8.11 PRELIMINARY ECOLOGICAL ASSESSMENT

Marble Hill Park

Preliminary Ecological Appraisal

for

English Heritage

July 2015

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Executive Summary

- A preliminary Ecological Assessment of Marble Hill Park was carried out on 9 June 2015. The purpose of the assessment was to identify habitats present, carry out a protected species risk assessment and to make recommendations for enhancing the nature conservation value of the site.

- A biological record search for species and habitats with a 1km radius of the site was also commissioned from Greenspace Information for Greater London (GiGL).

- Habitats present included broad-leaved woodland, semi-improved neutral grassland, amenity grassland, improved grassland, hedgerows and tall ruderal vegetation.

- The woodland along the southern boundary of the site was relatively open with a mix of canopy species but a relatively limited shrub layer. The ground layer was species poor. A notable feature were the number of mature/veteran trees. The other woodlands were very dense with limited ground flora. There were also a number of non-native invasive species present including false acacia, Turkey oak, cherry laurel and snowberry.

- There were a number of areas of semi-improved neutral grassland which are not intensively managed. The most species-rich area was to the south east of the site with a good number of herb species present. Other areas which are cut less frequently are relatively species-poor in comparison.

- There were areas of tall ruderal vegetation along the southern boundary as well as the river bank which were dominated by common nettle, broad leaved dock and cow parsley.

- A relatively young hedge formed the northern boundary of the site.

- Regularly mown amenity grassland with scattered trees formed the majority of the central part of the site. The grassland was species poor, however many of the trees were of high nature conservation value.

- The following species groups are likely to be supported at the site:

    - Breeding birds in areas of woodland, mature/veteran trees
    - Bats in mature/veteran trees as well as buildings such as the grotto and ice house.
    - Common species of reptile within woodland, woodland edge habitat and less intensively managed grassland.

- There were a number of notable plant species recorded at the site. These are 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).

- Recommendations include:

    - Assessment of trees for bat roost potential, especially if any works are planned or trees are to be felled.

    - If any outbuildings are to be demolished, they should be surveyed for bats prior to any works. If roosts are found, a Natural England licence may be required.

    - Bat surveys to establish commuting routes. This should inform any landscaping plans.

- Thinning denser areas of woodland.
- Removal of non-native invasive species including Turkey oak (High value mature specimens of these species could be retained), evergreen oak false acacia, cherry laurel and snowberry.
- Consider haloing high value mature/veteran trees along the southern boundary.
- Retain dead fallen logs, standing dead trees and large cut timber. Create stag beetle habitat by half burying logs in areas of dappled shade.
- Allow the development of an ecotone[1] between grassland and woodland areas along the southern boundary.
- Increase the area of species-rich grassland across the site by relaxing the mowing regime adjacent to areas of high value grassland.
- Do not plant trees in areas of semi-improved grassland.
- Modify the grassland management regime to suppress coarse grass species from invading areas of higher value grasslands and allow increased germination of broad leaved herbs. This will involve mowing 2-3 times per year and removing arisings.
- Allow the hedge along the northern boundary to develop and trim lightly every 3 years.
- Augment the hedge along the western boundary by planting additional native species. Allow to develop.
- Any tree or woodland works should be carried out outside the bird breeding season (March to July inclusive).
- Control dog fouling through provision of bins, notices etc. Dog fouling is likely to have a major detrimental impact on areas of grassland.
- If any seeding is proposed, only use native species of known native (ideally local) provenance from a reputable supplier.
- Do not plant any non-native invasive species.
- Keep the use of herbicides, fertilizers and pesticides to a minimum.

[1] Transition zone e.g. a scrub zone between grassland and woodland

1.0 Introduction

1.1 Background

1.1.1 Land Management Services was commissioned to undertake a Preliminary Ecological Appraisal of Marble Hill Park with a view to informing a proposed Heritage Lottery Fund project to restore the historic landscape of the park.

1.1.2 The survey findings together with the results of a biological records search are presented in this report. The ecological value and status of the Park is considered and recommendations for enhancing the nature conservation value of the site is provided.

1.2 Personnel

1.2.1 The ecological survey was carried out by Paul Losse BSc (Hons) MSc MCIEEM. Paul is a full member of the Chartered Institute of Ecology and Environmental Management and is subject to the Institute's code of professional conduct when undertaking ecological work.

1.3 Scope of the report

1.3.1 The habitat survey was carried out using a modified version of the standard Phase 1 survey methodology (JNCC, 2010). This is generally the most widely used and professionally recognised method for initial ecological site appraisal. This approach was designed to identify broad habitat types present and to assist in providing an overview of the ecological interest of the site.

1.4 Site context and status

1.4.1 Marble Hill House and Park is located in Twickenham TW1 2NL. The site lies between Richmond Road to the North and The River Thames to the south. The centroid O.S. grid reference is TQ 171737. See figure 1 location map below.

1.4.2 Marble Hill Park is a component site of Marble Hill Park and Orleans House Gardens Site of Local Importance for Nature Conservation (See appendix 4 for citation) and is a grade III listed park.

Figure 1: Location map

2.0 Desk Study

2.1.1 Information regarding the present and historical ecological interest of the site and within a 1km radius was requested from Greenspace Information for Greater London (GiGL). It is important to note that, even where data is held, a lack of records for a defined geographical area does not necessarily mean that there is a lack of ecological interest; the area may be simply under-recorded.

3.0 Field survey

3.1.1 The habitat survey followed a modified version of the standard Phase 1 survey methodology (JNCC, 2010). In addition, a list of vascular plant species was compiled, together with an estimate of abundance made according to the DAFOR scale, each species being assigned to one of the following categories: 'Dominant', 'Abundant', 'Frequent' ', 'Occasional' or 'Rare'. The modifier 'locally' was used where there was a local or clumped distribution of a particular species. The visit for the Phase 1 habitat survey was carried out on the 9 June 2015.

3.1.2 A full list of vascular plant species identifiable at the site during this survey, along with an assessment of their abundance, appears in Appendix 1.

3.1.3 Scientific names are given after the first mention of a species, thereafter, common names only are used. Nomenclature follows Stace (2010) for vascular plant species. Vascular plant common names follow the Botanical Society of the British Isles 2003 list, published on its web site, www.bsbi.org.uk.

3.2 Preliminary protected species assessment

3.2.1 The potential of the site to provide habitat for protected species was assessed from field observations carried out at the same time as the habitat survey, combined with the results of the desk top study. The site was inspected for indications of the presence of protected species as follows:

- Nesting habitat for breeding birds, such as, dense scrub, shrubbery and hedgerows.
- The presence of features such as trees with fissures, holes, loose bark and ivy which may support bat roosts.
- Buildings which may support bat roosts.
- Scrub/grassland mosaic and potential hibernation sites for reptiles.
- Protected species recorded during the survey.

3.2.2 The likelihood of occurrence is ranked as follows and relies on the findings of the current survey and an 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.
- Medium – on-site habitat of moderate quality, providing all of the known key requirements of given species/species group. Local returns from the data search, within national distribution, 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. The site is 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.

3.2.3 The purpose of this assessment is to identify whether more comprehensive Phase 2 surveys for protected species should be recommended or precautions taken to minimise impact on these species should they be present.

3.3 Limitations

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

3.3.2 Some areas of grassland were closely mown increasing the difficulty in identifying some species, especially grasses. In addition, the denser woodland areas along the western boundary and to the south of Marble Hill House were difficult to access. It is likely that these areas were under-recorded.

4.0 Results

4.1 Desk study

International Sites

4.1.1 Richmond Park Special Area of Conservation (SAC), designated for its population of stag beetle, lies approximately 800m to the east across the River Thames.

National Sites

4.1.2 Richmond Park is also designated as a National Nature Reserve (NNR) and notified as a Site of Special Scientific Interest (SSSI) for its extensive acid grassland communities and ancient parkland that support nationally significant assemblages of invertebrates.

4.1.3 Ham Lands, approximately 300m to the south west across the Thames is designated as a Local Nature Reserve (LNR).

Non- statutory designations

4.1.4 There are nine Sites of Importance for Nature Conservation (SINCs) within 1km of the site including Marble Hill Park and Orleans House Gardens. A citation for the latter is found in appendix 4.

Table 1: SINCS within 1km of Marble Hill Park

Site	SINC tier	**Distance Marble Hill Park**	**Direction**
River Thames and Tidal Tributaries	Metropolitan importance	Adjacent	South
Richmond Park and Associated areas	Metropolitan importance	800m	East
Ham Lands	Metropolitan importance	300m	South-west
Petersham Meadows	Borough Grade II	700M	East
The Copse, Holly Hedge Field and Ham Avenues	Borough Grade II	600m	South
Petersham Lodge Wood and Ham House Meadows	Borough Grade II	150m	South
Terrace Field and Terrace Garden	Local Importance	500m	East
Moor Mead Recreation Ground	Local Importance	550m	North-west

Protected species and Species of Principle Importance for the Conservation of Biodiversity

The GiGl data search confirmed a number of records of protected species and Species of Principle Importance within 1km of the site.

Reptiles and amphibia

4.1.5 There are no records of reptiles within 1km of the site.

4.1.6 Common toad *Bufo bufo*, a species of principle importance, London Biodiversity Action Plan species and species of Local Conservation Concern was recorded within 400m of the site. There are records of common frog *Rana temporaria*, a species of Local Conservation Concern within 300m. These species are protected from killing and injuring under the Wildlife and Countryside 1981 (as amended).

Birds

4.1.7 There are numerous bird records within the area of search. Species most likely to use Marble Hill Park are listed in table 2 below.

Table 2: Relevant bird records within 1km of Marble Hill Park

Species	Status/protection
House martin *Delichon urbicum*	Species of local conservation concern
Lesser spotted woodpecker *Dendrocopos minor*	Red listed London biodiversity action plan priority species
Kestrel *Falco tinnuculus*	Species of local conservation concern
Brambling *Fringilla montifringilla*	Protected under schedule 1 of the Wildlife and Countryside act 1981
Grey wagtail *Motacilla cinerea*	Species of local conservation concern
Spotted flycatcher *Muscicapa striata*	Red listed Species of principle importance London biodiversity action plan priority species
House sparrow *Passer domesticus*	Red listed Species of principle importance London biodiversity action plan priority species
Willow warbler *Pylloscopus trochilus*	Species of local conservation concern
Dunnock *Prunella modularis*	London Biodiversity Action Plan priority species
Bullfinch *Pyrrhula pyrrhula*	London Biodiversity Action Plan priority species
Goldcrest *Regulus regulus*	Species of local conservation concern
Tawny owl *Strix aluco*	Species of local conservation concern
Starling *Sturnus vulgaris*	Red listed London biodiversity action plan priority species
Redwing *Turdus iliacus*	Protected under schedule 1 of the Wildlife and Countryside act 1981. Red listed.
Song thrush *Turdus philomelos*	Red listed London biodiversity action plan priority species
Fieldfare *Turdus pilaris*	Protected under schedule 1 of the Wildlife and Countryside act 1981 Red listed
Mistle thrush *Turdus viscivorus*	Species of local conservation concern

Mammals

4.1.8 There are numerous records of bats within the area of search. Species recorded are listed in table 3 below All species of bat have a high level of protection under the Habitat regulations (2010) as well as the Wildlife and Countryside Act 1981 (as amended).

Table 3: Bat records within 1km of Marble Hill Park

Daubenton's bat *Myotis daubentonii*
Natterer's bat *Myotis nattereri*
Lesser noctule *Myotis leisleri*
Noctule bat *Nyctalus noctula*
Nathusius's pipistrelle *Pipistrellus nathusii*
Common pipistrelle *Pipistrellus Pipistrellus*
Soprano pipistrelle *Pipistrellus pygmaeus*
Brown Long-eared bat *Pecotus auritus*

4.1.9 Badgers *Meles meles* have been recorded within the search area, however the location of these records are confidential. Badgers are protected under the Protection of Badgers act 1992.

4.1.10 Hedgehog *Erinaceus europaeus*, a Species of Principle Importance and a London Biodiversity Action Plan Priority species BAP species has been recorded within 300m of the site.

Invertebrates

4.1.11 Stag beetle and cinnabar moth are species of Principle Importance for the Conservation of Biodiversity, a London Biodiversity Action Plan Priority species. Stag beetle is also a nationally notable species.

Plants

4.1.12 There are records of box *Buxus sempervirens,* meadow crane's-bill *Geranium pratense,* bluebell *Hyacinthoides non-scripta,* ivy broomrape *Orobranche hederae,* meadow saxifrage *Saxifraga granulata* and tasteless water-pepper *Persicaria mitis* within 1km of the site. With the exception of box, all are local species of conservation concern. Bluebell is protected under schedule 8 of the Wildlife and Countryside Act 1981 (as amended). Box is nationally rare and tasteless water-pepper is nationally scarce.

4.2 Habitat survey

4.2.1 Habitats present included semi-natural broadleaved woodland, semi-improved neutral grassland, amenity grassland with scattered trees, improved grassland, tall ruderal vegetation and hedgerows. The approximate area of each habitat type is given in table 4 below:

Table 4: Habitat by area at Marble Hill Park

Habitat	Area (ha)	%
Amenity Grassland	16.67	63.83
Broadleaved woodland	6.38	24.42
Improved grassland	0.50	1.93
Semi-improved neutral grassland	1.00	3.84
Tall ruderal vegetation	0.10	0.40
Hardstanding	1.46	5.57
Total	**26.11**	

Woodland

4.2.2 There were a number of discrete areas of woodland. To the south-east of the site the woodland was relatively open with a mixed canopy of ash *Fraxinus excelsior,* sycamore *Acer pseudoplatanus*, common lime *Tilia x europaea*, pedunculate oak *Quercus robur,* with occasional cherry *Prunus avium,* plane *Platanus sp,* mountain ash *Sorbus aucuparia,* birch *Betula sp,* hornbeam *Carpinus betulus,* horse chestnut *Aesculus hippocastanum,* evergreen oak *Quercus ilex,* sweet chestnut *Castanea sativa* and white willow *Salix alba.* The shrub layer was limited but included hazel *Corylus avellana* and some regenerating ash. The ground flora included abundant cow parsley *Anthriscus sylvestris,* cock's-foot *Dactylis glomerata,* wood avens *Geum urbanum* and rough meadow grass *Poa trivialis*. Other herbs occurred only occasionally and included meadow crane's-bill *Geranium pratense,* wood dock *Rumex sanguineus* and sterile brome *Anisantha sterilis.*

4.2.3 The woodland continued westwards along the southern boundary of the site as a narrow band of mature trees. The mature/veteran planes were of particular note.

4.2.4 An area of dense woodland formed part of the western boundary of the site. This stand was relatively dense with a canopy that included common lime, hornbeam, sycamore, pedunculate oak and false-accacia *Robinia pseudoacacia.* There was a dense shrub layer of holly *Illex aquifolium* yew *Taxus baccata,* some hazel, rhododendron *Rhododendron sp,* cherry laurel *Prunus laurocerasus*, spotted laurel *Aucuba japonica* and bramble *Rubus fruticosus.* The ground layer was predominantly ivy *Hedera helix* with some ground elder *Aegopodium podagaria.*

4.2.5 The woodland along the eastern boundary of the site comprised a canopy of hornbeam, common lime, horse chestnut, ash and sycamore. The ground flora was dominated by perennial rye-grass *Lolium perenne,* cock's-foot and abundant cow parsley.

4.2.6 There were two areas of fenced off woodland either side of Marble Hill House. The stand to the east had a canopy of holm oak *Quercus ilex*, false-acacia, field maple *Acer campestre,* hornbeam, ash, sycamore and Norway maple *Acer platanoides*. The shrub layer was composed of dogwood *Cornus sanguinea,* hawthorn *Crataegus monogyna*, snowberry *Symphoricarpos albus* and yew with a few stands of elm *Ulmus procera* and box *Buxus sempervirens*. The ground flora was predominantly ivy with cow parsley, bramble and a number of stands of Russian comfrey *Symphytum x uplandicum.* There were also a few butcher's broom *Ruscus aculeatus* individuals.

4.2.7 The stand to the west had a mixed canopy of hornbeam, field maple, ash, sycamore, holly and yew. The shrub layer included spotted laurel and elder. The ground flora was dominated by ivy with frequent cleavers *Galium aparine.*

4.2.8 In addition to the woodland areas describe above there were two avenues of trees running from the centre of the site to the southern boundary. These included mature Lombardy poplar *Populus nigra* 'italica', rowan *Sorbus aucuparia*, white willow and hybrid poplar species. There was a veteran black walnut *Juglans nigra* adjacent to the eastern avenue.

Semi-improved neutral grassland

4.2.9 A species-rich area of semi-improved neutral grassland was recorded in the south-east area of the site. Grasses included abundant cock's-foot, frequent Yorkshire fog *Holcus lanatus*, false oat-grass *Arrhenatherum elatius*, common bent *Agrostis capillaris,* perennial rye-grass and meadow foxtail *Alopecurus pratensis.* Herbs associated with semi-improved neutral grassland included locally frequent oxeye daisy *Leucanthemum vulgare,* yellow-rattle *Rhinanthus minor* and lady's bedstraw *Galium verum.* Cat's-ear *Hypochaeris radicata,* Ribwort plantain *Plantago lanceolata*, wild onion *Allium vineale,* meadow buttercup *Ranunculus acris*, bulbous buttercup *Ranunculus bulbosus*, common sorrel *Rumex acetosa,* common knapweed *Centaurea nigra* and lesser stitchwort *Stellaria graminea* were occasional in the sward. Some patches of the grassland were less species-rich were dominated by perennial rye-grass and white clover *Trifolium repens*.

4.2.10 Other areas of semi-improved grassland were less species rich. A relatively large area of infrequently mown grassland in the north-west corner of the site was dominated by Yorkshire fog and common bent with frequent sweet vernal-grass *Anthoxanthum odoratum.* Herbs included creeping buttercup *Ranunculus repens*, yarrow *Achillea millefolium,* white clover, dandelion *Taraxacum officinale agg.* and lesser stitchwort.

4.2.11 An area of long grass in the south-west corner of the site was dominated by cock's-foot, rough meadow-grass with abundant creeping thistle *Cirsium arvense* and cleavers.

Amenity grassland

4.2.12 Much of the central area of the site supported regularly mown amenity grassland. These areas were species poor and dominated by perennial rye-grass with abundant white clover, frequent greater plantain *Plantago major*, daisy *Bellis perennis* and yarrow. Cat's-ear was rare.

Improved grassland

4.2.13 An area of infrequently cut species poor improved grassland with scattered trees runs along part of the northern boundary of the site. Improved grassland also forms the ground layer of the western avenue of mature trees to the south of the house. This grassland was dominated by perennial rye-grass with few herbs present.

Tall ruderal vegetation

4.2.14 There was a stand of tall ruderal vegetation along the southern boundary of the site. This area comprised tall herbs including common nettle, abundant broad-leaved dock *Rumex obtusifolius*, locally abundant cow parsley and occasional hemlock water- dropwort *Oenanthe crocata.* Cock's-foot was also abundant within the stand.

Hedgerow

4.2.15 A relatively thin hedge ran along the northern boundary of the site. Species included yew, hazel, hawthorn and dogwood. A hawthorn hedge also formed part of the western boundary of the site.

4.3 Target notes

4.3.1 Refer to habitat map figure 2 below for target note location.

Target note	Grid reference	Type	Notes
1	TQ 17576 73539	High value tree	Veteran planes
2	TQ 17539 73517	High value tree	Horse chestnuts with bat roost potential
3	TQ 17518 73511	High value tree	Veteran horse chestnut and plane
4	TQ 17492 73514	High value tree	Veteran black walnut
5	TQ 17476 73501	High value tree	Veteran plane
6	TQ 17412 73463	High value tree	Veteran plane
7	TQ 17344 73430	High value tree	Veteran plane
8	TQ 17285 73408	High value tree	Veteran plane
9	TQ 17269 73408	High value tree	Veteran plane
10	TQ 17227 73391	High value tree	Veteran plane
11	TQ 17221 73388	High value tree	Veteran plane
12	TQ 17198 73383	High value tree	Hornbeam with bat roost potential
13	TQ 17186 73383	High value tree	Mature plane
14	TQ 17053 73575	Non-native invasive species	Turkey oak
15	TQ 17127 73723	Non-native invasive species	Turkey oak
16	TQ 17083 73781	Non-native invasive species	Young false acacia trees

Target note	Grid reference	Type	Notes
17	TQ 17094 73869	High value tree	Sweet chestnut with bat roost potential
18	TQ 17169 73883	Non-native invasive species	Mature false acacia
19	TQ 17180 73888	Non-native invasive species	Young Turkey oak
20	TQ 17221 73870	Non-native invasive species	Turkey oak
21	TQ 17248 73926	Non-native invasive species	Holm oak
22	TQ 17337 73868	Non-native invasive species	Turkey oak
23	TQ 17524 73824	High value tree	Standing dead tree
24	TQ 17529 73831	Non-native invasive species	Young Turkey oak
25	TQ 17586 73771	Non-native invasive species	Holm oak
26	TQ 17618 73726	Non-native invasive species	Holm oak
27	TQ 17620 73721	Non-native invasive species	Holm oak
28	TQ 17617 73560	High value tree	Standing dead tree
29	TQ 17248 73585	Non-native invasive species	Holm oak
30	TQ 17266 73583	London notable	Butcher's broom
31	TQ 17257 73626	Building	Bat roost potential
32	TQ 17274 73630	London notable	Butcher's broom
33	TQ 17327 73601	Non-native invasive species	Holm oak
34	TQ 17331 73591	Non-native invasive species	A number of false acacia
35	TQ 17327 73577	Non-native invasive species	Holm oak
36	TQ 17335 73567	Non-native invasive species	Holm oak
37	TQ 17384 73574	Building	Bat roost potential
38	TQ 17404 73602	London notable	Butcher's broom
39	TQ 17390 73616	Non-native invasive species	Snowberry
40	TQ 17384 73607	London notable	Butcher's broom
41	TQ 17352 73646	Non-native invasive species	Snowberry
42	TQ 17366 73653	Non-native invasive species	Holm oak
43	TQ 17358 73681	Non-native invasive species	Snowberry
44	TQ 17213 73632	High value tree	Veteran plane
45	TQ 17214 73646	High value tree	Oak with bat roost potential
46	TQ 17247 73652	Non-native invasive species	Two false acacia
47	TQ 17350 73730	High value tree	Standing dead tree
48	TQ 17346 73762	High value tree	Standing dead tree

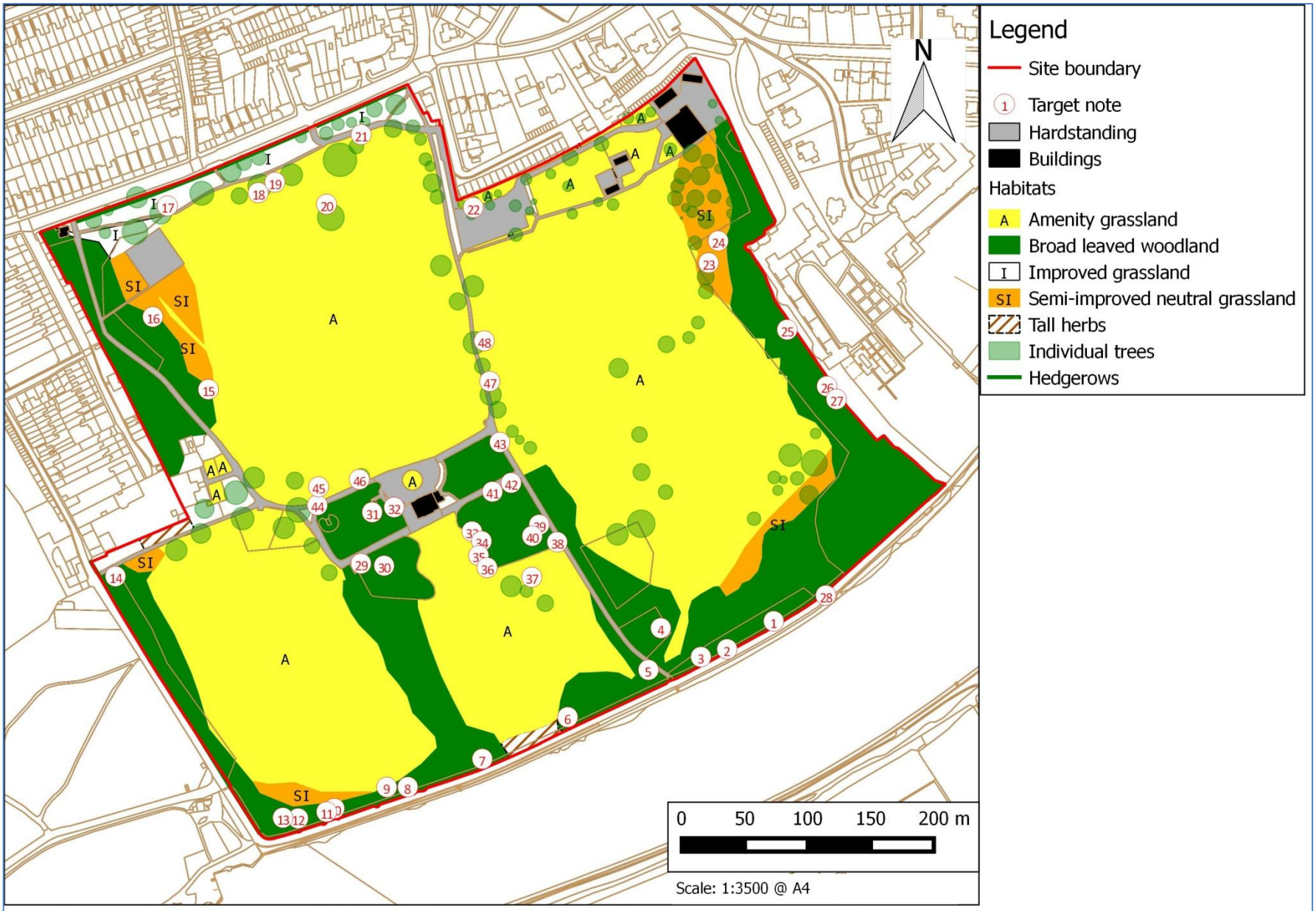

Figure 2: Marble Hill Park Habitat Map

5.0 Evaluation

5.1 Habitat assessment

Sites of international importance

5.1.1 Habitats of international importance are principally sites covered by international legislation or conventions. The Conservation of Habitats and Species Regulations 2010 implement the Natural Habitats and Wild Fauna and Flora (92/43/EC) (Habitats Directive) in England and Wales. The Regulations mainly deal with the protection of Sites that are important for nature conservation in a European context (Special Areas for Conservation (SACs) and Special Protection Areas (SPAs).

5.1.2 The site does not form part of any sites of international importance for nature conservation. Richmond Park, to the south of the River Thames is a Special Area of Conservation.

Habitats of national importance

5.1.3 Habitats of national importance include those designated as Sites of Special Scientific Interest (SSSIs) which are notified under the Wildlife and Countryside Act 1981 and Habitats of Principle Importance for the Conservation of Biodiversity (formerly UK BAP priority habitats). The latter are habitats listed under Section 41 (S41) of The Natural Environment and Rural Communities (NERC) Act. These are all the habitats in England that were identified as requiring action in the UK Biodiversity Action Plan (UK BAP) and continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework.

5.1.4 Richmond Park is notified as a Site of Special Scientific Interest. Lowland mixed deciduous woodland is a habitat of Principle Importance for the conservation of biodiversity.

Habitats of regional importance

5.1.5 There are a number of Sites of Importance for Nature Conservation (SINCS) within the area of search including Marble Hill House and Grounds which forms part of a Site of Local Importance. The citation for the site appears in appendix 4.

5.1.6 Native woodland is a London Biodiversity Action Plan Priority Habitat.

Protected plant species

5.1.7 No plant species fully protected under Schedule 8 of the Wildlife and Countryside Act 1981(as amended) were identified during the survey.

Notable plant species

5.1.8 Notable higher plant species are those species 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) are listed below.

Table 4: Notable species recorded at Marble Hill Park

Common name	Scientific name	% tetrads recorded in London
Crow garlic	*Allium vineale*	14
Wild pear	*Pyrus communis*	7
Wayfaring tree	*Viburnum lantana*	10
Black walnut	*Jugans nigra*	0
Meadow cranesbill	*Geranium pratense*	11.75
Yellow rattle	*Rhinanthus minor*	3.75
Butcher's broom	*Ruscus aculeatus*	10.25

Non-native invasive species

5.1.9 There were a number of non-native invasive plant species present. Rhododendron and false-acacia are listed in Schedule 9 Part 2 of the Wildlife & Countryside Act 1981 (as amended): It is an offence under section 14(2) of the Act to 'plant or otherwise cause to grow in the wild' any plant listed in Schedule 9, Part II.

5.1.10 False-acacia is listed by the London Invasive Species Initiative (LISI) as a 'species which is widespread for which eradication is not feasible but where avoiding spread to other sites may be required'

5.1.11 Rhododendron, Turkey oak, holm oak, buddleia *Buddleja davidii* and snowberry are listed by the LISI as 'Species of high impact or concern present at specific sites that require attention (control, management, eradication etc)'. Cherry laurel is listed by the LISI as a 'species of high impact or concern which is widespread in London and require concerted, coordinated and extensive action to control/eradicate'.

5.2 Protected species assessment

5.2.1 The habitats at the site were evaluated as to their likelihood to provide sheltering, roosting, nesting and foraging habitat for the following species and species groups:

- Breeding birds
- Bat species
- Reptiles
- Badgers

5.2.2 These species were selected for further consideration because potentially suitable habitat is in close proximity to Marble Hill Park. The results of the field survey, combined with information from the desk study, are presented in the table below. The relevant legislation and policies relating to protected species is presented within Appendix 3.

Table 4 - Assessment of potential presence of protected species within Marble Hill Park.

Species	Main legislation	Reason for consideration	Likelihood of occurrence
Breeding birds	Wildlife and Countryside Act 1981 (as amended)	Presence of hedgerows, mature trees and woodland habitat for breeding birds.	**High**: The woodland areas well as mature trees and hedgerows within the site provide suitable nesting habitat.

Species	Main legislation	Reason for consideration	Likelihood of occurrence
Bats	Wildlife and Countryside Act 1981 (as amended), The Conservation of Habitats and Species Regulations 2010	Presence of mature trees and buildings. Proximity of historical species records.	**High:** Some of the mature trees in the Park have fissures, crevices and holes which provide suitable roosting opportunities. Buildings including the Ice House and the Grotto also have potential to support roosts. The surrounding semi-natural habitat including woodland, River Thames and hedgerows provide good foraging and commuting habitat.
Reptiles	Wildlife and Countryside Act 1981 (as amended)	Suitable habitat.	**Medium:** Woodland, and semi-improved grassland provide potential habitat for common lizard and slow worm.
Amphibia	Wildlife and Countryside Act 1981 (as amended) The Conservation of Habitats and Species Regulations 2010	Proximity of pond and historical species records	**Low:** There are no breeding ponds on site and none known within the immediate vicinity of the site. However there is suitable terrestrial habitat for common species.
Badgers	Wildlife and Countryside Act 1981 (as amended), Protection of Badgers Act (1992)	Presence of disused badger sett	**Low:** No badger setts were recorded within the park. However there are records of badger within the borough and the site supports suitable foraging habitat.

6.0 Discussion

6.1.1 Marble Hill Park supports a good mosaic of habitats which are valuable in their own right as well as in supporting a number of species groups. Of particular note are the large number of mature and veteran plane trees along the southern boundary of the site and the veteran black walnut to the south of the house. A number of the ancient planes may benefit from haloing (gradually reducing surrounding shade). There are also a large number of valuable mature trees elsewhere on the site.

6.1.2 The woodland along the southern boundary of the site has a good structure and currently requires little management. However the other woodlands at Marble Hill Park are generally very dense with an impoverished ground flora. These could be thinned and non-native species removed to enable the regeneration of more of a natural structure.

6.1.3 The woodland areas and mature/ancient trees have high potential to support breeding birds and bat species. Any proposals to carry out felling should be carried out at an appropriate time of year. Mature trees should be assessed for their potential to support bat roosts before any works are carried out. Note that a Natural England licence may be required for any trees for felling support bat roosts.

6.1.4 Some areas of semi-improved grassland are relatively species-rich and are particularly valuable for nature conservation. The area of semi-improved grassland to the south-east of the site, in particular, could be expanded by further relaxing mowing in surrounding areas.

6.1.5 In general management should aim to reduce, or maintain, a low soil nutrient status in the targeted areas of grassland. The cover of coarse, competitive grasses such as perennial rye-grass, cock's-foot and false-oat-grass should also be progressively reduced. A number of studies have shown that more than one cut per year can be effective at reducing the cover of coarse grasses and increasing floral diversity. For example Leaney (2005) showed that a cut once per month from early April each year until October but with a gap where no cutting occurs from early May to early July (i.e. an 8 week period) reduced the dominance of coarse grasses in a churchyard but still allowed a good variety of plants to flower. In chalk grassland a, spring (April) cut was found to be as effective in reducing competitive ability of upright brome *Bromopsis erectus* as 2 or 3 cuts a year (Wells et al, 1993). Hayes et al (2001) showed two hay cuts with aftermath grazing more successful in restoring a neutral meadow than a single hay cut and aftermath grazing and Olff et al (1991) also showed the benefits to diversity of cutting a hay meadow twice a year (July and Sept) to cutting once a year in July. Management was by cutting alone without aftermath grazing.

6.1.6 Whichever cutting regime is adopted, removal of arisings from the site is essential to prevent a build up of soil nutrients and a layer of dead vegetation (litter) which inhibits germination. Ideally arisings should be composted.

6.1.7 A scrub zone should be allowed to develop at the grassland/woodland interface to the south of the site to further enhance habitat heterogeneity of the site.

6.1.8 The hedgerows bounding the north and west of the Park have value as boundary features and for providing habitat for a range of species. These should be allowed to develop and trimmed only occasionally.

6.1.9 A number of non-native invasive species were recorded. In general, these should be eradicated from the site where possible. However it is recommended that any mature Turkey oak are retained where these have a high landscape value.

7.0 Recommendations

7.1 Surveys

7.1.1 If any mature trees are proposed for felling or other arboricultural work, these should be individually assessed for their potential to support bat roosts by an experienced ecologist. Any individual trees with bat roost potential should be surveyed by a licenced ecologist prior to any works being carried out. A Natural England licence may be required.

7.1.2 If substantial re-landscaping is proposed involving tree removal, surveys to establish the extent to which bat species use the site should be carried out. The survey should investigate bat commuting routes within the site and results used to inform any proposed works.

7.1.3 If any buildings are to be renovated or other works proposed (e.g. tree removal) in the vicinity of buildings, these buildings should also be surveyed for bats.

7.2 Habitats

7.2.1 All woodlands within the site with the exception of the woodland along the southern boundary, should be thinned to allow for the development of a ground flora.

7.2.2 Non-native invasive species should be removed from the site including Turkey oak, false-acacia, rhododendron, cherry laurel, holm oak and snowberry. Mature Turkey oak may be retained if any individuals are considered to have high landscape value.

7.2.3 Allow the development of a gradual transition from grassland to scrub to woodland (an ecotone) between the grassland and woodland at the southern end of the site to further increase the range of habitats present at the site.

7.2.4 The species rich grassland to the south-east of the site should be expanded by relaxing mowing in areas surrounding this area. The existing grassland should be managed by cutting 2-3 times per year. Cutting, should not, however take place during the summer months to allow species to set seed. Some grassland refuge areas (approximately 20% of the area of grassland) should be left uncut in any one year on rotation. All cut arising should be removed and, ideally, composted.

7.2.5 Consideration should be given to haloing ancient plane trees. An arboricultural assessment will be required.

7.3 General recommendations

7.3.1 Retain dead fallen logs, standing dead trees and large cut timber. Create stag beetle habitat by half burying logs in areas of dappled shade.

7.3.2 Do not use pesticides, fertilizers or herbicides (except in the treatment of non-native invasive species)

7.3.3 Do not plant any non-native invasive species.

7.3.4 Ideally any planting should be with UK native species of known provenance. It is not recommended that any seeding is carried out within areas of grassland. Species richness will improve with appropriate management.

7.3.5 Do not carry out any tree works within the bird breeding season (March to July inclusive).

7.3.6 Control dog fouling through notices and the provision of dog waste bins.

8.0 References

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Appendix 1: Species lists

The vascular plant species list was compiled from the Phase 1 field survey carried out on 9th June 2015.

Scientific nomenclature follows Stace (2010) for vascular plant species. Vascular plant common names follow the Botanical Society of the British Isles 2003 list, published on its web site, www.bsbi.org.uk. Please note that this plant species list was generated as part of a Phase 1 Habitat survey, does not constitute a full botanical survey and should be read in conjunction with the associated report.

Abundance was estimated using the DAFOR scale as follows:

D (Dominant), A (Abundant), F (Frequent), LF (Locally frequent) O (Occasional), R (Rare). The modifier L (Locally) is used to describe a clumped or local distribution of a species.

Scientific Name	Common name	Frequency
Acer campestre	Field maple	O
Acer platanoides	Norway maple	O
Acer pseudoplatanus	Sycamore	F
Acer saccharinum	Silver maple	R
Achillea millefolium	Yarrow	LA
Aegopodium podagraria	Ground-elder	O
Aesculus hippocastanum	Horse-chestnut	F
Agrostis capillaris	Common bent	R
Alliaria petiolata	Garlic mustard	O
Allium vineale	Wild onion	LF
Alnus glutinosa	Alder	R
Alopecurus pratensis	Meadow foxtail	LF
Anisantha sterilis	Barren brome	F
Anthoxanthum odoratum	Sweet Vernal-grass	LF
Anthriscus sylvestris	Cow parsley	LA
Arctium lappa	Greater burdock	R
Arctium minus	Lesser burdock	O
Arrhenatherum elatius	False Oat-grass	LF
Artemisia vulgaris	Mugwort	R
Aucuba japonica	Spotted-laurel	R
Bellis perennis	Daisy	R
Betula pendula	Silver birch	R
Buddleja davidii	Butterfly-bush	R
Buxus sempervirens	Box	R
Carex pendula	Pendulous sedge	F
Carpinus betulus	Hornbeam	O
Castanea sativa	Sweet chestnut	R
Centaurea nigra	Common knapweed	O
Ceratochloa carinata	California brome	O
Chamerion angustifolium	Rosebay willowherb	O
Cirsium arvense	Creeping thistle	F
Corylus avellana	Hazel	O
Crataegus monogyna	Hawthorn	O
Dactylis glomerata	Cock's-foot	LA
Festuca rubra	Red fescue	LF
Fraxinus excelsior	Ash	R
Galium aparine	Cleavers	F
Galium verum	Lady's bedstraw	O
Geranium dissectum	Cut-leaved Crane's-bill	R
Geranium pratense	Meadow Crane's-bill	O
Geum urbanum	Wood avens	O
Hedera helix	Common ivy	LA
Heracleum sphondylium	Hogweed	R
Holcus lanatus	Yorkshire-fog	LF

Scientific Name	Common name	Frequency
Hordeum murinum	Wall barley	LA
Hypochaeris radicata	Cat's-ear	O
Ilex aquifolium	Holly	LF
Juglans nigra	Black walnut	R
Lapsana communis	Nipplewort	O
Leucanthemum vulgare	Oxeye daisy	R
Lolium perenne	Perennial Rye-grass	LA
Populus nigra ‘italica’	Lombardy poplar	
Oenanthe crocata	Hemlock Water-dropwort	O
Pentaglottis sempervirens	Green alkanet	O
Pinus nigra subsp. laricio	Corsican pine	R
Plantago lanceolata	Ribwort plantain	O
Plantago major	Greater plantain	O
Platanus occidentalis x orientalis = P. x hispanica	London plane	F
Poa trivialis	Rough Meadow-grass	LA
Populus trichocarpa	Western Balsam-poplar	R
Prunus avium	Wild cherry	O
Prunus laurocerasus	Cherry laurel	R
Pteridium aquilinum	Bracken	R
Pyrus communis	Pear	R
Quercus ilex	Evergreen oak	O
Quercus robur	Pedunculate oak	F
Ranunculus acris	Meadow buttercup	O
Ranunculus bulbosus	Bulbous buttercup	LF
Ranunculus repens	Creeping buttercup	LF
Rhinanthus minor	Yellow-rattle	LF
Rhododendron ponticum	Rhododendron	R
Robinia pseudoacacia	False-acacia	LF
Rosa sp	A rose	R
Rubus fruticosus agg.	Bramble	O
Rumex acetosa	Common sorrel	R
Rumex obtusifolius	Broad-leaved Dock	LA
Rumex sanguineus	Wood dock	R
Ruscus aculeatus	Butcher's-broom	O
Salix alba	White willow	O
Sambucus nigra	Elder	R
Senecio jacobaea	Common ragwort	R
Silene dioica	Red campion	O
Sorbus aria	Common whitebeam	R
Sorbus aucuparia	Rowan	R
Sorbus intermedia	Swedish whitebeam	R
Stellaria graminea	Lesser stitchwort	F
Symphoricarpos albus	Snowberry	R
Symphytum officinale x asperum = S. x uplandicum	Russian comfrey	R
Symphytum orientale	White comfrey	R
Taraxacum officinale agg.	Dandelion	R
Taxus baccata	Yew	LF
Tilia platyphyllos	Large-leaved Lime	R
Tilia platyphyllos x cordata = T. x europaea	Common lime	O
Tragopogon pratensis	Goat's-beard	O
Trifolium repens	White clover	LA
Ulmus procera	English elm	O
Urtica dioica	Common nettle	LA
Veronica montana	Wood speedwell	O
Viburnum lantana	Wayfaring-tree	O
Vicia sativa	Common vetch	R

Appendix 2: Photographs

Relatively open broad-leaved woodland along the southern boundary

Species-rich semi-improved neutral grassland

Tall ruderal vegetation along the southern boundary

High value plane trees along the southern boundary

Veteran black walnut

Horse chestnut with bat roost potential

False acacia, a non-native invasive species

High value veteran sweet chestnut with bat roost potential

Veteran Turkey oak to the north of the house

Grotto with bat roost potential

Ice house with bat roost potential

Outbuilding with loose tiles. Bat roost potential

Appendix 3: Relevant Legislation

Natural Environment and Rural Communities Act 2006 - Species of Principal Importance in England

Species "of principal importance for the purpose of conserving biodiversity" covered under section 41 (England) of the NERC Act (2006) and therefore need to be taken into consideration by a public body when performing any of its functions with a view to conserving biodiversity.

National legislation afforded to species and habitats

The objective of the EU Habitats Directive is to conserve the various species of plant and animal which are considered rare across Europe. The Directive is transposed into UK law by The Conservation of Habitats and Species Regulations 2010 and is commonly referred to as the Habitats Regulations.

The Wildlife and Countryside Act 1981 (as amended) is a key piece of national legislation which implements the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and Council Directive 79/409/EEC on the Conservation of Wild Birds (Wild Birds Directive) in Great Britain. Since the passing of the Act, various amendments have been made, details of which can be found on www.opsi.gov.uk. Key amendments have been made through the Countryside and Rights of Way (CRoW) Act (2000) and Nature Conservation (Scotland) Act 2004.

Other legislative Acts affording protection to wildlife and their habitats include:

- The Protection of Badgers Act 1992
- The Countryside and Rights of Way (CRoW) Act 2000
- Natural Environment & Rural Communities (NERC) Act 2006
- Wild Mammals (Protection) Act 1996

Herpetofauna (amphibians and reptiles)

Great crested newts are protected under The Conservation of Habitats and Species Regulations 2010 from:

- Deliberate killing, injuring or taking (capture)
- Deliberate disturbance of any species in such a way as to be likely significantly to affect:
- the ability of any significant group of bats to survive, breed, or rear or nurture their young; or
- the local distribution or abundance of that bat species
- Damage or destruction of a breeding site or resting place
- Keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part thereof.

Great crested newts are also currently protected under the Wildlife and Countryside Act 1981 (as amended) through their inclusion on Schedule 5. Under this Act, they are additionally protected from:

- Intentional or reckless disturbance
- Intentional or reckless obstruction of access to any place of shelter or protection
- Selling, offering or exposing for sale, possession or transporting for purpose of sale.

Other species of herpetofauna which could occur at Burgh Heath SNCI are protected under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). The common lizard and slow-worm are listed in respect to Section 9(1) & (5). For these species, it is prohibited to:

- Intentionally (or recklessly in Scotland) kill or injure these species

- Sell, offer or expose for sale, possess or transport for purpose of sale these species, or any part thereof.

The common toad and smooth newt are protected by law from sale and trade only.

Mammals

All species of bat are fully protected under The Conservation of Habitats and Species Regulations 2010 and the Wildlife and Countryside Act 1981 (as amended) and have the same protection as great crested newts.

Badgers are protected under the Wildlife and Countryside Act 1981 (as amended) and the

Protection of Badgers Act (1992). It is an offence:

- To willfully kill, injure, take, possess or cruelly ill-treat a badger;
- To attempt to do so; or
- To intentionally or recklessly interfere with a sett.

Birds

With certain exceptions, all birds, their nests and eggs are protected under Sections 1-8 of the Wildlife and Countryside Act 1981 (as amended). Among other things, this makes it an offence to:

- Intentionally (or recklessly in Scotland) kill, injure or take any wild bird
- Intentionally (or recklessly in Scotland) take, damage or destroy (or, in Scotland, otherwise interfere with) the nest of any wild bird while it is in use or being built.
- Intentionally take or destroy an egg of any wild bird.
- Sell, offer or expose for sale, have in his possession or transport for the purpose of sale any wild bird (dead or alive) or bird egg or part thereof.

Certain species of bird, for example the barn owl, black redstart, hobby, bittern and kingfisher receive additional special protection under Schedule 1 of the Act and Annex 1 of the European Community Directive on the Conservation of Wild Birds (79/409/EEC). This affords them protection against:

- Intentional or reckless disturbance while it is building a nest or is in, on or near a nest containing eggs or young.
- Intentional or reckless disturbance of dependent young of such a bird

Plants

With certain exceptions, all wild plants are protected under the Wildlife and Countryside Act 1981 (as amended). This makes it an offence for an ‘unauthorised’ person to intentionally (or recklessly in Scotland) uproot wild plants. An authorised person can be the owner of the land on which the action is taken, or anybody authorised by them.

Appendix 4: Marble Hill Park and Orleans House Gardens Site of Local Importance Citation

Local

Site Reference: RiL02

Site Name: Marble Hill Park and Orleans House Gardens

Summary: Landscaped grounds of two 18th century houses, with meadows, woodland and some fine old trees.

Grid ref: TQ 172 736

Area (ha): 29.66

Borough(s): Richmond upon Thames

Habitat(s): Amenity grassland, Planted shrubbery, Scattered trees, Secondary woodland, Semi-improved neutral grassland, Veteran trees

Access: Free public access (all/most of site)

Ownership: English Heritage and London Borough of Richmond upon Thames

Site Description:

Marble Hill Park is an attractive landscaped park adjacent to the River Thames. Marble Hill House, in the centre of the park, was built in the 1720s for Henrietta Howard, mistress of King George II. The most impressive natural feature of the park is a huge black walnut tree (Juglans nigra), near the entrance from the Thames footpath. One of the largest black walnuts in the country, this magnificent tree probably dates from the original landscaping of the park.

Wildlife habitats in the park include grassland and woodland. Strips of grassland in the south and east of the park are mown infrequently, increasing the ecological value. Wild flowers occurring in patches where seed has been sown include common knapweed (Centaurea nigra), greater bird's-foot-trefoil (Lotus pedunculatus), smooth tare (Vicia tetrasperma), meadow buttercup (Ranunculus acris), oxeye daisy (Leucanthemum vulgare) sainfoin (Onobrychis villosa), meadow crane's-bill (Geranium pratense) and salad burnet (Sanguisorba minor).

A strip of woodland in the north-west of Marble Hill Park is composed mainly of non-native species, with a dense understorey of rhododendron (Rhododendron ponticum) and holly (Ilex aquilifolium). This provides food and cover for birds and complements the open grassland of most of the site.

Across Orleans Road from Marble Hill Park are the gardens of Orleans House. This fine building was built for Queen Anne's Secretary of Stae in 1710, but is named for Louis Phillipe, Duc d'Orleans, who live there from 1800. Much of the garden is now wooded. Specimen trees from earlier landscaping, such as cedar of Lebanon (Cedrus libani) and Oriental plane (Platanus orientalis) are now surrounded by sycamore (Acer pseudoplatanus), silver birch (Betula pendula) and other young trees. This woodland is developing a good structure with more saplings and young trees present now among the mature trees.

Site first notified: 01/01/1993 **Boundary last changed:** 01/02/2000

Citation last edited: 12/01/2007 **Mayor Agreed:**

Defunct: N

Last Updated: 12/01/2007