



Derbyshire
Wildlife Trust

Wild Whittington Rewilding Management Plan 2023 – 2053

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1 Introduction

1.1 Purpose and Scope of the Management Plan

Derbyshire Wildlife Trust's core objective is to achieve a Wilder Derbyshire, through creating Nature Recovery Networks, inspiring people and communities to care, and mobilising people to act. We are uniquely positioned to lead this change in Derbyshire, being grass roots and local, whilst also being part of a strong, cohesive movement. However, to achieve our vision of a Wilder Derbyshire we need to work collaboratively.

Everyone has a part to play in Nature's Recovery. As an organisation, we are actively engaged with our local authorities' planning and strategy decisions, and regularly work with developers, corporate organisations and policy makers to get the best outcomes for wildlife. We believe by working together we can change the natural world, which is the foundation of our wellbeing and prosperity.

The main purpose of this management plan is to provide a framework for the future management interventions at Wild Whittington – hereafter referred to as 'the site' – which is a new site acquired by Derbyshire Wildlife Trust's Wild Solutions to deliver more space for nature by utilising the opportunities presented by recent changes in UK environmental legislation and local and national planning policies.

A key objective of the site is that the biodiversity uplift generated by habitat creation will be sold as Biodiversity Net Gain (BNG) habitat units. The main buyers for the BNG habitat units generated at the site will be developers seeking to offset their loss of BNG units resulting from development. As such, the management plan needs to be sufficiently detailed to be submitted in association with a planning application and must therefore demonstrate how the required BNG habitat units will be delivered at the site to fulfil planning obligations.

The plan will outline how the site will be managed, prioritising rewilding principles and restoration of natural processes. This will include allowing natural succession of scrub, encouraging new woodland colonisation, and introducing a nature-based grazing regime to promote ecotones and a mosaic of habitats at the site. This will facilitate DWT's main strategic objectives of making more space for nature and the delivery of nature recovery on a landscape scale. The primary mechanism for delivery of nature recovery at Wild Whittington will be the emerging market of off-site BNG delivery: sales of BNG habitat, hedgerow and watercourse units.





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The management plan is designed to be iterative. This will mean that future versions of the plan will account for the outcome of monitoring at the site, and that although the overall aims and objectives will remain broadly the same, some methods and interventions may need to be adapted to suit the future needs of the site.

It is important to acknowledge throughout this management plan that the subject matter, methodologies and markets which are being explored and utilised are dynamic and evolving fields. Therefore, whilst the content of the management plan is based on best practice and up to date guidance at the time of writing, as markets develop, and new legislation and guidance is released the contents of the management plan are likely to require updating in future iterations.

1.2 Target Audience

The Trust aims to promote responsible and appropriate levels of access to all its reserves. The following target audiences are crucial stakeholders in the BNG delivery process, those the Trust would actively promote the reserve to or make improvements for (i.e. bird hides for birdwatchers, all-ability paths for wheelchair users etc.)

- **Primary:** Natural England, as the statutory body responsible for enforcement and monitoring of BNG delivery sites. Local Planning Authorities, as the planning system is fundamental for sales of BNG habitat, hedgerow and watercourse units.
- **Secondary:** DWT staff responsible for the management of the habitats on site and the delivery of legal obligations under BNG
- **Other:** The document will be available for members of the public who are interested in DWT's plans for Wild Whittington and potential users of the site in the future. It will also provide an example to other organisations seeking to adopt a similar BNG delivery business model

1.3 Site description

The site at Wild Whittington comprises 24.36ha in total, most of which (approximately 22ha) is former arable land on a south-facing slope above the town of Old Whittington, Chesterfield. Since purchase by DWT in March 2023, the fields have been left fallow and no active management is currently in place. The five field compartments are separated by native hedgerows which are also present on all boundaries, and a pond is present in the north-west corner.





1.4 Making Space for Nature

As an organisation Derbyshire Wildlife Trust are uniquely positioned to lead change for nature and people in Derbyshire, being bold, grassroots-oriented and local, whilst also being part of a strong, cohesive movement with the other 46 Wildlife Trusts (including our central team at the Royal Society of Wildlife Trusts).

Our strategic goals are to see 30% of Derbyshire managed for wildlife, a million people to benefit from nature connection in Derbyshire by 2030, one in four people acting for nature and to be carbon neutral by 2025. As the provider and protector of wildlife in Derbyshire, we believe we have a moral obligation to ensure that schemes, such as Biodiversity Net Gain, do not simply result in greenwashing but deliver the most effective solutions for society and nature. Over the last 2 years, DWT has invested in a team to develop solutions, to ensure that the delivery of BNG and other vital ecosystem services in the county makes more space for nature.

Our approach to BNG delivery is nature-led and underpinned by the latest research and evidence. Using GIS and spatial modelling we have created a strategic roadmap, prioritising where to focus habitat creation to support nature recovery networks and maximise other ecosystem services. We will continually update this analysis as more land is restored and the understanding of natural capital flows are improved.

1.5 Rewilding

As explained above, our primary objective as an organisation is to deliver the best outcome for nature on a landscape scale. Our approach to BNG will prioritise nature-led processes (such as rewilding) to create, enhance and maintain habitats at our BNG delivery sites.

At Derbyshire Wildlife Trust and Wild Solutions, we understand rewilding as reinstating natural processes to a range of different extents and where appropriate, reintroducing missing species to allow nature to shape the landscape, rather than relying on traditional agricultural management. We aim to join up habitats and create corridors across Derbyshire where whole sections of land will be dedicated to wildlife restoration, increasing the stability and adaptability of the landscape. This can be broadly summarised in the following statement from DWT's Rewilding Handbook (2022):





“Rewilding is the restoration of ecosystems to a point where nature can take care of itself. It seeks to reinstate natural processes and – where appropriate – missing species – allowing them to shape the landscape and habitats within”

Our rewilding approach is based on the Lawton Principles of “Bigger, better, more and joined up” (Lawton *et al*, 2010). It is however acknowledged that there will be limitations to the practical delivery of rewilding philosophies on sites such as this, which is relatively small (24.36ha) and in the context of a highly managed landscape, with traditional farming practices occurring to east and west and urban development to the south. Our approach will therefore seek to instigate those natural processes that we can, whilst acknowledging that other approaches may also be required.

Perino *et al* (2019) describe a general framework for the rewilding of complex ecosystems. For this site, the target will be increased wildness, which is a product of three main ecological processes:

- 1) Trophic complexity – increasing the number of trophic interactions between species in an ecosystem
- 2) Stochastic disturbance – random disturbance of habitats through natural phenomenon, e.g., movement of herbivores, weather events, movement of watercourses
- 3) Dispersal – the ability of species to move through a habitat and disperse between habitats and the wider landscape.

To restore a complex ecosystem, all three of these ecological processes need to be restored and integrated together. The framework they propose for rewilding, and which DWT will implement at Wild Whittington is as follows:

- **First step:** Analysis of the current ecological status of the focus area (the site) by identification of missing or degraded ecological processes and components. This should include the analysis of past vegetation changes (palaeoecological information), megafauna presence, fire dynamics and land-use history
- **Second step:** Assessment of the ecological viability of management options and synergies. Identification of socio-ecological constraints and key stakeholders. Identification of infrastructure hindering natural processes, human-wildlife conflicts, risks associated with the restoration of natural disturbances and evaluation of the pros and cons of proposed rewilding interventions (e.g., Is passive rewilding possible/acceptable?)





- **Third step:** Implementation of rewilding actions using an *adaptive* management approach. This will include monitoring of different interventions in the long-term. It should also include a robust communication strategy which reaches affected communities and involves them in decisions and should include outreach activities to inform the general public about the potential outcomes of rewilding.

1.6 Biodiversity Net Gain

Central to the funding strategy for Wild Whittington will be the sale of BNG habitat units from the proposed rewilding of the site. When an agreement to sell BNG habitat, hedgerow and watercourse units is made, a calculation of the expected loss of biodiversity units from the development site will be provided by the buyer which will include a detailed habitat baseline and condition assessment of the development site. This will then be used by DWT to calculate the number of off-site biodiversity units required at Wild Whittington to deliver a minimum 10% net gain in combination with on-site habitat creation and enhancement measures in line with the legal requirements mandated under the Environment Act 2021 (to be implemented November 2023).

As discussed above, DWT's management of the site will be nature-led. In July 2023, Natural England published a series of case studies to demonstrate how BNG could be delivered in practice. Case Study 5 (Natural England, 2023) specifically outlines how the Biodiversity metric can be applied to rewilding projects using a hypothetical rewilding site.

DWT will in the first instance always seek to use rewilding as the primary driver for habitat creation and maintenance, and where this is restricted or not deliverable within the timescales which are legally required under BNG, the alternative level or type of intervention that will be considered to ensure that we deliver on our legal habitat creation obligations.

Habitat creation at the site must satisfy the 'Trading Rules' of the metric (Panks *et al*, 2022) which is based on the 'distinctiveness' of habitats lost. Distinctiveness is a measure of the biodiversity value of certain habitat types which is based on its species richness, rarity at local, regional, national and international scales, the extent to which it is protected by designations and the degree to which it supports species rarely found in other habitats. The Trading Rules of the metric state that where habitats of certain distinctiveness are lost these must be replaced according to the rules in Table 1.1.



Table 1.1: Trading Rules for Biodiversity Metric Tool¹

Distinctiveness category of lost habitat	Example of habitats in this Distinctiveness band	Action required to satisfy Trading Rules
Very High	Lowland Meadows, Blanket Bog, Wood Pasture and Parkland	Bespoke compensation likely to be required
High	Lowland Mixed Deciduous Woodland	Same habitat type required
Medium	Other neutral grassland, Bramble scrub, Mixed scrub, Other broadleaved woodland, Arable field margins tussocky	Same broad habitat type required, or a higher distinctiveness habitat required
Low	Cereal Crops, Temporary Grass and Clover Leys, Modified Grassland, Bracken,	Same distinctiveness or better habitat required
Very Low	Artificial unvegetated, unsealed surface, Developed land; sealed surface, Unvegetated garden	Compensation not required

1.7 Survey methodology

Baseline habitat surveys were undertaken at the site in October 2022. The primary aim of these surveys was to record, map and classify the existing habitats at the site which could then be inputted into Defra’s Biodiversity Metric 3.1 (the latest available version at the time the assessment was undertaken) to provide a baseline BNG assessment. This baseline was then compared against the expected biodiversity unit uplift post-intervention to give an overall net biodiversity unit gain for the site. The surveys also noted the presence of any UK Biodiversity Action Plan priority habitat types.

At the time of writing a full detailed report containing the baseline UKHab survey results has not been completed. However, a summary of the baseline habitat surveys is provided in section 5.2 of this management plan. The Biodiversity Metric used to calculate the baseline biodiversity value of the site is available upon request.

¹ Adapted from “*Biodiversity metric 3.1: Auditing and accounting for biodiversity – User Guide*”





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A desk-based assessment of existing baseline ecological/biodiversity data was also carried out for the site to identify any historical or notable wildlife records on site and in the surrounding area, and to contribute to a baseline which can be measured against post intervention. Data was reviewed from the following sources:

- Derbyshire Biological Records Centre (DBRC)
- MAGIC maps²

The surveys focused on recording higher plant species and their associated vegetation communities and habitat. Habitats were classified using UKHAB classification methodology, enabling the baseline to be inputted into the Biodiversity Metric 3.1. All flora species and their abundance within these habitat groups were recorded with the DAFOR scale being used as a measurement, see below:

- D – Dominant
- A – Abundant
- F – Frequent
- O – Occasional
- R – Rare

Locally Abundant (LA) and Locally Dominant (LD) were also used.

Any sightings of fauna whilst on site were casually recorded during this survey (as opposed to species specific surveys) including any sightings of birds, mammals, invertebrates and trees with potential suitability for roosting bats.

The primary aim of the baseline assessment was to identify and classify habitats so that the biodiversity metric could be populated. A suite of species surveys are also being undertaken at the site which will enable DWT to measure the success of interventions at the site on individual species/species groups. These will include:

- Breeding bird surveys
- Reptile surveys
- Assessment of trees for roosting bats
- Soundscapes monitoring
- Automated static monitoring of the site for bat assemblage
- Pollinator transects

² <https://magic.defra.gov.uk/MagicMap.aspx> [Accessed 26/06/2023]





- Aerial drone photography

This suite of surveys is still in progress, and the results will be published in a separate ecological appraisal for the site once baseline surveys are complete. These surveys will provide a baseline against which regular monitoring of the site will be measured over the lifetime of the project.

1.7.1 Limitations

The baseline UKHab survey work was undertaken on 4th & 18th October 2022 which is outside of the optimal period for habitats surveys of March to September. As such, it is likely that individual plant species were overlooked during the surveys. However, it is considered that the surveys were sufficient to provide a robust baseline for the site, as the broad habitat types could still be identified to a sufficient level and condition assessments undertaken to be inputted into Defra's Biodiversity Metric. Additionally, it should be noted that most of the site comprised arable land which is easily classified outside of the optimal survey season and does not require a condition assessment under Biodiversity Metric 3.1. Habitat surveys will be undertaken during the optimal period moving forward as part of the monitoring strategy for the site.





2 Site location and context

2.1 General site information & description

The site is located on the edge of Old Whittington, a suburb of Chesterfield in Derbyshire. The habitats on site are primarily former arable fields with narrow grassy field margins and native hedgerows with trees. A small area of rank grassland was present in the south of the site, and a pond surrounded by mature trees and scrub was located in the northeast corner. At present, the site has been left unmanaged following its purchase by DWT in March 2023, however prior to this it was in active management as intensive arable agriculture. A general overview of the site is provided in Table 2.1, which includes access information, location and other relevant information. A map showing the site in the context of the wider landscape is provided in Figure 2.1.

Table 2.1: Site Information

Area of site	24.36 hectares
Access points (what3words)	Vehicular: ///emerge.speaks.sing Pedestrian: /// bank.zooms.safely /// digits.prep.teach
Nearest postcode	S41 9QY
Local Authority	Chesterfield Borough Council
Living Landscape	Chesterfield
National Character Area (NCA)	Notts, Derbyshire and Yorkshire Coalfield

The underlying geology is a combination of mudstone, siltstone and sandstone and is part of the Pennine Lower Coal Measures Formation. The soils are Soilscape 17 – slowly permeable seasonally wet acid loamy and clayey soils. The site slopes to the south, with the lowest point of the site approximately 100m and the highest 170m above sea-level.



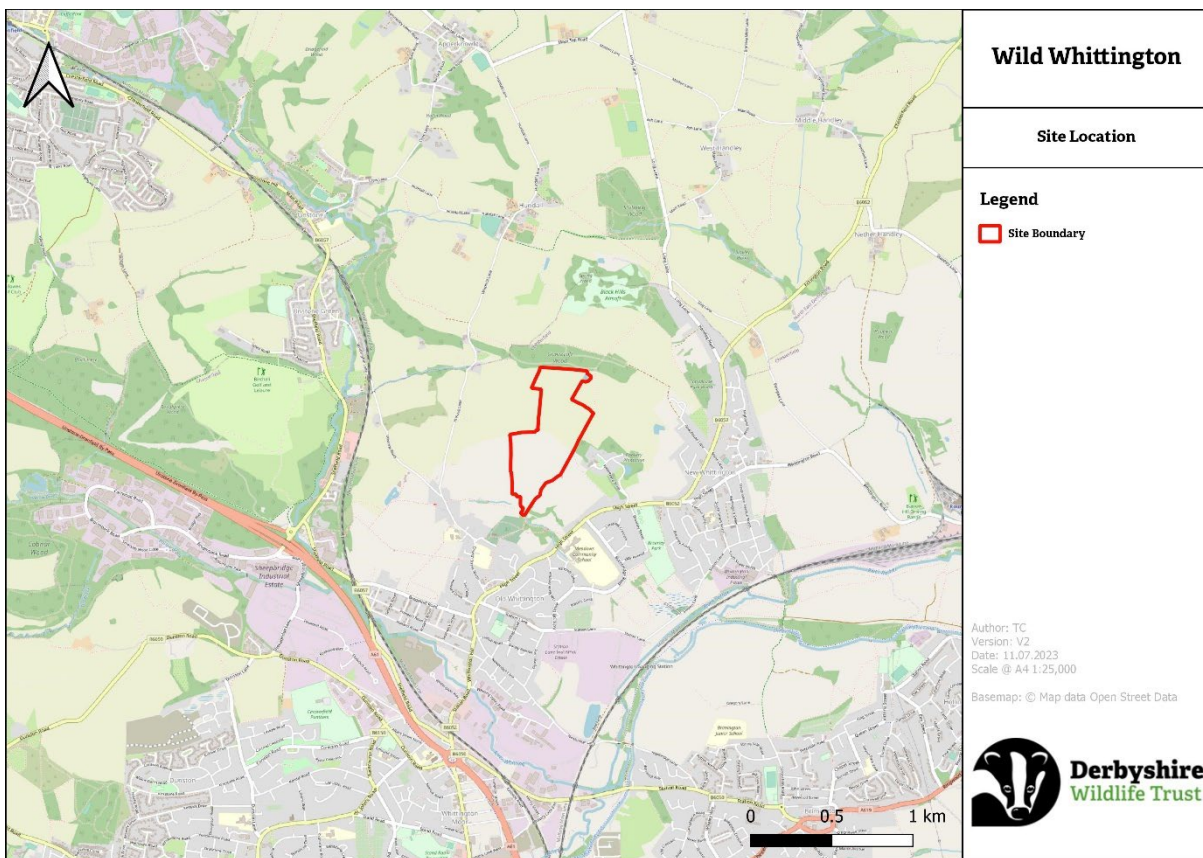


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At present the site is lacking in significant dynamic natural processes due to its former agricultural use. There are no watercourses within the site itself, and the site lacks any large herbivores except for occasional roe deer (*Capreolus capreolus*) which are known to pass through. Due to the site's slope most of the site is relatively well drained, with drainage assumed to be primarily from overland flow and via buried field drains into a dry stream bed adjacent to the south of the site.

The site lies within the Notts, Derbyshire and Yorkshire Coalfield National Character Area and lies over two Local Landscape Characters – Coalfield Village Farmlands in the southern half and Wooded Hills and Valleys in the north.

Figure 2.1: Site location and boundary



2.1.1 On-site & adjacent statutory designations:

No statutory designated sites for nature conservation, including Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR) and Local Nature Reserves (LNR) were located within or adjacent to the site.





2.1.2 On-site & adjacent non-statutory designations:

No non-statutory designated sites were located within the site itself. Two Local Wildlife Sites are located immediately adjacent to the site boundary. These were Grasscroft Wood, a broadleaved Plantation Ancient Woodland Site (PAWS) which was adjacent to the northern boundary, and Whittington Hospital Grounds, which was secondary broadleaved woodland adjacent to the eastern boundary. One potential Local Wildlife Site (LWS) was located adjacent to the eastern boundary. This was Whittington Grange Meadows, which is of interest due to a grassland mosaic. This site has not currently been assessed against the LWS guidelines and so although it may be of sufficient quality to qualify as a non-statutory designated site it is not currently designated as such.

2.1.3 Landscape Context and Strategic Significance

The site is situated on the edge of open countryside on a south-facing slope and is connected to habitats within the surrounding landscape through adjacent broadleaved woodland to the north and through a network of hedgerows to the east and west. To the south is a small area of broadleaved woodland however south of the site is mostly suburban development.

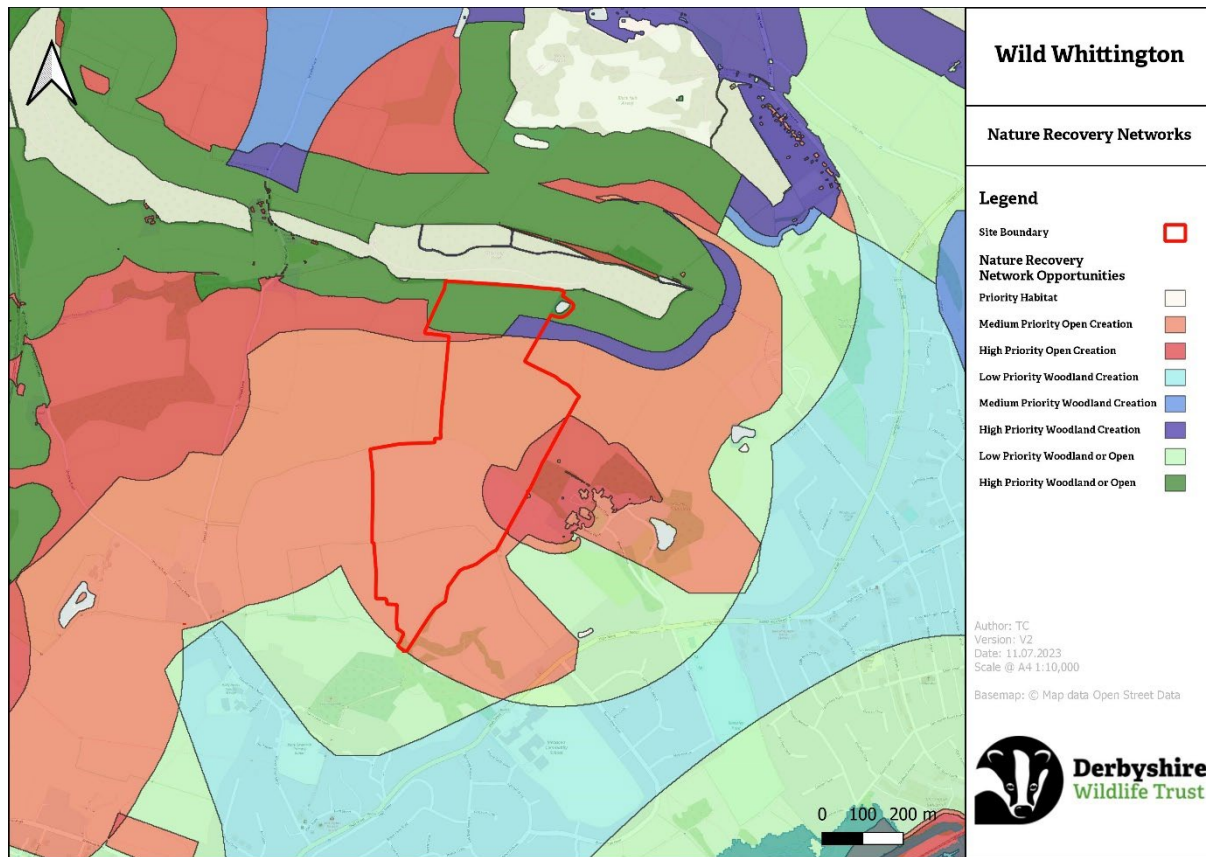
A review of DWT's Nature Recovery Networks (NRN) identified that the site lies within areas of high and medium priority woodland and open habitat creation, with most of the site highlighted as high priority for open habitat creation. Figure 2.2 shows the site boundary with the NRN mapping and areas of habitat creation superimposed. At present, Chesterfield Borough Council have not published a Local Nature Recovery Strategy (LNRS), however when inputting proposed habitat creation into the Biodiversity Metric 3.1 an assessment of the strategic significance of the habitats and their location is required to determine their value.

Although not formally identified as a location of high strategic significance, the site at Wild Whittington is well placed strategically to increase nature connectedness, with nature-rich sites to the north (Grasscroft Wood LWS) and east (Whittington Hospital Grounds) which would be linked by the increase in biodiverse habitat proposed at the site. The new habitats would also provide improved connectivity for a broad range of species as the habitats will be a mosaic of grassland, scrub and new woodland with well-developed ecotones to maximise permeability to a range of fauna and flora. As the site is also relatively large (24.36ha) in the context of its immediate surroundings this would become one of the largest continuous areas of habitat in the surrounding 2km and would link relatively isolated priority woodland to the south with a corridor of ancient woodland to the north (Grasscroft Wood, Ramshaw Wood).





Figure 2.2: Nature Recovery Networks Opportunity Map



2.2 Estates and legal issues

The site is wholly owned by Derbyshire Wildlife Trust and has been since March 2023. There are no conflicting agreements, obligations or tenancies associated with the land. Evidence of title deeds and sale agreement are available upon request.

2.3 Constraints

Consultation with relevant parties did not identify any significant constraints or restrictions to the proposed habitat creation at the site. A search was undertaken using Derbyshire’s Historic Environment Record mapping tool³ which did not identify any records of statutory or non-statutory historic assets at the site. No buried or overhead services were identified that may have implications for the proposed changes of land use set out within this management plan.

³ <https://her.derbyshire.gov.uk/map> [Accessed 14/07/2023]





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Consultation with the Forestry Commission will be required to assess the need for an Environmental Impact Assessment for afforestation in areas of the site where woodland creation is proposed.





3 Overall aims of the management plan

This plan aims to set out our vision and priorities for the Wild Whittington nature reserve over the next 30 years. Some of the planned works are essential for wildlife, people or statutory reasons, whilst other works may be aspirational and will be delivered as the Trust's priorities and resources allow. The objectives outlined in each section of this management plan have been allocated a number between 1 and 3, based on the criteria outlined below:

- **Criteria 1** - These are key planned works the Trust undertakes for wildlife, people or statutory reasons. They are the Trust's main priorities for the reserve and, wherever possible, should be achieved.
- **Criteria 2** - These are a priority to be completed but will require additional funding or consent from other organisations to undertake. If funding cannot be sourced, some of these objectives may not be achieved.
- **Criteria 3** - These are not essential to manage the reserve for wildlife, people or statutory reasons but would complement key planned work. They will be completed as resources allow.





4 Vision and Objectives

Outlined below is DWT's vision for the site in the short, medium, and long-term.

4.1 Short-term vision

Intensive agriculture during the 20th and early 21st century has removed natural processes from the site. During the early establishment of the site, modern agricultural practices will be entirely removed including fertilization, and use of pesticides and herbicides. Semi-natural habitats such as grassland and scrub will begin to recolonise the site from the field margins and boundary hedgerows and proxy native herbivores will be reintroduced to the site. The in-field sward will change from monoculture crop to early successional habitats, resulting in an increased diversity of invertebrate species. This will have a positive effect on fauna at higher trophic levels such as birds, bats, amphibians and reptiles as regular disturbance from human activities is removed from the site.

4.2 Medium-term vision

The site will be managed as a single continuous unit, and natural processes will be restored including establishment of a grazing scheme which will closely mimic movement of natural herbivory through the site. As natural and semi-natural habitats become established, invertebrates and flora populations will stabilise at the site forming a stable base from which species will be able to disperse into the wider landscape, and the site itself will form a crucial component of the Nature Recovery Network, connecting existing habitats to the north and south of the site. Continuous monitoring of the site and adaptation of the management interventions and grazing regime are beginning to deliver the area of target habitats required under BNG, and distinct habitat areas are now established across the site with ecotones developing between them. Regular monitoring of the site indicates a significant increase in flora and fauna species diversity recorded compared to the baseline assessments undertaken in 2023, with new species recorded annually due to the improvement in habitats.

Sales of BNG habitat units generated by the change in management at the site will generate income for DWT and the site has become a leading example of blending a rewilding approach with sale of BNG habitat units, demonstrating that this is a viable model for the restoration of habitats at scale.





4.3 Long-term vision

By the end of the initial 30-year management period, the site will be a crucial link in the local Nature Recovery Network. Natural processes will have been restored to the site and the site will feature a diverse mosaic of native semi-natural habitats including newly regenerated woodland, patches of scrub and open areas of grassland. The habitats on site will all have achieved the minimum condition that was expected through the Biodiversity metric condition assessment. The mosaic of habitats on site will have been shaped by the movement and grazing patterns of native (or proxy) fauna and this unique pattern of habitats will provide a wide range of microclimates and habitat niches to suit the widest range of species possible. Ecological complexity will have been restored at the site and the site will feature a high degree of wildness compared to the start of the project and the three key ecological processes, trophic complexity, stochastic disturbance and dispersal, will have been restored.





4.4 Objectives

Table 4.1 summarises the overall objectives for the site and ranks them according to the criteria listed in Chapter 3.

Table 4.1: Summary of overall objectives for the site (2023 – 2063)

Objective 1	Delivery of Nature Recovery on a Landscape Scale
	<ul style="list-style-type: none"> • Monitor and map the changing habitat types as natural regeneration progresses at the site (1) • Use of a robust monitoring framework to assess the increase in biodiversity value at the site (1) • Monitor changes by providing opportunities for community involvement and volunteering through citizen science led monitoring programmes (3)
Objective 2	Develop a viable model for landscape-scale rewilding based on Biodiversity Net Gain
	<ul style="list-style-type: none"> • Use BNG as a funding mechanism for management of the site (1) • Create a model which can be adopted by other Wildlife Trusts and eNGOs seeking to use green finance to deliver rewilding at a landscape scale (1) • Explore the opportunities presented by aggregation of other ecosystem services at the site (2)
Objective 3	Establishment of new habitats through rewilding principles
	<ul style="list-style-type: none"> • Assessment of site's current 'wildness' and identifying potential obstructions to restoration of natural processes (1) • Restoration of natural processes at the site (1) • Provide opportunities for community involvement and volunteering to kickstart natural processes at the site (3)
Objective 4	Restoration of ecological complexity at the site and increase in 'wildness'
	<ul style="list-style-type: none"> • Monitoring impact of grazing so that our predicted ratio of scrub and open grassland are consistent with accompanying BNG metric (1) • Conversion of low value arable land to higher value mosaic of woodland, scrub and grassland with ecotones between different habitats (1)
Objective 5	Make Space for Nature
	<ul style="list-style-type: none"> • Demonstrate the potential of BNG for funding rewilding of low-grade arable land (1) • Contribute to the creation of a Nature Recovery Network within Derbyshire and the UK (1) • Showcase the potential of rewilding as a mechanism for delivery of nature-rich spaces (2)





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4.4.1 Objective 1 – Delivery of Nature Recovery on a Landscape scale

Intervention 1 - Monitor and map the changing habitat types as natural regeneration progresses at the site

To understand the progress of natural regeneration at the site, it will be essential to observe the ways in which the habitats on site begin to develop. This will inform the management of the site as it develops, for example by enabling DWT to adjust grazing levels across the entire site in response to the speed of natural regeneration. Techniques including traditional habitat surveys e.g., UKHab surveys in combination with innovative methods such as use of drones to photograph the site from above and fixed-point photography.

Intervention 2 - Use of a robust monitoring framework to assess the increase in biodiversity value at the site

Use of a range of survey types will be important to monitor the impact of the rewilding programme on the whole ecosystem. This would include vegetation surveys (as described above) to monitor the changes in plant communities and habitat quality at the site. It would also involve surveying specific species/species groups which are important indicators of whole ecosystem health and habitat quality such as birds and insects. Soils assessments will also be undertaken. This will enable us to detect important species and habitats which may utilise the site as habitats become established, and to measure the success of the project in terms of its impacts on biodiversity.

Intervention 3 - Monitor changes by providing opportunities for community involvement and volunteering through citizen science led monitoring programmes

As well as regular monitoring of the site ourselves to ensure that we are on target to meet our legal obligations under BNG, Derbyshire Wildlife Trust's key strategic aim is to have 1 in 4 people acting for nature by 2030 (DWT, 2020). By creating a dynamic and rapidly changing new site for nature on the doorstep of Chesterfield, a major urban centre in a rural county, Wild Whittington will present an opportunity for Derbyshire Wildlife Trust to improve access to nature for a large community. Initiatives such as installation of fixed-point photography points on the site and providing public access to new areas of the site will help to achieve these objectives and ensure Wild Whittington is of value to the local community.

4.4.2 Objective 2 - Develop a viable model for landscape-scale rewilding based on Biodiversity Net Gain

A key blocker for restoration of nature at a landscape scale is the lack of a viable financial model through which this can be delivered sustainably. Under the Environment Act 2021, all





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new developments will be mandated to deliver a minimum 10% net gain in biodiversity as of November 2023, with many local planning authorities already requiring this in anticipation of this change. Where this cannot be delivered on site, developers have the option to purchase 'biodiversity habitat units' to offset their biodiversity losses. This system will be the key source of income for Wild Whittington and the first example of its type in Derbyshire. The development of this will follow the principles set out in the Green Finance Institute's Investment Readiness Toolkit⁴.

Intervention 1 – Use Biodiversity Net Gain as a funding mechanism for the site

Derbyshire Wildlife Trust are ideally placed to identify opportunities for the sale of BNG habitat units through their role as a consultee for local planning authorities. Evaluations of the impact of developments on biodiversity will be undertaken using Defra's Biodiversity Metric, and developers will be able to approach DWT for biodiversity habitat units to meet their planning obligations. This metric will then be used to assess the areas of proposed habitat creation at Wild Whittington, to deliver an 'Off-Site' biodiversity net gain for the development. In this way, the overall impact of the development will be reduced. Part of this process that will be crucial is the vetting of impacts of development, and DWT will only work with clients who can clearly demonstrate that the mitigation hierarchy⁵ has been followed and that compensation for biodiversity losses can only be achieved through purchase of biodiversity habitat units. A robust process will be developed by DWT which will prevent working with developers not demonstrating ecological best practice.

Intervention 2 - Explore the opportunities presented by aggregation of other ecosystem services at the site

Ecosystem services are defined as the direct and indirect contributions that ecosystems (natural capital) provide for human wellbeing and quality of life⁶. Biodiversity itself can be defined as an ecosystem service, and the sale of biodiversity habitat units as outlined above is one way in which ecosystem services can be used to generate income. DWT will undertake a high-level assessment of the site to determine what ecosystem services could be delivered on site and will also undertake a scoping exercise to determine what the market is for the services.

⁴ <https://www.greenfinanceinstitute.co.uk/gfihive/toolkit/> [Accessed 04/07/2023]

⁵ Avoid, Mitigate, Compensate

⁶ NatureScot, 2023





Intervention 3 - Create a model which can be adopted by other Wildlife Trusts and eNGOs seeking to use green finance to deliver rewilding at a landscape scale

A study published by the Green Finance Institute (GFI, 2021) identified that there was a funding gap of a minimum of £44-97 billion in investment above current public funding levels that are required for the UK to meet its current nature recovery commitments by 2030. This study specifically highlighted “Protection or restoration of biodiversity” as an area where the greatest gap existed. Once Biodiversity Net Gain becomes a mandatory condition of planning in November 2021, a key component of delivering this will be a national register of BNG delivery sites enabling developers to pay providers to deliver biodiversity gains off site where losses cannot be avoided, mitigated or compensated on-site, giving landowners and eNGO’s (environmental non-governmental organisations) the opportunity to provide BNG habitat, hedgerow and watercourse units as a saleable commodity. At DWT we believe that delivery of BNG units can and should be nature-lead and should be underpinned by the latest research and evidence, and furthermore to be effective this needs to be done at scale. Wild Whittington will provide DWT with the opportunity to take the lead in demonstrating to other eNGO’s how nature recovery can be delivered through rewilding whilst also taking advantage of the new funding opportunities presented by BNG.

4.4.3 Objective 3 – Establishment of new habitats through rewilding principles

The medium-term vision for the site is that it will be restored from a highly managed, modified landscape into a site where nature is the priority. The ambition is that the best way to achieve naturalness in the structure of the newly created habitats is through rewilding, enabling complexity to be returned to the site and avoiding the sectioning of the site into strictly defined areas. This will create a range of ecological niches for species to recolonise at the site and develop a healthy ecosystem which will have the maximum possible biodiversity benefits.

Intervention 1 – Assessment of site’s current wildness and identifying potential obstructions to natural processes

At present, the site is highly modified, having been used for intensive agriculture for at least the past 70 years. The first step in restoring the site will be to identify where human disturbance and activity have disrupted natural processes, in line with the rewilding framework proposed by Perino et al (2019). Given the land-use history of the site and its small size, it is anticipated that historic land drainage systems will have modified the natural flow of water across the site and given the suburban location of the site there is potential for human-wildlife conflict from surrounding land use. Understanding how the proposed rewilding will affect the site and surrounding land will be an important first stage in planning the rewilding of the site.





Intervention 2 - Restoration of natural processes

Where blockers to natural processes are identified, these will be removed to enable the site to return to nature more effectively. For example, where field drains are identified these could be removed, blocked, or diverted to enable areas of the site to be rewetted. A key element of the restoration of the site will be the reintroduction of large herbivores, as this is something that is currently lacking at the site, and if grazing is completely absent then the site would revert to dense scrub and eventually closed canopy woodland, lacking in open habitats. Use of grazing animals will result in a more natural and diverse mosaic of open and wooded areas than more traditional habitat creation e.g., large-scale planting. Grazing animals will be selected to mimic fauna which would originally have been present within the British landscape such as:

- Heritage breed cattle (such as longhorns). Cattle are unselective grazers and will readily eat unpalatable, dominating species – creating botanically diverse habitats.
- Wild ponies (e.g., Exmoor ponies) can shape habitats through tramping, path making and wallowing, creating a diverse structure of flowering communities.
- Heritage breed pigs mimic the natural rooting behaviour of Wild Boar. Pigs root through the vegetation, turning up soil, working to remove undesirable species and creating bare ground for resowing or natural regeneration. When allowed within a large area including woodland they will create ephemeral pools through wallowing.

Intervention 3 – Provide opportunities for community involvement and volunteering to kickstart natural processes at the site

For nature to recover and thrive, we need more people to be on nature's side, and if 1 in 4 people act for nature this may be enough to trigger a change of mindset in the majority of the population. By giving volunteering opportunities to the local community and potentially to corporate partners, this will not only contribute to rewilding on a local level at Wild Whittington but will also raise awareness and increase action for nature on a county-wide scale as a result, helping to achieve Derbyshire Wildlife Trust's strategic objectives.

4.4.4 Objective 4 - Restoration of ecological complexity at the site and increase in 'wildness'

Dynamic habitat mosaic more closely resembles healthy, natural ecosystems, and facilitate the recovery of nature by providing a range of ecological niches and different habitats. Having a varied range of habitats at the site will also increase ecological complexity and help to build a complete ecosystem more capable of self-regulation, minimising the need for direct





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intervention as the habitats become established. By targeting ecological complexity as an objective, this will increase ecosystem resilience at the site, meaning that Wild Whittington will be better able to adapt to changing climatic conditions as climate change progresses. The targeting of ecological complexity in this manner, rather than specific indicator species or habitats, will be a key principle of the management of the site.

Intervention 1 - Monitoring impact of grazing so that the predicted ratio of scrub and open grassland are consistent with accompanying BNG metric

A key facilitator of the success of the project will be the sale of ecosystem services in the form of BNG habitat unit. This relies on the site delivering the stated number of BNG habitat units legally required of DWT, and it must satisfy the 'Trading Rules' of the metric which state that habitats created to compensate for biodiversity losses must be of equal or higher quality than those which are lost. Monitoring and mapping the % cover of scrub:open:woodland habitats at the site will enable DWT to deliver on our legal obligations whilst also letting nature lead on habitat creation, in line with rewilding philosophies. Monitoring will take place on a regular basis as describe above in Section 4.4.3. This will enable DWT to know when we are on track to create the right blend of habitats, and to act where necessary to deliver on our obligations under BNG.

Intervention 2 - Conversion of low value arable land to higher value mosaic of woodland, scrub and grassland with ecotones between different habitats

The site will be converted to a mosaic of grassland, scrub and woodland habitats, which will feature ecotones, transitional zones between different habitat types. Ecotones often support higher levels of biodiversity in comparison to the adjacent ecosystems that they transition between, as the merging of different habitats creates a wider array of ecological niches than the respective neighbouring habitats. By allowing ecotones to develop, this will aid dispersal of a wide range of species within the site and between the site and the wider landscape. This will be crucial in achieving the dispersal element which is a key element in restoring ecological complexity to the site.

4.4.5 Objective 5 - Make More Space for Nature

At Derbyshire Wildlife Trust a key objective is to increase the amount of space for nature, as well as protecting and enhancing existing nature-rich spaces. This means that we want to deliver on creating new biodiverse habitats ourselves, as well as encouraging other landowners and stakeholders to do more to create more space for nature.





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Intervention 1 - Showcase the potential of rewilding as a method for creation of nature-rich spaces

To ensure the future success of the site in the long-term, engagement with the local community will be crucial. An effective communications strategy will be devised for the site to involve the public in the project and give them a sense of ownership, avoiding the risk of public perception being that people are excluded from the site. Initiatives such as fixed-point photography will increase public interaction with the site as it develops and will also contribute meaningfully to the monitoring of the site. Guided walks and tours of the site, along with interpretation boards will explain the rationale of the project and the guiding principles in an accessible way will increase public understanding and support of similar landscape-scale restoration projects.

Intervention 2 - Demonstrate the potential of funding mechanisms such as BNG and sale of other ecosystem services for funding rewilding of low-grade arable land

By demonstrating that nature-rich spaces can be created on low-grade arable land in Derbyshire, this will provide an example that other large-scale landowners in Derbyshire can identify with, visit, and be inspired by. By utilising the opportunity presented by BNG this will show that rewilding is a viable option and that this approach can be self-sufficient.

Intervention 3 - Contribute to the creation of a Nature Recovery Network within Derbyshire and the UK

A Nature Recovery Network works on the Lawton Principles (bigger, better, more, and joined up) by enabling species to disperse through the landscape easily, supporting metapopulations and aiding a stable, healthy ecosystem. The landscape itself will be of higher aesthetic value, increasing the mental health and wellbeing of local residents as well as providing the possibility of ecotourism opportunities and diversifying the local income.





5 Habitat Baseline

Baseline habitat surveys were undertaken by Derbyshire Wildlife Trust on the 4th and 18th October 2022. Full details of the results of the habitat assessment will be made available in the ecological appraisal for the site. A summary of the baseline UKHAB habitat surveys, and their BNG condition assessment is included below. The results of the BNG baseline and condition assessment can be viewed in Table 5.1.

5.1 Overall summary of existing habitats

Currently, the site is divided into five field compartments which are arranged north-south adjacent to each other. The top four compartments were dominated by c1c cereal crops, with “c1a arable field margins – tussocky grasses”. The fifth compartment, at the bottom of the site, was g5c5 *Arrhenatherum* neutral grassland. The field compartments were defined by native hedgerows which also formed the boundaries of the site. A narrow strip of “Lowland mixed deciduous woodland – other” ran along part of the site’s southeast boundary and part of the woodland adjacent to the north was within the site’s fence line. A dry ditch also ran along the site’s southern boundary.

5.2 Habitat descriptions and condition assessment

5.2.1 Cereal crops – winter stubble

This was the most abundant habitat type at the site and comprised 21.784ha. This habitat was not extensively surveyed as it comprised a monoculture and as such its biodiversity value is inherently relatively low compared with semi-natural habitat types. A condition assessment is not required for this habitat type as its condition is fixed as Poor.

5.2.2 Arable field margins – tussocky grasses

The margins of the arable fields were generally 2-4m wide, with a wider margin of approx. 6m along the northern boundary adjacent to Grasscroft Wood. This habitat type comprised approximately 1.168ha of the site. The vegetation was dominated by grass species such as cock’s foot (*Dactylis glomerata*) and false oat grass (*Arrhenatherum elatius*). A condition assessment is not required for this habitat type as its condition is fixed as Poor.





5.2.3 Neutral grassland

The fifth field compartment at the southern end of the site was not in agricultural production and comprised 0.897ha of neutral grassland. When assessed to Level 5 UKHAB the grassland is categorised as g5c5 *Arrhenatherum* neutral grassland. The grassland was rank and nutrient rich, and false oat grass was abundant with scattered scrub and tree saplings such as goat willow (*Salix caprea*) and ash (*Fraxinus excelsior*). Thistles (*Cirsium* sp.) were frequently recorded and there was a thick thatch indicating a lack of management over several years. There were damper areas of the grassland indicated by species such as meadowsweet (*Filipendula ulmaria*) and rushes (*Juncaceae*), however this was not extensive enough to be classified differently. This habitat was classified as in Poor condition.

This was a small area of which was also located around the edges of the fifth field and was characteristically similar to the *Arrhenatherum* grassland described above. This area graded into the adjacent woodland to the southwest and contained species indicative of high-nutrient levels including ruderal species such as nettle (*Urtica dioica*). The habitat was assessed as in Poor condition.

5.2.4 Heathland and scrub - Dense scrub – mixed

A small (0.024ha) area of scrub between the site's eastern boundary and the adjacent public right of way which runs north-south adjacent to the boundary hedgerows. This habitat was a mixture of species including blackthorn (*Prunus spinosa*), cherry (*Prunus* sp.), sycamore (*Acer pseudoplanatus*) and ash. It was assessed as in Moderate condition.

5.2.5 Heathland and scrub - Dense scrub – blackthorn

A small (0.034ha) area of scrub adjacent to the western boundary dominated by blackthorn, with occasional mature trees. This area was assessed as Moderate condition.

5.2.6 Lowland mixed deciduous woodland

There were two areas of woodland within the site boundary totalling 0.389ha of the site. The first was part of the Grasscroft Wood adjacent to the northern boundary and comprised mostly common lime (*Tilia x europaea*), oak (*Quercus robur*) and sycamore. The second was adjacent to the site's southeastern boundary and canopy species comprised mostly ash, pedunculate oak and wych elm (*Ulmus glabra*). Both areas of woodland returned a Moderate condition score.





5.2.7 Dry ditch

A dry ditch ran along the southern site boundary which was approximately 2-3m deep. Because this feature does not hold water for more than 4 months of the year it did not qualify for condition assessment.

5.2.8 Hedgerows

All the field boundaries comprised native hedgerows which varied in their species composition, structure and composition. Full details of the condition assessments of the hedgerows can be viewed in the full UKHab report contained within the Appendix. Four hedgerows were Priority habitat species-rich hedgerows or hedgerows with trees, and the remaining 10 were native hedgerows which in some cases featured mature trees or were associated with a bank or ditch. Species noted included hawthorn, blackthorn, hazel (*Corylus avellana*), field maple (*Acer campestre*), holly (*Ilex aquifolium*) and gorse (*Ulex europaeus*). One hedgerow was in Good condition (H7), seven were in Moderate condition (H4, H6, H8, H9, H12, H13, H14) and five in Poor condition (H1, H3, H5, H10, H11). One did not qualify for condition assessment as it was less than 20m in length (H2).

The hedgerow BNG baseline has not been calculated for the site and is absent from Table 5.1 as DWT will not be selling BNG hedgerow units.

5.2.9 Pond (Non-priority)

A small (0.064ha) pond was located in the northeast corner of the site, which was heavily shaded by mature trees (ash, yew) and scrub (hawthorn, goat willow) on all sides. An earth bund was present on the east and south banks of the pond. The water quality appeared poor, and the water was shallow (<10cm at the deepest point) and supported almost no emergent vegetation. The pond passed 4/9 condition assessment criteria and therefore was in Poor condition.

5.3 Soils

Soil testing was undertaken at the site in July 2023 to determine a range of variables including the pH, water content, carbon and nutrient levels and the amount of chemicals including phosphate, nitrate and fluorides. Full details and results of the soil testing will be provided in a separate report; however, a summary of the results is provided here for context.

5.3.1 Water Content

Water content in the soils was overall lower than could be expected in healthy soils (25%), with water content between 8-8.5% on average across the entire site. Although this could be





due to dry conditions at the time of sampling cracks were present in the soil surface following heavy rain, which indicates drought damage. Consistently dry soils (i.e., those artificially drained for agriculture) are less able to recover from drought.

5.3.2 pH

Overall, the soil at the site was slightly acidic, however there was significant variation between fields. However, there was no significant difference in soil pH at deeper samples, indicating that the underlying soils are consistent across the site which indicates that differences in pH at a field level are likely because of previous land management practices. Despite this, the pH of the site overall (6.06 – 6.71) does fall within the range for neutral grassland species and as such no remediation of pH is considered necessary.

5.3.3 Soil carbon

Overall, organic carbon content of the soils was between 6-10% which is relatively low, although this is not unusual for agricultural land in long-term use for crop rotation. To improve soil structure and health an increase in soil carbon is required, as this will have a positive feedback effect on soil structure, function and biodiversity. This can be achieved through restoration of semi-natural vegetation at the site over time, which will absorb carbon from the atmosphere and return it to the soil.

5.3.4 Nutrients (Chloride, fluoride, sulphate, phosphate and nitrate)

Nitrate levels were five times higher than what would be expected in naturally occurring soils in three out of five fields, indicating historic applications of fertilisers. Phosphate levels were lower than expected for agricultural land which is likely to be beneficial in terms of encouraging native plant species recovery at the site. Sulphate levels were low which is unlikely to be of concern as high levels of sulphates can be damaging and rewilding should provide conditions which enable sulphate concentrations to stabilise naturally. Chloride levels were very low, however if monitoring indicates that native plant species are thriving at the site as the rewilding progresses, this is not considered likely to need any further remedial action. Fluoride levels were low, but this appeared to be a natural occurrence and as such these will stabilise as natural processes are re-established at the site.





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Table 5.1: BNG baseline area habitat details

Habitat Type	Area (ha)	Habitat Condition	Strategic Significance	Total Baseline Biodiversity Units
Cropland – Arable field margins tussocky	1.168	N/A	Low	4.67
Cropland – cereal crops	21.784	N/A	Low	43.57
Grassland – other neutral grassland	0.897	Moderate	Medium	7.89
Heathland and shrub – mixed scrub	0.024	Moderate	Medium	0.21
Heathland and shrub – dense scrub blackthorn	0.034	Moderate	Medium	0.3
Lakes – Ponds (Non-Priority Habitat)	0.064	Poor	Medium	0.56
Woodland and forest – Lowland mixed deciduous woodland	0.389	Moderate	Medium	5.13
Total area (ha)	24.36	Total BNG habitat units		62.34





6 Habitat creation, establishment & maintenance

6.1 Overall vision for the site

The general overarching objective for the site is to replace the current habitats, which are highly modified by human interventions and modern agricultural practices, with a more natural matrix of dynamic habitats which deliver high biodiversity value. The overall philosophy for habitat creation, establishment and maintenance is that this should be achieved wherever possible through rewilding principles, effectively the restoration of natural processes to the site.

Currently, the baseline value of the site is a total of 62.34 BNG habitat units. The overall objectives are to create a total increase of 98.41 BNG habitat units within the 30-year management plan, resulting in an **overall site value of 160.75 BNG habitat units** post intervention.

Approximately **3.83ha of new woodland** will be created through natural succession, which will deliver a **net increase of 5.84 woodland habitat units**. The remaining 20.53ha of the site will deliver a **net increase of 92.57 habitat units** through creation of an approximately **50:50 mosaic of Other neutral grassland and Mixed Scrub**. A plan showing the anticipated pattern of habitat regeneration has been provided in Appendix 2 – this is intended to be indicative, and the final layout of the site will be different due to the nature of the rewilding process, and through the process of BNG sales.

Habitat creation and maintenance at the site will be undertaken over a 30-year period, as this is the length of time that DWT are legally obliged to maintain the habitats for. The legal obligation of DWT to manage these habitats is contingent upon the start date of individual sales agreements under BNG. As the BNG habitat units from the site will not be sold in a single transaction to one buyer, therefore the agreement period will differ between sales parcels.

This management plan is designed to be adaptive and is intended to be iterative, based on a robust monitoring strategy for the site. Therefore, the management plan will be regularly reviewed and updated following the outcomes of ongoing monitoring at the site.



**Table 6.1: Intervention Hierarchy to achieve target habitats/conditions through rewilding**

Intervention Hierarchy number	Actions
1	These interventions will be the preferred method of habitat creation for each of the target habitats in the condition required by the Biodiversity metric. This follows rewilding principles led, low intervention model and relies on natural colonisation and appropriate grazing regimes to deliver the habitat creation
2	Where regular monitoring of the site by an ecologist, or baseline assessments of the conditions at the site indicate that approach 1 is unlikely to succeed (e.g. where nutrient levels are excessively high to create the correct habitats to the required condition within the timeframe required by the Biodiversity Metric 3.1), a more interventionist approach may be required to prepare the site and during the early establishment years. Once habitats begin to establish, management can take a more relaxed approach.
3	Where regular monitoring of the site by an ecologist indicates that the target habitats/conditions required by the Biodiversity Metric 3.1 are unlikely to be achieved through interventions 1 or 2, a more active management approach may be required to ensure that DWT deliver on their BNG habitat unit obligations.

6.2 Demonstrating the delivery of BNG habitat units

As stated in the previous chapters, the purpose of this management plan is to demonstrate the plan for the entire site. It must however be acknowledged that the sale of BNG habitat units is reliant on the planning system and that the delivery of BNG habitat units generated by the rewilding of Wild Whittington will be associated with specific planning applications and conditions of planning stipulating that each of these will be legally obliged to demonstrate how they will achieve an overall 10% Biodiversity Net Gain.

To satisfy this requirement, an example of how these units will be delivered for a specific case study has been included as an addendum to this report in Appendix 4.

6.3 Management approach for habitat creation

The tables in each section below describe the broad ways in which the target habitats will be created, established and then managed over the 30-year period. The interventions are listed in order of preference, with rewilding principles being preferred wherever possible. The end goal is to create the habitats in the condition stated within the 30-year agreement period.





6.3.1 Woodland

The overall vision for the site is creation of habitats following rewilding principles, which in practice will mean using natural regeneration as the primary method of woodland creation at the site.

The general vision for areas of new woodland is that these will occur through natural regeneration, thus comprising species already present within the site itself and within existing adjacent woodland and hedgerow habitats i.e., oak, hawthorn, blackthorn, holly. The primary areas of woodland regeneration will be in the north of the site, and this aligns with the local landscape character which recommends promoting linked extensions to ancient woodland sites through natural regeneration, and management of scrub and secondary woodland to link existing woodland and other habitats. It also aligns with the recommendations of the local landscape character type ‘Coalfield Village Farmlands’ which also seek to encourage the management of scrub and secondary woodland to link together existing isolated woodlands.

6.3.1.1 Biodiversity Metric – Target Habitat and Condition

The woodland will need to achieve the habitat type and condition which has been set out in the Biodiversity Metric in order to achieve the stated biodiversity units. The overall aim is that new woodland will be classified as ‘Lowland Mixed Deciduous Woodland’ in ‘Poor’ condition. The time to condition applied is 25 years. The rationale behind the low condition of the new woodland is that it will not be viable to create a higher condition woodland within this 25-year period, as it will be lacking in the structural complexity that can only be created over hundreds of years, such as mature trees, standing and fallen deadwood, and recognisable plant communities. A summary of the condition assessment criteria for woodland can be found in Table **A3.1** A3.1 in Appendix 3.





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Table 6.2: Interventions for Woodland Creation, Establishment and Management (continues)

Objective: New woodland created by natural regeneration				
Indicators of success: 3.83ha of new woodland created; 5.84 woodland habitat units delivered				
Management Phase	Intervention Hierarchy number	Intervention	Timing of intervention	
Creation & Enabling Works	1	Cessation of cultivation across entire site		
		Installation of perimeter fencing around the entire site to create a single unit		
Management Phase	Intervention Hierarchy number	Intervention	Timing of intervention	
Early Establishment	1	“Vegetation pulse” in areas of woodland creation to enable natural regeneration of trees and scrub to develop prior to introduction of herbivores.	Y1 -Y6	
		Annual assessment of tree regeneration in target areas to check the germination and survival rates and cover of tree and scrub species. Assessment of habitat against UKHAB and BNG metric condition assessment, and natural succession of woodland will be assessed against the Forestry Commission’s Natural Colonisation guidance.	Y1 -Y6	
		Use of NoFence technology to prevent livestock (cows and pigs) accessing areas of woodland	Y1 -Y4	
	If monitoring of the site indicates that the above methods are unlikely to deliver target BNG habitats and condition assessment by the end of the timings given above then:			
	2	Use of pigs to break up the soil structure in areas which will enhance connectivity between existing wooded habitat to provide a better substrate for tree and scrub species to set seed and germinate	Y4-Y6	
		Scattering of tree seeds within areas of ground broken up by pigs. Tree seeds will be native species of local provenance, species to be selected based on local woodlands of high quality.	Y3-Y8	
		Annual assessment of tree regeneration in target areas to check the germination and survival rates and cover of tree and scrub species. Assessment of habitat against UKHAB and BNG metric condition assessment	Y4-Y8	
	If monitoring of the site indicates that the above methods are unlikely to deliver target BNG habitats and condition assessment by the end of the timings given above then:			
	3	Planting of native tree species of local provenance where woodland is not developing as required under BNG agreement	Y8 – Y11	
		Temporary fencing to enable trees to establish without browsing/grazing pressure. Alternatively, temporary tree guards to be installed around self-set seedlings to protect them from grazing/browsing while they are still young.	Y8 – Y11	
Annual assessment of tree regeneration in target areas to check the germination and survival rates and cover of tree and scrub species. Assessment of habitat against UKHAB and BNG metric condition assessment		Y8 – Y11		





Table 6.2 (continued/continues): **Interventions for Woodland Creation, Establishment and Management**

Management Phase	Intervention Hierarchy number	Intervention	Timing of intervention	
Late Establishment	1	Monitor the impact of grazing pressure from wild species such as deer on regrowth or saplings/seedings	Y1 – Y4	
		Monitor and removal of any invasive non-native plant species that would outcompete native target species	Y1 -Y4	
		Monitor spread of woodland ground flora into new woodland areas from adjacent woodland.	Y6 – Y11	
		As young trees and scrub becomes established, allow brief periods of cattle grazing to increase disturbance and generate structural diversity within the new scrub / woodland such as future glades and openings	Y6 – Y11	
	If monitoring of the site indicates that the above methods are unlikely to deliver target BNG habitats and condition assessment by the end of the timings given above then:			
	2	Where natural regeneration is being suppressed by wild grazers, implementation of a management strategy, or introduce temporary shelters/tree protection on saplings to enable them to become established and better able to cope with grazing and browsing pressure	Y11 – Y13	
		Monitoring to establish whether tree species are likely to produce a resilient woodland. Check for indications of pests or disease e.g., Ash dieback. Where this is not threatening the woodland or a risk to H&S, leave dead/dying specimens as deadwood	Y8 – Y13	
	If monitoring of the site indicates that the above methods are unlikely to deliver target BNG habitats and condition assessment by the end of the timings given above then:			
	3	If fewer than five native trees/shrubs present 20 years after establishment, consider stocking woodland through planting of native tree and shrub species to improve species diversity	Y21 – Y30	
		Where disease proves significant risk to majority of trees (11-25% mortality), restocking with alternative native species may be necessary to maintain areas of woodland	Y16 – Y30	
Where adjacent native ground flora is not spreading naturally into new woodland from adjacent woodland areas, consider planting of native bulbs/woodland plant bulbs and seeding of native woodland flora to enhance ground flora		Y21 – Y30		





Table 6.2 (continued): Interventions for Woodland Creation, Establishment and Management

Management Phase	Intervention Hierarchy number	Intervention	Timing of intervention	
Long-term management, maintenance & monitoring	1	Assessment of % cover of newly created woodland at the site against the Biodiversity Metric through regular habitat surveys.	Y1 – Y30	
		Monitor and manually removal of any INNS that may occur	Y1 – Y30	
		Allow livestock into woodland areas for limited period each year (more often once woodland well established) to create disturbance and enhance woodland structure	Y6 – Y30	
	If monitoring of the site indicates that the above methods are unlikely to deliver target BNG habitats and condition assessment by the end of the timings given above then:			
	2	Adjust livestock stocking density and/or frequency of grazing to achieve more varied and natural woodland structure	Y6 – Y30	
		If INNS are spreading from neighbouring land, engagement with neighbouring landowners to reduce this	Y6 – Y30	
	If monitoring of the site indicates that the above methods are unlikely to deliver target BNG habitats and condition assessment by the end of the timings given above then:			
	3	If livestock is not achieving desired structural effect, consider underplanting/coppicing to enhance structural/species diversity	Y21 – Y30	
		Mechanical intervention of INNS where not possible to continue to remove by hand and where this is significantly negatively impacting on regrowth of native trees and shrubs	Y6 – Y30	





6.3.2 Scrub

It is anticipated that scrub will initially regenerate from the boundary hedgerows as the main source of recolonisation. This will be due to the encroachment of species such as bramble, and blackthorn which grow through suckering.

6.3.2.1 Biodiversity Metric Target Habitat and Condition

The Biodiversity Metric for the site will state that scrub created will be 'Mixed Scrub' as the target habitat in a Moderate condition. The time to target habitat/condition will be five years, and following this period DWT will be obliged to manage the scrub to ensure it remains at least in moderate condition for the remaining 30 years of the agreement period.

The overall vision for areas of grassland and scrub at the site is that these areas will form an approximately 50:50 mosaic, with scrub colonisation of the former arable cropland encroaching from the boundary hedgerows. Areas which are intended to deliver scrub units will inevitably contain some grassy glades, and this overlap between the condition assessments of grassland and scrub will work in DWT's favour at the site as it will result in a gradual ecotone between the two habitats.

To achieve the target condition of 'moderate', areas of scrub will need to pass 3-4 out of the 5 criteria in the condition assessment criteria for medium distinctiveness scrub from Biodiversity Metric 3.1 in Table A3.2 which can be viewed in Appendix 3.





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Table 6.3: Interventions for Scrub Creation, Establishment and Maintenance (continues)

Objective: New scrub created by natural regeneration				
Indicators of success: 20.53ha of new scrub / grassland mosaic which will be approximately 50:50 scrub: grass ratio, which will deliver 92.57 habitat units altogether				
Management Phase	Intervention Hierarchy number	Intervention	Timing of intervention	
Creation & Enabling Works	1	Cessation of cultivation across entire site		
		Installation of perimeter fencing around the entire site to create a single unit		
Management Phase	Intervention Hierarchy number	Intervention	Timing of intervention	
Early Establishment	1	Grazing collars will limit grazing of scrub areas by livestock during early years of creation	Y1 – Y3	
		Removal of invasive non-native species (INNS)	Y1 – Y3	
		Monitoring of scrub regrowth in the buffer zones to identify species present, sapling survival rates and damage from wild browsers i.e., deer	Y1 – Y6	
		Grazing collars will limit grazing of scrub areas by livestock during early years of creation	Y1 – Y3	
	If monitoring of the site indicates that the above methods are unlikely to deliver target BNG habitats and condition assessment by the end of the timings given above then:			
	2	Use of temporary fencing to exclude livestock from scrub areas where this is inhibiting regrowth. Fencing areas to be moveable to enable targeted browsing of some areas to develop scrub edges	Y4 – Y9	
		Implementation of deer management strategy where presence is clearly inhibiting regrowth of scrub	Y4 – Y9	
	If monitoring of the site indicates that the above methods are unlikely to deliver target BNG habitats and condition assessment by the end of the timings given above then:			
	3	Where monitoring indicates that grassland:scrub ratio is not delivering required % cover of scrub, planting of scrub species to kickstart regrowth	Y1 – Y6	
		Adaptation of grazing regime to favour scrub regeneration	Y1 – Y6	





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Table 6.3 (continued/continues): Interventions for Scrub Creation, Establishment and Maintenance

Management Phase	Intervention Hierarchy number	Intervention	Timing of intervention
Late Establishment	1	Removal of “buffer zone” to enable herbivory within scrub areas to develop glades, clearings, rides and ecotone between scrub and grassland	Y4 – Y6
		Continuous annual monitoring of scrub habitat against Biodiversity metric condition assessment to ensure that it remains at target condition or higher.	Y6 – Y30
	If monitoring of the site indicates that the above methods are unlikely to deliver target BNG habitats and condition assessment by the end of the timings given above then:		
	2	Monitor for presence of INNS and remove if exceeding 20% or significantly negatively impacting the regrowth of native target species	Y4 – Y9
		Adjustment of grazing collars to allow livestock access to some areas to create desired glades, and develop edges appropriately	Y6 – Y11
	If monitoring of the site indicates that the above methods are unlikely to deliver target BNG habitats and condition assessment by the end of the timings given above then:		
	3	Manual cutting to create required edges, clearing and glades in scrub. Where species mix exceeds 75% of a single species, other species to be introduced through planting	Y4 – Y9
		Where scrub is all a single age, planting and seeding may be required to achieve the desired age ranges (seedlings, saplings, young shrubs and mature shrubs) to meet condition assessment criteria	Y4 – Y9





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Table 6.3 (continued): Interventions for Scrub Creation, Establishment and Maintenance

Management Phase	Intervention Hierarchy number	Intervention	Timing of intervention
Long-term management, maintenance & monitoring	1	Livestock (primarily cattle and pigs) to maintain semi-open structure of grassland and scrub through grazing and physical disturbance. Where scrub cover is too extensive, increase livestock units to reduce scrub cover in grassland areas. Where too open, reduce livestock density.	Y6 – Y30
		Monitor scrub for presence of invasive non-native species and remove if present	Y1 – Y30
	If monitoring of the site indicates that the above methods are unlikely to deliver target BNG habitats and condition assessment by the end of the timings given above then:		
	2	Ensure scrub areas are not >75% any one species (except hazel). Adjustment of grazing regime to balance scrub species	Y6 – Y30
		Monitor during grazing to ensure that all age classes of scrub are present – seedling, saplings, young shrubs and mature scrub	Y6 – Y30
		Where grazing is not resulting in achievement of condition assessment criteria, adjustment of grazing collars to exclude livestock from some areas.	Y6 – Y9
	If monitoring of the site indicates that the above methods are unlikely to deliver target BNG habitats and condition assessment by the end of the timings given above then:		
	3	Ensure at least 80% of scrub is native species by removing non-native species manually	Y6 – Y30
		Ensure scrub does not comprise more than 75% of any one species by manual cutting/planting to achieve correct balance	Y6 – Y30





6.3.3 Grassland

It is expected that the former arable land will revert to grassland, and that recolonisation of these areas will occur from a combination of the seedbank and the existing field margins, neighbouring land, and existing grassland within the site. Grassland habitat will be more challenging to create within a short timeframe than scrub habitats due to the highly modified nature of the land under its previous management. Therefore, the creation and establishment of this habitat will be closely tied into the results of the soil assessments of the site and annual monitoring of the proposed areas of grassland creation.

6.3.3.1 Biodiversity Metric Target Habitat and Condition

The target habitat for open grassland areas of the site will be Other neutral Grassland in a 'moderate' condition. The metric anticipates a standard time to target condition of five years.

To achieve the target condition of 'moderate', areas of grassland will need to pass 4-5 out of the 7 criteria in the condition assessment criteria for medium distinctiveness grassland, a summary of which can be viewed in Table A3.3 in Appendix 3.

The overall vision for areas of grassland and scrub at the site is that these areas will form an approximately 50:50 mosaic, with scrub colonisation of the former arable cropland encroaching from the boundary hedgerows. Areas which are intended to deliver scrub units will inevitably contain some grassy glades, and this overlap between the condition assessments of grassland and scrub will work in DWT's favour at the site as it will result in a gradual ecotone between the two habitats.





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Table 6.4: Management Interventions for Creation, Establishment and Maintenance of Grassland (continues)

Objective: New grassland created by natural regeneration				
Indicators of success: 20.53ha of new scrub / grassland mosaic which will be approximately 50:50 scrub: grass ratio, which will deliver 92.57 habitat units altogether				
Management Phase	Intervention Hierarchy number	Intervention	Timing of intervention	
Creation & Enabling Works	1	Cessation of cultivation across entire site		
		Installation of perimeter fencing around the entire site to create a single unit		
		Testing of soils across the site to determine current nutrient and chemical levels from previous management		
Management Phase	Intervention Hierarchy number	Intervention	Timing of intervention	
Early Establishment	1	Initial period of non-intervention to encourage native grass, annuals, and perennials to recolonise the site from the field margins.	Y1 – Y2	
		Removal of arable crops self-set from previous use by cutting and removing from the site	Y1 – Y2	
		Where existing nutrient levels are suitable, leaving the arable land to revert to grassland naturally	Y2 – Y3	
		Regular monitoring of open areas of grassland as they develop, minimum annually during early establishment years. As the grassland develops less frequent monitoring will be required.	Y1 – Y4	
		Creation of a 'buffer' zone where manual removal of 'undesirable' plants (i.e., thistles and ragwort) from areas neighbouring pasture will be required to maintain good relations with neighbours. Close monitoring of these species will be required to determine whether they have a detrimental effect on grassland creation	Y1 – Y2	
	If monitoring of the site indicates that the above methods are unlikely to deliver target BNG habitats and condition assessment by the end of the timings given above then:			
	2	Where soils testing indicates excessive nutrient levels which are incompatible with native grassland creation, a period of multiple cuts and removal may be required to reduce nutrient levels	Y1 – Y3	
		Use of green hay from local source to reintroduce grassland plants to the arable land, where monitoring indicates that this is not occurring through natural colonisation	Y3 – Y5	
		Manual removal of 'undesirable' plants such as thistle, ragwort and docks, from all proposed grassland areas of the site	Y2 – Y4	
		Once pasture/grassland established enough to support livestock, set stocking density of cattle to <0.5 units per ha and introduce pigs to root the soil, disturbing the seedbed and allowing dormant seeds to germinate.	Y3 – Y6	
If monitoring of the site indicates that the above methods are unlikely to deliver target BNG habitats and condition assessment by the end of the timings given above then:				
3	Oversowing with diverse species seed mix to improve diversity of grassland, if green hay or natural colonisation from on-site seed sources or seed bank is unsuccessful.	Y5 – Y7		
	Sowing of yellow rattle in the autumn to reduce vigour of tussocky grasses and enable annuals to germinate	Y5 – Y7		
	Spot treatment of 'undesirable' plants such as thistle, ragwort and docks, from all proposed grassland areas of the site if manual removal is not possible/practical and populations of these species does not reduce naturally after first 3 years	Y4 – Y8		





Table 6.5(continued): Management Interventions for Creation, Establishment and Maintenance of Grassland

Management Phase	Intervention Hierarchy number	Intervention	Timing of intervention	
Late Establishment	1	Graze native/heritage breed cattle at low stocking density (<0.5 LU/ha). Monitoring of scrub regeneration will enable grazing pressure to be adjusted where necessary to maintain the required amount of open grassland.	Y6 – Y30	
		Habitat surveys to monitor the establishment of native grasses, annuals, perennials within former arable areas. During early establishment (Y1-Y3) this should be at least annual.	Y1 – Y30	
	If monitoring of the site indicates that the above methods are unlikely to deliver target BNG habitats and condition assessment by the end of the timings given above then:			
	2	Use of mob grazing to improve soil structure and allow plant diversity to recover in former arable areas	Y6 – Y30	
		Remove grazing between April and August to allow plants to flower and set seed	Y1 – Y30	
		Where species diversity remains low (i.e., fewer than 5 higher plants per m ²) take a summer hay cut in August/September and remove arisings to prevent soil enrichment. Aftermath graze using cattle to prevent thatch buildup and open up the sward.	Y1 - Y30	
	If monitoring of the site indicates that the above methods are unlikely to deliver target BNG habitats and condition assessment by the end of the timings given above then:			
	3	Spot treatment of 'undesirable' plant species where this is not achievable manually	Y6 – Y30	
	If monitoring of the site indicates that the above methods are unlikely to deliver target BNG habitats and condition assessment by the end of the timings given above then:			
	Long-term management, maintenance & monitoring	1	Maintain grazing of site using heritage breed cattle at low density annually to create natural ecotone between grassland and scrub	Y6 – Y30
Monitor levels of scrub within grassland areas.			Y1 – Y30	
Regular habitat surveys (minimum every 3-4 years) to inform adaptive management plan			Y1 – Y30	
Introduce pigs occasionally to create patches of bare ground and turn over earth to create a variety of ecological niches			Y6 – Y30	
If monitoring of the site indicates that the above methods are unlikely to deliver target BNG habitats and condition assessment by the end of the timings given above then:				
2		Adjust grazing levels if overgrazing is occurring or if scrub levels are reducing grass:scrub ratio below that set by the Biodiversity metric	Y4 – Y9	
		Where scrub within grassland areas is exceeding % cover requirements of the Defra metric, increase livestock density to reduce this.	Y4 – Y9	
If monitoring of the site indicates that the above methods are unlikely to deliver target BNG habitats and condition assessment by the end of the timings given above then:				
3		Spot treatment of 'undesirable' plant species where this is not achievable manually	Y6 – Y30	
		If use of livestock to reduce scrub encroachment is ineffective, manual cutting of scrub to achieve <20% scrub cover within grassland areas.	Y6 – Y30	





7 Monitoring Protocol

Regular monitoring will be a crucial part of the management of the site. As a minimum, DWT will map the changes in habitat extent and distribution at the site as the management interventions outlined in Chapter 6 are closely associated with the outcomes of monitoring.

The main objective of the monitoring of the site is to ensure that the habitats at the site will deliver the BNG habitat units required by the Defra Metric. As BNG habitat units are measured by categorising habitats according to UKHab and assessing their condition, this will be the most important component of the monitoring strategy. Regular feedback from the results of the monitoring will be most important during the habitat creation stages at the site to inform where interventions may be required.

Results of the monitoring surveys will be assessed against previous results to measure the success of rewilding interventions on target species/species groups. Where surveys are recommended in Table 7.1 below, these will be undertaken as resources allow but are not critical to achieving the main objectives of the site (delivery of BNG habitat units).

Table 7.1 below outlines the expected monitoring surveys that will be undertaken at the site. It should be noted that where surveys are 'recommended' rather than 'required', the timing and frequency of these monitoring surveys may be subject to change. Ecological conditions and monitoring technology will vary over the 30 year period covered by this management plan, and as such it is important that this monitoring protocol should remain flexible and adaptable.





Table 7.1: Outline of DWT’s Proposed Monitoring Strategy for the site

Type of survey / assessment	Year																															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
UKHab Survey & Condition Assessment of Habitats	Required	Required	Required	Required	Required	Not required	Required	Not required	Not required	Required	Not required	Not required	Not required	Not required	Required	Not required	Not required	Not required	Not required	Not required	Required	Not required	Not required	Not required	Not required	Required	Not required	Not required	Not required	Not required	Not required	Required
Calculation of biodiversity value of site using Defra metric	Required	Required	Required	Required	Required	Not required	Required	Not required	Not required	Required	Not required	Not required	Not required	Not required	Required	Not required	Not required	Not required	Not required	Not required	Required	Not required	Not required	Not required	Not required	Required	Not required	Not required	Not required	Not required	Not required	Required
Fixed point photography	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended
Camera traps	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended
Soil assessments	Recommended	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Not required	
Bat activity monitoring	Recommended	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Not required	
Breeding bird survey	Recommended	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Not required	
Pollinator transects	Recommended	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Not required	
Drone survey	Recommended	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Not required	
Reptile survey	Recommended	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Not required	
Soundscapes monitoring	Recommended	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Recommended	Not required	Not required	Not required	Not required	Not required	

Key
Surveys required
Surveys recommended
Survey not required



8 References

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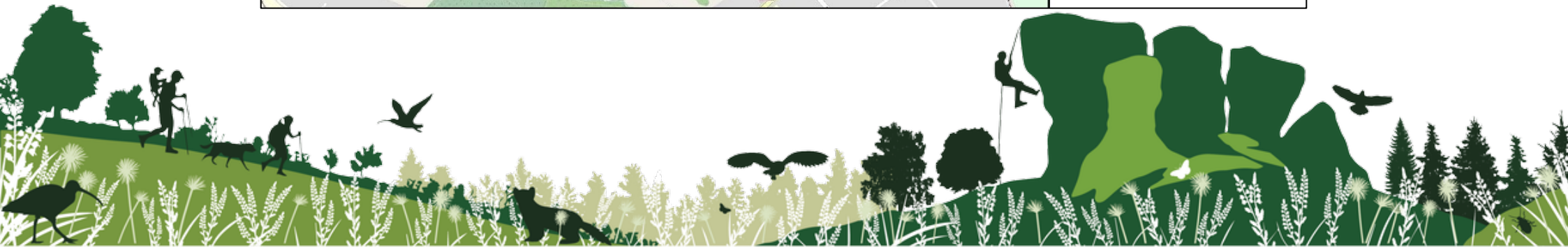
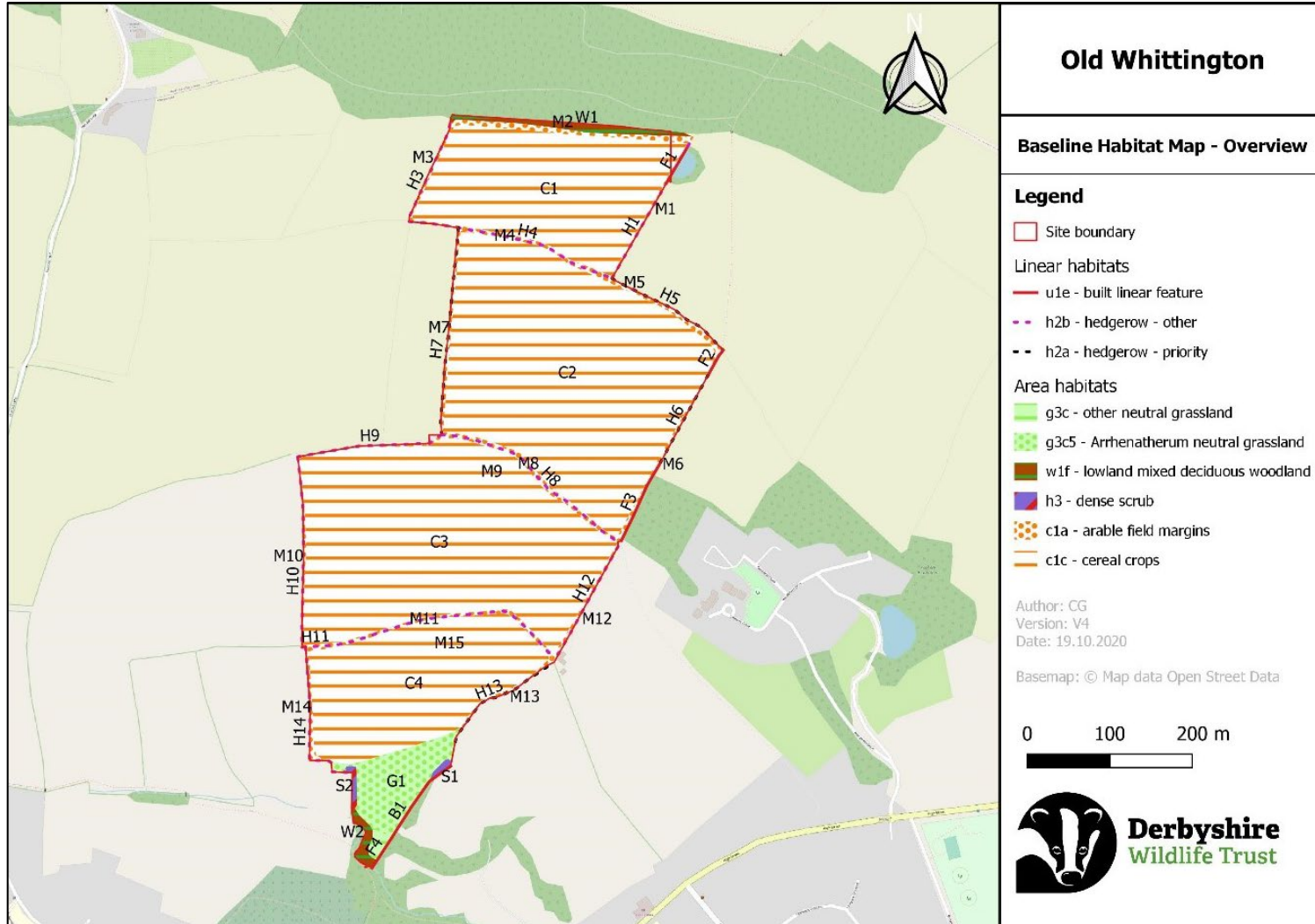


Appendix 1: Baseline Habitats (October 2022)





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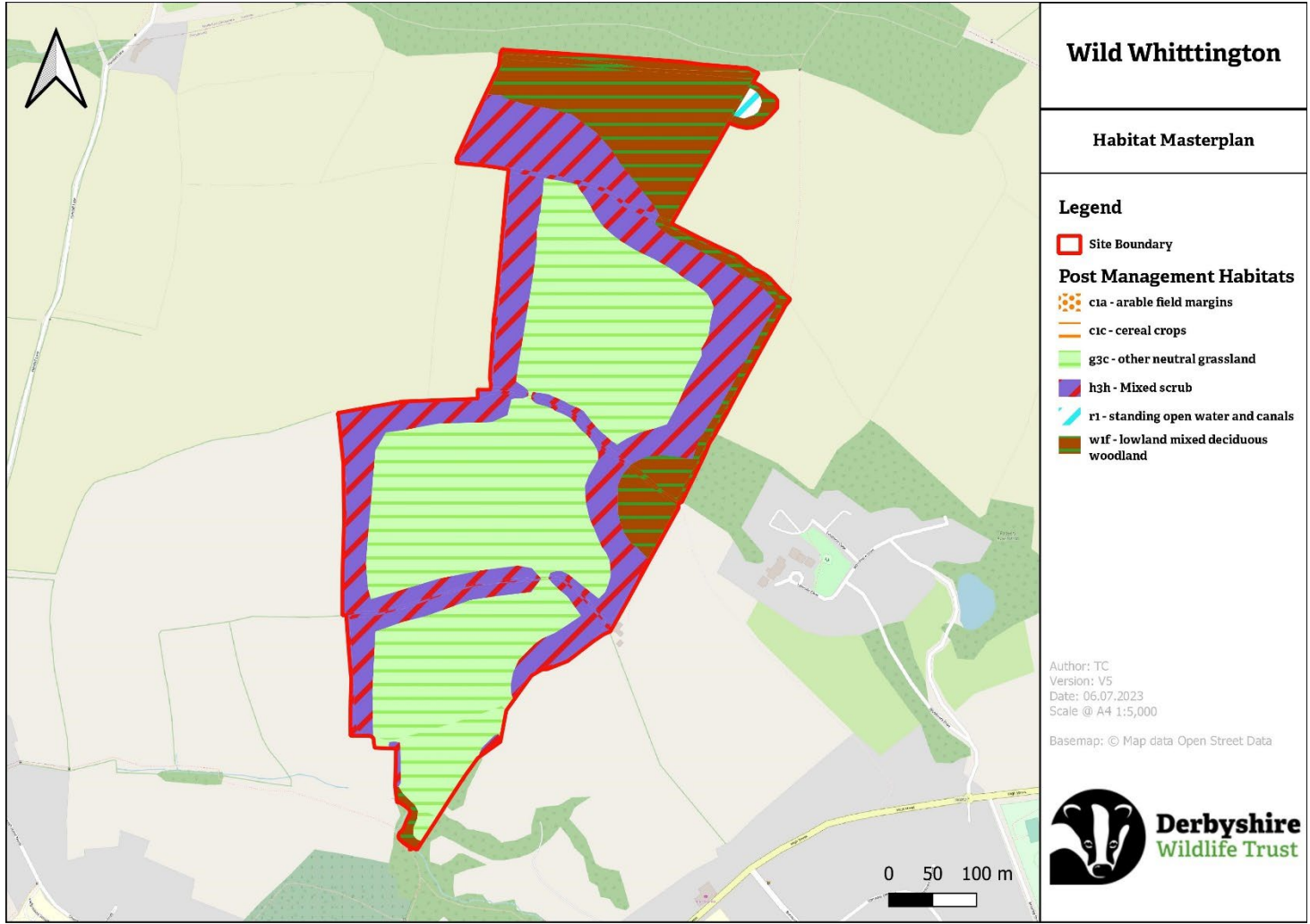




Appendix 2: Anticipated Habitat Masterplan (2053)



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Appendix 3: Biodiversity metric condition assessment criteria

Assessment of woodland condition under the condition assessment relies on the woodland scoring between 1-3 on each of the criteria, a summary of which is listed in Table A3.1 below for a woodland which would score 'Good'. Woodland in poor condition scores under 26, in good condition scores over 33, and moderate is in between. To undertake an assessment, the full condition assessment criteria must be consulted.

Table A3.1: Summary of biodiversity metric 3.1 condition assessment criteria for woodland⁷

Condition Assessment Criteria	
A	Three age classes of tree present (young, intermediate and old)
B	No significant browsing damage evident in woodland
C	No invasive plant species present
D	Five or more native tree and shrub species present
E	>80% canopy and understory are native species
F	0-20% open space present within woodland
G	All three classes of woodland regrowth present
H	Tree mortality under 10%
I	Recognisable woodland NVC plant community present
J	Three or more storeys, or a complex woodland
K	Two or more veteran trees per hectare
L	Presence of deadwood including standing, dead branches and stems and stumps
M	No nutrient enrichment or damaged ground

⁷ Adapted from Biodiversity Metric 3.1 – Habitat Condition Assessment Sheets with Instructions. (Available from: <https://nepubprod.appspot.com/publication/5850908674228224>)



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Table A3.2: Biodiversity metric 3.1 condition assessment criteria for scrub⁸

Condition Assessment Criteria	
A	Scrub is a good representation of the habitat type it has been identified as, based on UKHab. The appearance and composition of the vegetation closely matches the characteristics of the specific scrub habitat type. At least 80% of the scrub is native and there are at least 3 native woody species with none comprising >75% cover (Except hazel, juniper, sea buckthorn or box)
B	Seedlings, saplings, young shrubs and mature (or ancient/veteran) shrubs all present
C	Complete absence of INNS and species indicative of sub-optimal condition comprise <5% ground cover.
D	Well-developed edge with scattered scrub and tall grassland and/or herbs present between scrub and adjacent habitats
E	Clearings, glades or rides present within scrub providing sheltered edges

⁸ Adapted from Biodiversity Metric 3.1 – Habitat Condition Assessment Sheets with Instructions. (Available from: <https://nepubprod.appspot.com/publication/5850908674228224>)



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Table A3.3: Biodiversity metric 3.1 condition assessment criteria for medium distinctiveness grassland⁹

Condition Assessment Criteria	
A Essential for achieving higher than 'Poor' condition	Grassland is a good representation of the habitat type it has been identified as, based on UKHab. The appearance and composition of the vegetation closely matches the characteristics of the specific grassland habitat type. Indicator species listed by UKHab are consistently present
B	Sward height is varied (minimum 20% <7cm, 20%>7cm) creating microclimates providing opportunities for insects, birds and small mammals to survive and breed.
C	Cover of bare ground between 1-5%
D	Cover of bracken <20%, cover of scrub <5%
E	Combined cover of species indicative of sub-optimal condition and physical damage <5% of total habitat area. No INNS present
F Essential for achieving 'Good' condition	>10 vascular plant species per m ² , including herbs characteristic of the habitat type

⁹ Adapted from Biodiversity Metric 3.1 – Habitat Condition Assessment Sheets with Instructions. (Available from: <https://nepubprod.appspot.com/publication/5850908674228224>)



Appendix 4 – Henry Boot Case Study

Background

DWT were approached by Ecus Ltd in October 2021, on behalf of their client Henry Boot Developments, to support with the delivery of offsite Biodiversity Net Gain Habitat Units (BNG HU) within the Poolsbrook / Doe Lea area associated with the Markham Vale North Extension Scheme. A total of 16.47 BNG HU were required for the development site to deliver the minimum 10% biodiversity net gain.

A letter addressed to DWT from Ecus Ltd, dated 2nd September 2022 and titled 'Re. Markham Vale Northern Expansion – Impacts Summary and BNGA Update', sets out the BNG calculations related to the proposed Markham Vale Northern Extension scheme. This document, and the accompanying Biodiversity Metric 3.0 calculation tool spreadsheet, sets out the number of Habitat Units (HU) that would need to be delivered as part of off-site compensation. A total of 16.47 BNG HU are required from an off-site compensation area, for the development to achieve a 10% net gain. This will need to include a minimum of 3.96 HU of 'Lowland Mixed Deciduous Woodland' to satisfy the trading rules as set out in Defra's Biodiversity Metric 3.1.

Delivery of BNG Habitat Units

Figure A4.1 outlines how DWT will deliver the 16.47 BNG HU required by the Henry Boot Development site. The plan will allow the regeneration of 3.96 BNG HU of 'Lowland Mixed Deciduous Woodland' in 'Poor' condition (condition assessments to be undertaken as per Defra Metric 3.1 condition assessment criteria). Use of NoFence technology will be adopted to restrict grazing in areas of the site where woodland creation is the objective, allowing the existing hedgerows to expand into the existing field compartments. Detailed methods of habitat creation are outlined in Chapter 6 of the Rewilding Management Plan for the Wild Whittington site and woodland creation will be guided by the Forestry Commission's methodology for woodland creation by natural succession, ensuring that an appropriate density of woody shrubs and trees is in place at the end



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of the initial 10-year creation period. Trees and shrubs may need to be planted in year eight if natural colonisation is proving to be unsuccessful. In addition, seeding with woodland ground flora may be required once the canopy has started to close over, sometime between years 5 and 10.

The remaining 12.51 BNG HU required will be delivered through the creation of a mosaic of 'Other Neutral Grassland' in moderate condition and 'Mixed scrub' in moderate condition. It is recognised that seeding of the fields may be required where early monitoring indicates that an appropriate seedbank is not in place, to create a seed source for the site as it is relatively isolated from other grasslands being surrounded by intensive arable land to the west and modified grassland to the east. Once this is completed, the site will be grazed using a dynamic grazing regime, where numbers of grazing cattle will be adjusted to maintain areas of the site as open, with most scrub regeneration anticipated at the peripheries of the fields near to the hedgerows. Through this approach DWT are confident that the result will be a complex 50:50 mosaic of grassland and scrub habitats.

Through implementation of the methods outlined above and set out in detail in Chapter 6 of the management plan, DWT can confidently predict that we will deliver 18.04 BNG habitat units within the area outlined in Figure A4.1 below. This will be sufficient to deliver 16.47 BNG HU required by the Henry Boot Development site.



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Figure A4.1: Off-Site Biodiversity Compensation Plan

