Wimbledon Park Lake
Preliminary Ecological Appraisal

For the London Borough of Merton
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72 Sonning Gardens
Hampton
Middlesex
TW12 3PN
T – 020 8979 7810
M – 07813 329396

E - enquiries@salixecology.co.uk

W – www.salixecology.co.uk

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Executive summary

- Salix Ecology was commissioned by the London Borough of Merton to carry out a Preliminary Ecological Appraisal (PEA) of Wimbledon Park Lake, which lies at the centre of Wimbledon Park, SW19.

- The site (i.e. the Area of influence) described here comprises Wimbledon Park Lake (8.65ha) and a strip of land at its perimeter (10.55ha).

- The lake is one of the largest bodies of standing water in south London. The public park area is located at the north-eastern edge of the lake. Wimbledon Park Golf Club lies at the lake's south-eastern and north-western edges. At the western side is the Wimbledon Club.

- A recent survey of the lake estimated the volume of silt present to be in the region of 72 000m^3, this equates to approximately 50 percent of the total volume of the lake. This level of silt is exerting an adverse impact on the lake's amenity value, water quality, aquatic ecology and has implications for flood risk and reservoir safety. Given this volume of silt, it would be prohibitively expensive and disruptive to remove it from the lake. Therefore, the option currently being explored is to selectively desilt parts of the lake and store the resultant silt either behind created bunds or in contained silt bags along the lake's edge. These would then be planted to create reedbed habitat.

- A habitat survey of the site was carried out on the 15th February and 7th March 2018. Habitats were described following Phase 1 survey methodology. The survey was conducted by Denis J Vickers MCIEEM, a highly experienced ecologist and took a total of eight hours to complete.

- Additionally, ecological data was gathered from a variety of sources via a desktop study. Habitats present on site were mapped and assessed for potential to support protected and notable species that might materially impact on the proposed project. An evaluation of habitats and species was also undertaken.

- No records of great crested newt (GCN) were retrieved through the desktop study. Additionally, the GCN habitat suitability index (HSI) score for the lake was low at 0.16 indicating poor habitat. In conclusion GCN are unlikely to be present on site.

- The report identifies and makes recommendations for further ecological surveys required to inform and assist the Wimbledon Park Lake Technical Steering Group with the planning of the project.

- Finally, a series of precautionary recommendations are listed which will assist in maintaining the site's biodiversity during any on site works.

1.0 Introduction

1.1 Background

1.1.1 Wimbledon Park Lake is becoming progressively silted up, silt now accounts for about 50% of its volume. The lake's aquatic ecology, amenity value and general water quality are suffering as a result. Additionally, there are implications for flood risk and reservoir safety. Given the large volume of silt, it would be prohibitively expensive and disruptive to remove it from the lake. Therefore, the option currently being explored is to selectively desilt parts of the lake and store the resultant silt either behind created bunds or in contained silt bags along the lake's edge. These would then be planted to create reedbed habitat.

1.1.2 Salix Ecology was commissioned by the London Borough of Merton to carry out a Preliminary Ecological Appraisal (PEA) of Wimbledon Park Lake, which lies at the centre of Wimbledon Park, SW19.

1.1.3 The survey aims to:

a) Map habitats present on site and assess each for its potential to support protected and notable species that might materially impact on the proposed project. This included both terrestrial and aquatic habitats. The extent of the site under investigation is shown in Appendix 1.

b) Gather ecological data from a variety of sources via a desktop study including stakeholders and other interested parties.

c) Identify and make recommendations for any further ecological surveys required to inform and assist the Wimbledon Park Lake Technical Steering Group (i.e. the Group) with the planning of the project.

1.2 Scope of report

1.2.1 This report is based on a desktop study, and field survey using standard Phase 1 survey methodology (JNCC 2010) as modified by the Mayor of London's Biodiversity Strategy (2002). This approach is designed to identify broad habitat types at a site, to identify the potential of habitats to support protected species, and to assist in providing an overview of the ecological interest at a site. The assessment follows guidelines produced by the Chartered Institute of Ecology and Environmental Management (CIEEM 2016 & 2017). It is generally the most widely used and professionally recognised method for Preliminary Ecological Appraisal.

1.3 Site description

1.3.1 The site (i.e. the Area of influence) described here comprises Wimbledon Park Lake (8.65ha) and a strip of land at its perimeter (10.55ha) as depicted in Appendix 1.

1.3.2 The lake is one of the largest bodies of standing water in south London. The public park area is located at the north-eastern edge of the lake. Wimbledon Park Golf Club lies at the lake's south-eastern and north-western edges. At the western side is the Wimbledon Club. With the exception of the stretch of bank adjoining the public park, the banks of the lake are characterised by a series of jetties and fishing platforms with strips of marginal vegetation in between. Generally, a narrow zone of scattered scrub with a few scattered trees lies on the landward side adjacent to the marginal vegetation. A hard-surfaced path extends along the bank of the lake within the area of the public park. Piped inflows to the lake are located at its northern and southern extremities. The lake is dammed along its eastern edge (mostly within the public park). There are outflows at the southern end of the dam via a pipe under Ashen Grove Wood and waterfall further north. There is one small wooded island within the bay that marks the lake's north-western extremity.

1.3.3 The public park in the ownership of the London Borough of Merton. Part of Ashen Grove Wood lies at the southern end. Ground flora and shrub layer were cleared several decades ago now leaving just trees of various ages. To the east of this is a children's playground. Further north is Waterfall Gardens and the gardens associated with Wimbledon Park Brook (the water outflow from the lake). The gardens comprise a mixture of native and more exotic trees and shrubs. The brook itself exits the park via a pipe under the District Line finally emptying into the River Wandle. The café pavilion lies at the centre of this section. The remainder of the public park area to the north-west (adjacent to the lake) is characterised by areas of amenity grass and scattered trees and buildings associated with bowling and water sports.

1.3.4 Golf club land accounts for most of the terrestrial habitat within the site. There are extensive areas of species poor semi-improved grassland with few intermingled forbs. These areas of grassland also support a number of scattered trees including several specimens of oak of some antiquity. There are three areas of woodland including part of Ashen Grove Wood to the east which is a relict of a much larger ancient woodland. Unlike the area of this wood within the public park, the wood's ground flora and shrub layer are clearly evident. Parts of the Golf Club House complex lie within this area.

1.3.5 Land between the Wimbledon Club and lake is characterised by an artificial surfaced footpath adjacent to sports courts and buildings. A slightly wider area of scattered scrub (with a few young trees) lies between the water's edge and footpath.

1.4 Site context and status

1.4.1 This site is located within the London Borough of Merton towards the centre of Wimbledon Park at national grid reference TQ2469472293. The park itself is delineated by Home Park Road to the south-east; Church Road and Wimbledon Park Road to the west; and the Wimbledon branch of the District Line to the north-east. Wimbledon Park Station is located on Arthur Road about 250m to the east. Wimbledon town centre lies

1.25km to the south and Wimbledon Common just over 1km to the east. Wimbledon Park is surrounded by housing with associated gardens.

1.4.2 Wimbledon Park is designated Metropolitan Open Land. The London Borough of Merton Policies Map (2014) shows the park as lying in a Conservation Area and Archaeological Priority Zone. The park is registered under the Historic Buildings and Ancient Monuments Act 1953 within the Register of Historic Parks and Gardens by English Heritage for its special historic interest as a Registered Park and Garden grade II* (Historic England). It is also listed in the register of Heritage at Risk as Heritage England cite the following 'The Lake is in poor condition, designed views are obscured and the divided ownership results in discordant landscape management. A masterplan now exists for the municipal park, but a shared vision for the whole landscape is required.' Wimbledon Park Lake itself is registered under the Reservoirs Act 1975 (as amended).

1.4.3 With the exception of the public park the site is designated as a Site of Borough Importance for Nature Conservation (SINC) Borough Grade 1.

1.4.4 A desk-based search within 1km radius of the site centroid was undertaken by GiGL found there are:

- no sites with European or National statutory designation;
- no Local Nature Reserves (LNRs);
- 10 non-statutory SINCs;
- no Regionally Important Geological Sites (RIGS) or Locally Important Geological Important Sites.

1.5 Site proposals

1.5.1 The Project

a) A recent survey of the lake estimated the volume of silt to be in the region of 72 000m^3, this equates to approximately 50 percent of the total volume of the lake. This level of silt is exerting an adverse impact on the lake's amenity value, water quality, aquatic ecology and has implications for flood risk and reservoir safety. Given this volume of silt, it would be prohibitively expensive and disruptive (lorry movements) to remove it from the lake. Therefore, the option currently being explored is to selectively de-silt parts of the lake and store the resultant silt either behind created bunds or in contained silt bags along the lake's edge. These would then be planted to create reedbed habitat.

b) In October 2017 the Wimbledon Park Lake Technical Steering Group was established. The Group's objectives are to ensure that the views of representatives of the various landowners, leaseholders and organisations with a remit for remedial works to Wimbledon Park Lake are fully represented and considered as part of the project to undertake required remedial works to the lake to meet the statutory obligations and

duties of the Council in the interest of reservoir safety, flood risk, amenity, heritage and biodiversity.

2.0 Methodology

2.1 Desktop study

2.1.1 Information regarding the recent and historical ecological interest within a 1km radius of the site was requested from Greenspace Information for Greater London (GiGL).

2.1.2 In addition, a search was completed of an online mapping service (www.magic.gov.uk) for statutory designated sites.

2.1.3 A number of works by local ecological expert Dr D. G. Dawson were consulted – these are individually cited and referenced in the report.

2.1.4 Bat records for Wimbledon Park were reviewed - recorded by Alison Fure on 02-09-2017.

2.1.5 Nature Conservation in Merton (Yarham *et.al.,* 1998) was consulted. This work is reported by Dr Dawson to still be largely relevant.

2.1.6 Consideration was given to Habitats and Species of Principal Importance for the Conservation of Biodiversity in England listed under the Natural Environment and Rural Communities (NERC) Act 2006 and those covered by The London Biodiversity Action Plan (http://www.gigl.org.uk/londons-biodiversity-action-plan/) and other priority habitats or species (as defined by CIEEM, 2016) that were confirmed to be, or are potentially, present at the site.

2.1.7 For the purpose of calculating a Habitat Suitability Index (HSI) for Great Crested Newts (GCN) the number ponds within 1km radius of Wimbledon Park Lake and the permeability of the landscape for the newts were reviewed using 1: 25 000 0S data and Google aerial photography.

2.2 Habitat survey

2.2.1 A habitat survey of the site was carried out on the 15th February and 7th March 2018. Habitats were described following Phase 1 survey methodology (JNCC 2010 & Mayor of London 2002). Weather conditions were 8º to 10ºc with sunny spells and the odd light rain shower. The survey was conducted by Denis J Vickers MCIEEM, a highly experienced ecologist and took a total of eight hours to complete.

2.2.2 A description of habitat types present is given under paragraph 3.4. A map of the site showing the chief habitats present appears in Appendix 2a and features of particular

interest are target noted. Specific target notes are described under 3.4 below and listed in Appendix 2b.

2.2.3 Scientific names are given after the first mention of a vascular plant species; thereafter common names only are used. Nomenclature follows Stace (2010) for vascular plant species. Photographs of the site are found in Appendix 5.

2.2.4 Incidental records of birds and other fauna noted during the course of the habitat survey were also recorded Appendix 3b.

2.3 Preliminary protected species assessment

2.3.1 The potential of the site to provide habitat for protected and other priority species was assessed from field observations carried out at the same time as the habitat survey, combined with the results of the desktop study.

2.3.2 The site was inspected for indications of the presence of protected species, Species of Principal Importance and otherwise notable species as follows:

- Bats - the presence of trees with cracks or holes (such as woodpecker holes), splits or flaking bark and ivy; and buildings with basements, roof voids, soffits, cladding etc. indicating potential for roosting bats. Positive field signs of bat use include:
  - Staining around a feature e.g. cracks, caused by natural oils in bat fur;
  - Scratch marks around a feature, caused by bat claws;
  - Bat droppings beneath a hole;
  - Urine stains below the entrance to a hole.
- Hedgehog (*Erinaceus europaeus*) - the presence of scats, runs, diggings and/or nests was searched for and any evidence reported.
- Breeding birds – suitable lakeside locations, voids and ledges in buildings which could be used by birds for nesting purposes; holes in trees and nests from the previous year; male birds in song holding territories; active nest sites and juvenile birds.
- Amphibians - suitable breeding places. Additionally, potential refuges were searched for e.g. logs, pieces of plywood etc.
- European eel (*Anguilla anguilla*) is a Priority species known to inhabit the lake and thus considered here. The banks of the lake do have fishing platforms, jetties and emergent vegetation, the subsurface parts of which may act as refuges for some eels.
- Stag beetle (*Lucanus cervus*) – suitable decaying wood habitat.
- Native bluebells (*Hyacinthoides non-scripta*) – Ancient woodland, old hedgerows.
- Oak (*Quercus robur*) trees of antiquity – defined here as having girths > 3m at breast height (age ~150 years).

2.3.3 These species were selected for further consideration because potentially suitable habitat is present on site (or nearby in the locality) and/or species records retrieved from data trawl were relatively frequent. The likelihood of occurrence is ranked as follows and relies on the current survey and evaluation of existing data:

- NEGLIGIBLE: while presence cannot be absolutely discounted, the site includes very limited or poor-quality habitat for a particular species or species group. No local returns from a data search, surrounding habitat considered unlikely to support wider populations of a species/species group. The site may also be outside or peripheral to known national range for a species,
- LOW: on-site habitat of poor to moderate quality for a given species/species group. Few or no returns from data search, but presence cannot be discounted on the basis of national distribution, nature of surrounding habitats, habitat fragmentation, recent on-site disturbance etc.
- MODERATE: on-site habitat of moderate quality, providing most or all of the known key requirements of given species/species group. Has local returns from the data search, within the national distribution and with suitable surrounding habitat. Factors limiting the likelihood of occurrence may include small habitat area, habitat severance, and disturbance.
- HIGH: on-site habitat of high quality for given a species/species group. Local records provided by desk-top study. Site within/peripheral to a national or regional stronghold. Good quality surrounding habitat and good connectivity.
- PRESENT: presence confirmed from the current survey or by recent, confirmed records.

The purpose of this assessment is to identify whether more comprehensive Phase 2 surveys for protected species should be recommended.

2.4 Site evaluation

2.4.1 The site has been evaluated broadly as recommended by standard guidelines (CIEEM 2016). In particular, the assessment of ecological value is made with reference to criteria such as the following, placed in geographical context (significance from an international level through to site level):

- Any designated sites or features, such as Sites of Local Importance for Conservation, protected trees or important hedgerows.
- Biodiversity value of the habitats, assessed by considering the distribution and status of habitats and species, including issues such as:
  - habitat diversity and connectivity; and
  - plant communities and/or animal groups that are considered typical of valuable natural or semi-natural vegetation;
  - especially species-rich plant or animal communities; and
  - animal populations that are notably large in a wider context

- Presence of animal or plant species that are rare or threatened or in decline in a national, regional or local context.
- Habitats and species of Principal Importance for Biodiversity under Section 41 of the Natural Environment and Rural Communities Act (NERC) 2006.
- Habitats and species included on local Biodiversity Action Plans.
- Habitats that are a material consideration in the planning process under NPPF (e.g. ancient woodland and limestone pavement) and Section 41 of the Natural Environment and Rural Communities Act (NERC) 2006.
- Presence of protected species.

2.5 Habitat Suitability Assessment (HSI) for Great Crested Newts

The HSI scoring system was developed as a means of evaluating habitat quality for great crested newts (GCN) using a numerical index where a score of 0 indicates unsuitable habitat and a score of 1 represents optimal habitat, For the purposes of this assessment the method used to assign a score to one of the pond features as proposed by Oldham et al. (2000) has been modified in accordance to guidance produced by Lee Brady (ARGUK Advice Note 5 HSI May 2010). The evaluation of terrestrial habitat given by Oldham *et al*. (2000), which is a complex calculation of areas, is substituted by simpler evaluation based on a four-point scale (Good 1; Moderate 0.67; Poor 0.33; None 0.01). An account of how to collect data and calculate HSI from the ten suitability indices is detailed in the ARG UK Advice Note 5, 2010).

2.6 Limitations

2.5.1 It should be noted that whilst every effort has been made to provide a comprehensive description of the site, no investigation could ensure the complete characterisation and prediction of the natural environment.

2.5.2 The habitat survey was undertaken outside of the optimum period for vegetation survey (regarded as May to September), and therefore certain ephemeral or mid-late flowering components of vegetation may have been missed or absent at the time of the survey or otherwise under recorded. However, this is not considered to be a significant constraint to habitat assessment. This habitat survey does not constitute a full botanical survey.

2.5.3 To help off-set any deficiencies in botanical survey, records gathered by local ecologist Dr Dave Dawson were incorporated into habitat descriptions and evaluation of habitats and species.

2.5.4 No instances Wildlife & Countryside Act 1981 (as amended) Schedule 9 invasive species were noted on site. However, a number of these species can lie dormant in the soil and may occur in a variety of locations. Additionally, they can be hard to detect early in the season. Thus, although not recorded at the time of survey there can be no guarantee that issues with invasive species will not arise at some point in the future.

2.5.5 The protected species assessment provides a preliminary view of the likelihood of protected species occurring on the site, based on the suitability of the habitat, known distribution of the species in the local area provided in response to our enquiries and any direct evidence on the site. It should not be taken as providing a full and definitive survey of any protected species group. It is only valid at the time the survey was carried out. Additional surveys may be recommended if, on the basis of the preliminary assessment or during subsequent surveys, it is considered reasonably likely that other protected species may be present.

2.5.6 In general, ponds with high HSI scores are more likely to support GCN than those with low scores. However, the system is not sufficiently precise to conclude that any particular pond with a high score will support newts, or that any pond with a low score will not do so. There is a positive correlation between HSI scores and the numbers of GCN observed. In general, high HSI scores are likely to be associated with greater numbers of GCN. There are no suitability index data available for ponds with an area >2 000m^2, Wimbledon Park Lake has a surface area of 86 500m^2 therefore this factor was omitted in calculating the HSI (ARGUK Advice Note 5 HSI May 2010).

3.0 Survey results

3.1 Desktop study

3.1.1 Greenspace Information for Greater London (GiGL) supplied the following records and information from within a 1km radius of the site centroid regarding more recent and historical ecological interest:

3.2 Sites of importance for nature conservation

3.2.1 Statutory sites of European or national significance: The site is not subject to any nature conservation designations in this category, such as Special Protection Areas (SPAs), Special Areas of Conservation (SACs), Sites of Special Scientific Importance (SSSIs) and National Nature Reserves (NNRs) or Local Nature Reserve (LNR). Wimbledon Common SSSI, SAC is located 1.19km to the west of the site just outside the data search radius.

3.2.2 With the exception of the public park, the site lies within a Site of Importance for Nature Conservation (SINC) Borough Grade 1. These areas are non-statutory sites important in a borough-wide context.

3.2.3 Additionally, within the 1km search radius but outside the site (i.e. area of influence) boundary there are 10 non-statutory sites: two Borough Grade I sites, five Borough Grade II sites and three Local sites:

Table 1: SINCs within 1 km radius of centre of Wimbledon Park

Site ref	Site Name & area	Summary description	Approx. distance	Bearing
MeBI02	Wimbledon Park Lake, Woods and Golf Course Area 38.29ha	The focus of this site is the lake, which is the largest water body in Merton and is important for its wetland birds. Also included is Horse Close Wood, on the northern boundary of the park and the hedgerows beside the District Line railway embankment. Habitats: Ancient woodland, Hedge, Pond/lake, Running water, Scattered trees, Secondary woodland, Semi-improved neutral grassland, Wet ditches	Includes site	N/a
WaBI10	Wimbledon Park (Wandsworth section) Area 5.28ha	A popular and attractive park lying across the borough boundary with Merton. Habitats: Amenity grassland, broadleaved native woodland, Scattered trees, veteran trees	230m	North
MeBII01B	Earlsfield to Wimbledon Railsides Area 2.16ha	Natural vegetation on the railway embankments and cuttings, including a stand of birch trees. Habitats: Roughland, Secondary woodland	780m	East
MeBII01C	District line through Wimbledon Park Area 3.24ha	Natural vegetation on the railway embankments and cuttings. Habitats: Planted shrubbery, Roughland	156m	North-east
MeBII16	Durnsford Wetland Area 0.25ha	An area of wet woodland beside a pond in a public park Habitats: Pond/lake, Secondary woodland	990m	East
WaBII12	King George's Park Area 22.56ha	A large and popular open space with a lake, wildflower area and a stretch of the River Wandle. Habitats: Amenity grassland, Pond/lake, Scattered trees	935m	North-east

Site ref	Site Name & area	Summary description	Approx. distance	Bearing
WaBII14E	Southfields Railsides Area 4.31ha	Wandsworth's network of railways adds up to substantial area of wildlife habitat and provides important wildlife corridors. Habitats: Roughland, Scattered trees, Scrub, Secondary woodland, Semi-improved neutral grassland	400m	North
MeL01	Park House Middle School Conservation Area Area 0.62ha	A school nature area, consisting of a meadow, hedgerows and woodland strip. Habitats: Hedge, Secondary woodland, Semi-improved neutral grassland	910m	South
MeL16	St Mary's Churchyard, Wimbledon Area 0.81ha	A well-wooded ancient churchyard. Habitats: Secondary woodland, Vegetated wall/tombstones	990m	South
WaL14	Edgecombe Hall Estate Area 2.47ha	A strip of woodland next to a housing estate and the grounds of the estate. Habitats: Amenity grassland, Pond/lake, Scattered trees, Secondary woodland, Semi-improved neutral grassland	830m	North

3.2.3 Geological sites: None present within search area

3.3 Protected and notable species

3.3.1 The following data were supplied by GiGL, Dr Dave Dawson and Alison Fure. It is important to note that, even where data are held, a lack of records for a defined geographical area does not necessarily mean that there is no ecological interest; the area may be simply under-recorded.

a) bats

- Four species of bats were specifically noted by GiGL i.e. Daubenton's Bat *Myotis daubentonii*, noctule bat *Nyctalus noctula*, common pipistrelle, *Pipistrellus pipistrellus* and soprano pipistrelle *Pipistrellus pygmaeus*. The most recent of these records is from 2008 and the closest to the site 129m north.

- Noctule, soprano pipistrelle and brown long-eared bat *Plecotus auratus* are noted by Dawson (c.2013).
- In September 2017 Alison Fure recorded seven species of bat in Wimbledon Park over approximately a 3.5 hour period: Daubenton's bat, noctule, common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle *Pipistrellus nathusii*, Leisler's bat *Nyctalus leisler* and serotine bat *Eptesicus serotinus*.

b) Hedgehog *Erinaceus europaeus*

- GiGL reports 37 occurrences from the recording area, the nearest record as coming from 180m north. The most recent recording was 2004.
- Hedgehog is noted by Dawson (c.2013).

c) Breeding birds

GiGL cites 29 species of breeding birds as occurring in the data search area (all birds in this category are protected under the Wildlife and Countryside Act (see Appendix 4). This includes the following Red List species (as well as a number of London Biodiversity Action Plan – BAP species and Local Species of Conservation Concern):

- Lesser Redpoll *Acanthis cabaret*
- Skylark *Alauda arvensis*
- Kingfisher *Alcedo atthis*
- Tree pipet *Anthus trivialis*
- Dunlin *Calidris alpine*
- Cuckoo *Cuculus canorus*
- Lesser spotted woodpecker *Dendrocopos minor*
- Yellowhammer *Emberiza citronella*
- Linnet *Linaria cannabina*
- Spotted flycatcher *Muscicapa striata*
- House sparrow *Passer domesticus*
- Wood warbler *Phylloscopus sibilatrix*
- Marsh tit *Poecile palustris*
- Starling *Sturnus vulgaris*
- Song thrush *Turdus philomelos*

The following Amber and Red Listed birds which occur (or may occur) in Wimbledon Park were listed by Dave Dawson. (c.2013):

- Black-headed gull *Larus ridibundus* Amber list
- Bullfinch *Pyrrhula pyrrhula* Amber list - B
- Common gull *Larus canus* Amber list
- Common sandpiper *Actitis hypoleucos* Amber list

- Common tern *Sterna hirundo* Amber list
- Dunnock *Prunella modularis* Amber list - B
- Fieldfare *Turdus pilaris* Red list
- Gadwall *Anas Strepera* Amber list
- Great black-backed gull *Larus marinus* Amber list
- Grey wagtail *Motacilla cinereal* Red list - B
- Herring gull *Larus argentatus* Red list
- House martin *Delichon urbicum* Amber list
- House sparrow *Passer domesticus* Red list - B
- Jack snipe *Lymnocryptes minimus* Amber list
- Kingfisher *Alcedo atthis* Amber list
- Lapwing *Vanellus vanellus* Red list
- Lesser black-backed gull *Larus fuscus* Amber list
- Lesser redpoll *Carduelis cabaret* Red list - B
- Lesser spotted woodpecker *Dendrocopos minor* Red list - B
- Mallard *Anas platyrhynchos* Amber list - B
- Mistle thrush *Turdus viscivorus* Amber list - B
- Mute swan *Cygnus olor* Amber list - B
- Pochard *Aythya farina* Red list
- Redwing *Turdus iliacus* Red list
- Shoveler *Anas clypeata* Amber list
- Skylark *Alauda arvensis* Red list - B
- Song thrush *Turdus philomelos* Red list - B
- Spotted flycatcher *Muscicapa striata* Red list - B
- Starling *Sturnus vulgaris* Red list - B
- Stock dove *Columba oenas* Amber list - B
- Swift *Apus apus* Amber list
- Wigeon *Anas penelope* Amber list
- Yellow wagtail *Motacilla flava* Red list

B = Listed as breeding in the 1km radius data search area by GiGL

d) Amphibians

- GiGL cites 6 occurrences of common toad *Bufo bufo* within the data search area, the nearest record to the site centroid is 477m to the north. The most recent record is dated 2013.
- GiGL also state there were 140 occurrences of common frog *Rana temporaria* within the data search area with the closest record to the site centroid at 180m and the most recent record dating from 2013.
- Both species are also cited as present by Dave Dawson (c.2013)

e) European eel (*Anguilla anguilla*)

- This species is mentioned and regarded as present in the lake (Dave Dawson, c.2013 & 2017).

f) Stag beetle (*Lucanus cervus*)

- GiGL reports 73 occurrences of stag beetle from with the data search area. The nearest record came from 188m to the north and the most recent from 2014.

g) Native bluebells (*Hyacinthoides non-scripta*) – Ancient woodland, old hedgerows.

- GiGL reports three occurrences of bluebell in the data search area. The most recent record came from 395m to the north. The most recent record was from 2013.
- Dave Dawson (2018) reports extensive areas of native bluebell as being present in Ashen Grove Wood.

h) Oak (*Quercus robur*) trees of antiquity

- A number of veteran and ancient oak trees have been identified in Wimbledon Park by D Dawson (c.2013).

3.4 Habitat Suitability Assessment for great crested newt

3.4.1 The HSI is usually a geometric mean of ten suitability indices shown in Table 2 below. As Wimbledon Park Lake has an area of > 2 000m^2 factor $S1_2$ is omitted and the 9th root calculated instead of the 10th root (ARGUK Advice Note 5 HSI May 2010):

$$HSI = (SI_1 \times SI_3 \times SI_4 \times SI_5 \times SI_6 \times SI_7 \times SI_8 \times SI_9 \times SI_{10})^{1/9}$$

3.4.2 Lee Brady (*ibid*) has developed a system for using HSI scores to define pond suitability for great crested newts on a categorical scale:

< 0.5 = poor

0.5-0.59 = below average

0.6-0.69 = average

0.7-0.79 = good

> 0.8 = excellent

Table 2: HSI indices and SI values Wimbledon Park Lake

SI Factor		Pond measurements		SI value
1	Pond location	Zone A	Wimbledon Park Lake falls within 'most of lowland England' zone	1
2	Pond area	86 500 m^2	Particularly large area for HSI calculation	0mmited[1]
3	Pond permanence	Never dries	Does not dry out, therefore 0 out of 10 years	0.9
4	Water quality	Moderate	Estimated as moderate	0.67
5	Shade	40%	Estimated percentage of lake perimeter shaded, to at least 1m from the bank	1
6	Waterfowl	Major	Wide range of waterfowl present some all year round	0.01
7	Fish	Major	Home of Wimbledon Park Angling Club	0.01
8	Pond count	0 km^{-2}	5 ponds recorded within 1km radius but all are separated from the site by major roads and urban habitat so are not counted here	0.01
9	Terrestrial habitat	Poor	Amenity grassland (or similar) which is considered of low potential for GCN (as it is intensively managed by regular mowing) surrounds a large part of the lake. There are, however, some areas of longer grassland, scrub and woodland present	0.33
10	Macrophytes	2% cover	It is only really the Lake margin that has some macrophyte cover estimated from aerial photographs as 2%	0.3

3.4.3 From the above the HSI = $(1 \times 0.9 \times 0.67 \times 1 \times 0.01 \times 0.01 \times 0.01 \times 0.33 \times 0.3)^{1/9}$ ∴ HSI = 0.16. This indicates Wimbledon Park Lake constitutes a generally poor habitat for GCN as the score is < 0.5.

[1] Lake area value is >2 000m^2 so omitted in line with recommended methodology (ARGUK Advice Note 5 HSI May 2010)

3.5 Extended phase 1 habitat survey

3.5.1 This section should be read with reference to Appendix 2: Habitat Map which also shows the location of Target Notes (TN) and Appendix 5 for photographs.

3.5.2 Overview

a) The site (i.e. the Area of Influence) comprises Wimbledon Park Lake (8.65ha) and a strip of land at its perimeter (10.55ha), see Appendix 1.

b) The lake is one of the largest bodies of standing water in south London. The public park is located at the north-eastern edge of the lake. Wimbledon Park Golf Club lies at the lake's south-eastern and north-western edges. At the western side is the Wimbledon Club. A hard-surfaced path extends along the bank of the lake within the area of the public park. Elsewhere the banks are characterised by a series of jetties and fishing platforms with strips of marginal vegetation in between. Generally, a narrow zone of scattered scrub with a few scattered trees lies on the landward side. Piped inflows to the lake are located at its northern and southern extremities. The lake is dammed along its eastern edge (largely within the public park). There are outflows at the southern end of the dam via a pipe under Ashen Grove Wood and the waterfall further north. There is one small wooded island within the bay that marks the lake's north-western extremity.

c) Part of Ashen Grove Wood lies at the southern end of the public park. The ground flora and shrub layer were cleared several decades ago now leaving just trees of various ages. To the east of this is a children's playground. Further north is Waterfall Gardens. The remainder of the park area to the north-west is characterised by amenity grassland with scattered trees and buildings associated with bowling and water sports.

d) Golf club land accounts for most of the terrestrial habitat within the site. There are extensive areas of species poor semi-improved grassland with few intermingled forbs. These areas of grassland also support a number of scattered trees including several specimens of oak of some antiquity. There are three areas of woodland including part of Ashen Grove Wood (a relict of a much larger ancient woodland). The wood's ground flora and shrub layer are well developed. Parts of the Golf Club House complex extend into the edge of the wood.

e) An artificial surfaced footpath lies between the sports courts and buildings of the Wimbledon Club. A slightly wider area of scattered scrub (with a few young trees) lies between marginal vegetation at the water's edge and the footpath.

3.5.3 Habitat descriptions

The site comprises the following habitats (not listed in ecological importance):

a) Buildings:

There are a number of buildings within the site most have little potential to support breeding birds or roosting bats. However, the Golf Club House (Building C, Photo 1) and associated outbuildings might have some potential to provide habitat for protected species as viewed from limited angles from the outside only. Additionally, the Bowls Pavilion (Building B, Photos 2 & 3) has raised flashing and gaps under tiles at the roof edge.

b) Hardstanding:

This is mostly associated with paths and buildings particularly in the public park and between the Wimbledon Club and Lake. This is of relatively little ecological value.

c) Ornamental gardens:

The ornamental gardens are situated between the Lake dam and outflow of the Wimbledon Park Brook under the District Line. It includes Waterfall Gardens (Photo 3), the Café (Building E, Photo 4) and the area aside the brook itself. As well as a variety of non-native exotic plant species, this part of the site includes two relatively large specimens of pedunculate oak *Quercus robur* (Photo 5).

d) Amenity grassland:

Most of this habitat type is located within the public park part of the site (Photo 6). It is regularly cut and dominated by perennial rye-grass *Lolium perenne*. Intermingled in the grassland are several other grasses and forbs including frequent bent-grass *Agrostis* sp. and daisy *Bellis perennis*; occasional yarrow *Achillea millefolium*, white clover *Trifolium repens*, cock's-foot *Dactylis glomerata*, annual meadow-grass *Poa annua* and wall barley *Hordeum murinum*. Dandelion *Taraxacum* sp., greater plantain *Plantago major* and ribwort plantain *P. lanceolata* are rare.

e) Poor semi-improved grassland

This grassland is associated with the golf course which was close mown (Photo 7). Fescue *Festuca* sp. (probable red fescue *F. rubra*) and perennial rye-grass are abundant, bent grass is frequent. Forbs are few and far between and include greater plantain, ribwort plantain, yarrow and dandelion which were all rare.

f) Running water/standing water

(1) The margins of the lake are characterised by jetties and fishing platforms particularly next adjacent to the golf course and Wimbledon Club. Between these

structures, on the lake-side of the lake, are areas of marginal vegetation (Photo 8). Species include abundant sweet flag *Acorus calamus* and yellow iris *Iris pseudacorus*, frequent pendulous sedge *Carex pendula*, occasional soft rush *Juncus effuses* and rare hard rush *J. inflexus* and hemlock water-dropwort *Oenanthe crocata*, Additional species identified by Dave Dawson (2017)[2] include water mint *Mentha aquatica*, common reed *Phragmites australis*, greater pond-sedge *Carex riparia*, and reed canary-grass *Glyceria maxima* as well as small numbers of yellow waterlily *Nuphar lutea*, marsh marigold *Caltha palustris* and a water starwort *Callitriche* sp.

(2) Rigid hornwort *Ceratophyllum demersum* seems to be an abundant submerged species of plant. Additionally, Dave Dawson (2017) records horned pondweed *Zannichellia palustris*, duckweed *Lemna minor*, least duckweed *L. minuta*, small pondweed *Potamogeton berchtoldii* and lesser pondweed *P. pusullis*.

(3) More on the landside of the water-margins, wet marginal vegetation merges with a narrow zone of scattered scrub and a few (mostly young) trees (Photo 9). Species comprise grey willow *Salix cinerea*, goat willow *S.caprea*, elm *Ulmus procea*, elder *Sambucus nigra*, hawthorn *Crataegus monogyna* and a mix of mostly young, together with a few mature specimens of pedunculate oak, silver birch *Betula pendula* and alder *Alnus glutinosa*. Bramble *Rubus fruticosus* agg. is often abundant or dominant. There are possibly two species of bamboo present one of which is broadleaved bamboo *Sasa palmata* (Photo 10) the other has narrower leaf-blades (not yet identified) (TN21, Photo 11). Adjacent to the former species is a single specimen of pampas-grass *Cortaderia selloana* (TN14, Photo 12). Broadleaved bamboo and pampas-grass can both be invasive in some situations.

(4) Wimbledon Park Brook (TN28, Photo 13) has frequent pendulous sedge; occasional yellow iris and soft rush; rare hemlock water-dropwort and watercress *Nasturtium officinale* (Photo 14). Dave Dawson (c.2013) adds gypsywort *Lycopus europaeus*, water mint *Mentha aquatica* and trifid bur-marigold *Bidens tripartita* to this list.

g) Reedbed

There are small stretches of reedbed (TN7, TN9 & TN13) at the lake bank at the north-west extremity of the lake near the small island (Photo 15).

[2] These species (and the submergent and floating species cited by Dawson (2017) below), were not apparent at the time of survey which was conducted at a sub-optimum time of year

h) Typha etc swamp

Bulrush *Typha latifolia* beds (TN12, Photo 16) occur in the shallow bay of the lake to the south-west near the Bigden Brook inflow (TN11, Photo 17).

i) Scattered scrub

See 3.4.3f(3) above.

j) Native broadleaf woodland

(1) Ashen Grove Wood (TN26) is a relict of a far larger ancient woodland. Understorey was cleared from the part of the wood that lies in the public park in the 1950s (Dawson, 2018) leaving only isolated trees standing (Photo 18) its woodland character gone. A little sparse ground flora is present but it seems limited to a few grasses, lords and ladies *Arum maculatum* and cow parsley *Anthriscus sylvestris*. The other half of the wood within the golf club land has a canopy primarily of pedunculate oak and ash *Fraxinus excelsior*. The understorey comprises English elm, elder, holly *Ilex aquifolium**, yew *Taxus baccata* and young ash. Dave Dawson also notes the presence of smaller numbers of horsechestnut *Aesculus hippocastanum*, Norway maple *Acer platanoides* and sycamore *A. pseudoplatanus*. A few shrubs of butterfly-bush *Buddleja davidii* and cherry laurel *Prunus laurocerasus* and a small area dominated by Russian vine *Fallopia baldschuanica* also occur (*ibid*). These three species are potentially invasive, the first two examples are listed by London Invasive Species Initiative (LISI) as Category 3 Species of Conservation Concern[3]. Ivy *Hedera helix* and bramble are abundant components of the woodland ground flora (Photo 19). Additionally, Dave Dawson (2018) records the presence of extensive areas of native bluebells*, lords & ladies and cow parsley and lesser amounts of wood dock *Rumex sanguineus* var. *viridis*, pendulous sedge*, stinging nettle *Urtica dioica*, yellow iris, wood millet *Milium effusum**, cock's-foot, dandelion and green alkanet *Pentaglottis sempervirens* – a LISI Category 6 species[4].

(2) There are two other woodlands TN2 and TN10 (Photo 20) in which pedunculate oak and ash are common components. Both are of more recent origin to that described above. In the latter case there is also considerable areas of scattered scrub present including hawthorn, elder, English elm, holly and young ash and silver birch together with a sparse ground flora of ivy, bramble and pendulous sedge.

(3) The small island at the north-western end of the lake appears to be wooded with holm oak *Quercus ilex* and pedunculate oak (Photo 21).

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[3] Species of high impact or concern which are widespread in London and require concerted, coordinated and extensive action to control/eradicate

[4] Species that were not currently considered to pose a threat or have the potential to cause problems in London.

* These species are Ancient Woodland Indicator Species (AWIs)

k) Scattered trees:

(1) There are a good number of scattered trees on site. Of greatest interest are large and veteran pedunculate oaks (Photos 22 & 23). Overall, 10 individual specimens (mostly outside of woodland TN26) have been target noted in Appendix 2. This includes trees identified by the author and several specimens noted by Dave Dawson (c.2013). The estimated age of the oldest trees was approximately 300 years thus predating Lancelot Brown. In addition to these large oaks are two dead or dying veteran trees (TN16, Photo 24 and TN18, Photo 25) which may be of considerable value for bats and invertebrates.

(2) There are also a good number of other tree species present especially in the public park. These include ash, silver birch, holly, sweet gum *Liquidambar styraciflua*, London plane *Platanus* x *hispanica*, ornamental cherry *Prunus* sp., fastigiate black poplar *Populus nigra* (fastigiate cultivar), weeping willow *Salix* x *sepulcralis*, yew and common lime *Tilia* x *europaea*

l) Non-native hedge

There are several lengths of non-native hedges in the public park. With the exception of the garden privet *Ligustrum ovalifolium* hedge aside the lake footpath (Photo 26) most are short in length and associated with building boundaries.

3.6 Protected and notable species assessment

3.6.1 The habitats at the site were evaluated as to their likelihood to provide sheltering, roosting, nesting and foraging habitat for the following animals and support for plants:

- Bats
- Hedgehog
- Breeding birds
- Amphibians
- European eel
- Stag beetle
- Bluebell
- Oaks of antiquity

3.6.2 These species were selected for further consideration because the species is present or potentially suitable habitat is present on site (or nearby in the locality) and/or species records retrieved from data trawl were relatively frequent. The results of the field survey, combined with information from the desktop study, are presented in Table 3 below. Invasive plant species which occur on site and are listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) and other potentially invasive species are listed in the Table 4. The relevant legislation relating to protected species and habitats and scheduled invasive plant species are set out in Appendix 4.

Species	Main legislation (see Appendix 4)	Areas where presence should be considered	Reasons for consideration	Likelihood of occurrence
Bats	Wildlife and Countryside Act 1981 (as amended). Schedule 5. Schedule 2 of The Conservation of Habitats and Species Regulations 2010	Buildings with gaps under roofing materials. Buildings with suitable access to interiors. Trees with suitable voids and/or dense coverings of ivy	A number of species of bat noted within the data search area by GiGL and Dave Dawson. More recently by bat ecologist Alison Fure in September 2017 when 7 species were recorded in 3.5 hours. Lake marginal habitats are suitable for foraging bats, some old and veteran trees have potential as roost sites. Additionally, at least one building next to the lake has potential to harbour bat roosts	PRESENT: as a foraging species HIGH: likelihood of bat roosts within the area of the site
Hedgehog	Natural Environment and Rural Communities Act (NERC) 2006, S41, Wildlife and Countryside Act 1981, Schedule 6, Local Species of Conservation Concern	Areas of dense scrub and scattered trees and lawns	37 Occurrences from the data search area noted by GiGL. Hedgehog also recorded by Dave Dawson. Suitable habitat present e.g. areas of short mown grassland for foraging, and scattered trees and shrubs are likely to offer suitable nest/hibernation sites	HIGH: although no signs of hedgehog found on site e.g. nests and scats.
Breeding birds	Wildlife and Countryside Act 1981 (as amended), Some species also Natural Environment and Rural Communities Act (NERC) 2006, S41, Red/Amber listed	Buildings with voids and ledges. Scattered trees with suitable nest sites and areas of dense scrub	Numerous records of birds returned by GiGL, 29 species of which are cited as breeding. Additionally, a number of birds are listed by Dave Dawson for the site some of which are recorded as breeding. Suitable nesting habitat is present	PRESENT:

Table 3: Assessment of potential presence of protected and BAP priority species and habitats at the Wimbledon Park Lake

Species	Main legislation (see Appendix 4)	Areas where presence should be considered	Reason for consideration	Likelihood of occurrence
Amphibians	NERC Act Section 41 BAP Priority London, Local Species of Conservation Concern, UKBAP	Suitable wet areas, discarded items which can be used as refuges, rotting vegetation	140 occurrences of common frog and 6 occurrences of common toad recorded by GiGL in the data search area. These species also noted by Dave Dawson. Suitable habitat present	HIGH
European eel	The Eels (England and Wales) Regulations 2009	The lake, particularly where the area sub-surface structures and vegetation which can be used as refuges	This species is mentioned and regarded as present in the lake by Dave Dawson (c.2013 & 2017)	MEDIUM
Stag beetle	Habitat &Species Directive Annex 2np, NERC Act Section 41, BAP Priority London, Local Species of Conservation Concern, Nationally Notable B UKBAP	Old trees with ample decay wood	GiGL reports 73 occurrences of stag beetle from with the data search area. Suitable decay wood habitat present	HIGH
Bluebell	Wildlife &Countryside Act 1981 (as amended) Schedule 8, Local Species of Conservation Concern	Ancient woodland	GiGL reports three occurrences of bluebell in the data search area. • Dave Dawson (2018) reports extensive areas of native bluebell as being present in Ashen Grove Wood.	PRESENT
Old oaks	National Planning Policy Framework paragraph 118	Scattered throughout site	A number of veteran and ancient oak trees have been identified in Wimbledon Park by D Dawson (c.2013) and Denis J Vickers 2018	PRESENT

Table 3: Assessment of potential presence of protected and BAP priority species and habitats at the Wimbledon Park Lake

Species	Main legislation (see Appendix 4)	Areas where presence should be considered	Reason for consideration	Likelihood of occurrence
Invasive species	Wildlife and Countryside Act 1981 (as amended) Schedule 9	Whole site	No records returned from GiGL and no incidences noted on site however, invasive species can occur in a variety of locations and might lie dormant in the soil	LOW
Snowberry (2), Butterfly-bush (3), Cherry Laurel (3), Holm oak (5), Green alkanet (6)	London Invasive Species Initiative (LISI) INNS Categories in brackets in column to the left (non-statutory classification)	Public park, Ashen Grove Wood, island	Reported by Dave Dawson (2018) / Denis Vickers in 2018	PRESENT
Russian vine, Bamboo spp., Pampas-grass	Non-classified invasive species	Russian vine in Ashen Grove Wood, other species at lake-side	Russian vine reported by Dave Dawson (2018) other species present recorded Denis Vickers in 2018	PRESENT

Table 4: Assessment of potential presence of invasive species at the Wimbledon Park Lake

4.0 Site evaluation

4.1 Introduction

The value or potential value of an ecological resource or feature on site (i.e. habitats and species) is evaluated following standard guidance on ecological impact assessment published by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2016).

4.2 Geographical frame of reference

The following geographical frame of reference is used:

- International
- UK
- National (England)
- Regional (East of England)
- County (Greater London)
- District (L B Merton)
- Local or parish (1km radius of site)
- Immediate zone of influence of the site (Site)
- Negligible

4.3 Ecological features on site:

4.3.1 Features of International Value:

a) Primarily these are sites covered by international legislation or conventions, such as those sites designated under the Habitats Regulations which implements the Natural Habitats and Wild Fauna and Flora (92/43/EC) (Habitats Directive). Examples include Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites which are designated for habitats and / or important populations of species.

b) There are no sites of international importance for nature conservation within a 1km radius of the site centroid, nor does the site meet any of the criteria for designation at this scale.

4.3.2 Features of National value:

a) These include statutory sites such as SSSIs which are designated under the Wildlife and Countryside Act 1981 (as amended).

b) The site does not form part of a site of national importance for nature conservation.

c) None of the habitats or populations or assemblages of species present, or likely to be present, would necessitate designation at the national level using appropriate criteria e.g.: Guidelines for selection of biological SSSIs (JNCC, 1989 (rev. 1998)).

d) National legislation provides protection to a number of species (in addition to those covered by international legislation) e.g. bats and breeding birds. While such species may be present, the population of any one species is unlikely to be of national importance in terms of diversity, size or rarity.

4.3.3 Features of County (i.e. Greater London) Value:

a) The site is largely situated within an area designated as a Borough Grade 1 SINC and chiefly supports habitats and species of value at this level. However, the site includes four of the 13 London regional BAP habitats (targets for 2020) cited in the London Plan (2016). These habitats are also provided for in Section 41 of the NERC Act 2006 (as amended). Seven species of bats are known to forage over the lake, four of these are UK Priority species. There is also potential for some of these species to roost on site. A relatively large number of bird species use the site both for breeding and overwintering including Red and Amber List species. In addition, the IUCN Critically Endangered European eel might be present (most likely in small numbers). The regionally important supporting habitats and the number of regionally, nationally and possibly internationally important species represented are likely of value at the County scale.

4.3.4 Features of District (London Borough of Merton) Value:

a) The site lies largely within an area designated as a Borough Grade 1 SINC and chiefly supports habitats and species of value at this level.

b) The site includes a small area of ancient woodland which is rare in Merton and a number of old and veteran pedunculate oak trees. The latter is highly likely to support a population of stag beetle categorised by the IUCN as Near Threatened. These features are of value at the District scale.

4.3.5 Features of Local (1km radius of site) Value:

a) The site is likely to support a number of common frogs, common toads and European hedgehog (which are Species of Principal Importance in England) in numbers which would justify significance in a Local context. Additionally, scattered trees and wooded areas that have a high potential to harbour nesting birds, are also likely to fall in this category.

b) The LISI invasive species which are present can also be considered a significant threat at a Local level.

4.3.6 Features of value within the zone of influence of the site:

a). Buildings (particularly the Bowls Pavilion – Building B), have a moderate potential to support low numbers of breeding birds. Consequently, these features are likely to be of significance in the immediate vicinity of the site only.

5.0 Conclusions and recommendations

5.1 Conclusions

5.1.1 The site includes four London regional BAP habitats (targets for 2020) cited in the London Plan (2016). These habitats are provided for in Section 41 of the NERC Act 2006 (as amended).

5.1.2 The species richness regarding the site's flora is relatively high with 146 taxa cited (Appendix 3) 81 taxa were recorded by the author and further 65 non-duplicated records via Dave Dawson (2013, 2017 & 2018). Included are a number of native and planted species (mostly associated with landscape areas and scattered trees and shrubbery). Thirteen taxa are notable in a Greater London context.

5.1.3 The site is not situated within any statutory designated nature conservation sites. No statutory European or National sites occur within 1km of the site centroid (although Wimbledon Common SSSI, SAC is located 1.19km away). Part of the site lies within the Wimbledon Park Site of Borough Importance for Nature Conservation (a non-statutory designation). Overall,10 SINCs occur within a 1km radius of the site centroid.

5.1.4 As the proposals for the site are limited to the lake, if conducted with due care (e.g. optimum timing of works, sensitive selection of access routes and storage areas, and the establishment of appropriate root protection zones for any mature trees near proposed works and access routes) there would be limited adverse on the greater Wimbledon Park SINC beyond the site's (i.e. the area of influence's) perimeter. Additionally, due to scale and distance, negative impacts on other SINCs within a 1km radius are likely to be negligible.

5.1.5 The work of Fure (2018) clearly establishes the significance of the site for foraging bats particularly over the lake. There is also a high likelihood that bats roost on site. At least one building (B) and several mature (living and dead) pedunculate oaks present possible roosting sites but further survey work is required.

5.1.6 The buildings (particularly the Bowls Pavilion – Building B), have moderate potential to support low numbers of breeding birds. Consequently, these features are likely to be of significance in the immediate vicinity of the site only. Additionally, the lake is highly likely to support breeding waterfowl e.g. geese, mute swan, coot, mallard, moorhen and great crested grebe.

5.1.7 The lake is of significance for overwintering waterfowl e.g. a variety of gulls (mostly Amber Listed), pochard and shoveler (both Red Listed).

5.1.8 Records of great crested newt were not retrieved from the GiGL data search area (within 1km of the site's centroid) or the papers produced by Dave Dawson (2013 & 2017). Additionally, the HSI score was low at 0.16. This indicates Wimbledon Park Lake constitutes generally poor habitat for GCN as the score is < 0.5. In conclusion, GCN is unlikely to be present.

5.1.8 The proposals for desilting the lake have a potential to destroy suitable eel refuges, amphibian habitat, bird nesting and bat roosting habitat on site i.e. cause damage to lake-side structures, wet marginal vegetation and waterside trees.

5.2 Recommended phase 2 surveys

5.2.1 It is recommended that, prior to any works commencing on-site, the following precautionary works and/or surveys for protected species be carried out:

5.2.2 Whilst a breeding bird survey is not considered necessary, it is recommended that any works be undertaken outside of the bird nesting season which runs from March to August inclusive. If this proves impossible for whatever reason, then a search for nesting birds should be conducted by suitably qualified ecologists within the 24 hours prior to site clearance. If any birds' nests are in danger of being damaged or destroyed by the works, then activities in the vicinity of the nest should be suspended until young birds have fledged.

5.2.3 Following the Bat Conservation Trust's Good Practice Guidelines (Collins J, (ed.), 2016) there is a high likelihood of bat roosts being present. Emergence/re-entry surveys identifying any bat roost sites are recommended, this should establish the location(s) and type of roosts present. Bat surveys should also include an appraisal of bat foraging and commuting in the vicinity of the lake and the likely impact and any mitigation required regarding desilting works. A Natural England licensed bat ecologist should carry out this work. The ecologist should also judge the degree of survey effort required. Bat surveys must be undertaken between May and September inclusive with at least one visit between May and August.

5.2.4 A fish study has been undertaken, L B Merton (2018) report that once the draft report is received it will be reviewed and finalised for discussion at its next Technical Steering Group Meeting. If the study did not include the European eel and give an indication of numbers, age and distribution, this would need to be commissioned. The author feels eels are likely to be relatively old and numbers low as migration routes appear restricted. A survey of eels would help to inform necessary improvements to the lake and migration routes.

5.2.5 An amphibian survey should be undertaken to establish presence/absence within the site. This is likely to involve one survey in March followed by three between mid-April and the end of May. If present, mitigation measures will be needed to minimise impact on amphibians and their habitat.

5.2.7 Although the site survey and GiGL data search found no occurrences of invasive species such as Japanese knotweed *Fallopia japonica*, Indian balsam *Impatiens glandulifera* or giant hogweed *Heracleum mantegazzianum*, it is strongly suggested that a further survey is conducted prior to any on-site works being undertaken. Vegetative material (and seeds regarding the latter two species) can remain dormant in the soil for considerable periods of time.

5.3 Recommendations to maintain biodiversity

5.3.1 A detailed method statement for works should be prepared in the light of this report and the phase two surveys it recommends. It should highlight how features of ecological importance are to be avoided, protected or any damage mitigated. It should detail access

routes for vehicles and storage areas, as well as the parts of the lake which will be impacted.

5.3.2 Features to avoid should include mature pedunculate oak trees, mature dead or dying trees, Ashen Grove Wood ancient woodland and the lake's inflows and outflows.

5.3.3 All mature trees which might be located in the vicinity of proposed works, access routes and storage areas must be protected by means of suitable barriers, such as those detailed in British Standard (BS) 5837:2012 'Trees in relation to construction – Recommendations'.

5.3.4 Any remedial works to trees (e.g. to allow the passage of machinery) must be carried out in accordance with British Standard BS3998 – 2010 – 'Recommendations for Tree Works'

5.3.5 As the Lake is designated a reservoir under the Reservoirs Act 1975 the Environment Agency should be consulted on the preparation of a method statement for the proposed works.

5.3.6 Care should be taken not to block or hinder potential migration routes for the European eel which might contravene the Eels (England and Wales) Regulations 2009. The Environment agency should be consulted regarding these plans.

5.3.7 If silt is to be stored on site at the lake's edges and then replanted, species of plant to be used should not only include common reed but other marginal species too. These should be native to the Britain and preferably drawn from species present in Merton and/or adjacent boroughs.

6.0 References

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Appendix 1: The Site – Area of Influence


N
0
100
200 m
1:3,500
Area of Influence
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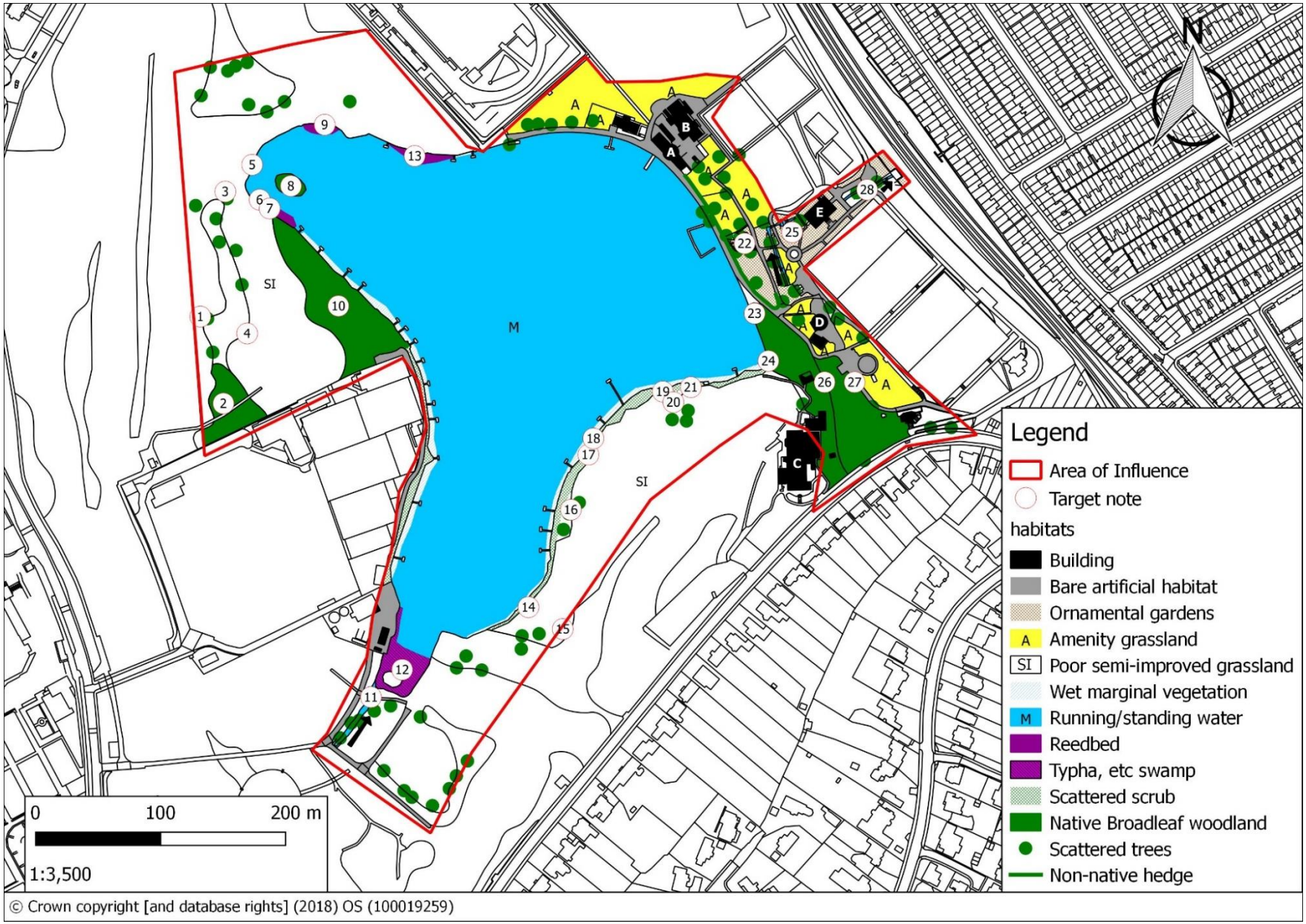
Appendix 2 : Habitat map and target notes

Appendix 2a Habitat map

Appendix 2b Target notes and buildings

Appendix 2a Habitat map



Appendix 2b Target notes and buildings

Target Notes:

No.	Grid ref	Description	Approx. girth/age*	No.*
1	TQ24447231	Oak	207	9
2	TQ2446372245	Wooded area		
3	TQ24467241	Oak	154	10
4	TQ2448272301	Oak	5m (300)	
5	TQ2448672436	Bigden Brook inflow		
6	TQ2449272408	AELTC drain inflow		
7	TQ2450072401	Reedbed (Phragmites)		
8	TQ2451772419	Island		
9	TQ2454472468	Reedbed (Phragmites)		
10	TQ2455572323	Scattered trees and scrub		
11	TQ2458172010	Rushmere Brook inflow		
12	TQ2460672032	Typha beds		
13	TQ2461672443	Reedbed (Phragmites)		
14	TQ2470772082	Bamboo spp./Pampas-grass	N/a	
15	TQ24737206	Oak	259	18
16	TQ2474172160	Large dead oak - bats?	4m	
17	TQ2475572204	Oak with bat box	4m	
18	TQ2475972217	Oak (dead) – bats?	5m	
19	TQ24817225	Oak	209	20
20	TQ2482372246	Oak	4m	
21	TQ2483772258	Bamboo spp.	N/a	
22	TQ2488072373	Waterfall (ornamental) Gardens		
23	TQ2488872317	Oak	3.5m	
24	TQ2489972279	Main outflow from Lake		
25	TQ2491872382	Oak	2.5m	
26	TQ2494472262	Ashen Grove Wood		
27	TQ2496872262	Oak	2.5m (171)	
28	TQ2497872416	Wimbledon Park Brook		

*Data Dave Dawson (c.2013)

Buildings:

No.	Grid ref	Description
A	TQ2482172446	Sailing Base
B	TQ2483372466	Bowls Pavillion
C	TQ2492272197	Club House complex (golf course)
D	TQ2494072310	Toilet block
E	TQ2494072398	Café

Appendix 3: Species lists

Appendix 3a Vascular plant list

Appendix 3b Fauna seen or heard

Appendix 3a Vascular plant species

Scientific name	English name	Qual.	DAFOR	Notes	DD*
Acer platanoides	Norway maple				DD3
Acer pseudoplatanus	Sycamore				DD2/3
Achillea millefolium	Yarrow		O	Scattered	DD2
Acorus calamus	Sweet flag	W	A	Lake-side	DD2
Aesculus hippocastanum	Horsechestnut				DD2/3
Agrostis sp.	Bent grass		O		
Alliaria petiolata	Garlic mustard				DD2
Alnus glutinosa	Alder	YT	O	Particularly lake-side	DD2
Amaranthus sp.	Amaranth/Pigweed				DD2
Anacamptis pyramidalis+	Pyramidal orchid				DD1
Anisantha sterilis	Barren brome				DD2
Anthriscus sylvestris	Cow parsley		F	Mostly wooded areas	DD2/3
Arabidopsis thaliana	Thale cress				DD2
Artemisia vulgaris	Mugwort		R		DD2
Arum maculatum	Lords and ladies		O	Wooded areas	DD1/3
Aster agg.	Michaelmas daisy				DD2
Atriplex prostrata	Spear-leaved orache				DD2
Bellis perennis	Daisy		F		DD2
Betula pendula	Silver birch	YT	O		DD2
Betula sp.	Birch	YP	R		
Bidens tripartita	Trifid bur-marigold				DD2
Buddleja davidii	Butterfly-bush				DD2/3
Callitriche platycarpa+	Various-leaved water-starwort				DD2
Caltha palustris+	Marsh marigold				DD2
Calystegia sepium	Hedge bindweed		R	Lake-side vegetation	DD2

Scientific name	English name	Qual.	DAFOR	Notes	DD*
Calystegia x *lucana*+	Hybrid hedge bindweed				DD2
Campanula sp.	Bellflower		R	Bridge supports near Wimbledon Park Brook	
Cardamine flexuosa	Wavy bittercress		O		DD2
Carex pendula	Pendulous sedge	W	F	Chiefly Lake-side and brook	DD2/3
Carex riparia+	Great pond-sedge				DD2
Centaurea nigra	Common knapweed				DD2
Cerastium glomeratum	Sticky mouse-ear				DD2
Ceratophyllum demersum	Ridged hornwort		A	In water	DD2
Chamerion angustifolium	Rosebay willowherb				DD2
Choisya ternata	Mexican orange blossom	P	O	Ornamental gardens near Wimbledon Park Brook	
Cirsium arvense	Creeping thistle				DD2
Cirsium vulgare	Spear thistle		R		DD2
Conyza sumatrensis	Guernsey fleabane				DD2
Cortaderia selloana	Pampas-grass				DD2
Corylus avellana	Hazel		R		DD2
Corypheae	Fan Palm		O	Waterfall Gardens	
Crataegus monogyna	Hawthorn	Y	O		DD2
Crataegus x *media*+	Hybrid hawthorn				DD1
Dactylis glomerata	Cock's-foot		O		DD2/3
Deschampsia cespitosa	Tufted hair-grass				DD2
Epilobium hirsutum	Great willowherb	W	O	Mostly lake-side	DD2
Fallopia baldschuanica	Russian vine				DD3
Fatsia japonica	Japanese aralia	PC	O	Waterfall Gardens	
Festuca sp.	Fescue		A	Chiefly golf course grassland	
Ficaria verna	Lesser celandine				DD2
Fraxinus excelsior	Ash	YT	O		DD2/3
Galium aparine	Cleavers		O		DD2
Geranium robertianum	Herb Robert				DD2

Scientific name	English name	Qual.	DAFOR	Notes	DD*
Geum urbanum	Wood avens		R		DD2
Glechoma hederacea	Ground ivy				DD2
Glyceria maxima	Reed sweet-grass				DD2
Hedera helix	Ivy	C	D	Particularly Ashen Grove Wood, less common lake-side	DD2/3
Helleborus sp.	Hellebore	P	O	Waterfall Gardens	
Hirschfeldia incana	Hoary mustard				DD2
Hordeum murinum	Wall barley		O		DD2
Hordeum secalinum	Meadow barley				DD1
Hyacinthoides non-scripta	Bluebell				DD1/3
Hyacinthoides x *massartiana*	Hybrid bluebell		O		DD2
Ilex aquifolium	Holly	YT	O		DD2/3
Iris pseudacorus	Yellow iris	W	F	Lake-side	DD2/3
Juncus effusus	Soft rush	W	O	Lake and brook margins	DD2
Juncus inflexus	Hard rush				DD2
Lamium album	White dead-nettle	C	F		DD2
Lamium purpureum	Red dead-nettle	C	F		DD2
Laurus nobilis	Sweet bay				DD2
Lemna minor	Common duckweed				DD2
Lemna minuta	Least duckweed				DD2
Lepidium didymum	Lesser swine-cress	F	R	Edge of footpath near lake - public park	
Ligustrum ovalifolium	Garden privet	C	D	Hedges particularly near lake - public park	
Liquidambar styraciflua	Sweet gum	PCY	O	Public park	
Lolium perenne	Perennial rye-grass		D	Particularly public park - less common elsewhere	DD2
Lonicera periclymenum	Honeysuckle				DD2
Lonicera pileata	Box-leaved honeysuckle	PC	O	Ornamental gardens near Wimbledon Park Brook	
Lotus corniculatus	Bird's-foot trefoil				DD2
Lycopus europaeus	Gypsywort			Lake-side and brook	DD2
Lythrum salicaria+	Purple loosestrife				DD2

Scientific name	English name	Qual.	DAFOR	Notes	DD*
Mahonia aquifolium	Oregon grape	P	O	Park - ornamental gardens	
Matricaria discoidea	Pineapple weed				DD2
Medicago lupulina	Black medick				DD2
Mentha aquatica	Water mint				DD2
Mercurialis perennis	Dog's-mercury				DD1
Milium effusum	Wood millet				DD1/3
Narcissus sp.	Daffodil		F	Particularly, Waterfall Gardens and near Wimbledon Park Brook	DD2
Nasturtium officinale+	Watercress	W	R	Lake-side and brook	DD1
Nuphar lutea+	Yellow waterlily				DD2
Oenanthe crocata	Hemlock water-dropwort	W	R	Lake-side and brook	DD2
Pentaglottis sempervirens	Green alkanet		O		DD2/3
Persicaria maculosa	Redshank				DD2
Phragmites australis	Common reed	WC	D	Lake-side clumps to the north of lake	DD2
Picris hieracioides	Hawkweed oxtongue				DD2
Plantago lanceolata	Ribwort plantain		R	Golf course	
Plantago major	Great plantain		R		DD2
Platanus x *hispanica*	London plane	T	R	Public park	
Poa annua	Annual meadow-grass		O		DD2
Poa pratensis	Smooth meadow-grass				DD2
Populus nigra (fastigiate cultivar)	Black poplar (fastigiate)	T	R		
Populus x *canadensis*	Hybrid black poplar				DD2
Potamogeton berchtoldii+	Small pondweed				DD2
Potentilla reptans	Creeping cinquefoil				DD2
Prunella vulgaris	Sealfheal		R		DD2
Prunus avium	Wild cherry	Y	R	Public park	DD2
Prunus laurocerasus	Cherry laurel		R	Public park	DD3
Prunus sp.	Ornamental cherry	T	F	Public park	
Quercus ilex	Holm oak		O		DD2

Scientific name	English name	Qual.	DAFOR	Notes	DD*
Quercus robur	Pedunculate oak	SYT	F	Well distributed over entire park	DD2/3
Ranunculus repens	Creeping buttercup		O		DD2
Rorippa palustris+	Marsh yellow-cress				DD2
Rosa canina	Dog rose				DD2
Rosa sp.	Cultivated rose	P	F	Ornamental gardens near Wimbledon Park Brook	
Rubus fruticosus agg.	Bramble		A	Abundant at lake-side away from public park less common elsewhere	DD2
Rumex conglomeratus	Clustered dock				DD2
Rumex obtusifolius	Broadleaved dock		R		DD2
Rumex sanguineus var. *viridis*	Wood dock				DD2/3
Ruscus aculeatus	Butcher's-broom	PC	O	Ornamental gardens near Wimbledon Park Brook	
Salix caprea	Goat willow		R	Lake-side	DD2
Salix cinerea	Grey willow		O	Lake-side	DD2
Salix fragilis agg.	Crack willow	YT	O	Most frequent near lake	DD2
Salix x *sepulcralis*	Weeping willow	T	O	Near lake-side	
Sambucus nigra	Elder		R		DD2/3
Sasa palmata	Broadleaved bamboo		R	Patch at lake-side	DD2
Schedonorus arundinaceus	Tall fescue				DD2
Scorzoneroides autumnalis	Autumn hawkbit				DD2
Scrophularia sp.	Figwort	W	R		
Senecio vulgaris	Groundsel	C	O	Disturbed ground	DD2
Silaum silaus+	Pepper saxifrage				DD2
Sisymbrium officinale	Hedge mustard				DD2
Stachys sylvatica	Hedge woundwort				DD1
Stellaria media	Chickweed		O		
Stellaria pallida	Lesser chickweed				DD1
Symphoricarpos albus	Snowberry	PC	O	Ornamental gardens near Wimbledon Park Brook	
Taraxacum sp.	Dandelion		R		DD2/3
Taxus baccata	Yew	PC	O		DD2

Scientific name	English name	Qual.	DAFOR	Notes	DD*
Tilia x *europaea*	Common lime	PT	O	Public park	
Trifolium repens	White clover		O	Mostly amenity grassland	DD2/3
Typha latifolia	Bulrush	WC	A	Southern end of lake only	DD2
Ulmus procera	English elm	YC	F	Mostly young suckers in woodland and at lake edge	DD2/3
Urtica dioica	Stinging nettle		O	Disturbed ground	DD2/3
Viburnum tinus	Laurustinus	P	O	Public park	
Vicia sativa	Common vetch		R		DD2
Viola odorata	Sweet violet				DD1
Zannichellia palustris+	Horned pondweed				DD2

Species recorded by Denis Vickers February/March 2018
Relative abundance (DAFOR):

D:Dominant; A:Abundant; F: Frequent; O: Occasional; R:Rare

Qual.=Qualifiers:

T=Mature tree; Y=Young Tree; S=Seedling or sapling; W=Wet area or hollows; C=Clumped; P=Planted; E=Edge; F=Footpath

DD* Records Dave Dawson:

DD1=Dawson D. c.2013. Special species and special places for nature in the Wimbledon Park Grade II* Heritage Site: a map, schedule and background.

DD2=Dawson D. 2017. Wimbledon Park Lake

DD3=Dawson D. 2018. Ashen Grove Wood

+ Notable species for the Greater London area. Notable is defined as species which were recorded from 15% or fewer of the 400 two-kilometre recording squares (tetrads) in Greater London in the Flora of the London Area (Burton 1983).

Appendix 3b Fauna seen or heard

Birds:
Blackbird
Black-headed gull
Canada goose
Carrion crow
Coot
Feral pigeon
Great tit
Greylag goose
Jackdaw
Magpie
Mallard
Mistle thrush
Moorhen
Mute swan
Pochard
Ring-necked parakeet
Robin
Tufted duck
Wood pigeon
Wren

Mammals:
Fox
Grey squirrel

Appendix 4: Legislation

Important notice: *This section contains details of legislation appropriate in England only (i.e. it may not be relevant to the other home nations, Isle of Man, or the Channel Islands) and is provided for general guidance only. While every effort has been made to ensure accuracy, this section should not be relied upon as a definitive statement of the law.*

Wildlife in Britain receives protection under various legislation including:

- Wildlife and Countryside Act 1981 (as amended)
- The Protection of Badgers Act (1992)
- The Countryside and Rights of Way Act 2000
- Conservation of Habitats and Species Regulations 2010
- Natural Environment and Rural Communities Act 2006
- The Eels (England and Wales) Regulations 2009

Habitats of regional or national importance are designated as statutory Sites of Special Scientific Interest (SSSIs).

Other statutory designations applied for sites of international importance include Special Protection Areas (SPAs), Wetlands of International Importance (Ramsar sites) and Special Areas of Conservation (SACs). Such sites are by definition also designated as SSSIs.

In addition to statutorily protected sites, there are ranges of non-statutory designations applied at a local level by local planning authorities. These are called Sites of Biological Importance (SBIs), Sites of Nature of Importance for Nature Conservation (SINCs) or similar.

Species that are protected or otherwise regulated under this legislation include:

- amphibians and reptiles
- great crested newt
- bats
- hazel dormouse
- badger
- birds
- stag beetle
- European eel
- bluebell (native)
- plants: invasive plant species

Amphibians and Reptiles

All native herpetofauna are listed on Schedule 5 of the Wildlife and Countryside Act, 1981 and receive some degree of protection. The sand lizard *Lacerta agilis*, smooth snake *Coronella austriaca*, natterjack toad *Bufo calamita* and great crested newt *Triturus cristatus* receive full protection under the Act, and are also protected under Part 3 of the Conservation of Habitats and Species Regulations 2010. This prohibits the intentional killing, injuring or taking of animals; intentional disturbance whilst occupying a place used for shelter; the destruction of these places; and the sale of animals. The adder *Vipera berus*, grass snake *Natrix natrix*, common lizard *Lacerta vivipara* and slow-worm *Anguis fragilis* receive protection against deliberate killing, injuring and sale under subsections 9(1) and 9(5) of the act, whilst common frog *Rana temporaria*, common toad *Bufo bufo*, smooth newt *Triturus vulgaris* and palmate newt *T. helveticus* are protected from sale only.

Licences are only required for works affecting fully protected species of amphibian and reptile, but mitigation measures may be required to prevent the deliberate killing or injury of adder, grass snake, common lizard and slow worm.

Great crested newt

Great crested newts receive full legal protection under The Conservation of Species and Habitats Regulations 2010 and the Wildlife and Countryside Act 1981 (as amended). It is illegal to deliberately injure, kill, capture or disturb a great crested newt, or to damage, destroy or obstruct any places used for shelter and protection.

Bats

All species of bat are fully protected under the Wildlife and Countryside Act 1981 (as amended) through their inclusion in Schedule 5. All bats are also included in Schedule 2 of the Conservation of Habitats and Species Regulations 2010. The Act and Regulations make it illegal to:

- intentionally or deliberately kill, injure or capture (take) bats;
- deliberately disturb bats (whether in a roost or not);
- damage, destroy or obstruct access to bat roosts;
- possess or transport a bat or any other part of a bat, unless acquired legally; or
- sell, barter or exchange bats or parts of bats.

If a bat roost is to be affected by development activities, a licence from the Department for the Environment, Food and Rural Affairs (DEFRA) will need to be obtained to mitigate any detrimental effects.

Hazel dormouse

Is protected under both the Conservation of Habitats and Species Regulations 2010 and the Wildlife and Countryside Act 1981 (as amended).

Dormice and their breeding sites and resting places are fully protected. Without a licence it is an offence for anyone to deliberately disturb, capture, injure or kill them. It is also an offence to damage or destroy their breeding or resting places, to disturb or obstruct access to any place used by them for shelter. It is also an offence to possess, or sell a wild dormouse.

Badger

Badgers and their setts are protected under the Protection of Badgers Act 1992 (as amended). This makes it an offence to:

- Intentionally kill, injure or take these species;
- Possess or control live or dead these species or derivatives;
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place
- used for shelter or protection;
- Intentionally or recklessly disturb these species whilst occupying a structure or place used for that purpose;
- Sell these species or offer or expose for sale or transport for sale; and
- Publish or cause to be published any advertisement which conveys the buying or selling of these species.

Birds

All birds, their eggs and nests are protected by law under the Wildlife and Countryside Act 1981 (as amended). It is an offence to kill, injure or take any wild bird, or to take or destroy their eggs. It is also an offence to take damage or destroy the nest of any wild bird while it is in use or being built. Certain species including black redstart receive additional special protection under Schedule 1 of the Act and under Annex 1 of the European Community Directive on the conservation of Wild Birds (79/409/EEC).

European hedgehog

Hedgehogs are protected, in England, Scotland and Wales, under the Wildlife and Countryside Act 1981, Schedule 6 and in Northern Ireland under the Wildlife (NI) Order 1985, Schedules 6&7. What this means is they are:

"protected from being killed or taken by certain methods under Section 11(1) of the Wildlife and Countryside Act 1981. The methods listed are: self-locking snares, bows, crossbows, explosives (other than ammunition for a firearm), or live decoys. The species listed are also protected from the following activities: trap, snare or net, electrical device for killing or stunning, poisonous, poisoned or stupefying substances or any other gas or smoke, automatic or semi-automatic weapon, device for illuminating a target or sighting device for night shooting, artificial light, mirror or other dazzling device, sound recording, and mechanically propelled vehicle in immediate pursuit."

Hedgehogs are also list under Section 41 of the NERC Act 2006 – see below.

Stag Beetle

The stag beetle is listed on Schedule 5 of the Wildlife and Countryside Act (1981, as amended) but only to prevent trade. A major threat to stag beetles, especially in Europe, has been from private collectors and the legislation aims to stop the species from being collected for sale at entomological fairs. It is also listed on Appendix 111 of the Bern Convention on the Conservation of European Wildlife and Natural Habitats, 1979 and Appendix 2 of the Habitats Directive. The latter requires the UK to designate Special Areas of Conservation (SAC) specifically to protect the stag beetle.

European eel

The Eels (England and Wales) Regulations 2009 provide measures for the recovery of the stock of European eel.

The regulations particularly apply to:

- Licensed abstractors of water: companies or individuals abstracting and/or discharging water for a wide range of industrial, agricultural and other purposes
- Impounding works: any dam, weir, or other works by which water may be impounded
- Anyone constructing, altering or maintaining a dam, or any other structure in or near water, liable to cause an obstruction to the passage of eels.

The requirements of the regulations are:

- The requirement to notify the Environment Agency of the construction, alteration or maintenance of any structure likely to affect the passage of eels

- Where any such structure exists, the requirement to construct and operate an eel pass to allow the free passage of eels
- The removal of any obstruction, if deemed necessary
- The use of eel screens to exclude eels from water abstraction and discharge points
- If necessary, the use of a by-wash to return excluded eels to the waters they came from.

It is an offence to:

- fail to comply with the regulations
- to obstruct any person acting in the execution of the regulations
- to withhold any assistance or information reasonably required by any such person
- to supply false or misleading information to any such person.

Section 41 of the Natural Environment and Rural Communities (NERC) Act 200

Provides a list of Habitats and Species of Principal Importance in England (S41 list). This list was compiled to act as a guide to decision-makers such as public bodies in implementing their duty under section 40 of the Natural Environment and Rural Communities Act 2006 “to have regard” to the conservation of biodiversity in England, when carrying out their normal functions. In particular Local Planning Authorities will use it to identify the species and habitats that require specific consideration in dealing with planning and development control. There are 56 habitats and 943 species included on the S41 list. These are all habitats and species that have been identified as requiring action in the UK BAP.

Birds of Conservation Concern (BoCC)

The BoCC lists provide the status of the birds that occur regularly in the UK. They are produced by the UK’s leading bird conservation organisations. Red-listed species are those that are Globally Threatened according to International Union for Conservation of Nature (IUCN) criteria; those whose population or range has declined rapidly in recent years, and those that have declined historically and not shown a substantial recent recovery. Amber-listed species are those with an unfavourable conservation status in Europe; those whose population or range has declined moderately in recent years, those whose population has declined historically but made a substantial recent recovery, rare breeders, and those with internationally important or localised populations.

Plants: Invasive plant species

Certain species of plant, including Japanese knotweed *Fallopia japonica* and giant hogweed *Heracleum mantegazzianum*, are included in Section 14 and Part II of Schedule 9 of the Wildlife and Countryside Act 1981 making it an offence for them to be planted in the wild or otherwise caused to grow or spread in the wild.

Appendix 5: Site Photographs

Photo 1: *Golf Club House (Building C)*

Photo 2: *Bowls Pavilion (Building B) – note raised flashing*

Photo 3: *Bowls Pavilion (Building B) – note gaps under tiles at the roof edge*

Photo 4: *Waterfall (ornamental) Gardens TN22*

Photo 5: *Café (Building E)*

Photo 6: *A relatively large specimen of pedunculate oak near Café (TN25)*

Photo 7: *Typical area of amenity grassland (near Café)*

Photo 8: *Close mown poor semi-improved grassland associated with the golf course*

Photo 9: *Note - on the lake-side of the lake, there are areas of wet marginal vegetation*

Photo 10: *On the landside of the water-margins, wet marginal vegetation merges with a narrow zone of scattered scrub and a few (mostly young) trees*

Photo 11: *broadleaved bamboo Sasa palmata (TN14)*

Photo 12: *Type of bamboo with far narrower leaf-blades (not yet identified) (TN21)*

Photo 13: *Single specimen of pampas-grass Cortaderia selloana next to broadleaved bamboo (TN14)*

Photo 14: *Wimbledon Park Brook (TN28)*

Photo 15: *Watercress Nasturtium officinale in Wimbledon Park Brook*

Photo 16: *Reedbed (TN7) at the north-west extremity of the lake. Note - other small reedbeds occur at TN9 and TN13*

Photo 17: *Bulrush Typha latifolia beds (TN12) near the inflow of the Bigden Brook*

Photo 18: *Bigden Brook inflow (TN11)*

Photo 19: *Understorey was cleared in the 1950s from the part of Ashen Grove Wood (TN26) that lies in the public park leaving only isolated trees standing*

Photo 20: *Ivy and bramble are abundant components of the woodland ground flora in the part of Ashen Grove Wood within the golf club (cf. Photo 19 above)*

Photo 21: *Young woodland and scrub (TN10)*

Photo 22: *The small island (TN8) at the north-western end of the lake appears to be wooded with holm oak and pedunculate oak*

Photo 23: *Mature pedunculate oak (TN4)*

Photo 24: *Mature pedunculate oak (TN23)*

Photo 25: *Large dead oak (TN18)*

Photo 26: *Large dead oak (TN16)*

Photo 27: *Garden privet non-native hedge aside the lake footpath*