a scoring system with most valued rank 1, scoring 5 to least valued rank 5, scoring 1 (see table below). A total score for each capital was then calculated using the following equation:

Example Natural Capital:

Total Score = (122 x 5) + (24 x 4) + (7 x 3) + (6 x 2) + (9 x 1)

Rank	**1**	**2**	**3**	**4**	**5**	**SCORE TOTALS**
Natural Capital	122	24	7	6	9	748
Cultural Capital	10	28	64	45	13	457
Social Capital	3	34	46	68	8	433
Human Capital	23	74	36	27	11	584
Financial Capital	14	3	9	11	124	255

Using this technique, natural capital was valued the most followed by human capital, with financial capital the least.

Additional comments

Following the Willingness to Pay questions, respondents were asked if there was anything else they would like to tell us about their experiences at Little Asby Common, its benefits and what they think is special. Seventy three provided an answer to this question. Comments included:

- The importance of the social aspects and family memories of visiting the common, including carrying out training with others.
- The need to protect the common and its heritage particularly from overuse, increased visitor pressure, overgrazing and development.
- Future improvements such as tree planting.
- The common's importance for wellness and mental health.
- Plans to visit the common for those that have not visited at the time of the survey.
- The importance of the natural beauty, open views and habitats, particularly the limestone pavement.
- The rarity of the common.
- Importance of maintaining free walking access both over the limestone pavements and on the intervening grass strips.
- The issue of the area having a BOAT (byway open to all traffic) on a voluntary basis, considered to be unacceptable in an SSSI area particularly so close the Sunbiggin Tarn.
- The stark contrast between the private land to the west of Sunbiggin Tarn and the bare grazed common.
- It's strong physical connection with the surrounding settlements as well as with their heritage/history and how the Common has influenced them.

- Contribution to scientific research of Sunbiggin Tarn in particular.
- The benefit of allowing people to explore the geography and history of the area while catching up socially.
- The value of its quietness compared to the Lake District or Yorkshire Dales.
- The need to keep Cumbrian Commons communal.
- The value of it being an unspoit landscape with no signposts or notices and little visitor pressure.

Comments about the survey methodology

There were several comments about the methodology used for the research including concern that Little Asby Common is part of a much larger high-quality environment and it is not visited in isolation from the adjacent areas. Also, many people may not be aware of the boundaries. The various perceived features and benefits therefore interlink and management for one will affect all.

There was also concern about the apportionment of a token £100 per annum between various categories and that ranking things was misleading as it is all special. There was concern that by ranking benefits, some would be neglected in terms of management.

Quotes:

“The experience of watching starling murmurations at Sunbiggin Tarn is one of my most special wildlife experiences. The whole area is so different from almost anywhere else in the UK and feels so timeless. It's a place that inspires my imagination and creativity.”

“It feels a hidden gem of a place and all the more special for it.”

“I think it is one of the few parts of Cumbria where you get a genuine feeling of space, wilderness and blissful isolation, with a positive effect on well-being/happiness. I like it just as it is and would not like it to become an over-crowded theme park.”

“It is a very special unspoilt tranquil inspirational oasis.”

ANNEX F :CAPITAL ATTRIBUTE VALUATION TABLES

CATALOGUE

Capital	Dimension	Attribute
Natural	Geodiversity	Limestone Pavement & geology
Natural	Ecosystems	Habitats
Natural	Air	Air Quality
Natural	Natural Processes & Functions	Carbon Sequestration
Natural	Ecosystems	Species
Natural	Freshwater	Water storage & flood mgt.
Human	Labour	Site Management (Volunteers)
Human	Labour	Site Management (WDLP staff)
Human	Labour	Site Management (FLD staff)
Human	Labour	Site Management (NE Staff)
Human	Labour	Site Management (Contractors)
Human	Well being	Volunteer wellbeing
Human	Well being	Visitor Recreation well being
Human	Education	Discovery & learning
Human	Education	Social Learning
Human	Skills	Drystone walling
Social	Recreation and Sport	Picknicking
Social	Common Rules & Norms	Communal grazing
Social	Bonding Network	Commoners Association
Social	Reciprocity & Exchange	Commoners labour
Social	Relations of Trust	FLD reputation
Social	Reciprocity & Exchange	Volunteers SROI
Social	Bridging Network	Local community (minus Commoners) SROI
Cultural	Landscape Aesthetics	Dark Skies
Cultural	Recreation and Sport	Visitor visit value
Cultural	Landscape Aesthetics	Vistas & views
Cultural	Landscape Aesthetics	Tranquillity
Cultural	Landscape Aesthetics	Openness & Wildness
Cultural	Heritage	Archaeology & Built Heritage
Cultural	Heritage	Drystone Walls
Cultural	Heritage	Art & Literature
Cultural	Inspiration	Inspiration
Cultural	Access	Pathways & cycleways
Financial	Currency	Grants
Financial	Currency	Farm gross margins
Financial	Currency	Multiplier effects (farm business)
Financial	Currency	Utilities
Financial	Currency	Multiplier effects (local shops)