



Langley Mead

Management Plan 2020-2024

Prepared on behalf of

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Langley Mead

Management Plan 2020-2024

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Langley Mead

Management Plan 2020-2024

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Langley Mead

Management Plan 2020-2024

1. INTRODUCTION

Purpose of Document

- 1.1 This document sets out the management tasks and arrangements for Langley Mead Nature Reserve (formerly known as the 'Loddon SANG') for the five-year period from 2020 to 2024.
- 1.2 Langley Mead is an area of Suitable Alternative Natural Greenspace (SANG) in the Loddon valley, provided on land owned by the University of Reading. The SANG is required in order to ensure avoidance of any adverse effects on the Thames Basin Heaths Special Protection Area (TBH SPA) that might otherwise be caused by residential development in the surrounding area.
- 1.3 This document updates and supersedes the Loddon SANG Revised Management Plan (EPR, April 2012) that accompanied the consented Loddon SANG planning application, and the minor amendments made through the Loddon SANG Environmental Management Plan Incorporating a Management Plan Review (EPR, August 2013).
- 1.4 The 2012 Plan was designed to cover the initial habitat creation and capital works required to set up the SANG, and to initiate its ongoing management. It included a requirement for the Management Plan to be reviewed approximately five years following planning consent, and every five years thereafter.
- 1.5 Langley Mead was granted planning consent on appeal in October 2012, and habitat creation works began in summer 2013 with the site opened to the public in May 2015. A review meeting was held in November 2019 following the completion of five full annual management cycles (2014-2019), which formed the basis for the revision of this Plan. Minutes of the review meeting are provided in **Appendix 1**.

Planning Background and Natural England's SANG Requirements

- 1.6 The Loddon SANG planning application (F/2010/1434) sought permission from Wokingham Borough Council for the change of use from agricultural land to informal recreation (*Sui Generis* use including conservation livestock grazing) and associated development including pedestrian and vehicular access, car park, footpath network and landscaping. Consent was granted by the Secretary of State on appeal in October 2012 (APP/X0360/A/11/2151402).
- 1.7 As set out in the planning application and appeal documents, the purpose of the SANG is to provide an alternative area for residents of both existing and proposed new dwellings to use to pursue informal recreation, as an alternative to the nearby Thames Basin Heaths SPA.
- 1.8 To ensure that it is likely to attract visitors away from the SPA, any SANG must incorporate certain specific characteristics, which are captured in Natural England's Guidelines for the Creation of Suitable Alternative Natural Green Space (NE, 2008).

- 1.9 According to the Guidelines, SANG must be perceived by users as a ‘natural’ environment, with a variety of semi-natural habitats, a majority of paths appearing to have a natural surface, and must provide a range of walks, including at least one circular walk of around 2.5km with easy access from a car park. The SANG must also have safe pedestrian access from a variety of points, and feel safe to walk in. It must be possible to let dogs off the lead over at least a substantial part of the area, throughout most of the year.
- 1.10 Langley Mead was designed to fulfil these requirements. It provides:
- A range of semi-natural grassland and woodland habitats covering an area of 18.3 ha;
 - A feeling of wilderness, away from physical development;
 - Open grassland accessible to dogs off the lead; and
 - Easy and safe access on foot from the southern parts of Shinfield, including the Shinfield West development.

Location and Area of Langley Mead

- 1.11 Langley Mead is located south of Hyde End Road, and extends down towards the River Loddon. The area and extent of the site along with adjacent or nearby areas of nature conservation interest including the Thames Basin Heaths SPA are shown on **Map 1**. Its setting in relation to the existing, new and proposed residential development that it is designed to serve is shown on **Map 2**.

Vision for Langley Mead

- 1.12 The vision for Langley Mead remains unchanged from that set out in the 2012 Management Plan; i.e. the creation and management of a wide expanse of meadow land, with hay meadows and damp pastures, supporting a rich variety of insects, wildflowers and grasses, and birds, reached from Hyde End Road through two droves, the southern of which is flanked by open woodlands. There will also be small areas of coppice woodland within its western reaches, further adding to the variety of habitats and landscapes available for public enjoyment.
- 1.13 The whole site apart from the Loddon Triangles and Mr Badger’s Island (see **Map 3**) is to be seasonally grazed with traditional breeds of cattle, and provides a range of walks through natural, traditionally managed, countryside.

2. THE CHARACTERISTICS OF LANGLEY MEAD

Introduction

- 2.1 This section describes the past and present conditions of the area of the Loddon valley that is now Langley Mead. It covers a brief overview of the physical nature of the site, previous land management as part of the University of Reading Farm, and its important ecological features. This information provides background and context for how the management proposals for Langley Mead were originally derived, and their ongoing review and refinement over time.
- 2.2 The management compartments referred to below are shown on **Map 3**.

Physical Nature of the Site

Geology

- 2.3 Langley Mead straddles the junction of the River Loddon floodplain and the lower slopes of the Loddon valley. It has several marked, though fairly slight, changes in level that reflect the deposition of alluvium or river gravel terraces at various geological stages. Appropriate habitat management at Langley Mead must be underpinned by an understanding of this geology, and the resultant flood and soil conditions.
- 2.4 The British Geological Survey 1:10,000 Geology Map (BGS, 1998) for the area shows the following broad pattern of deposits underlying each of the compartments at Langley Mead:

Table 2.1: Geological deposits of Langley Mead

| Geological Deposit | Location in the Langley Mead area |
|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| 3rd gravel terrace above the floodplain | Most of the Loddon Triangles |
| 2nd and 3rd gravel terrace straddling the edge of the floodplain | Southern part of the Loddon Triangles and part of Mr Chitty's Moor |
| 2nd gravel terrace on the floodplain | Great Millworth Fields NW and SE, most of Great Millworth Field North, part of Mr Chitty's Moor |
| Alluvium on the floodplain | Langley Common Meadow, Millworth Moor, Mr Badger's Island, and a narrow strip along the eastern edge of Great Millworth Field North |

- 2.5 The gravels underlying Langley Mead are flint and thus an acid substrate, though their influence is ameliorated by waters draining from calcareous terrain.

Soils

- 2.6 Jarvis, Hazelden and Mackney (1979) describe the soils of the Loddon valley in the Shinfield area as Ground Water Gleys. The soil map for the southeast of England (as mapped by the Soil Survey of England and Wales (SSEW); Jarvis et al., 1984) shows within this sequence, that the soils of Langley Mead comprise two associations: one an alluvial gley soil (Fladbury 3) and the other an argillic gley soil (841b Hurst).
- 2.7 Fladbury 3 soils are clayey alluvial soils on the floodplains of major rivers and are found on the lowest part of Langley Mead on alluvium (Langley Common Meadow, Millworth Moor, Mr

Badger's Island and a narrow strip of Great Millworth Field North). These soils are usually non-calcareous (although here the floodwaters of the Loddon bring in calcareous material) and clayey, with their lower levels gleyed because of periodic waterlogging from the fluctuating water table.

- 2.8 The SSEW describes the Fladbury 3 soil water regime as having a high water table in winter, which, in undrained areas, can stay wet into the growing season. Hollows and backwaters can be permanently waterlogged. The soils can be reasonably permeable, which assists with drainage once the water table falls after winter. The Soil Survey Memoir describes the cropping and cultivation characteristics of the Fladbury 3 soils as:
- Soils mainly in permanent grass because of high water tables;
 - Plenty of grass is produced early in the season because of good water supplies;
 - Possibly droughted in summer;
 - Poaching of the soils is a risk because of a large retained water capacity, thereby potentially shortening a grazing season; and
 - Winter flooding reduces grazing opportunities.
- 2.9 Where not in intensive cultivation, these soils support a range of semi-natural habitats including unimproved meadows, swamp, mires, fen and alder carr.
- 2.10 Hurst 841b soils develop over low level river terrace deposits (Great Millworth Fields NW and SE, most of Great Millworth Field North, Mr Chitty's Moor, Loddon Triangles) and are clay-enriched gleys. They are likely to be water-logged by groundwater during winter but possibly droughted in summer.
- 2.11 Jarvis et al. (1984) summarise the cropping and cultivation regime of Hurst 841b soils, when not drained, as being summer pastures with the wettest land used as rough grazing. They go on to list semi-natural habitats of uncultivated land on Hurst 841b soils as including ancient woodlands, acid wet grasslands and wet heaths.
- 2.12 The areas within the floodplain are, however, also subject to natural increases of nutrients by silt deposition in times of flood.
- 2.13 Langley Mead is in the process of being restored to a biodiverse floodplain meadowland with areas of hay meadows, pastures and other semi-natural habitats. This requires a management regime designed to progressively lower the nutrient status of the soil. As the nutrient status declines, the habitat and species diversity of the site will increase.

Hydrology

- 2.14 Langley Mead receives water in a number of ways. Part of the slopes of the valley above the River Loddon drain through the site in ditches, some of which are ancient features of the landscape. The primary source of water, however, is the River Loddon itself, which rises as a chalk stream at Basing Fen, Hampshire, and thus carries calcareous water through what is otherwise a fairly acid environment.

- 2.15 The enclosure of the area around 1850 involved imposing a new system of deeper drains in a rectilinear pattern across the area. These drains are deeply incised, and except in times of flood, they carry water at a level much lower than the ground surface.
- 2.16 The Environment Agency (EA) has modelled flooding of the Loddon floodplain and is proposing to modify the flood regime of part of the Loddon, including the section running past Langley Mead. Cutting a notch in the weir at Arborfield will lower normal water levels and make the river gradient slightly steeper, enhancing current velocities and cleaning gravels in the bed. This may also affect the ditches at Langley Mead, such as Millworth Ditch, but the exact effects at different times of year are not yet known. Part of the river lowering process has already been carried out.

Historical Ecology

- 2.17 The implementation of Langley Mead required the enhancement of naturalness in what was at the time an intensive farmscape. A key source of information about what could be practically achieved in terms of habitat types and diversity was provided by historic maps, which record many aspects of the historic use and management of land, some dating back to medieval times.

Selections of these maps that are of particular relevance to the proposals are:

- 1756 Earl of Fingall's Shinfield Estate map (extract provided at **Map 4**);
- 1806 Ordnance Surveyor's Drawings for the 1" to the Mile (surveyed 1806) and the published version in 1817 (Map 7);
- 1836 Tithe map
- 1856 Enclosure map
- 1883 first edition of the Ordnance Survey 6" to the mile; and
- 20th century maps; various editions including the Land Utilisation Survey 1925-1948.

The Ancient, Pre-enclosure Landscape

- 2.18 The three earliest maps in the sequence show the structure and land use of the Loddon area when managed traditionally, and in particular Langley (Common) Meadow, Great Millworth Field and Millworth Moor as named land management units within the area of Langley Mead. Two other areas of land have no name on any of the maps and EPR coined the following names based on their landowner's name in 1756 and their position in the landscape: Mr Chitty's Moor; and Mr Badger's Island.
- 2.19 These areas of land became the basis for the Langley Mead management compartments, as shown on **Map 3**.
- 2.20 When used in conjunction with the 1:10,000 geology map of the area, the old maps show the very close correlation between land use and the underlying geology, soils and hydrology. For example, the Earl of Fingall's 1756 map and the 1836 tithe map show the division of the landscape into arable on the better-drained gravel terrace, with meadows and pasture on the less well-drained alluvial soils.
- 2.21 The traditional land use from ancient times up to enclosure in c1856 included Common rights on the arable, meadow and pastureland within the Earl of Fingall's estate. Both the Earl of

Fingall's map and the tithe map show how the land with Common rights was sub-divided into 'strips' of land, which is characteristic of a pattern of land use built up over centuries.

The Post-Enclosure Loddon landscape

- 2.22 In 1856 the communal landscape of the Loddon was enclosed into separate ownerships. Though the re-arrangement of the landscape is clear, it is not known how land management changed after enclosure. The hay meadows and arable may have continued in the same use for some time after enclosure, possibly even in some form up to the later 20th century development of intensive agriculture.
- 2.23 The first detailed map available after the enclosures of 1856 is the 1883 1st Edition 6" OS map, which shows the details of the post-enclosure boundaries. The main divisions of the ancient pre-enclosure landscape of Langley Mead, that is the older field boundaries, can still be seen today, though partially modified by later boundary re-alignments. Of the internal division of the fields, which may have been marked simply by stones or baulks, none appear to have survived.
- 2.24 The most significant post-enclosure change to the Langley Mead landscape was the grubbing-up of Costrill's Coppice, part of which would have been in the western part of the present-day Loddon Triangles (**Map 3**). The woodland was cleared at an unknown date around the mid-20th century; all that remains now is part of its edges which are a field boundary and three field trees.
- 2.25 The semi-natural vegetation of the floodplain meadows was also lost, as they were increasingly drawn into modern intensive agricultural practice. The only habitat with ecological continuity with the ancient landscape includes some of the ditches, hedges, and their associated old trees, mainly oaks and willows.

Landscape History as a Guide to Habitat Creation and Restoration

- 2.26 Drawing on the evidence detailed above on traditional land uses, the physical characteristics of the site and surviving features of interest, the following habitats were considered to be appropriate natural habitats in this part of the Loddon valley and thus formed the basis of Langley Mead's natural green space:
- Hay Meadows;
 - Mire/Wet Grassland/Swamps;
 - Aquatic communities in ditches;
 - Tree lines and hedges; and
 - Mixed pasture/coppiced woodland.

Existing Biological Features

Flora and Vegetation

- 2.27 Prior to restoration, Langley Mead comprised a mixture of arable fields and herb-poor pastures; managed as part of a modern agricultural landscape. The flora and vegetation at this time was of limited nature conservation interest.

- 2.28 Monitoring surveys carried out between 2015 and 2019 have found that Langley Mead now supports at least 123 vascular plant species, including three plants listed on the England Red List (Lesser Spearwort *Ranunculus flammula*, Bladder Sedge *Carex vesicaria* and Ragged Robin *Lychnis flos-cuculi*) and one Berkshire Rare species (Great Burnet *Sanguisorba officinalis*). The meadows are now species-rich and support a total of 24 species listed as either 'indicator' or 'typical' species of lowland meadows in Berkshire, Buckinghamshire and Oxfordshire (TVERC & BMERC, 2018). Full details are provided in the Langley Mead SANG Vegetation Monitoring Results 2015-19 report (EPR, 2020).
- 2.29 A number of significant trees are present in the ancient boundaries and fields, including Oaks and pollard Willows. Many of these individual trees are very old, and are significant features both of the landscape and the biodiversity resource.

Mammals

- 2.30 Several small, temporary roosts for common bat species such as Pipistrelles were identified in some of the mature trees during surveys in 2010 and it is likely that these continue to be used. Update automated detector surveys carried out in 2019 recorded eight species of bat using the site, including the rare Barbastelle *Barbastellus barbastellus* bat. The restored wildflower-rich meadows now offer good quality foraging habitat for bats, in contrast to the ley grasslands and arable land previously present. Millworth Lane also functions as an important commuting route for bats to and from their foraging grounds along the river.
- 2.31 Otters *Lutra lutra* use the River Loddon and may use the Langley Mead site, for example the ditches, as part of their wider territory although this has not been confirmed through survey to date. Mink *Neovison vison* are also present along the Loddon watercourse.

Birds

- 2.32 Surveys carried out in 2019 found that Langley Mead supports a reasonably diverse range of bird species that are characteristic of a lowland meadow landscape, including Red and Amber listed species such as Yellowhammer *Emberiza citronella*, Linnet *Carduelis cannabina*, Song Thrush *Turdus philomelos*, Kingfisher *Alcedo atthis* and Willow Warbler *Phylloscopus trochilus*.
- 2.33 Birds of prey are particularly well represented: A pair of Buzzards *Buteo buteo* regularly breed adjacent to the site in Tanner's Copse, Kestrel *Falco tinnunculus* and Red Kite *Milvus milvus* are frequently seen foraging over the site, and four Barn Owl *Tyto alba* chicks successfully fledged from a box erected on a mature tree on the corner of Great Millworth Field North. This healthy assemblage of raptors is a good indication that their prey species, such as small mammals, are also thriving at Langley Mead.

Reptiles and Amphibians

- 2.34 Langley Mead has not been formally surveyed for amphibians and reptiles; however the restoration of the meadows will have improved the quality of habitat for Grass Snake *Natrix helvetica* and it is hoped that this species may colonise the area in time. The ditches around the site, particularly Mr Chitty's Ditch, have been observed to contain large quantities of Common Frog *Rana temporaria* spawn in the spring, a principal prey species for Grass Snake.

Terrestrial Invertebrates

- 2.35 Prior to restoration, the species-poor agricultural pastures and arable land at Langley Mead were of low value for invertebrate diversity and contained very few herbs to provide nectar sources.
- 2.36 By contrast, surveys carried out in July and August 2019 (Denton, 2019) recorded 402 terrestrial invertebrate species at Langley Mead across three days of survey. This total would almost certainly have been higher had additional sampling taken place overnight, or earlier in the year.
- 2.37 Wokingham Borough Council also commissioned a separate invertebrate survey at Langley Mead (Purton, 2019), which added a further 20 species not previously recorded, bringing the total to 422.
- 2.38 The terrestrial invertebrate assemblage recorded to date includes 14 species of conservation interest, as listed in **Table 2.2** below. Twenty locally notable species have also been recorded. The assemblage includes 137 beetle species (Coleoptera), 100 true bugs (Hemiptera), 49 true flies (Diptera), 41 butterflies/moths (Lepidoptera), 31 spiders (Araneae) and 18 species of bees, wasps and ants (Hymenoptera).

Table 2.2: Terrestrial invertebrates of conservation interest recorded at Langley Mead

| Scientific Name | Common Name | Conservation Status |
|-----------------------------|-------------------------|------------------------------------------------------------------------|
| <i>Acinia corniculata</i> | Scarce Knapweed Fly | Endangered (Red Data Book) |
| <i>Crepidodera nitidula</i> | A flea beetle | Nationally Scarce |
| <i>Forficula lesnei</i> | Lesne's Earwig | Nationally Scarce |
| <i>Hippodamia variegata</i> | Adonis Ladybird | Nationally Notable - in 31-100 10x10km squares |
| <i>Iassus scutellaris</i> | Elm Leaf Hopper | Nationally Notable – in ≤ 30 10x10km squares |
| <i>Lasius brunneus</i> | Brown Ant | Nationally Scarce |
| <i>Longitarsus symphyti</i> | A flea beetle | Nationally Rare – only recorded along this stretch of the River Loddon |
| <i>Lygus pratensis</i> | A plantbug | Rare (Red Data Book) |
| <i>Lythraría salicariae</i> | Loosestrife Flea Beetle | Nationally Scarce |
| <i>Macropis europaea</i> | Yellow Loosestrife bee | Nationally Notable - in ≤ 30 10x10km squares |
| <i>Marpissa muscosa</i> | A jumping spider | Nationally Scarce |
| <i>Meligethes symphyti</i> | A pollen beetle | Nationally Notable - in ≤ 30 10x10km squares |
| <i>Polydrusus formosus</i> | A broad-nosed weevil | Nationally Notable - in ≤ 30 10x10km squares |
| <i>Rhagonycha lutea</i> | A soldier beetle | Nationally Scarce |

- 2.39 The most notable of these records is *Longitarsus symphyti*, a Nationally Rare flea beetle only recorded from the local stretch of the River Loddon, which requires Common Comfrey *Symphytum officinale* as an adult food plant.

Aquatic Invertebrates

- 2.40 The ditches around Langley Mead harbour a diversity of common invertebrate species including crustaceans, bivalves, flatworms, dragonflies and damselflies, insect larvae such as chironomid

midges and mayflies, a range of aquatic beetles including the uncommon *Cercyon sternalis*, and at least twelve species of gastropods (snails).

- 2.41 Surveys carried out over three days in August 2019 (Knight, 2019) recorded a total of 56 aquatic invertebrate species at Langley Mead. As with the terrestrial invertebrate survey, this total would almost certainly have been higher had sampling also taken place earlier in the year, when the fields would have been wetter with some ephemeral pools present. The surveys found that the aquatic invertebrate assemblage is typical of lowland ditches and of moderate to 'fairly high' conservation interest.
- 2.42 The aquatic invertebrate survey report noted that Millworth Ditch had become overshadowed, and recommended some selective thinning of bankside trees to benefit the aquatic flora and invertebrate fauna.

3. AIMS & OBJECTIVES OF MANAGEMENT

Introduction

- 3.1 This section sets out the aims and objectives underpinning the management plan for Langley Mead, which remain unchanged from 2012 (with the exception of an updated reference to planning policy). These comprise three principal aims and four overarching objectives, whose achievement will continue to be monitored in order to guide future changes to the Plan.
- 3.2 A brief review of progress to date against each of the objectives is also discussed below.

Principal Aims

- 3.3 The three principal aims of the management of Langley Mead are to:
- Provide a convenient and accessible, enjoyable and satisfying recreation experience in a natural environment, so that many new or existing residents of the area, who would otherwise travel to the Thames Basin Heaths SPA for a walk, with or without a dog, opt to visit Langley Mead as an alternative;
 - Restore through traditional agricultural management the naturalness, biodiversity, and local character of the area's countryside, in accordance with the National Planning Policy Framework 2019 (NPPF), without sterilising its future productive or environmental capacity; and
 - Meet the criteria in the JSPB Delivery Plan (JSPB, 2009) and Natural England's Guidelines for SANG (2008) for the provision of SANG, for as long as is required.

Objectives

- 3.4 The principal aims described above overlap to a degree, and can be expressed in terms of a series of Objectives, as follows:
- To provide a convenient and accessible countryside experience;
 - To provide an enjoyable and satisfying countryside experience;
 - To restore naturalness and biodiversity in the SANG countryside; and
 - To reflect and enhance the local countryside character.

Objective 1: To Provide a Convenient and Accessible Countryside Experience

- 3.5 Research has shown that it is possible to influence recreation habits through the provision of suitable environments in which to walk, especially if they are well connected on foot to avoid people getting into the car. Langley Mead was designed to be readily accessible from the whole of the Shinfield West development area, and is connected to Shinfield, and ultimately Spencer's Wood, by safe pedestrian routes.
- 3.6 Annual visitor questionnaire surveys carried out at Langley Mead since 2016 (EPR, 2019) have shown that a high proportion of visitors arrive on foot (44% in 2019, the highest to date), and largely originate from areas around Shinfield, Spencer's Wood and the south of Reading. Visitors have consistently selected 'it's close to where I live' as a main reason for choosing to

visit Langley Mead (64% on average across the four years of survey) along with ‘accessibility’ (44% on average).

- 3.7 Langley Mead is also well connected to other SANGs at the Ridge, Mays Farm Meadow and Five Acres Field in the wider area, so that ultimately it is possible to have a walk of 4 or 5 miles (7-8 km) through substantially natural countryside, and on average 30% of visitors have cited the ‘length and variety of walks available’ as one of their main reasons for choosing Langley Mead. A walk of more than 2.5km is provided within Langley Mead itself, with a variety of routes and two major access points for pedestrians. Provision is also made for wheelchair access on a shorter route.
- 3.8 An essential feature of a SANG is the ability to attract people who want to walk a dog, and a crucial aspect of such provision is that a dog must be able to be let off the lead for exercise. This is possible at Langley Mead, and the visitor surveys have found that on average, 88% of visitors come to walk their dog(s), with 81% of dogs being let off the lead.
- 3.9 Visits to Langley Mead have steadily increased since opening, with 2019 seeing the highest yet at an estimated 54,750 visits over the year. Most importantly, of those visitors who had previously visited Bramshill Plantation, the closest part of the Thames Basin Heaths SPA, the majority said that they are less likely to visit now (63% on average). This is a clear indication that Langley Mead is providing a convenient and accessible alternative to the SPA.

Objective 2: To Provide an Enjoyable and Satisfying Countryside Experience

- 3.10 The Loddon Valley can provide an unusual experience of openness, and contributes to a sense of wilderness. One of the objectives of the Management Plan is therefore to restore and maintain this sense of not being confined by modern boundaries and indeed, on average 51% of visitors stated that they ‘enjoy the look and feel of this site’ as a main reason for choosing Langley Mead in the 2016-2019 visitor surveys, with a further 38% citing ‘peacefulness’.
- 3.11 The majority of visitors visit year-round (92% average) and either daily (50%) or 2-3 times per week (31%). This pattern of regular visitation indicates that Langley Mead is meeting their needs in terms of providing an enjoyable and satisfying countryside experience.
- 3.12 An important aspect of Langley Mead, accompanying this sense of openness, is the opportunity to be close to nature in an environment that feels wild. The previous agricultural regime was generally highly productive, with substantial inputs of fertilisers and of low biological diversity. An important objective for Langley Mead is therefore to create a greater, more interesting and attractive diversity of flora and fauna, as explored further under Objectives 3 and 4 below.

Objective 3: To Restore Naturalness and Biodiversity in the SANG Countryside

- 3.13 The presence of a wide range of plants, insects, birds and mammals is a crucial part of enabling people to connect with their environment, and a key objective is therefore to expand the naturalness and diversity of the flora and fauna in Langley Mead.
- 3.14 Traditional farming of the Loddon Valley would have been labour intensive, but with low inputs of chemical or mechanical energy. Biodiversity is high in those conditions, because productive species that need high levels of nutrients cannot over-dominate vegetation cover. Intensive

agriculture has the opposite effect, increasing the productivity of crop species at the expense of biodiversity.

- 3.15 An important objective for the management of Langley Mead is therefore to restore the conditions that foster a high diversity of plant and animal species, and both to initiate and to continue the process of diversification.
- 3.16 Considerable progress has been made towards this objective. Following ground preparation works, green hay harvested from the nearby Moor Copse Nature Reserve was strewn across the Langley Mead fields in 2013 (with the exception of Great Millworth Field North and the Loddon Triangles, for which a native wildflower seed mix was deemed more suitable following soil testing) and supplemented with native wildflower seeds. Since then, the compartments (apart from the Triangles) have been managed through a low intensity conservation grazing regime, according to the prescriptions and principles set out in the 2012 Management Plan.
- 3.17 As discussed in **Section 2**, after just five years Langley Mead now supports a far more diverse assemblage of flora and fauna than before, including rare plants and invertebrates and a variety of birds and bats. Vegetation monitoring surveys (EPR, 2020) have also found that four out of the six management compartments have either met, or are trending towards, their target vegetation communities as defined in **Section 4**.

Objective 4: To Reflect and Enhance the Local Countryside Character

- 3.18 The character of the Langley Mead countryside has evolved through the combined effects of human activity and natural processes before, during and since enclosure, but as a whole, it can be described as low-lying, lush and riverine, with an irregular grain that responds in a very subtle way to changes in topography and elevation.
- 3.19 The land contains a variety of features that reflect differing ages of origin: fragments of ancient woodland at Tanner's Copse, remnant features of Costrill's Coppice on the floodplain edge and field patterns that are still detectably irregular in some places, but overlain with, and confused by, a new pattern of recent ditches and hedges dating from the 19th century.
- 3.20 Measures that have been taken to restore the natural character of the Loddon valley environment in line with this Objective include:
- Extensive native tree planting in the 'Loddon Triangles', where Costrill's Coppice used to stand;
 - Traditional management of hedgerows, such as laying of the hedgerow between Great Millworth Fields NW and SE; and crucially,
 - Reversion of intensively managed pastures and arable fields to traditionally managed, seasonally grazed wildflower-rich permanent pastures and floodplain hay meadows.
- 3.21 As noted under Objective 3 above, the move from intensive agricultural use to a conservation-led regime has already significantly enhanced Langley Mead's biodiversity. Whilst this habitat management plan has been prepared to reconcile the needs of wildlife with recreational users, there is in fact a synergy between the uses - fundamentally, higher biodiversity will improve the recreational experience and attract more visitors.

4. MANAGEMENT PRINCIPLES

Introduction

- 4.1 This Section sets out the fundamental principles underpinning the management of Langley Mead from 2020-2024, which in turn inform the more specific prescriptions set out for each compartment in **Section 5**. These principles remain largely unchanged from the 2012 Plan and have been designed to achieve the objectives set out in **Section 3**.

Management Compartments and Target Habitats

- 4.2 Langley Mead has been implemented according to the Loddon SANG Masterplan Rev G (**Appendix 2**). This Plan, along with **Map 3**, shows the different management compartments and their vegetation cover (woodland, pasture or hay meadow), each of which require different management techniques.
- 4.3 **Table 4.1** below sets out the management types for each compartment and their target vegetation communities, according to the National Vegetation Classification (NVC) (Rodwell, 1991-2000). These remain the same as in 2012, with the exception of Mr Badger's Island, discussed further in **Section 5**.

Table 4.1: Langley Mead management compartments and their target vegetation communities

| Name | Habitat Type | Target NVC Communities | Management | Area (Ha) |
|--------------------------------------------------------|---------------------------------------|------------------------------------------|----------------------------------------------------------|--------------|
| Great Millworth Field NW and SE | Gravel terrace hay meadow | MG5 | Hay crop and seasonal grazing | 5.6 |
| Great Millworth Field North | Gravel terrace hay meadow | MG5 | Hay crop and seasonal grazing | 2.2 |
| Langley Common Meadow | Alluvial hay meadow | MG4 | Hay crop and seasonal grazing | 3.02 |
| Mr Chitty's Moor | Alluvial pasture | M22/M23 and MG5 | Seasonal grazing | 2.43 |
| Millworth Moor | Alluvial pasture | M22/M23 and MG5 | Seasonal grazing | 1.77 |
| Millworth Ditch and western edge of Mr Badger's Island | Ditch & tree line | Various aquatic communities in the ditch | Tree and ditch management | 0.07 |
| Mr Badgers Island | Nettle bed with tree and scrub fringe | n/a | Thinning of scrub fringe | 0.41 |
| The Triangles | Pasture and coppice woodland | MG5 with trees and scrub | Mowing, coppicing and other forms of woodland management | 2.6 |
| Car Park and Access Road | n/a | n/a | n/a | 0.18 |
| Total Area | | | | 18.28 |

Grazing for Biodiversity

- 4.4 A key feature of Langley Mead is that grazing animals are a fundamental component of the management system. Grazing is by far the most natural, beneficial, cost-effective and

sustainable way to restore, manage and, ultimately, sustain species-rich grasslands. The benefits to biodiversity of grazing include:

- Nutrient-stripping of the system;
- Controlling of the development of scrub;
- Preventing the development of rank species-poor swards;
- Creating structural diversity; and
- Providing essential micro-patches of bare ground for the establishment and regeneration of species.

4.5 In addition to these biodiversity benefits, grazing is highly cost-effective and sustainable. It reduces time inputs for labour and machinery, and produces a product that can be sold to offset the costs of stock.

4.6 Grazing animals will be managed carefully so as to present minimal risks to site users. Restrictions apply to the grazing management regime at Langley Mead in order to prevent any inappropriate or excessive use of grazing animals from reducing its effectiveness as a SANG in drawing recreational users away from the SPA, as set out below.

4.7 The parameters set out herein will not be exceeded or disregarded except with the written agreement of Wokingham Borough Council, and/or otherwise in response to advice from the Langley Mead Steering Group (see **Section 6**).

Stock Type

4.8 Langley Mead is to be grazed by low numbers of traditional breeds of beef cattle on a rotational basis. As such the stock will not be large dairy cows; but docile animals adapted to feeding on rough grassland.

4.9 As required by law for sites with public access, no dairy bulls are allowed to graze at Langley Mead. Furthermore, in accordance with advice from the Grazing Advice Partnership (GAP, 2019), cows with young calves (<3 months), horned sheep with young, horned goats, stallions and mares with young foals may not be used to graze the site, as all of these may react aggressively to dogs.

4.10 The Grazing Advice Partnership also publishes an online Breed Profiles Handbook. This sets out key characteristics associated with a number of breeds of cattle, including the way in which they interact with the public, and how they react to dogs.

4.11 Only breeds of cattle that are considered to interact well with the public (including people with dogs) may be used to graze Langley Mead. This will be determined by reference to the GAP Breeds Profiles Handbook. Any breed listed as being unsuitable for public sites or known to be unpredictable or temperamental around people or dogs will not be permitted.

4.12 Breeds considered tolerant of dogs and suitable for grazing publicly accessible sites are: Aberdeen Angus; Dexters; Belted Galloway; Hereford; Red Poll; or North Devon.

- 4.13 It should be noted that the habitats that have been created at Langley Mead are highly appropriate for a publicly accessible grazed site. This is because in the main they are open expansive habitats.

Herd Numbers

- 4.14 The herd used to graze Langley Mead will not exceed a maximum of 25 animals, although a steady herd number of between 15 and 20 animals is more likely. This has been increased slightly from the numbers set out in the 2012 Management Plan in response to feedback from the Ranger and vegetation surveyors, in an effort to remedy the negative effects of under-grazing on Millworth Moor and Langley Common Meadow (discussed further in **Section 5**).
- 4.15 This herd will not necessarily be kept as a single entity all of the time, and may on occasion be sub-divided and used in different areas at different times through the grazing year. Where possible, the core herd will be hefted to Langley Mead, knowing the area well and becoming used to the presence of people with dogs.
- 4.16 The herd therefore comprises a small number of animals spread over a large area. Although a system is in place (below) to ensure that there are always cattle-free areas for people to walk in, it will not be difficult in most cases for walkers entering a compartment with grazing cattle to avoid them if they wish to, as cattle will usually graze together in a herd group and move sequentially around a field.
- 4.17 The actual number of animals will vary from year to year, as would be expected in any grazing system – natural or agricultural, although the number of animals will not exceed the stated maximums. Decisions such as this are at the discretion of the Ranger, so that he/she can respond to seasonal, annual, or longer cycles of change, for example climate, to meet the management objectives set out in **Section 3**.
- 4.18 Consideration has been given to the potential for a slightly larger herd of cattle to discourage or displace visitors. Data and anecdotal information from the annual visitor surveys and Ranger conversations indicate that although some visitors do not like the cattle, just as many (if not more) enjoy seeing them and have grown accustomed to them. As discussed in **Section 3**, visitor numbers are increasing. As such, it is very unlikely that a small increase in the cap on the herd size will discourage people from visiting; and even less so to the extent that the SANG could no longer function as an effective alternative to the SPA. Visitor perceptions will, however, be kept under review through the annual visitor surveys.

Rotational Grazing and Cattle-free Areas

- 4.19 Notwithstanding the fact that many of the SPA target user group that Langley Mead aims to attract is likely to be familiar with cattle due to the SPA itself being grazed in places, it is a requirement of this Plan that there are always areas free of livestock, particularly (but not exclusively) during the breeding season for the three key SPA bird species; Woodlark, Nightjar, and Dartford Warbler; so that those people who wish to avoid cattle may do so. Collectively, the breeding season is considered to run from March to August inclusive (English Nature, 2005).
- 4.20 Langley Mead will be seasonally grazed, with different requirements applied to the hay meadows and permanent pastures. This means that there will always be fields that are free of

grazing at certain times of the year, and not all of the fields will be grazed at the same time. The grazing timetable is set out in **Table 4.2** below.

Table 4.2: Grazing Timetable

| Month | Hay meadows (Langley Common Meadow, Great Millworth Fields NW, SE, N) | Permanent pastures (Mr Chitty's Moor, Millworth Moor) |
|-----------|-----------------------------------------------------------------------|-------------------------------------------------------|
| March | Early grazing if dry and growing season underway | Grazing if needed and dry enough |
| April | Early grazing if dry and growing season underway | Grazing if needed and dry enough |
| May | Shut for hay from mid-May. No grazing | Grazing |
| June | Shut for hay. No grazing | Grazing |
| July | Shut for hay. No grazing, hay cut. | No grazing |
| August | Closed to grazing | No grazing |
| September | Aftermath grazing | No grazing |
| October | Aftermath grazing | Grazing |
| November | Aftermath grazing until too wet and/or growing season finished | Grazing if needed and dry enough |

4.21 December to February are likely to be months when the fields are too wet for grazing and/or that there is insufficient grass to support cattle and thus would not be grazed.

4.22 As shown in **Table 4.2**, a key element of the grazing regime is the shutting up of the hay meadows for the middle part of the year. The actual timing and pattern of grazing will vary from year to year and season to season according to variables such as sunshine levels, extent of flooding, rainfall patterns and so on, at the discretion of the Ranger. As such, a minor change has been made from the 2012 Plan to extend the grazing window for the hay meadows to mid-May (previously the start of May), to increase this flexibility.

4.23 The following additional restrictions also apply:

- The Loddon Triangles will not be grazed, so that people can access Langley Mead from the car park without coming into contact with cattle. Animals may be moved through this area in order to access the rest of the site, but may not stop and graze en-route;
- Great Millworth Field (NW/SE are a single grazing entity) will never be grazed at the same time as Mr Chitty's Moor or Millworth Moor; and
- Great Millworth Field and Great Millworth Field North will never be grazed at the same time.

4.24 The above restrictions will ensure that it will always be possible to access large areas of Langley Mead without coming into contact with cattle, as follows:

- Users accessing the site from the car park can walk through the ungrazed Loddon Triangles and then choose either Great Millworth Field or Mr Chitty's Moor initially;
- The public right of way along Millworth Lane permits access to either Great Millworth Field or Great Millworth Field North without coming into contact with cattle, if one of them was being grazed; and

- Millworth Moor and Langley Common Meadow can be accessed via Great Millworth Field, which will not be grazed at the same time.

4.25 The Ranger is responsible for installing and updating signage around the site informing users of the whereabouts of the cattle.

5. MANAGEMENT PRESCRIPTIONS 2020-2024

Overview

- 5.1 This section sets out detailed management prescriptions for each compartment. It includes a review of the successes and challenges of the first five years of management, drawing on the results of the five-year Vegetation Monitoring Report (EPR, 2020a) and sets out the management objectives and tasks for this Plan period.

Mr Chitty's Moor

Introduction

- 5.2 Mr Chitty's Moor is a low-lying field on alluvium that is possibly an ancient channel of the Loddon, though long since disconnected from the modern river. There is a noticeable bank where the gravel terrace underlying Great Millworth Field NW gives way to this lower-lying compartment. It seems likely that the vegetation was historically related to rush pastures/fen meadows and that it was seasonally grazed.

Objectives

- 5.3 The overarching objective for Mr Chitty's Moor is to establish semi-natural species-rich habitats characteristic of the Loddon floodplain such as fen meadow/rush pastures, managed as permanent pasture. The habitat will be mesotrophic in character and affected by groundwater, though still relatively well-drained.
- 5.4 In terms of the NVC, the target semi-natural plant communities include swards with characteristics of M22 *Juncus subnodulosus*–*Cirsium palustre* (Blunt-flowered Rush – Marsh Thistle) fen meadow and/or M23 *Juncus effusus/acutiflorus*–*Galium palustre* (Soft/Sharp-flowered Rush – Marsh Bedstraw) rush pastures, with some MG5 *Cynosurus cristatus*–*Centaurea nigra* (Crested Dog's Tail – Common Knapweed) mesotrophic grassland.

Management Review

- 5.5 Mr Chitty's Moor appears to be gradually developing towards one of its target vegetation communities of MG5 grassland and it supports some species of conservation interest. However the coverage of grasses compared to forbs is high, as is the frequency of less desirable species such as Perennial Rye-Grass *Lolium perenne*, White Clover *Trifolium repens* and Creeping Buttercup *Ranunculus repens*.
- 5.6 It was noted during the 2019 vegetation surveys that despite recent grazing, large areas of the sward in Mr Chitty's Moor remained tall. This indicates that grazing pressure is not sufficient to control the dominant grasses at present. This vegetation then falls over or is trampled and forms a dense thatch on the ground, blocking out sunlight making it harder for more delicate plants to survive.

Management Prescriptions and Objectives 2020-2024

- 5.7 Mr Chitty's Moor will continue to be seasonally grazed according to the timings set out in **Table 4.2**, when the ground is dry enough to support cattle without excessive poaching. Grazing

intensity will increase slightly with the higher cap on herd numbers. To encourage greater floristic diversity, supplementary mowing (with arisings removed) can also take place in early spring and autumn where required, to mimic the effects of grazing and reduce the competitiveness of grasses in the sward.

- 5.8 The supplementary cuts can be taken low to the ground in spring to weaken the target species, with a higher cut in autumn to take off any regrowth. They should only continue until the coarse grasses are under control, after which management should revert to seasonal grazing only. An uncut margin of at least 1m should be left around the edge of the field to allow invertebrates to complete their life cycle, and provide a food source for wintering birds.
- 5.9 The following specific management objectives have been identified for Mr Chitty's Moor for the period 2020-2024, based on the results of the 2015-2019 vegetation monitoring surveys (EPR, 2020a):
- A reduction in the proportion of grasses compared to forbs; and
 - An increase in the frequency of positive indicator species.

Great Millworth Fields NW, SE and North

Introduction

- 5.10 Great Millworth Fields North-West, South-East and North together comprise almost all of the original area of the historic Great Millworth Field before its subdivision when enclosed in c. 1856. Because they are all part of the same gravel terrace and share the same target vegetation community types, the management objectives and prescriptions for all three compartments are described here together.
- 5.11 These compartments on the gravel terrace constitute the better-drained area of Langley Mead. Historically, this enhanced drainage meant that Great Millworth Field could be ploughed and is shown as such on the Earl of Fingall's Map of 1756. Though shown as arable in 1756, this does not mean that this was the only way that the Field was used; the 1756 map shows the Field subdivided into strips, which are more characteristic of hay meadow management.

Objective

- 5.12 In all three compartments, the overarching objective is to produce and maintain an extensive area of attractive flower-rich grassland, to be managed as a hayfield, with aftermath grazing by cattle. As set out in **Table 4.1**, in terms of the NVC, the approximate target for composition would be a form of the MG5 *Cynosurus cristatus/Centaurea nigra* (Crested Dog's Tail – Common Knapweed) community, the typical meadow grassland both locally and in lowland Britain. It is important to note, however, that the grassland will not, and cannot, be a true MG5 sward, because it will not be an ancient natural sward, but will have been established to resemble one, and should be stable in these conditions.

Management Review

- 5.13 Vegetation surveys carried out between 2016 and 2019 inclusive have found that all three of the Great Millworth Field now resemble their target MG5 NVC communities. In total 45 grass and wildflower species have been recorded from Great Millworth Field NW, 48 from Great

Millworth Field SE and 37 from Great Millworth Field North. All three compartments have responded well to the habitat restoration and management measures that have been implemented since 2013, with no significant problems or challenges.

Management Prescriptions and Objectives 2020-2024

- 5.14 Given the success of the current management regime, this will remain unchanged in all three compartments for this Plan period. The fields will be seasonally grazed according to the timings set out in **Table 4.2**, with a hay cut taken in July/August (to be determined by the Ranger). No fertilisers, pesticides or herbicides will be applied to the fields. Supplementary mowing with arisings removed is permitted should the Ranger deem it necessary; for example if coarse grasses begin to dominate in any of the compartments, however this is considered unlikely.
- 5.15 The annual hay cut should leave an uncut margin of at least 1m around the edge of each field to allow invertebrates to complete their life cycle, and provide a food source for wintering birds.
- 5.16 The following specific management objective has been identified for the Great Millworth fields for the period 2020-2024, based on the results of the 2015-2019 vegetation monitoring surveys (EPR, 2020a):
- Maintain or improve overall forb diversity.

Millworth Moor

Introduction

- 5.17 Millworth Moor is on the lowest levels of the alluvium within Langley Mead. A distinct bank marks the junction of the Moor from the higher ground of Great Millworth Field SE on its gravel terrace. The name Moor implies that this area was too wet for cultivation and was thus probably managed as permanent pasture that was grazed later in the season. Harvesting of vegetation could have taken place, but if it did occur, it appears not to have been formalised as a hay meadow.
- 5.18 Historically, the semi-natural vegetation of the Moor could have been composed of a range of different plant communities and whilst the exact composition cannot now be known, it is likely to have included wet grasslands, fen meadows/rush pastures, and, in the wettest places, swamp communities, though these latter vegetation types tend not to be extensive when grazed.

Objective

- 5.19 The overarching objective for Millworth Moor is to create semi-natural, species-rich grassland/rush pasture habitat characteristic of low lying alluvial terrain. In terms of the NVC, the plant communities might include swards with characteristics of rush pastures such as M23 *Juncus effusus/acuteiflorus*–*Galium palustre* (Soft/Sharp-flowered Rush – Marsh Bedstraw) rush pasture and/or M22 *Juncus subnodulosus* – *Cirsium palustre* (Blunt-flowered Rush – Marsh Thistle) fen meadow.

Management Review

- 5.20 Millworth Moor has proved challenging to manage, with early vegetation monitoring recording a coarse, grassy sward with high frequencies of docks and thistles. Subsequent efforts to top these species before they set seed had some success, with the docks having notably declined in 2019, however the coarse and unpalatable Tufted Hair Grass *Deschampsia cespitosa* has begun to dominate the sward alongside the large tussocks of Soft Rush *Juncus effusus* and Hard Rush *Juncus inflexus*. As with Mr Chitty's Moor, the ungrazed tussocks tend to fall over or become trampled, creating a dense thatch on the ground.
- 5.21 In spite of the above, Millworth Moor has recorded the highest number of plant species of any compartment in 2016-2019 (49) including three species of conservation interest, albeit in low frequencies. The presence of these species demonstrates the potential for Millworth Moor to develop into a higher quality habitat with the right management.

Management Prescriptions and Objectives 2020-2024

- 5.22 A balance needs to be struck between retaining some of the tussocky grasses and Thistles/Docks – which have their place in the landscape and provide food and cover for invertebrates, seed-eating birds and potentially reptiles – and creating space for less vigorous species to thrive.
- 5.23 A more intensive management regime for Millworth Moor is to be implemented for the next five years. In addition to the seasonal grazing regime as outlined in **Table 4.2**, two supplementary cuts per year (with arisings removed) can be taken if needed in early spring and autumn, to target the vigorous and unpalatable species that are avoided by the cattle and remove the thatch that has built up. As with Mr Chitty's Moor, the cut can be taken low to the ground in spring to weaken the target species, with a higher cut in autumn to take off any regrowth.
- 5.24 Supplementary cutting may vary between covering the whole compartment, half of the compartment, or targeting specific areas, at the discretion of the Ranger. As with other compartments, a margin of at least 1m should be left around the edge of the field to allow invertebrates to complete their life cycle, and provide a food source for wintering birds.
- 5.25 The supplementary cuts should only continue until the coarse grasses and docks/thistles are under control, after which management should revert to seasonal grazing only.
- 5.26 Once the sward has opened up, supplementary seed or plug plants of suitable positive indicator species could be introduced to encourage greater floristic diversity. Suitable traditional floodplain meadow species could include Snake's-Head Fritillary *Fritillaria meleagris*, Ragged Robin, Water Avens *Geum rivale*, Purple Loosestrife *Lythrum salicaria*, Pepper Saxifrage *Silaum silaus*, Bugle *Ajuga reptans*, Marsh Marigold *Caltha palustris*, Great Burnet and Marsh Bedstraw *Galium palustre*. The seeds/plants should be of local provenance, for example from the BBOWT Moor Copse reserve. The possibility of this should be investigated during this Plan period.
- 5.27 The following specific management objectives have been identified for Millworth Moor for the period 2020-2024, based on the results of the 2015-2019 vegetation monitoring surveys (EPR, 2020a):
- A reduction in the frequency of negative indicators; and

- A reduction in the proportion of grasses compared to forbs.

Mr Badger's Island

Introduction

- 5.28 As with Millworth Moor, Mr Badger's Island is on the lowest levels of the alluvium within Langley Mead and is likely to have been historically managed as permanent pasture. It is roughly diamond-shaped (see **Map 3**), bordered by the River Loddon to the east, and a small watercourse to the west. This ditch borders parts of Langley Common Meadow and Millworth Moor, and Millworth Ditch drains into it from the west.
- 5.29 A survey carried out in April 2020 (full report in **Appendix 3**) found that the island is dominated by a large nettle bed (NVC OV24 *Urtica dioica* - *Galium aparine* community) with fringing trees and Willow scrub. There is a scattering of Common Comfrey, Yellow-Flag Yellow Flag Iris *Iris pseudacorus*, Hemlock Water-Dropwort *Oenanthe crocata* and Water Mint *Mentha aquatica* amongst the nettles. An electricity wayleave passes through the island and the vegetation here is a shorter, more swamp-like community dominated by Willow and Greater Pond Sedge *Carex riparia*.
- 5.30 A raised levee runs along the eastern edge of the island next to the river and forms a strip of broadleaved woodland with species such as Pedunculate Oak *Quercus robur*, Field Maple *Acer campestre*, Alder *Alnus glutinosa*, Hawthorn *Crataegus monogyna*, and a sparse ground flora made up of nutrient-tolerant species such as Ivy *Hedera helix*, White Dead-nettle *Lamium album* and Cow Parsley *Anthriscus sylvestris*.
- 5.31 The western watercourse is deeply shaded under dense Willow species, with little aquatic plant life or marginal flora. Where light reaches the ground layer, Stinging Nettles dominate.
- 5.32 The vegetation communities indicate that Mr Badger's Island is high in nutrients. This is not unusual for a floodplain; as floodwaters periodically deposit nutrients and silt. In the case of Mr Badger's Island, the lack of grazing or other management means that these nutrients stay in the system and build up over time.

Objective

- 5.33 The 2013 EMP set an objective to gradually increase the percentage of grass cover compared with tall herb/ruderal forb species on Mr Badger's Island over a period of several years, aiming for a ratio of approximately 70% wet grassland to 30% tall herb/ruderal. This was to be achieved through strimming/mowing in spring and autumn, with all arisings removed insofar as this is possible.

Management Review

- 5.34 No active management of Mr Badger's Island has taken place to date due to access difficulties. It was therefore agreed at the five year review meeting (see **Appendix 1**) that a walkover survey would be undertaken in early 2020 to review the current vegetation cover and constraints and consider future management actions. The results of the walkover survey are provided in **Appendix 3**.

Management Prescriptions and Objectives 2020-2024

- 5.35 The extensive nettle beds on Mr Badger's Island are difficult to control for two reasons: firstly, the main contributing factor (nutrient inputs from periodic flooding of the Loddon) are outside of the University's control, and secondly, while herbicides would typically be used to suppress the regrowth of large nettle beds (which are likely to also have extensive root systems), this is not advisable in close proximity to the river.
- 5.36 It is also noted that although undesirable from a public access and amenity point of view, nettle beds are a natural part of floodplain vegetation communities and support a number of invertebrate species.
- 5.37 It is therefore recommended that for the duration of this Plan period, efforts and resources are focused on enhancing the scrub habitat along the western edge of Mr Badger's Island, along the watercourse which connects it to Langley Common Meadow, Millworth Moor and Millworth Ditch. This is discussed further below under "**Ditches**". The success of this work, and possibility of introducing management to the nettle beds, will be reviewed in Year 10.
- 5.38 The following specific management objectives have been identified for Mr Badger's Island for the period 2020-2024, based on the results of the 2020 walkover survey described above:
- A reduction in the coverage of scrub along the western watercourse; and
 - An increase in the presence of aquatic macrophytes (plants) in the western watercourse.

Langley Common Meadow

Introduction

- 5.39 Almost all of Langley Common Meadow as shown on the 1756 map is included within Langley Mead. This compartment is adjacent to the River Loddon channel and is on low-lying terrain below the gravel terrace underlying the Great Millworth Fields. This meadow is generally wet in winter and reasonably well-drained in summer.

Objective

- 5.40 The overarching objective for Langley Common Meadow is to create an area of semi-natural species-rich grassland that will be managed as an alluvial hay meadow. In terms of the NVC, the approximate target grassland for creation would be an MG4 *Alopecurus pratensis/Sanguisorba officinalis* (Meadow Foxtail – Greater Burnet) community. This grassland type is characteristic of semi-natural alluvial hay meadow grassland in lowland England.

Management Review

- 5.41 Langley Common Meadow has not developed into its target vegetation community, and appears unlikely to do so without intervention, but nevertheless contains an interesting mosaic of wet grassland habitats that are grass-dominated and species-poor in nature.
- 5.42 Extensive flooding following the application of green hay to this compartment in 2013 may have washed away much of the wildflower donor seed. Moreover, despite prioritising Langley

Common Meadow for spring grazing, wet ground conditions have often prevented grazing until relatively late in the early season window, and the herd size has been too small to graze the field sufficiently hard to prevent grasses from dominating the sward.

Management Prescriptions and Objectives 2020-2024

- 5.43 Management of Langley Common Meadow will remain largely unchanged from the previous Plan period, in that the field will be seasonally grazed according to the timings set out in **Table 4.2**, with a hay cut taken in July/August (to be determined by the Ranger). No fertilisers, pesticides or herbicides will be applied.
- 5.44 The increase in the cap on stock numbers, together with the slightly extended early season grazing window (see **Section 4**), may help to increase grazing pressure and reduce the dominance of grasses in the sward at Langley Common Meadow. Supplementary mowing (with arisings removed) in early spring or autumn may also be required, at the discretion of the Ranger, particularly on the drier parts of the meadow.
- 5.45 Increased floristic diversity could also be encouraged by introducing seed and/or plug plants of suitable positive indicator species such as those listed above for Millworth Moor, and the possibility of this should be investigated during this Plan period.
- 5.46 As with other compartments, the annual hay cut should leave an uncut margin of at least 1m around the edge of the field to allow invertebrates to complete their life cycle, and provide a food source for wintering birds. This is particularly important at Langley Common Meadow, as the invertebrate survey carried out in 2019 highlighted Common Comfrey and Yellow Loosestrife *Lysimachia vulgaris* as important foodplants for the rare invertebrates *Longitarsus symphyti* and *Macropis europaea* respectively, which grow in the damp eastern margins of this compartment.
- 5.47 The following specific management objectives have been identified for Langley Common Meadow for the period 2020-2024, based on the results of the 2015-2019 vegetation monitoring surveys (EPR, 2020a):
- An increase in the frequency of positive indicators; and
 - A reduction in the proportion of grasses compared to forbs.

Loddon Triangles

Introduction

- 5.48 Although in arable use prior to the creation of Langley Mead, historically much of the Loddon Triangles area was part of the ancient woodland of Costrill's Coppice, which was grubbed up sometime between the 1920s and the 1940s (the Copse is shown on the Land Utilisation Survey Maps of 1925-1948, but not on the 1" OS Popular Edition of 1945). The other land of the Triangles is shown as pasture on the Land Utilisation Survey maps, with the conversion of pastures to arable appearing to have been a relatively late shift in land use.

Objective

- 5.49 The overarching objective for the Loddon Triangles is to establish and maintain a form of pasture-woodland, which will comprise patches of fairly species-rich grassland under a mixed

woodland cover of scattered clumps of trees and shrubs closer to pathways to create a sense of openness and clear views for public safety, with coppiced blocks deeper within the woodland. These management areas are shown on **Map 3**.

Management Review

- 5.50 Beyond the initial aftercare of newly planted trees, no management has taken place within the Triangles to date while the trees become established.
- 5.51 Some of the newly planted heavy standard Oak *Quercus robur* trees on the northern edge of the Triangles alongside the main path from the car park have failed, despite intensive aftercare and replacement planting. The Field Maple *Acer campestre* standards have shown better survivorship.

Management Objectives 2020-2024

- 5.52 Any failed Oaks will be replaced by Field Maple or another native species that has been shown to tolerate summer droughting more effectively, and the locations of any replacement stock will be reviewed to select slightly more optimal conditions.
- 5.53 The trees in the Triangles are now close to reaching sufficient maturity for the following specific management tasks to take place:
- The tree guards and stakes in the western triangle will be removed in 2020 and the spaces between the trees will be trimmed or mowed as required;
 - The self-sown Willow in the eastern Triangle is large enough to be coppiced in winter 2020/2021; and
 - A walkover visit involving the Ranger and an Advising Ecologist(s) will take place in autumn 2020 to assess the need for, and plan out, the tree thinning and coppicing regime for the remainder of this Plan period. A decision will also be taken at this point on when the deer fencing will be removed.
- 5.54 More generally, the following management principles will apply for the Triangles:

Pasture Woodland

- 5.55 The pasture woodland areas will be progressively re-spaced by thinning, wide enough to allow the development of broad canopies and low spreading branches. The pattern will be clumped so as to replicate a pasture woodland 'feel' to the landscape, rather than individual trees that are more characteristic of a parkland look. This open wooded section, which buffers denser coppiced areas beyond, should provide reassurance for site users from a safety perspective.
- 5.56 As the Triangles will not be grazed (see **Section 4**), the pasture woodland areas will be mown to mimic the effects of grazing and prevent the area from scrubbing over. This is likely to take place between once and three times per year, as dictated by factors including the speed of growth, incidental grazing by native or naturalized species such as Rabbit *Oryctolagus cuniculus* or deer, and the need to conserve the successful seeding of flowering plants.
- 5.57 Cut grass will be composted in suitable damp areas, providing potential Grass Snake egg incubation habitat.

Coppice Woodland

- 5.58 Further within the Triangles, the trees and shrubs will be coppiced, with individual coppice blocks (coups) cut so as produce an overall diverse mosaic of mixed age stands. Coppiced tree stools are very long-lived and promote vigorous re-growth, provided that they are coppiced relatively early each winter. Late coppicing can often lead to a year or more 'dormancy' before new growth occurs. Newly-coppiced woodland promotes a diverse floral groundcover and the mixture of differing aged coups is collectively termed 'underwood'.
- 5.59 Various tree species can be coppiced successfully according to the following schedules and the products used for a variety of traditional crafts and practices (firewood, fence poles, faggots for wetland habitat restoration, hurdles, thatching pegs, walking sticks, basket-making, etc):
- Oak: up to a 50-year cycle for pole / firewood production.
 - Hazel: 6-10 year cycle for poles, 2-5 years for faggots.
 - Birch: 4-year cycle for faggot production.
 - Hawthorn: 3-5 years for sticks.
 - Field Maple: Annually for faggoting.
 - Willows: Annually for basket-making whips.

Mature Trees

- 5.60 Mature trees within Langley Mead will be subject to a safety checks at periodic intervals to be decided, with any remedial action undertaken according to their recommendations.

Ditches

- 5.61 Ditches and drains will be maintained by the Ranger who will ensure that a long-term sequence of single-sided ditch clearing in approximately 30m sections will be carried out. This regime maintains open water important for some wildlife, while ensuring that the flora and faunal populations are not unduly disturbed by any single clearance operation. Without periodic clearance, the network would soon clog-up with vegetation and silt. The ditch clearance cycle will recommence in 2020 with a 30m section of Mr Chitty's Ditch.
- 5.62 Additionally, as highlighted in the aquatic invertebrate survey report (Knight, 2019) and survey of Mr Badger's Island described above, Millworth Ditch and the watercourse along the western edge of Mr Badger's Island into which it drains are heavily shaded by scrub, limiting the ability of aquatic vegetation and invertebrates to thrive. This scrub should be cut back on rotation in winter in lengths of around 20-30m at a time, starting at the junction of the two ditches and then extending northwards, southwards and westwards in subsequent years.
- 5.63 Along Millworth Ditch, efforts should be focused on the sunnier southern bank of the ditch, particularly as the swamp area of Langley Common Meadow drains to this area, and the junction between the two habitats may produce a valuable micro-habitat for plants and invertebrates.
- 5.64 The following specific objectives are therefore identified for the ditches at Langley Mead for the period from 2020-2024:
- Continue rotational clearance of 30m sections of ditches each year; and

- Clear scrub in 20-30m sections each year from the junction of Millworth Ditch and Mr Badger's Island, starting at the junction and expanding outwards along the ditch lines.

Site Furniture

- 5.65 Site furniture includes items such as fences, gates, water troughs, boardwalks, benches, bins and interpretation boards. These items were in good condition at the time of the Plan Review (see **Appendix 1**).
- 5.66 Site furniture will be subject to a periodic safety checks, and any repairs or replacements required will be swiftly implemented.
- 5.67 The condition of the footpaths within Langley Mead will be kept under regular review by the Ranger, who will consult the Steering Group should any repairs or modifications be required.

6. MANAGEMENT ARRANGEMENTS, MONITORING AND REVIEW

Introduction

- 6.1 This section provides information on the management structure that has been set up for Langley Mead, as well as the arrangements in place for the ongoing monitoring and review of this Plan.

Land Ownership and Tenure

- 6.2 Langley Mead will remain as a freehold of the University of Reading. The University intends to manage the site, although they may call upon assistance from external organisations as required. It will be managed indefinitely, or for as long as the Habitats Regulations and policy requires it.
- 6.3 Langley Mead is a Registered Agricultural Holding. Other SANG areas to be grazed may be included in the same Holding Number in the future, which will have a Parish reference.
- 6.4 Inclusion in a holding does not necessitate ownership, as different parcels can be held on a term tenancy, grazing licence or other instrument, but all must be in the same holding number, otherwise TB tests and other DEFRA veterinary requirements would need to be met every time cattle are moved from place to place.

Ranger

- 6.5 As a SANG, Langley Mead requires wardening to ensure compliance with byelaws or the code of conduct that will be required of visitors. This is achieved through the low-key but consistent and frequent presence of the Langley Mead Ranger.
- 6.6 The Ranger's day to day work throughout the year includes animal husbandry, hay-making, path mowing and fence and hedge maintenance, general monitoring of activities on site, and liaising with local people to encourage involvement in the site and its developing biodiversity. Key tasks for which the Ranger is responsible include:
- Managing the grazing herd of cattle across Langley Mead at variable intensity during the year;
 - Hay-making, baling and storage;
 - Supplementary cutting of management compartments as required;
 - Rotational ditch clearance;
 - Identification of larger items of work requiring external contractors and reporting these to the Steering Group;
 - Supervision of contractors;
 - Maintaining pathways, equipment and other infrastructure;
 - Liaison with the public and occasional educational activities and events;
 - Biannual meetings with the ecologists monitoring Langley Mead to review progress against biodiversity objectives and maintain a list of all species seen;
 - Assisting the Langley Mead ecologists with monitoring surveys; and

- Biannual progress and activity reports submitted to the Steering Group.

6.7 In time, it is hoped that part of the day to day supervision of Langley Mead will be undertaken by a team of voluntary wardens. Any community is likely to include a wide range of individuals with interests in the countryside, for example as bird watchers, walkers, dog walkers or anglers, who wish to contribute to this activity.

Steering Group

6.8 A Steering Group has been set up to provide strategic oversight of general progress against the Objectives set out in **Section 3** of this plan, review management tasks, and encourage community involvement. The Group currently comprises the following core members:

- University of Reading Strategic Estates Manager (Nigel Frankland)
- University of Reading Farm Manager (James Lamburn)
- Langley Mead Ranger (Shaun Walters)
- Advising Ecologists: Ben Kite (EPR), Andrew Cross (EPR), Jodie Southgate (EPR).

6.9 The Steering Group will meet as required, most likely annually. They will also meet every five years to conduct a review of this Management Plan (see below).

6.10 The Ranger will also meet twice a year with one of the Advising Ecologists to review the management of the site over the previous six months and agree specific tasks for the next six months.

Local Interest Group

6.11 In time, it will be essential to involve local people in the activities of the SANG system as a whole, including Langley Mead, to engender a sense of ownership of the local environment and thus forestall problems of inappropriate activities. To that end, a local interest group such as a 'Friends' group will also be established at an appropriate time, with representatives of residents, voluntary wardens, and the Parish Council. This group will be able to report problems or raise matters that otherwise need attention, and support other actions such as habitat management and community events.

Management Plan Review

6.12 This Plan covers the period from 2020 to 2024 (i.e. Years 6 to 10 of active management) and will be reviewed in 2024 (Year 10) as part of the rolling 5-year review cycle.

6.13 Reviews will be initiated by the Steering Group. The Advising Ecologists will prepare an agenda, having taken soundings from the Group and any other interested parties.

6.14 The review will establish which management techniques have been successful, which may need refinement and whether Langley Mead is achieving both its ecological and recreational functions. Following the review, the Management Plan will be updated, and a record of the Review Meeting appended to the revised Plan (accordingly, minutes from the 2019 Steering Group meeting that informed this version of the Plan can be found at **Appendix 1**).

- 6.15 As a minimum, the Year 10 Review will cover:
- Analysis of visitor use and feedback;
 - Success of ongoing vegetation management;
 - Condition of infrastructure and furniture;
 - Operational problems and experience;
 - The wider SDL development programme and the incorporation of new SANG areas;
 - Revenue and costings,
 - Any updates required to the Plan; and
 - An assessment of whether overall management has been effective in meeting the Objectives set out in **Section 3**.

6.16 Much of the information informing the Review will be routinely collected and collated by the Ranger and Advising Ecologists, the latter of whom will also provide scientific support such as botanical and other ecological survey work, data analysis and reporting.

Ecological Monitoring to Inform the Review Process

6.17 Monitoring is required for several key reasons. Firstly, it is necessary to satisfy Natural England and the Planning Authority, through the Steering Group, that Langley Mead has been, (or is being) successfully established as a SANG and is diverting recreational pressure away from the Thames Basin Heaths SPA, as per Objectives 1 and 2.

6.18 Secondly, monitoring is the only way to ensure the successful development of diverse grasslands and establishment of other plantings, as per Objectives 3 and 4 and the compartment-specific objectives, and provide feedback for management.

6.19 Thirdly, collating and analysing monitoring information is valuable in describing and evaluating the diversification of the grasslands and the success of various management techniques; experience that can be spread to Local Planning Authorities, academics and nature conservation organisations to inform the design and management of future SANGs and other habitat creation and restoration schemes.

6.20 As a minimum, the monitoring programme at Langley Mead therefore includes:

- Annual visitor questionnaire surveys and tally counts; and
- Annual vegetation sampling, with an elevated survey effort in Year 10 (2024).

6.21 These surveys will build upon those already conducted in Years 1 to 5. The essential requirement of monitoring, i.e. standardisation of sampling between years, will be maintained so that valid long-term comparisons can be made and analysis conducted that is based on good quality science.

6.22 Langley Mead and the wider SANG complex can also provide an invaluable educational resource for both school children and students from higher educational establishments, and in time it is hoped to involve such groups in annual monitoring activities.

6.23 A separate Vegetation Monitoring Strategy has been produced for the vegetation element of the monitoring programme, and revised for the period 2020-2024 (EPR, 2020b).

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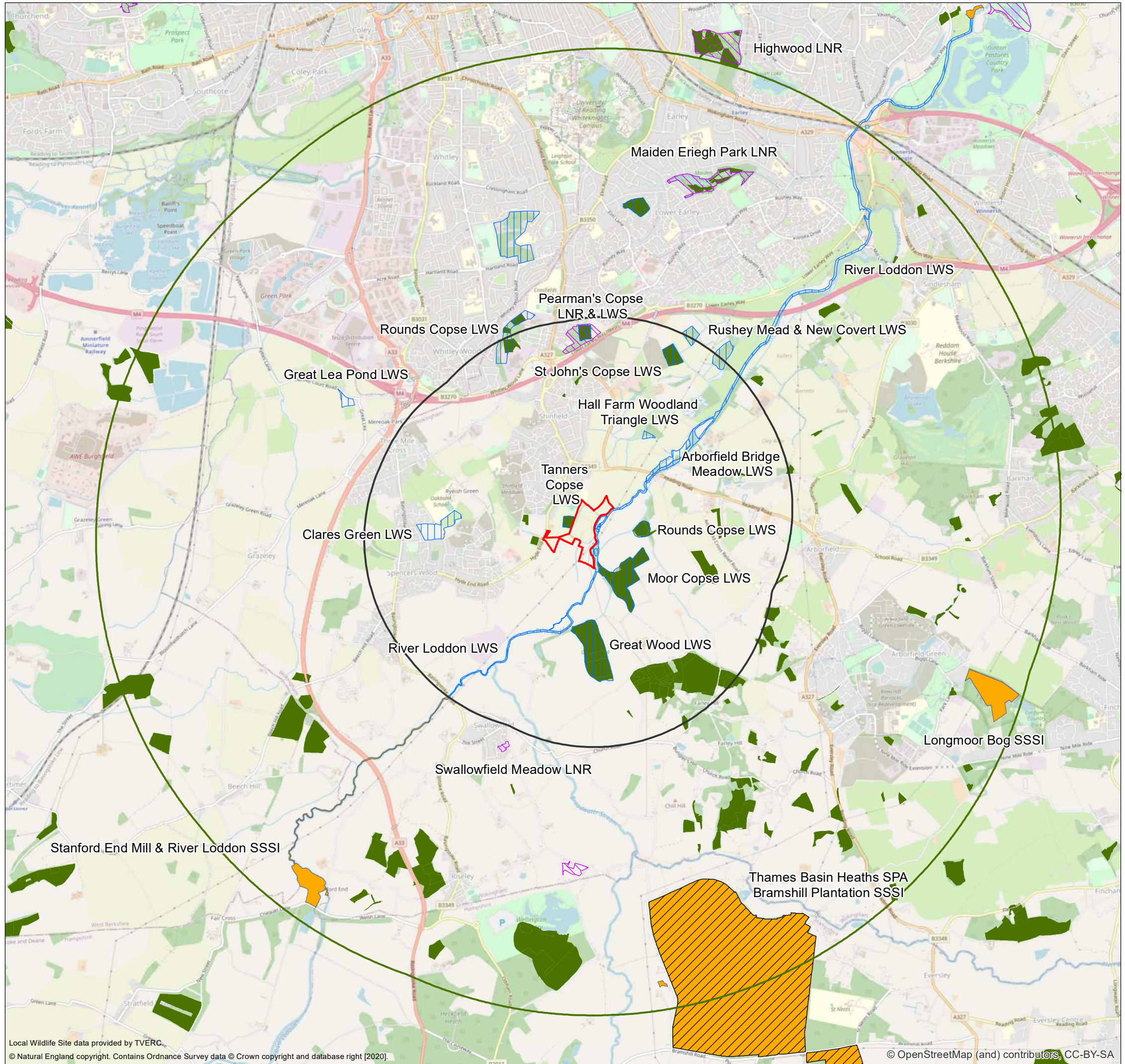
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MAP 1 Langley Mead and Sites Designated for Nature Conservation

- KEY**
-  Langley Mead boundary
 -  2km linear distance from LM boundary
 -  5km linear distance from LM boundary
 -  Special Protection Area (SPA)
 -  Site of Special Scientific Interest (SSSI)
 -  Local Nature Reserve (LNR)
 -  Local Wildlife Site (LWS)
 -  Ancient Woodland

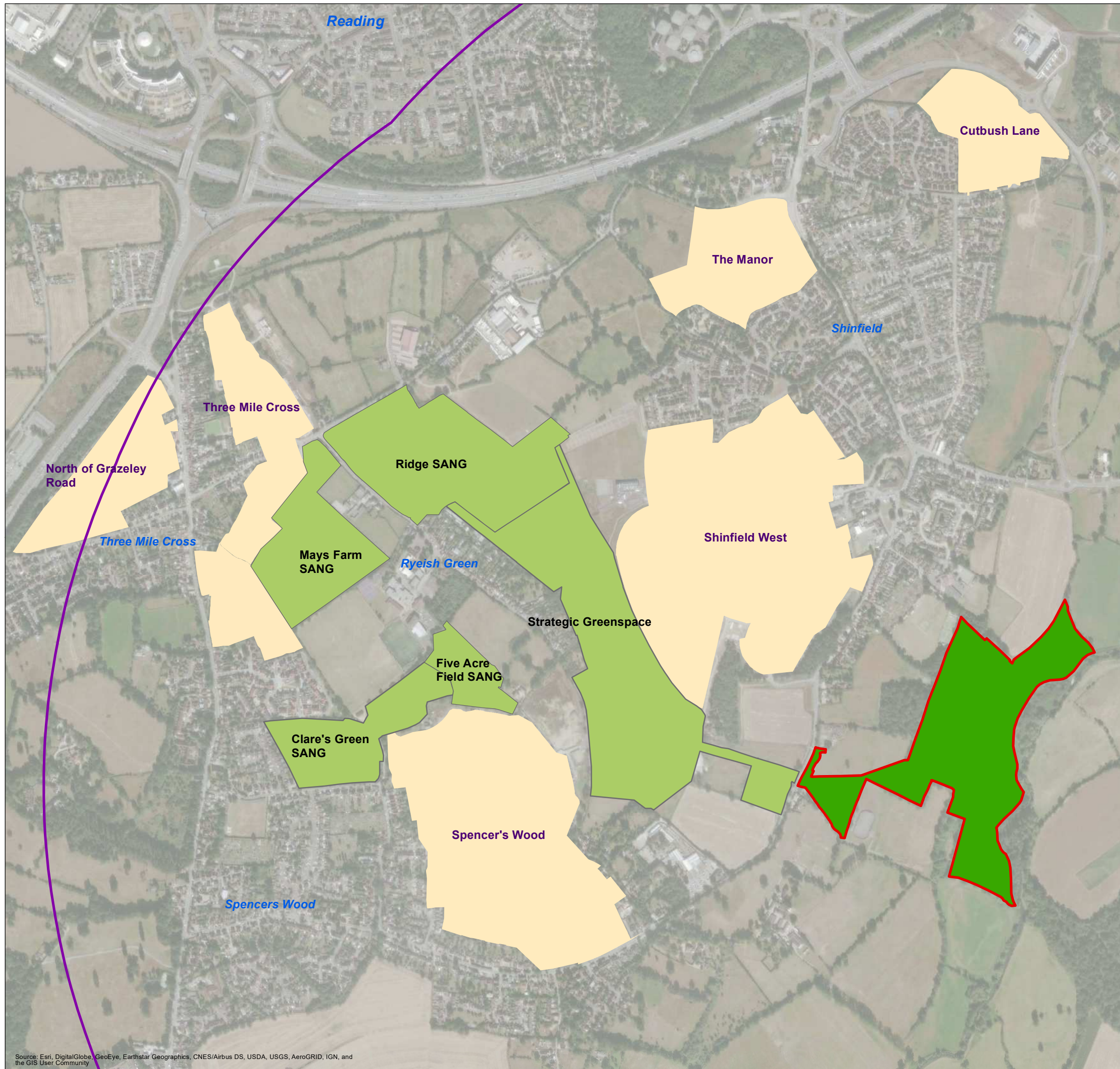
SCALE: 1:42,000 at A3


CLIENT: University of Reading
 PROJECT: Langley Mead Management Plan 2020-2024
 DATE: 20 April 2020





Local Wildlife Site data provided by TVERC.
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MAP 2 Langley Mead and Allocated/Existing Residential Areas

KEY

-  Langley Mead boundary
-  2km linear distance from LM boundary
-  Other green spaces
-  Allocated residential sites

SCALE: 1:10,000 at A3

0 100 200 300 400 Metres



Ecological Planning & Research

CLIENT: University of Reading

PROJECT: Langley Mead Management Plan 2020-2024

DATE: 20 April 2020

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MAP 3 Langley Mead Management Compartments and Habitats

KEY

-  Langley Mead boundary
-  Hay meadow
-  Alluvial hay meadow
-  Permanent pasture
-  Pasture woodland
-  Coppiced woodland
-  Mr Badger's Island
-  Car Park
-  Ditches



SCALE: 1:3,250 at A3



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DATE: 20 April 2020

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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

MAP 4 Extract from the Earl of Fingal's 1756 Manor of Shinfield Map

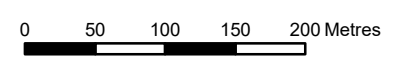
KEY

-  Langley Mead - present day boundary
-  (approximate)

Reproduced courtesy of Berkshire Record Office (BRO). BRO reference number D/EX 1930/1



SCALE: 1:5,400 at A3



Ecological Planning & Research

CLIENT: University of Reading

PROJECT: Langley Mead Management Plan 2020-2024

DATE: 20 April 2020

Appendix 1

Minutes of 5 Year Review Meeting, 18 November 2019

Langley Mead SANG Steering Group: Five Year Management Plan Review

Meeting Minutes

Date: 18 November 2019, 10.00-13.00

Venue: Estates Meeting Room 2, University of Reading

Attendees: Andy Cross (AC) – Senior Ecologist/Botanist, EPR Ltd
 Nigel Frankland (NF) – Strategic Estates Manager, University of Reading
 Ben Kite (BK) – Director/Principal Ecologist, EPR Ltd
 James Lamburn (JL) – Farm Manager, University of Reading
 Jodie Southgate (JS) – Senior Ecologist, EPR Ltd
 Shaun Walters (SW) – Ranger, University of Reading

| Item | Notes |
|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Objectives | <p>JS reminded attendees of the SANG objectives set out in Section 3 of the Management Plan:</p> <ol style="list-style-type: none"> 1) To provide a convenient and accessible countryside experience 2) To provide an enjoyable and satisfying countryside experience 3) To restore naturalness and biodiversity in the SANG countryside 4) To reflect and enhance the local countryside character. |
| Item 1: Review progress against Objectives 1 and 2 | |
| Visitor surveys | JS reported that visitor numbers are increasing year on year, with 2019 also seeing the highest proportion of people walking to the SANG, and of new residents who had lived at their address for less than one year. Reviews on Google are very positive. SW commented that most regulars are getting used to the cattle. |
| Dog bins | Discussion was held around whether to increase number of dog waste bins. SW reported that both bins had been relocated further into the SANG and this appeared to be working. All agreed no further action needed at present. |
| Picnic areas | Visitors have requested areas to picnic. Creating areas of short grass along the car park footpath – with or without picnic benches – may be an option in the future depending on outcome of proposed WBC drainage link to Hyde End Road. JS/SW to keep under review at biannual meetings. |
| Volunteer engagement | SW organised a ragwort pulling day in 2019 and the Scouts helped to cut Willow on the edge of the Triangles. Plans for the Scouts/Guides to help with removing tree guards in the Triangles in 2019/20. Potential to increase volunteer involvement with help of the UoR communications team. NF commented that the sports pavilion at High Copse could potentially provide a convenient base for volunteers. SW to continue with informal volunteer events for now. |
| Signage | <p>All agreed that a noticeboard would be helpful for advertising events such as Meadows Day, volunteer days, potentially controversial but necessary activities such as tree thinning, and information on the cattle. Could also be used to advertise community events (but not products and services). Noticeboards need a refresh and website/facebook details added.</p> <p>Action: EPR to provide fee estimate for refresh of interpretation boards and provision of noticeboard.</p> <p>Action: NF to continue discussions with WBC over signage from Hyde End Road.</p> |

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| | Action: NF to speak to Parish Council about installing a leaflet box for the Parish Walks leaflets. |
| Website and facebook | Comms team need to approve facebook posts. Agreed that Twitter is not needed at present. Website needs to be refreshed. Will need one for the Ridge in due course – consider registering another domain name. Updated materials should promote SANG links as well as site-specific walks. Highlight that the Ridge is on higher ground, add distances to walking route options. Action: NF to arrange meeting with the Comms team to discuss the website, signage and events strategy going forward. |
| Item 2: Review progress against Objectives 3 and 4 & agree management prescriptions for Years 6-10 | |
| General | Grazing has been undertaken according to the Management Plan. Of the hay meadows, Langley Common Meadow is prioritised as water levels mean this compartment has a shorter grazing window. The permanent pastures are usually grazed in June once the hay fields have been closed to grazing. Grazing intensity varies between years depending on ground conditions. Agreed that the cap on stock numbers should be raised to 25 to help meet biodiversity objectives, with separate herds used for the Ridge and Langley Mead. |
| Millworth Fields NW, SE, N | Current management appears effective, all three fields have reached their target vegetation communities. Agreed that no changes are required for the next 5 year period. |
| Mr Chitty's Moor | This field is trending towards its target vegetation community, but the abundance of docks and thistles is higher than we would like. Agreed that the next 5 year period should include the option of supplementary mowing in early spring and autumn if needed. The cut can be low to the ground in spring to weaken the target species and coarse grasses, with a higher cut in autumn to take off any regrowth. |
| Millworth Moor | Although the most botanically diverse in terms of total number of species, this field has not developed into its target community and grazing has not controlled the spread of thistles, docks and coarse tussocky grasses such as Tufted Hair Grass. In addition to the grazing regime, SW targeted patches of thistles and docks with a high cut and clear in both spring and autumn 2018 and spring 2019, which showed promising results. In September 2019 SW fully cut and cleared half of the field as an experiment in containing the spread of Tufted Hair Grass whilst retaining habitat for invertebrates, small mammals and amphibians/reptiles. Agreed that the next 5 year period should include the option of supplementary mowing in early spring and autumn if needed, as for Mr Chitty's Moor. It may be preferable to continue with cutting half of the field on rotation, to be discussed at the biannual ranger meetings. |
| Langley Common Meadow | This field has not developed into its target community, but contains a mosaic of wet grassland habitats. The high water table has been a constraint on grazing in some years. The increased stock numbers may help, and continued efforts will be made to keep stock on this field for as much of the allowable grazing window as conditions permit. Agreed that no other changes are required for the next 5 year period. |
| Mr Badger's Island | No management has taken place in this compartment due to access difficulties. Marsh Marigold has been recorded here in the past. Agreed that EPR would conduct a site visit with SW to assess the vegetation and review management requirements. Action: EPR to organise site visit. |
| Ditches | JL expressed a strong preference for the fence alongside Mr Chitty's Ditch to stay in situ. Ditch clearance should continue on rotation for the next 5 year period, starting in Year 6. Action: SW to clear 30m section of Mr Chitty's Ditch over winter 2019/2010. |

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| | Clearance of Millworth Ditch can take place as part of WBC drainage proposals and other ongoing efforts to improve drainage being coordinated by ALP. Action: NF to pick up with WBC/ALP. |
| Loddon Triangles | Willow in the eastern triangle needs coppicing in autumn/winter 2020. Opportunity to involve local craftspeople. Action: EPR to research. Tree guards in the western triangle need removing asap and strimming/mowing between trees. Signs should be put up to make visitors aware. Action: SW to implement over winter 2019/2020. Agreed that the deer fence should come out no earlier than Year 7 (2021) and should be reviewed at that time. Agreed that a site visit to assess and plan out the tree thinning/coppicing would be necessary. Some could potentially be transplanted elsewhere within the SANG/SANG suite. Action: EPR to organise for the end of Year 6 (autumn 2020). |
| Willow pollards | SW noted that the pollarding undertaken by SSE on the boundary of Langley Common Meadow has yielded good results. Some of the larger Willows on the boundary are dropping limbs in high winds and would also benefit from pollarding. Action: NF to organise contractor walkover with SW. |
| Vice Chancellor's Oak | Agreed that the revised Management Plan should state that the Oak will not be replanted in the same location due to ground conditions and the potential drainage works. Replacement location tbc but likely to be further along the car park footpath and may also switch to Field Maple which have taken better in the SANG. Action: SW to remove plaque and put into storage for now. |
| Plug plants and seeding | JL suggested trial patches of 50-100 plug plants of desirable species and monitoring their establishment. Suggested species include Snake's-Head Fritillary and Great Burnet. Re-seeding certain areas should also be reviewed 2-3 years into the new management period. NF suggested that in the longer term, the southern allotments could potentially provide a nursery area. Action: EPR to provide fee estimate for plug planting trial and research into sourcing native stock from local SSSIs. |
| Item 3: Infrastructure and Equipment | |
| Site furniture | SW and JL reported that site furniture is in good condition and does not need replacing yet. Two additional benches are being provided by the Parish Council and are due to be installed soon. All agreed that when items do need to be replaced, more sustainable materials should be explored. The revised Management Plan should include a requirement for the infrastructure to be checked by an external contractor every year. |
| Path raising | All agreed that some localised areas of path raising and/or re-routing may be beneficial to ensure circular walking routes are maintained, for example in the NW corner of Langley Common Meadow, the end of the car park path where it meets Mr Chitty's Moor, the NW corner of Mr Chitty's Moor by the tennis courts, and the gap between the end of the boardwalk and the field gate on Millworth Moor. Action: NF, JL and SW to meet a contractor on site, preferably following heavy rain, to agree the works required. |
| Equipment | Equipment is sourced from the farm, university departments or hired in. SW reported that he can generally get hold of equipment such as the cut and collect machine when needed. Some hand tools for volunteers may be needed in the longer term. |
| Item 4: Ranger roles and responsibilities | |
| Role description | The description of the ranger role at paragraphs 6.16 – 6.19 of the Management Plan was reviewed. All agreed to the following amendments: <ul style="list-style-type: none"> - Add 'supervision of contractors' - Note that larger jobs involving external contractors (such as pollarding) to be organised via the UoR Projects team. |

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| | <ul style="list-style-type: none"> - Remove 'maintain routine accounting procedures and managing to a budget' - Remove 'the Ranger will establish and maintain a list of all species seen on the SANG complex' and amend to 'co-working with ecologists monitoring the SANGs to review progress and maintain a list of all species seen on the SANG complex' - Change 'monthly' progress reports to 'biannual' and add reference to biannual meetings with SANG ecologist. |
| Task tables | <p>JL requested that he is sent the biannual ranger task tables so he can ensure that resources are available for works planned. AC requested that more detail is captured at the biannual ranger/ecologist meetings, such as stock numbers and grazing intensity for each compartment. JS/SW to pick up in future meetings.</p> <p>AC requested to attend the winter 2019 ranger walkover visit. Action: JS to organise.</p> |
| Item 5: Steering Group | |
| Text amendments | Agreed that changes to MP text (para 6.21 et seq.) are required to reflect actual management structure. Capture estates charge and NIRD elements. |
| Item 6: Revenue and Costings | |
| Update | Around 400 homes are currently occupied which equates to around £55,000 of income in addition to the original ring-fenced sum. The overall SANG budget is looking healthy. |
| Item 7: Events and Monitoring Programme Years 6-10 | |
| Events | Agreed to continue with current events programme and involve the Comms team. Additional events such as National Tree Week or bird/bat walks could be organised but do not need to be formalised through the Management Plan. Aim to promote the link between Langley Mead and the Ridge more. |
| Monitoring | Agreed to continue with the basic vegetation and visitor survey monitoring as part of the Management Plan with a larger survey effort in Year 10, with any extras at the UoR's discretion. |
| Item 8: Summary of actions and next steps | |
| Next steps | EPR to update Management Plan as per the notes above and circulate for comment. |
| EPR actions | <p>Provide fee estimate for refresh of interpretation boards, provision of noticeboard, research into local craftspeople for Willow coppicing and plug planting trial.</p> <p>Organise winter 2019 ranger walkover visit.</p> <p>Organise site visit to Mr Badger's Island.</p> <p>Organise Loddon Triangles walkover for autumn 2020.</p> |
| UoR actions | <p>NF to set up meeting with Comms team.</p> <p>NF to continue discussions with WBC over signage from Hyde End Road.</p> <p>NF to speak to Parish Council about installing a leaflet box for the Parish Walks leaflets.</p> <p>NF to pick up clearance of Millworth Ditch with WBC as part of drainage proposals.</p> <p>NF to organise contractor walkover with SW to look at Willow pollarding.</p> <p>NF, JL and SW to arrange site walkover with contractor to review path raising/re-routing.</p> <p>SW to clear 30m section of Mr Chitty's Ditch over winter 2019/2020.</p> <p>SW to remove tree guards in the western Loddon triangle and strim/mow in winter 2019/2020.</p> <p>SW to remove Vice Chancellor's plaque.</p> |
| Item 9: AOB | |
| WBC drainage proposals | NF is in discussions with WBC over a shallow drain to be provided alongside the car park track from Hyde End Road to Millworth Ditch. |

| | |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Knotted Clover | NF requested a map showing the locations of Knotted Clover in the Strategic Link. Action: JS to send. |
| Ridge SANG | JL reported that the Phase 3 field at the Ridge was topped in late summer 2019 and green hay spread from the Phase 2 field. The Phase 4 area (on raised ridge area) is unmanaged at present while awaiting the outcome of the Land South of Cutbush Lane appeal. JL requested a short note setting out management tasks for the Ridge SANG for 2020. Action: EPR to send. |

Appendix 2

SANG Masterplan (Barton Willmore, 2013)

Appendix 3

Mr Badger's Island Survey Report (EPR, 29 May 2020)

Mr Badger's Island, Langley Mead SANG

Survey Results Note 2020

1. INTRODUCTION

- 1.1 EPR Ltd was commissioned by the University of Reading to carry out an update walkover survey of an area of the Langley Mead Suitable Alternative Natural Greenspace (SANG) known as 'Mr Badger's Island' to inform the five-year review of the SANG Management Plan.
- 1.2 The island was surveyed by Andrew Cross of EPR on 7 April 2020. The results of the survey and associated desktop study work are set out below.

2. ECOLOGICAL CONTEXT

Location

- 2.1 Mr Badger's Island is a plot of land adjacent to and forming part of the west bank of the River Loddon. The approximate centre of the island is SU73696700. **Figure 1** shows an aerial photograph of the island. The SANG fields known as Millworth Moor and Langley Common Meadow can be seen to the north-west and south-west of the Island respectively.



Figure 1: Aerial photograph of Mr Badger's Island (Google Earth, dated 2017).

- 2.2 The name 'Mr Badger's Island' was created with reference to the Earl of Fingall's 1756 map of his land holding in Shinfield Parish. Land that was not his, was given the relevant land-owner's name. The then island was owned by Mr Badger and hence the name.
- 2.3 Mr Badger's Island is now no longer a true island. The eastern boundary of the island is the River Loddon and the western one a small watercourse on the Loddon floodplain. Both of these meet at the northern point of the island. A short southern section of the small watercourse (close where the modern gate is today) that connected to the Loddon has been infilled (probably between 1881 and 1900). Despite the loss of a short section of watercourse, the island is still almost wholly surrounded by water.

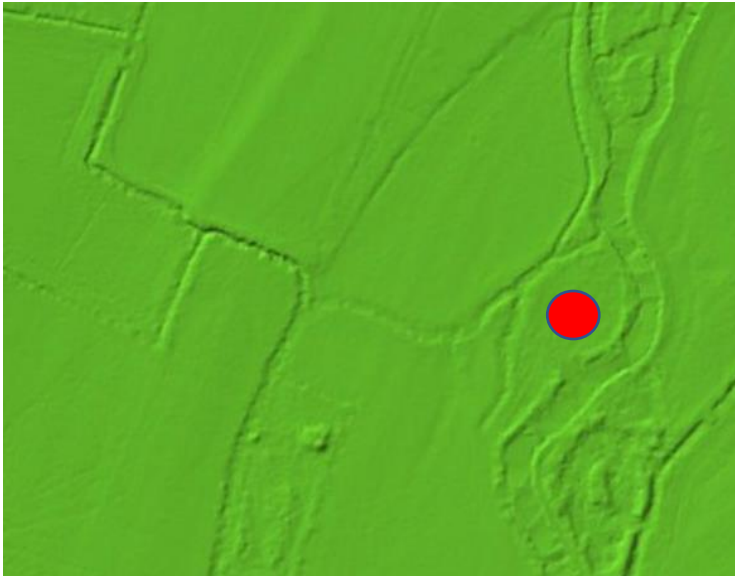


Figure 2. Extract from LiDAR to show physical features of Mr Badger's Island (centre of Island marked with red dot).

Geology

- 2.4 The bedrock geology of the area is London Clay. Mr Badger's island is part of the alluvial floodplain of the River Loddon.



Figure 3: extract from British Geological Survey Open Geoscience

Hydrology

- 2.5 Mr Badger's Island lies within the Flood Zone 3 – defined as having a “1 in 100 or greater annual probability of river flooding (>1%) in any year” (Environment Agency). No site specific information on the hydrology of Mr Badger's Island is available for this report.

Overview of Site History

- 2.6 In the 19th century the island was managed as a meadow.
- 2.7 Few trees were present on Mr Badger's Island then. The watercourses had few or no trees on their banks and would have been well-lit, possibly with the edges grazed and poached.
- 2.8 Aerial imagery (from Google Earth) from 1999 to present show that since the 1940s Willow scrub has grown up over the western waterway and that woodland is more prominent on the bank of the Loddon. The central area that is now a nettle bed seems to have been a more diverse range of habitats in 1999 but which has since become dominated by Stinging Nettle *Urtica dioica*, with a reduction in diversity of habitat.

Landscape History and Land Use

- 2.9 Limited information is available on how Mr Badger's Island has been used in the agricultural landscape. The Shinfield tithe map apportionments record Mr Badger's Island (named simply as 'meadow by Millworth Moor') as being used as a meadow.

- 2.10 The Land Utilisation Survey of 1936 shows Mr Badger's Island as either 'Meadowland and permanent grass' or, possibly, 'Rough marsh pasture'. Aerial imagery from the 1940's shows the Island to be part of the permanent grassland resource connected to Langley Meadow.
- 2.11 The most likely long-term historical land use would have been permanent grassland known to have been managed as a meadow (as recorded on the tithe map) though in later times this may have shifted to use as pasture rather than meadow.
- 2.12 Aerial imagery from 2003 onwards shows Mr Badger's Island as 'rough' possibly having been abandoned as a grassland and developing into a fertile, tall-herb community. The formerly open watercourse forming the western side of Mr Badger's Island has disappeared under scrub.

Constraints to Management

- 2.13 There are the remains of a simple former stock-proof fence around the edge of Mr Badger's Island but this is now derelict and would not contain stock.
- 2.14 There is an overhead electricity line running approximately southwest to northeast across the centre of the island. Two pylons/support structures with associated stays are present on the Island.

3. WALKOVER SURVEY RESULTS

- 3.1 The results of the walkover survey are shown on **Map 1**.
- 3.2 Broadly speaking, Mr Badger's Island can be sub-divided into three main features:
- Bank along the River Loddon;
 - Central Area; and
 - Western Watercourse.

Bank along the River Loddon

- 3.3 A raised bank, possibly a natural levee though could be somewhat artificial from dredgings (or a mixture of both) is present along the eastern and northern side of Mr Badger's next to the River Loddon. This bank is well-drained.
- 3.4 The bank supports two main habitats:
- the bank along the eastern side of the island is a strip of open woodland that includes occasional riverside trees, scrub, tall herb ruderals and grasses; and
 - the bank on the northern end of the island is treeless and is dominated by tall-herb-ruderals.

Open Woodland

- 3.5 This area has a mature Oak *Quercus robur* and some old multi-stem Alder *Alnus glutinosa* and Field Maple *Acer campestre* stools. Scattered scrub between the trees includes young Ash *Fraxinus excelsior*; Hawthorn *Crataegus monogyna*; Blackthorn *Prunus spinosa* and a

Dogwood *Cornus* sp. (unidentified probable non-native species). The ground flora is composed of common and widespread forbs typical of open and or edge habitat and include False Wood-brome *Brachypodium sylvaticum*; Lesser Celandine *Ficaria verna*; Cow Parsley *Anthriscus sylvestris* and Garlic Mustard *Alliaria petiolata*. Wild Garlic *Allium ursinum* - also known as Ramsons – is also present in several patches. **Figure 4** below shows the open woodland on the east bank of Mr Badger's Island.



Figure 4: Open woodland on east bank of island

Northern Bank of the Loddon: tall-herb ruderal community

- 3.6 The bank of the Loddon at the northern end of Mr Badger's Island is dominated by Stinging Nettle though at the time of survey there was a scattering of other lower growing species visible that will in time become overgrown by the nettles. The most common of these was Comfrey *Symphytum sp.* with Teasel *Dipsacus fullonum* present on the better drained areas of the bank. Lower down, closer to the edge of the Loddon (water course on right of image) Reed-grass *Phalaris arundinacea* has formed patches on the water's edge.
- 3.7 A relict fence line with scattered Ash, Bramble and Dog Rose *Rosa canina* is on the left side of the bank just out of view in this image.
- 3.8 **Figure 5** shows the bank of the Loddon with dense nettles and comfrey at the northern end of Mr Badger's Island.



Figure 5: Bank of the Loddon at northern end of island

Central Area

- 3.9 The central area of Mr Badger's Island is now a dense nettle bed dominated by Stinging Nettle. At the time of survey – early April – this area was accessible for survey. However, the remains of last year's growth of Nettles was over 2m high in places and this area is likely impenetrable from early summer onwards until the nettles die back in winter. The approximate centre of the Central Area is located at grid reference SU73696700.
- 3.10 The nettles have grown over the former grasslands known to have been in this area. No grassland species were recorded but scattered 'fen' species such as Yellow Flag *Iris pseudacorus*; Water Mint *Mentha aquatica*; Lesser Pond Sedge *Carex acutiformis* and Reed-grass are present scattered through the nettle stand. All of these will be suppressed throughout almost all of the growing season by the tall nettles.
- 3.11 **Figure 6** below shows the nettle bed in centre of Mr Badger's Island looking south. Blackthorn is invading from the woodland strip on the Loddon Bank on the left of the image and willow scrub is expanding from western watercourse on the right of the image.



Figure 6: Central nettle bed

Western Watercourse

- 3.12 This area is now a deeply shaded watercourse under dense Willow species. The watercourse has no aquatic plant life and no aquatic marginal flora was seen. Where light gets through to the ground layer, Stinging Nettles dominate.



Figure 7: Willow over western watercourse with abundant Stinging Nettle and no aquatic flora.

Swamp by southern pylon

- 3.13 **Figure 8** below shows a localised area of rank, ungrazed sedge swamp at the southern end of western watercourse. There is, however, more species diversity here than in the nettle bed of the Central Area. EPR staff involved in other aspects of the Langley Mead SANG have reported Marsh Marigold *Caltha palustris* in this area in 2015, although it has not now been seen for some time. The approximate centre of the swamp area is located at grid reference SU73656696.



Figure 8: Patch of sedge swamp at southern end of western watercourse.

Summary

- 3.14 A total of 33 species of vascular plant were recorded from the island, as listed in **Appendix 1**. No species of conservation interest were recorded.

4. DISCUSSION

- 4.1 The vegetation communities recorded indicate that Mr Badger's Island is relatively high in nutrients. This is not unusual for a floodplain, as floodwaters periodically deposit nutrients and silt. In the case of Mr Badger's Island, the lack of grazing or other management means that these nutrients have remained in the system and built up over time.
- 4.2 The extensive nettle beds on Mr Badger's Island will be difficult to control for two reasons: firstly, the main contributing factor (nutrient inputs from periodic flooding of the Loddon) is outside of the University's control, and secondly, while herbicides would typically be used to suppress the regrowth of large nettle beds (which are likely to also have extensive root systems), this is not advisable in close proximity to the river. Alternatives such as regular mechanical removal of nettle vegetation are likely to be onerous.
- 4.3 It is also noted that although undesirable from a public access and amenity point of view, nettle beds are a natural part of floodplain vegetation communities and support a number of invertebrate species.
- 4.4 At present, the western watercourse of Mr Badger's Island is heavily shaded and in effect lifeless for almost all plants and, presumably, almost all animals. An invertebrate survey of the Langley Mead watercourses carried out in 2019 also found that invertebrate diversity of Millworth Ditch was limited by overshadowing (Knight, 2019).
- 4.5 The greatest gain for biodiversity at this point would therefore be to restore the western watercourse and manage it in conjunction with other waterways in and on the edge of Langley Mead – the most important one to manage in conjunction with Mr Badger's Island would be Millworth Ditch, which runs westwards from the edge of Mr Badger's Island between the fields known as Langley Common Meadow and Millworth Moor.

- 4.6 If the scrub was controlled and the western watercourse, its bank and marginal areas opened up to light, a diverse plant assemblage should develop including aquatic and edge species, which in turn would provide habitat for animals, mostly invertebrates, and also potentially fish and amphibians.
- 4.7 It is therefore recommended that for the duration of the current Langley Mead Management Plan period (2020-2024), efforts and resources are focused on thinning out the scrub habitat along the western watercourse. The scrub should be cut back on rotation in winter in lengths of around 20-30m at a time, starting at the junction of the western watercourse and Millworth Ditch and then extending northwards, southwards and westwards in subsequent years.
- 4.8 Should this prove successful, then in future years management could potentially be extended to 'nibble' into chunks of the nettle bed, gradually opening up small glades in manageable areas.

Document Prepared By: Andrew Cross BSc (Hons) MSc MCIEEM & Jodie Southgate BA (Hons) MSc ACIEEM

Document Dated: 29 May 2020

Appendix 1

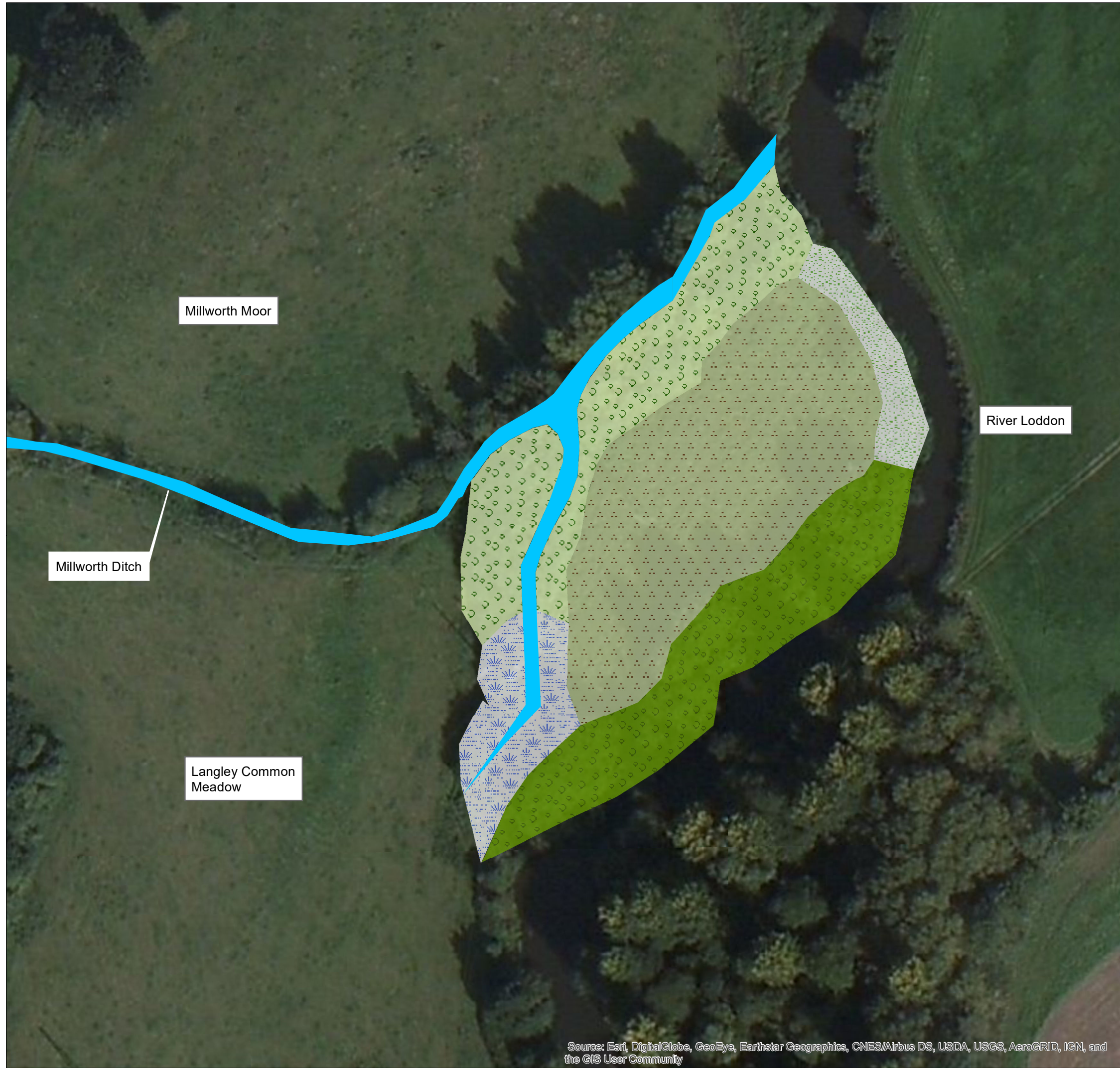
Species List from Mr Badger's Island, 07/04/2020

Table A1.1: Full Species List

| Species | | Relative Abundance recorded with DAFOR scale ¹ | | | | |
|------------------------------------|--------------------------------|-----------------------------------------------------------|---------------------------|----------------------------|------------------------|-----------------------|
| | | Central Area (nettle bed) | Eastern bank of Loddon | Northern bank of Loddon | Western watercourse | Southwestern Swamp |
| Trees and Shrubs | | | | | | |
| <i>Acer campestre</i> | Maple | | O | | | |
| <i>Alnus glutinosa</i> | Alder | | O | | | |
| <i>Cornus sp.</i> | Dogwood species | | F | | | |
| <i>Crataegus monogyna</i> | Hawthorn | | O | R | | |
| <i>Fraxinus excelsior</i> | Ash | R (saplings) | R | | | |
| <i>Prunus spinosa</i> | Sloe | Invading from Loddon bank | LF | | | |
| <i>Quercus robur</i> | Pedunculate Oak | | R | R | | |
| <i>Rosa canina agg</i> | Dog Rose | | R | O | R | |
| <i>Salix cinerea oleifolia</i> | Sallow or Rusty Willow | Salix spp. invading from western channel area | P | | ?A | |
| <i>Salix fragilis</i> | Crack Willow | | | | ?A | |
| Grasses | | | | | | |
| <i>Brachypodium sylvaticum</i> | False Woodbrome | | R | | | |
| <i>Dactylis glomerata</i> | Cocksfoot | | R | | | |
| <i>Phalaris arundinacea</i> | Reed Canarygrass | O | | O | | P |
| <i>Poa trivialis</i> | Rough-stalked Meadow- grass | | LO | | | |
| Forbs | | | | | | |
| <i>Alliaria petiolata</i> | Garlic Mustard | | LO | | | |
| <i>Allium ursinum</i> | Ramsons | | LO | | | |
| <i>Anthriscus sylvestris</i> | Cow Parsley | | LO | | | |







| Species | | Relative Abundance recorded with DAFOR scale ¹ | | | | |
|--------------------------------|----------------------------|-----------------------------------------------------------|---------------------------|----------------------------|------------------------|-----------------------|
| | | Central Area (nettle bed) | Eastern bank of Loddon | Northern bank of Loddon | Western watercourse | Southwestern Swamp |
| <i>Calystegia sepium</i> | Hedge Bindweed | TBC. If present, then probably abundant | | | | |
| <i>Carex acutiformis</i> | Lesser Pond Sedge | LO | | | | P |
| <i>Carex riparia</i> | Greater Pond Sedge | R | | | | P |
| <i>Dipsacus fullonum</i> | Teasel | R on drier edge | | O | | |
| <i>Ficaria verna</i> | Lesser Celandine | R | LO | O | O | |
| <i>Glechoma hederacea</i> | Ground Ivy | | LO | | | |
| <i>Hedera helix</i> | Ivy | | LF | | | |
| <i>Iris pseudacorus</i> | Yellow Flag | LO | | | | P |
| <i>Lamium album</i> | White Dead-nettle | | LO | | | |
| <i>Mentha aquatica</i> | Water Mint | LO | | | | P |
| <i>Oenanthe crocata</i> | Hemlock Water- dropwort | LO | | | | P |
| <i>Rubus fruticosus</i> | Blackberry | | LO | LF | | P |
| <i>Rumex obtusifolius</i> | Broad-leaved Dock | | R | | | |
| <i>Stachys sylvatica</i> | Hedge Woundwort | | LO | | | |
| <i>Symphytum cf officinale</i> | Comfrey | LF | | O | | P |
| <i>Urtica dioica</i> | Stinging Nettle | D. Growth to 2m+ | LO | D | A | P |
| Total No of Species | 33 | 15 | 23 | 9 | 5 | 9 |

¹ The DAFOR scale is a subjective assessment of the relative abundance of a species recorded with the following categories: D - Dominant; A – Abundant; F-Frequent; O – Occasional and R – Rare. Prefix L - Locally. P – present but abundance not recorded.



MAP 1 Results of Mr Badger's Island Survey, 07/04/2020

KEY

-  Loddon bank: open woodland
-  Loddon bank: tall ruderal
-  Central nettle bed
-  Western watercourse: swamp
-  Western watercourse: scrub
-  Watercourse

SCALE: 1:750 at A3

0 5 10 15 20 Metres



Ecological Planning & Research

CLIENT: University of Reading

PROJECT: Langley Mead Management Plan 2020-2024

DATE: 29 May 2020

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