Streatham Common Acid Grassland Restoration

A feasibility study
for

The London Borough of Lambeth

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Summary

Salix Ecology was commissioned by The London Borough of Lambeth to assess the feasibility of restoring acid grassland at Streatham Common. A botanical survey, condition assessment and soil sampling are required at selected areas of the common.

Five areas were selected for investigation. One area supported acid grassland; the other four areas were considered to have potential for restoration. This included a small area of secondary woodland. Each grassland area was characterised by the presence of fine leaved grasses without the dominance of perennial rye-grass.

The acid grassland condition assessment failed on one attribute, the frequency of positive indicator species and was given a condition assessment category C.

The study areas varied in pH from pH 4.5 to pH 5.5. Acid grassland develops on soils with a pH of less than 5.5. The Phosphorus indices ranged from 1.2 to 2. A P index of 0 or 1 is generally required for restoration to species-rich grassland with an index of 2 being marginal. However an index of 2 may be acceptable if action, such as regular mowing, is taken to reduce P levels over time.

Acid grassland restoration was recommended for three of the five study areas. A cautious, experimental approach is suggested with regular monitoring. Options for restoration include:

- A modified mowing regime in the absence of topsoil removal
- Topsoil preparation, allowing natural regeneration followed by a modified mowing regime
- Topsoil preparation and oversowing with wildflower grass seed
- Topsoil preparation and spreading species-rich green hay.

Temporary fencing and interpretation is recommended for all restoration areas

1.0 Introduction

1.1 Background

1.1.1 Salix Ecology was commissioned by The London Borough of Lambeth to assess the feasibility of restoring acid grassland at Streatham Common. The field work and reporting were carried out by Paul Losse BSc (Hons) MSc MCIEEM.

1.1.2 A botanical survey, condition assessment and soil sampling are required at selected areas of the common. The report details the methods used and presents the results of these investigations. Recommendations are also provided for acid grassland restoration.

1.2 The study area

1.2.1 The project focuses on areas of the common where acid grassland has been recorded and where, in the opinion of the surveyor, there may be potential for restoration of this habitat (see location map, figure 1 below).

1.3 Aim

1.3.1 The aim of the project is to:

- Map out areas of existing acid grassland at Streatham Common
- Assess the condition of existing areas of acid grassland
- Identify additional areas with potential for restoration to acid grassland
- Outline options for restoration

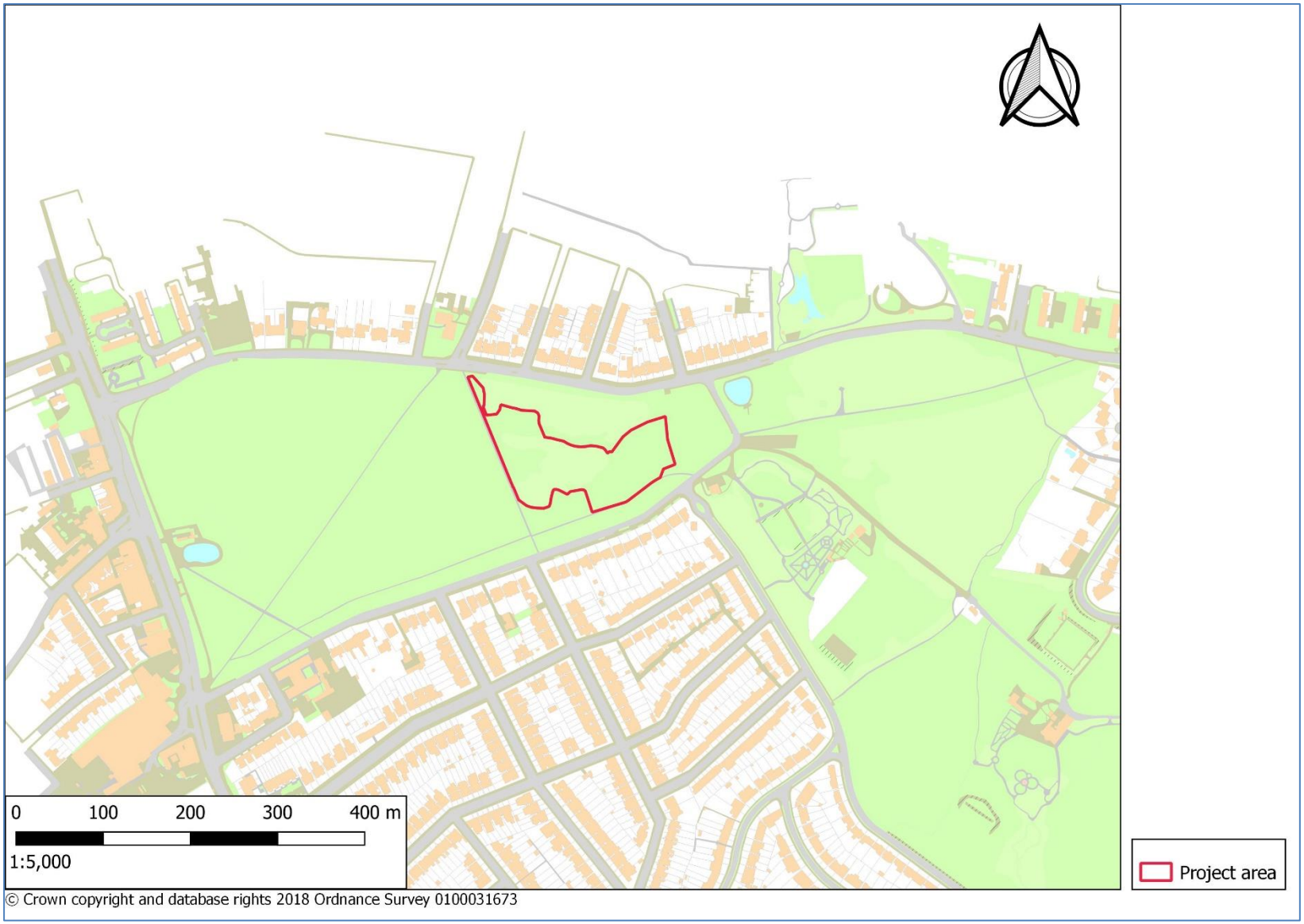

Figure 1: Project area location

2.0 Methods

2.1 Project area selection

2.1.1 A walk-over survey on 21 July 2020 identified areas of existing acid grassland as well as other areas with potential for restoration. Existing acid grassland was distinguished from surrounding grassland by the presence of acid grassland indicator species such as sheep's sorrel *Rumex acetosella* as well as the predominance of fine leaved grasses, principally red fescue *Festuca rubra* and common bent *Agrostis capillaris.*

2.1.2 Grassland with potential for restoration was considered to be those areas with abundant fine leaved grasses but without the presence of any acid grassland indicators. Areas of improved grassland where perennial rye-grass *Lolium perenne* dominated the sward were excluded. A small area of secondary woodland adjacent to the identified grassland areas was also included.

2.1.3 The above areas were mapped using the QField application on a tablet in the field. A Geode sub-metre accurate GPS was used to ensure mapping accuracy. The areas selected for investigation are shown in figure 2 below.

2.2 Botanical survey

2.2.1 A list of plants was compiled for each of the areas identified above. The relative abundance of each species was recorded using the DAFOR scale. This is a subjective assessment, each species being given a score of **D**ominant, **A**bundant, **F**requent, **O**ccasional or **R**are. Scientific names are given after the first mention of a vascular plant species; thereafter common names only are used. Nomenclature follows Stace (2019) for vascular plant species.

2.3 Condition Assessment

2.3.1 A modified version of the standard acid grassland condition assessment method for SSSIs was used to assess the condition of the existing acid grassland area. The method was devised by the London Biodiversity Partnership Heathland and Acid Grassland Habitat Action Plan Working Group.

2.3.2 A route across the acid grassland (area 1, figure 2 below) was planned such that there was good coverage of the habitat. To ensure a level of objectivity, a pre-determined number of steps was paced out so that 20 'stops' are spread out across the parcel. It was found that approximately 10 paces between stops ensured good coverage of the study area.

2.3.3 At each stop a number of attributes were assessed within a circle of approximately one metre radius: positive indicator species, undesirable species, cover of scrub, trees and bramble, cover of coarse grass species and cover of fine grasses typical of acid grassland.

2.3.4 **Positive indicator species**. The species have been chosen for their ease of identification and visibility in the recording season. At each stop, a careful search of positive indicator species was carried out (see table 1 for a list of species). Only species presence was recorded. Frequency of positive indicators is calculated as follows: Presence of a species on the list in 1-4 stops = rare, 5-8 stops = occasional, 9+ stops = frequent. **Target: At least one positive indicator species frequent and three at least occasional in the sward.**

Table 1: Positive indicator species

Common name	Scientific name
Bell heather	*Erica cinerea*
Betony	*Stachys officinalis*
Bilberry	*Vaccinium myrtillus*
Bird's-foot	*Ornithopus perpusillus*
Biting stonecrop	*Sedum acre*
Bitter-vetch	*Lathyrus linifolius*
Blue fleabane	*Erigeron acer*
Buck's-horn plantain	*Plantago coronopus*
Common bird's-foot-trefoil	*Lotus corniculatus*
Common catsear	*Hypochaeris radicata*
Common centaury	*Centaurea erythraea*
Common rock-rose	*Helianthemum nummularium*
Common stork's-bill	*Erodium cicutarium*
Harebell	*Campanula rotundifolia*
Heath bedstraw	*Galium saxatile*
Heath speedwell	*Veronica officinalis*
Heather	*Calluna vulgaris*
Lady's bedstraw	*Galium verum*
Devil's-bit scabious	*Succissa pratensis*
Lousewort	*Pedicularis sylvatica*
Lichens	
Maiden pink	*Dianthus deltoides*
Milkwort	*Polygala sp*
Mouse-ear hawkweed	*Pilosella officinarum*
Parsley-pierts	*Aphanes sp*
Petty whin	*Genista anglica*
Purple milk-vetch	*Astragalus danicus*
Rough/Lesser hawkbit	*Leontodon sp*
Saw-wort	*Serratula tinctoria*
Sheep's-bit	*Jasione montana*
Sheep's sorrel	*Rumex acetosella*
Shepherd's cress	*Teesdalia nudicaulis*
Thymes	*Thymus sp*
Tormentil	*Potentilla erecta*
Violets	*Viola sp*
Wild strawberry	*Fragaria vesca*
Wood anemone	*Anemone nemorosa*
Wood sage	*Teucrium scorodonia*

2.3.5 **Cover of undesirable species.** These species have been chosen to indicate problems of nitrification and disturbance from various sources and were measure at each stop as well as between stops. **Target: Cover less than 5%**

Table 2: Undesirable species

Common name	Scientific name
Creeping thistle	*Cirsium arvense*
Spear thistle	*Cirsium vulgare*
Curled dock	*Rumex crispus*
Broad-leaved dock	*Rumex obtusifolius*
Common ragwort	*Senecio jacobaea*
Common nettle	*Urtica dioica*
Rosebay willowherb	*Chamerion angustifolium*
Marsh thistle	*Cirsium palustre*
Musk thistle	*Carduus nutans*
Greater plantain	*Plantago major*

2.3.6 **Cover of scrub, trees and bramble.** The cover of these species outside the target shows that habitat is not being managed sufficiently i.e. it is not being cut each year or there is inappropriate tree planting. **Target: Cover less than 5%**

2.3.7 **Cover of coarse grass species.** Species such as perennial rye-grass *Lolium perenne,* cock's-foot *Dactylis glomerata*, false oat-grass *Arrhenatherum elatius* and Yorkshire fog *Holcus lanatus* indicate problems of eutrophication and insufficient removal of biomass e.g. lack of management. The cover of these species was measured at each stop. **Target: Cover less than 20%.**

2.3.8 **Cover of fine grasses typical of acid grassland.** These include species such as red fescue *Festuca rubra*, sheep's-fescue *Festuca ovina*, common bent *Agrostis capillaris*, early hair-grass *Aira praecox* and heath-grass *Danthonia decumbens.* The cover of these species was measured at each stop. **Target: Cover greater than 25%.**

2.3.9 The grassland was then allocated to one of the following condition categories:

Condition A: All targets passed

Condition B: 1 target failed

Condition C: 2 or more targets failed **or** if the positive indicator species attribute failed.

3.0 Soil Sampling

3.1 In order to assess both the potential for acid grassland restoration and to identify suitable areas for restoration, soil samples were taken from within each of the areas shown in figure 2 below. Twenty individual cores were taken from each area using a cheese-corer to minimise damage to the sward. The samples were taken evenly whilst walking in a 'W' pattern across each sample area. The samples were sent to a reputable laboratory for testing the following parameters:

- pH (water)
- Available phosphorus (P) using the Olsen method

- Available potassium (K)
- Available magnesium (Mg)
- Total nitrogen (N) using the Dumas method

Figure 2: Study areas

4.0 Results

4.1 Project area selection

4.1.1 The areas selected for assessment are shown in figure 2 above. Grassland area 1 (827m^2) was classified as acid grassland whilst grassland areas 2, 3 & 4 were considered to have some potential for restoration. The woodland (area 5) was also included as there may be opportunities to create acid grassland habitat through woodland clearance. Photographs of each study area are in appendix 3.

4.2 Botanical survey

4.2.1 A brief description of each of the study areas is given below. A full species list is provided in appendix 1.

Area 1

4.2.2 This area of acid grassland was characterised by the abundance of the fine leaved grasses; common bent *Agrostis capillaris* and red fescue *Festuca rubra*. Perennial rye-grass *Lolium perenne* and Yorkshire fog *Holcus lanatus* were much less frequently recorded in the sward. Among the forbs, sheep's sorrel *Rumex acetosella*, cat's-ear *Hypochaeris radicata*, ribwort plantain *Plantago lanceolata* and autumn hawkbit *Scorzoneroides autumnalis* were the most frequently occurring species. White clover *Trifolium repens* was rare.

Area 2

4.2.3 In area 2, perennial rye-grass and common bent were the most abundant grass species present with frequent Yorkshire fog and occasional smaller cat's-tail *Phleum bertolonii*. Hairy sedge *Carex hirta* was locally frequent. Forbs recorded included frequent white clover *Trifolium repens* and occasional creeping buttercup *Ranunculus repens*. Other species including dandelion *Taraxacum officinale*, knotgrass *Polygonum aviculare,* creeping thistle *Cirsium arvense* and greater plantain *Plantago major* were rare.

Area 3

4.2.4 The grassland within area 3 was very similar in species composition to area 2 with common bent and perennial rye-grass dominating the sward. Smaller cat's-tail was more frequent and Yorkshire fog was absent here. A similar range of forbs were recorded but with the additional of common knapweed *Centaurea nigra* which was rare.

Area 4

4.2.5 The grassland here differed from areas 2 and 3 in that the predominant grass species were a mix of perennial rye-grass, common bent, red fescue and Yorkshire fog. Other grass species recorded were smaller cat's-tail and cock's-foot *Dactylis glomerata*. Forbs included frequent cat's-ear with most other species, including ribwort plantain, autumn hawkbit and white clover, occasional.

Area 5

4.2.6 Area 5 was a small area of secondary woodland. The canopy was primarily pedunculate oak *Quercus robur* with some field maple.

4.2.7 Most other trees recorded were young trees or saplings and formed a relatively sparse shrub layer. Species included field maple *Acer campestre*, sycamore *Acer pseudoplatanus*, evergreen oak *Quercus ilex,* Turkey oak *Quercus cerris,* English elm *Ulmus procera*, horse-chestnut *Aesculus hippocastanum,* and hornbeam *Carpinus betulus.*

4.2.8 A high proportion of the ground was bare of vegetation, presumably as a consequence of high public use. Otherwise the ground flora consisted of bramble *Rubus fruticosus* and ivy *Hedera helix.* Other species recorded included hairy sedge, cowslip *Primula veris,* red fescue, common bent and Yorkshire fog.

4.3 Condition assessment

4.3.1 The results of the 2020 condition assessment carried out on 24 July 2020 are shown in appendix 2. A summary is in table 3 below:

Table 3: Condition assessment results

Attribute	Target	Result	Pass (Y/N)
Positive indicator species	At least one positive indicator species frequent and three at least occasional in the sward.	One species frequent, one species occasional	N
Undesirable species	Cover less than 5%	Cover <5%	Y
Coarse grass species	Cover less than 20%.	Cover <20%	Y
Scrub, trees and bramble	Cover less than 5%	Cover <5%	Y
Cover of fine grasses typical of acid grassland.	Cover greater than 25%.	Cover > 25%	Y
Condition assessment: Condition C			

4.4 Soil sampling

4.4.1 A summary of the soil sampling results is shown below:

Study area	pH	Phosphorus index	Total Nitrogen (mg/kg)
1	4.7	2	3144
2	5.5	1.7	2586
3	5.5	1.3	2645
4	5	1.2	3265
5	4.5	1.8	2930

4.4.2 The British Geological survey maps (BGS, 2020) show that Streatham common lies over the London Clay Formation – Clay and Silt. There are no records for superficial deposits, however clay, silt, sand and gravel deposits are shown immediately to the west of the site.

5.0 Discussion

5.1 The grassland in study area 1 can clearly be classified as acid grassland due to the presence of the indicator species sheep's sorrel. This type of grassland most closely matches the National Vegetation Classification (NVC) U1 *Festuca ovina – Agrostis capillaris-Rumex acetosella* community (Rodwell, 1992). U1 acid grassland is associated with acid, summer parched soils in the lowlands. This grassland type is normally maintained by grazing, but in this case, periodic mowing is likely to be important in the conservation of the community.

5.2 The condition assessment for the acid grassland failed on one attribute only, frequency of positive indicator species. The grassland, does, however, have the potential for further enhancement through appropriate management.

5.3 Acid grassland is listed as a Habitat of Principal Importance for the Conservation of Biodiversity in England. Habitats of Principal Importance are the habitats in England that were identified as requiring action in the UK Biodiversity Action Plan (UK BAP) and continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework (JNCC, 2012).

5.4 Acid grassland is a particularly important habitat as it has undergone a substantial decline in the 20th century although there are no figures available on rates of loss. Lowland acid grassland is therefore a national priority for nature conservation. This partly relates to the habitat's steep decline and scarcity, but also to its naturalness and intrinsic appeal and because they provide home to a host of highly specialised plants and animals. The relatively small (0.08ha) area of this habitat at Streatham Common was particularly species-poor, it is therefore important that action should be taken to restore and extend this habitat.

5.5 The grasslands in study areas 2, 3 and 4 cannot be classified as acid grassland. Perennial rye-grass was generally frequent in these swards and they most closely fit the NVC MG7b Community *Lolium perenne - Poa trivialis* leys sub-community (Rodwell, 1992). These types of grasslands are generally sown, although the species composition, particularly the abundance of the fine leaved grasses red fescue and common bent, suggest that these areas may have been acid grassland historically and have since degraded through nutrient enrichment and/or excessive trampling.

5.6 The secondary woodland (study area 5) had a relatively poor structure with a sparce shrub layer and species-poor ground flora. The large areas of bare ground suggest excessive trampling and use by the public.

5.7 The soil sample results show that all the areas tested have a relatively low pH and range from pH 4.5 to pH5.5 Acid grassland generally occurs on free-draining soils with a pH ranging from 4 to 5.5 (Maddock, 2008).

5.8 For successful restoration to a species-rich sward, a Phosphorus index of 0 or 1 is required and an index of 2 is marginal (Rural Development Service, 2005). However where a relatively rapid reduction of P can be expected through, for example, a regular hay cut, a moderate P status (index 2.0) may be acceptable (Rural Development Service, 2004).The P index of the study areas at Streatham Common ranged from 1.2 (study area 4) to 2.0 (study area 1). Interestingly it was the existing acid grassland area which had the P highest index. This may account for the relatively low species diversity of the area and low numbers of positive indicator species.

5.9 The underlying bedrock is the London Clay formation – Clay and Silt. Although the British Geological Survey have no records for superficial deposits, it is likely to comprised of clay, silt, sand and gravel. This contrasts with other nearby sites supporting acid grassland,

such as areas of Tooting Common, Wimbledon Common and Richmond Park where superficial deposits are sands and gravels, which are more suited to the development of acid grassland.

6.0 Conclusions

6.1 The phosphorus levels are marginal and soils may be sub-optimal for the enhancement of existing areas of acid grassland and restoration of other areas. However regular cutting and removal of arisings should result in the gradual depression of phosphorus levels. This will need to be coupled with measures to reduce nutrient input, especially through dog fouling.

6.2 Study areas 3 and 4 currently have the lowest P levels together with an adequately low pH. It is therefore recommended that these areas are selected for restoration. Study area 2 has a higher P index and may be subjected to a higher footfall, being nearer to the café. It is suggested that this area is omitted from the project. The woodland area also has a relatively high P index and could also be omitted. Any tree removal is also likely to be met with opposition from users of the site.

7.0 Recommendations

7.1 Introduction

7.1.1 As the success of restoration is uncertain, it is recommended that an experimental approach is adopted. Either each study area could receive a different treatment or a number of plots within each of the study areas could receive different treatments which can then be monitored over time. Options for treatment include:

- A modified mowing regime in the absence of topsoil preparation
- Topsoil preparation and allowing natural regeneration followed by a modified mowing regime
- Oversowing with wildflower grass seed followed by a modified mowing regime
- Spreading species-rich green hay followed by a modified mowing regime

7.2 Mowing

7.2.1 Hayes *et al* (2001) found that two hay cuts with aftermath grazing was more successful in restoring a neutral meadow than a single hay cut and aftermath grazing. Olff *et al* (1991) also showed an increase in diversity by cutting a hay meadow twice a year (July and Sept) in preference to cutting once a year in July (Cutting without aftermath grazing). It is therefore recommended that all areas of grassland within the study area are cut twice between mid-July each year and Christmas. Alternatively cut during February or March and again during September or October. A proportion (approximately 5-10%) of the grassland should be left uncut each year to benefit invertebrates. The same section of grassland need not be left uncut each year.

7.2.2 All arisings should be removed and, ideally, composted to progressively reduce soil fertility, reduce litter (dead plant material) build up and provide opportunities for species to germinate.

7.3 Topsoil preparation and allowing natural regeneration followed by a modified mowing regime

7.3.1 Bare ground should firstly be created to provide conditions for species within the seedbank to germinate. This can be achieved by using a harrow or raking. The aim should be to create 40-50% bare ground.

7.3.2 Note that there is a risk that mechanical sward disturbance may release more nitrogen from the soil and stimulate the weed seedbank. There is also a risk of failure if there are no few desirable species within the seedbank.

7.4 Spreading species-rich green hay

7.4.1 A nearby suitable donor site will need to be identified. Options include Wimbledon Common and Richmond Park. The sward from the donor site should meet the following requirements:

- The sward must be free from pernicious weeds such as spear thistle, ragwort and broad-leaved dock
- Highly competitive species such as Yorkshire fog, white clover and creeping buttercup should not form a major part of the sward.
- It must be physically possible to cut and collect the vegetation. Steep banks may not be suitable.

7.4.2 Ground preparation will be required prior to hay spreading. Spreading hay onto a closed sward is extremely unlikely to be successful. Seed may fail to come into contact with the soil and die, and any seedlings which germinate may be out competed by the existing sward. Bare ground can be created using a power harrow or set of discs. Bare ground can be created as above.

7.4.3 The receptor site must be ready to receive the hay when the donor site is cut. Green hay cannot be stored for more than a few hours before it heats up, which will threaten the viability of the seeds. Once collected it must be immediately transported to and spread on the receptor site.

7.4.4 The sward from the donor site must be left uncut and ungrazed (in the case of Richmond Park) prior to collecting green hay, to allow plants to flower and seed. A period of 8-12 weeks is usually suitable. Where the donor site is by cutting it should be cut at the usual time for that site (usually mid-July to early August). Most plants in those meadows will have completed flowering and seeding by hay cutting time, as a consequence of years of such management. Where the site is grazed, plants flower and set seed over a longer period and it is more difficult to collect the full range of species with a single cut. A later cutting date (e.g. late August/early September), which allows the seed of late flowering species may be better.

7.4.5 Once the cut material has been collected from the donor site, it must be transported to and spread on the receptor site on the same day - ideally within an hour or two. It is essential that it does not heat up. The hay should be spread thinly and evenly so that it does not create a mulch which will inhibit seed germination.

7.4.6 The sward should be visible beneath the hay. Leave the hay for at least one week in dry weather, or three weeks in wet weather, to allow seed to fall. After this period the seeds should be bedded in through by rolling the site lightly. Remove the hay if it is smothering the sward. However, this is unlikely to occur if hay is spread in the recommended amounts.

7.4.7 In the period immediately after hay spreading (usually July – November), the sward should be kept short and cuttings removed. so that light can aid germination.

7.4.8 In the first spring, it may again be necessary to cut the sward to avoid seedlings being shaded out by the existing vegetation. A short period of intensive cutting (with the cuttings removed) is recommended. Any perennial weeds which have colonised should be controlled early on, e.g. by spot treatment with herbicide. Any annual weeds are likely to be controlled by the regular cutting or grazing outlined above. Subsequently the area should be cut as outlined above.

7.5 Oversowing with wildflower grass seed followed by a modified mowing regime

7.5.1 Oversowing should be undertaken in late summer or early autumn (ideally early August to mid-September). Later sowings should be avoided because of the risk of frost damage to seedlings. Spring sowings are possible, but many species will not germinate in the first year, and there is greater risk of failure due to drought.

7.5.2 A seed mix for acid/sandy soils should be chosen and sourced from a reputable supplier. For example Emorsgate Seeds provides a meadow mixture for sandy soils: https://wildseed.co.uk/mixtures/view/8 Wildflower seed should always be of British native origin.

7.5.3 All pernicious weeds present in the sward should be controlled prior to ground preparation. Any application of herbicide should be by spot treatment or weed wiping to avoid damaging non target species. Thistles and other weeds with wind-blown seeds should be controlled where they occur on adjacent areas, as they can quickly invade once the sward has been opened up.

7.5.4 Bare ground should be created as outline above.The following seed rates are recommended:

- 5-10kg/ha of a wildflower and grass seed mix (usually including at least 10% wildflower seed).
- 1-2kg/ha of a pure wildflower seed mix.

7.5.5 The seed needs to be sown on or very close to the surface. The most appropriate method is to broadcast the seed using a hand-held lawn fertiliser applicator, seed fiddle or seed barrow. Seeds of different sizes and weights may settle out or become partitioned during sowing, causing a patchy sowing distribution. A more even coverage can be obtained if the seed is bulked up with an inert carrier e.g. barley meal, silver sand or fine sawdust

7.5.6 After sowing, seed must be bedded in to ensure good contact with the soil by light rolling. Successive sowing, which introduces new species over several years, may be a useful means of establishing a wide range of species. Successive sowing will not be appropriate every year, as plants should be given time to establish before the sward is disturbed again. Some of the introduced species may not appear in the sward for several years, so the success of sward enhancement should not be judged too soon.

7.6 General recommendations

7.6.1 There should be no tree or shrub planting in the grassland areas.

7.6.2 Dog fouling should be controlled through signage and/or provision of dog bins as dog waste will contribute significantly to the soil nutrient load and reverse any efforts to restore species-rich acid grassland.

7.6.3 Experimental areas should be temporarily fenced to prevent trampling and dog fouling. Suitable interpretation is also recommended.

7.6.4 Whichever method(s) for grassland restoration are selected, it is recommended that each study area is monitored. There are a number of options for monitoring; from compiling simple species lists, carrying out repeated condition assessments to more objective methods which can be subject to statistical analysis. The latter will be more sensitive to changes in species abundance but will require a higher level of expertise and survey effort.

8.0 References

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Appendix 1: Species lists

Relative abundance (DAFOR):
D:Dominant; A:Abundant; F: Frequent; O: Occasional; R:Rare

Qualifiers: T - mature tree, Y - young tree, S - seedling or sapling, W - wet area or hollows, D - dry area or high places, C – clumped, G - throw out or escape, P – planted E – edge, F – footpath, ? - identity uncertain.

Study area 1

Taxon	Common name	Abundance
Agrostis capillaris	Common Bent	Abundant
Festuca rubra	Red Fescue	Abundant
Holcus lanatus	Yorkshire-fog	Rare
Hypochaeris radicata	Cat's-ear	Frequent
Lolium perenne	Perennial Rye-grass	Occasional
Plantago lanceolata	Ribwort Plantain	Occasional
Rubus fruticosus agg.	Bramble	Rare
Rumex acetosella	Sheep's Sorrel	Frequent
Scorzoneroides autumnalis	Autumn Hawkbit	Occasional
Trifolium repens	White Clover	Rare

Study area 2

Taxon	Common name	Abundance	Qualifier
Agrostis capillaris	Common Bent	Abundant	
Carex hirta	Hairy Sedge	Frequent	C - clumped
Cirsium arvense	Creeping Thistle	Rare	
Holcus lanatus	Yorkshire-fog	Frequent	
Lolium perenne	Perennial Rye-grass	Abundant	
Phleum bertolonii	Smaller Cat's-tail	Occasional	
Plantago major	Greater Plantain	Rare	
Polygonum aviculare	Knotgrass	Rare	
Ranunculus repens	Creeping Buttercup	Occasional	
Scorzoneroides autumnalis	Autumn Hawkbit	Rare	
Taraxacum officinale agg.	Dandelion	Rare	
Trifolium repens	White Clover	Frequent	

Study area 3

Taxon	Common name	Abundance
Agrostis capillaris	Common Bent	Abundant
Centaurea nigra	Common Knapweed	Rare
Cirsium arvense	Creeping Thistle	Frequent
Hypochaeris radicata	Cat's-ear	Occasional
Lolium perenne	Perennial Rye-grass	Abundant
Phleum bertolonii	Smaller Cat's-tail	Frequent
Plantago lanceolata	Ribwort Plantain	Occasional
Plantago major	Greater Plantain	Rare
Ranunculus repens	Creeping Buttercup	Occasional

Taxon	Common name	Abundance
Taraxacum officinale agg.	Dandelion	Rare
Trifolium pratense	Red Clover	Rare
Trifolium repens	White Clover	Frequent

Study area 4

Taxon	Common name	Abundance	Qualifier 1
Agrostis capillaris	Common Bent	Frequent	
Agrostis stolonifera	Creeping bent	Rare	
Carex hirta	Hairy Sedge	Occasional	
Cirsium arvense	Creeping Thistle	Rare	
Dactylis glomerata	Cock's-foot	Rare	
Festuca rubra	Red Fescue	Frequent	
Holcus lanatus	Yorkshire-fog	Abundant	
Hypochaeris radicata	Cat's-ear	Frequent	
Lolium perenne	Perennial Rye-grass	Abundant	
Phleum bertolonii	Smaller Cat's-tail	Occasional	
Plantago lanceolata	Ribwort Plantain	Occasional	
Quercus robur	Pedunculate Oak	Occasional	S - seedling or sapling
Scorzoneroides autumnalis	Autumn Hawkbit	Occasional	
Trifolium repens	White Clover	Occasional	

Study area 5 (Woodland)

Taxon	Common name	Abundance	Qualifier 1	Qualifier 2
Acer campestre	Field Maple	Occasional	S - seedling or sapling	T - mature tree
Acer pseudoplatanus	Sycamore	Occasional	S - seedling or sapling	
Aesculus hippocastanum	Horse-chestnut	Occasional	S - seedling or sapling	
Agrostis capillaris	Common Bent	Frequent		
Carex hirta	Hairy Sedge	Occasional		
Carpinus betulus	Hornbeam	Occasional	S - seedling or sapling	
Festuca rubra	Red Fescue	Rare		
Hedera helix	Ivy	Abundant		
Holcus lanatus	Yorkshire-fog	Occasional		
Ilex aquifolium	Holly	Occasional	S - seedling or sapling	
Primula veris	Cowslip	Rare		
Prunus avium	Wild Cherry	Occasional	S - seedling or sapling	
Quercus cerris	Turkey Oak	Occasional	Y - young tree	
Quercus ilex	Evergreen Oak	Occasional	S - seedling or sapling	
Quercus robur	Pedunculate Oak	Frequent	T - mature tree	
Rubus fruticosus agg.	Bramble	Occasional		
Ulmus procera	English Elm	Occasional	S - seedling or sapling	

Appendix 2: Condition assessment results

Site Name: Streatham Common	**Parcel:** Study area 1
Recorder: Paul Losse	**Date:** 24/7/2020

		Stop																				
Taxon	**Common name**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**Frequency**
Positive indicators species																						
Hypochaeris radicata	Common cat's-ear	x	x	x	x	x	x	x	x	x	x	x	x				x	x	x	x	X	Frequent
Rumex acetosella	Sheep's sorrel		x	x	x		x	x	x	x	x											Occasional
Undesirable species																						
																						None
Coarse grass species																						
																						None
Scrub, trees and bramble																						
None																						
Cover of fine grasses																						
>25%																						

Appendix 3: Photographs

Photo 1: Study area 1- Acid grassland

Photo 2: Study area 2

Photo 3: Study area 3

Photo 4: Study area 4

Photo 2: Study area 5