Sheffield &
Rotherham

Management Plan for Sunnybank Local Nature Reserve

April 2015 to March 2025

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1 INTRODUCTION

Sheffield and Rotherham Wildlife Trust is part of a national association of 47 local Wildlife Trusts, which work with communities throughout the UK to protect wildlife in town and country. Sheffield and Rotherham Wildlife Trust aims to promote conservation, advance education in environmental matters, and improve the quality of life in Sheffield and Rotherham, through the development and promotion of sustainable land management practices, linked directly to both rural and urban regeneration.

Sunnybank Local Nature Reserve is a small urban nature reserve consisting of a small area of woodland surrounded by small meadow areas. The reserve forms part of the wider Living Don Living Landscape programme. The River Don itself forms the spine of the programme. The river flows from its headwaters in the Peak District, through South Yorkshire before joining the Humber. The programme area is essentially the Upper Don Basin within South Yorkshire - upstream of Sprotbrough, Doncaster. A partnership project, 'The Living Don', led by Sheffield and Rotherham Wildlife Trust, is working to enhance a number of ecological networks or 'Living Landscape' areas by creating or enhancing habitats, naturalising water bodies and improving green infrastructure such as footpath links and cycleways. Community engagement is central to all these activities to ensure that local needs are met, and the Living Landscape is sustainable for the future.

The objectives of the Living Don Living Landscapes programme are as follows:

- To manage core sites within the landscape to provide quality areas for biodiversity and recreation.
- To connect the core sites with other green spaces including other nature reserves, parks, allotments and gardens.
- To undertake and promote positive management of the natural environment to provide an ecologically functional landscape that provides ecological, economic, social and environmental services.
- To promote and enable appropriate public access to, and enjoyment of, wildlife reserves throughout Sheffield and Rotherham.
- To increase public understanding of the Living Don area's local natural heritage, and participation of local people in the care and enjoyment of their local environment.

1.1 Purpose and formulation of the plan

Sheffield City Council owns Sunnybank. Since its development in the mid-1980s, Sheffield Wildlife Trust (now Sheffield & Rotherham Wildlife Trust), has been involved in the development and management of this site. From 2001, the site was leased to the Sheffield Wildlife Trust for a period of 30 years. The first SWT management plan covered from 2001 to 2006 and was funded by the Heritage Lottery Fund grant. A second and third management Plan covered 2006 to 2011 and 2011 to 2015 respectively. Given that Sunnybank is small compared to other Sheffield and Rotherham Wildlife Trust reserves and therefore is relatively uncomplicated it has been decided to extend the period that this plan will cover from 5 years to 10 years. The current plan sets out a detailed work programme for this period, and aims to continue with a programme of management, for the continued benefit of wildlife and local people who use the site.

Following a review of the previous management plans and community consultation, a series of aims and objectives were compiled. These were further consulted on, and combined to provide a continuing, up to date, comprehensive management plan, which can be used for the long-term conservation management of the reserve. The plan will be revised during 2025.

This management plan has been formulated for the following reasons:

- To provide comprehensive and cohesive information about the nature reserve in one document, with reference to other documents where necessary.

- To outline the key long-term aims and the associated objectives that form the framework of management.

- To outline the rationale for management so as to give a clear and comprehensive explanation of why aspects need management and what form that management will take.

- To provide a key document from which projects are developed and associated funding sought.

- The plan allows consistency and continuity so that when changes of staff take place, or changes in ownership or disposal of the land occurs, then management aims, objectives and prescriptions are continued.

The work programme is set out within this document and is largely dependent on securing grant funding to enable delivery of work items. However, the nature of work programmes is such that they vary and are modified due to unanticipated changes or developments. Therefore the full annual work programmes are kept and updated electronically at the Sheffield and Rotherham Wildlife Trust offices.

1.2 Vision statement

Sunnybank is a small but significant site as it receives a large number of people every day walking or cycling to work, college, or school. There is great potential to increase its value to people on a day-to-day basis through keeping it in good order so as to encourage positive perceptions of Sheffield and Rotherham Wildlife Trust, and urban green spaces. Although small, Sunnybank has a range of significant habitats and species that will be protected and enhanced through the work of Sheffield and Rotherham Wildlife Trust.

2 MANAGEMENT AIMS AND OBJECTIVES

	Aims	Objectives
2.1 BIODIVERSITY		
Aim 1	**Improve and maintain the quality of the Sunnybank pond and wetland area.**	a) Control invasive or dominating species of pond vegetation. b) Remove litter from the pond. c) Maintain water levels all year round.
Aim 2	**Improve and maintain the quality and appearance of the grassland areas.**	a) Carry out a cut and rake twice a year. b) Ensure grassland areas do not encroach on public paths or affect sight lines. c) Spread yellow rattle seeds to increase biodiversity of grassland. d) Carry out control of horseradish; seed over affected areas with grassland mix. e) Carry out work to remove tall ruderal species from meadow areas by pulling and plug planting or spreading grassland seeds.
Aim 3	**Improve the woodland and scrub component.**	a) Selectively undertake thinning work in the reserve, ideally to reduce non-native and poorly formed species of tree and shrub, whilst also increasing the amount of light getting through the canopy and improving sightlines through the reserve from roads and paths. b) Manage bramble scrub on a 3-4 year cycle to encourage flowering and berry growth and prevent perceived degradation of the site. c) Maintain and enhance existing screening vegetation to Ecclesall Road through selective coppicing/thinning/planting where possible. d) Carry out work to remove invasive species such as Japanese knotweed. e) Plant species such as bluebells, snowdrops and other woodland ground flora to introduce more biodiversity and colour to the woodland area.
Aim 4	**Record and monitor the ecological features of the reserve.**	a) Monitor species and habitats in accordance with nationally and locally agreed plans and processes. b) Undertake a variety of surveys (see work programme for details). c) Provide Sheffield Biological Records Centre with all ecological data from surveys carried out by Sheffield and Rotherham Wildlife Trust.

2.2 INFRASTRUCTURE		
Aim 5	**Provide and improve appropriate access to the reserve for all sections of the community.**	a) Maintain the current path network to a safe and appropriate standard. Over the course of this plan, renovate all the paths at least once. b) Prune and/or remove trees as appropriate to maintain site users' lines of visibility. c) Assess ease of access through regular patrols - particularly surfaces and vegetation encroachment. d) Replace existing east-west steps through meadow area to William Street. e) Surface the path linking the pond to the steps on William Street entrance.
Aim 6	**Provide and maintain appropriate on-site furniture and features in order to allow for accessible and safe enjoyment of the reserve.**	a) Provide and maintain seating facilities to a safe and appropriate standard. b) Maintain site signage and move interpretation board to a more appropriate location. c) Frog/beetle sculpture to be restored as required. d) Install new knee rail along Broomhall Place boundary and William Street boundary. e) Liaise with SCC to arrange installation of rubbish bins and a dog waste bin at key locations. f) Install fences to replace hurdles. g) Work with an artist to install a new fence along Ecclesall Road boundary incorporating damaged interpretation feature as a new sign. h) Maintain and replace boundaries as required.
2.3 CULTURAL		
Aim 7	**Maintain the landscape features of the reserve.**	a) Conserve the overall mosaic of habitats providing the current landscape interest.
Aim 8	**Assess and improve the way the reserve is perceived, used and valued by the public.**	a) Conduct surveys of site visitors and users in order to assess recreational usage trends and activities. b) Invite informal feedback from partner organisations, site users, local residents, and interest groups, by providing effective communication. c) Undertake regular litter picks/clearance of fly tipping. d) Raise the profile of the reserve amongst the local community, by the provision of information to local groups, and by promotion of Sunnybank at local events. e) Work with local youth organisations to promote understanding of the environment. f) Keep the local community informed of project progress through the use of publicity.

Aim 9	**Promote understanding and awareness of the local environment, biodiversity and the natural world.**	a) Lead two educational school visits to the reserve per year (e.g. for local nursery school). b) Encourage local primary schools to use the site independently. c) Work with local communities to improve perceptions of Sunnybank and other green spaces. d) Encourage and work with the University of Sheffield and Sheffield Hallam University to use the site as an example of urban wildlife and landscape conservation.
Aim 10	**Promote and encourage community involvement in the reserve.**	a) Run three community education/awareness events on the reserve per annum. b) Encourage involvement of site neighbours in decision-making process through the Reserves Advisory Group. c) Include Sunnybank Local Nature Reserve in the ongoing assessment and development of Outdoor Learning provision and Community Wildlife Ranger activities.

3 SITE DETAILS

3.1 Location and extent

Figure 1: Site location and boundary

Sunnybank is situated to the south west of Sheffield City Centre (grid reference SK 343 863), in the inner city area of Broomhall, and covers an area of 0.8 ha.

3.2 Landscape value and context

Sunnybank is a small inner city reserve, located in the densely populated area of Broomhall, just a short distance from the city centre. Pedestrians and cyclists use the site regularly as a through route to and from Ecclesall Road. The area of Broomhall to the north and west of the site is characterised by significant numbers of mature trees (150yrs+) in private gardens and formal walkways, giving the area an open canopied forested appearance. The Trust has been involved in the management of Sunnybank Local Nature Reserve since it was first established in 1985. There are three main habitat types on the reserve: Semi-natural woodland, semi-improved neutral grassland, and a pond. These provide a valuable resource for wildlife and people in the surrounding area. Despite its small size, the reserve has a rich variety of plant and animal species. It is heavily used as a short cut, with people walking through on their way to work, the local schools, university or the Ecclesall Road shops; it is also an informal play area for local children. The site gets little other purposeful use, although it is occasionally used for environmental education activities by local schools and other local organisations.

3.3 Site tenure and occupancy

Figure 3: Site tenure and occupancy

The site is freehold and owned by the Departments of Housing, Education and Highways, Sheffield City Council. Part of the site is leased by Northern British Housing (now Places for People) and from April 2002, the remainder of the site was leased to Sheffield Wildlife Trust for 30 years. The area leased to Places for People has been included in the management plan. During the writing of this plan, it became apparent that the fact this piece of land was not leased by the Trust had been overlooked overtime, and that management work had been carried out without any formal agreement. In March 2015 staff from both organisations met to discuss this issue and at the time of writing are in the process of agreeing a more formal arrangement. This arrangement will be reviewed periodically when this becomes necessary.

A small area near Ecclesall Road which is owned by the Highways Agency has been included in the suggested work for this site as a means of improving the entrance ways of the reserve. Sheffield and Rotherham Wildlife Trust will liaise with the Highways Agency and AMEY over the management of this particular patch of land. The Trust is currently developing a project with these organisations which, if successful, could provide a means for work on this land to be carried out.

3.4 Designations and policy context

Sunnybank was identified as a Community Wildlife Area in the Sheffield Nature Conservation Strategy (1991), and is designated a Public Open Space Area in the Sheffield Unitary Development Plan (1998). Sunnybank was designated as a Local Nature Reserve in approximately 2003. This reflects the location of the site, within an area that has little open space, as well as its variety of habitats and associated wildlife.

Sheffield's **Green and Open Space Strategy** (2010 – 2030) sets out the Council's approach to managing for nature and biodiversity and making green connections for people and wildlife. Under this document the council sets out the following policy:

ENV W1 Protect and enhance priority wildlife species and habitats within designated Local Nature Sites and Sites of Special Scientific Interest (SSSI).

ENV W2 Manage all public spaces, where appropriate, to protect and enhance their potential value for wildlife and habitats.

ENV W3 Develop the wildlife potential of other non-public spaces, where appropriate, to support the sustainability of the wider green space network.

ENV W4 Promote awareness and understanding of the nature conservation value of green spaces as a core part of managing those sites for wildlife and biodiversity.

ENV G1 Manage a network of links between local green spaces and the regional green infrastructure network, for the benefit of both people and wildlife.

ENV G2 Seek opportunities for enhancing the quality, functionality and continuity of the green network both for public use and for biodiversity.

3.5 Adjacent land ownership

Figure 3: Site tenure and occupancy

The site is bounded by a service station to the east, and housing and minor roads to the north and west. Ecclesall Road forms the southern boundary to the reserve.

3.6 Site history and past management

The site originally consisted of Victorian houses with mature gardens, a number of smaller Victorian villas and terraced houses. The northwest corner of the site was used as a communal lawn tennis court. The housing was demolished in 1985 following a Housing Act compulsory purchase order and listed building consent.

The Wildlife Trust consulted with Sheffield City Council, local residents and community groups regarding a proposal to develop the site as an Urban Nature Park. Sheffield City Council entered into an agreement that the Wildlife Trust could temporarily occupy the site (then 2.1ha) from 1986, pending the redevelopment of the northern section of the site for housing. A grant of £10,500 was awarded from the Urban Programme Funds. This enabled the removal of rubbish and rubble and a large area of ground was landscaped and sown with wildflower seeds to create a meadow. Other works included the creation of footpaths, a pond, seating, fencing along the perimeter and the planting of shrubs and trees. The site was designated an important landscaped area, including wildlife park, to be retained as far as possible (SCC, Planning Department, Planning brief).

The license agreement finished in 1990, when further housing development started. However, the whole site was not suitable for development, so the area of land near to Ecclesall Road (the current reserve) was retained by Sheffield City Council for the continued use as a wildlife park. The reserve was subsequently included within the Sheffield Nature Conservation Strategy and protected through designation as a Community Wildlife Area and then as a Local Nature Reserve. Sheffield and Rotherham Wildlife Trust began a 30 year lease of the site in 2002 and has undertaken work to maintain and improve the ecology and infrastructure of the site.

3.7 Services

There are no services present within the site boundaries of the nature reserve. However, Yorkshire Electricity do have works present under the footpath, which runs beside the cycle track through the middle of the site.

3.8 Infrastructure

Figure 4: Existing infrastructure

The site is bounded by a series of garden fences to the north, a vehicle barrier to the east, brick retaining walls to the south, and a variety of fences along the western boundary.

Several informal paths intersect the reserve. Some have been surfaced with brick-dust or gravel but become worn and covered with a layer of mud. Following a 2001 access survey, the path linking the cycle path with the pond was upgraded with surfacing and edging, and was installed in 2004. This had a knock-on effect of increasing pedestrian traffic from the pond to William Street. There are two wooden benches that are situated near the pond. One of these is in a particularly hidden location and attracts anti-social behaviour. It is recommended that this bench be removed. Two new wooden log benches are to be installed to replace the remaining bench and in the northwest meadow area.

3.8.1 Public Rights of Way and informal paths

Figure 2: Public Rights of Way and informal paths

A Public Right of Way passes north to south through the site, linking Ecclesall Road to Broomhall Place. It provides segregated pedestrian and cycle routes along its length. There are numerous other paths on the site of varying surface material and quality. Access from William Street is on a surfaced path which includes sleeper steps. An un-surfaced route runs north-south parallel to the cycle track, again including sleeper steps. From the cycle track, a surfaced wheelchair-accessible path leads to the pond.

3.8.2 Boundaries

Figure 4: Existing infrastructure

A structural survey of built structures on Sunnybank (Sheffield City Council, 2001) found that the majority of the boundary walls and fences were in good condition. However, defects were found in the southern boundary wall, along the cycle path, including cracks, missing copings, blocked drainage and vegetation growing close to the top of the wall. These defects have been rectified, and the wall will require monitoring given its age. The boundaries are currently in good condition, however given the scope of this plan, it is likely that they will need replacing at some point in the next 10 years.

3.8.3 Interpretation Features and Other Structures.

Figure 4: Existing infrastructure

During the period of the 2001 to 2006, three interpretation features were added. An illustrated information board is located at the southern end of the cycle track set back against the site boundary. Two metal sculptures were located at the site: A large metal stag beetle is situated to the east of the cycle track, and a metal damselfly was in the northwest corner meadow. A local artist, with the help of children from the local community, made these sculptures. They enhanced the site, and became an attraction. Unfortunately, the dragonfly sculpture was stolen and it was not possible to replace it like for like. A new frog sculpture was installed in 2011, again with the help of the local community. The interpretation board is not in an ideal location given that it is right next to the cycle track. This will be relocated to a more appropriate location, probably in the northwest meadow area.

Dead-hedging was installed at various locations between 2001 and 2006 to prevent or deter people from creating drugs dens. However, the dead hedges seldom lasted for more than a year, which necessitated their replacement. Hazel and willow hurdles were installed for this purpose in 2009, however once again these have also come to the end of their life and it is recommended that they be replaced with a paled fence.

Over the life of this plan, funding streams may become available for further interpretation features on site. These opportunities should be pursued as and when they present themselves.

3.9 Archaeological interest and existing features

A stretch of original Victorian boundary wall remains along the Ecclesall Road site boundary. Stone steps, which would have formed access to the bottom of one of the gardens from Ecclesall Road, also remain.

4 ENVIRONMENTAL INFORMATION

4.1 Topography

The site slopes gently from Broomhall Place towards William Street in the east and south towards Ecclesall Road. The altitude is 93 metres above sea level at the corner of Broomhall Street and Broomhall Place, and 81 metres above sea level at Ecclesall Road. The overall aspect is south facing.

4.2 Geology

The site is underlain by Upper Carboniferous rock of the Lower Coal Measures and consists of mudstones.

4.3 Pedology

The soil of Sunnybank was analysed in 1987 following a sampling method described in a student report (Gibson 1987). The entire area was found to have alkaline soils with high calcium content, due to the site being underlain with crushed brick from demolished housing. Soil texture across the site was identified as sandy clay loam, loamy sand and sandy loam, which is unlikely to impose any water or nutrient stresses on the growth of plants.

4.4 Climate

Data is available for the thirty-year average (1984 - 2013) from local Sheffield weather station. The prevailing wind is from the south-west.

Table 1. Local climate data for Sunnybank Nature Reserve

Location	Mean Annual Rainfall (mm)	Mean temperature (ºC)	
		Max	Min
Sheffield (131m)	828.63	13.5	6.1

4.5 Hydrology

The site is well drained. A pond was created on the site in 1988. This is fed by precipitation and can suffer drying during the summer months. The pond liner was damaged in 1998, requiring the complete reconstruction of the pond in 2000. The pond had further remedial work done on it in 2010.

4.6 Biodiversity and Biodiversity Action Plan overview

Sunnybank consists of a mosaic of habitats, mainly comprised of: Semi-natural woodland, scrub and hedgerows, semi–improved grassland and a pond. These provide a valuable resource for birds, mammals, invertebrates and amphibians.

Sheffield Biodiversity Partnership has updated the original Biodiversity Habitat Action Plans for Sheffield and has produced Action Plans for four main types of habitat of which Sunnybank Local Nature Reserve holds three: Grassland, woodland and wetland. Of these, Sunnybank is a highlighted site within the grassland HAP.

Notable species and habitats

Table 2. BAP priority habitats and species found at Sunnybank Local Nature Reserve.

UK BAP Priorities **An updated list of these can be found at: http://jncc.defra.gov.uk/page-5718**	
Habitats	**Species**
Ponds	Pipistrelle bat *(Pipistrellus pipistrellus)* Song thrush *(Turdus philomelos)* White letter hairstreak (*Satyrium w-album*)
RSPB Red list Species **An updated list of these can be found at: http://www.bto.org/sites/default/files/u12/bocc3.pdf**	
Song thrush *(Turdus philomelos)*	

4.7 List of surveys, monitoring schemes and reports

Author	Date	Survey	Summary
Cheryl Gibson	2001	Butterfly survey	A survey to investigate which butterfly species were present at Sunnybank in July and August. Sheltered suntraps, trees, banks of bramble, diverse wildflowers and buddleia bushes all provide valuable butterfly habitats. Butterfly diversity was low in August.
Michael Senkans	2001	Fungi survey	A report on the location of different fungi species found across the site, where they prevail and limiting habitats. The survey shows a surprising lack of fungi, due to a possible combination of dry weather, levels of sulphur dioxide in the atmosphere, and lack of dead wood on site.
Emerald Ecology	2001	Preliminary invertebrate survey	An assessment of the site for invertebrate interest. Despite being a small site, it yielded up to a maximum of five local species including three Conopid flies in just two visits. The varied vegetation structure and recent replacement of the original small pond with a larger one has greatly enhanced the site's value to invertebrates.
Susan Shorter	2001	Phase One habitat survey	A detailed phase one survey for the habitat compartments across the site. The main habitats are unimproved neutral grassland, broad-leaved woodland, bramble and blackthorn scrub, and a man-made pond.
Henna Tanskanen	2001	Visitor survey report	The aim was to find out who uses the reserve, for what purpose, where they come from and how they would like to see the reserve managed. Most visitors use Sunnybank as a shortcut; most concerns were litter, safety and traffic noise.
SRWT	2001	Ecological monitoring	This review compiles baseline data collected during the Phase One, breeding bird and butterfly surveys to form a monitoring programme for the site. Highlighted areas include woodland monitoring, hay meadow monitoring, pond monitoring, Japanese knotweed monitoring, a Phase One habitat survey, breeding bird survey, and photo monitoring.
Brett Nutall	2003	Tree safety survey	A tree safety inspection of Sunnybank, including a ground-based walk around the site; no binoculars used, non-invasive. Recommendations are made for potentially hazardous areas/trees.
Cheryl Gibson	2004	Bird census	A survey to map location and patterns of birds occurring at the site, highlighting possible, probable and confirmed breeding species. Only blackbird, blue tit and wren were confirmed breeding species.
Cheryl Gibson and Ceiri Osman	2004	Phase One habitat survey	A detailed Phase One survey for the 16 habitat compartments across the site. A large portion of the site is wooded, dissected by a combination of surfaced and un-surfaced paths, which divide the broad-leaved woodland into its compartments.

Rowan Watson-Taylor	2005	Small mammal survey	Small mammal survey conducted using Longworth humane traps. Team of six people trained to use the traps. Wood mice caught in three traps. Future more extensive surveys should be carried out.
Various	2002 to 2005	Photo monitoring	Photos taken at fixed points across the reserve are taken annually.
Louise Watson	2010	Phase One habitat survey	A detailed phase one habitat survey for 9 habitat compartments across the site. A large portion of the site is semi-natural woodland and semi-improved neutral grassland, dissected by surfaced and un-surfaced paths.
Donna Tubridy and Dee Wade	2011	Common Bird Census	A survey visiting all parts of the site and recording birds by sight and sound while walking a predetermined route. The CBC requires a minimum of three registrations to confirm the presence of a breeding territory.
Chris Tremblett	2011	Visitor survey	A survey to gather information on how Sunnybank Local Nature Reserve is being used and who it is being used by. To discover why people visit the area, their opinions on the management of the site, and any changes they feel would be of benefit.
Julie Riley	2012	Small mammal survey	This survey aimed to give baseline information about the small mammals using the site
Matt Barlow (SCC) Rob Miller (SRWT)	2012	Sheffield Standard Assessment	This survey judges the site against fixed criteria used across Sheffield's green spaces. Scores are given for criteria including safety, access, and cleanliness.
Julie Riley	2014	Phase One habitat survey	A detailed habitat survey for the site using JNCC methodology.
Julie Riley	2014	Invertebrate survey	A detailed survey of invertebrate population on site. Comparisons were made between 2001 and this survey.

5 BIODIVERSITY

Figure 9: Phase One Survey 2010

Figure 10: Phase One Survey 2014

5.1 Overview

Phase One habitat surveys were undertaken in 2004, 2010 and 2014.

Sunnybank Local Nature Reserve contains several different habitat types, classified below using the JNCC's guidelines for Phase One Habitat surveys:

- Semi-natural woodland (A1.1.1) and broad-leaved plantation woodland (A1.1.2)
- Scattered trees (A3.1)
- Dense scrub (A2.1) and scattered scrub (A2.2)
- Introduced shrub (J1.4)
- Semi-improved neutral grassland (B2.2) and poor semi-improved neutral grassland (B6)
- Tall ruderals (C3.1)
- Standing water (G.1)
- Hedges (J2.1), fencing (J2.4) and walls (J2.5)
- Bare ground or other substrate (J4)

Semi-natural woodland (A1.1.1) and semi-improved neutral grassland (B2.2) are the key habitat types within Sunnybank Local Nature Reserve.

5.2 Grassland

Description and evaluation

Almost half of the total site area consists of neutral grassland. Grasslands on the reserve fall into two categories – short-mown grassland and hay meadow.

The 2014 Phase One survey recorded that the grassland areas have a good species diversity, with more herbs than grasses, including a good amount of vetches, some red clover *(Trifolium pratense)*, hedge bedstraw and several geranium species. The grasses are mostly false-oat grass, Yorkshire fog and cocksfoot.

Scattered tall ruderals are present throughout the grassland, including creeping thistle, hogweed and lesser burdock; particularly in compartment 3, these species are beginning to encroach onto the meadow areas.

Bramble *(Rubus fruticosus)* is also encroaching on the site from the scrub boundary that forms part of compartment 5.

In 2001, horseradish was noted as becoming locally dominant in areas of the grassland, particularly adjacent to the pond. Horseradish is a plant of disturbed ground, and this pattern of spread may be the result of the pond works carried out in 2000. After an overhaul of the pond in 2010, horseradish is present again despite further work in 2012 to remove it.

Management

These 'hay-meadows' are man-made features, and were sown as part of the site creation in the 1980s. They are managed as traditional hay meadows, allowing the vegetation to grow to maturity, flower and seed. They are then subject to an annual hay cut in September, and the cuttings removed to prevent the build up of nutrients on the soil. The annual hay-cut also removes the more aggressive species, allowing more sensitive species to thrive. However, management should not totally eradicate the more competitive species as some, such as thistle, provide a valuable food source for birds like goldfinches. Hay meadows have high biodiversity value, providing habitats, shelter and food sources for a variety of fauna.

A degradation of meadows has occurred in recent years and so a twice yearly cut has been introduced, once when the meadows reach 0.2 – 0.4m and then again later in the season. Extra seeding or plug planting will also take place to increase the diversity of species in the meadow. Further introduction of yellow rattle in particular will weaken and suppress grasses, allowing other herb species to establish. This will provide a better display of wildflowers, and can ease the mowing required. Suggested species are: Oxeye daisy, field scabious, Lady's bedstraw, meadow butter cup, common sorrel, common knapweed, yarrow, ribwort plantain, greater hawkbit and Michaelmas Daisy.

The horseradish will be monitored, as once established it can dominate over large areas. The spread of the plant should therefore be managed and monitored, but it should not be eradicated entirely as it is of both ecological and cultural interest. The 2014 Phase One suggested that areas that have had horseradish removed have then degraded to tall ruderal. After work has been done to remove horseradish, plug planting or seed spreading of meadow species will take place to prevent the spread of Tall Ruderal species.

Work will be undertaken to pull areas of tall ruderals early in the growing season to ensure that they do not encroach further onto grassland areas; seeding and plug planting of meadow species could also be beneficial here.

A one metre wide strip of grassland is regularly mown along the edges of all the paths. These areas are kept mown short to improve sight lines, and give a sense of "tidiness" to improve public perception. The short grassland provides another habitat, suitable for Thrushes and Blackbirds to search for invertebrates.

It is recommended that over the life of this plan Sheffield and Rotherham Wildlife Trust liaise with the Highways Agency about the management of the scrub area between the cycle path and Ecclesall Road. In an effort to reduce anti-social behaviour on site and to open up sightlines it is suggested that this area be cleared, and a wildflower mix sown. This would provide an eye catching feature of the reserve to attract pedestrians to the site.

Monitoring

The site's long grass in the hay meadow is an important habitat for the reserve's small mammal population, providing shelter, nesting opportunities and a food source. The small mammal surveys carried out in 2005 and 2012 showed that Sunnybank is a favoured site for wood mice. This in turn will provide an important feeding resource for birds such as tawny owls. Maintaining the overall mosaic of habitats from woodland to grassland is therefore essential to its biodiversity.

Photo monitoring was carried out annually at fixed points throughout the reserve up until 2005. This was done at the same time each year, to enable comparisons to be made. The fixed-point locations were marked on a map. This should recommence as it gives a good visual representation of the change on the site, which may not be apparent over time.

A species list is made of the grassland area every 5 years, during a Phase 1 or NVC survey. This will give an indication of changes within the plant community. This will also indicate the success of planting schemes.

5.3 Standing water

Description and evaluation

Standing water (ponds) has been identified as a priority habitat under the UK Biodiversity Action Plan and is also a Sheffield HAP priority, making the retention and maintenance of Sunnybank's pond is of prime importance.

The pond was re-lined in 2000, and existing species re-introduced. The 2001 Phase 1 survey found water plantain (*Alisma plantago-aquatica*) and meadowsweet (*Filipendula ulmaria*) at the pond margin. There was also locally abundant marsh foxtail (*Alopecurus geniculatus*) and reed sweet grass (*Glyceria maxima*). There was some marsh marigold (*Caltha palustris*), soft rush (*Juncus effusus*), sharp flowered rush (*Juncus acutiflorus*), water mint (*Mentha aquatica*), lesser spearwort (*Ranunculus flammula*), and brooklime (*Veronica beccabunga*). The floating vegetation consists of water starwort (*Callitriche* sp.) and duckweed (*Lemna minor*). However, the diversity of plant species may have been undermined by the dominance of glyceria (reed sweet grass).

An overhaul of the pond in 2010 necessitated the spreading of a grassland seed mix; during the 2014 Phase One Survey the banks were covered with grasses and other plants, including perennial rye grass, fescues *(Festuca sp.)*, ribwort plantain *(Plantago lanceolata),* white clover *(Trifolium repens)* and creeping buttercup *(Ranunculus repens).* A comparison between the 2001 and 2014 surveys shows that various important marginal species have been lost, including marsh marigold, soft rush and sharp flowered rush.

The 2014 survey showed that within the pond a number of species are growing, including frequent greater spearwort *(Ranunculus lingua)* – this could possibly be lesser spearwort (*Ranunculus flammula)* – locally abundant water mint *(Mentha aquatica)*, occasional water forget-me-not *(Myositis scorpioides)*, brooklime *(Veronica beccabunga)* and water plantain *(Alisma plantago-aquatica)*. There are also frequent water grasses which have been tentatively identified as reed sweet grass *(Glyceria maxima)* and/or floating sweet grass *(Glyceria fluitans)*. The surface of the water is largely obscured by duckweed *(Lemna sp.)*. There are small stands of yellow flag iris *(Iris pseudoacorus)* and jointed rush *(Juncus articulates)*.

Management

One element of a natural wetland system, which was previously absent in the original pond, is a significant area of permanently damp, seasonally inundated ground where marginal wetland plant and animal communities can develop. This was addressed when the pond was relined in 2010, but will need monitoring. There is a tendency for *glyceria spp*. to spread and dominate the pond vegetation. This will require regular weed clearance in order to maintain an open body of water. One third of the pond area should be cleared of *glyceria* at a time; it should be restricted to partial clearance to protect invertebrates. In a similar fashion, duckweed should be monitored and controlled if necessary.

Plug planting of marginal species such as marsh marigold, soft rush, sharp flowered rush and water figwort will take place in order to compensate for the decline in marginal vegetation since the pond work in 2010.

There have been a number of problems over the past decade due to leaks in the liner; the pond was last relined in 2010. Water levels have fluctuated since then, with the pond in danger of drying out completely during the summers of 2011 and 2012. Since then the pond has vegetated well and has stabilised with good water levels all year round during 2013 and 2014. The pond is also vulnerable to casual vandalism, littering and tipping, which may adversely affect water quality. Regular patrolling of the site and removal of rubbish dumped in the pond would improve its water quality and therefore its biodiversity.

Monitoring

Annual fixed-point photography in late summer was used to monitor the extent of aquatic and marginal vegetation in and next to the pond, following the same principles as those outlined for the photographic monitoring of the meadow until 2005.

Regular visual assessments during patrolling should be made, looking at the water level in the pond (which ideally should not fall below 0.5m).

There are no records of any official amphibian survey nor a pond invertebrate survey having taken place. These will be added to the work programme and should be carried out in order to provide baseline information on the pond's value for these species.

5.4 Woodland

Description and evaluation

Although the total wooded area of Sunnybank is small, it forms an integral part of Broomhall's woodland resource. The area to the west of the reserve contains many mature street and garden trees; the area as a whole has the potential to support a variety of the more mobile woodland animal species. Sunnybank's woodland should therefore be managed to complement this wider wooded area.

The woodland is composed of deciduous native trees with some planted ornamental native species. The dominant tree species are ash and bird cherry *(Prunus padus)* with occasional rowan *(Sorbus aucuparia)*, wild cherry, holly *(Ilex aquifolium),* hawthorn, bramble and ivy. There is some locally abundant dogwood at the south edge. Smaller quantities of native trees such as silver birch *(Betula pendula)*, goat willow, wych elm and sycamore are also present. There are several large, mature lime trees and several variegated hollies, evidence of previous use of parts of the site as an ornamental garden. There is some newer planting which includes oak *(Quercus sp.)*, a species that is generally absent from the site in mature form.

The reserve's woodlands also form an important visual, noise and pollution barrier between the housing in Broomhall and Ecclesall Road. The woodland boundary adjacent to the reserve should therefore be retained and enhanced.

Management

The site would benefit from the development of structurally diverse woodland, dominated by native species, with the selective removal of non-native species such as laurel and sycamore (which support fewer associated species of fauna than locally native species) over time.

Both the 2014 Phase One and the 2011 bird surveys commented on the fact that the densely closed canopy has reduced the shrub and ground layer on site, and possibly also contributed to the decline of bird species recorded. The 2011 visitor survey also noted that the general feeling amongst site users was that Sunnybank felt too dark and dangerous, particularly later in the evening.

Selective felling and canopy thinning will take place to encourage ground flora and shrub growth whilst also improving the public perception of the site. Planting native woodland bulb species will increase colour and once again improve the public perception of the area. This will take place within the main woodland compartments and also at site entrances in order to make them more appealing.

Due to the presence of white-letter hairstreak butterfly on site, wych elm should be excluded from any clearing work.

Pipistrelle bats also use the site as a feeding ground. These could be encouraged through installing bat boxes on site.

Monitoring

A Phase One survey should take place every 5 years. Regular patrolling should highlight any issues such as damaged or dangerous trees.

5.5 Scrub and tall ruderals

Description and evaluation

Sunnybank's scrub resource comprises areas of dense bramble scrub and dense blackthorn, with some hawthorn and a number of hedgerows. The scrub component on site should be maintained as the scrub and hedgerows provide a good food source and cover for birds.

Stands of Japanese knotweed (*Fallopia japonica*) are present on the site, but it has been reduced and contained by annual herbicide treatment. The plant is an invasive, non-native species that becomes progressively more difficult to control as it spreads. The eradication of the species from the site is a management priority and is being tackled on an annual basis.

Areas of tall ruderal species provide a valuable resource for invertebrates and should not be seen as a problem on site. However the 2014 Phase One survey commented that some areas of grassland are beginning to be encroached upon, possibly due to the work being carried out to remove horseradish.

Management

The hedges on site will be laid when they reach maturity in order to encourage the scrub to thicken and become denser. This would be beneficial especially in the scrub belt of the southern boundary along Ecclesall Road to screen out the effects of the traffic.

The small triangular area of land between the cycle path and Ecclesall Road owned by the Highways Agency could be cleared and planted with bulbs and wildflower seed in order to improve sightlines from the road to the reserve, improve the public perception of the site, and reduce antisocial behaviour on that stretch of the cycle path.

Due to the presence of the white-letter hairstreak on site, wych elm should be excluded from any clearing work.

Bramble requires some cutting back to prevent encroachment onto paths and other habitats. In some areas, the bramble has thrived since trees were removed or pruned, due to the sudden influx of light. Therefore some cutting back will be needed to improve areas aesthetically. Cutting back would also encourage new growth, which would flower, and fruit better than old growth. Cutting back of bramble will be done in sections on a rotational basis, to get a variety of ages and stages of growth.

Areas of tall ruderal which are encroaching onto grassland areas or around the pond should be pulled to stop their spread. Likewise, if work is done to remove horseradish this should be followed by the spreading of a grassland mix to prevent the growth of these primary species.

5.6 Dead wood

Description and evaluation

One habitat type that is almost absent on Sunnybank is dead/decaying wood, either lying on the ground or as standing dead trees. Dead wood provides a valuable habitat for fungi and other saprophytic species. It is also an important habitat for invertebrates, which in turn encourages insectivorous creatures further up the food chain. Standing dead wood provides a valuable habitat for invertebrates that are a source of food for insectivorous birds.

Increasing the amount of dead wood on site is an important objective, however this must be balanced with the fact that the site attracts a fair amount of anti-social behaviour, and wood piles may prove to be a magnet for this. Any standing dead wood must also be kept clear from both adopted paths and desire lines which may prove difficult given the extensive use of the site for short cuts.

Management

Attempts should be made to retain more dead wood on site, both standing and on the ground.

However, health and safety implications and risk of fires should also be considered. Brash piles are not recommended due to fire risk unless these can be hidden in areas such as behind hedges. Tall standing dead wood is also not recommended; dead wood stumps at around shoulder height would be preferable. Larger trees which have been felled should be de-limbed but then the trunks should be left whole rather than crosscutting and removing them.

5.7 Zoological interest

5.7.1 Invertebrates

Description and evaluation

An invertebrate survey (Emerald Ecology 2001) revealed that the site's pond and diverse habitat structure supports a large number of invertebrates. These include five species of local note: Three conopid flies (*Sicus ferrugineus, Conops flavipes* and *Phycocephala rufipes*) a chrysomelidae (*Phyllodecta laticollis*) and a dytiscidae (*Coelambus confluens*); the latter remains to be confirmed.

The butterflies present (and likely to be present) on the site at the time of the 2001 survey were small skipper (*Thymelicus sylvestris*), small white (*Pieris rapae*), large white (*Pieris brassicae*), green-veined white (*Pieris napi*), small tortoiseshell (*Aglais urticae*), red admiral (*Vanessa atalanta*), meadow brown (*Maniola jurtina*) and gatekeeper (*Pyronia tithonus*). A burnet moth was also seen.

In 2014 a further invertebrate survey was completed on site, excluding the pond which should be surveyed at a later date. This survey showed that Sunnybank has a good mix of invertebrate species such as gatekeeper *(Pyronia tithonus)*, four-spotted chaser (*Libellula quadrimaculata*), and four species of bumblebee. It noted the presence of a number of invasive species including tree bumblebee (*Bombus hypnorum*) and harlequin ladybird (*Harmonia axyridis*). The 2001 survey found the presence of two native ladybird species: The 7-spot (*Coccinella 7-punctata*) and the 22-spot (*Thea 22-punctata*). These were not found in the 2014 survey which could indicate that the harlequin is having an impact on the native species. This should be monitored through further invertebrate surveys over the course of this plan.

The 2014 survey recorded the presence of white-letter hairstreak *(Satyrium w-album)*, a BAP species. This species forms small colonies on wych elm. The survey recommended hand searching these trees on site to look for eggs to confirm the presence of a colony. Likewise, the survey also made the point that given that the white-letter hairstreak relies on wych elm, this should be excluded from any felling work to be done on site. Indeed it would be beneficial to include wych elm in any hedgerow planting that is planned.

The 2014 Phase One Survey noted the presence of gatekeeper *(Pyronia tithonus)*, white-letter hairstreak *(Satyrium w-album)*, small white *(Pieris rapae),* large white *(Pieris brassicae)* and speckled wood *(Pararge aegeria)*.

Further invertebrate surveys of both the terrestrial and wetland habitats on site should take place within the life of this plan.

5.7.2 Fish

No fish are present in the pond.

5.7.3 Amphibians and reptiles

Description and evaluation

Common frog (*Rana temporaria*) and Common toad (*Bufo bufo*) occur abundantly on site (breeding), though no formal survey has been done to record Sunnybank's amphibian and reptile fauna. During the 2010 meadow management, approximately 80 frogs were caught for their own safety.

Management

Previous to the 2001 management plan, the annual hay cut in September resulted in a high mortality rate of frogs under the blades of the cutting machine. Since 2002 there has been an annual "Frog Rescue Day" coinciding with the hay meadow cut, with volunteers and members of the land management team working together to get the frogs out of the way of the machine. The "Frog Rescue Day" is now a popular annual event.

5.7.4 Birds

Description and evaluation

Considering the relatively small size of this site, Sunnybank attracts a wide variety of bird life as it provides a mix of cover, nest sites, food and water. The wide variety and large number of birds present is probably due to the abundance of berry-bearing shrubs on the site, and the location of the site within the green network of large gardens and street trees. It is also important as one of the few sizeable green-spaces in the southern part of Sheffield city centre.

A breeding bird survey was carried out on the site from April to July 2001 (Shorter, S. 2001) using the BTO Common Bird Census method. A total of 22 species were recorded on the site over the course of the survey.

The 2011 survey recorded 13 species of which 10 were only recorded once or twice. This includes the red listed Song Thrush. The ecologists carrying out this survey compared the results of the 2001 with the data collected in their 2011 survey. There were 10 species that were recorded a similar amount, one species that was recorded more often and nine that were recorded less or not at all. Those species that were no longer recorded on site included Blackcap, Chiffchaff, Garden Warbler, Heron, House Sparrow, House Martin, Jay, Mallard and Starling. Of the 10 species which were consistent between surveys five of these were only recorded once or twice.

The decline in bird records gives weight to the need for the woodland areas to be thinned to encourage ground and shrub layer growth. Improvements to the pond margins should also help bird population through encouraging invertebrates. Specifically for two red listed species, the Song Thrush and House Sparrow the planned hedge maintenance and planting will be beneficial. Nest boxes for House Sparrow could also be beneficial, possibly attached to the planned fence behind the newly planted hedge in the North West meadow, however these could be easy targets for vandalism. Alternatively nest boxes could be provided to the surrounding houses as part of an outreach project. The provision of nest boxes has not been included in the work programme and should be explored at a later date.

5.7.5 Mammals

Description and evaluation

Various mammals have been recorded on site, including grey squirrels (*Sciurus carolinensis*), fox (*Vulpes vulpes*), hedgehogs (*Erinaceus europaeus*) and pipistrelle bats (*Pipistrellus pipistrellus*).

A small mammal survey was carried out in 2005. The survey was carried out using Longworth humane traps and followed guidelines set out by The Mammal Society. The aim of this project was to ascertain what, if any, small mammals were present on Sunnybank Local Nature Reserve. 17 Longworth humane traps were set throughout the 0.8 ha reserve and their locations marked on a map. The traps were located in a variety of secluded locations in vegetation and under/behind logs. They were checked every 12 hours over a period of 4 days. A total of 7 wood mice were caught and released. The site has reasonably good connectivity with surrounding gardens, allowing wildlife to move around. Tawny owl (*Strix aluco*) has been recorded on the site, illustrating the importance of small mammals in the food chain. A 2012 small mammal survey recorded 10 wood mice showing a good level of consistency. This survey pointed out that other small mammals such as bank vole and shrew could be encouraged onto site through increasing the scrub layer.

6 INFRASTRUCTURE

6.1 Footpaths and bridleways

Figure 2: Public Rights of Way and informal paths

Figure 6: Proposed changes to footpaths

The existing paths are in a fairly good condition; they require only regular strimming and spraying in order to prevent the encroachment of vegetation onto paths, and to present a 'well-kept' appearance to improve perceptions of the reserve by local people. The steps from William Street would benefit from being re-built as they are beginning to become uneven.

The increased usage of the access at the north side of the pond would justify improving facilities for site users in this area. The slope here tends to become slippery during wet weather and the addition of wide surfaced steps and a path joining the existing route from William Street would be an advantage. This route should be located alongside the hedgerow to minimise any loss of hay meadow habitat.

Two paths coming in from the top of Sunnybank could benefit from being moved slightly in order to avoid hedgerows, or to make them more user friendly.

Whilst the paths are in a generally good condition at the time of writing, given the timescale for this plan it is suggested that over the 10 year period each of the surfaced paths are replaced at least once to maintain their overall quality.

The cycle track and pavement attached to this offers good access to the site for wheelchair users.

6.2 Boundaries

Figure 4: Existing infrastructure

The site boundaries are generally in good condition. Most of the boundaries are paled garden fences that will need monitoring and maintaining over time.

The western wall has been repointed recently by the adjacent home owner.

There are plans to replace the boundaries along Broomhall Place and William Street with a metal knee rail. A similar approach could be taken to install a fence along the Ecclesall Road boundary, incorporating a broken interpretation feature to create a new sign and notice board for the site. These new features are contained in the work plan but are subject to funding.

6.3 Other structures

Figure 4: Existing infrastructure

Figure 5: Proposed changes to infrastructure

The existing information board is durable, and should suffice for several years to come, however it would benefit from being moved to a more appropriate location. The sculptures would benefit from periodic re-painting to ensure they remain rust free, and interesting features of the site for decades to come. There are four wooden routed welcome signs at key entrances; these should be maintained when they become worn. As part of wider work being undertaken by Sheffield and Rotherham Wildlife Trust on their sites, notice boards should be attached to these signs in order to attach posters and also a countryside code plaque.

It is suggested that the bench to the east of the pond is removed, and the remaining bench replaced, along with a new bench being installed in the northwest meadow. Whilst it is possible to again use a simple timber log design, there would be a great benefit from working to create a community-generated design for new

benches at the site – possibly with young people in the local area. Given that metal work already exists at the site in the form of the animal sculptures, the creation of sculpted metal benches would not seem out of place on the reserve.

There is a dog waste bin managed by Sheffield City Council at the entrance from Sunny Bank. This is in a state of disrepair. Reserve Advisory Group meetings and the Sheffield Standard report for Sunnybank have highlighted the need for further litter bins at key entrances. It is suggested that Sheffield and Rotherham Wildlife Trust liaise with Sheffield City Council/AMEY to install new combined litter/dog waste bins at the Ecclesall Road entrance, William Street entrance and Sunny Bank entrance, whilst removing the dog waste bin from this location. The need for a grit bin to be installed at the Broomhall Place entrance has also been highlighted, and this should be included within the discussions with the council and AMEY.

7 CULTURAL CONTEXT

7.1 Archaeological features and management

Other than the Victorian boundary wall, and the steps left from the original housing, there are no archaeological features of note. Conserving these features should form part of the site management and maintenance for infrastructure and boundaries.

7.2 Recreational usage

The visitor survey carried out during 2011 included 109 interviews. The survey was carried out over a series of sessions designed to capture all times and types of usage.

The results show that the majority of visits to Sunnybank were made by people taking a short cut between Broomhall and Ecclesall Road (41%). These visits may therefore be classed as 'incidental', although most people were aware that they are passing through a nature reserve. As a result of this pattern of use, the majority of people spend under 10 minutes on the reserve (94%), with 58% of people using the site daily. Information and site signage are likely to be contributing to raising the site's profile from the previous survey in 2001, which found that less than a third of interviewees knew that Sunnybank was a nature reserve.

Enjoying the trees and flowers (10%), peace and quiet (13%) and the birds (8%) were all given as reasons for visiting Sunnybank. This may indicate that greater awareness, through appropriate promotion and interpretation, will lead to an increased on-site recreational use. A second, smaller group of visitors comprise local people who intentionally visit the site, either as a place for dog walking, or as an informal play space. Walking (91%) and cycling (5%) are the most common forms of transport to the reserve, suggesting a high level of use by local residents.

When asked "What improvements would you like to see in the reserve?" litter was the main concern, with 14% wishing to see more rubbish bins and 6% stating more litter removal as a main area for improvement. Benches (16%), more information (7%), better management for wildlife (8%) and better access/improved footpaths (7%) were also requested. More events and activities were also a popular request (11%). Regular visitor surveys should be conducted in order to monitor recreational trends, site usage and opinions/perception, since many improvements have taken place.

7.3 Local community

Sunnybank Local Nature Reserve lies within the new ward of Broomhall. Approximately 16,900 people live within this ward, a high proportion of whom are students. All the statistics in the following section are taken from the census of 2011.

Of the approximately 15,000 residents aged 16-74 in Broomhall, 20.5% of those classing themselves as economically active are full-time students, and 39.3% of those classed as economically inactive are also full-time students – well above the respective averages across Sheffield City. This trend towards the area being popular with University students is also reflected in the pattern of household types. Of the 5653 households within the ward, only 34% are owner occupied, but 51.2% are rented from private landlords. Broomhall also has the highest average household size at 2.9, reflecting the higher level of shared accommodation amongst students. The area has some of the highest scores in terms of academic and professional qualifications in the city; only 5.5% of residents have no qualifications and nearly half having gained at least a Level 3 qualification.

A low percentage of the population suffer from ill health. The ward is second lowest in terms of population with long term illnesses. The ward also has a low rate of unemployment (2.5%) but the high economic inactivity rate mentioned above; and of this 47.2%, only 4.2% are retired.

The local community has always been keen to be involved in any practical work undertaken on the site. In the initial stages of development, groups involved with work on the site included NACRO's community projects team, Sheffield Conservation Volunteers, a local scout group, the Porter Croft Woodcraft Folk, Springfield, Porter Croft and Abbeydale Grange Schools, and local residents. Sheffield and Rotherham

Wildlife Trust has since undertaken maintenance works and activities on the site, with local residents and groups including the General Cemetery Watch Group and the Porter Croft Woodcraft Folk.

Sheffield and Rotherham Wildlife Trust has recently undertaken a review of their community outreach work. Based on various factors, the Trust divided into their reserves into three categories. Factors include what the sites have to offer in terms of habitat and facilities, as well as the results of a review of event success on the sites between 2012 and 2014. Categories do not reflect the value of the site itself, but rather help to form different approaches to running events on site. Sunnybank was categorised as a category 2 site.

Category 2 sites are those on which a degree of success has been attained at events in the past. Often these sites may seem comparable to those in category 1, but have no appropriate parking or facilities to enable more people to access the events. Alternatively, many of these sites are much smaller or more urban, attracting more local people from surrounding residential areas. Success in the past has often been achieved through partnership events with other organisations.

As a result of this review, category 2 sites like Sunnybank have been allocated capacity to run three community events per annum in the spring, summer and autumn terms. Sunnybank has no regular Community Work Day provision at present, as these tend to struggle to attract volunteers on smaller urban reserves. However, running maintenance days on similar sites has proved successful; this could be considered here to provide an opportunity for further involvement in the site from Sheffield University. For a number of years Sheffield and Rotherham Wildlife Trust have run a successful Frog Rescue event in conjunction with the meadow cut. This is a popular event and should continue. In the past this has been run as either a Community Work Day or as a community/family event depending on funding and staff allocation. This ad-hoc approach has been successful so far and can continue.

7.4 Education

The ward contains several nursery, infant and junior schools.

Formal education provision for the site must be considered carefully. Sunnybank's mosaic of habitats makes it an ideal site for a variety of environmental education activities. However, its small size means that delivering activities for a large group or class (±30) will be difficult. Furthermore, the pond – although a good resource for pond dipping – will be difficult to use with school groups as there is only a small boardwalk around the margin. Safety on site (particularly the presence of hypodermic syringes) could also be a problem when working with school groups. Despite this, the reserve has been successfully used as a site to allow children and young people to explore the natural world. To accommodate this, site checks are undertaken prior to any school visits. This site allows the groups to experience a range of habitats within a small area and over a short space of time. By working with very young children, it is hoped that they will grow up knowing that open spaces and wildlife sites are important places for both wildlife and people. Good relations have been established with Broomhall Nursery School over the period of the previous plan. However, local children are discouraged from going onto Sunnybank because of the problem of drug-users and the associated paraphernalia.

Environmental education can be used as an effective vehicle for delivering a range of National Curriculum targets at both primary and secondary levels. It can provide motivation to pupils who perform better at practical tasks or outside of the classroom. Learning about the natural world at a young age is vital to the long term environmental wellbeing at local, national and global levels.

There is concern that opportunities for outdoor learning by school students have decreased substantially over the years. There are many benefits to using green spaces as outdoor classrooms, as they allow students to gain skills through a different approach and environment. A study by the Field Studies Council revealed substantial evidence that outdoor classrooms can raise levels of attainment and improve attitudes towards the environment.

Sheffield and Rotherham Wildlife Trust will endeavour to make links with the two Sheffield universities, local colleges in Rotherham and Sheffield, and schools, to encourage them to independently use the site as a venue for study, as well as organised visits with specialist staff. Given that the largest demographic group recorded on site is between 18-25, and that the site is used mostly for shortcuts, it is reasonable to assume that students from both universities use the site regularly. It could therefore be beneficial to involve them in

the future for the creation of interpretation features, surveys, involvement in RAG groups and at work days. In early 2015 Sheffield and Rotherham Wildlife Trust were approached by Sheffield University with a view to forming a relationship with them to work on Sunnybank, and in time transform it into a flagship urban nature park. Negotiations are ongoing at the time of writing and are dependent on funding and a clearer idea of what the Universities' proposals are.

Sheffield and Rotherham Wildlife Trust will be undertaking a review of their Outdoor Learning programme. The Outdoor Learning department will include Sunnybank within this and develop a plan for relevant educational work on site.

7.5 Employment and training

LANTRA have identified that the environmental conservation sector suffers from a lack of practical skills amongst graduates coming into the sector. The opportunity for training and education at the nature reserve may in some way help to address this, as well as the need within the local population for skills and qualifications.

Sheffield and Rotherham Wildlife Trust is City and Guilds and CERTA accredited centre. Work done by volunteers, students or trainees on Sunnybank can be used by candidates to build up their portfolio. Partnerships with similar organisations such as TCV should be explored to help meet the needs of the local population.

Volunteers and trainees have carried out a large part of the work already done at Sunnybank on practical workdays, and continue to help manage the site through the Sheffield and Rotherham Wildlife Trust land management team. Measures should be taken to include the local population in regular community work days.

Further links to local conservation and natural history groups should be encouraged so that groups are able to use Sunnybank as a venue to further their interest and skills, as well as providing valuable information for Sheffield and Rotherham Wildlife Trust.

7.6 Reserve Advisory Group

Sheffield and Rotherham Wildlife Trust hold biannual Reserve Advisory Group (RAG) meetings, where members of the local community and interested parties can meet the team managing the site and discuss issues or ideas they have. These often bring up good ideas for site management and are a positive way to engage with the local community. Given the high usage of Sunnybank by students it could be advantageous to approach university societies interested in the environment and conservation to see if they would like to attend these meetings. The winter RAG meeting will be replaced with a newsletter.

8 ECONOMIC

8.1 Grants and funding

For large scale projects on site, grants will be sought from public and private sources such as Land Fill Tax or Lottery funding. Sunnybank will also be included in any funding bids relevant to the larger Living Landscape programme.

8.2 Membership recruitment

Membership of Sheffield and Rotherham Wildlife Trust is steadily increasing as a more pro-active approach to membership recruitment has been taken in recent years. Recruitment campaigns targeted at neighbouring communities have been met with a high degree of success. High quality management and interpretation of sites will go some way towards generating members. Efforts to connect with the local community will help boost membership recruitment in the area.

9 ORGANISATIONAL INFORMATION

9.1 Health and Safety

9.1.1 Policies and procedures

Sheffield and Rotherham Wildlife Trust has many detailed polices, which are amended and updated at regular intervals or when key legislation changes. A series of procedures have also been produced, covering scenarios such as working on site, lone working, and use of machinery. A Health and Safety working group monitors accidents and incidents, and feeds these into further H&S policies and/or procedures. Risk assessments are carried out for each task and site, and reviewed regularly.

9.1.2 Site safety and security

Any known accidents or incidents that occur on Sheffield and Rotherham Wildlife Trust nature reserves are recorded on the relevant accident forms. An accident book is kept at the headquarters.

A first aid kit is brought to all Wildlife Trust events at the site and the majority of staff involved with the site have received first aid training. A site specific risk assessment has been written for Sunnybank, and is reviewed on an annual basis. Further risk assessments are prepared for specific tasks and events at the site as necessary.

Sunnybank is regularly patrolled by Sheffield and Rotherham Wildlife Trust staff and volunteers. Problems such as broken infrastructure or graffiti are logged on a spreadsheet and addressed as soon as possible. Problems and incidents reported by members of the public are also logged and dealt with as necessary.

9.1.3 Litter, cleanliness and vandalism.

A dedicated patrol team aims to visit the site every 2 – 3 weeks in order to undertake a litter pick, and report any issues identified. As well as carrying out ongoing maintenance and habitat management, SRWT Land Management Team also carry out litter picks, report vandalism and deal with any other issues as required.

There is one dog bin on site which needs occasional maintenance such as repainting. This is emptied by Sheffield City Council. The need for more bins has been brought up in the 2011 visitor survey, therefore discussions should take place with SCC to achieve this and ensure their maintenance and the disposal of waste.

9.1.4 Maintenance summary

Maintenance is normally carried out by the internal land management team where capacity allows. If this is not cost effective, contractors are hired to deliver these works. A full work schedule is created each year in line with the work programme.

Item	Frequency	Responsibility
Regular patrolling	Every 2-3 weeks	SRWT
Strimming grass paths	May – September: Cut three times per year	SRWT
Overhanging vegetation on Public Rights of Way	Once a year	SRWT
Fly tipping, glass and needle removal	As required	SRWT
Graffiti removal	As required	SRWT

Maintain surfaced paths	Once every five years, spot repairs annually	SRWT
Paint railings and gates	Once every five years	SRWT
Maintain infrastructure (steps, bridges, walls, fences)	As required	SRWT
Litter picking	6 days per year	SRWT
Maintain interpretation features.	As required	SRWT
Empty and maintain litter and dog bins.	Monthly	SCC/Amey

9.1.5 Marketing

Sheffield and Rotherham Wildlife Trust have produced a leaflet advertising Sunnybank Nature Reserve. The reserve also features in various other leaflets and pamphlets produced by the trust including the Living Landscape pamphlet that details the organisations wider strategy.

News and articles about the reserves are printed in SRWT's Kingfisher magazine, which is sent out to members three times a year. Press releases are sent to the Sheffield Star, Sheffield Telegraph, and the Rotherham Advertiser. Printed material is provided to the visitors' centre in Rotherham.

Sunnybank Nature Reserve has a page on the Sheffield and Rotherham Wildlife Trust website. This gives general information about the reserve, including directions and species of interest. The web page can be found at: http://www.wildsheffield.com/nature-reserves/our-reserves/sunnybank

All community and outdoor learning activities are promoted on Sheffield and Rotherham Wildlife Trusts website as well as the Facebook and Twitter pages

9.2 Sustainability

9.2.1 Environmental policy

Sheffield and Rotherham Wildlife Trust is committed to minimising and reducing the negative environmental effects of its operations, to protect the habitats and ecosystems for which they are responsible, and to conduct its operations in a manner that reduces its negative impact on the environment as a whole. Sheffield and Rotherham Wildlife Trust has developed an Environmental Policy and several procedures from this, including "Environmental Procedures for Land Management".

9.2.2 Pesticide use

Sheffield and Rotherham Wildlife Trust aims to keep use of pesticides to a minimum, and only use them when they are absolutely necessary, such as when treating invasive species. SRWT has a separate procedure to deal with the use of pesticides, and also includes pesticide use in its Environmental Policy. SRWT keeps a decision making log to record all pesticide use and complies with all Environment Agency procedures, including requesting permission to use pesticides in or around water. Only staff trained to adequate levels, i.e. NPTC certification, are allowed to use pesticides.

9.2.3 Horticultural peat use

Sheffield and Rotherham Wildlife Trust avoids the use of peat-based soil improvers, instead favouring the use of products made from recycled organic wastes, such as tree bark, wood-waste, and composted green waste. Products should preferably be of British origin, as local as possible to Sheffield.

9.2.4 Waste material recycling

Sheffield and Rotherham Wildlife Trust aims to reuse or recycle any waste material it creates from its sites, with the exception or materials that are regulated and must be disposed of in a suitable manner, e.g. chemical leftover. Sunnybank has a compost pit in which all organic material not being reused is deposited. Wooden debris is either used as habitat piles or removed from site to be used for wood carving or fire wood.

9.2.5 Energy conservation

There is no building on site, so opportunities for reducing energy consumption are limited. The Sheffield and Rotherham Wildlife Trust Environmental Policy encourages staff to ensure that they are energy efficient whilst in the office.

9.2.6 Pollution reduction

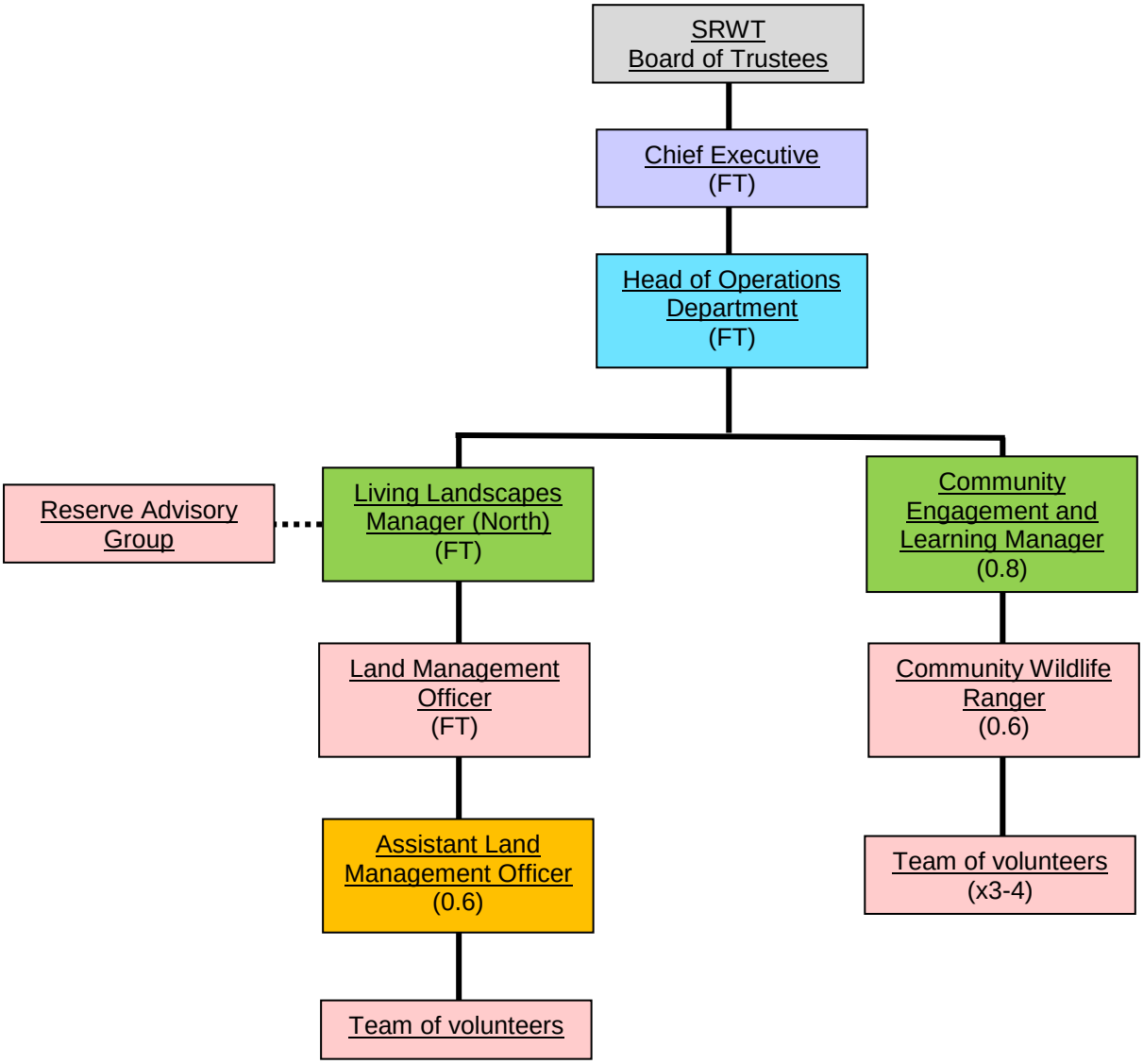
Sheffield and Rotherham Wildlife Trust aims to use products with a low environmental impact. When using pesticides or fuel, teams carry spill kits to minimise the impact of any spill on the environment. Use of pesticides and machinery is limited to trained staff who have the necessary NPTC certification, and are therefore aware of how to ensure that their work does not negatively impact on the environment.

9.2.7 Resource conservation methods

Sheffield and Rotherham Wildlife Trust purchases the most durable tools and machinery and maintains these regularly in order to ensure their longevity.

Land management team staff create specifications for work being carried out on site which enables them to calculate an accurate amount of resources eliminating waste in terms of budget and the resource itself.

9.3 Management structure



10 WORK PROGRAMME

The following table shows costings at the time of writing the management plan, which can be modified. The cost of the staff time is not included, though an indication of the number of days at different officer levels is indicated.

The electronic version of this table is held on the Sheffield and Rotherham Wildlife Trust system, so that the work can be recorded. Compliance is recorded (whether or not the work has been done), and any explanations as to why these elements of the work programme have not been undertaken. Large amounts of this work is aspirational, and the proposed work programme is dependent on external funding being secured to enable us to deliver the work on the nature reserve.