Bramcote Hills Park Woodland Local Nature Reserve

Woodland Management Plan 2017 – 2026







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INTRODUCTION

This management plan was produced by Nottinghamshire Wildlife Trust (NWT) on behalf of, and in partnership with Broxtowe Borough Council. The plan is solely for the woodland habitat located within Bramcote Hills Park.

The woodland area, outlined within this management plan, was declared a Local Nature Reserve (LNR) in 2008. It is a well valued local amenity greenspace with biodiversity value located off the A52/A6007 between Stapleford and Bramcote, on the western boundary of Nottingham. In line with the aims and purposes of LNRs, Bramcote Hills Park Woodland provides people with ample opportunity to learn about nature, geology and local history. The statutory LNR status that applies to the woodland will continue to help protect the wildlife and other interest of the site and increase local people's awareness and appreciation of it.

The LNR forms a key part of the recognised green corridor between Trowell to Wollaton Park. Other LNRs with connecting habitats include:

- Nottingham Canal,
- Pit Lane,
- Stapleford Hill Woodland,
- Alexandrina Plantation,
- Sandy Lane,
- Wollaton Park.

The above LNRs are managed by Broxtowe Borough Council, except Wollaton Park, which is managed by Nottingham City Council. There is currently no friends group directly associated with Bramcote Hills Park Woodland but The Friends of Bramcote Ridge are involved with the management of Alexandria Plantation and Sandy Lane and have an interest in the site as it part of the same wildlife corridor. The Robin Hood Way runs through Bramcote Hills Park Woodland LNR and connects public access between the LNRs.

The previous woodland management plan covered the period 2006 – 2015. The purpose of this updated management plan is to outline the current status of the site, its value and how it will be maintained and enhanced through its implementation. The management plan aims to achieve the following:

- Continue to restore the wood to typical Sherwood oak/birch woodland
- Protect and enhance the floral and structural diversity of the woodland
- Maintain and enhance the potential of the woodland to support a diversity of fauna species
- Protect and enhance deadwood habitats
- Ensure that Bramcote Hills Park Woodland is a safe environment for recreational purposes
- Promote and enhance the recreational potential of the wood in an ecologically sustainable manner.
- Promote and enhance the educational potential of the wood including awareness of issues and ecological impacts.

• Promote and enhance community involvement in the wood including its long term maintenance.

The management proposals contained within this plan have been agreed in consultation with Officers of Broxtowe Borough Council and Practical Conservation Volunteers C.I.C (PCV).

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PART 1: DESCRIPTION

1.1 Location

The woodland within Bramcote Hills Park (referred to as "Bramcote Hills Park Woodland" or "The LNR" hereafter) is located to the west of Bramcote and North of Stapleford, on the western Fringe of Nottingham. The site grid reference is SK 503 385. It is located entirely within the Borough of Broxtowe, in the county of Nottinghamshire (Vice County 56). The woodland lies on the boundary of the National Character Area 49, Sherwood and 38, Derbyshire, Nottinghamshire and Yorkshire Coalfield. A map showing the site location is provided in Figure 1 below.

Figure 1: Location of Bramcote Hills Park Woodland LNR, as indicated by red circle and arrow.



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1.2 Map Coverage

The LNR can be found on Ordnance Survey Landranger map no.120 (1:50,000 scale) & Ordnance Survey Explorer map no. 260 (1:25,000 scale). A map with the outline of the LNR and woodland managed under this plan is provided in Figure 2 overleaf.



Figure 2: Bramcote Hills Park Woodland LNR boundary (Dark Green)

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1.3 Owner

Bramcote Hills Park Woodland LNR is solely owned by Broxtowe Borough Council and is an integral part of Bramcote Hills Park.

1.4 Size

The size of the woodland managed in accordance with this plan is 11.88 hectares (29.4 acres) in area.

1.5 Soil and geology

<u>Soil</u> – The soil is coarse yet loamy over soft sandstone (The Soil Survey of England and Wales (1983)) and is typical of soils derived from sandstone, which tend to be free-draining, slightly acidic and typically support oak-birch woodland and heathland.

<u>Geology</u> – The geology underlying the woodland consists of the Nottingham Castle Sandstone Formation (formerly known as the Bunter Pebble Beds) and the Lenton Sandstone Formation (Lower Mottled Sandstone) both of which form part of the Sherwood Sandstone Group (Bunter Sandstones). The formation consists of buff and red mottled medium to coarse grained sandstones with fine parallel laminations and cross bedding (Frost & Smart 1979) 1909: Geological survey Great Britain: (England & Wales) Sheet 125: Derby 1" to 1 mile.

This formation was laid down in the Triassic period approximately 230 million years ago and covers nearly a quarter of the County, occurring as a broad belt between Nottingham and South Yorkshire.

There is an exposure of the buff and red mottled medium to coarse grained sandstone situated to north west of the woodland, which is designated a RIGS (Regionally Important Geological Site). The base of the exposure is of a coarser cross bedded sandstone which grades up into a finer parallel laminated sandstone. Both are poorly cemented, mottled and pebbleless.

1.6 Aspect, topography and altitude

The wood lies 74 metres above sea level at its lowest point, rising to 107 metres above sea level at its summit. Its aspect varies as the woodland occurs around the slopes of a hill.

1.7 Access

The main vehicular access point and designated parking area is located off the A6007 (Ilkeston Rd) at the junction with the A6002 (Coventry Lane), immediately to the south west of the woodland. Parking and access is also possible from Bramcote Leisure Centre, situated to the south.

A public footpath loops around the woodland. The northern section of this is part of the Robin Hood Way, a national trail. A number of informal paths are located throughout the woods.

1.8 Surrounding land use

Bramcote Hills Park Woodland is part of Bramcote Ridge, a sandstone ridge that forms a linear string of connecting open green spaces and serves as a wildlife corridor, extending over 2 ½ miles from Wollaton Park in the City of Nottingham to agricultural land south of Trowell.

The woodland itself is bounded to the south by the play area and amenity grassland recreation area of Bramcote Hills Park, which leads onto the urban environment of Stapleford. Schools and associated education land are situated to the east and south east of the wood, beyond which are further residential areas. Adjacent to the western boundary of the wood is a walled garden associated with the park. Across the A6002 is Stapleford Hill Woodland LNR, a continuation of the Bramcote Ridge.

To the north is a former quarry which was used as a landfill site. The land is no longer used for this purpose and restoration works are nearing completion. These works include planting of deciduous trees to create woodland mosaic with grassland, and the creation of two sports pitches, to extend the facilities at the adjacent school.



Restoration scheme on adjacent landfill site.



Tree planting on adjacent northern boundary of Bramcote Hills Park Woodland LNR.

1.9 Site Description

Bramcote Hills Park Woodland is a deciduous broadleaved woodland that appears to be a fragment of Sherwood Forest oak / birch woodland. Originally situated to the north of Bramcote Hills House it would have formed an extension to the more formal parkland of Bramcote Hills Park and consequently has been subjected to the introduction of an invasive horticultural species that had an adverse impact on the botanical diversity within the woodland in previous years. During the course of the previous management plan, the majority of the Rhododendron, which was a dominant species within several compartments, has been removed and will need to continue to be controlled. Works to remove to create a more native canopy typical of an oak/birch woodland is on-going. Pro-active methods were also undertaken during the previous management plan to restore the understorey structure of the woodland. There is the opportunity to further extend these techniques elsewhere in the woodland to further enhance its habitat structure.

The site is subject to a high level of visitor numbers with a series of informal pathways allowing access to the majority of the site. The undulating nature of the woodland and its paths makes it an interesting place to explore, which is well valued by the local community. Works undertaken as part of the previous management plan appears to have lessened the impacts of recreational disturbance, with fencing deterring off road bike/motorcycle use. However, maintenance work will be required on fencing and further techniques could be applied to encourage visitors to remain on designated paths.

1.10 Statutory Designations

The site was designated as a Local Nature Reserve in 2008. Local Nature Reserves are statutory designated under Section 21 of the National Parks and Access to the Countryside Act 1949 and amended by Schedule 11 of the Natural Environment and Rural Communities Act 2006. The site is recognised for its importance to local wildlife and as public open space.

1.11 Non-statutory Designations

The exposure to north west of Bramcote Hills Park, on the edge of the wood is designated as a RIGS (Regionally Important Geological Site).

RIGS are geological or geomorphologic sites that are considered worthy of protection for their educational, research, historical or aesthetic importance (Nature Conservancy Council 1991).

1.12 Broxtowe Green Infrastructure Strategy

Broxtowe Borough Council has published a Green Infrastructure (GI) Strategy covering 2015 – 2030. In this strategy, linear GI corridors have been classified as primary (core) corridors, and secondary corridors. The Biodiversity Opportunity Mapping exercise (BOM) (Broxtowe BOM Report, Notts

Biodiversity Action Group, 2014) fed into the development of this strategy. The BOM has identified habitats which could be created and extended in the corridors, to create greater ecological connectivity and habitat enhancement.

Bramcote Hills Park (and woodland LNR) forms part of corridor 2.10 which extends from the western edge of Stapleford, through Bramcote to the northern edge of Beeston. The corridor includes Stapleford Hills Wood LNR, Alexandria Plantation LNR and Sandy Lane LNR, as well as Moorbridge Wetland LWS, Bramcote Moor Grassland LWS and a total of six amenity areas (including Bramcote Hills Park). The GI recognises that woodlands within the corridor, including Bramcote Hills Woodland LNR, could benefit from biodiversity enhancement works.

Bramcote Hills Park Woodland LNR is also located to the south of corridor 2.11 *Erewash to Wollaton*, with the former landfill site adjacent to the southern boundary of the corridor (see figure 3 below).

The BOM identified the potential to extend woodland (plantation and seminatural) and grassland habitat (comprising semi-improved neutral grassland, unimproved acid grassland and marsh/marshy grassland types) on and near to both of these corridors.

Figure 3: Extract from Broxtowe Green Infrastructure Strategy showing the Bramcote Corridor and boundary brook (2.10) Erewash to Wollaton Green Corridor (2.11).



© Crown copyright and database rights 2015. Ordnance Survey 100019453. You are not permitted to copy, sub-license, distribute or sell any of this data to third parties in any form The real-world width of corridors vary as appropriate. The line shown is for illustrative purposes only to show the existence of the corridor.

1.13 Future Land Use

As the demand for infrastructure and housing developments are ever increasing, there is the possibility that surrounding land use may change in the not too distant future. This is reflected in the Local Plan process. The "*Site Allocations: Potential Additional Sites*. (August 2016) identified the school sites located adjacent to the eastern boundary of the LNR, together with land to the north of the former landfill site for potential new residential development.

This highlights the need to consider, and to be prepared for future potential challenges to the LNR, such as an increase in footfall (and other forms of anthropogenic recreational disturbance), an increase in predation to wildlife by domestic animals (e.g. cats and dogs), litter, anti-social behaviour and habitat fragmentation. It is vitally important that such issues are addressed during the consultation stage of the planning process, and that if development is to proceed, an agreed adequate level of mitigation is provided.

Figure 4, Extract from Broxtowe Borough Council Site Allocations Document 2016, showing potential development near to the LNR.



It is anticipated that the former landfill site will be incorporated into the Bramcote Hills Park boundary, thereby increasing the area of the plantation/semi-natural woodland associated with the park (exact area yet to be confirmed). In January 2017, the restoration scheme is well advanced and new plantation woodland is establishing well. Discussions are ongoing between the Borough Council and Biffa Waste Services, the operators of the landfill site, to bring this restoration and land transfer to the council to a conclusion.

A further impact on the woodland may in time be the creation of a toilet and café proposed on the park. A scheme is currently being developed by the Bramcote Hills Park Community Interest Company for such a facility. This would be located on the edge of the woodland adjacent to the children play area. This may result in the felling of a small number of trees to create access. If necessary this will be carefully monitored and replacement planting undertaken.

PART 2: EVALUATION & OBJECTIVES

2.1 Evaluation of site features (Ratcliffe's criteria)

2.1.1 Size

The wood is 11.88 hectares (29.4 acres) and is a significant ecological resource in this location. However, when considered as part of the much larger green corridor, between the River Erewash and Wollaton, which links mature parkland with open countryside it becomes a much more significant ecological resource, providing opportunities for movement of species between urban and rural habitats.

2.1.2 Diversity

In places, structural and species diversity is fairly low, which is the result of a number of factors including the geology, the introduction of alien species and high visitor numbers. However, since the previous management plan, habitat structure has been much improved due to the removal of rhododendron and sycamore, the planting of native shrub species, and infrastructure and access improvements undertaken.

In order to maintain this, measures will need to continue in order to control encroachment of invasive species and disturbance by visitors. Further planting of native shrubs could also be undertaken. Coppicing of selected shrubs may also need to be considered towards the end of this management plan in order to further increase species and habitat diversity of the woodland.

The woodland has an interesting topographical diversity, which is unusual in Nottinghamshire.

2.1.3 Naturalness

It is likely that the woodland occurred naturally as it is situated on an undulating hill with sandstone outcrops, which would not have been cultivable for agriculture or suitable for building development.

Parts of the woodland are clearly plantation. There are also many introduced non-native species occurring in the woodland, including specimen trees such as the Cedar of Lebanon (*Cedrus libani*), which is to be found alongside the southernmost path of the woodland.

The area at the summit of the woodland however, has naturally regenerated after a fire destroyed the area approximately 40 years ago. This area is identified as compartment 9 on the compartment map (see Appendices 1 and 2). It has regenerated from the seed bank into classic oak/birch woodland with a significantly more diverse botanical and structural composition than the rest of the woodland.

The woodlands' current condition has resulted from a lack of management in the mid-20th century allowing invasive species to dominate, to the detriment of less vigorous characteristic species. Within the previous plan timeframe the woodland has started to regain the appearance and feel of typical Sherwood oak/birch woodland and this will continue in the period of the current plan.

2.1.4 Rarity

The Sherwood Natural Area has a high proportion of woodland cover but much of the classic oak/birch woodland and heathland that is indigenous to the area has been lost to coniferous woodland. Bramcote Hills Park Woodland LNR occurs at the southernmost tip of this Natural Area and is situated in a predominantly urban environment. This makes the wood an unusual and a valuable ecological and recreational resource that is of high value.

Oak/birch woodland is a Nottinghamshire Biodiversity Action Plan priority habitat. It has been given this status in recognition of its decline in area and integrity in the county. With appropriate management, this priority habitat could be further restored and enhanced.

2.1.5 Fragility

The presence of invasive alien species, particularly rhododendron, within the woodland is a threat to its botanical and structural diversity, which will diminish over time, if left unmanaged.

If further development is to occur adjacent and/or near to the woodland boundary, there is the possibility of increased anthropogenic disturbance, as well as habitat fragmentation.

Increases in visitor numbers, off-road bike use and antisocial behaviour within the wood can potentially damage the woodland ecology through soil erosion, erosion of geological outcrops and fire hazard. Continued monitoring and, when required, remedial works to repair any damage is advisable, as well as carrying out appropriate infrastructure maintenance and improvement work to discourage antisocial behaviour.

2.1.6 Typicalness

The woodland should be typical of Sherwood oak/birch woodland but because it has previously been heavily shaded by sycamore and rhododendron and still is in sections, the ground flora (dominated by bramble and bracken with wild honeysuckle, Yorkshire-fog and creeping soft-grass) is only present in patches. The geological conditions are suitable however, which means that typical oak/birch woodland could be restored in time with appropriate management.

2.1.7 Recorded history

The woodland exists in the same proportions as today on Sanderson map of 1835 (Sanderson 1835) (see Appendix 4).

2.1.8 Position in an ecological/geographical unit

The wood forms part of a much bigger linear habitat or wildlife corridor, which stretches from Wollaton Park in the City of Nottingham to agricultural land south of Trowell, leading into open countryside. Its individual value, although great, is far outweighed by its value as part of this corridor connecting urban habitats to rural habitats, enabling the movement of wildlife.

2.1.9 Potential value

With continued appropriate management, Bramcote Hills Park Woodland has great potential value for recreation, nature conservation and as an educational resource. It also has great potential for restoration to a typical Sherwood oak/birch woodland, a Nottinghamshire Biodiversity Action Plan priority habitat.

Recreational and educational value could be maintained through the provision of additional interpretation material identifying habitats, species and individual plants of interest, including information about the management practices used throughout the woodland, in order to engage the public in the positive management of the area.

The woodland also has great potential as an educational resource for schools and local communities through volunteer days, guided walks, open days, and participation in survey training and subsequent surveys and structured educational events.

Further ecological potential could be realised through positive management of the woodland as an ecological resource in its own right, but more importantly, through management of the wood as part of the River Erewash to Wollaton wildlife corridor.

2.1.10 Intrinsic appeal

The site has great intrinsic appeal as a valuable wildlife resource and also as a recreational facility for local people.

The woodland provides a valuable recreational green space that local people can enjoy without the need for transport provision to reach it or financial expenditure to enjoy it. It's size allows for shorter, circular walks around the wood, or it could be part of a longer walk, linking up with national trails, such as Robin Hood Way and Erewash Valley Trail. The floral, structural and topographical diversity provides recreational and wildlife interest, making it an interesting place to explore. In terms of wildlife, a significant bird population (see Appendix 6 for details of breeding bird survey) is present. This has been encouraged by provision of standing and fallen dead wood habitat and through the planting and establishment of several planted shrub compartments.

2.2 Objectives

- Continue to restore the wood to typical Sherwood oak/birch woodland
- Protect and enhance the floral and structural diversity of the woodland
- Maintain and enhance the potential of the woodland to support a diversity of fauna species
- Create and maintain deadwood habitats
- Ensure that Bramcote Hills Park Woodland LNR is a safe environment for recreational purposes
- Promote and enhance the recreational potential of the wood in an ecologically sustainable manner.
- Promote and enhance the educational potential of the wood including awareness of issues and ecological impacts.
- Promote and enhance community involvement in the wood including its long-term maintenance.

2.3 Factors Influencing Management

- Timescale the need to do things gradually to ensure that the visual appeal of the woods is not lost during management and restoration
- Nature Conservation the need to ensure that only native species of vegetation, indigenous to Sherwood oak/birch woodland and of local provenance is introduced into the woodland
- Nature Conservation the need to remove invasive species that are a threat to the vegetative diversity and therefore the integrity of the woodland
- Safety in the interest of public safety, all possible measures should be taken to ensure public safety whilst work is being carried out, including temporary closures of paths if required
- Community involvement local community and volunteer groups should be consulted on the strategic management of the woodland. The community could be encouraged to become more involved with the

practical management of the site to prevent the reliance on the role of the PCV.

- Practical management much of the practical work is carried out by the PCV, the number of workdays that can be accommodated during appropriate seasons is limited by financial resources. There is no guarantee that the council will be able to fund the PCV throughout the duration of this management plan and alternative funding sources for the PCV involvement in the site will need to be considered and sourced throughout the period of the plan.
- Legal obligations work likely to cause disturbance to breeding birds i.e. felling and scrub clearance cannot be undertaken during the bird breeding season (March to September). Therefore all felling and scrub clearance must be undertaken during the autumn and winter as it is an offence to disturb any wild bird (with the exception of pest species) while it is tending a nest containing eggs or young. To do so would be a criminal offence under The Wildlife & Countryside Act 1981.
- Protected species mature trees identified for felling, likely to provide roosting opportunities for bats should be surveyed by a licensed bat worker prior to felling. All species of British bat plus their roosting sites are protected by the Conservation of Habitats and Species Regulations 2010, Wildlife & Countryside Act 1981, Countryside and Rights of Way Act 2000, and by the Natural Environment and Rural Communities Act 2006.
- The need to accommodate and, where appropriate, enhance the recreational value of the site.
- Management of the site must compliment the overall Bramcote Hills Park Green Flag Management Plan.
- Annual or bi-annual meetings regarding the management of the site are required to identify work programme and schedule of works. Meetings should involve Broxtowe Borough Council, Nottinghamshire Wildlife Trust, PCV, contractors and anyone else likely to carry out work on site.
- Ongoing funding for the management identified cannot be guaranteed for the full term of the plan. It may therefore be necessary for some tasks to be rolled over into subsequent years, to be completed when funding becomes available.
- Tree disease/ biosecurity. At 2017 there is an increasing focus on detection, prevention (e.g. implementation of biosecurity) and managing the impact of any disease outbreaks. The diseases/ pathogens that pose the highest risks at this site are:
 - Phytophthora ramorum it is important to look out for evidence of infection. In rhododendron it is evident by the blackening of

the leaf along the mid-vein and necrosis at the leaf-tip. It is a fugus-like pathogen, which affects a range of trees and plants. Rhododendron is a known host (the disease doesn't usually kill it) but sweet chestnut is frequently affected, with the diseases causing severe damage and death. The pathogen can be spread on footwear, vehicle tyres, tools and equipment. Whilst most of Nottinghamshire is in Zone 3 (least risk-area) Bramocote Hills Park Woodland is on the edge of zones 1 and 2 at the time of writing.

- Acute Oak Decline It is widespread in Britain, including the midlands, and is affecting several thousand oak trees. Various species of bacteria and a buprestid beetle, usually found in lesions caused by the disease, is thought to be associated with AOD
- Oak Processionary Moth, this non-native moth has been accidentally introduced to south east England but vigilance is needed because there have been isolated cases elsewhere, including the neighbouring county of Yorkshire.
- There are several others pest and diseases to be vigilant of, including:
 - *Xylella fastidiosa*, which is not currently known in the UK but has potential to infect several species of broadleaved tree.
 - Sweet chestnut blight is not known to be established in the UK although isolated cases have been reported. It has caused significant losses of sweet chestnut in Europe and America and can affect some species of oak.
 - The latest guidance on tree pests and disease is available from the Forestry Commission's Pests and Diseases website http://www.forestry.gov.uk/pestsanddiseases

2.4 Current Woodland Conditions

The structural and floral diversity of the woodland had degraded due to the encroachment, and dominance in some areas, of invasive non-native species. Efforts to restore this structure have been on-going, and will need to continue to achieve a variety of niches and to increase the overall biodiversity of the woodland. The loss of structural diversity seriously affects the ability of birds to use the woodland as a breeding and foraging site as they require substantial areas of native species shrubs in which to nest and feed. This also applies to small mammal species. Efforts will continue to increase the ground flora within the woodland in order to provide habitat for invertebrates and subsequently birds and small mammals.

The following section details each compartment present within the woodland and the management required. A management compartment location map can be found in Appendix 1 and 2.

Compartment 1

<u>Canopy</u> - Sweet chestnut dominated canopy with occasional Yew, Norway Maple, Sycamore and Rowan

<u>Shrub Layer</u> – Elder, Holly dominated shrub layer. Occasional bramble, rhododendron and sycamore.

<u>Ground Layer</u> - Common nettle dominated ground flora with abundant areas of bare ground.

<u>Features</u> – This compartment includes the main entrance to the woodland. Careful management is needed to retain an attractive entrance whilst still protecting and enhancing the biodiversity and ensuring a welcoming feel. There are some substantial Sycamore and Norway Maple in this area, which are to be retained around the entrance. Some lying and standing dead wood is present within this compartment.

Extensive rhododendron removal has been undertaken in this compartment. The ground layer is becoming established with native species such as bramble and common nettle. An area has been planted with whips of shrub species in the north western section of compartment 1. This area has been enclosed with stock fencing, as previously planted whips were found to be prone to rabbit grazing or antisocial behaviour. The fencing has been very successful in preventing this.

The previous management plan described the shrub layer to the South and East of the compartment, particularly the elder, as overly mature and of a similar size and structure, shading the woodland floor. It is therefore proposed that this area continues to be monitored and the shrubs within the compartment will be coppiced towards the end of, or early on within the next management plan to promote a healthy and diverse shrub layer.

An interesting sandstone outcrop is located adjacent to the footpath leading to the walled garden. The outcrop is experiencing shrub and tree encroachment, including from rhododendron. This needs to be removed on a regular basis throughout the management plan.



Sandstone outcrop in Compartment 1 with Rhododendron encroachment.

<u>Management Requirements</u> – It is proposed that any sycamore and Norway Maple regrowth will be removed (using hand tools) to stop the encroachment of these species. If the removal of any more mature specimens (c. 30 cm diameter) is carried out, felling could be to a height of approximately 2-3 metres, allowing the remaining stump to decay over time to provide nesting habitat for species such as Marsh tit (*Parus palustris*), Willow tit (*Parus montanus*) and Woodpeckers (*Picus sp.*).

Alternatively, ring barking could be carried out. This involves making deep cuts around the trunk through the bark and into the wood, stripping off the bark in the process. This kills the part of the tree above the cut. Ring barking individual shrub and tree branches can be carried out to produce standing dead wood without killing the entire plant. Any regrowth from the trunk can be either removed with hand tools, which will weaken it over time, or it will need to be treated with Glyphosate.

Rhododendron along the NW edge has been removed in the early years of the previous management plan. Pockets of rhododendron regrowth are beginning to appear and it is recommended that these are removed, including the roots and sprayed with glyphosate. Some of the mature rhododendron bushes have been retained on purpose to channel visitors, keeping them along the main path and to partially restrict views to the formal gardens, providing visual stimulation. The compartment should be continually monitored for any signs or rhododendron regrowth or spread from existing bushes. A sub-compartment of shrubs was planted in Compartment 1 following the removal of rhododendron. A fence was erected around this sub-compartment to discourage animal grazing (rabbits) and human disturbance, which was found to be effective. Once the shrub has reached a suitable maturity so not to be affected by such impacts, it is recommended that the fence is removed for aesthetics and to allow other wildlife into the shrub area. It is likely that within the next 10 year management plan, this area of shrub will need thinning and/or coppicing. The compartment should be monitored during the course of this management plan, with works considered and reviewed towards the end of this plan.

Japanese Knotweed (*Fallopia japonica*) was removed during the phase of the previous management plan as it was found to be present adjacent to the main path to the South West of the compartment. This area should be continually monitored for any signs of regrowth of Japanese Knotweed. If the species is found to be present, then removal should be undertaken by a contractor using either Glyphosate or licenced removal. This would need to be carried out over a period of 3-5 years.

The sandstone outcrop along the SW edge of the compartment is becoming lost to shrub and tree encroachment. This area should be cleared of both shrubs and trees to expose the sandstone. Removal should be mindful of the sandstone so as not to damage the exposure. Consultation with Nottinghamshire Biological and Geological Record Centre and the county geologist is recommended.

Compartment 2

<u>Canopy</u> – Yew dominated canopy

<u>Shrub Layer</u> - No significant shrub layer but occasional shrub species present including rhododendron regrowth.

Ground Layer - No ground vegetation present (predominantly bare earth).

<u>Features</u> – This is a small compartment with Yew dominant canopy resulting in heavy shade causing little shrub and no ground layer. This compartment, due to the high proportion of yew will always lack a shrub or ground flora layer. However, this compartment is only small so this is not considered to be a problem. Furthermore, the yew has value in terms of proving winter cover and as foraging and nesting habitat.

<u>Management Requirements</u> – The sycamore closest to the yews should continue to be monitored and removed or pruned if found to be impeding the growth of the yews. The rhododendron should continue to be monitored and removed, if necessary.

Compartment 3

<u>Canopy</u> – Beech dominated canopy to the north and a mixed-species canopy to the south.

<u>Shrub Layer</u> - Elder is the dominant shrub layer species with rhododendron adjacent to footpath and occasional holly.

Ground Layer – Bramble dominates with some nettle

<u>Features</u> – Compartment situated on a fairly steep South-facing slope adjoining a grassland area between the woodland and the site of the former Bramcote Hills House. The grassland and foundations of the house are not included in this management plan but the management of the woodland in this area needs sensitive treatment in order that the view of the woodland from the more formal areas of the park and Bramcote Hills House site is not adversely affected.

<u>Management Requirements</u> – The previous management plan stated that, "the total eradication of sycamore may not be possible from this compartment due to its position and high visibility but it should be the ultimate goal." The removal of sycamore caused some controversy with other woodland users in previous years and it is recommended that the canopy is continued to be monitored, and sycamore trees which inhibit the growth of other valuable trees or that create significant shading should be removed. In time, this will allow an improved woodland structure to develop.

If the removal of any more mature specimens (c. 30 cm diameter) is carried out, felling could be to a height of approximately 2-3 metres, allowing the remaining stump to decay over time to provide nesting habitat for species such as Marsh tit (*Parus palustris*), Willow tit (*Parus montanus*) and Woodpeckers (*Picus sp.*).

Alternatively, ring barking could be carried out. This involves making deep cuts around the trunk through the bark and into the wood, stripping off the bark in the process. This kills the part of the tree above the cut. Ring barking individual shrub and tree branches can be carried out to produce standing dead wood without killing the entire plant. Any regrowth from the trunk can be either removed with hand tools, which will weaken it over time, or it will need to be treated with Glyphosate.

It was agreed within the previous management plan that all of the rhododendron, except for a 5 metres wide strip to the south of the compartment, should be removed to allow the regeneration of the native species shrub layer and ground flora. The extent of rhododendron should continue to be monitored and removed if spreading beyond the 5m strip. Any areas of regrowth will need to be treated with Glyphosate. This should be undertaken early on in the management plan, as clumps of regrowth are present.



Rhododendron in Compartment 3

As the rhododendron strips (retained as screening) will require on-going management in order to prevent Rhododendron encroaching into the cleared areas, it is suggested that this strip could be gradually removed and replaced with a native evergreen such as holly. This would have to be undertaken in sections so not to have a significant impact on the aesthetics.

Compartment 4

<u>Canopy</u> – Oak and sycamore are dominant

Shrub Layer - Occasional Rhododendron.

Ground Layer - Dominant bramble.

<u>Features</u> –The NW of the compartment is visible from the A6002 (Coventry Lane), the walled garden and Stapleford Hills Wood. It is situated on a north westerly facing slope.

<u>Management Requirements</u> – Within the previous management plan it was recognised that removal of alien species in this compartment will need to be undertaken in stages to minimise both the visual effect and impacts on ecology. Native shrub planting has not been undertaken in this area, although rhododendron removal has been ongoing. The phased rhododendron removal should continue.

As with compartment 1, some of the mature rhododendron bushes have been retained on purpose to channel visitors, keeping them along the main path and to partially restrict views to the formal gardens, providing visual stimulation. Phased partial replacement of the rhododendron strip with holly could be considered.

The growth of rhododendron and sycamore should continue to be monitored and any seedlings or saplings removed from the compartment.

Compartment 5

<u>Canopy</u> – Silver Birch and Sycamore dominated canopy

<u>Shrub Layer</u> - Sparse holly shrub layer to NW of compartment with significant bare areas where rhododendron clearance has occurred.

Ground Layer - Bramble dominant ground layer with areas of bare earth.

<u>Features</u> – The sandstone outcrop in the south west of the compartment is of significant geological interest (RIGS). The situation regarding off road bikes and disturbance appears to have improved with the fencing installed during the previous management plan, although there is still historical evidence of disturbance. The outcrop is also being affected by rhododendron and sycamore encroachment with some sycamore growing out of the exposure.



Sandstone outcrop in Compartment 5 with Rhododendron encroachment.

The compartment has undergone significant rhododendron clearance, creating large bare areas. Part of this has been planted with native shrub species, bordering with Section 7, which again has also been fenced to protect the new whips. Fencing has also been installed adjacent to footpaths to help channel access to the footpath. This fencing will need some form on ongoing maintenance as there is evidence of posts rotting and rails coming loose. The steps outside the northern boundary wall of the gardens have recently been upgraded by PCV.

<u>Management Requirements</u> – The rhododendron that is growing out of the sandstone outcrop will need removing as soon as possible as it will damage the rock face if left. The removal will also reveal the rock formation and encourage fern flora.

Trees in the immediate vicinity of the sandstone outcrop should be removed as a priority to protect the integrity of the exposure.

The sycamore and rhododendron regeneration from stumps should continue to be monitored and treated with Glyphosate.

Fencing around the whips can be removed once the shrub has reached a stage of maturity to withstand any animal or anthropogenic disturbance. Consideration will need to be given under the next 10 year management plan to thinning and/or coppicing the shrub layer. It is recommended that the bramble within the sub-compartments is cut back, especially where it is perhaps inhibiting the growth of and competing with the planted shrubs.

Compartment 6

It has been agreed for this compartment to be removed from the management plan as it no longer has any distinguishing features which separate it from Compartment 7. It was previously a small compartment that had been subjected to a significant amount of anti-social behaviour in the form of burning of woodpiles and dugouts to form dens. These features have since been removed and the compartment is at present of similar composition to Compartment 7, in which it has now merged into within this management plan.

Compartment 7 (including the former Compartment 6)

<u>Canopy</u> – Oak and Sycamore dominated canopy

<u>Shrub Layer</u> – Sparse holly shrub remaining and regenerating subsequent to heavy rhododendron removal

Ground Layer - Bare earth ground layer

<u>Features</u> – This compartment has undergone a significant rhododendron removal programme, which should be continued. It was proposed under the previous management plan to sow large areas of acidic woodland flora seed mix to break up the bareness. However, it was found that due to the shading from the canopy during the summer months and the positioning of the slope, an insufficient amount of light was reaching the ground layer. There is also evidence to suggest that ground flora may be being impacted by anthropogenic disturbance and potentially erosion (particularly from rainfall), due to the steepness of the bank. Therefore, a section of scrub has been planted, again enclosed in fencing which is divided into three sections and bordering Compartment 5. Honeysuckle has been planted to cover some

sections of the fencing to make it more aesthetically pleasing and to provide ecological enhancement.

<u>Management Requirements</u> - Rhododendron regrowth will need to continue to be monitored and controlled, with removal and spraying with Glyphosate, particularly as pockets of regrowth are present. Again, a screen of rhododendron is present adjacent the footpath, in which partial removal could be undertaken and replaced with holly as part of this management plan.

Sycamore saplings and seedlings will need to continue to be monitored and removed to allow the ground and shrub layer to develop. Selective felling of sycamore which cause significant shading or inhibit the growth of native trees should continue.



View over Compartment 7

If more mature specimens, c. 30 cm diameter, are to be felled, some should be cut at a height of approximately 2-3 metres and allowed to decay over time as detailed in compartment 1. These could also be ringbarked. Any regrowth from the base will either need to be removed with hand tools or treated with Glyphosate to prevent regeneration.

Once the planted shrub areas have matured the fencing can be removed to allow access for wildlife. Thinning and/or coppicing of shrubs within the subcompartment should be considered in future management schemes.

Compartment 8

<u>Canopy</u> – Oak dominated canopy with occasional mature Sycamore.

<u>Shrub Layer</u> – No significant shrub layer.

<u>Ground Layer</u> - No significant ground layer (i.e. bare earth).

<u>Features</u> – Compartment situated on southerly facing slope.

<u>Management Requirements</u> –This compartment is one of the few which still has a significant amount of rhododendron present. As such, removal of rhododendron in this compartment should commence in the early years of the management plan. The compartment should be left to regenerate naturally with native species. Ongoing monitoring and removal of rhododendron regrowth will be required.

The previous management plan recommended selective felling of mature sycamore to increase light to shrub and ground layers without causing gaps in the canopy, noticeable from the formal park and path. In order to achieve this, felling should be carried out gradually over a 10 to 20 year timeframe.

Log piles and habitat stacks should be created on the flatter areas of the compartment.

Compartment 9

<u>Canopy</u> – Silver birch dominated canopy with occasional oak.

<u>Shrub Layer</u> – Mixed layer with occasional rhododendron.

Ground Layer - Bramble with bracken, especially on the eastern slopes.

<u>Features</u> – This compartment occurs at the highest point of the woodland. This area was lost to fire some 40 years ago and has successfully regenerated into a characteristic Sherwood oak / birch woodland. At present the dominant species is the pioneering silver birch with many young Oak and rowan colonising the understorey. Although bracken and bramble dominate the ground flora, there is still good floral diversity containing frequent naturally regenerated honeysuckle. This is the most natural and ecologically interesting area of the woodland and efforts should be made to retain its naturalness and diversity. However, the silver birch is beginning to reach a stage where the understorey is becoming shaded due to the density of trees.

To the south-east of the compartment a significant area of bracken remains on the east facing slope. This adds diversity to the site.

To the north of the compartment, adjacent to compartment 10, whips have been planted within a fenced sub-compartment.



Silver birch within Compartment 9.

Management Requirements -

Selective thinning of the silver birch should be undertaken to allow the opportunity for slower growing native trees, such as oak, to become established. The felled birch can be used to create path edging, to encourage the public to keep to paths and reduce disturbance in other parts of the compartment. The birch logs could also be fixed to the lower slopes of compartment 7, to reduce soil erosion and run-off.

Any sycamore and rhododendron should be removed to stop encroachment.

Occasional sweet chestnut has regenerated and should be monitored to ensure that they do become dominant over oak sp and rowan species. If sweet chestnut becomes too dominant or prolific it should be coppiced to increase light availability and to create structural diversity.

Once the planted shrub areas have matured the fencing can be removed to allow access for wildlife. Thinning and/or coppicing should be considered in future management schemes. Removal of encroaching species into the planted area, such as buddleia and a proportion of the bramble, will need to be undertaken so as not to suppress the growth of the planted shrubs.

Complete bracken removal was recommended under the previous management plan on the south east portion of the compartment, by using a selective herbicide over three years. Bracken bashing has occurred over this area but the bracken is still dominant. The previous plan had proposed the creation of heathland using heather brash from the Sherwood Forest area.

Due to the challenges faced previously in bracken removal, it is recommended that a selected area of the bracken is removed using selective herbicide over three years. The cleared area should then be fenced and heather brash used. This will allow the opportunity to determine if the heather will establish successfully on a trial basis, without completely clearing the bracken and resulting in a solely bare earth slope. If successful, clearance of bracken and the creation of heathland can be extended in the compartment during future management plans.

Compartment 10

<u>Canopy</u> – Oak dominated canopy with sycamore.

Shrub Layer – Rowan and sycamore.

Ground Layer - Bare earth, leaf litter and bramble dominated, with bracken.

<u>Features</u> – This compartment is located to the north of the wood and forms part of the boundary to the Bramcote Hills Landfill site and Bramcote Hills College. It is proposed to carry out thinning over a period of time to encourage good structure. Native shrub planting has been undertaken within a fenced sub-compartment.

<u>Management Requirements</u> – The planted sub-compartment will need to be monitored for encroaching species and these removed as required. Consideration should be given to coppicing shrubs towards the end of the management plan.

The mature sycamore trees are to be retained, so as to prevent the canopy from becoming too open. However, selective felling should be undertaken on sycamore specimens which are inhibiting the growth of native trees. All sycamore saplings and seedlings shall need to continue to be removed. Any encroaching rhododendron will also need to be removed.

Chip brash and use to make paths good.

Compartment 11

Canopy – Mature sweet chestnut and sycamore with occasional silver birch

Shrub Layer - Rowan and crab apple.

Ground Layer - Bare earth and leaf litter with patches of bramble.

<u>Features</u> – The compartment is situated at north-east edge of wood close to the school.

<u>Management Requirements</u> – The compartment will need to continue to be monitored and selective thinning of trees carried out in later years of management plan if the canopy becomes too dense. Continue to monitor and control any encroachment of rhododendron into this compartment.

The stick chestnut fencing along the footpath in this compartment could be replaced with hedgerow planting, to enhance habitat structure and biodiversity.

Compartment 12

<u>Canopy</u> – Sweet chestnut and sycamore dominated canopy.

<u>Shrub Layer</u> - Holly and rowan dominates the understorey. Rhododendron is present on the lower slopes.

<u>Ground Layer</u> - Bare earth dominant with occasional thickets of bracken and bramble.

<u>Features</u> – This compartment is located on the south-east slope of the woodland and is quite steep in places. Shrubs have been planted in sub-compartment in the western most portion of the compartment and again these are enclosed within fencing.

<u>Management Requirements</u> - As the canopy is sycamore dominant it will be difficult to eradicate it from this compartment without generating gaps in the canopy. Therefore, it is proposed to continue to remove young trees (< 30 cm diameter), saplings and seedlings to allow other shrubs to establish. Mature sycamore occurring in close proximity to well established native species should be selectively felled over a period of 10 - 20 years. Clearance of rhododendron and sycamore seedlings and saplings should be an ongoing process carried out by volunteer groups.

If more mature sycamore, c. 30 cm diameter, are to be felled, some should be cut at a height of approximately 2-3 metres and allowed to decay over time as detailed in compartment 1. These could also be ringbarked. Any regrowth from the base will either need to be removed with handtools or treated with Glyphosate to prevent regeneration. Mature rhododendron should be removed.

Log piles and habitat stacks should be created on the flatter areas of the compartment, away from the main footpath.

There is the potential to plant another compartment with shrub species within the eastern portion of the compartment, in order to further enhance the habitat structure and species diversity.

Compartment 13

Canopy – Oak dominated canopy.

Shrub Layer - Rhododendron dominant shrub layer with occasional holly.

<u>Ground Layer</u> - Bramble and bare earth dominant ground layer. The slopes to the south of the main footpath have been seeded with an acid grassland mix. The fescue grasses and common sorrel have established well in this location.

<u>Features</u> – This is the southernmost compartment of the woodland with some areas steeply sloping. The view from the main pathway looks down onto the majority of the compartment. This is also the only area where the acid grassland seeding has been successful.

<u>Management Requirements</u> – Encroachment of rhododendron regrowth is already occurring immediately adjacent to the area of acid grassland. This will need to be controlled as soon as possible, as well as other encroaching species (bramble).

The rhododendron strip to the south of the main path provides a buffer to the acid grassland, keeping it relatively from disturbance. Ongoing monitoring and management against encroachment will be required. Again, a proportion of the rhododendron could be removed and replaced with holly to provide a natural screen. This will have to be done over a number of years in order to allow the holly to establish and to not create gaps in this strip.

Compartment 14

<u>Canopy</u> – Plantation of rowan (some coppiced) and crab apple with silver birch to the south of compartment.

Shrub Layer – shrub layer contains rhododendron.

Ground Layer - Bracken and bramble dominant.

<u>Features</u> – A large proportion of trees in this compartment consist of a plantation of rowan and crab apple, planted in recent years. This again is one of the few compartments which still has a large area of unwanted rhododendron, in which this is primarily regrowth.

Management Requirements -

All rhododendron should be removed, except for a 5 metres wide strip to the south of the compartment, in order that natural regeneration of native species might occur. To aid this process some light planting of native shrub species should be undertaken, like that which has already been carried out in compartments 1, 7, 10, 11 and 12 (see Appendix 5 for species).

Sycamore should also be thinned.

Compartment 15

<u>Canopy</u> – Sycamore and oak dominated canopy.

<u>Shrub Layer</u> - Rhododendron dominated shrub layer with goat / grey willow thicket on the south eastern edge.

Ground Layer - Common nettle and bracken dominant.

<u>Features</u> – This compartment abuts the grassy area around the footprint of Bramcote Hills House and is highly visible from the house viewing point. Therefore, planting of native shrubs after removal of rhododendron is recommended to ensure that this highly visible area re-vegetates as quickly as possible. Mature willow scrub dominates the south eastern corner of the compartment. An area of the sandstone exposure lies within this compartment.



Rhododendron along edge of Compartments 3 and 15.

<u>Management Requirements</u> – Rhododendron should be removed from the compartment, except for a 5 metres wide strip along the southern edge. It should again be a long term goal to have phased removal of the rhododendron buffer and replace it with holly. An exposed sandstone outcrop is also becoming lost to scrub and tree encroachment. This area should be cleared of both shrubs and trees to expose the sandstone. Removal should be mindful of the sandstone so as not to damage the exposure.

Sycamore saplings and seedlings could be removed by a volunteer workforce as part of an ongoing programme. Selective felling of mature sycamore is recommended. If more mature specimens, c. 30 cm diameter, are to be felled, some should be left to a height of approximately 2-3 metres and allowed to decay over time as detailed in compartment 1. These could also be ringbarked. Any regrowth from the base will either need to be removed with hand tools or treated with Glyphosate to prevent regeneration.

PART 3: MANAGEMENT DETAILS

3.1 Management Projects and Prescriptions

Reference Number	Project Title	Prescription
3.1.1	Thinning	 All thinning should take place outside of the bird breeding season (March to September) unless the work is for Health & Safety reasons. If any emergency tree works need to be carried out during the period March to September, the tree subject to felling plus all other trees and shrubs likely to be affected should be checked for nests by a suitably qualified person prior to work commencing. The target species is sycamore, concentrating initially on trees closest to and impeding native species of trees and shrubs. Other species (e.g. elder) can be thinned where overcrowding is occurring or to create structural diversity in the canopy or understorey. Sensitively remove sycamore and other species from the sandstone exposures. A proportion of stems over 30cm diameter should be felled to a height of 2-3 metres and the remaining trunk de-limbed or ringbarked. All regrowth should be cut with handtools or sprayed with Glyphosate. Dead wood (as log piles, brash and dead hedging) should be retained (leave large logs to deter theft) Brash can also be chipped and used on site to surface soft paths. Some large felled trunks can be used form barriers and path edges to prevent erosion or unwanted access into sensitive areas, or positioned on slopes to prevent any erosion caused by runoff. Visitors should be excluded from felling areas using tape and warning signs. Erect signs informing visitors about work being carried out and reasons for it.
3.1.2	Remove saplings and seedlings (predominantly sycamore)	 Small saplings and seedling removal can be carried out at any time of year. Sycamore saplings should be removed by cutting as close to the ground as possible using loppers or bow saws. Ideally, all regrowth should be sprayed with Glyphosate.
3.1.3	Remove rhododendron	 Rhododendron removal should be carried out during the autumn/winter Carry out work on all compartments but largest remaining concentrations are in compartments 8 and 14, which should be undertaken during the first three years of the management plan. All rhododendron should be removed using loppers, bow saws or chainsaws and disposed of offsite or burned. Where possible, stumps and roots should be dug out using hand tools and disposed of off-site. Sensitively remove rhododendron from the sandstone exposures. All regrowth should be sprayed with Glyphosate in subsequent years. Erect signs informing visitors about work being carried out and reasons for it.
3.1.4	species of	 Continue to re-establish a shrub layer through planting of native shrubs between November and March.

	shrubs/trees	 Only species detailed in Appendix 6 should be planted Newly planted whips should be protected using stock netting. This can be removed once the scrub is mature enough to withstand animal grazing/human disturbance (ideally 10 years). Where rhododendron has been retained for screening at edge of paths or lower slopes, consider phased replacement with native evergreen, such as holly.
3.1.5	Maintain newly planted shrubs/trees	 Carry out annual checks on the condition of the whips during the first 5 years and any dead ones removed and replaced with the same species. Cut back bramble or other species (e.g. buddleia) where it is adversely impacting on the establishing shrubs
3.1.6	Birch thinning (compartment 9 only)	 This should be undertaken during the autumn/winter, outside of the bird breeding season (March to September) Work should be carried out using bow saws or chainsaws. Selective thinning should be carried out to allow other trees, especially oaks, to become established. Dead wood should be stacked in habitat piles or used for path edging or bank stabilisation.
3.1.7	Infrastructure maintenance	 Monitor and, where required, maintain fences, footpaths, steps, signage and other structures. Carry out regular tree safety checks and follow any recommendations in the report.
3.1.8	Bracken treatment trial (compartment 9)	 If use of herbicide is not desirable, try weakening bracken by bruising or cutting. If herbicide is used, bracken should be sprayed with glyphosate. Herbicide should be applied early in the bracken growing season during dry and calm weather between midJune and August when frond are fully unfurled. Spraying should be undertaken by a suitably qualified person wearing the appropriate protective clothing. The area should be cordoned off to prevent access to it during spraying. This process should be repeated until no further emergence of bracken is observed (c. 3-5 years).
3.1.9	Heathland creation trial (compartment 9)	 Clear bracken undergrowth and create a 8–10cm deep scrape with sloping sides. Remove and dispose of debris from site. Insert cut heather from Sherwood Forest (this can be sourced from Sherwood Forest Trust) upside down into scrape. Hold in place by laying brash (generated by tree felling or coppicing) over the scrape. To be undertaken between in October, immediately after heather has been cut. Hand weed scrapes, clearing invasive species, for example birch and rosebay willowherb, until heather has established.

3.2 Ten Year Work Plan

Reference	Proscription		Years								
Number	Frescription	1	2	3	4	5	6	7	8	9	10
		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
3.1.1	Thinning				3		3				3
3.1.2	Remove saplings and seedlings (predominantly sycamore)	1	1	1	1	1	1	1	1	1	1
3.1.3	Remove rhododendron	1	1	1	1	1	1	1	1	1	1
3.1.4	Plant native species of shrubs/trees	2		2		2		2		2	
3.1.5	Maintain newly planted shrubs/ trees			1	1	1	1	1	1	1	1
3.1.6	Birch thinning		2			2			2		
3.1.7	Infrastructure maintenance	1	1	1	1	1	1	1	1	1	1
3.1.8	Bracken treatment trial					3	3	3			
3.1.9	Heathland creation trial								3	3	3

Priority - 1 is high, 3 is low

3.3 Annual Work Plan

Year	1	- 2017
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Reference Number	Priority (1-3)	Compartment / Prescription Detail	Season (Sp/Su/Au/ Wi)	Who (contractor, Broxtowe BC, volunteer group)
	1	Monitor and remove any sycamore saplings and seedlings in all compartments	Au/Wi	PCV/volunteer group
3.1.2	1	Remove saplings and shrubs (all species) from sandstone formation in compartments 1, 3, 5, 7 and 15. Don't remove roots.	Au/Wi	PCV/volunteer group
	1	Spraying of sycamore regrowth in all compartments.	Su	Contractor/Broxtowe BC
	1	Monitor and remove rhododendron regrowth from all compartments, priority to compartments 8 and 14.	Au/Wi	PCV/volunteer group
3.1.3	1	Remove all rhododendron regrowth from sandstone formation in compartments 1, 3, 5, 7 and 15. Don't remove roots.	Su	PCV/volunteer group
3.1.4	2	Plant native species of shrubs/trees. Plant some evergreen shrubs such as holly to replace rhododendron screen	Au/Wi	PCV/volunteer group
3.1.7	1	Infrastructure Maintenance	Sp/Su/Au/ Wi	PCV/volunteer group/Contractor

Year 2 - 2018

Reference Number	Priority (1-3)	Compartment / Prescription Detail	Season (Sp/Su/Au/ Wi)	Who (contractor, Broxtowe BC, volunteer group)
	1	Monitor and remove any sycamore saplings and seedlings in all compartments	Au/Wi	PCV/volunteer group
3.1.2	1	Remove saplings and shrubs (all species) from sandstone formation in compartments 1, 3, 5, 7 and 15. Don't remove roots.	Au/Wi	PCV/volunteer group
	1	Spraying of sycamore regrowth in all compartments.	Su	Contractor/Broxtowe BC

3.1.3	1	Monitor and remove rhododendron regrowth from all compartments, priority is compartments 8 and 14.	Au/Wi	Contractor/Broxtowe BC
	1	Remove all rhododendron regrowth from sandstone formation in compartments 1, 3, 5, 7 and 15. Don't remove roots	Su	PCV/Volunteer Group
3.1.6	2	Birch thinning (Compartment 9 only)	Au/Wi	PCV/volunteer group
3.1.7	1	Infrastructure Maintenance	Sp/Su/Au/ Wi	PCV/volunteer group/Contractor

<u>Year 3 - 2019</u>

Reference Number	Priority (1-3)	Compartment / Prescription Detail	Season (Sp/Su/Au/ Wi)	Who (contractor, Broxtowe BC, volunteer group)
	1	Monitor and remove any sycamore saplings and seedlings in all compartments	Au/Wi	PCV/volunteer group
3.1.2	1	Remove saplings and shrubs (all species) from sandstone formation in compartments 1, 3, 5, 7 and 15. Don't remove roots.	Au/Wi	PCV/volunteer group
	1	Spraying of sycamore regrowth in all compartments.	Su	Contractor/Broxtowe BC
	1	Monitor and remove rhododendron regrowth from all compartments. Priority is compartment 8 and 14.	Au/Wi	Contractor/Broxtowe BC
3.1.3	1	Remove all rhododendron regrowth from sandstone formation in compartments 1, 3, 5, 7 and 15. Don't remove roots.	Su	PCV/volunteer Group
3.1.4	2	Plant native species of shrubs/trees. Plant some evergreen shrubs such as holly to replace rhododendron screen	Au/Wi	PCV/volunteer group
3.1.5	1	After care of planted shrubs /trees.	Au/Wi	PCV/volunteer group
3.1.7	1	Infrastructure Maintenance	Sp/Su/Au/ Wi	PCV/volunteer group/Contractor.

Year 4 – 2	2020
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Reference Number	Priority (1-3)	Compartment / Prescription Detail	Season (Sp/Su/Au/ Wi)	Who (contractor, Broxtowe BC, volunteer group)
3.1.1	3	Thinning (predominantly sycamore) from all compartments	Au/Wi	PCV/volunteer group
	1	Monitor and remove any sycamore saplings and seedlings in all compartments .	Au/Wi	PCV/volunteer group
3.1.2	1	Remove saplings and shrubs (all species) from sandstone formation in compartments 1, 3, 5, 7 and 15. Don't remove roots.	Au/Wi	PCV/volunteer group
	1	Spraying of sycamore regrowth in all compartments.	Su	Contractor/Broxtowe BC
	1	Monitor and remove rhododendron regrowth from all compartments.	Au/Wi	PCV/volunteer Group
3.1.3	1	Remove all rhododendron regrowth from sandstone formation in compartments 1, 3, 5, 7 and 15. Don't remove roots.	Su	PCV/volunteer Group
3.1.5	1	After care of planted shrubs / trees	Au/Wi	PCV/volunteer group
3.1.7	1	Infrastructure Maintenance	Sp/Su/Au/ Wi	PCV/volunteer group/Contractor

Year 5 - 2021

Reference Number	Priority (1-3)	Compartment / Prescription Detail	Season (Sp/Su/Au/ Wi)	Who (contractor, Broxtowe BC, volunteer group)
	1	Monitor and remove any sycamore saplings and seedlings in all compartments	Au/Wi	PCV/volunteer group
3.1.2	1	Remove saplings and shrubs (all species) from sandstone formation in compartments 1, 3, 5, 7 and 15. Don't remove roots.	Au/Wi	PCV/volunteer group
	1	Spraying of sycamore regrowth in all compartments.	Su	Contractor/Broxtowe BC
	1	Monitor and remove rhododendron regrowth from all compartments,	Au/Wi	PCV/volunteer group
3.1.3	1	Remove all rhododendron regrowth from sandstone formation in compartments 1, 3, 5, 7 and 15. Don't remove roots.	Su	PCV/volunteer group

3.1.4	2	Plant native species of shrubs/trees. Plant some evergreen shrubs such as holly to replace rhododendron screen	Au/Wi	PCV/volunteer group
3.1.5	1	After care of planted shrubs/ trees	Au/Wi	PCV/volunteer group
3.1.6	2	Birch thinning (Compartment 9 only)	Au/Wi	PCV/volunteer group
3.1.7	1	Infrastructure Maintenance	Sp/Su/Au/ Wi	PCV/volunteer group/Contractor
3.1.8	1	Bracken trial area (cut/ bruise or spray)	Su	PCV/volunteer group/Contractor

Year 6 - 2022

Reference Number	Priority (1-3)	Compartment / Prescription Detail	Season (Sp/Su/Au/ Wi)	Who (contractor, Broxtowe BC, volunteer group)
3.1.1	3	Thinning (predominantly sycamore) from all compartments	Au/Wi	PCV/volunteer group
	1	Monitor and remove any sycamore saplings and seedlings in all compartments	Au/Wi	PCV/volunteer group
3.1.2	1	Remove saplings and shrubs (all species) from sandstone formation in compartments 1, 3, 5, 7 and 15. Don't remove roots.	Au/Wi	PCV/volunteer group
	1	Spraying of sycamore regrowth in all compartments.	Su	Contractor/Broxtowe BC
	Monitor and remove rhododendron regrowth from all compartments,		Au/Wi	PCV/volunteer group
3.1.3Remove all rhododendron regrowth from sandstone formation in compartments 1, 5, 7 and 15. Don't remove room		Remove all rhododendron regrowth from sandstone formation in compartments 1, 3, 5, 7 and 15. Don't remove roots.	Su	PCV/volunteer group
3.1.5	1	After care of planted shrubs / trees	Au/Wi	PCV/volunteer group
3.1.7	1	Infrastructure Maintenance	Sp/Su/Au/ Wi	PCV/volunteer group/contractor
3.1.8	1	Bracken trial area (cut/ bruise or spray)	Su	PCV/volunteer group/contractor

Year	7	-	2023
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Reference	Priority	Compartment / Prescription	Season (Sp/Su/Au/	Who (contractor, Broxtowe BC
Number	(1-3)	Detail	Wi)	volunteer group)
	1	Monitor and remove any sycamore saplings and seedlings in all compartments	Au/Wi	PCV/volunteer group
3.1.2	1	Remove saplings and shrubs (all species) from sandstone formation in compartments 1, 3, 5, 7 and 15. Don't remove roots.	Au/Wi	PCV/volunteer group
	1	Spraying of sycamore regrowth in all compartments.	Su	Contractor/Broxtowe BC
	1	Monitor and remove rhododendron regrowth from all compartments,	Au/Wi	PCV/volunteer group
3.1.3	1	Remove all rhododendron regrowth from sandstone formation in compartments 1, 3, 5, 7 and 15. Don't remove roots.	Su	PCV/volunteer group
3.1.4	2	Plant native species of shrubs./ trees. Plant some evergreen shrubs such as holly to replace rhododendron screen	Au/Wi	PCV/volunteer group
3.1.5	1	After care of planted shrubs Au/Wi		PCV/volunteer group
3.1.7	1	Infrastructure Maintenance	Sp/Su/Au/ Wi	PCV/volunteer group/Contractor
3.1.8	1	Bracken trial area (cut/ bruise or spray)	Su	PCV/volunteer group

<u>Year 8 - 2024</u>

Reference Number	Priority (1-3)	Compartment / Prescription Detail	Season (Sp/Su/Au/ Wi)	Who (contractor, Broxtowe BC, volunteer group)
	1	Monitor and remove any sycamore saplings and seedlings in all compartments	Au/Wi	PCV/volunteer group
3.1.2	1	Remove saplings and shrubs (all species) from sandstone formation in compartments 1, 3, 5, 7 and 15. Don't remove roots.	Au/Wi	PCV/volunteer group
	1	Spraying of sycamore regrowth in all compartments.	Su	Contractor/Broxtowe BC

	1 Monitor and remove rhododendron regrowth from all compartments,		Au/Wi	PCV/volunteer group
3.1.3	1	Remove all rhododendron regrowth from sandstone formation in compartments 1, 3, 5, 7 and 15. Don't remove roots.	Su	PCV/volunteer group
3.1.5	1	After care of planted shrubs /trees	Au/Wi	PCV/volunteer group
3.1.6	2	Birch thinning (Compartment 9 only)	Au/Wi	PCV/volunteer group
3.1.7	1	Infrastructure Maintenance	Sp/Su/Au/ Wi	PCV/volunteer group/Contractor
3.1.9	3	Heathland trial area	Au	PCV/volunteer group

Year 9 - 2025

Reference Number	Priority (1-3)	Compartment / Prescription Detail	Season (Sp/Su/Au/ Wi)	Who (contractor, Broxtowe BC, volunteer group)
	1	Monitor and remove any sycamore saplings and seedlings in all compartments	Au/Wi	PCV/volunteer group
3.1.2	1	Remove saplings and shrubs (all species) from sandstone formation in compartments 1, 3, 5, 7 and 15. Don't remove roots.	Au/Wi	PCV/volunteer group
	1	Spraying of sycamore regrowth in all compartments.	Su	Contractor/Broxtowe BC
1		Monitor and remove rhododendron regrowth from all compartments,	Au/Wi	PCV/volunteer group
3.1.3	1	Remove all rhododendron regrowth from sandstone formation in compartments 1, 3, 5, 7 and 15. Don't remove roots.	Su	PCV/volunteer group
3.1.4	2	Plant native species of shrubs./trees. Plant some evergreen shrubs such as holly to replace rhododendron screen	Au/Wi	PCV/volunteer group
3.1.5	1	After care of planted shrubs /trees	Au/Wi	PCV/volunteer group
3.1.7	1	Infrastructure Maintenance	Sp/Su/Au/ Wi	PCV/volunteer group/Contractor
3.1.9	3	Heathland trial area	Au	PCV/volunteer group

Year	1	0 -	20	26
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Reference Number	Priority (1-3)	Compartment / Prescription Detail	Season (Sp/Su/Au/ Wi)	Who (contractor, Broxtowe BC, volunteer group)
3.1.1	3	Thinning (predominantly sycamore) from all compartments	Au/Wi	PCV/volunteer group
	1 Monitor and remove any sycamore saplings and seedlings in all compartments		Au/Wi	PCV/volunteer group
3.1.2	1	Remove saplings and shrubs (all species) from sandstone formation in compartments 1, 3, 5, 7 and 15. Don't remove roots.	Au/Wi	PCV/volunteer group
	1	Spraying of sycamore regrowth in all compartments.	Su	Contractor/Broxtowe BC
	1 Monitor and remove rhododendron regrowth from all compartments,		Au/Wi	PCV/volunteer group
3.1.3	1	Remove all rhododendron regrowth from sandstone formation in compartments 1, 3, 5, 7 and 15. Don't remove roots.	Su	PCV/volunteer group
3.1.5	1	After care of planted shrubs /trees	Au/Wi	PCV/volunteer group
3.1.7	1	Infrastructure Maintenance	Sp/Su/Au/ Wi	PCV/volunteer group/Contractor
3.1.9	3	Heathland trial area	Au	PCV/volunteer group

This plan may need to be altered in response to site monitoring and should be reviewed after a 5 year period.

PART 4: BIBLIOGRAPHY

Broxtowe Borough Council (2015) Broxtowe Borough Council Green Infrastructure Strategy 2015 – 2030.

Broxtowe Borough Council (2016) **Site Allocations: Potential Additional Sites**, *August 2016*.

Frost, D.V. & Smart, J.G.O. (1979). **Geology of the area north of Derby** (sheet 125). British Geological Survey: p. 154 d.

Nature Conservancy Council (1991). **Regionally Important Geological/Geomorphological Sites.** English Nature, Publicity Services Branch, Peterborough.

Rodwell, J. S. (Ed.) (1998). British plant communities: Volume 1 - Woodlands and scrub. Cambridge University Press, Cambridge

Sanderson, G. (1935). **Sanderson's Map, Twenty Miles round Mansfield.** Technical Print Services Ltd, Notts.

PART 5: APPENDICES

Appendix 1 Compartment Aerial Map



Bramcote Hills Wood LNR Compartments

D 1200 Hemlock Stone Bramcote Hills Collège 10 Bramoote Hill ¿ 7 11 THINKING 8 0 111111 14 54m` 12 111~ {c----13 (ey K Compartment boundary U LNR boundary C.1 Aain circular footpath Bramcote Hills Park kilometres Planted shrub compartment Scale: 1:2,702

Bramcote Hills Wood LNR Compartments and Footpaths

Appendix 3 Sanderson's Map 1835



Appendix 4 Tree and shrub species mix

Any tree and shrub planting should be informed by the Nottinghamshire Landscape Character Assessment.

The site lies on the edge of the 'Sherwood County Landscape Character Area' and the following species list is informed by the planting guidance for this LCA: <u>http://cms.nottinghamshire.gov.uk/home/environment/landimprovements/landscapecharacter</u>.<u>htm</u>

Birch (Downy) Betula pubescens Birch (Silver) Betula pendula D Cherry (Wild) Prunus avium Crab apple Malus sylvestris Dogwood (Common) Cornus sanguinea Elm (English) Ulmus minor var. vulgaris Elm (Wych) Ulmus glabra Hawthorn (Midland) Crataegus laevigata D Hawthorn Crataegus monogyna Hazel Corylus avellana D Holly *llex aquifolium* D Maple (Field) Acer campestre D Oak (Common) Quercus robur D Oak (Sessile) Quercus petraea Rose (Dog) Rosa canina Rowan Sorbus aucuparia

Key

(D) = Dominant i.e. there should be a higher percentage of this species planted in any one area, in relation to other species.

In addition, Sweet chestnut *Castanea sativa* has been planted. This is an important tree in terms of forestry and has been historically planted at Bramcote Hills Park. It also has wildlife value, providing pollen source for insects and a nut source for mammals in the autumn/ winter.

Appendix 5 Bramcote Hills Park Woodland Vegetative Species List 2012 Survey

Flora

(2012 survey)	
Species	Taxon
Common Nettle	Urtica dioica
Hedge Mustard	Sisymbrium officinale
Burdock species	Arctium sp.
Broad-leaved Plantain	Plantago major
lvy	Hedera hydrex
Cow Parsley	Anthriscus sylvestris
Garlic Mustard	Alliaria petiolata
Bramble	Rubus fruticosus
White Bryony	Bryonia alba
Chickweed	Stellaria media
Rosebay Willowherb	Chamerion angustifolium
Cleavers	Galium aparine
Bindweed species	Convolvulus sp.
Wood Avens	Geum urbanum
Nipplewort	Lapsana communis
Foxglove	Digitalis purpurea
Bluebell species	Hyacinthoides non-scripta
Sow Thistle	Sonchus sp.
Canadian Fleabane	Conyza canadensis
Hedge Woundwort	Stachys sylvatica
non-native Lamium species	Lamium sp.
Rhododendron	Rhododendron sp.
Holly	llex aquifolium
Elder	Sambucus nigra
Bracken	Pteridium aquilinum
Enchanters Nightshade	Circaea lutetiana
Buckler Fern	Dryopteris dilatata
Sycamore	Acer pseudoplatanus
Rowan	Sorbus aucuparia
Dandelion	Taraxacum agg.
Forget-me-not species	Myosotis sp.
False Oat Grass	Arrhenatherum elatius
Wood Meadow Grass	Poa nemoralis
Early Hair Grass	Aira praecox
Sheep's Sorrel	Rumex acetosella
Honeysuckle	Lonicera periclymenum
Wood Sage	Teucrium scorodonia
Gorse	Ulex europaeus
Common Thistle	Cirsium Sp.
Ragwort	Senecio jacobaea
Great Willowherb	Epilobium hirsutum

Appendix 6 Bird Records (comprising Common Bird Census Survey Results (2013) and Nottinghamshire Biological and Geological Records Centre records)

Species	Taxon	2013 status	2013 territories	Conservation Status
Song Thrush	Turdus philomelos	Present, unconfirmed breeding	/	Red listed BoCC. NottsBoCC. UK BAP (Schedule 41 of Natural Environment and Rural Communities Act 2006).
Mistle Thrush	Turdus viscivorus	Present, unconfirmed breeding	/	Red listed BoCC, NottsBoCC
Blackbird	Turdus merula	Breeding	13	Green Listed BoCC
Redwing	Turdus iliacus	Present, unconfirmed breeding		Red Listed BoCC
Robin	Erithacus rubecula	Breeding	19	Green Listed BoCC
Wren	Troglodytes troglodytes	Breeding	20	Green Listed BoCC
Dunnock	Prunella modularis	Present, unconfirmed breeding	/	Amber Listed BoCC NottsBoCC. UK BAP (Schedule 41 of Natural Environment and Rural Communities Act 2006).
Blue Tit	Cyanistes caeruleus	Breeding	20	Green Listed BoCC
Great Tit	Parus major	Breeding	11	Green Listed BoCC
Long-tailed Tit	Aegithalos caudatus	Present, unconfirmed breeding	/	Green Listed BoCC
Coal Tit	Periparus ater britannicus	Present, unconfirmed breeding	/	Green Listed BoCC
Chaffinch	Fringilla coelebs	Breeding	11	Green Listed BoCC
Greenfinch	Carduelis chloris	Present, unconfirmed breeding	/	Green Listed BoCC
Goldfinch	Carduelis carduelis	Present, unconfirmed breeding	/	Green Listed BoCC

Species	Taxon	2013 status	2013 territories	Conservation Status
Treecreeper	Certhia familiaris	Present, unconfirmed breeding	/	Green Listed BoCC
Nuthatch	Sitta europaea	Breeding	3	Green Listed BoCC
Goldcrest	Regulus regulustwo	Present, unconfirmed breeding	/	Green Listed BoCC
Green Woodpecker	Picus viridis	Present, unconfirmed breeding	/	Amber Listed BoCC. Notts BoCC.
Great Spotted Woodpecker	Dendrocopu s major	Breeding	2	Green Listed BoCC
Blackcap	Sylvia atricapilla	Breeding	10	Green Listed BoCC
Garden Warbler	Sylvia borin	Present, unconfirmed breeding		Green Listed BoCC
Chiffchaff	Phylloscopu s collybita	Breeding	2	Green Listed BoCC
Willow Warbler	Phylloscopu s trochilus	Breeding	2	Amber Listed BoCC. NottsBoCC.
Carrion Crow	Corvus corone	Breeding	2	Green Listed BoCC
Jackdaw	Corvus monedula	Breeding	?	Green Listed BoCC
Magpie	Pica pica	Breeding	3	Green Listed BoCC
Jay	Garrulus glandarius	Present, unconfirmed breeding		Green Listed BoCC
Wood Pigeon	Columba palumbus	Breeding	?	Green Listed BoCC
Stock Dove	Columba oenas	Breeding	?	Amber Listed BoCC. NottsBoCC.
Sparrowhawk	Accipiter nisus	Present, unconfirmed breeding	/	Green Listed BoCC
	Recorded duri	ng 2005 Breeding Bird Survey (but	not 2013)	
Collard Dove	Streptopelia decaocto	/	/	Green Listed BoCC
Bullfinch	Pyrrhula pyrrhula	1	/	Amber Listed BoCC NottsBoCC. UK BAP (Schedule 41 of Natural Environment and Rural Communities Act 2006).

Other – NGBRC Records						
Lesser Spotted Woodpecker	Dryobates minor	Submitted 28/03/2011. One individual drumming.	/	Red listed BoCC. NottsBoCC. UK BAP (Schedule 41 of Natural Environment and Rural Communities Act 2006).		