Sheffield & Rotherham

Management Plan for Salmon Pastures Local Nature Reserve

April 2018 – March 2028

Acknowledgements

Sheffield Wildlife Trust would like to thank the individuals who have contributed to the formulation of this management plan. In particular, thanks go to Rob Miller, Julie Riley and the members of Sheffield City Ecology Unit, for their input.

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1 INTRODUCTION

Sheffield and Rotherham Wildlife Trust (SRWT) 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 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.

Salmon Pastures Local nature Reserve is a small urban reserve located on the north bank of the River Don. It lies between Washford Bridge and Norfolk Bridge, bounded by the River Don and the Five Weirs Walk on the south and a cement works to the north. The reserve is characterised by neutral semi-improved grassland surrounded by woodland scrub, and supports a variety of plant and animal species. It has the potential to be a point of interest primarily for users of the Five Weirs Walk.

The reserve forms part of the wider Living Don Living Landscape programme (Figure 1). The River Don itself forms the spine of the programme, which encompasses 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 plan

Salmon Pastures is owned by the Sheffield City Council Highways Department. From April 2002, the site was leased to the Sheffield Wildlife Trust for a period of 30 years. The first SRWT management plan covered 2002 to 2006 and was funded by the Heritage Lottery Fund grant. A second plan covered the period 2011 – 2018. The current plan sets out a detailed work programme for the period 2018 - 2028, and aims to continue with a programme of management for the continued benefit of wildlife and local people who use the site.

This management plan, which follows on from the 2011 to 2018 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 and justification of management prescriptions and the management methods to be used.
- 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. 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 & Rotherham Wildlife Trust offices.

1.2 How to use this plan

This plan is written in nine sections; for a detailed list of contents, please refer to the Contents pages.

Section 1.3 contains the vision statement for Salmon Pastures and lists the management aims on which this plan is based.

Sections 2-7 contain the site description and, where appropriate, evaluation against key management aims.

Section 8 comprises a table of management aims and objectives. This describes the work that will be delivered to achieve each aim during the period covered by this management plan.

Section 9 is the work programme, which is used to schedule management works and shows when individual pieces of work will be carried out. Costings for the work programme for the first 3 years of the plan are given here.

Section 10 contains the Figures that support the plan and which are referred to in the text.

1.3 Vision statement and management aims

Salmon Pastures is a small but important green haven amongst industry and provides a link with other green spaces along the Five Weirs Walk. The reserve offers members of the public access to a peaceful pocket of urban common, and provides a range of habitats which support wildlife.

To deliver this vision, the Trust has set the following aims for the management of Salmon Pastures:

1. To manage the birch and scrub as the woodland matures, in order to enhance its biodiversity value.
2. To maintain the quantity and quality of the grassland and ruderals habitats to optimise the value of these areas for wildlife and enhance biodiversity.
3. To reduce disturbance to wildlife through inappropriate and damaging use of the reserve.
4. To record and monitor the ecological features of the reserve.

5. To maintain public access to the reserve.
6. To clearly define and maintain all reserve boundaries.
7. To continue to develop ongoing sources of grant aid and other income to support specific non-maintenance projects on the reserve

2 SITE DETAILS

2.1 Location and extent (Figure 2)

Salmon Pastures is situated to the east of Sheffield city centre (grid reference SK 371 881). It is located in the Sheffield district of Attercliffe, and covers an area of approximately 0.5 hectares.

2.2 Landscape value and context

The reserve falls within Natural England's Natural Character Assessment (NCA) Profile 38: Nottinghamshire, Derbyshire and Yorkshire Coalfield, an area that has seen great change over the past few centuries. The impact of widespread industrialisation and development on the landscape and settlement pattern within the National Character Area (NCA) is extensive, and is typified by the Don Valley where this reserve is located.

Despite its small size, Salmon Pastures, has relevance in the landscape as it provides a rare widening of the River Don 'green corridor' amidst a highly industrialised landscape.

2.3 Site tenure and occupancy

The site is freehold and owned by Sheffield City Council Highways Department. In April 2002, it was leased to Sheffield Wildlife Trust for 30 years.

2.4 Statutory designations and policy context

Salmon Pastures was originally designated as a Site of Natural History Interest in Sheffield's Nature Conservation Strategy, and upgraded to an Area of Natural History Interest (equivalent to a Site of Scientific Interest) in Sheffield's Unitary Development Plan 1998. It is currently listed as a Local Wildlife Site (no. 088) under the Sheffield Plan. It lies within a General Industry Area with special industries.

Sheffield City Council's policies, which affect Salmon Pastures under the **Sheffield Unitary Development Plan** (1998), are as follows:

IB5 Development in General Industrial Areas
There is a preference in these designated areas for industrial development and warehouses. Accepted forms of development include small food outlets, lorry parks, hotels, offices, open space, community facilities, leisure and recreation facilities. Developments such as housing, and supermarket facilities are considered unacceptable.

GE11 Nature Conservation and Development
The natural environment will be protected and enhanced. The design, siting and landscaping of development should respect and promote nature conservation and include measures to reduce any potentially harmful effects of development on natural features of value.

GE12 Sites of Special Scientific Interest and Local Nature Reserves
Development which would damage Sites of Special Scientific Interest or Local Nature Reserves will not be permitted.

GE 13 Areas of Natural History Interest and Local Nature Sites
Development which would damage Areas of Natural History Interest will normally not be permitted. Development affecting local Nature Sites should, wherever possible, be sited and designed so as to protect and enhance the most important features of natural history.

Where development would decrease the nature conservation value of an Area of Natural History Interest or Local Nature Site, it must be kept to a minimum and be compensated for by creation or enhancement of wildlife habitats elsewhere within the site or local area.

LR4 Open Space

Open space will be protected from built development where it is needed for outdoor recreation, or where it makes a valuable contribution to the natural environment, urban heritage or quality of life.

As opportunities arise, open space will be;

- Improved where it is of poor quality; and
- Created, where there is a shortage.

LR5 Development in Open Space Areas
Development in Open Space Areas will not be permitted where: (a) it would cause damage to nature conservation sites, Scheduled Ancient Monuments or other archaeological sites; or (b) it would cause damage to mature or ancient woodland or result in a significant loss of mature trees; or (c) it would significantly detract from the green and open character of the Green Network; or (d) it would make an open space ineffective as an environmental buffer; or (e) it would harm open space which forms the setting for a Listed Building or other historic building, or is needed to maintain an important view or vista; or (f) it would damage the character of a Historic Park or Garden; or (g) it would harm the character or appearance of a Public Space; or (h) it would result in the loss of open space which is of such quality that it is of City-wide importance; or (i) it would result in over-development or harm the character of an area; or (j) it would harm the rural character of a wedge of open countryside; or (k) the proposed use would be incompatible with surrounding land uses.

Sheffield City Council's policies, which affect Salmon Pastures under the **Sheffield Nature Conservation Strategy** (1990), are as follows:

NCS 5 (P): Development which may damage Sites of Scientific Interest or Community Wildlife Areas will normally not be allowed.

NCS 13 (P): The Network of Green corridors and Green Links (shown on the Proposals Map) will generally be:

a) Protected from development which would detract from their predominantly green and open character;
b) Enhanced by encouraging development and land management changes which increase their wildlife value.

NCS 16 (E/P): Priority will be given to the creation and improvement of wildlife habitats where this will:

a) Enhance Green Corridors and Desired Green Links;
b) Enhance existing S.S.S.I.s , S.S.I.s and C.W.A.s.

NCS 18 (E) : Where appropriate the City Council will establish working practices which enhance the wildlife interest of open space and other areas of open land in its ownership. Other managers of land will be encouraged to adopt similar practices.

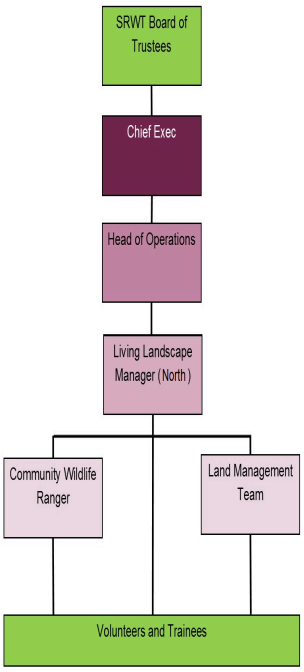
Sheffield's **Green and Open Space Strategy** (2010 – 2030) sets out the councils approach to managing for nature and biodiversity and making green connections for people and wildlife. Under this document the council sets out the following policy:

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 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.

2.5 SRWT staff structure for reserve management

The organogram below shows all staff who are directly involved with management of the site. Please note that the structure is correct at the time of writing but may change over the period covered by this plan.



2.6 Site safety, security and maintenance

2.6.1 Site safety

A site specific risk assessment has been written for Salmon Pastures and is reviewed on an annual basis. Further risk assessments are prepared for specific tasks and events at the site as necessary. The Trust also manages the reserve in line with its many detailed polices covering environmental management and Health and Safety. These are amended and updated at regular intervals or to reflect legislative changes.

Salmon Pastures is regularly patrolled by SRWT staff and volunteers. Any problems are logged on a spreadsheet and addressed as soon as possible. Problems and incidents reported by members of the public are also logged on the spreadsheet and are dealt with as necessary. Any known accidents or incidents that occur on the reserve are recorded on the relevant accident forms. An accident book is kept at SRWT headquarters.

2.6.2 Site security and cleanliness

There is no physical boundary on the south of the site. The border with the Five Weirs Walk is formed by a sloped embankment and is made more secure by the presence of brambles and young tree growth. The northern site boundaries consist of a row of shipping containers. There is a wet-stone wall with post and wire mesh on top at the west end of the site and a post and wire mesh fence at the eastern end.

Regular patrols are undertaken to check the integrity of boundaries and repair work or replacements undertaken as required. Patrols also monitor the extent of rubble being tipped on north side of the reserve, and collect litter.

2.7 Adjacent land ownership

The site is located on the north bank of the River Don, along which the Five Weirs Walk runs. The walk/bank is owned by Sheffield City Council's Highways Department. To the north of the reserve is a commercially run cement works. A small area of land to the north east, has been developed into a Sikh Temple.

2.8 Site history, past management and current land use

The Lower Don Valley has a long history of industrial use, which can still be seen at several points along the Five Weirs Walk, near to the reserve. The industrial past is also a key in the development of the reserve. The site was once part of the coke industry, owned by the Duke of Norfolk and was used as a slagheap for industrial waste products. In 1969 the banks of the River Don were reclaimed and landscaped with tree planting. Since this reclamation, the site was left unmanaged until 1996 when a management plan (Julie Westfold, 1996) was drawn up to improve its wildlife potential.

In April 1998, some tree removal work was carried out on site to maintain the open grassland. A bulldozer was used to scrape off a thin layer of the existing substrate to promote regeneration of the seed bank. SRWT took over the management of the site in 2001 with the advent of the five-year management plan 2001-2006, funded by the Heritage Lottery Fund.

Since 2000, SRWT have worked to maintain the openness of the site for the benefit of the grassland and heathland component (now lost). This has involved removal of emerging trees by hand-pulling, along with some coppicing along the woodland edge to encourage diversity of woodland structure and mowing of the grassland.

Unauthorised dance parties have taken place recurrently on the flat, open grassland area of the reserve. These events periodically destroy the integrity of the vegetation structure leaving areas of bare soil as well as large amounts of litter. While the grassland has tended to recover within several weeks following the event, the heather has proven less resilient and a site visit carried out in 2017 revealed that the heathland component, last recorded in 2014, is now absent. In addition to physical habitat damage, these events are likely to disturb the wildlife on site.

2.9 Archaeological Features

There is a large carved stone with the inscription "Salmon Pastures Education Committee, Sheffield Schools, 1908" It is situated along the Five Weirs Walk path at the south eastern corner of the reserve. There are no other features of archaeological interest present at the site.

2.10 Services

There are no services present on site.

2.11 Infrastructure

2.11.1 Footpaths and bridleways (Figure 3)

In order to access the site it is necessary to use the Five Weirs Walk path coming from the east or west. This is a public footpath maintained by the Sheffield City Council Highways Department, with some voluntary works carried out by the River Stewardship Company as part of the Blue Loop maintenance. The Five Weirs Walk Trust provided voluntary maintenance works until 2015 when the organisation dissolved. There are no designated Public Rights of Way on the reserve.

A short, informal, woodchip surfaced path has been created by SRWT to provide wheelchair access on to the site from its western end. This leads up to a turning circle and a log bench approximately 10 metres in to the site. From here a small, unsurfaced desire line crosses the site towards a set of sleeper steps at the eastern end of the site. Some woodchip has been laid at the end of the desire line closest to the steps. The sleeper steps were built by SRWT in 2001 on the route of desire line created by people walking up the bank. There is also a desire line along the western boundary of the site terminating at an area where several cat shelters have been placed by individuals feeding feral cats.

2.11.2Boundaries (Figure 3)

The northern boundary with the cement works was made with upright concrete slabs that have since been replaced with a line of shipping containers (2008). A wet-stone wall with post and wire mesh on top at the west end of the site and a post and wire mesh fence at the eastern end. To the south the site is bounded by the Five Weirs Walk path. A metal container forms part of the boundary in the north east corner of the site. Most of the boundaries are in good condition, however, a 7 metre section of the post and wire mesh fence on the eastern boundary is in need of repair or replacement.

2.11.3Other structures (Figure 3)

There are two signs on site, stating the name of the reserve, its management by SRWT, and contact information. There is one bench located at the end of the wheelchair accessible path which is in need of replacement.

3 ENVIRONMENTAL INFORMATION

3.11 Topography

Salmon Pastures is almost entirely flat, but with a very slight south-facing aspect. An earth bund along the southern boundary slopes steeply down to the Five Weirs Walk path, and there is an earth bank behind the birch woodland along the northern boundary.

3.12 Geology

The solid geology of the reserve lies within the Millstone Grit series, which is comprised of sandstone, mudstone and conglomerates, interspersed by impermeable shales. These rocks are of carboniferous age.

These deposits are overlain by superficial alluvium, characterised by soft to firm consolidated, compressible silty clay with variable layers of silt, sand, peat and basal gravel.

The importance of the natural underlying geology at this site is minimal because the site is covered with a layer of coal slag. This creates acidic conditions in the surface substrate that masks influences from the underlying geology.

3.13 Pedology

The banks of the Don are composed of Pleistocene strata overlaid with more recent alluvial deposits i.e. sand, gravel and mud deposits from the river. The soils at Salmon Pastures are thin, acidic soils overlying a layer of coal slag. An increase in ruderal species and the loss of heather suggests evidence of nutrient enrichment and increasing neutralisation of soils, due to annual inputs of leaf litter as the reserve becomes more wooded.

3.14 Climate

30 year averages are available for Sheffield for the period 1981-2010 from the Met Office

Location	Mean Annual Rainfall (mm)	Mean Annual Sunshine (hrs)	Average Temperature (^{0}C)	
			Max	Min
Sheffield 53.381, -1.469	834.6	1444.9	13.4	6.6

The prevailing wind is from the south-west.

3.15 Hydrology

The site is free draining due to the soil structure and the slight slope downwards towards the south of the site.

3.16 Biodiversity and Biodiversity Action Plan overview

Despite the site's small size and industrial history, Salmon Pastures forms part of a network of Urban Commons across the City of Sheffield. Urban Commons have developed on post-industrial derelict urban sites and have been identified in the Sheffield Local Biodiversity Action Plan (SLBAP) as a priority habitat. In 1987 The Inner City Habitat Survey carried out by Julie Westfold and Oliver Gilbert, highlighted Salmon

Pastures as being of ecological importance. Research in 1988 by the Sorby Natural History Society showed local Urban Commons supported over 57 species of hoverfly and a rich diversity of plants.

Following the disappearance of the heathland habitat from the reserve, there are no longer UK BAP habitats on this site.

Notable Species

	Species	Designation	Notes
Birds	Willow warbler	RSPB BoCC[1]	Breeding on site or nearby
	Bullfinch	UK BAP[2], RSPB BoCC	Present or flying over (not breeding)
	Dunnock	RSPB BoCC	Present or flying over (not breeding)
	Mallard	RSPB BoCC	Present or flying over (not breeding)
	Song thrush (*Turdus philomelus)*	UK BAP	Present or flying over (not breeding)
	Swift (*Apus apus*)	RSPB BoCC	Present or flying over (not breeding)
Invertebrates	Hoverfly (*Cheilosa mutabilis*)	Red Data Book, nationally Scarce	Recorded in 2001

[1] RSPB's Birds of Conservation Concern (amber listed)

[2] UK Biodiversity Action Plan

3.17 List of surveys, monitoring schemes and reports

Author	Date	Survey	Summary
Matty Levan	2001	Summary of existing surveys	Various site descriptions, habitat maps and species lists recorded at the site since 1987.
Susan Shorter and Thomas Simcock	2001	Breeding Bird Survey	This survey was carried out to determine the species present and estimate the number of territories/breeding pairs. 22 bird species were present on the site during the survey period with half of these species holding a territory. The species found are typical of woodland and garden habitats, the birch woodland being particularly important.
Susan Shorter and Belinda Wiggs	2001	Phase 1 Habitat Survey	A detailed Phase 1 survey was carried out at the site. Despite its small size and industrial location, the reserve has a rich variety of plant and animal species. The habitat types present are semi improved and acid grassland, young birch woodland and scrub, tall ruderals and patches of heather providing a valuable wildlife resource.
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. The site is often used by nearby factory workers and dog walkers; litter was the highest concern.
Sorby	2001	Invertebrate survey	A desk study of all the invertebrate records from Sorby since 1987. 44 species were listed, 2 of these are notable and 8 are of local status.
M. Senkans	2001	Fungi survey	Less than 10 varieties reported but hundreds of common earthballs found.
Cheryl Gibson	2001	Butterfly survey	A good site for butterflies as a mosaic of habitats is beneficial. A large number of larval food plants, mainly grasses, but also a good variety of wild flowers. A good supply of nectar from spring to autumn in the goat willow. Bramble flowers and berries are a good food source.
Cheryl Gibson & Helen Lloyd	2005	Phase 1 Habitat Survey	Detailed site description and habitat map of the site showing the extent and location of the habitats present, including acid & neutral grassland, scrub, tall ruderals and patches of heathland.
Alistair Campbell & Mike Sims	2010	Phase 1 Habitat Survey	A detailed Phase 1 survey was carried out at the site. Detailed site description and habitat map of the site showing the extent and location of the habitats present, including acid & neutral grassland, scrub, tall ruderals and patches of heathland.

Donna Tubridy & Dee Wade	2011	Bird Survey	This was a smaller scale survey than those of 2001 and 2017 and therefore not comparable. Nine species were recorded, of which two were considered breeding or holding territory.
Matthew Duffy & Sarah Sidgwick	2011	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. The main concern was litter and unsuitable use of the reserve. The majority of people surveyed were over 55 and retired and many fished in the river. Many others were passing by as part of a longer walk.
S. Clements	2012	Fungi Survey	By 2012, 39 species recorded on site (11 of these recorded in 2009-2010, 28 recorded in 2012).
Julie Riley, Martin Todd, Rachel Stevenson & Diana Oji	2014	Small Mammal Survey	This survey was carried out to give baseline information about small mammals using the site and to identify the presence or absence of small mammals in the wooded areas, at the perimeter with the waste management site, around the meadow and heather areas and along the edge with the footpath along the river. Only three woodmice were recorded, and these were possibly the same individual.
Julie Riley & Martin Todd	2017	Breeding Bird Survey	This survey was carried out to determine the species present and estimate the number of territories/breeding pairs. The results of the survey can be taken into consideration when deciding future management of the site. 10 species are likely or highly likely to have been breeding on site or nearby, with a further 10 species visiting or flying over.
	2018	Phase 1 Habitat Survey	To be completed

4 BIODIVERSITY

4.11 Habitats (Figure 4)

4.11.2Semi-natural birch dominated woodland and scrub

Description and evaluation

The semi natural birch dominated woodland areas of the reserve are almost impenetrable due to dense bramble and many spindly birch trees growing close together. The woodland is secondary, with Silver birch (*Betula pendula*) and sycamore (*Acer pseudoplatanus*) the dominant canopy tree species. Most of the trees are 20-30 years old. Alder (*Alnus glutinosa*), hawthorn (*Cratagaeus monogyna*) and rowan (*Sorbus aucuparia*) are also present. Silver birch, sycamore, and willow (*Salix sp*.) are all regenerating and are occasional in the shrub layer. Bramble (*Rubus fruticosus*) dominates the shrub layer, being very dense in places, especially in the southern and western areas of the reserve. The woodland ground flora is sparse, containing occasional grasses such as false oat-grass (*Arrenatherum elatius*), rough meadow grass (*Poa trivialis*), and cocksfoot (*Dactylis glomerata*). Other ground flora includes garlic mustard (*Alliaria petiolata*), cleavers (*Galium aparine*), broad-leaved willow herb (*Epilobium montanum*), dandelion (*Taraxacum officinale agg*), and bryophytes. Since 2006 the woodland edge has been scalloped numerous times and the woodland itself lightly thinned.

Although the area of woodland is relatively small, it forms a link with the nearby River Don and the trees along its banks. The woodland provides good cover for potential nesting sites and a good feeding ground for birds and small mammals. It also provides a valuable habitat for a number of invertebrate species. Where the woodland edge has been scalloped, the young birch scrub provides an important habitat providing perching posts and feeding grounds for birds.

Management

Aim 1. To manage the birch and scrub as the woodland matures, in order to enhance its biodiversity value.

As the woodland grows and matures, encroachment onto the open grassland area need to be controlled, in order to prevent the entire site becoming densely wooded. While increasing scrub cover on the grassland has been considered as a deterrent to party goers, the open and mosaic nature of the site is a key aspect of its character and biodiversity value, and this option has therefore been rejected.

To improve and maintain the condition of the woodland, and prevent a closed canopy, thinning of the dense areas of silver birch and sycamore will be carried out. This will allow the remaining trees to achieve an improved growth structure and encourage a more diverse ground flora. Rotational coppicing and the maintenance of the scalloped woodland edge will also produce more diverse habitats. Coppice re-growth will provide a dense scrubby edge favoured by many woodland and garden birds. Scalloping the edges will provide a greater area of woodland edge, thereby increasing available feeding areas. No more than $5m^3$ every six months can be removed as there is no felling licence for this site.

A regular mowing regime will prevent woodland encroachment onto the grassland by removing seedlings. Should some survive, they will be pulled or dug up.

4.11.3Bramble Scrub

Description and evaluation

An area of dense bramble-dominated scrub runs the length of the site above the Five Weirs Walk track, on a c.2m high bank. There are also patches of scattered to dense bramble scrub across the reserve, particularly on the north and south boundaries between the grassland and woodland. Other species within the scrub areas include false oat grass, rough meadow grass, bird's foot trefoil, meadow buttercup, (*Ranunculus acris*) dandelion, rosebay willow herb, ribwort plantain, and common vetch.

Bramble scrub provides a valuable food source and a safe shelter belt for a variety of invertebrates, birds and small mammals and should be maintained. However, its encroachment onto grassland areas and paths compromises the site's biodiversity and character, and could restrict access to and across the reserve.

Management

A bramble scrub component should be retained on the site, but will not be allowed to encroach the grassland. Some scrub management will therefore be required, including regular bramble clearance from the grassland areas. This should be carried out on community workdays wherever possible.

4.1.3 Semi- improved neutral grassland and heath

Description and evaluation

Past surveys (2005 and 2010 Phase 1) refer to the central area as acid grassland. The Phase 1 Habitat Survey carried out in 2005 recorded red fescue (*Festuca rubra*), wavy hair grass (*Deschampsia flexuosa*), and bent grasses (*Agrostis sp*.), which are all indicative of acid grassland. Acid grassland indicators, heather (*Calluna vulgaris),* common bent (*Agrostis capillaris*) and fescue species (*Festuca* sp.) were recorded in 2010.

The 2010 Phase 1 Survey recorded grassland to the west of the surfaced path as being dominated by course grass species such as cock's foot (*Dactylis glomerata*), Yorkshire fog (*Holcus lanatus*), and false oat grass (Arrhenatherum elatius). Due to the fairly high visitor usage of this area, several species tolerant to disturbance were also present, including common bent (*Agrostis tenuis*) and annual meadow grass (*Poa annua*).

To the east, away from this concentrated disturbance, a higher proportion of acid grasses and small herbs were recorded. These included species such as red fescue, common cat's ear, common toadflax, common ragwort, broad leaved dock (Rumex obtusifolius), common sorrel (Rumex acetosa) and common knapweed (Centaurea nigra). There was a consistently high proportion of perforated St. John's wort (Hypericum perforatum) throughout this main grassland area.

The grassland to the south east of the site contained herbs and grasses adapted to the heavily shaded conditions found there. Wood avens (*Geum urbanum*), creeping cinquefoil (*Potentilla reptans*), ivy-leaved speedwell, hedge woundwort (*Stachys sylvatica*), lesser celandine (*Ranunculus ficaria*) and red campion (*Silene dioica*) were recorded. Other plants included wood horsetail (*Equisetum sylvaticum*) and a fern sp. (*Pteridopsida*).

The grassland to the south west was characterised by a high proportion of course grass species and some scattered tall ruderals including cow parsley (*Anthriscus sylvestris*) and rosebay willowherb.

A Phase 1 Survey is required to provide a comprehensive picture of the current state of the grassland. However, a site walkover in November 2017 revealed the heather is now entirely absent from the site. This indicates a reduction or absence of acidic soils, but further survey is required to confirm whether other remnant acid grassland indicators remain. There has been some reduction in extent, and probably severe reduction in quality of the grassland area due to encroachment of the woodland area and subsequent

neutrification, and repeated trampling during unauthorised dance parties. It is likely that there has been a loss of overall biodiversity of the site overall.

Management

Aim 2. To maintain the quality of the grassland and ruderals to optimise the value of these areas for wildlife and enhance biodiversity.

Aim 3. To reduce disturbance to wildlife through inappropriate and damaging use of the reserve.

Past grassland management at Salmon Pastures has been aimed at encouraging the acid grassland species to thrive. In particular, shallow scrapes were made various areas to lower nutrient levels and allow germination of the acid indicator species seed bank. The failure of scrapes and heather reseeding indicate an absence of acidic soils and, as such, no further attempts at reviving the acid grassland will be made.

A primary concern in managing the grassland is preventing further reduction in its extent and quality, and subsequent loss of biodiversity. Rigorous coppicing and scalloping of the woodland edge, scrub clearance, and removal of saplings within the grassland will be carried out to prevent reduction in extent.

The central meadow area on site will be cut in July each year, with the arisings being removed and composted elsewhere on site. **A strip of grassland around ruderal dominated areas north and south of the grassland will be retained and cut in autumn (October)**. Cuttings should again be removed to reduce nutrient build up. The grassland and meadow areas will then be left unmown over winter to provide diverse structures (flowerheads, tufts, stems and leaves) as hibernation sites for insects from several orders (Heteropetra, Hymenoptera, Coleoptera and Diptera).

Preventing grassland degradation and loss of biodiversity is important for encouraging invertebrate species. The grassland should be managed to provide winter hibernation sites for invertebrates, increasing species diversity and abundance at spring emergence. This should, in turn, have a positive impact on local bird and small mammal populations and encourage them to breed on site.

To prevent further damage to the grassland vegetation, efforts will be focused on deterring dance parties from using the site.

Attempts have been made to resolve the issue by contacting the event organisers, but these have proved unsuccessful as the site continues to be damaged. Other options which have been considered and rejected include:

- Increased fencing around the site. This is not favoured because it would prevent members of the public who value the site and use it appropriately from entering the reserve.

- Tree and shrub planting. This would create a more wooded and densely vegetated habitat, thereby reducing open areas for dance parties. However, this is not favoured because would reduce biodiversity and alter the character of the site.

The preferred solution is to break up the "dance arena" by creating an artificially uneven terrain so that the grassland habitat is preserved, but is less appealing as a dance floor. Turfs will be lifted, and low nutrient material (rubble/stones) imported to the site arranged in different sized mounds, before turf is re-laid. The desire line running across the site will be retained. This will retain the open character of the grassland, biodiversity of the site, and access, whilst disrupting the flat surface of the grassland.

4.1.4 Fungi

Description and evaluation

A brief fungal survey (Senkans 2001) mentions the prominence of mycchorizal fungi such as Woolly Milk Cap (*Lactarius torminosus*) and an abundance of the common earthball (*Scleroderma citrrinum*), which are found in association with the birch present on site. Surveys in 2009, 2010 and 2012 have since recorded a total of 39 species. The common earthball was not present but the leopard earthball (*Scleroderma areolatum*) and scaly earthball (*Scleroderma verrucosum*) were recorded.

Management

To encourage the fungi component of the site to develop further, it is recommended that the amount of dead wood on site should be increased. There is currently little standing dead wood due to the young age of the woodland. To increase the deadwood component, some birch trees should be allowed to mature and, where thinning and felling is carried out, dead wood habitat piles should be created. Occasional ring-barking of trees is also recommended to create standing deadwood. Decaying matter should be kept within or on the edges of the wooded areas.

4.2 Zoological

4.2.1 Invertebrates

Description and evaluation

Historical records indicate that the site has, in the past, been rich in invertebrate species. Surveys have been carried out by Sheffield City Council Ecology Unit (1987 & 1990), Slack and Shaw (1992), Sheffield Environmental Training (1999) and Gibson (2001). The combined results of these surveys record the presence of 22 species of hoverflies (5 of local status and 1 Notable) on site including *Cheilosa mutabilis*, a local Red Data Book species, listed as Nationally Scarce. Two dragonflies, *Aesha grandis* and *Aesha cynea*, several butterflies, including gatekeeper (*Pyronia tithonus*) and orange tip (*Anthocharis cardamines*) and several moths, including cinnabar moth (*Tyria jacobaea*) and burnet moth (*Zygaena sp*.) were also recorded.

A butterfly and moth survey was carried out in summer 2001 (Gibson, 2001). This recorded species seen, as well as species likely to use the site based on the presence of plants proving nectar and larval food sources. The variety of plant food sources – for butterflies, moths and their larvae - was wide for the small area. Small skipper (*Thymelicus sylvestris*), large skipper (*Ochlodes venata*), small white (*Pieris rapae*), green-veined white (*Pieris napi*), common blue (*Polyommatus icarus*), small tortoiseshell (*Aglais urticae*), meadow brown (*Maniola jurtina*), gatekeeper (*Pyronia tithonus*) and a cinnabar moth (*Tyria jacobaeae*) were seen. Small skipper, meadow brown and common blue butterfly food sources were present, indicating breeding on site. There is a good supply of nectar from a variety of wildflowers from spring to autumn to sustain butterflies.

Other than a desk top review by Sorby natural History Society of existing invertebrate records in 2001, no survey work concentrating on the wider invertebrate groups has been undertaken. Given the deterioration of the grassland and woodland encroachment, previous studies are unlikely to represent current invertebrate diversity. The likely reduction in abundance and diversity of invertebrate species should be addressed.

Management

Maintaining and increasing invertebrate diversity will be achieved by maintaining and increasing suitable food sources, winter hibernation structures and un-shaded areas for basking. Preventing scrub encroachment onto the grassland, and scalloping woodland edges will encourage a diversity of suitable

grass and herbaceous species. A rotational annual summer grassland cutting regime in a two-three section mosaic pattern will allow a continuous provision of food plants and winter hibernation sites.

Increasing the site's dead and decaying wood component will also provide a habitat and food source for invertebrates.

4.2.2 Birds

Description and evaluation

A bird survey was conducted by Sheffield & Rotherham Wildlife Trust at Salmon Pastures during 2001, (S. Shorter 2001). Some 22 different species of birds were recorded over 10 visits, of which half were holding a territory, including mistle thrush (*Turdus viscivorus*), which is red listed under the RSPB's Birds of Conservation Concern, willow warbler, which is amber listed, and bullfinch, which is amber listed and a UK BAP priority species.

A second, smaller survey was conducted in 2011. Only three visits were made to the site, during which 9 species were recorded. While this survey is not comparable to the 2001 and 2017 surveys, it is notable that three species which were not recorded in 2001 were present, of which the house sparrow (*Passer domesticaus*) is red listed under the RSPB's Birds of Conservation Concern.

A third survey was conducted in 2017. 20 different species were recorded over seven visits. 10 of these were considered likely or very likely to be breeding on site or nearby, including RSPB's amber listed dunnock, mallard, swift and willow warbler. UK BAP priority species song thrush and bullfinch were on site or flying over.

Other surveys on a nearby stretch of the River Don have recorded red listed grey wagtail (*Motacilla cinerea*) and amber listed kingfisher (*Alcedo atthis*).

Salmon Pastures plays an important role for overwintering birds. Large flocks of finches, especially goldfinches (*Carduelis carduelis*), as well as redwing (*Turdus iliacus*) and fieldfare (*Turdus pilaris*) have been observed on site.

Feral cats are being fed and sheltered at stations either side of the reserve, which is likely to reduce the population of or deter birds from feeding or breeding on site.

Management

The small size of the site limits its function as a breeding site, so management should not be aimed at encouraging large numbers of birds to hold territory on the reserve. However, management of the woodland and woodland edge will focus on optimising these habitats to offer food, nesting material, nesting sites, and protective cover for various bird species.

Coppicing on rotation and scalloping of the woodland edge will provide an increased area of scrub habitat, ideal for many bird species. Increasing dead and decaying wood on site should improve invertebrate food sources for birds.

Feeding stations and shelters for feral cats will be removed from the reserve, as the presence of feral cats is not compatible with the reserve's conservation objectives.

4.2.3 Mammals

Description and evaluation

A small mammal survey was conducted in 2014 to identify the presence or absence of small mammals. The survey returned an extremely low capture rate, with only two wood mice caught and one wood mouse

observed. All records are from the southwest portion of the site, near to the public footpath that runs along the river.

These results may be due to the small size of the reserve, the prevalence of feral cats on site and periodic disturbance and habitat damage caused by dance parties.

Management

To increase habitat suitability for small mammals, emphasis will be placed on measures intended to reduce disturbance of the site. Deterrence of dance parties and feral cats should reduce disturbance to and predation of small mammals.

As the woodland matures and ground flora becomes denser and more diverse, the site should become more favourable to small mammals. Increasing dead and decaying wood and maintaining a level of scrub on site should also improve invertebrate food sources and shelter sites for small mammals.

4.3 Surveys and Monitoring

Aim 4. To record and monitor the ecological features of the reserve.

The collection of accurate and informative data is of prime importance when assessing the condition of the reserve and its habitats, and when assessing the success of management practices. The recent loss of the acid grassland habitat, highlights the important role of such data in forming the basis of an 'early warning system' to flag up deleterious changes. Given the planned terrain alterations to the grassland component of the site, data is also crucial as a baseline against which the success of conservation management practices can be measured. All biological data gathered will be shared with the Sheffield Biological Records Centre

A Phase 1 Habitat Survey should be carried out in summer 2019 and repeated towards the end of the period covered by this plan in order to detect changes following alterations to the grassland terrain and as the woodland continues to mature.

The following surveys should be carried out over the course of this plan:

A fungi survey, to determine the impact of deadwood and grassland management practices on diversity and abundance of saprophytic and field mushrooms respectively.

A small mammal survey, following implementation of management practices intended to reduce site disturbance. Longworth traps should be placed in suitable habitat patches to determine presence/absence.

An invertebrate survey should be carried out in summer 2019 and repeated towards the end of the period covered by this plan. A 2001 butterfly survey and a desk-based invertebrate study, also 2001, provide little information regarding current invertebrate species present on site. Obtaining invertebrate data is of particular importance given their upstream ecological impact as a food source for small mammals and birds, and their subsequent capacity to indicate the ecological status or potential of the site. Ad hoc sightings of invertebrates should be recorded by staff and volunteers where possible.

A bird survey, following the protocol of that carried out in 2017, and comprising at least seven site visits. This will allow for direct comparison between results.

5 INFRASTRUCTURE

5.11 Footpaths, bridleways and byways (Figure 3)

Aim 5. To maintain public access to the reserve.

There are no statutory Public Rights of Way on the reserve. There is a part surfaced desire line running east to west across the reserve. Vehicular access on to the site for maintenance purposes is not possible, but a vehicle can be driven along the Five Weirs Walk to the entrance to the reserve.

The surfaced desire line on the site was constructed in 2001 and was designed to enable easy access for wheelchair users. This path does not extend across the site but stops at a wheel chair turning circle where there is a good view across the site. There is also a bench at this point. From here the desire line crosses the site towards a set of sleeper steps at the eastern end (installed by SRWT 2001).

The Trust will resurface the wheelchair accessible path onto the reserve and maintain the steps at the eastern end, during the period covered by this plan.

5.12 Boundaries (Figure 3)

Aim 6. To clearly define and maintain all reserve boundaries.

There is no physical boundary on the south of the site. The border with the Five Weirs Walk is formed by a sloped embankment and is made more secure by the presence of brambles and young tree growth. The northern site boundaries consisted of concrete slabs 3 metres high until 2008. These were replaced with a row of shipping containers after frequent collapse of the concrete slabs resulting in aggregate falling into the reserve. There is a wet-stone wall with post and wire mesh on top at the west end of the site and a post and wire mesh fence at the eastern end. Most of the boundaries are in good condition, however, a 7 metre section of the post and wire mesh fence on the eastern boundary is in need of repair or replacement.

5.13 Other Structures (Figure 3)

There is a bench (installed by SRWT in 2001) at the wheelchair turning circle, which is in need of replacement. There are two SRWT signs on the reserve, installed in 2001 and replaced in 2007, which will also need replacing within the period covered by this plan.

6 CULTURAL CONTEXT

6.11 Archaeological interest and existing features

The lower Don Valley has a long history of industrial use and several sites of interest for industrial archaeology are found near to the reserve along the Five Weirs Walk. After the site was reclaimed from heavy industry and landscaped, some trees were planted, although most of the vegetation seems to have regenerated naturally. The reserve was previously known as Salmon Pastures Coal Yard and was used by a coal depot located behind it. Following landscaping the site was effectively left until 1996 when a management plan was drawn up (J. Westfold).

A large carved stone with the inscription “Salmon Pastures Education Committee, Sheffield Schools, 1908” is situated along the Five Weirs Walk path at the south eastern corner of the reserve. Brambles should continue to be managed to keep this clear and visible.

6.12 Recreational use

Aim 5. To maintain public access to the reserve**.**

The reserve is used by cyclists, walkers, dog walkers and joggers from the Five Weirs Walk, and by workers from surrounding industries. Anglers use the nearby stretch of the River Don. Occasionally Sorby Natural History Society provides guided tours on the reserve to record its flora and fauna. Unauthorised nocturnal dance parties also take place on site, resulting in flattened vegetation and litter debris. This has been discouraged, but has continued, resulting in the recommendation of practical measures to make the site less attractive for this use.

80% of people questioned in the previous visitor survey were aware of the status of the nature reserve. All but one person had been to the nature reserve before and 43% of people visited the area 2-3 times a week.

53% of visitors to the nature reserve were aged 55 and over, and the same percentage were retired. 33% were employed full-time and 13% unemployed. All of the interviewees were white, which does not reflect the social make-up of the local area, and 13% considered themselves disabled.

Visitors predominantly use the site as part of a longer walk, and to enjoy the peace and quiet. An equal proportion of people visited the reserve on their own or with others with 21% walking their dogs. Most visitors (79%) stayed in the area for under 30 minutes, while 21% stayed for more than 2 hours, presumably for fishing.

Cleanliness and unsuitable use of the reserve were identified as key issues. These are both ongoing issues in relation to urban nature reserves and are not unique to Salmon Pastures. The main request for improvements to the reserve were rubbish bins and litter removal (29% and 36% respectively). Nobody felt that better management for wildlife was necessary.

Given the majority of reserve users are also users of the Five Weirs Walk, links should be made with the River Stewardship Company and the Blue Loop project for this reserve to be included in their publicity literature.Therefore, continuing links with user groups and individuals, especially the Five Weirs Walk Trust, will be crucial to increasing ownership amongst the site users.

6.13 Information and Interpretation

There are currently two signs located on the site detailing the name of the site, its status and SRWT's management. However, there is currently no information or interpretation feature onsite. A nearby information board on the Five Weirs Walk gives some details of the history of the surrounding area. This is sufficient given the small size of the reserve and the fact that most site users come from the Five Weirs Walk.

6.14 Local community

Salmon Pastures Nature Reserve is a small 'urban common' located near the river Don in the industrial heartland of SheffieldIt has no defined residential community but lie on the periphery of the Burngreave and Darnall wards.The following information pertaining to these wards is drawn from the 2011 National Census, but should not be taken to closely reflect the community of reserve users as these are drawn from the wider city.

The combined residential population of Burngreave and Darnall is 50, 970 (27, 481 and 23, 489 respectively). Both wards have a higher than city average percentage of residents under 18, 31.1% (Burngreave) and 28.6% (Darnall), compared to a city average of 20.5%. The percentage of residents aged 60 years and over (14.7%, Burngreave and 18.1%, Darnall) is slightly lower the citywide average of 20.7%.

Levels of employment are lower than the City average of 55.4% (44.8% in Burngreave and 51.4% in Darnall). Retirement levels in Darnall (12.5%) are close to the city average of 12.9% while those in Burngreave fall below, at 9.4%.

While the site is not widely used by local residents, these statistics indicate that it may be worth initiating engagement with the younger resident population, for example through local educational establishments. These may help to generate local interest in maintaining and learning from the site.

However, it should be noted that due to its location, the site has no defined residential community,reserve so opportunities for local engagement will be limited. , including the River Stewardship Company,

6.15 Education

There are no secondary schools in the immediate area. However, there are several primary schoolswithin walking distance (up to 1 mile)Salmon Pastures, Phillimore Park Primary, Byron Wood Primary, Pye Bank Church of England, and Whiteways Juniors in the surrounding areas. On a point basis, all these schools are below the England average and only Whiteways Junior School is above the average for Sheffield City.

For Key Stage 2, Whiteways Junior School produces good results for English, Mathematics, and Science (71%, 72% and 82% at Level 4 and above respectively for each subject). The lowest for these subjects are Pye Bank CofE for English (42%), and Byron Wood Primary School for both Mathematics (30%), and Science (52%).

Byron Wood Primary School has one of the lowest levels of achievement in Key Stage 2 across the whole of the Sheffield City LEA. However, although on average the schools score poorly it is incorrect to cast them in bad light. The new "Value Added" figures – calculated from achievements by pupils at Key Stage 1 and Key Stage 2 – which is a record of progress, recognises all of the three lower scoring schools have made significant strides in raising achievements between the Key Stages.

At the moment thereThere are no c links with educational establishments, although Sheffield Environmental Training (SET) have used the site and the Five Weirs Walk Trust previously ran educational activities with Dr. John Worral Special School in Attercliffe (which permanently closed in summer 2005). Sheffield Wildlife Trust have worked with some schools in the surrounding area although not on Salmon Pasture Nature Reserve.

Formal education provision for the site must be carefully considered. Salmon Pastures is extremely valuable resource for wildlife, but its size and location means that delivering activities for a large group or class (±30) is difficult and potentially detrimental to biodiversity. Also, there are no local primary schools within walking distance of the site. The primary schools, which are relatively close, all have very importantwildlife sites closer to them (Crabtree Ponds and High Hazels Park) both of which have good greatercapacity to support school groups. Encouraging primary schools to use this site is unlikely to benefit either the reserve or the pupils.

Secondary schools may be able to use the site for more detailed studies of, for example, ecology, hydrology or vegetation management. Secondary schools targeted through the reserves education programme will be encouraged to use a number of reserves (including Salmon Pastures) for comparative studies. This may be for A-Level, GCSE, ASDAN or Key Stage 3 projects and will depend on the subject, ability and age of the group / class visiting the site. The unique ecology of this site is likely to make it a useful habitat for studies by secondary school groups. These groups tend to study more specific topics; therefore it may be more appropriate to target these for education. This should be done through a citywide programme for secondary schools, which will allow them to use several reserves for comparative studies. However, due to the small size of Salmon Pastures and current management focus on reducing disturbance, large groups and frequent group visits should not be encouraged.

Due to the small nature of the reserve university studies of the area may not be feasible and would be better accommodated on the larger reserves.

erves.

7 MANAGEMENT AIMS AND OBJECTIVES

Need to critically assess these. What should the site be used for now?

7	Aims	Objectives
2.1 BIODIVERSITY		
Aim 1	**To maintain the quality of the acid grassland and heather to optimise the value of the site for wildlife.**	a) To implement small-scale disturbance of the grassland by scraping, on a five-yearly rotation, in order to allow germination of the seed bank. b) To prevent the more robust grassland species and tall ruderals from encroaching into the central grassland area and the heathland. c) To cut the heather stands on a rotational basis, once every 20-30 years, in order to encourage heather seeding and regeneration, whilst monitoring the area of heather cover. d) To reduce the shading of heather stands by encroaching scrub. e) To monitor the effect of management activities on the biodiversity of the site.
Aim 2	**To manage the birch in order to enhance the biodiversity of Salmon Pastures.**	a) To remove scrub, bramble and bracken to maintain the open character of the acid grassland and heathland through the prevention of encroachment. b) To improve structural diversity of woodland edge to encourage nesting birds, e.g. warblers, by coppicing on rotation. c) To increase the dead wood resource on site, providing habitat for fungi, invertebrates and other wildlife whilst maintaining a low fire risk.
Aim 3	**To assess the impact of shading on the heathland by large trees beyond the site boundary.**	a) To consider some management of trees along the Five Weirs Walk to reduce shading across the heathland.

Aim 4	**To record and monitor the ecological features of the reserve.**	a) To maintain an up-to-date database of biological records through a series of annual surveys. b) To monitor Local Biodiversity Action plan species and habitats in accordance with nationally and locally agreed plans and processes.
Aim 5	**To monitor and record how the reserve is perceived, used and valued by the public.**	a) To conduct surveys of site visitors and users in order to assess changes in recreational trends and activities on a five year cycle. b) To continually invite informal feedback from partner organisations, site users, local residents, and interest groups by providing effective contact information. c) To undertake a regular patrol of the site to assess condition of infrastructure and habitats, degree of vandalism, health and safety issues.
2.2 INFRASTRUCTURE		
Aim 6	**To improve physical access to the reserve for all sections of the community including people with impaired mobility.**	a) Through regular patrols, continually assess and report the condition of paths, steps and benches. b) To maintain the path and access points, to ensure they are free from overhanging vegetation and other hazards. c) To manage bramble & scrub along riverside path to prevent inconvenience to path users. d) To improve the reserve experience for wheelchair users, prams, and the ambulant disabled.
Aim 7	**To provide and maintain appropriate on-site furniture in order to allow for comfortable and safe enjoyment of the reserve.**	a) To maintain existing seating to a safe and serviceable standard.
Aim 8	**To clearly define and maintain all reserve boundaries.**	a) To provide appropriate signage and information to inform the public of the site boundary and management responsibilities, i.e. SRWT contact information. b) Transplant birch whips from heath and grassland areas in order to reinforce existing boundary woodland. c) To monitor extent of rubble being tipped on north side of reserve.
2.3 CULTURAL		
Aim 9	**To improve access to the reserve for all sections of the local community, physically, intellectually and spiritually.**	a) To maintain the main path network by cutting back vegetation. b) To maintain seating facilities to a safe and serviceable standard. c) To keep the stakeholders informed of project progress through the use of publicity and regular reports.

		d) To increase the voluntary contribution to on site work by holding one community workday per year. e) To make links with special needs / excluded groups to help on practical workdays.
Aim 10	**To attract people to the reserve from the Five Weirs Walk.**	a) To make links with Five Weirs Walk and Waterways Project for this reserve to be included in their publicity literature.
Aim 11	**To promote and encourage community involvement in the reserve**	a) To run at least 1 community workday on the reserve per annum, providing skills, knowledge and understanding of the local environment for local residents / users. b) To provide work experience opportunities for young people age 14-25. c) To build on links with the Five Weirs Walk.
Aim 12	**To promote understanding and awareness of the local environment of the site and its unusual ecology.**	a) To explore the possibility of building on the Five Weirs Walk Trust's links with a local youth association or school. b) To provide an appropriate form of interpretation board, regarding the reserve by 2017.
2.4 ECONOMIC		
Aim 13	**To source short-term and long term grant funding to secure a sustainable future for the reserve.**	a) Research and apply for suitable funding grants to pay for capital works and staff costs. b) Link Salmon Pastures with other projects (e.g. SRWT Waterways Project, Living Landscapes, River Stewardship Company) that can provide resources for management.

8 ECONOMIC CONTEXT

Aim 7. To continue to develop ongoing sources of grant aid and other income to support specific non-maintenance on the reserve.

Since the completion of the Heritage Lottery Fund Wild Sheffield Nature Reserve Project, Salmon Pastures has been core funded by Sheffield and Rotherham Wildlife Trust. Securing external funding for capital works at this reserve has proved difficult and numerous past bids by SRWT have been unsuccessful. Nonetheless, continued efforts will be made to secure funding for specific non-maintenance projects. In particular, attempts should be focused on securing funding for works to alter the grassland terrain.

	Aims	Objectives	Prescriptions
2.1 BIODIVERSITY			
Aim 1	**To maintain the quality of the grassland and ruderals to optimise the value of the site for wildlife.**	a) To prevent the more robust grassland species and tall ruderals from encroaching into the central grassland area.	A bi-annual cut of the grassland area to remove the more robust species, including the removal of cuttings to prevent nutrient build up.
Aim 2	**To manage the birch and scrub in order to enhance the biodiversity of Salmon Pastures.**	d) To improve structural diversity of woodland edge to encourage nesting birds, e.g. warblers, by coppicing on rotation. e) To thin birch to encourage development of diverse ground flora f) To increase the dead wood resource on site, providing habitat for fungi, invertebrates and other wildlife whilst maintaining a low fire risk. g) To thin scrub, bramble and bracken to maintain the open character of the grassland through the prevention of encroachment.	The edge of the birch woodland to be scalloped, cut back and coppiced to prevent encroachment into the grassland. Coppicing and cutting back along woodland edge to be done in sections on a rotational basis to create a diverse woodland structure. Stump treatment with herbicide to be used on felled trees where coppiced re-growth is not desirable. Birch seedlings in the grassland should be pulled or dug up to prevent re-growth as coppice. Bramble should be removed from within the grassland areas. Bracken to be pulled on a regular basis. Woodland thinning, approx. 10% of woodland to be coppiced during the period of this plan. Ring barking of trees should be carried out to create standing dead wood. Brash arising from woodland work should be made into dead wood habitat piles in denser areas of scrub to provide habitat and minimise fire risk.

Aim 3	**To reduce disturbance to wildlife through inappropriate and damaging use of the reserve**	c) Deter feral cats from reserve to encourage small mammals and birds to populate/nest/breed on site. d) Reduce access for large parties (raves) and subsequent littering, trampling and damage to vegetation, and habitat loss. e) Create terrain unsuitable for large gatherings/stages which have detrimental effects on wildlife and integrity of vegetation.	Request relocation of cat shelters Annual removal of cat shelters if they are replaced Create fence and squeeze stiles at slope and top of steps Create artificially uneven terrain (need to determine how to do this-JCB hire?)
Aim 4	**To record and monitor the ecological features of the reserve.**	f) To maintain an up-to-date database of biological records through a series of annual surveys. g) To monitor Local Biodiversity Action plan species and habitats in accordance with nationally and locally agreed plans and processes. d) To monitor the effect of management activities on the biodiversity of the site	Annual photo monitoring. Annual transect monitoring programme of grassland. NVC survey of grassland in 2015/16. Not completed Bat survey 2014/15. Not completed Small mammal survey 2014/15. completed Invertebrate survey in 2015/16. Not completed Birds survey in 2016/17. completed Fungi survey in 2017/18 records 2009-2012
Aim 5	**To monitor and record how the reserve is perceived, used and valued by the public.**	e) To conduct surveys of site visitors and users in order to assess changes in recreational trends and activities on a five year cycle. f) To continually invite informal feedback from partner organisations, site users, local residents, and interest groups by providing effective contact information. e) To undertake a regular patrol of the site to assess condition of infrastructure and habitats, degree of vandalism, health and safety issues.	SRWT to undertake visitor survey in 2009/10 SRWT contact information available on site signage. Project updates sent annually to Reserve Advisory Group. Patrols of the site to be systematically carried out preferably every 5 -8 weeks. Remove litter from site on a repeated and regular basis

2.2 INFRASTRUCTURE		b)	
Aim 6	**To maintain public access to, and encourage safe and comfortable enjoyment of the site**	f) Through regular patrols, continually assess and report the condition of paths, steps and benches. g) To maintain the path and access points, to ensure they are free from overhanging vegetation and other hazards. h) To manage bramble & scrub along riverside path to prevent inconvenience to path users. d) To maintain existing seating to a safe and serviceable standard	Repair paths where necessary. Ensure step area is weed free and free from overhanging vegetation. Initial removal of 1m deep strip of bramble scrub along riverside path, followed by repeat annual removal of 10% of reserve length. Replace existing bench on-site.
Aim 7	**To clearly define and maintain all reserve boundaries.**	e) To provide appropriate signage and information to inform the public of the site boundary and management responsibilities, i.e. SRWT contact information. f) Transplant birch whips from heath and grassland areas in order to reinforce existing boundary woodland. To monitor extent of rubble being tipped on north side of reserve.	Does signage need changing/updating? During birch removal work, suitable species should be transplanted to site's northern corner to re-enforce existing damaged mesh fence.
2.3 CULTURAL		i)	
Aim 8	**To maintain access to the reserve for all sections of the local community, physically, intellectually and spiritually.**	j) To maintain the main path network by cutting back vegetation. k) To maintain seating facilities to a safe and serviceable standard. l) To keep the stakeholders informed of project progress through the use of publicity and regular reports. m) To increase the voluntary contribution to on site work by holding one community workday per year.	Work with existing Five Weirs interpretation format to produce a site-specific information feature.

		b) To make links with special needs / excluded groups to help on practical workdays.	
Aim 9	**To attract people to the reserve from the Five Weirs Walk.**	c) To make links with Five Weirs Walk and Waterways Project for this reserve to be included in their publicity literature.	Work with existing Five Weirs interpretation format to produce a site-specific information feature.
Aim 10	**To promote and encourage community involvement in the reserve**	d) To run at least 1 community workday on the reserve per annum, providing skills, knowledge and understanding of the local environment for local residents / users. e) To provide work experience opportunities for young people age 14-25. To build on links with the Five Weirs Walk.	SRWT to dedicate time to liaising with local stake holders regarding management of the reserve including Reserve Advisory Group, River Stewards Company, Sheffield City Council and other local interest groups.
Aim 11	**To promote understanding and awareness of the local environment of the site and its unusual ecology.**	d) To explore the possibility of building on the Five Weirs Walk Trust's links with a local youth association or school. b) To provide an appropriate form of interpretation board, regarding the reserve by 2017.	Investigate ways in which schools and youth groups can be encouraged to get engaged with Salmon Pastures.
2.4 ECONOMIC		c)	
Aim 12	**To source short-term and long term grant funding to secure a sustainable future for the reserve.**	d) Research and apply for suitable funding grants to pay for capital works and staff costs. e) Link Salmon Pastures with other projects (e.g. SRWT Waterways Project, Living Landscapes, River Stewardship Company) that can provide resources for management.	Funding secured for capital and maintenance work for the period of this management plan. Opportunities for linking projects explored and taken.
		f)	
		g)	

works programme is aspirational and delivery of substantial capital works are dependent on SRWT's procurement of external funding. The

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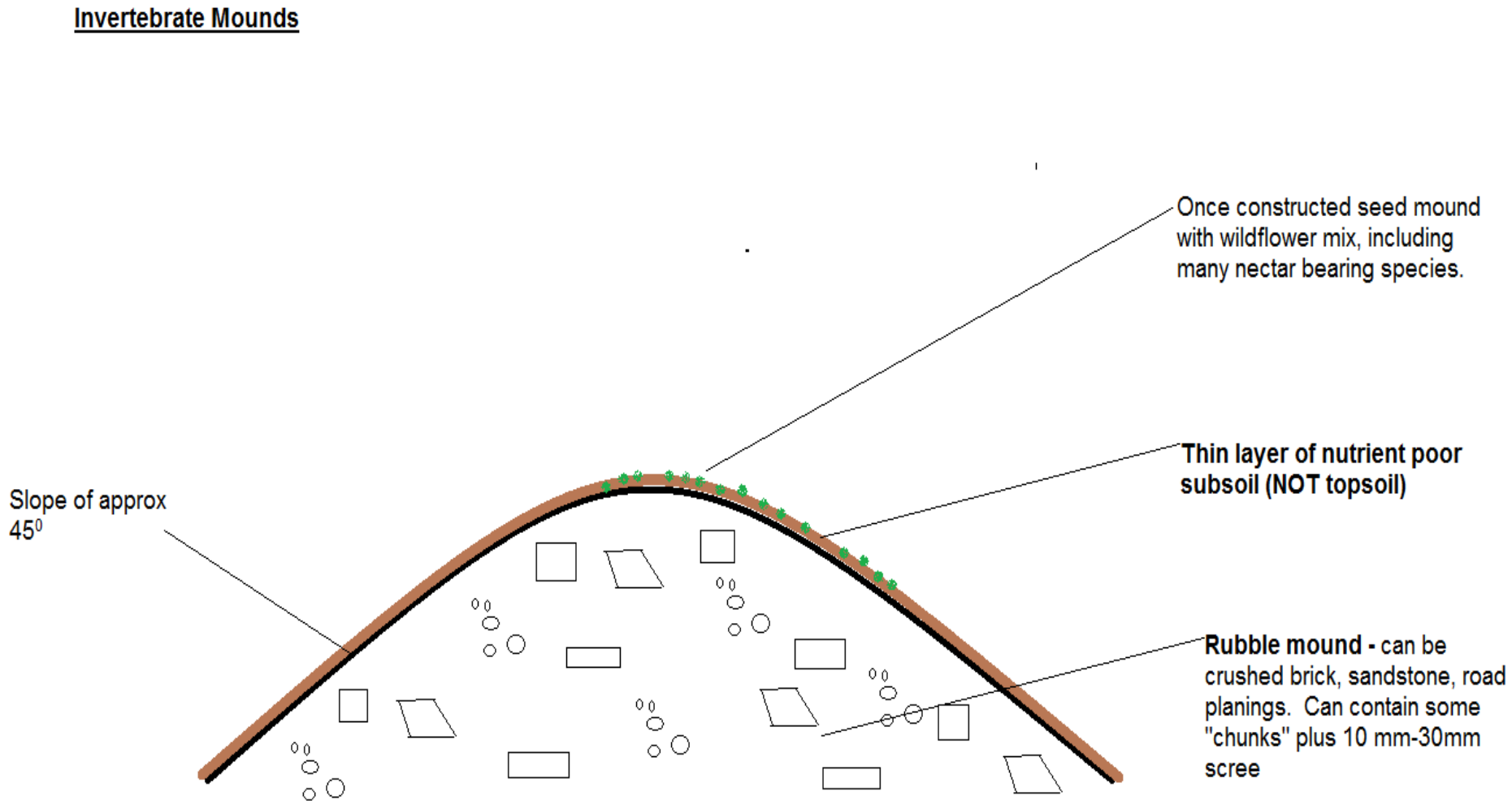
Note that where a figure is presented, these are costs of materials and equipment. Where there is 'X' this is where staff time is incurred.* Indicate

		Prescription	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27
Biodiversity	**Maintenance**	Summer annual cut of central grassland and removal of arisings (July), retaining ruderal areas and strip of grassland surrounding ruderal areas until autumn.	10	10	10	x	x	x	x	x	x
		Autumn annual cut of remaining grassland strip and ruderals and removal of arisings (October).	10	10	10	x	x	x	x	x	x
		Bramble, birch and other scrub removal from grassland. Treat birch with herbicide to prevent regrowth.	25	25	25	x	x	x	x	x	x
		Coppice denser sections of woodland in sections on a rotational basis (10% of woodland over this management plan).				x				x	
		Thin birch and sycamore within woodland (removal included in total 10% maximum).		15				x			

		Scallop internal woodland edges facing grassland areas and external edges along Five Weirs Walk (removal included in total 10% maximum).			15				x		
		Production of dead wood habitat by creating log plies and selective ring-barking.		0	0	0		0	0	0	
		Removal of cat shelters if they are not removed on request or are replaced.	0	0	0	0	0	0	0	0	0
	Capital	Creation of uneven invertebrate mounds in grassland area. JCB hire, cost of stones/rubble (External funding required).			1500						
	Survey	Birds - CBC.						x			
		Fungi survey.				x					
		Invertebrates/Butterfly survey.		350							
		Phase one habitat survey/NVC.		400							
		Small mammal survey.					x				
		Prescription	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**
INFRASTRUCTURE	**Maintenance**	Keep sleeper steps clear of vegetation. Where necessary apply herbicide to step surfaces and scrape off dead material.	25	25	25	x	x	x	x	x	x
		Maintain paths through reserve by cutting and strimming vegetation and cutting back overhanging branches to maintain sightlines. Remove / habitat pile arisings.	10	10	10	x	x	x	x	x	x

		Spot repairs on path and desire line, resurface with woodchip as required.	10		10		x		x		x
		Remove fly-tipping and litter.	20	20	20	x	x	x	x	x	x
		Clear bramble from stone plaque.	0	0	0	0	0	0	0	0	0
		Maintain/replace SRWT signage as required.	x	x	x	x	x	x	x	x	1000
	Capital	Repair / reinstate 10m section of fence at eastern boundary (External funding required).	x								
		Replace existing bench on site (External funding required).	500								
COMMUNITY/ EDUCATION/ FUNDING	**Community**	Undertake site users survey.			x						
		Link with River Stewardship Company and Blue Loop Project.	x	x	x	x	x	x	x	x	x
		Annual update detailing ongoing works posted on SRWT website nature reserves page.	x	x	x	x	x	x	x	x	x
	Education	Include Salmon Pastures in citywide programme (where feasible) encouraging use of reserves for educational comparative studies.	x	x	x	x	x	x	x	x	x
	Funding	Research and apply for suitable funding grants for projects and capital works.	x	x	x	x	x	x	x	x	x
	***Total**										

INVERTEBRATE MOUND



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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 also on the Sheffield Wildlife Trust system, so that the work can be recorded. Compliance is recorded (whether the work has been done) and explanations of the reasons why these elements of the work programme have not been undertaken. There is also a column for condition monitoring – which gives the opportunity to record the results of the work and whether any difficulties were experienced, or any useful information or observations that may help in future.