Derbyshire Wildlife Trust

Ecological Assessment and Advice for the Enhancement of Grassland at Winster Common 2022

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Introduction

The Parish Council and village of Winster, have expressed interest in managing areas of their open greenspaces for nature, identifying four sites of modified grassland to be enhanced. The four sites sit within close proximity to one another and are all similar in their composition: consisting of modified grassland, abundant in broadleaved docks and dandelions with a small number of standing and boundary trees.

Derbyshire Wildlife Trust were contacted by Winster Council to assess the current wildlife and nature conservation interest found at the site and to provide initial recommendations on the future management of the site.

Methods

Due to the timing of the report, the site has not been subject to a full UK Habitat survey, instead, the four sites were subject to an assessment by a suitably trained ecologist which consisted of a walkover and evaluation of the existing quality by Kieron Huston, Biodiversity Planning and Policy Manager in summer 2019 and by Hollie Fisher, Living Landscapes Advisor in February 2022. These evaluations were supported by data collected by the community at Winster in June 2021 during which a number of flowering plant species were identified.

The assessment of the current ecological value and recommendations for the sites have been supported by a review of the surrounding priority species, habitat and designated sites which give an overview of nature conservation in the surrounding areas. In addition to this, a number of opportunity maps were also reviewed. Opportunity maps aim to support the creation of Nature Recovery Networks by identifying the right habitat for the right place to create connected networks of core sites and where Nature Based Solutions can be used to restore the ecosystem. This report conducted a desk-based assessment of the four sites in relation to the following opportunity maps:

- Derbyshire Wildlife Trusts Nature Recovery Network Map which identifies strategically significant places for woodland, wetland and open habitats;
- Natural England's Habitat Network Map, identifying priority places for connectivity and restoration; and,
- The Environment Agencies Working With Natural Processes to Reduce Flood Risk map which identifies key areas for woodland creation and tree planting to reduce flood risk and improve water quality.

Limitations

Due to timing constraints a full in-season habitat survey was not able to be conducted on site, meaning that we are unable to provide an accurate, in-depth assessment of current ecological condition. However, this limitation is not considered to be a major limiting factor in the this report due to the two walkover surveys conducted by separate ecologists, the species data provided by Winster and the historical management of the sites, all of which suggest that the grasslands are species poor. Furthermore, the recommendation for site are not to change the habitat type, but to instead enhance its condition. It is therefore highly unlikely that any existing ecological value is to be lost.

Site Description

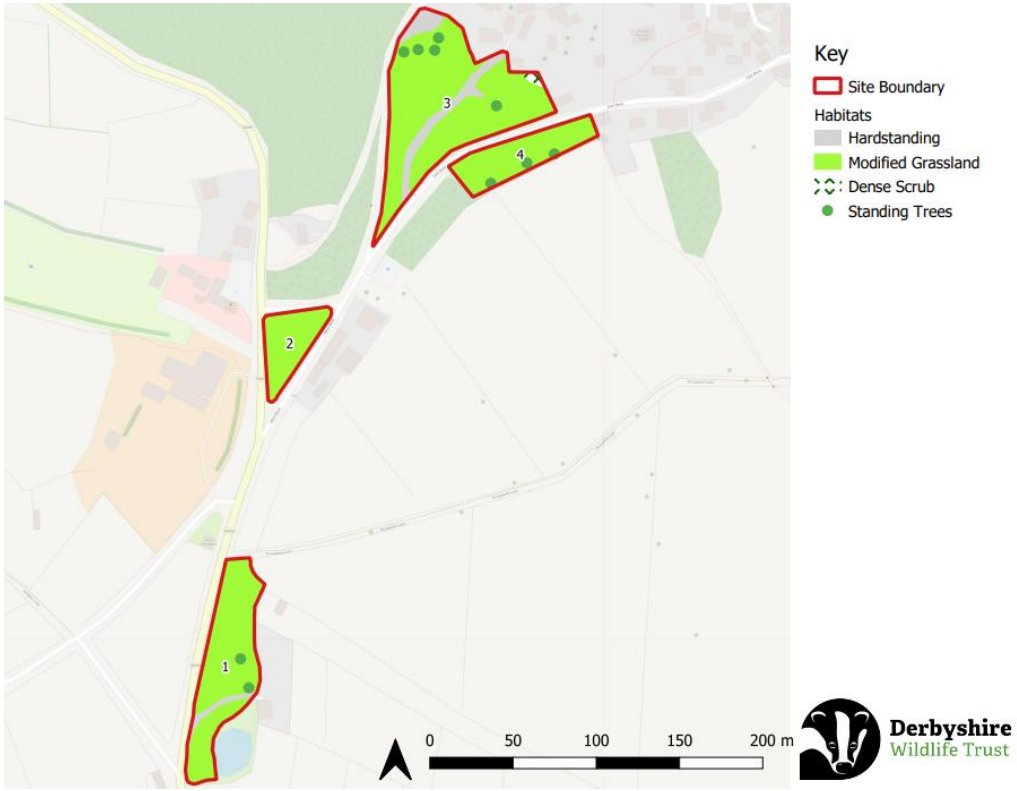
The site is made up of four individual greenspaces immediately south of Winster, along E Bank Road, W Bank Road and the B5056. The sites collectively occupy 1.3 hectares of land, see Figure 1. for exact location. The site is made up of modified grassland and all four compartments are of relatively similar species makeup, containing flora typical of public open green spaces. The surrounding landscape is largely agricultural, containing a mixture of grazed pasture and arable fields, divided by tree-lines and hedgerows. Small sections of semi-natural broadleaf woodland border Bank Top, The Common and The Griffin and all four sites are neighbored by residential dwellings.

Figure 1. Location of site.

On-site Habitats

An in-depth habitat assessment was not able to be carried out and therefore we are unable to provide a full list of floristic diversity present on site. This area of the report will instead provide an overview of the habitats found at each site (see Figure 2).

Figure 2. Onsite Habitats



Town Meir

Town Meir (site 1) is grass dominated, containing tussocks of cock's-foot, Yorkshire fog and fescue The site's topography contains a number of small natural depressions causing water to seasonally pool here creating ephemeral standing water. The species composition contained high numbers of dandelions and broadleaved docks as well as a small number of additional flowering herbs and perennials including red dead nettle, creeping buttercup, tufted vetch, herb Robert and several umbellifer species including common hogweed and cow parsley.

In addition, this area contains a row of trees along the eastern boundary including three tall, mature broadleaf trees and several scattered saplings and scrub. The southern area of site is bordered by a pond which contains semi-emerged standing trees and a reedbed.

Bank Top

Bank Top (site 2) is a section of modified grassland bordered by a small woodland. The site itself contains no standing trees or scrub but does hold a large number of mole hills and several patches of bare ground. The vegetation is predominately grass with sections of moss and a high number of dandelions and broadleaved docks. In addition, the site contains a small number of flowering species and perennials including spear thistle, common daisy, umbellifers, sheep's sorrel and planted daffodils.

The Common

The Common (site 3) is the largest of the three sites and is intersected by a path which runs through the center. The grassland here is tussocky, containing stands of Yorkshire fog and

cock's foot as well as numerous areas of bare ground and mole hills. Similar to the above the site contains high numbers of dandelion, nettles and dock species, indicating high levels of nutrients in the soil. The site also contains several flowering species including red dead nettle, germander speedwell, knapweed, tufted vetch, common mouse ear, red campion and cowslips (see Appendix A for further details).

The site contains several standing trees including a mature hawthorn and yew tree in the center providing shelter to numerous bird species. Finally, a section of dense standing scrub is located in the far north of the site. This area contains several species including elder, dog-rose and birch and created a dense, sheltered area of habitat.

The Griffin

The final site (site 4) is of similar composition to those detailed above, being made up of modified grassland containing high numbers of species indicative of nutrient enrichment including dandelion and docks and several areas of bare ground. This site also contains a children's play area and a row of standing trees along its eastern boundary which includes mature, ivy covered horse chestnut trees and sections of bramble and common ivy.

Geology and Topography

The site sits on the edge of the White Peak National Character Area, a landscape defined by its carboniferous limestone geology (Figure 3). The bedrock present on site is likely to impact the species that will be found on site or that may be more suited to growing on site due to the calcareous nature of the soil.

Figure 3. Site Geology

Nature Conservation Assessment

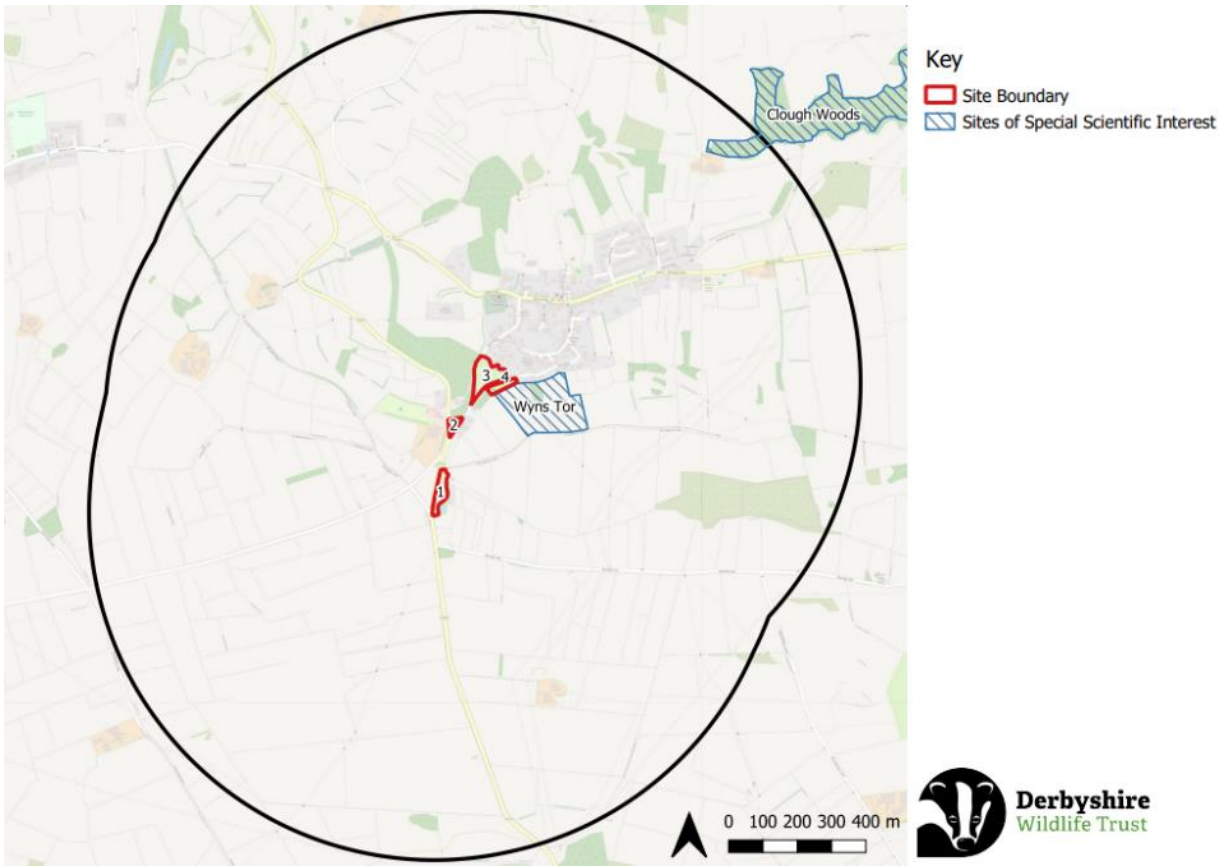
The nature conservation assessment is split into three sections, a desk-based evaluation of surrounding nature to assess the importance of the site in the wider context and assess any impact that may be had on the wider landscape; an evaluation of the onsite habitats and their importance for species; and finally, an identification of where the site sits within various opportunity maps to ensure that the recommendations for grassland enhancement are of high strategic significance.

Designations and Protected Sites

A desk-based search was conducted of all statutory and non-statutory designated sites within 1km of the site boundary (Figure 4). This search identified no non-statutory designated sites within the buffer however, two Sites of Special Scientific Interest (SSSI) are recorded. The first, Wyns Tor, borders The Griffin along its eastern boundary and is 3 hectares in size, designated for its geological interest, currently classified as favorable status. As the site is not designated for ecological interest, any changes to the Common is unlikely to impact on the SSSI.

The second SSSI, Clough Woods, is approximately 0.9km from site and is currently in unfavorable recovering condition, designated for its ecological value as an upland broadleaved and yew woodland. The distance between the site and this SSSI and the small size of the study site means that any impact is likely to be negligible.

Figure 4. Designated Sites Within 1km of site



Protected Species

A data search for species records within 1km of the site boundary was conducted to identify local wildlife. This search returned the following:

- Several protected and notable birds have been recorded in the surrounding area include barn owl, fieldfare, garden warbler, grey partridge, redstart and nightjar. These are specialist birds dependent on a range of features, notably woodland, scrub, open grassland and hedgerows.
- The village of Winster contains numerous recent records of bat roosts, namely common pipistrelle and brown long-eared, suggesting a large bat population in the area. Bats are reliant on invertebrate rich landscapes and connecting features such as hedgerows and lines of trees.
- A small number of records of brown hare and hedgehogs have been recorded within the surrounding fields. Hedgehogs require undergrowth and refuge areas to commute through.
- A single record of a basking common lizard was recorded along the drystone walls to the north of the site, along the outskirts of the village.
- Several recent and historic records of great crested newts are found in the area. Great crested newts are reliant on a connected network of ponds and small waterbodies, allowing their population to expand.

Habitats in Surrounding Landscape

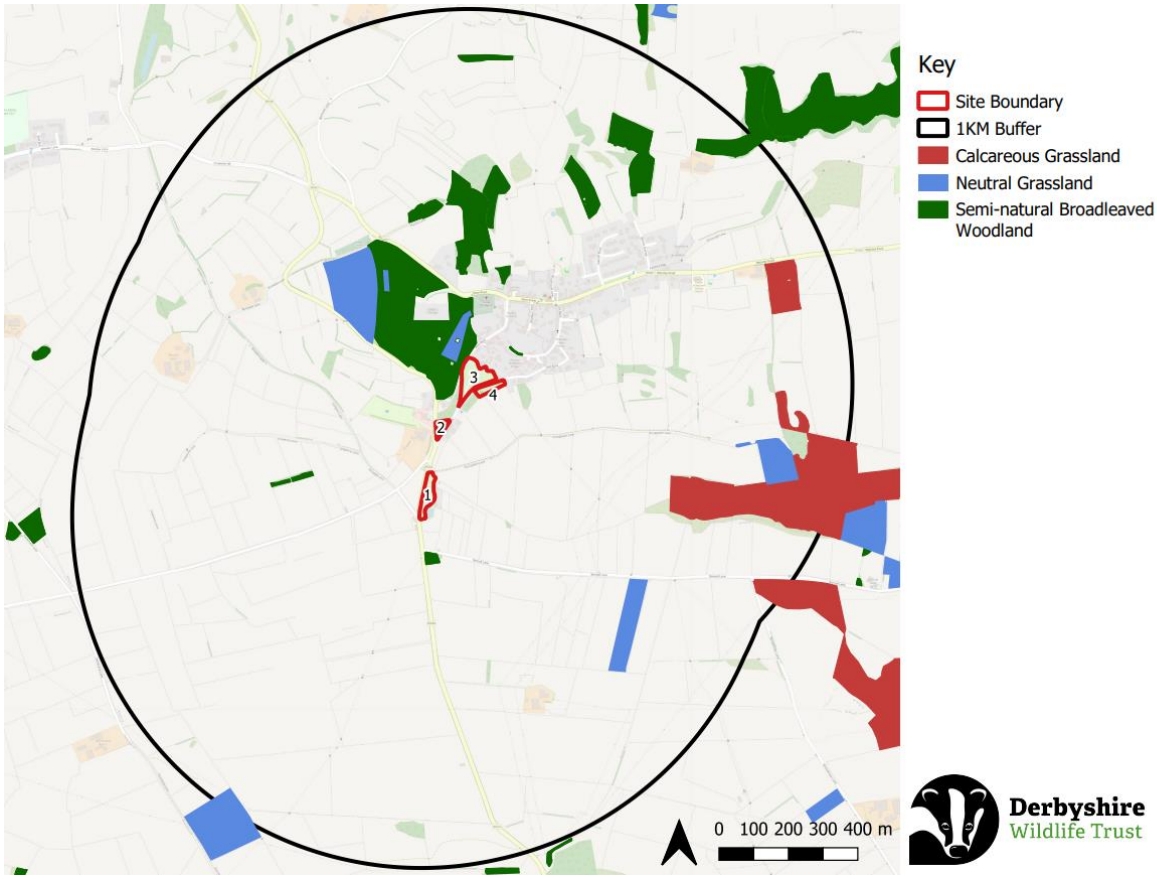
A desktop search was conducted of any existing records of priority habitats within 1km of the site, this was completed to evaluate the potential impact enhancement of the Common could have and identify the opportunity for any potential corridor creations.

Several priority and high quality habitats have been recorded within 1km of site (see Figure 5), these habitats consist of semi-natural broadleaved woodland, neutral grassland and calcareous grassland.

By improving the overall quality of the onsite habitats, the mosaic of habitats within the area will be enhanced, thereby improving the overall quality of the existing priority habitats. In particular, by increasing the amount of high-quality grassland habitat, the existing corridor formed by the grassland is increased, providing a larger resource for invertebrates, small mammals and passerine birds that are reliant on this habitat type. In addition, the broadleaved woodland that borders the site will aid in the formation of a diverse habitat matrix, providing niches and resources for specialist and generalist species alike and allowing an improved habitat for edge species.

Finally, the existing sites of high-quality grassland will act as seed sources and support the development of floristically diverse areas of land on the common through continued sympathetic management.

Figure 5. Location of Existing Priority Habitats within 1km of site.



Current Value of Onsite Habitats

The sites on their own are of relatively limited value, being predominately made up of low diversity modified grassland. The low floristic diversity means that whilst the sites may be able to support some pollinators, the carrying capacity is limited.

However, the sites do provide some resources to several species groups, namely, the sections of bare ground that are found throughout the site which provide an important habitat for invertebrates, as this offers a place to both bask and burrow. Similarly, the tussocks of grass provide refuge and corridors for small mammals, this is supported by several burrow tunnels seen throughout the grasslands which may be that of voles or field mice.

The existing scrub and trees on site were seen to be supporting a number of small passerine birds including chaffinch, blue tits, dunnocks and long-tailed tits. The trees and scrub on site offer a continuation of the corridor provided by the surrounding woodland, allowing species to commute through the landscape. In addition, the mature ivy-covered trees found within the Griffin may support roosting bats and nesting birds due to the cavities formed between the ivy stems and the tree trunk.

Whilst the onsite habitats hold the ability to support small numbers of species groups in its current state, the overall nature value is low. The sites form part of a small corridor which connects habitats in the wider landscape. By enhancing these grasslands and improving floristic diversity, the overall quality of the corridor will improve, increasing the carrying

capacity and allowing a wider variety of species to exist and commute through the landscape.

Evaluation of Opportunity Maps – the site in a wider context

Building on the Lawton Principles of Bigger, Better and More Joined Up, we must strive to ensure that the habitats we create and enhance are of high strategic significance, working to put the right habitat in the right place and create networks and corridors to allow species the ability to move through the landscape and follow their climatic niche.

Natural England's Habitat Network Map

The areas within the site boundary are identified within the Natural England Dataset as 'Network Expansion Zone', defined as 'an area for connecting and linking up networks across the landscape'. This means that the area was not defined by Natural England as a priority area for large network creation, connecting up priority habitat, instead it should be used to connect the wider networks by enhancing onsite habitats.

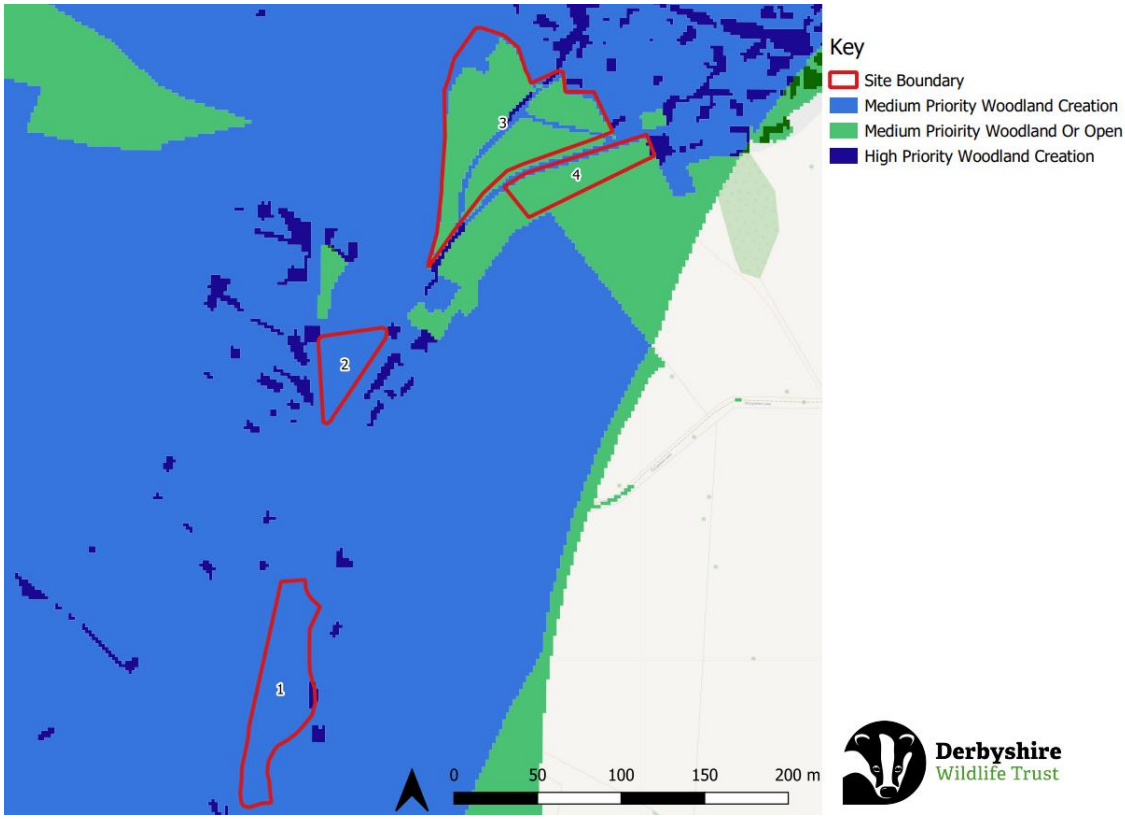
Environment Agencies Working With Natural Processes to Reduce Flood Risk

The sites are not identified on any of the Environment Agency shapefiles for woodland potential, supporting the current recommendation to enhance the grassland features.

Derbyshire Wildlife Trusts Nature Recovery Network Map

The NRN map identifies site 3 and 4 as moderate priority for open habitat creation, supporting the current recommendations. Conversely, sites 1 and 2 are both identified as medium priority for woodland creation, as seen in Figure 6 below. By creating woodland on these sites they would be contributing to the existing woodland and scattered trees network forming around site, improving the strategic significance of site.

Figure 6. Derbyshire Wildlife Trust Nature Recovery Network Map



Recommended Future Management

Whilst the NRN map indicates high priority for woodland creation, it is recognized that this would not be appropriate due to the need to retain the areas as public open space and maintain strong relationships with neighboring landowners. As a result of this, the existing condition of the site and the surrounding landscape, the following is recommended:

- Enhance existing grassland features to improve floristic diversity and provide an important resource for pollinators;
- Establish hedgerows and lines of trees along the boundaries that already contain these features, this will take into consideration the recommendations from the NRN map and allow the creation of a woodland / scrub corridor whilst maintaining open habitat; and,
- Provide space and resources for additional species, such as maintaining small patches of bare ground for invertebrates and establishing hibernacula for reptiles and amphibians.

Detailed Management Recommendations

Grassland enhancement

First Steps

It is highly recommended that the soils are tested prior to beginning any works, firstly to test for nutrient levels and secondly to assess if the soils are neutral, calcareous or acid. Native wildflowers thrive in low nutrient soil, if the soil is too fertile then the wildflowers will face competition from vigorous grasses and undesirable plants. Based on the current species make up, it is highly likely that the soil is nutrient enriched, allowing high numbers of docks, dandelions and nettles. Nutrient levels in soils can be reduced over time through appropriate management which includes cutting and removal of the vegetation and creation of areas of bare ground. It is also highly recommended that yellow rattle is sown in the first year, during late summer, as this is a semi-parasitic plant that will reduce grass height by up to 60%, allowing flowering species more space and nutrients to grow.

Based on the existing bed rock and the grassland habitats found in the surrounding landscape, the soil type across the site is likely to be calcareous, meaning a pH score of 6.5 or above. This will impact the flower seeds or green hay used, as different soils support different flowering species. If the site is indeed calcareous, the species mix should include oxeye daisy, cowslip, agrimony, common spotted orchid, bird's-foot trefoil and field scabious.

Year 1 – Establishing the wildflowers

There are several options that can be used to enhance the grassland that should be considered. The chosen method will be dependent on resource and time availability of those establishing the meadow.

Option 1

It is suggested by Magnificent Meadows that if the site in question already contains over 5 species of wildflowers then it should be restored instead of created. This restoration would involve no seed sowing and instead going straight to implementing an appropriate mowing regime that is detailed below.

Whilst over 5 species were found during the summer assessment, mowing alone is not deemed an appropriate action as this would be a slow process and risks the project being

overrun by the existing dandelions on site, potentially creating a negative image for neighboring landowners.

Option 2

Option 2 involves scarifying 50 – 75% of the ground, sowing appropriate wildflower seeds, followed by implementing an appropriate mowing regime. This option would be a costly and highly intensive method, and would require hiring a local contractor to scarify the ground, at an estimated cost of £300-£400, before distributing the seed mix. In addition, due to the site being within the Peak District, care must be taken to not import any species not appropriate to the area as this could have a negative impact on the surrounding landscape and incur a fine. A list of appropriate species mixes are included in a section below.

Wildflower seeds should be sown during August to October as most wildflower seeds require the cold winter to germinate, meaning the scarification of the land must be completed immediately prior to the sowing. This would involve:

- Mow and collect all vegetation in late summer;
- Create 50 – 75% of bare ground through scarification;
- Take chosen seed mix and mix with sand for easier distribution, spread the seeds and trample in;
- Water during dry weather but ensure not to overwater and wash away the seeds; and,
- Monitor the site for any thistles and docks and remove these before they seed before following the recommended cutting scheme detailed below.

During the first summer, the grassland should be cut and collected in early March and then left to grow during the remaining summer months before cutting again in late August – October and then following the recommended mowing regime detailed below in the following years.

During the first year the meadow will likely be relatively plain as many perennials take over one year to establish and you are likely to retain several large areas of bare ground.

Option 3

Similar to Option 2, Option 3 involves scarifying 50-75% of the site but uses green hay to enhance the site's diversity as opposed to seeds. This method involves removing the fresh hay cut from nearby high-quality grasslands and spreading this along the newly scarified ground, allowing the seeds to drop and subsequently grow in the new area.

Green hay is typically less costly than seed sources, as one hectare of green hay cut will support three hectares of new creation, therefore this site would only need approximately a quarter of a hectare of green hay from a donor site to effectively cover 50 – 75% of the ground. Green hay creates the most natural looking and resilient meadows and, due to the locality of the donor, the species will be native and appropriate for site, creating a stable, diverse habitat. If this method is chosen, the following steps should be taken:

- Identify a donor site, this must be within one-hours' drive of the site as the hay should be cut, collected, transported and spread all within this one-hour time slot to prevent a reduction in seed viability. If this option is chosen then the council are able to get support from Derbyshire Wildlife Trust who will support you in the liaison with the appropriate bodies.

  - The site should be chosen in relation to the results of the soil test, *i.e.* if the soils are identified to be calcareous, the hay should be taken from a calcareous grassland;
- Similar to the above, scarify 50 – 75% of the site prior to the arrival of the green hay;
- Green hay must be cut as wildflowers and grasses are still 'green' but are starting to seed (late July, early August), if possible, cut on a cooler day to reduce risk of overheating the hay;
- The hay can be collected either with a forage harvester and then put into a muck spreader to go to the meadow or it can be bailed and then spread by hand. Due to the small sizes of the site it is likely best to be spread by hand over the areas of bare ground;
- Any clumps of green hay should be broken up and raked by hand; and,
- In following years follow the appropriate management scheme detailed below.

Of all of the options, green hay is the most highly recommended by the Wildlife Trust as this creates the most resilient and appropriate habitats, reducing risk of importing an inappropriate species through seed mixes and holds the highest chance of success.

Choosing an Appropriate Seed Mix

The seed mix chosen is dependent on the outcome of the soil testing however, it is highly likely that the soil will be calcareous, the following seed mixes should therefore be considered as an option:

1. Emorsgate meadow mixture for loamy soils (spread at 4g per m^2) this contains a mixture of flowers and appropriate grasses and is sold at £12 per 100g.
2. Naturescape Meadow mix for Chalk and Limestone flowers only (spread at 1.5g per m^2) this mixture is just wildflowers with no grasses and is sold at £180 per kg.

The seed mix should also include sowing yellow rattle at 1g per m^2. Neither of the above mixes contain this species to the level required and so it should be purchased separately.

Management from Year 2 Onwards

The flowers will develop and establish year on year as suitable management and a rise in existing seed sources work together to improve the land. Following the first year of sowing, the following simple regime must be followed:

- Cut and collect cuttings in late February to early March, you want the vegetation to be between 2 – 10 cm to allow for new growth;
- Leave meadow uncut;
- Cut and collect once most of the plants have seeded in late August / early September. If possible, alternate the timing of these cuts year on year with some years allowing an earlier cut and other years a much later to create variation in the seeds dropped each year;
- Leave ground uncut over winter unless growth is vigorous then recut during mid-winter providing the ground isn't too wet; and,
- Over winter leave small sections of ground along the edges of the site uncut as this will provide a crucial habitat for invertebrates to overwinter in.

If necessary, to maintain relationships with neighbors, a buffer around the edges may be required which is cut more regularly and promotes the idea that this new management is intentional as opposed to an abandonment. This should be a buffer of no more than 1.5m and must be cut, not sprayed as spraying will cause damage to the newly created wildflower meadow and the species using it.

Dealing with Problem Plants

The density of docks, nettles and dandelions will reduce over time and it is important to retain a small number of these species as they are an important feature for many pollinators. However, to reduce their intensity, nettles and thistles should have their flowering heads removed prior to going to seed, this will remove their seed source and reduce the intensity over time. If required, docks and dandelions can also be dug out during the first few years in an attempt to reduce their spread and allow additional species to thrive.

Summary

1. Test the soil.
2. Identify the most appropriate management method.
    a. No seed sowing, or creation, following low intensity enhancement methods instead (not recommended);
    b. Scarification of 50 – 75% and seed sowing; or,
    c. Scarification of 50 – 75% and spreading of green hay (highly recommended);
3. If seeding, identify appropriate seed mix, if using green hay, identify a donor landowner from a high-quality grassland site through DWT.
4. Sow the seeds in August – October.
5. From year 2 onwards, cut the grassland in late Feb / early March and again in late summer, once the seeds have dropped, leaving small areas of long grassland over winter.

Hedgerows and Trees

By increasing the number of tree and hedgerow species along the boundaries, the sites would improve the connectivity of the surrounding woodlands, allowing species to move through the sites whilst also providing additional foraging features for the birds and bats recorded in the area. To achieve this, saplings are to be planted along the boundary edges - species must be native and appropriate for the area and should focus on fruit, seed and nut bearing plants such as hawthorn, blackthorn, dog-rose, rowan and hazel. Species such as bramble and ivy should be encouraged and not removed as these species are of high importance to a multitude of animals, for example providing late pollen for invertebrates, offering shelter for commuting mammals and herpetofauna, and offering roosting and breeding locations for birds and bats.

When cutting the grassland, all trees and scrub must maintain a 1m root protection zone which is not mown and instead left to grow wild as repeated mowing can damage the roots of the tree, eventually causing lasting damage to the individual.

Additional features

Additional features to be considered include:

- Maintaining a minimum of a 1m buffer zone between the mown area and the offsite pond to allow for wetland species to develop;
- When cutting the grass, retain a pile of cuttings and place along the boundary close to the trees to provide refuge;
- Create hibernaculas and position them near the tree lines and close to the pond to support amphibians and reptiles. This is done by digging a small hole and filling this with logs, twigs and rocks, leaving plenty of space in between then inserting a tube (preferably drainpipe) at ground level into the hole before covering the pile with the removed soil and spreading wildflower seeds on top;

- Maintain areas of bare ground, this should be done on sunny areas or slopes (i.e. on the common slope) to provide a habitat for invertebrates; and,
- Provide a range of bird and bat boxes in the existing trees and woodland edges.

Site Vision

Following the implementation of a sympathetic management regime, it is envisioned that within five years, the small sites will be bursting with native wildflowers, each providing an essential resource to pollinators, allowing the sites to be alive with butterflies, moths, bees and hoverflies. This invertebrate population combined with the tussocky grasses, woodland edge and tree lines will in turn support birds, reptiles, amphibians and small mammals alike with amphibians safely moving their way through site to the nearby ponds and birds displaying from the treetops.

The site will be valued not just by wildlife but by the public and will allow a space for people to reconnect with nature and improve their own mental wellbeing.

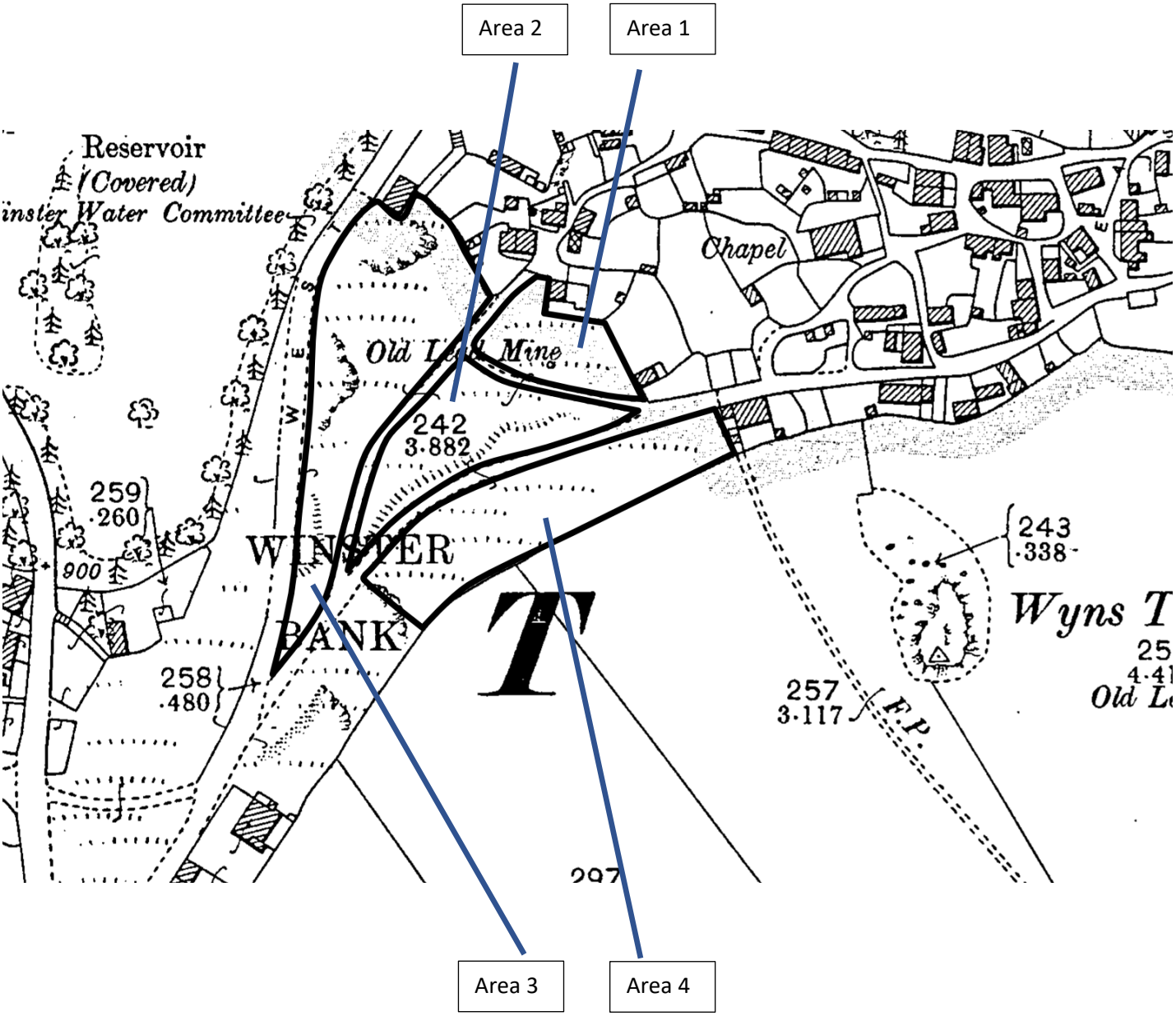
Appendix A.

Flowers found on The Common 8.6.2021

Flower/plant	Area 1	Area 2	Area 3	Area 4
Creeping buttercup	X	X	X	X
Speedwell	X	X	X	X
Cow Parsley (various types, may not be Cow Parsley)	X	X	X	X
Cross Wort	X			
Knapweed (leaves, in bud)	X	X	X	
Pink Clover	X	X	X	
Common Mouse Ear	X			
Vetch	X	X		
Ox Eye Daisies	X	X	X	
Daisies	X	X		X
Geranium	X	X	X	
Lady's Smock		X		X
Red Campion				X
Alkanet			X	X
Herb Robert	X			
Welsh Poppies	X			
Dandelions	X	X	X	X
Cowslips (leaves)	X	X		
Comfrey?			X	
Nettles	X	X		X

Flowers found on The Common 26.7.2021

Flower/plant	Area 1	Area 2	Area 3	Area 4
Fox and cubs	X			
Docks	X	X	X	X
Rough Hawkbit	X			
Yarrow (Achillia)	X		X	
Ragwort	X	X	X	X
Geranium	X	X	X	
Knapweed	X	X	X	
Hogweed?	X	X	X	X
White Clover	X	X	X	X
Nettles	X	X	X	X
Bird’s Foot Trefoil	X			
Creeping Buttercup	X	X	X	X
Comfrey	X		X	
Speedwell	X			
Brambles	X			


Area 2
Area 1
Reservoir
(Covered)
Water Committee
Chapel
Old Lead Mine
242
3·882
259
·260
900
WINSTER
BANK
258
·480
243
·338
257
3·117
F.P.
Wyns T
Old L
Area 3
Area 4