

*Our Common Cause: Our Upland Commons*

## **Farmer-led Habitat Assessment Report**

by Helen Keep and Hannah Fawcett



**YORKSHIRE DALES**  
National Park Authority



**FOUNDATION FOR  
COMMON LAND**

A gathering of those with a stake in pastoral commons and their future



**Blank Page**

## Contents:

Chapter	Page	
Contract brief	1	
1.0	Compilation of relevant existing approaches to outcomes based habitat assessment as a basis for developing a whole common approach for the Ingleborough commons	2
1.1	Making Environmental Stewardship More Effective (MESME) – Natural England, Kinniside Common, Lake District, 2012	2
1.2	Dartmoor Farming Futures (DFF) – partnership between Haytor and Bagtor Common, Forest of Dartmoor Common, Dartmoor National Park Authority (DNPA) and Natural England (NE), 2013 – 2020	3
1.3	Developing Results Based Approaches to supporting the management of common grazing – European Forum for Nature Conservation and Pastoralism (EFNCP), Outer Hebrides, 2020.	4
1.4	Developing results based approaches to supporting common land in Wales. EFNCP 2021	5
1.5	Payments for Outcomes, Working towards a whole farm approach, National Trust 2017-2022	5
1.6	Common traits that would be applicable for Ingleborough and Clapham Commons	6
2.0	Development of a suitable approach for farmer-led habitat assessment for key habitats: blanket bog, limestone pavement and calcareous grassland	8
2.1	Outcomes from the project review and initial farmer meetings	8
2.2	Design considerations	10
2.3	Self assessment and score card development	11
2.4	Natural England (NE) consultation	17
2.5	Survey point selection	17
3.0	Habitat Score Cards	19
3.1	Upland calcareous grassland	19
3.2	Limestone Pavement	19
3.3	Blanket bog	19
3.4	Condition score for the quadrat points	20
3.5	Frequency of assessments and fixed point quadrats	21
4.0	Development of a suite of materials to enable the delivery of farmer-led habitat assessment.	21
4.1	Guidance documents	21
4.2	Use of smart phone App – Epicollect5 for on site data gathering	22
5.0	Development of a framework for survey data	22

6.0	Development of an approach for training farmers to undertake habitat self-assessment	23
	References	24
	Appendices:	25
I	Farmer presentation February 2022	
II	Grid references for survey sites	
III	Farmer self-assessment habitat forms	
IV	Self-assessment guidance documents	
V	Species identification cards	
VI	Survey timetable	
VII	Master score sheet of target outcomes	
VIII	Suggested training plan	

**This project was undertaken by the Yorkshire Dales National Park Authority, in partnership with the Foundation for Common Land, it was funded by the National Lottery Heritage Fund as part of Our Common Cause: Our Upland Commons.**

## **Contract brief**

To enhance the knowledge of farmers and land managers on the value of the biodiversity on Ingleborough and Clapham commons through training in and the implementation of farmer led habitat assessments.

## **Aims**

This project will trial a farmer-led habitat assessment on Ingleborough and Clapham commons. It aims to increase commoners' knowledge of, and ability to carry out, habitat monitoring. It will also increase their understanding of the current and potential biodiversity on their common and the impact of their management. The intention is that this will lead to better management for biodiversity outcomes and increased resilience of the commoning system through improving the commoners ability to access agri-environmental funding as the ELMS develop.

## **Outputs**

- The production of a suite of simple to use habitat assessments on three key habitats commonly found on Ingleborough and Clapham Commons.
- At least 5 commoners trained in habitat assessment, surveys and monitoring. Commoners will have the skills and confidence to continue surveying after the life of the project.
- Guidance for habitat assessment and methodology for commons to be produced to provide advice and reference resource for use on further commons, including full suite of training and guidance materials, training programme and framework for data collection.

## **Requirements**

To develop an approach and materials necessary to enable a farmer-led habitat assessment training programme to be rolled out during the project's delivery phase. This will require a number of tasks:

1. Development of a suitable approach for farmer-led habitat assessment for key habitats on the commons including: blanket bog, heath, limestone pavement, cliff and scree, flushes, calcareous grassland
2. Consultation with protected area and agency staff who have been responsible for piloting the development of farmer-led approaches to habitat assessment in recent years in the northern uplands.
3. Compilation of relevant existing approaches to farmer-led habitat assessment as a basis for developing a whole common approach for the Ingleborough commons.
4. Development of a suitable approach for farmer-led habitat assessment for key habitats within the project area including: blanket bog, calcareous grassland, limestone pavement
5. Working with the commoners and the project team, trialling each methodology across the project area.
6. Development of a suite of materials to enable the delivery of farmer-led habitat assessment. These must be straightforward and realistic in terms of the time and expertise required. Such materials must include recording forms and simple guidance on the methodologies developed.
7. Development of a framework for data input that will accommodate survey data from across the project area in a format that will be suitable for interrogation and analysis.
8. Development of an approach for training farmers to undertake habitat assessment during the project's delivery phase (2023-2025). This will include:
  - Materials required
  - Guidance for trainers
  - Recommendations for the number and timing of training sessions to ensure success

## **1.0 Compilation of relevant existing approaches to outcomes based habitat assessment as a basis for developing a whole common approach for the Ingleborough commons**

This review brings together the methodologies from around the UK, including examples from Scotland and Wales. It highlights common traits, approaches and implementation along with identifying any gaps and concludes with a comparison table identifying the successful traits likely to be suitable for Ingleborough and Clapham commons.

### **1.1 Making Environmental Stewardship More Effective (MESME) – Natural England, Kinniside Common, Lake District, 2012**

As part of the 2010 Government Spending Review and in response to various monitoring reports, Defra Ministers undertook to make Environmental Stewardship (ES) more effective and better targeted. MESME was initially made up of 5 strands of work:

- Water Quality
- Collaboration and Localism
- Climate Change
- Making HLS more effective
- Making ELS more effective

The Project adapted to include trialling and testing a range of improvements to both Higher Level Stewardship and Entry Level Stewardship, aimed at more effective delivery of options on the ground.

Natural England ran 8 local trials through the summer and autumn of 2012 looking at a self-assessment approach with the intention to encourage a better understanding of the agreement outcomes by agreement holders, resulting in improved delivery. One of the trials was undertaken on Kinniside Common Higher Level Stewardship agreement in the Lake District.

The agreement was new to the commoners with the main management option being the restoration and maintenance of moorland (HL9 and HL10) plus a cattle grazing supplement (HR1).

The approach included setting up fixed point quadrats across the common on key habitat types. The habitats were assessed by the commoners using a modified SSSI Common Standards Monitoring and HLS indicators of success form.

Natural England worked with the Commons group to develop the methodology, provided bespoke training on species identification and upland habitat evaluation and assisted the commoners on the monitoring visits.

The self-assessment card focused on the heath habitats and included a list of indicator species, grazing impact assessments, structure of vegetation and a note on species of bird seen on the visit.

Supporting materials included species identification sheets, bespoke booklets containing photos of habitats in good condition and a GPS per participant to help locate the quadrat points.

The results of this approach was positive – there was a statistically significant improvement in the level of understanding by agreement holders of the management prescriptions. It also stimulated agreement development, refinement and improvement - possibly due to an increase in self-confidence and understanding of their agreement and the habitats. There was great support for

this approach by the commoners with some of them continuing to use the methodology after MESME had finished.

## **1.2 Dartmoor Farming Futures (DFF) – partnership between Haytor and Bagtor Common, Forest of Dartmoor Common, Dartmoor National Park Authority (DNPA) and Natural England (NE), 2013 - 2020**

DFF was developed in response to concerns from farmers that their agri-environment schemes were unlikely to deliver the environmental benefits the schemes sought and the process imposed upon them was failing to engender any sort of ownership of their agreements.

It was a farmer led experimental pilot project aimed at developing an outcome focused approach to the management of public and environmental benefits across two commons – Haytor and Bagtor Common and the Forest of Dartmoor common. It facilitated a collaborative approach to setting outcomes, delivery and monitoring and allowed commoners to take more responsibility over the management and monitoring of their HLS agreement. In the early part of the project, it led to a greater level of understanding and ownership of their HLS agreement and the outcomes they were delivering. Training and monitoring increased their understanding of the biodiversity and environmental features. In the latter stages of the project, relationships between NE and the two commons deteriorated. High turnover of staff on NE's side and a lack of understanding and trust of the project from the new staff, meant that the project has not delivered the joined up working that was originally envisaged.

Two different approaches were undertaken due to the differences between the two commons:

1. Haytor and Bagtor Common is not biologically designated. The monitoring and field assessment work was undertaken by third parties – Butterfly Conservation, DNPA etc. with little direct involvement with the commoners. The commoners were presented with a management report at the end of each season. As a result, the commoners experienced this project in a different way and had little engagement and not as great an understanding of their agreement.
2. Forest of Dartmoor Common – very large SSSI designated area, needed a high level of monitoring in order to deliver a greater understanding of the habitat types and habitat condition. NE carried out a baseline assessment and the SSSI units were aligned to commoners known management areas. The commoners undertook self-assessments across the habitats on their heft.

For the Forest of Dartmoor example, training was provided for species identification and habitat monitoring methods.

Each participant was provided with a heft map showing the locations of priority habitats, the indicators of good/favourable condition and ID sheets to help with species identification.

The self-assessment cards included statements that had to be verified positively or negatively at each quadrat point – for example 'at least 4 key indicator species should be present....' These covered indicator species, species cover across the quadrat, grazing impact on the vegetation, damage assessment against two criteria – burning and eroding peat.

Monitoring of SSSI condition was undertaken using 2x2m quadrats.

Despite having some flexibility in changing management on the common, the commoners retained the same management on the whole. Some did request to extend cattle grazing periods – these were for a set timeframe and didn't represent the whole common.

The shared outcome for the SSSI was to achieve 50% of the area in favourable condition by 2020. In hindsight this was possibly an unachievable target as the baseline suggested that the common was at 30% favourable condition. The common failed to reach the target and achieved a slight increase in condition to 34%.

### **1.3 Developing Results Based Approaches to supporting the management of common grazing – European Forum for Nature Conservation and Pastoralism (EFNCP), Outer Hebrides, 2020.**

This was a LEADER and NatureScot (NS) funded project to develop a testable results or outcomes-based approach to supporting the sustainable management of common grazings, focussing first and foremost on biodiversity, but having particular regard also to carbon storage and sequestration in blanket bogs (EFNCP 2020).

It developed four score cards for the key habitats:

1. Bog
2. Machair grassland – only applicable to NS designated sites
3. Land for breeding waders – for 'township park areas'
4. General card – developed for all other areas – a holistic element

Key considerations for developing the score cards:

1. Need a clearly identified target and a clear understanding of what defines quality across a range of target conditions.
2. Target quality being closely related to farming practice and relatively immune to non-farming factors.
3. Easy to understand, reliable, repeatable set of scoring matrix.
4. Features that are scored need to be able to change in the short and long term.

The project also looked at safeguarding rights on the commons and having some level of governance and shared responsibility for the outcomes.

The environmental priorities for the area were reviewed and included non-designated sites. This comprised of the Annex 1 habitats and species list in the EU birds and Habitats directives ((2009/147/EC) & (92/43/EEC)); qualifying interest for the designated habitats, natural heritage features and the local Biodiversity Action Plan (BAP) list.

Blanket bog was identified as the dominant habitat, being a priority habitat at UK and EU scale, able to deliver a multitude of public goods and important for biodiversity due to its range of specialist flora and fauna, including waders and raptors.

Heath (wet, dry and montane) was similarly identified as being an important habitat to be included within this project.

The project used the JNCC's Common Standards Monitoring methodology to measure condition of SSSIs to underpin the score card design. This ensured that the score card would be compliant with the requirements of designated sites.



The score card used a combination of positive and negative scores to identify good management and negative features and management. For blanket bog a set of desired outcomes were agreed with the common grazing farmers:

1. Maintain or improve blanket bog biodiversity
2. Increase the cover of peat forming sphagnum
3. Remove any Invasive Non Native Species (INNS)
4. Minimise the occurrence of negative indicator species
5. Maintain an open vegetation structure
6. Prevent damage to the moss layer and other vegetation by considering stocking densities and grazing period.
7. Improve and maintain wetness
8. Minimise areas of bare peat and prevent further loss
9. Identify and better manage areas of damage.

The score card contained 3 sections covering Species diversity, Vegetation structure and integrity of bog function. Within each section there are a suite of questions designed to identify the overall condition of the bog and highlight areas where further attention is required to improve condition and/or prevent further damage. There is a points scale of 0 – 10 for positive aspects of condition.

Including the integrity of hydrology allows the assessment of how water retaining the bog is – recording the degree and scale of wetness and identifying negative features such as grips and exposed peat.

The score card is designed for use by advisers rather than the common grazing farmers. It hasn't been fully trialled as yet.

#### **1.4 Developing results based approaches to supporting common land in Wales. EFNCP 2021**

The focus of this project was to develop a suite of results based score cards for commons that could be utilised within the new Welsh agri-environment scheme of the future. The project therefore included costs of delivery, payment rates and ways of working with commons. It assumed that there would not be an underpinning payment mechanism and therefore would be the only source of agri-environment type income for that common.

This LEADER funded project followed a similar approach to the Outer Hebrides project in how it developed its methodology. It looked at developing results based approaches for a range of public goods but had to scale the ambition back to the following as not all public goods can be measured in a results based way. The public goods that were measured included carbon storage and sequestration, biodiversity, water flow and quality.

The aim was to design a seamless scoring methodology that included all aspects of the chosen public goods in order to provide a final common score. The points scale ranged from 0 – 10 for positive aspects of condition with points taken away for negative aspects of management. An 'app' was used (Epicollect5) and digital forms and algorithms developed in order to allow for digital recording of the condition while onsite and to enable the final common score to be calculated. The assessment criteria replicated the Outer Hebrides approach.

## 1.5 Payments for Outcomes, Working towards a whole farm approach, National Trust 2017-2022

Since 2017 the National Trust (NT) has been developing a Payments for Outcomes approach, initially trialled on four NT farms in the Yorkshire Dales. This has been developed further into a DEFRA funded ELMs test and trial.

The project focused on two approaches:

1. a standalone 'pure' results based / outcome focused scheme covering the high nature value habitats and species found on individual farms on the estates in the Yorkshire Dales.
2. A 'top up' scheme which will sit with national agri-environment schemes, and seek to add value to the national schemes and meet NT landscape objectives.

The trial has included two phases, the first of which focused on four upland habitats: calcareous grassland, limestone pavement, blanket bog and ancient semi-natural woodland, for which individual score cards were developed.

The score cards included the following to assess habitat condition into three score/payment bands.

- key indicator species (positive and negative),
- sward heights/bare ground/vegetation cover (%),
- evidence of flowering (to determine grazing pressure)
- and any damaging operations.

It was found that these assessments were over-simplified and it was recommended that this approach be changed to adviser led using a Natural England condition assessment technique. However, it is acknowledged that it is still essential to involve the farmer in the process to retain positive engagement.

The second (current) phase is primarily focusing on soil health and pollinator resources in in-bye land on upland farms. The soil health scorecard requires measurement of 12 outcomes over the spring to autumn period, assessing visual (e.g. sward cover), structural (e.g. compaction) and chemical (e.g. soil pH) properties.

The pollinator resources scorecard has elements of both farmer and adviser assessment. This includes farmers recording management dates and scoring flowering plants, and advisers using technology to survey and map (GIS); this enables habitat resources and connectivity to be calculated.

In terms of validating delivery, the trial found that farmer-led assessments were effective for the parcel-based soil health and pollinator options and that adviser-led assessments were better suited for the more complex whole farm pollinator options.

A feasibility study suggests that a combined method appeared to be the most effective for other public benefits: cultural heritage (e.g. barns and walls) and access to the countryside, with advisers carrying out a baseline assessment, then the farmer triggering a repeat assessment to verify a change in payment band.

In terms of farmer led assessments the key limiting factor was found to be farmer time, with a maximum of one week a year. To reduce administrative burden digital apps would be a key tool, with the majority of farmers happy to use an app to carry out an assessment.

As part of the DEFRA ELMs test and trial the feasibility of a whole farm approach was investigated and it was concluded that it would be possible to deliver a simple, efficient and effective model.

Using digital apps adviser and farmer assessments would allow measurement of a suite of public benefits as part of a holistic whole farm approach.

### 1.6 Common traits that would be applicable for Ingleborough and Clapham Commons

There are a number of common approaches that the reviewed projects have taken to deliver an outcome focused approach to assessing the quality of habitats and public goods on commons. For the majority of projects, farmer input to the design has been integral and enabled a greater level of understanding of the habitats, the condition criteria and skills development by the farmers, which in turn has engendered ownership of the methodology and the intended outcomes. All bar one of the projects have been delivered jointly between advisers and farmers – sharing and learning about the outcomes together, building trust. The Forest of Dartmoor was the only example where the assessments were undertaken entirely by the commoners, and where they managed the data gathering and reporting to Natural England. All projects have included assessment of key nationally important habitat types, a number which were noted for the designation of particular SSSIs and SACs. Features assessed commonly included negative species, a range of positive indicator species, vegetation structure, damage to feature, water quality and archaeology.

The most recent project for the Welsh Commons utilised a digital app based assessment tool to enable more efficient data gathering during the surveys. This approach has been developed out of the positive implementation of app based forms in Ireland for the Hen Harrier Project – a results based payment programme in the Slieve Mountains. Hundreds of advisers utilised an app based survey system, gathering data across thousands of locations which was centrally downloaded onto a database to calculate condition of habitats and payment rates to farmers.

Table 1 illustrates the main features of the results based habitat assessment across the UK that affect commons and moorland situations similar to Ingleborough and Clapham Commons.

Table 1: Comparison of relevant results based approaches

Project	MESME	DFF (Forest of Dartmoor)	Outer Hebrides	Welsh Commons	NT PFO	Applicable to Ingleborough & Clapham commons
National designated sites (SSSI, SAC)		Y	Y		Y	Y
Holistic approach including public goods		Y	Y	Y		N (but possible)
Habitat only	Y				Y	Y (but could extend to other features)
Development of measures by farmers and specialists	Y	Y	Y	Y	N	Y
BAP Habitat types:						
Blanket bog	Y	Y	Y	Y	Y	Y
Heath		Y	Y	Y	Y	Y
Species rich grassland			Y	Y	Y	Y
Scrub		Y	Y	Y		
Limestone pavement					Y	Y
Mire/flushes		Y	Y	Y	Y	Y
Habitat for waders			Y			
Features measured:						

- hydrology		Y	Y	Y		
- INNS/negative species		Y	Y	Y	Y	Y
- Water quality	Y	Y	Y	Y	Y	
- Species	Y	Y	Y	Y	Y	Y
- Vegetation structure	Y		Y	Y	Y	Y
- Species cover	Y		Y	Y	Y	Y
- Archaeology		Y	Y	Y	Y	Y
- damage		Y			Y	Y
Measures influenced by:						
- underpinning agri-env scheme	Y	Y			Y	Y
- SSSI/SAC features			Y	Y	Y	Y
Assessments undertaken by						
- farmers only		Y				Y (ideally)
- farmers and advisers	Y		Y	Y	Y	
- advisers only						
Area assessed:						
- by heft		Y		Y		Y (possible)
- whole common		Y	Y	Y		Y
- fixed point quadrat	Y	Y	Y	Y	Y	Y
Underpinning agri-environment scheme?	Y	Y	N	N	N	Y & N
Costs of delivery and payments included	Y	Y	Y	Y	Y for surveys only	N
Digital app based assessment of condition				Y		Possible

## 2.0 Development of a suitable approach for farmer-led habitat assessment for key habitats on Ingleborough and Clapham Commons

### 2.1 Outcomes from the project review and initial farmer meetings

Common throughout the reviewed projects, farmer's / land managers have had input to the design of the assessment measures. This has ensured that the measures are meaningful to the user, assesses features under the farmers control and those that a change or continuation of management can influence.

The common right holders of Ingleborough and Clapham commons have identified that they would like to have a greater understanding of how to achieve the management outcomes NE have stipulated for both SSSI commons. They would like to 'monitor' the progress of their management actions in order to have a more effective relationship with NE. They want to use these skills and knowledge to further the outcomes for the common in terms of future agri-environment schemes.

To enable the common right holders input to the design process, meetings were held throughout the project period, covering the following aspects:

- to introduce the concept of habitat assessments,
- provide opportunity for discussion on the habitat condition and understand what 'good condition' looks like

- agree an approach that is achievable by those commoners that are interested
- road test the methodology and Epicollect5
- help develop guidance material
- approve final versions

The project started in August 2021 with the first farmer meeting in February 2022. This focused on the following (see Appendix I for presentation):

- the habitats of the commons,
- their importance nationally and internationally,
- results from recent habitat surveys,
- identifying what has changed over the past 10 years of agri-environment scheme management,
- identifying the key indicators of success,
- introducing the framework for developing farmer led habitat assessments,
- reviewing the example projects and common approaches that would be applicable to Ingleborough and Clapham commons.

From this initial meeting the graziers of the two commons agreed on how they wanted to undertake the habitat assessments:

1. A fixed point for quadrat assessments would be used and located on the key habitats the graziers would like to assess. Each heft would therefore have a series of fixed points to monitor. They thought that it would be easy to find and go back to, would be on the habitat and not on a mosaic, therefore representative; and can be returned to each year if necessary.
2. Ingleborough Common have recently agreed to an extension of their HLS agreement for a further five years. Clapham Common Environment Stewardship (ES) agreement came to an end in December 2020. The SSSI designation for both commons impacts the design of the self-assessment forms. There are additional monitoring criteria under the Common Standards Monitoring guidelines that need to be taken into consideration in order for Natural England to feel that this approach has some measurable outcomes from a SSSI condition perspective. Using SSSI qualifying features to identify the most important habitat types to measure was utilised within the NT, Outer Hebrides and Welsh Commons – particularly where there was no underlying agri-environment scheme and its requirements for certain outputs. Where an underlying agr-environment scheme is present, indicators of success and management expectations were used within the assessment criteria. A combined approach utilising the SSSI qualifying features to identify the important habitats, the Common Standards Monitoring criteria and ES Indicators of Success (IOS) was agreed as one common is under ES and the other is not. The main push for undertaking this assessment work, is to fully understand the requirements for good condition and SSSI management. Therefore, it is essential the Common Standards monitoring criteria for SSSIs is utilised within the methodology
3. The graziers have been keen to monitor the limestone pavement and calcareous grassland – particularly on Ingleborough side. Clapham Common is dominated by heath and blanket bog habitats. It would seem appropriate for the graziers to assess these habitats types – they are the more obvious features of the SSSIs.
4. The range of features measured should include key indicator species and their extent, a measurement to record grazing impact – appearance of the structure of the vegetation, negative plant species and any agriculturally related damage. For the blanket bog, the hydrology of the bog and the extent of bare peat are important factors to measure.

5. Consideration was also given to using a digital assessment tool such as a phone based app. A basic digital version of the survey sheets could be developed that can be used on an app such as Epicollect 5 – the app used on the Welsh Commons project. This would create a system that enables data collection on the two commons and possibly in a format that would be useful for Natural England as well as the graziers.

## 2.2 Design considerations

Current national agri-environment scheme agreements contain a series of prescriptions, tailored to each habitat type, which can then be further amended according to location. They are akin to a list of ‘dos and don’ts’ and include a set of binding (for Environmental Stewardship Higher Level schemes (HLS)) or non-binding (for Countryside Stewardship Higher Tier (CS)) indicators of success. These are in effect the habitat condition results that show the management has been effective over the agreement period. Anecdotal evidence gathered during the design of the Payment By Results (PBR) measures in the Yorkshire Dales (Keep H, 2016, Chaplin S et al 2019), indicated that farmers within the Northern Upland Chain local nature partnership area were unaware of the key indicators of success and only followed a key number of prescriptions – namely stocking rates, stocking calendars and hay cutting dates. Farmers did not fully understand what they were trying to achieve or why they had to undertake management in a certain way. There was little understanding of what good habitat condition looked like.

If farmers are unaware of what they are trying to achieve, the connection and desire to do more for the habitat and the environment has been lost. The management just becomes a tick box exercise to achieve a grant payment. A farmer led habitat self-assessment will engage farmers in their agri-environment schemes and in turn, deliver more for the environment, as shown through the PBR approach in England. It will also provide an increased level of understanding and knowledge the farmer can use to their advantage for future agri-environment scheme participation and for peer to peer learning.

The design of the self-assessment approach therefore has to be meaningful to the farmers taking part but also provide a level of knowledge gain that would help their understanding of the management of the habitats and their agri-environment scheme agreements (current and future). In addition, unlike other results based projects, payments based on the condition of the habitats will not be available. Therefore, for the commoners, the incentive is to achieve the indicators of success within their agri-environment agreements and to future proof the common for future agri-environment schemes/payment mechanisms.

The development of the farmer led self-assessments followed the same <sup>1</sup>design approach the majority of habitat based results schemes followed, namely:

1. A review of how high nature value farmland has been shaped by past agricultural practices, and what impact contemporary agriculture is having on its biodiversity value;
2. Clearly understanding and defining what constitutes the highest quality habitat e.g. species composition, vegetation structure, farming practice etc., which then leads to defining biodiversity objectives for the habitats
3. Determining which result indicators should be used, with guidance from the farming community on its development.
4. Field testing
5. The results indicators had to be within the management control of the farmer.

---

<sup>1</sup> Ref: [Keenleyside C et al 2015](#)

In addition, the methodology devised had to meet the following attributes:

- Be quantifiable, measurable and related to management
- Focus on attributes of the land and particularly of the vegetation community; you can use individual species as part of this characterisation, but the individual species are not the target; the presence of individual species is outwith the direct control of the common grazing and even a high score can be obtained with many different combinations of species
- Be applicable across the common
- Take into account landscape and ecosystem dynamics e.g. not only the presence of woody species, but whether they are expanding and whether or not this is desirable for the various habitats
- Be simple enough to be used and understood by graziers, advisors, project officers (i.e. people who broadly understand commons, but would not consider themselves to be skilled botanists/ ecologists) after a few hours of training

### 2.3 Self assessment and score card development

Through the NE and YDNPA PBR project, the project team utilised the experience from the other EU RBAPs approaches to develop habitat assessment scoring sheets that assisted the farmer in identifying the positive and negative attributes of their habitats. The assessment sheets positively scored the ideal conditions or suite of plant species for the two habitat types and gave lower and negative scores for poor habitat condition. The higher the score, the better the habitat condition. The EFNCP have utilised this approach across a whole range of habitat types including limestone moorland, machair, wet meadows and heather moorlands. It is a commonly used method for results based surveys that works. This approach has therefore been replicated with this particular project. An example of the EFNCP can be seen in figure 1.

#### Section A: Species diversity – max. 50 Points

**A.1 How many positive indicators are present?** (please circle all positive indicators recorded below)

Number of species: Low: **0** Medium: **5** High: **10** Very high: **20**  
 0-2 3-4 5-6 7+

**Positive indicators:** (look at all 3 vegetation layers)

**Negative indicators:**

<i>Moss layer:</i>	<i>Dwarf shrub layer:</i>	<i>Sedge/herb layer:</i>
1. Mound-forming sphagnum	5. Cross-leaved heath	7. Black bog-rush
2. Blanket-forming sphagnum	6. Ling heather	8. Common cotton-grass
3. Bog pool sphagnum		9. Deergrass
4. Non-crustose lichens		10. Hare's tail cotton-grass
		11. White beak-sedge

European gorse
Tufted hair-grass
Heath or Soft rush
Nettle

**Figure 1 – excerpt from a score card**

In order to build the score card into a survey method that would be useful to gauge condition of the individual habitats (as per SSSI requirements and existing agri-environment scheme outcomes), an initial review of the range of current agri-environment indicators of success was undertaken. This review covered the areas of calcareous grassland, limestone pavement and blanket bog within HLS agreements in the YDNP, as well as the existing agreement for Ingleborough Common and the expired agreement for Clapham Common. Analysis showed that indicators of success did vary to a certain degree, as they had been tailored to specific sites, specific plant species and differing ground conditions. The common indicators are listed in table 1.

**Table 2 Comparison of HLS indicators of success (for Ingleborough and Clapham commons) and CSM targets**

Habitat	Indicators of success	Common standards monitoring attributes and targets for SSSI designated features
Upland calcareous grassland	<ul style="list-style-type: none"> <li>• On areas of calcareous grassland, by year 3 the average sward height at the end of the grazing season should be between 2cm and 15cm, with a varied structure.</li> <li>• At least 2 positive indicator species should be frequent and a further 3 occasional.</li> <li>• Indicator species:               <ul style="list-style-type: none"> <li>- Salad burnet</li> <li>- Fairy flax</li> <li>- Bird's-eye primrose</li> <li>- Gentians</li> <li>- Common bird's-foot-trefoil</li> <li>- Grass of Parnassus</li> <li>- Carline thistle</li> <li>- Harebell</li> <li>- Limestone bedstraw</li> <li>- Lesser club-moss</li> <li>- Common rockrose</li> <li>- Rough Hawkbit</li> <li>- Devil's-bit scabious</li> <li>- Mossy saxifrage</li> <li>- Eyebright</li> <li>- Mountain everlasting</li> <li>- Mouse-ear hawkweed</li> <li>- Wild thyme</li> <li>- Small sedges (spring, flea, carnation, glaucous)</li> </ul> </li> <li>• On areas of calcareous grassland cover of desirable herbs should be between 30% and 90%.</li> <li>• Cover of herbs indicative of nutrient enrichment (Common Daisy, Creeping Buttercup) should be less than 25%.</li> </ul>	<ul style="list-style-type: none"> <li>• There should be no measurable decline in the area of the feature.</li> <li>• At least 2 indicator species should be present (<i>Euphrasia</i> spp. counts as one species)</li> <li>• At least 33% of the vegetation should consist of a) forbs or b) <i>Dryas octopetala</i></li> <li>• Less than 1% of vegetation should be made up on non-native species</li> <li>• Less than 10% of vegetation should be made up of bracken and/or <u>scattered</u> native trees and shrub species.</li> <li>• The percentage vegetation cover made up of either <i>Bellis perenis</i> and/or <i>Ranunculus repens</i> should be less than 25%.</li> <li>• Less than 1% of vegetation should consist of collectively, <i>Arrhenantherum elatius</i>, <i>Cirsium avense</i>, <i>Cirsium vulgare</i>, <i>Cynosurus cristatus</i>, large docks, <i>Lolium perene</i>, <i>Senecio jacobaea</i>, <i>Urtica dioica</i>.</li> <li>• Less than 10% of vegetation should consist of <i>Juncus effusus</i>.</li> <li>• At least 25% of the tips of live leaves and/or flowering shoots of vascular plants should be more than 5cm above the ground surface.</li> <li>• At least 25% should be less than 5cm above the ground surface.</li> <li>• At least half of statements (a) to (f) should be true:               <ol style="list-style-type: none"> <li>a. Less than 10% of grass and sedge tillers uprooted.</li> <li>b. Less than 10% of live leaves with signs of having been grazed for any of <i>Alchemilla alpine</i>, <i>Nardus stricta</i>, <i>Prunella vulgaris</i>, <i>Sibbaldea procumbens</i>, <i>Thymus polytrichus</i>.</li> </ol> </li> </ul>



	<ul style="list-style-type: none"> <li>• At least 40% of herbs should be flowering between May and July. Blue Moor-grass should be frequent. Cover of bare ground should be between 1% and 5%.</li> <li>• Cover of trees and scrub (excluding Juniper) should be less than 10%.</li> <li>• Cover of undesirable species (Creeping and Spear Thistle, Curled and Broadleaved Dock, Common Ragwort, Common Nettle, Cow Parsley, Hogweed, coarse grasses such as False Oat-grass, Yorkshire Fog) should be no more than occasional.</li> <li>• Archaeological /historic features have suffered no further degradation.</li> </ul>	<ul style="list-style-type: none"> <li>c. Less than 50% of live leaves of legumes or <i>Plantago lanceolata</i> with signs of being grazed.</li> <li>d. Less than 66% of live leaves of grasses with signs of being grazed.</li> <li>e. Less than 25% broken or uprooted (any of <i>Huperzia selago</i>, <i>Minuartia sedoides</i>, <i>Saxifraga hypnoides</i>, <i>Selaginella seliginoides</i>, <i>Silene acaulis</i>).</li> <li>f. More than 50% of the <u>shoots</u> of <i>Dryas</i> at least 3cm long</li> <li>• The percentage of ground cover for which dead plant litter forms a thatch or felt in patches more than 2cm across, should be less than 10%.</li> <li>• Less than 10% of ground cover should be bare ground.</li> </ul>
Limestone pavement	<ul style="list-style-type: none"> <li>• All SSSI land should be in favourable or recovering condition.</li> <li>• Cover of undesirable species (Creeping and Spear Thistle, Curled and Broadleaved Dock, Common Ragwort, Common Nettle, Cow Parsley, Hogweed, coarse grasses such as False Oat-grass, Yorkshire Fog) should be no more than occasional.</li> <li>• By year 5, on areas of limestone pavement: <ul style="list-style-type: none"> <li>- cover of emergent and clint-top vegetation should be between 5% and 25%. Woody species should be at least occasional, but not exceed 30% cover. Undesirable woody species (e.g. sycamore) should not exceed 10% of woody cover. Less than 33% of current</li> <li>- shoots of desirable trees and shrubs should show evidence of browsing.</li> <li>- Less than 1% of vegetation cover should consist collectively of weed species, such as Creeping Thistle, Crested Dog's-tail, large docks, Ragwort, Bramble and Nettle.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• There should be no measurable decline in the feature or evidence of recent damage to the pavement.</li> <li>• A site specific target should be developed based on the presence and abundance of those species which were present at the time of notification / baseline recording.</li> <li>• Less than 1% of vegetation should be made up of non-native species.</li> <li>• Less than 1% of vegetation should consist, collectively of , <i>Arrhenatherum elatius</i>, <i>Cirsium avense</i>, <i>Cirsium vulgare</i>, <i>Cynosurus cristatus</i>, large docks, <i>Lolium perene</i>, <i>Senecio jacobaea</i>, <i>Rubus fruticosus</i>, <i>Urtica dioica</i>.</li> <li>• Less than 10% of vegetation cover should be made up of bracken.</li> <li>• On open pavements, scrubby and woody cover should amount to between 5% and 25% of the pavement feature.</li> </ul>

	<ul style="list-style-type: none"> <li>• Indicator species present should include: <ul style="list-style-type: none"> <li>- Wall lettuce</li> <li>- Wood sorrel</li> <li>- Dogs mercury</li> <li>- Herb Robert</li> <li>- Ferns - Hard shield, Green Spleenwort Maidenhair Spleenwort, Brittle Bladder, Rigid Buckler, Male, Hart's tongue, Wall Rue, Limestone, Lesser Meadow Rue</li> <li>- Hawkweed sp</li> <li>- Ivy</li> <li>- Hedge Woundwort</li> <li>- Baneberry</li> </ul> </li> <li>• Archaeological /historic features have suffered no further degradation.</li> </ul>	<ul style="list-style-type: none"> <li>• At least 25% of vegetation cover should be made up of emergent and clint top plants, flower heads and fern fronds not impacted by grazing animals.</li> <li>• Less than 10% of native trees and shrubs should show signs of bark stripping, a browse line or distinctive shaping of the canopy by browsing.</li> <li>• Less than 33% of the most current shoots of native trees and shrubs should show any evidence of being browsed.</li> </ul>
Blanket Bog	<ul style="list-style-type: none"> <li>• All SSSI land should be in favourable or recovering condition.</li> <li>• By year 2 flowering Cotton-grass should be frequent in spring. Flowering Heather should be frequent between July and September. Dwarf shrubs should be at least frequent. Less than 10% of bog-mosses (Sphagnum) should be damaged or dead. Disturbed bare ground should be less than 10% of the area. Scattered scrub should cover less than 10%. Invasive weeds /Creeping or Spear Thistle,/docks should cover less than 1%.</li> <li>• On areas of blanket bog, by year 5, at least 6 positive indicators from the list below should be present and by year 10, 6 positive indicators from the list below should be frequent: <ul style="list-style-type: none"> <li>- Heather</li> <li>- Heath Spp</li> <li>- Crowberry</li> <li>- Common Cotton Grass</li> <li>- Hares Tail Cotton Grass</li> <li>- Bog Asphodel</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• There should be no measurable decline in the extent of the feature</li> <li>• At least 6 indicator species should be present</li> <li>• At least 50% of the feature should consist of at least 3 indicator species</li> <li>• <i>Sphagnum</i> should not consist only of <i>Sphagnum fallax</i></li> <li>• Any one of <i>Eriophorum vaginatum</i>, Ericacious species collectively, or <i>Tricophorum</i> should not individually exceed 75% of the vegetation cover.</li> <li>• Less than 1% of the vegetation should be made up of non-native species.</li> <li>• Less than 10% of the vegetation should be made up of scattered native trees and scrub.</li> <li>• Less than 1% of vegetation cover should consist of, collectively, <i>Agrostis capillaris</i>, <i>Holcus lanatus</i>, <i>Phragmitis australis</i>, <i>Pteridium aquilinum</i>, <i>Ranunculus repens</i>.</li> <li>• Less than 33% of last complete growing season's shoots of dwarf shrub species should show signs of browsing.</li> </ul>

	<ul style="list-style-type: none"> <li>- Non-crustose Lichens</li> <li>- Pleurocarpous mosses</li> <li>- Sphagnum Spp / Bog mosses</li> <li>- Deer Grass</li> <li>- Bilberry/ Cowberry/ Cranberry</li> <li>- Sundew</li> <li>- Cross-leaved Heath</li> </ul> <ul style="list-style-type: none"> <li>• By year 5 less than 10% of bog-mosses (Sphagnum) should be damaged or dead. Flowering Heather plants should be frequent between July and September. Dwarf shrubs should be at least frequent. The area of disturbed bare ground should be less than 10%. At least 2 dwarf shrub species should be frequent. The cover of dwarf shrubs should have increased by at least 20%.</li> <li>• By year 10 cover of bog mosses (Sphagnum) should be at least 33%. At least 2 dwarf shrub species should be frequent. Cover of dwarf shrubs should be between 33% and 75%. Cover of grasses, sedges and rushes should be less than 50%.</li> <li>• On areas of upland wet heath, the area of dwarf shrub heath (including sensitive areas) should show no evidence of burning.</li> <li>• Between February and April no more than 50% of Heather shoots should show evidence of grazing.</li> </ul>	<ul style="list-style-type: none"> <li>• In pioneer stage regrowth, or where there is <i>Betula nana</i> or <i>Myrica gale</i>, less than 66% of the last complete seasons regrowth should show signs of browsing.</li> <li>• There should be no observable signs of burning into the moss, liverwort or lichen layer or exposure of peat surface due to burning.</li> <li>• There should be no signs of burning or other disturbance (e.g. mowing) in sensitive areas.</li> <li>• The extent of eroding peat should be less than the extent of stable re-deposited peat and new growth of bog vegetation within the feature</li> <li>• Less than 10% of the feature area should be bare ground and/or show signs of active drainage, resulting from ditches or heavy trampling or tracking</li> <li>• Less than 10% of the sphagnum cover should be crushed, broken and/or pulled up.</li> </ul>
--	--	---

Ingleborough and Clapham commons are designated Sites of Special Scientific Interest (both geological and botanical) and Special Areas for Conservation. The Common Standard Monitoring (CSM) guidance was developed by the Joint Nature Conservancy Council and conservation bodies across the country in the early 2000s. It described how to set and assess conservation objectives for designated sites and covers a full range of species, habitat and Earth science features which occur on UK protected sites. The guidance is used by skilled ecologists and NE staff responsible for the monitoring of the condition of the SSSIs. The CSM guidance for upland habitats (JNCC 2009) brought together 28 generic habitat types including calcareous grassland (upland), blanket bog and valley bog (upland) and limestone pavement. Each habitat type includes a description, guidance on selection of attributes and targets and method of assessment. See table 2 for the complete list.

Acid grassland (upland)*	Mire grassland and rush pasture (upland)*
Alkaline fen (upland, excluding alpine flush)*	Montane willow scrub
Alpine dwarf-shrub heath	Moss, dwarf-herb, and grass-dominated snow-bec
Alpine flush	Short-sedge acidic fen (upland) *
Alpine summit communities of moss, sedge and three-leaved rush	Siliceous rocky slope
Blanket bog and valley bog (upland)	Siliceous scree
Calaminarian grassland and serpentine heath (upland)*	Soakway and sump (upland)*
Calcareous grassland (upland)*	Spring-head, rill and flush (upland)*
Calcareous rocky slope	Subalpine dry dwarf-shrub heath
Calcareous scree	Tall herbs (upland)*
Fellfield	Transition mire, ladder fen and quaking bog (upland)*
Fern-dominated snow-bed	Upland habitat assemblage/mosaic of habitats or vegetation types
Juniper heath and scrub (upland)*	Wet heath (upland)*
Limestone pavement	Yellow saxifrage bank

**Table 3 – List of 28 upland habitat types (JNCC Common Standards Monitoring)**

*Separate guidance is available for lowland forms of habitats marked \**

There are many similarities between the CSM matrix and indicators of success lists. It was therefore possible to blend the metrics of the two lists together to develop the score card attributes for each habitat.

Deciding on which metrics to use has been key to the design. It must be possible (with some training) for a non-botanist to assess correctly against these metrics. This has therefore determined the range of species to identify and the structural / descriptive measures to include in the score cards.

Common measures for all three habitats include the following:

- Indicator species (IS) - are used to monitor environmental changes, assess the efficacy of management, and provide warning signals for impending ecological shifts (Siddig et al 2016). The inclusion of key indicator species within the score cards for each habitat type is therefore needed in order to provide a view on the condition the habitat is in. Both CSM and indicators of success contain a wide range of key indicator species, some easier to identify than others and some that will be more common across the habitats than others. It is therefore imperative to have a list for each habitat that provides this representation but also for non-botanists to identify with some formal training. Negative species are as important to include within this measure type as the positive indicators. This provides further evidence on the impact management of the feature.
- Structural – these measures provide indication of management/grazing impact on the habitat and will distinguish whether there is negative or beneficial effects on the condition.

Structural measures usually include visual checks on the height of the vegetation, presence or absence of bare ground and the proportion of varying heights of vegetation across the survey point area. These assessments can be subjective with an individual's view differing from others. Structural measures therefore have to be clear, unambiguous and straight forward to measure.

As the habitats differ significantly between one another, there will be measures that are pertinent to individual habitats – for example, limestone pavement condition includes measures for emerging vegetation and scrub cover, whereas blanket bog condition relates to wetness of the habitat. The following sections will describe in more detail the measures selected to assess condition.

## **2.4 Natural England (NE) consultation**

Local and national specialists from NE were consulted to agree the following:

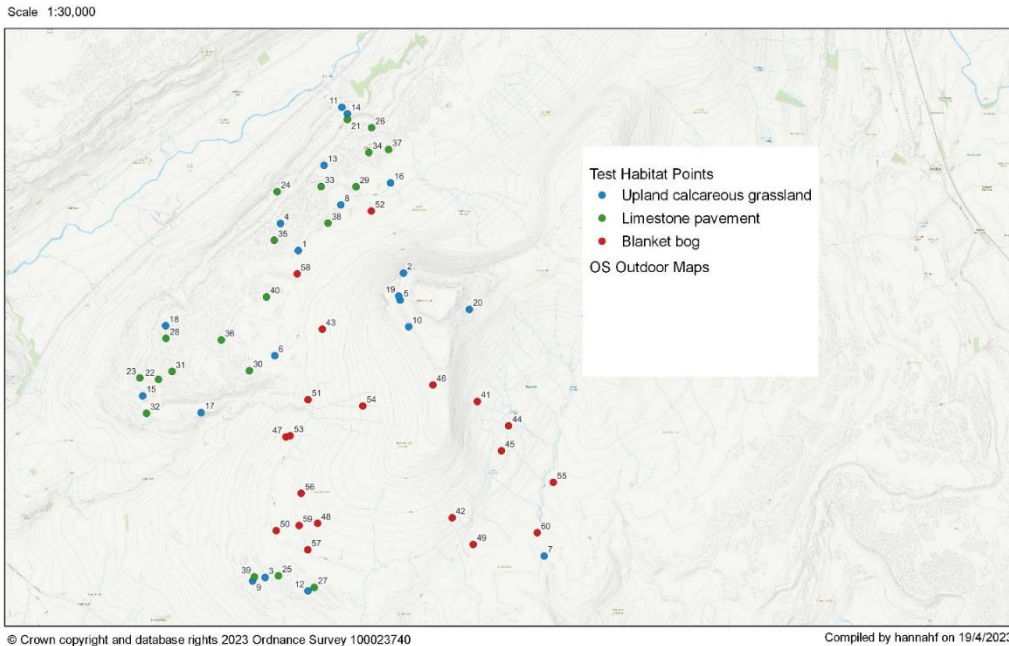
- key indicators and attributes that had to be included within each habitat score card.
- the number of survey point locations according to scale of habitat
- how these survey point locations are chosen – random or by eye
- agreeing how overall condition will be measured

Their consultation responses guided the content of the score cards. NE were keen to ensure the common right holders understood that the score cards and surveys would not be to the CSM standard and therefore would be treated by NE as an indication of condition, rather than a true representation.

Once the score cards had been drafted, NE provided feedback and guidance on the content of the cards along with concerns over how the overall condition assessment would be assessed.

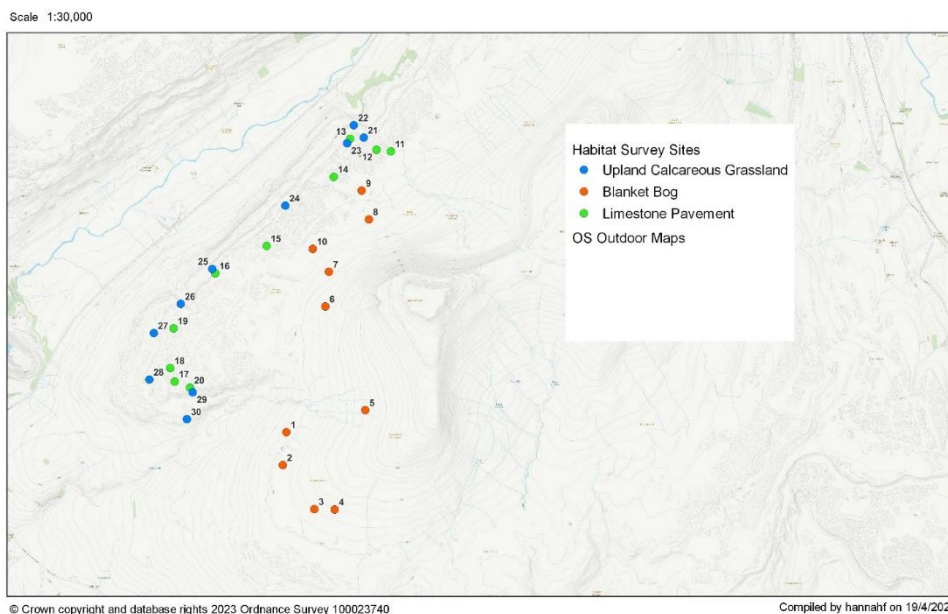
## **2.5 Survey point selection**

The method of identifying survey points across the individual habitats needed to be random and representative across the habitats, to avoid bias and the targeting of only good condition habitat. Utilising digital habitat survey data of the two commons, a random allocation of geo-referenced points across each habitat data set was determined. A total of 20 points per habitat type was generated and then ground truthed see Figure 2. During ground truthing visits, it was apparent that a proportion of the points were not hitting the right habitat types – in particular this was more common for the calcareous grassland data set. Within the commons, calcareous grassland is found mostly in a mosaic with acidic grassland which GIS picked up as true habitat. There was an issue with the limestone pavement as well, picking up areas that would be termed as rocks in grass, rather than true pavement.



**Figure 2 - Random selection of survey sites based on previous habitat data**

Due to the inaccuracies of the GIS calculations, advisers visited the commons to select sites based on true habitat type (Figure 3). This was achieved in a random way by walking across the habitat and stopping after 100 paces – following methods used for general habitat surveying. These sites were geo-referenced using the Mergin Map app. For the blanket bog, a base line survey was undertaken at the same time, this was not possible for the other two habitat types due to timings. The number of site locations was reduced to 10 as fewer common right holders had volunteered to undertake the survey work. These volunteers were wholly on the Ingleton side of the commons. It was felt that ten sites could still provide a representative sample for the condition assessment. The number of sites can be increased once the volunteers have gained confidence in the approach – this may well be necessary for limestone pavement and blanket bog.



**Figure 3 – Survey sites based on walkover selection**

See Appendix II for grid references for each site location

### **3.0 Habitat score cards**

The assessments will involve undertaking species observations within fixed quadrats. The quadrats will be located in a representative sample of habitat types and will each cover an area of 2m x 2m. See Appendix III for farmer self-assessment habitat forms.

All habitat self-assessments have been created in table format to allow easy inclusion on spreadsheets, and can be converted into apps for mobile phones or tablets, or simply printed out on paper for use in the field.

Appendix III contains the forms developed. Essentially, at each survey point the farmer has to answer a series of questions which relate to a feature of the habitat condition, or identify a range of species. A score is associated with each habitat condition which, when tallied against other criteria, gives an overall condition assessment for the habitat. There is provision within the spreadsheet to add a plan of restoration or change in management should this be applicable.

### **3.1 Upland calcareous grassland**

Upland calcareous grassland is a preferentially grazed area of the commons, due to the sweeter taste of the grasses and herbs found within the sward. The density of species is relatively high and includes stand out species such as carline thistle and common rock rose. Sward structure and indicator species are key measures to assess against to see how impactful the grazing management is. In order to gain a more rounded view on the grazing year, the assessments are required to be undertaken in two visits.

The first visit in the summer months are when the plants are more easily identified and the majority of the indicator species are flowering. Ten indicator species have been chosen which have been noted as present within the SSSI area. They have been chosen as they are more distinguishable, they flower in summer and are sensitive to grazing pressure. In addition to noting the variety of species, cover of the species will be assessed using plain English terms alongside clear spatial values.

### **3.2 Limestone pavement**

The areas of limestone pavement are extensive, although primarily located on the northern flanks of Ingleborough, dropping down into Chapel-le-Dale. These geological features support a fantastic array of rare species, some of which are difficult to positively identify. Although the feature is well defined the subtle change from grikes 'to rocks in grassland' has made site location very important.

The assessment needs to be completed in mid-summer when plants are in flower and species identification is easiest. The species list has been reduced to remove some of the rarer and difficult to identify species, and includes the option to list key fern species.

Assessment of emergent species (from grikes) and scrub cover is necessary to determine condition of the feature. This appraisal is somewhat subjective, so the assessment has sought to provide clear determining values.

### **3.3 Blanket bog score card**

The blanket bog assessment is required to be undertaken in two parts– in late spring (to monitor winter management) and late summer (to monitor spring and summer management). At each stop,

presence of key indicator species are noted, along with the appearance of sphagnum, grazing effects on heather, occurrence of flowering heather and cotton grass, presence of invasive species, and the extent of dwarf shrub and bare ground.

The assessment provides frequency data for the indicator species and average cover of cotton grasses and dwarf shrubs. This can then be compared against the indicators of success to see how many are being met and where further work is required to bring the blanket bog up to target condition.

In addition, the assessment will assess whether works at the start of the HLS agreement to rewet these areas through the blocking of grips has been successful and whether sphagnum moss, is colonising these areas. This will provide an indication that the blanket bog is becoming wetter and restoration has been effective.

### 3.4 Condition score for the quadrat points

Each score card is laid out in a similar way, containing a brief description of the habitat, the timing of the visits, what to assess at each visit, list of condition assessment questions and a final condition assessment table. The table brings together the key condition assessment criteria and the targets to meet good ecological condition – see table 4 as an example. The surveyor completes the form by tallying up the answers to the questions and compares the results against the target condition statements. The overall condition score for the quadrat is based on the number of targets met:

- Good – 10 – all targets are met
- Recovering – 5 - indicator species targets are met plus at least 3 more targets
- Poor – 3 - indicator species targets are not met, even if all other targets have been passed OR indicator species targets are met but less than 3 targets have been passed.

**Table 4 – Condition score for Limestone pavement quadrat**

Measures	Target	Visit result	Target met Y/N	Comments
Indicator species	At least 8 indicator species present			
Vegetation cover	At least 25% of herbaceous vegetation cover should be made up of emergent* and clint-top plants, flower heads and fern fronds which are not impacted upon by grazing animals			
	Less than 5% of plants should be made up of 'weed' species			
Scrub cover	Native scrub is present			
	Scrub shows no sign of being grazed			



Damage to habitat	There is no damage to the limestone pavement			
No of targets met				
<b>Final score:</b>				

Each quadrat point will therefore generate a condition score which can then be placed into a spreadsheet to generate an average score for that specific habitat across the common. See section 5 for further details and appendix VII for the data collection spreadsheet.

### 3.5 Frequency of assessments and fixed point quadrats

Natural England typically assess SSSI condition every 6 years depending on the habitat (Government website). The last SSSI condition assessment for the limestone pavement was during 2021 and baseline assessments have been undertaken by the project team in 2022 for the calcareous grassland and blanket bog.

At present, it is advised to undertake the assessments each year for the next 3 years in order for the surveyors to retain their new skills and to agree their baseline condition across the habitats. Because habitats change relatively slowly, frequency of assessments could then be set at every 2 or 3 years thereafter. However, it would enable good dialogue between graziers and Natural England if the commoners undertook the surveys each year until Natural England completed their next SSSI condition assessment.

The assessments could be undertaken in conjunction with the assessments required for the moorland standard within the Sustainable Farming Incentive scheme, though this scheme requires random points to be assessed across the common, they may not land near the fixed quadrat points for the condition assessment surveys.

## 4.0 Development of a suite of materials to enable the delivery of farmer-led habitat assessment.

### 4.1 Guidance documents

The self-assessment guidance documents (Appendix IV) provide clear and concise information including habitat definition, the benefits of positive management, potential management issues, key features of a functioning habitat, assessment methodology and defining 'good habitat'. These documents are in addition to onsite training that was provided to the farmers at two sessions in 2022.

A series of species identification cards have also been developed (Appendix V); and onsite training was also provided on the use of mobile apps:

- Plantnet
- iNaturalist
- PlantSnap

Building on the above ID cards and guidance notes, additional documents have been sourced to cover blanket bog, calcareous grassland and limestone pavement:

Blanket bog outcomes approach – land management guidance by Moors for the Future Partnership

Field guide to plants common on moorlands – Field Studies Council

Flowers of hills and heathland – Field Studies Council

Phase 1 survey guide: Heaths and Mires – Field Studies Council

Phase 1 survey guide: Grasslands and marsh – Field Studies Council

Grassland plants 2 guide – Field Studies Council

Ferns guide – Field Studies Council

California Native Plant Society cover diagrams

The Field Studies Council (FSC) guides cost approximately £4 per guide. It is recommended that each grazier is provided with a series of these guides to use alongside Apps and the project ID guides.

In addition to the guidance, a survey timetable has been developed, should farmers be undertaking more than one habitat assessment (Appendix VI).

#### **4.2 Use of smart phone App – Epicollect5 for on site data gathering**

Epicollect5 was chosen as a data collection app. It provides a free to use mobile and web application to assist with geo-referenced data collection. This allows the grazier the option to use either a hard copy survey sheet or a mobile app.

The self-assessment forms have been uploaded onto Epicollect5 and are available to use under the project title 'Ingleborough Habitat Assessments'. The app security settings restrict the use of both the survey sheets and the data collection to nominated individuals. A guidance document has been created to assist with downloading the app and data entry (Appendix VI). There have also been several demonstrations on site with the graziers.

It is envisaged that the Epicollect5 may be superseded with LandApp. This is currently being developed to allow the capture of data for the Moorland Standard within the Sustainable Farming Incentive. It is anticipated that LandApp may be able to provide a more user friendly interface; but it is likely that this service will need to be paid for.

#### **5.0 Development of a framework for survey data collection**

A spreadsheet has been developed to collate annual habitat assessment outcome scores (Appendix VII). The master spreadsheet contains a series of worksheets per habitat type. The individual habitat worksheets replicate the assessment score sheets and thus include all attributes and scores. This allows the collation of all results across all the quadrat points in order to identify any trends and to enable statistical evaluation of the scores over the life of the project and in terms of Ingleborough, the remainder of the HLS agreement. A nominated individual will need to record the individual self-assessment results.

## **6.0 Development of an approach for training farmers to undertake habitat self-assessment**

A training plan is fundamental to the success of the project, enabling the farmers to gain new skills and understanding about habitat management and individual species requirements. A plan has been developed out of the needs of the participating farmers. The plan combines annual structured habitat management events – peer to peer farm walks and conventional specialist led indoor events.

Utilising the learning from other projects, including PBR, it is recommended that a programme of events be followed.

1. Advisers provide on site group training on methodologies and plant identification:

Blanket bog – early assessment – May

Summer assessment – late August

Limestone pavement – June/July

Calcareous grassland – June/July

2. Repeat refresher training in the following year (as required) on a one:many basis for methodology and plant identification.

Appendix VIII contains a suggested training package, including agenda and presentation.

## References

Keenleyside C, Radley G, Tucker G, Underwood E, Hart K, Allen B and Menadue H (2014) *Results –based Payments for Biodiversity Guidance Handbook: Designing and implementing results-based agri-environment schemes 2014-20*. Prepared for the European Commission, DG Environment, Contract No ENV.B.2/ETU/2013/0046

Natural England (2005). *Environmental Stewardship Farm Environment Plan handbook*. Natural England publication.

Perry C (2011). *Hay Time Meadow report 2011*. Yorkshire Dales Millennium Trust publication

Starr-Keddle R. and Christie A. (2014). *Upper Teesdale: changes in upland hay meadow vegetation over the past 20 – 30 years – results presented from botanical surveys*. Natural England publication

Rodwell JS (1992). *British plant communities, volume 3, grassland and montane communities*

Natural England (2013). *Upland hay meadow: what management regimes maintain the diversity of meadow flora and populations of breeding birds*. Natural England publication NEER005.

Keep H (2016). *Results Based Agri-Environment Project within the Northern Upland Chain Local Nature Partnership*.

Chaplin, S., Robinson, V., LePage, A., Keep, H., Le Cocq, J., Ward, D., Hicks, D., and Scholz, E., (2019). *Pilot Results-Based Payment Approaches for Agri-environment schemes in arable and upland grassland systems in England*. Final report to the European Commission. Natural England and Yorkshire Dales National Park Authority

Woodland Trust (2016). *Keeping Rivers Cool: A guidance manual, creating riparian shade for climate change adaptation*.

Broadmeadow, S., Jones, J., Langford, T., Shaw, P., and Nisbet, T. (2010). *The influence of riparian shade on lowland stream water temperatures in Southern England and their viability for brown trout*.

Website references:

[www.burrenprogramme.com](http://www.burrenprogramme.com)

<http://www.nuclnp.org.uk/habitat-network-mapping/#12/54.6568/-2.1952>

<https://www.forestresearch.gov.uk/research/forest-hydrology/riparian-woodland-and-water-protection/the-effect-of-riparian-woodland-management-on-the-freshwater-environment/>

<https://www.forestresearch.gov.uk/research/forest-hydrology/riparian-woodland-and-water-protection/managing-riparian-buffer-areas/>

<https://www.forestresearch.gov.uk/research/forest-hydrology/riparian-woodland-and-water-protection/the-role-of-riparian-shade-in-controlling-stream-water-temperature-in-a-changing-climate/>

<https://treesforlife.org.uk/forest/habitat-profiles/riparian-woodland/>

<https://www.woodlandtrust.org.uk/publications/2016/02/keeping-rivers-cool/>

**Appendices:**

- I Farmer presentation February 2022
- II Grid references for survey sites
- III Farmer self-assessment habitat forms
- IV Self-assessment guidance documents
- V Species identification cards
- VI Survey timetable
- VII Master score sheet of target outcomes
- VIII Suggested training plan

**Appendix I**  
Farmer presentation February 2022



2022 Feb  
Ingleborough comr

**Appendix II**  
Grid References for survey sites

**Blanket Bog**

Point	Grid Reference	X Coordinates	Y Coordinates
1	SD7296 7337	372967.976	473374.727
2	SD7293 7307	372936.094	473079.8612
3	SD7321 7268	373219.351	472684.6612
4	SD7340 7268	373401.992	472681.3766
5	SD7367 7357	373675.7	473572.4026
6	SD7331 7450	373317.356	474502.2567
7	SD7334 7481	373349.84	474813.2103
8	SD7370 7528	373708.662	475282.9341
9	SD7364 7554	373643.486	475541.2141
10	SD7320 7501	373205.361	475018.2923

**Limestone Pavement**

Point	Grid Reference	X Coordinates	Y Coordinates
11	SD7390 7589	373905.478	475892.4892
12	SD7377 7590	373776.829	475907.543
13	SD7354 7600	373540.272	476005.6395
14	SD7339 7566	373392.838	475664.5245
15	SD7279 7504	372791.003	475044.0955
16	SD7233 7479	372330.027	474798.2776
17	SD7196 7382	371965.73	473828.0726
18	SD7192 7394	371924.636	473949.2466
19	SD7195 7430	371955.334	474305.86
20	SD7210 7377	372101.93	473773.9521

**Calcareous Grassland**

Point	Grid Reference	X Coordinates	Y Coordinates
21	SD7366 7601	373662.297	476016.293
22	SD7357 7612	373573.125	476127.4041
23	SD7351 7596	373512.933	475964.9189
24	SD7295 7540	372958.769	475405.8932
25	SD7230 7483	372302.798	474838.4339
26	SD7201 7452	372019.856	474525.2746
27	SD7177 7426	371778.29	474263.58
28	SD7173 7384	371738.314	473846.8592
29	SD7212 7373	372126.768	473732.303
30	SD7207 7349	372075.329	473491.2912

### Appendix III – Farmer self-assessment habitat forms



Limestone pavement assessment



Blanket bog assessment score ca



Limestone pavement assessment

### Appendix VI– Guidance documents



Limestone pavement self asses:



Blanket bog self assessment guidanc



Upland calcareous grassland self asses:



Epicollect3 guidance.pdf

### Appendix V – Species identification cards



Limestone pavement species ID



Blanket bog Species habitat ID ca



Upland calcareous grassland ID Card.p

### Appendix VI – Survey timetable



Farmer self assessment timetabl

### Appendix VII– Master score sheet of target outcomes



Target outcomes spreadsheet.xlsx

## **Appendix VIII – Suggested training plan**

### Farmer led habitat self-assessment - Training plan

#### Guidance for trainers

What do farmers want in terms of training?

Try to make an assessment of the level of training needed and in what format.

- Is a formal training approach needed?
- Could the group better learn and be more engaged with 'peer to peer' learning or a 'knowledge exchange'?
- Are farmers aware of the requirements of their HLS agreements?
- At what level are identification skills?

#### Habitat Assessment training

- At events use plain English and pitch information at level that will engage and generate discussion;
- Remember that some species may have a local common name;
- Incorporate plenty of images into presentations;
- Distribute leaflets, ID cards;
- Offer guidance on all elements of the assessment.

#### Habitat Restoration training

- Demonstrate with examples, different restoration techniques, ideally in an outdoor session;
- Incorporate advice from experts in the field (e.g. [Yorkshire Peat Partnership](#))
- Ensure farmers are aware of any permissions or consents required prior to works;
- Provide information on grants/funding available.

#### Materials Required

##### Habitat Assessment training materials

- Species identification material for calcareous grassland, limestone pavement and blanket bog
- Quadrat points and site maps
- Copies of HLS agreement and maps (farmers to provide)

##### Habitat management training materials

- Examples of different management techniques – including cattle only, mixed, ponies and sheep
- Information on permissions/consents
- Information on grants/funding available

Useful contacts:

[Yorkshire Dales National Park Authority](#)

[Yorkshire Peat Partnership](#)

Natural England (local advisers)



## Training Sessions – suggested calendar of events

### Habitat Assessment training

Objective – to enable farmers to be confident/competent at habitat self-assessment

- Need to fit in with the farming calendar
- Be fresh in farmers mind prior to survey
- Cover all three habitats independently
- One indoor training session in winter/spring (per habitat)
- One outdoor workshop (per habitat)
- Outdoor workshops are often easier to engage with the audience and promote understanding of the habitat. It also provides an opportunity to assist with species identification
- Offer annual refresher workshops, covering species identification and methodology

### Habitat Management events

Objective – to provide examples of restoration techniques that could be applied by farmers

- Sessions need to fit in with the farming calendar
- Cover all three habitats independently
- Outdoor workshops to promote understanding of habitat restoration techniques.
- Visits to other commons to view different approaches to grazing management

## **Example Agenda**

### **Habitat Assessment training (2.5 hours)**

Power Point presentation

1. Introduction to assessment
2. Overview of similar projects e.g. Payment by Results in Wensleydale
3. Workshop sessions (work through habitat assessment document)
4. Refreshments
5. Feedback from workshops
6. Forward look

### **Habitat Restoration training (2.5 hours)**

Power Point presentation

1. Introduction to habitat
2. Overview of restoration projects e.g. Yorkshire Peat Partnership, blanket bog restoration works
3. Workshop sessions (different restoration techniques, consents/permissions required, grants/funding available)
4. Refreshments
5. Feedback from workshops
6. Forward look

## **Blanket Bog training**

Individual training session suggestions

### **Session 1:**

- Characteristics of habitat including any local specialisms;
- Importance of blanket bog (regional/national/international);
- Public goods delivery of blanket bog, including carbon, clean water, natural flood management;
- Overview of HLS agreements & indicators of success;
- Introduction to self assessment of blanket bog and overview of assessment techniques.

### **Session 2:**

Practical session identifying plant species and working through the methodology.

### **Session 3 (Year 2):**

Management techniques, including restoration techniques (grip blocking, reprofiling, revegetating) with specialist advice from Yorkshire Peat Partnership.

### **Session 4 (Year 2):**

Peer to peer learning session, visit to blanket bog in good condition, with specialist advice from Yorkshire Peat Partnership. Allow a review of species identification and assessment methodology.

## **Limestone Pavement training**

Individual training session suggestions

### **Session 1:**

- Characteristics of habitat including any local specialisms;
- Importance of limestone pavement (regional/national/international);
- Public goods delivery of limestone pavement;
- Overview of HLS agreements & indicators of success;
- Introduction to self assessment of limestone pavement and overview of assessment techniques.

### **Session 2:**

Practical session identifying plant species and working through the methodology.

### **Session 3 (Year 2):**

Management techniques, including habitat restoration, with specialist advice from Yorkshire Wildlife Trust.

### **Session 4 (Year 2):**

Peer to peer learning session, visit to limestone pavement in good condition; with specialist advice from the Yorkshire Wildlife Trust.

## **Calcareous Grassland training**

Individual training session suggestions

### **Session 1:**

- Characteristics of habitat including any local specialisms;
- Importance of calcareous grassland habitats (regional/national/international);
- Public goods delivery of calcareous grassland, including carbon storage
- Overview of HLS agreements & indicators of success;
- Introduction to self assessment of calcareous grassland habitat and overview of assessment techniques.

### **Session 2:**

Practical session identifying plant species and working through the methodology.

### **Session 3 (Year 2):**

Management techniques, including restoration techniques, with specialist advice from YDNPA.

### **Session 4 (Year 2):**

Peer to peer learning session, for example, looking at Yorkshire Wildlife Trust site or NNR and learn how they are managed, with specialist advice from YWT or NE. Allow a review of species identification and assessment methodology.



Yorkshire Dales National Park Authority,  
Yoredale, Bainbridge, Leyburn, North Yorkshire DL8 3EL

0300 456 0030

[farming@yorkshiredales.org.uk](mailto:farming@yorkshiredales.org.uk)

[www.yorkshiredales.org.uk](http://www.yorkshiredales.org.uk)

Published April 2023

© Yorkshire Dales National Park Authority



**YORKSHIRE DALES**  
National Park Authority