







APPENDIX 8.2: PHASE 2 SURVEY REPORT

QA

Royal Brunswick Park – Phase 2 Ecology Survey Report

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| Issue/Revision: | Draft | Final |
| Date: | September 2021 | September 2021 |
| Comments: | | |
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| File Reference: | 551510ogJun21DV01_Phase_2 | 551510ogJul21FV01_Phase_2 |

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REFERENCES

1.0 EXECUTIVE SUMMARY

- 1.1 Greengage Environmental Ltd was commissioned by Comer Homes to undertake protected species surveys at a site known as the Royal Brunswick Park, New Southgate in the London Borough of Barnet.
- 1.2 After the completion of the initial walkover survey to inform the Preliminary Ecological Appraisal (PEA), undertaken by Greengage on the 8th and 9th April 2021 (Doc Ref:551510ogJun21FV02_PEA), it was confirmed that further surveys to assess the presence/likely absence of a range of species would be required. These surveys update ones previously undertaken for an existing permitted development on the site (ref: 15/07932/OUT).
- 1.3 This document is a report of these surveys and has been produced to support a hybrid planning application for the phased comprehensive redevelopment of the North London Business Park to deliver a residential-led mixed use development. The detailed element comprises up to 466 residential units in five blocks reaching 9 storeys, the provision of a 5 form entry secondary school, a gymnasium, a multi-use sports pitch and associated changing facilities and improvements to open space and transport infrastructure, including improvements to the access from Brunswick Park Road and; the outline element comprises up to 1,967 additional residential units in buildings ranging from three to twelve storeys, up to 7,148 sqm of non-residential floor space (use Class E) and 20,250sqm of open space. Associated site preparation/enabling work, transport infrastructure and junction work, landscaping and car parking.
- 1.4 The key findings of the surveys are listed below:
- Roosting bats have been confirmed as likely absent from the site;
 - Low levels of bat activity were recorded on site from six species; and
 - Confirmed presence of a 'good' population of slow worm and common lizard on site.
- 1.5 An outline of potential relevant compensation and mitigation actions is provided for the above species with further details included in the Ecological Impact Assessment produced in support of the application.

2.0 INTRODUCTION

- 2.1 Greengage Environmental Ltd was commissioned by Comer Homes to undertake protected species surveys at a site known as the Royal Brunswick Park, New Southgate in the London Borough of Barnet.
- 2.2 After the completion of the initial walkover survey to inform the Preliminary Ecological Appraisal (PEA), undertaken by Greengage on the 8th and 9th April 2021 (Doc Ref:551510ogJun21FV02_PEA), it was confirmed that further surveys to assess the presence/likely absence of a range of species would be required. These surveys update ones previously undertaken for an existing permitted development on the site (ref: 15/07932/OUT).

SITE DESCRIPTION

- 2.3 The survey area extends to approximately 16 hectares and is centred on National Grid Reference TQ280935, OS Co-ordinates 528019, 193504.
- 2.4 There are ten buildings on the site with the largest being office buildings and an associated car park, additional buildings include a nursery, a school, site security offices and storage sheds. Surrounding these buildings are areas of hardstanding roads and car parking as well as landscaping in the form of amenity grassland, introduced shrubs, a pond and scattered trees. There is an expanse of rough grassland and scattered scrub to the north of the site.
- 2.5 The site is situated in a residential area in south Barnet and is surrounded by residential streets with terraced houses in all directions. It is bounded by the Southern Railway line to the west which runs from north to south.
- 2.6 The surrounding landscape is mainly comprised of parks and green open spaces including New Southgate Cemetery ~200m south east of the site, Brunswick Park ~200m east, Friary Park ~900m south west and Oak Hill Park ~1km north.
- 2.7 The approximate site boundary is shown in Figure 2.1 below.

Figure 2.1 Approximate site boundary



DEVELOPMENT DESCRIPTION

- 2.8 This document is a report of this survey and has been produced to support a hybrid planning application for the phased comprehensive redevelopment of the North London Business Park to deliver a residential-led mixed use development. The detailed element comprises up to 466 residential units in five blocks reaching 9 storeys, the provision of a 5 form entry secondary school, a gymnasium, a multi-use sports pitch and associated changing facilities and improvements to open space and transport infrastructure, including improvements to the access from Brunswick Park Road and; the outline element comprises up to 1,967 additional residential units in buildings ranging from three to twelve storeys, up to 7,148 sqm of non-residential floor space (use Class E) and 20,250sqm of open space. Associated site preparation/enabling work, transport infrastructure and junction work, landscaping and car parking.

PREVIOUS SURVEY RESULTS

- 2.9 As is set out above, surveys were previously undertaken for an existing permitted development on the site (ref: 15/07932/OUT) in 2014 and 2018. The key findings of these surveys are summarised below:
- Phase 1 Habitat Survey:
 - This survey confirmed that the site was dominated by building/hardstanding surrounded by amenity grassland and mature ornamental trees. To the north of the site included a large expanse of poor semi-improved grassland and a lake was present to the southeast.

-
- Bats:
 - Bat emergence/re-entry surveys undertaken on several trees/groups of trees on site confirmed the likely absence of roosting bats from the site; and
 - The bat activity surveys recorded low levels of activity across the site and 5 species/species groups were recorded.
 - Reptile survey:
 - Surveys noted a 'low' population of slow worm (*Anguis fragilis*) in accordance with the criteria set out in the Froglife guidance.
 - Invertebrates:
 - Nine species of conservation interest previously recorded, largely associated with banks surrounding the car park.

2021 PRELIMINARY ECOLOGICAL APPRAISAL

- 2.10 An initial walkover survey of the site was completed to inform the Preliminary Ecological Appraisal (PEA), undertaken by Greengage on the 8th and 9th April 2020 (Doc Ref:551510ogJun21FV02_PEA). The survey consisted of a phase 1 habitat survey, bat and badger scoping survey. The site walkover confirmed that habitats were largely consistent with those recorded during the previous surveys summarised above. However, given the time since those surveys were completed it was confirmed that updated surveys should be undertaken.

3.0 METHODOLOGY

3.1 The methodology that was followed for each species/group of species is detailed individually below.

BAT EMERGENCE SURVEY

3.2 Five trees were initially identified as having roosting 'moderate' roosting potential. However, following the PEA it was confirmed that there was an active woodpecker nest within one of the trees and therefore this was discounted from further survey. In accordance with the bat conservation trust guidelines, 'low' potential trees were not subject to further surveys and would instead be soft felled under the supervision of an ecologist if removal was required.

3.3 Two emergence survey visits were undertaken on each of the four trees identified as having moderate potential to support roosting bats during May through July 2021.

3.4 Each survey was undertaken in appropriate weather conditions with survey temperatures between 10°C and 22°C, in accordance with Bat Conservation Trust (BCT) guidelines^{Error!}
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3.5 Four surveyor locations were identified across the site which allowed suitable coverage of Trees 1,2,3 and 4 to enable any emergence behaviour to be observed clearly. These locations are shown on Figure 1 (Target Notes 2-6).

3.6 The emergence surveys commenced 15 minutes prior to sunset and continued for 1.5 hours after sunset.

3.7 All surveyors were equipped with a Echometer Touch bat detector to hear, visualize and record bat calls and identify bats to species level.

BAT ACTIVITY SURVEYS

3.8 Bat activity surveys were undertaken across the site with methodology implemented reflecting that adopted for the previous surveys on the site.

3.9 The survey entailed:

- Three walked activity surveys consisting of one walked transect on each occasion; and
- The installation of two static bat detectors in strategic locations across the site for monitoring periods of 5 consecutive days.

3.10 The walked transects commenced at dusk/sunset and continued until 2 hours after dusk/sunset. The surveyors who walked these transects were equipped with Echometer bat detectors which detect the bat calls and allows the surveyors to identify the species in the field. Surveys were undertaken during suitable weather conditions e.g. fairly calm weather and no heavy wind or rain, with temperatures ranging between 9°C - 21°C.

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- 3.11 The statics, SM4BAT Zero Crossing static bat detectors fitted with ultrasonic SMM- U2 microphones, were installed on site left to record for five consecutive nights. The data was then analysed using the bat sound analysis software 'analog'.
- 3.12 Figure 2 shows the location of the static bat detectors and the transect.

REPTILE SURVEY

- 3.13 A survey for reptiles commenced in April 2021 with the survey sufficient to detect all species of reptiles including those most likely to be present, particularly slow worm, common lizard and grass snake. This was carried out in accordance with Natural England and Froglife¹ Guidelines, with temperatures during the surveys ranging between 10°C - 14°C.
- 3.14 Refugia ('mats') were constructed of approximately 0.5m x 1m square felt sheeting as recommended by Froglife and the Herpetofauna Group of Britain and Ireland (HGBI)². Froglife guidelines recommend between 5–10 mats per hectare. The site in total is approximately 16ha with around 2.2ha being potentially suitable for reptiles. A total of 80 individual artificial refugia were distributed on site. Artificial refugia was locally sited in the most appropriate position for use by basking/sheltering reptiles.
- 3.15 The density of refuge mats varied depending on the suitability of the area of habitat being surveyed. Reptiles are poikilothermic and are therefore dependent upon ambient temperatures to regulate their own body temperature. As such they will hide under the mats and use the heat generated from them to raise their own body temperature to a level where they become more active for foraging and other activities.
- 3.16 Seven survey visits were carried out between April and May 2021, avoiding July and August, to determine the presence/absence of reptile species on site. Artificial refugia were allowed to 'bed in' for at least five days following distribution and prior to the commencement of monitoring visits.
- 3.17 During each monitoring visit, the mats were checked visually from a distance to determine whether reptiles were basking on their surface. The mats were then carefully approached and lifted to check for reptiles sheltering beneath them.
- 3.18 Between mats the site was walked carefully and slowly in an attempt to detect reptiles that may have been basking away from the artificial refugia supplied. Other potential refugia/basking sites present within the site were visually checked in addition to the mats during the walkovers.

INVERTEBRATE SURVEY

- 3.19 One survey visit for terrestrial invertebrates took place on the 10th June 2021. This reflected the methodology implemented for the previous survey. To identify the types of

invertebrates present on site, transects of the site, focusing on key habitats of greatest potential value for invertebrates, were walked allowing direct observations of species.

- 3.20 Active sampling was also used, which included using sweep-netting, beating trees and bushes and suction sampling. All samples collected in the field were identified in a laboratory with samples identified to species level where possible.

SURVEYORS

- 3.21 Survey work for bats and reptiles was led by Olivia Guindon, who holds a Bachelor's degree in Ecology and Wildlife Conservation (BSc Hons), a Master's degree in Species Identification and Survey Skills and is a Qualifying member of CIEEM. Olivia has over three years' experience in ecological survey and assessment.
- 3.22 James Bumphrey, who reviewed this report, has an undergraduate degree in Environmental Sciences (BSc Hons), a Master's degree in Environmental Consultancy, a Natural England Great Crested Newt Licence (2018-35160-CLS-CLS). James has over 8 years' experience in ecological surveying.
- 3.23 Campbell McCallum, who assisted with the bat surveys, has a MSc in Wildlife Conservation in Practice and is a Qualifying member of CIEEM. Campbell has two years' ecological survey experience.
- 3.24 Jaimy Hodgetts, who assisted with the bat surveys, has a level 3 Diploma in Countryside Management and has three years' experience within the commercial sector.
- 3.1 Joanne Reynolds, who assisted with the bat surveys, has a BSc (Hons) degree in Environmental Science, and holds Natural England licences in Bats) 2017-32694-CLS-CLS), Dormice and Great Crested Newts. Joanne is a CIEEM Qualifying Member and has several years' experience in ecological survey.
- 3.2 Vincenzo De Iacovo, BSc (Hons), who assisted with the bat surveys, has over nine years' experience as a practising ecologist and has been involved in a wide range of protected species survey, mitigation and monitoring project work all over the UK and Ireland. Vincenzo also holds a European Protected Species survey (Level 2) licence for bats.
- 3.3 Molly Crookshank, who assisted with the reptile and bat surveys, has a Bachelor's degree in Animal Biology (BSc Hons), a Master's degree in Wildlife Biology and Conservation (MSc) and is a Qualifying member of CIEEM.
- 3.4 Hazel Cuenca has a Bachelor's degree in Physical Geography (BSc Hons), a Master's Degree in Environmental Conservation (MSc) and has experience in ecology survey and assessments.
- 3.5 Invertebrate surveys were carried out by Dr Jonty Denton, who is a freelance Chartered Ecologist of over 30 years experience, and has Natural England licenses for Bats, Dormice, Great Crested Newt, Natterjacks, Sand Lizard, Smooth Snake, and White-clawed Crayfish.

3.6 This report was written by Olivia Guindon and reviewed and verified by James Bumphrey who confirms in writing (see the QA sheet at the front of this report) that the report is in line with the following:

- Represents sound industry practice;
- Reports and recommends correctly, truthfully and objectively;
- Is appropriate given the local site conditions and scope of works proposed; and
- Avoids invalid, biased and exaggerated statements.

CONSTRAINTS

3.7 It is important to understand the limitations associated with the use of static bat detection. Intrinsically static detectors may fail to record bats passing at a certain distance, horizontally or vertically from the microphone. The SM4s do however allow a certain amount of omni-directionality, with a beam pattern of nearly 360°. Detectors were set to a high trigger sensitivity for recording.

3.8 'Bat passes' were defined as any sound file with bat calls recorded by the detectors. The number of bat calls or bat passes does not directly relate to the number of bats in a location. It is important to be aware that results can be skewed by a single bat recorded sustained foraging in the location of the detector. Nevertheless, sustained foraging would indicate the importance of the location as a resource.

3.9 It should be borne in mind that the behaviour of animals can be unpredictable and may not conform to standard patterns recorded in scientific literature. Therefore, this report cannot predict with absolute certainty that animal species will occur in apparently suitable locations or habitats or that they will not occur in locations or habitats that appear unsuitable.

3.10 Therefore, in consideration of the above, no significant constraints therefore stand to impact conclusions drawn in this report.

4.0 RESULTS

BAT EMERGENCE SURVEY

- 4.1 There was no evidence of roosting observed during the surveys. Roosting bats can therefore be confirmed as likely-absent from the site.
- 4.2 During the surveys, low levels of commuting and foraging activity were however recorded around the site. Three species were recorded; common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*) and noctule (*Nyctalus noctula*).

Table 4.1 Surveyor locations and conditions for each surveys

| Date | Locations Surveyed | Sunset Time | Survey Duration | Weather Conditions |
|------------|--|-------------|-----------------|-------------------------------------|
| 26/05/2021 | T1 (Target Note 2, Figure 1) T2 (Target Note 3, Figure 1) T3 (Target Note 4, Figure 1) | 21:01 | 20:46 – 22:31 | Overcast and mild (10°C) |
| 03/06/2021 | T4 (Target Note 5, Figure 1) T5 (Target Note 6, Figure 1) | 21:10 | 20:46 – 22:31 | Clear, mild, still (14°C) |
| 10/06/2021 | T1, T2 | 21:16 | 21:01 – 22:46 | Clear, mild and no wind (22°C) |
| 07/07/2021 | T4, T5 | 21:18 | 21:03 – 22:33 | Clear, mild and light breeze (17°C) |

BAT ACTIVITY SURVEY

- 4.3 Bat activity surveys (comprising transects and static detector monitoring) were undertaken between April and June 2021. The transect routes and location of the static detectors can be found at Figure 1.

Static Data Analysis

- 4.4 The static detector was left out for five days each month, the dates of deployment were:
- 21st April 2021 – 25th April 2021;
 - 14th May – 21st May 2021; and
 - 11th June 2021 – 15th June 2021.
- 4.5 The trends in activity are displayed on the following graphs below. The abbreviations for species used in these graphs can be seen in Table 4.2.

Table 4.2 Species Abbreviations

| Common name | Scientific name | Abbreviation |
|-------------------------|----------------------------------|--------------|
| Serotine | <i>Eptesicus serotinus</i> | EPSE |
| Leisler's | <i>Nyctalus leisleri</i> | NYLE |
| Noctule | <i>Nyctalus noctula</i> | NYNO |
| Nathusius's pipistrelle | <i>Pipistrellus nathusii</i> | PINA |
| Common pipistrelle | <i>Pipistrellus pipistrellus</i> | PIPI |
| Soprano pipistrelle | <i>Pipistrellus pygmaeus</i> | PIPY |

Figure 4.1 Species Composition

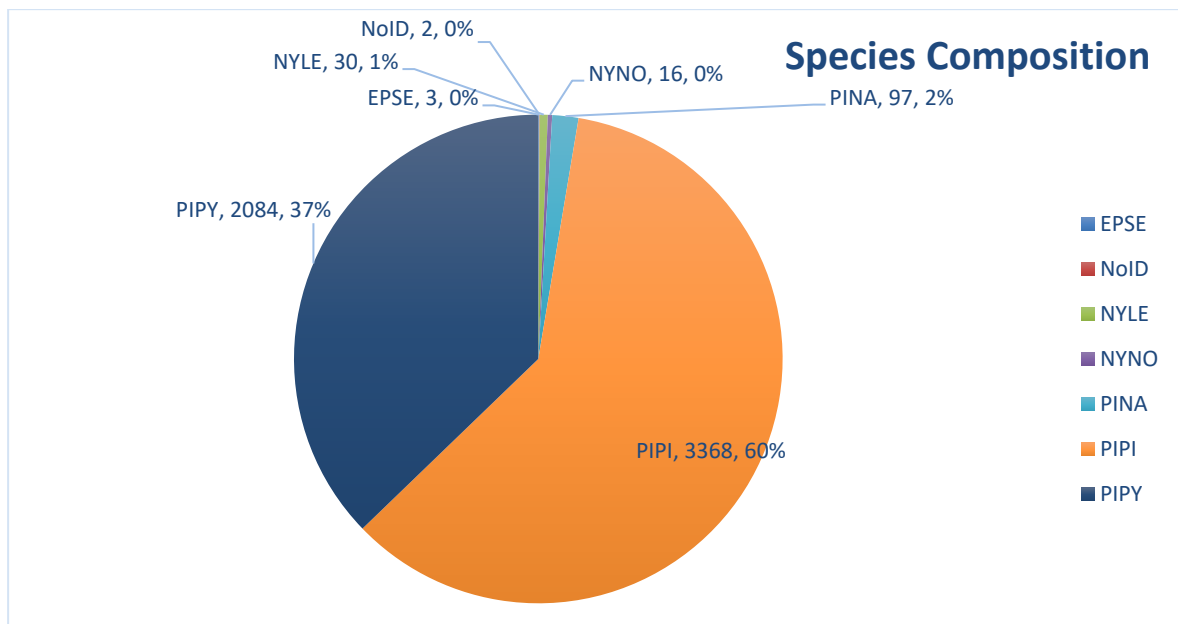
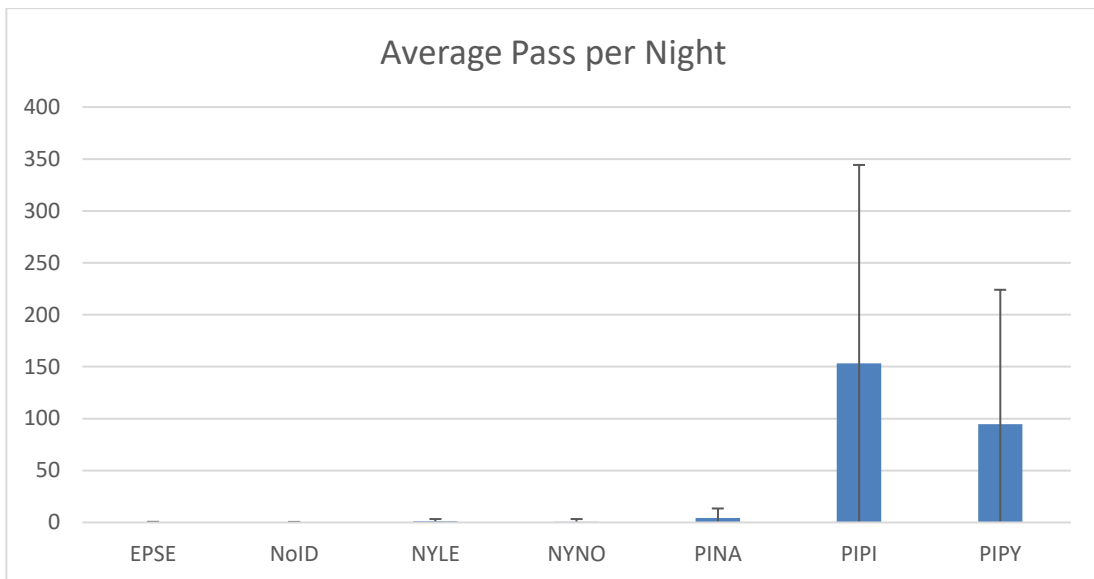


Figure 4.2 Average Passes Per Night



4.6 As shown above, six species of bat were recorded on site with the majority of activity site from common pipistrelle (60%) and soprano pipistrelle (37%).

Walked Transects

4.7 The transects identified low levels of bat activity on site as summarised below:

- April – no bats were recorded.
- May – single passes from noctule and common pipistrelle.
- June – six common pipistrelle passes and two soprano pipistrelle passes.

4.8 The results of the updated activity surveys are largely consistent with the previous surveys.

4.9 The transect route is shown on Figure 1.

REPTILE SURVEY

4.10 The results of each reptile survey visit are summarised below in Table 4.3.

4.11 Slow-worm and common lizard were the only reptiles recorded.

Table 4.3 Reptile Survey Results

| Date | Slow-worm | | Common Lizard | |
|----------|-----------|----------|---------------|----------|
| | Adult | Juvenile | Adult | Juvenile |
| 21/04/21 | 9 | 1 | 1 | 0 |
| 23/04/21 | 3 | 0 | 4 | 0 |

| Date | Slow-worm | | Common Lizard | |
|----------|-----------|----------|---------------|----------|
| | Adult | Juvenile | Adult | Juvenile |
| 26/04/21 | 7 | 0 | 6 | 0 |
| 05/05/21 | 9 | 0 | 11 | 0 |
| 11/05/21 | 18 | 1 | 6 | 1 |
| 17/05/21 | 18 | 2 | 5 | 1 |
| 26/05/21 | 17 | 8 | 2 | 2 |

- 4.12 A peak count of 18 slow-worm and 11 common lizard were recorded during the surveys. Therefore, this would be considered to be a 'good' population for each of these species, in accordance with the Froglife guidance.
- 4.13 Previous surveys on site only recorded a 'low' population of slow worm with no common lizard recorded. A possible explanation for this is the reduced level of management that this area is now subjected to compared to the time of the previous surveys.

INVERTEBRATE SURVEY

- 4.14 A survey of invertebrates was undertaken on the 10th June 2021.
- 4.15 A total of 152 taxa were recorded including 11 with conservation statuses (the criteria for the statuses are given in Appendix 1). Seven of these were not recorded in 2018 (these are shown in bold in the table below).

Table 4.4 Species with a Conservation Status

| Species | Family | Order | Conservation Status |
|-------------------------------------|----------------------|-------------------|---------------------|
| <i>Nigma puella</i> | Dictynidae | Araneae | NS |
| <i>Ero aphana</i> | Mimetidae | Araneae | NS |
| <i>Philodromus buxi</i> | Philodromidae | Araneae | NS |
| <i>Diplapion stolidum</i> | Apionidae | Coleoptera | Nb |
| <i>Chrysolina marginata</i> | Chrysomelidae | Coleoptera | NR;NT |
| <i>Podagrica fuscicornis</i> | Chrysomelidae | Coleoptera | NS |
| <i>Platynaspis luteorubra</i> | Coccinellidae | Coleoptera | NS |
| <i>Trichosirocalus rufulus</i> | Curculionidae | Coleoptera | [Na];Na |
| <i>Mordellistena parvula</i> | Mordellidae | Coleoptera | NS |
| <i>Acinia corniculata</i> | Tephritidae | Diptera | [RDB 1] |
| <i>Asiraca clavicornis</i> | Delphacidae | Hemiptera | Nb |

- 4.16 The assemblage is of local interest primarily associated with the open herb rich verges and banks.
- 4.17 A full report of the findings from the invertebrate survey can be found within Appendix 1 of this report.

5.0 MITIGATION, COMPENSATION AND ENHANCEMENT

5.1 The below summarises the necessary approaches to mitigation, compensation and enhancement. Further details are provided in the Ecological Impact Assessment for the application and could be secured by condition through an Ecological Management Plan.

BATS

5.2 Whilst foraging and commuting resources for bats are not formally protected by law, their protection is a material consideration within the planning process. Suitable best practice and mitigation recommendations are therefore detailed below.

5.3 Large areas of grassland and scrub habitat as well as large mature trees will be removed from the site to make way for the proposed development and their loss may stand to significantly impact the foraging resource and food availability for bats on site. Therefore, compensation for the loss of these habitats in the form of extensive landscaping will be delivered on site and has been designed in consultation with the project ecologist to ensure a high value for ecology. Proposed landscaping includes new hedgerows, new shrub planting, tree planting, and biodiverse roofs. The species mix has concentrated on native species and those with a known ecological value which will attract a varied invertebrate population an important food source for bats. The landscaping will also include the replacement of the pond thereby creating valuable foraging area for bats.

5.4 The development proposals are likely to introduce higher levels of artificial lighting to some areas of site. This increase in lighting can cause disturbance to foraging and commuting bats, as well as other wildlife in the locality. To minimise this impact measures to limit additional light disturbance, on-site and in the zone of influence of the development, will be implemented. The final detailed Lighting Strategy will follow guidance provided by *The Institute of Lighting Professionals and BCT*. This involves the use of:

- Low-UV warm-white LED Bulbs;
- Directional, downward facing and shielded lights;
- Avoidance of light spill onto suitable vegetation and the hedges with trees which form the boundary of the site and which likely to support commuting and foraging behaviour of the bats;
- Lighting which points away from new green features such as trees or areas of landscaping; and
- Lighting subject to curfew controls and movement sensors where possible.

REPTILES

- 5.5 To ensure that slow worms and common lizard are protected from injury/harm, a receptor area will be created along the western boundary which will be followed by a trapping exercise which excludes reptiles from the working area (the rough grassland and scrub habitats in the north of the site). The working areas would be fenced off with reptile exclusion fencing and a trapping exercise undertaken between March to September/October, when weather conditions are optimal. Reptiles that are caught would be transferred directly to the receptor site. A destructive search of any suitable hibernation features would be undertaken and the area made unsuitable for reptile occupation.
- 5.6 The receptor site, located on the north-western boundary, would be managed to achieve conservation benefits for the existing reptile population. This would be specifically designed to improve both the botanical and structural diversity of vegetation in order to benefit reptiles. These measures would include low intensity management to establish grassland and scrub mosaic, and the provision of a series of additional hibernation features. The detailed design of the habitats would be achieved through the implementation of a Management Plan, which would ensure the successful establishment and maintenance of all retained and newly created habitats, ensuring the favourable conservation status of reptiles is maintained.
- 5.7 The receptor site would be created in advance of any construction works; this would therefore ensure that the habitat has developed adequately to ensure that it can support the translocated reptile population. The area proposed for the reptile reserve would require a degree of tree and shrub removal and grassland establishment. Once the habitat has developed the future management would be secured into perpetuity, with specific management measures outlined within the Management Plan.

INVERTEBRATES

- 5.8 Given the value for invertebrates associated with the banks surrounding the car park, it is proposed to recreate this habitat at roof level on the biodiverse green roofs which will incorporate a diverse mix of plant species and features such as log piles, rope coils, sandy piles and ephemeral water features.

6.0 SUMMARY AND CONCLUSION

6.1 Greengage was commissioned by Comer Homes to undertake a suite of protected species surveys at a site known as the Royal Brunswick Park in New Southgate, in the London Borough of Barnet.

6.2 The surveys undertaken identified the following:

- Roosting bats have been confirmed as likely absent from the site;
- Low levels of bat activity were recorded on site from six species; and
- Confirmed presence of a 'good' population of slow worm and common lizard on site.

6.3 In light of the survey findings an outline of mitigation, compensation and enhancement actions has been provided in Section 5.0 of this report. Further details are provided in the Ecological Impact Assessment for the application and could be secured by condition through an Ecological Management Plan.

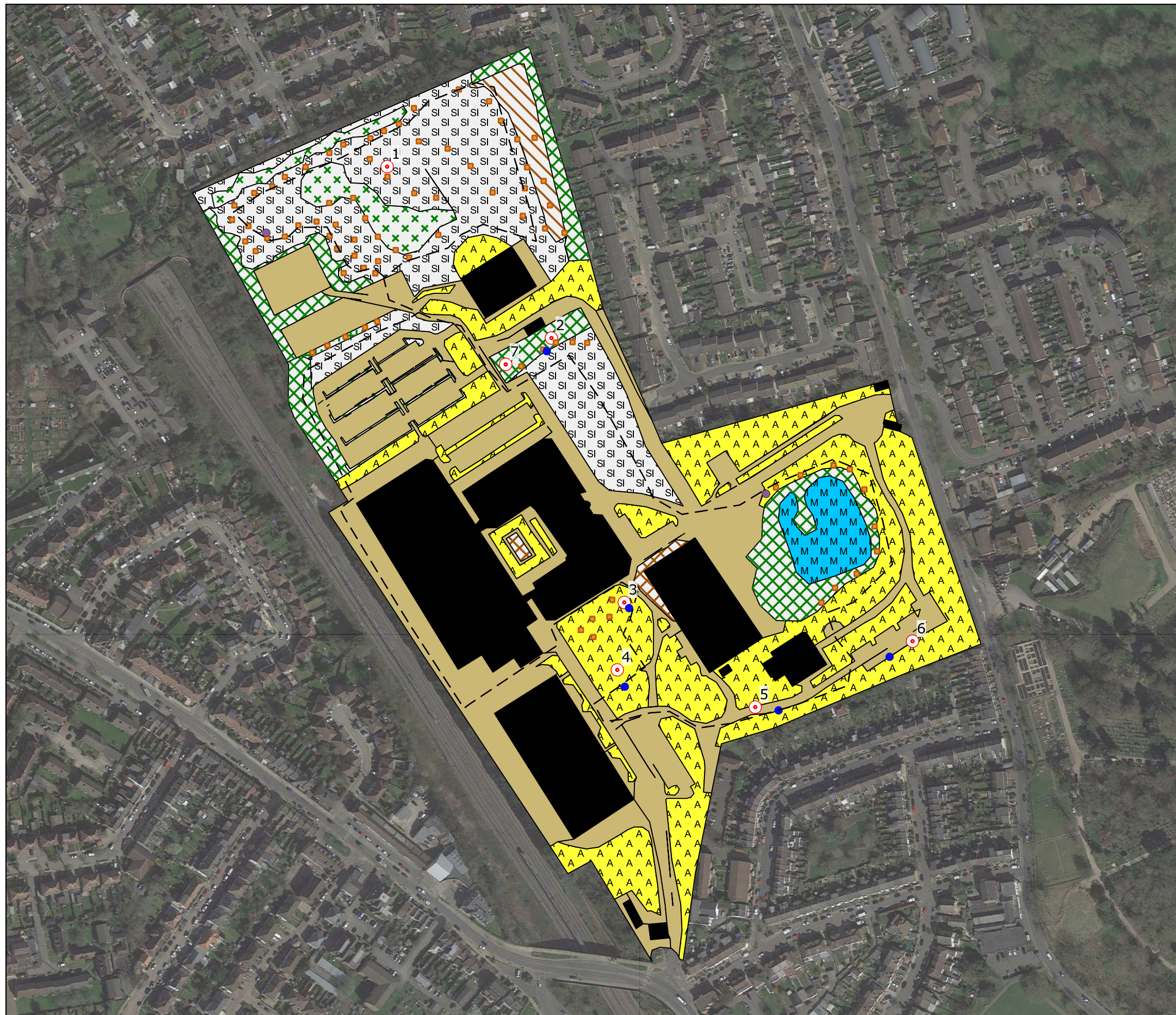
FIGURE 1 PHASE 2 SURVEY PLAN

North London Business Park

- ⊙ Target Notes
- Surveyor locations
- Reptile mats
- Static location
- Activity survey transect

Habitats

- ⊠ A2.1 - Dense Continuous Scrub
- ⊠ A2.2 - Scattered Scrub
- ⊠ B6 - Semi-Improved Grassland
- ⊠ C3.1 - Tall Ruderal
- ⊠ G1.2 - Standing Water - Mesotrophic
- ⊠ J1.2 - Amenity Grassland
- ⊠ J1.4 - Introduced Shrub
- ⊠ J2.1.2 - Intact Hedge - Species Poor
- ⊠ J2.3.2 - Hedge with Trees - Species Poor
- J3.6 - Buildings
- J5 - Hardstanding



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Fig 1.0 Site Plan and Habitat Map

Project Number 551510
August 2021
1 to 2800 at A3
Basemap: Google Satellite



APPENDIX 1 INVERTEBRATE SURVEY REPORT

INVERTEBRATE SURVEY
OF
NORTH LONDON BUSINESS PARK,
BARNET,
MIDDLESEX,

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JUNE 2021

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Summary

A survey of the terrestrial and aquatic invertebrates was carried out across the site on the 10th June 2021.

Species totals: 152 taxa were recorded including 11 species with conservation statuses;-

| Species | Family | Order | Conservation status |
|--------------------------------|---------------|------------|---------------------|
| <i>Nigma puella</i> | Dictynidae | Araneae | NS |
| <i>Ero aphana</i> | Mimetidae | Araneae | NS |
| <i>Philodromus buxi</i> | Philodromidae | Araneae | NS |
| <i>Diplapion stolidum</i> | Apionidae | Coleoptera | Nb |
| <i>Chrysolina marginata</i> | Chrysomelidae | Coleoptera | NR;NT |
| <i>Podagrica fuscicornis</i> | Chrysomelidae | Coleoptera | NS |
| <i>Platynaspis luteorubra</i> | Coccinellidae | Coleoptera | NS |
| <i>Trichosirocalus rufulus</i> | Curculionidae | Coleoptera | [Na];Na |
| <i>Mordellistena parvula</i> | Mordellidae | Coleoptera | NS |
| <i>Acinia corniculata</i> | Tephritidae | Diptera | [RDB 1] |
| <i>Asiraca clavicornis</i> | Delphacidae | Hemiptera | Nb |

INTRODUCTION

Project brief was to carry out a repeat baseline invertebrate survey on the land across North London Business Park. This follows on from the survey carried out on 11.6.2018 (Colin Plant Associates, 2018).

METHODOLOGY

Because it is impracticable to survey all the potential invertebrates within any given site, only specific groups of species were examined during fieldwork. These groups are sufficiently well known as to allow meaningful comparisons to be made with other sites, both locally and nationally. They are also important as indicators of the quality of a site and the habitats present (see Brooks 1993).

Groups covered during the survey were;

- Mollusca (slugs and snails)
- Arachnida (spiders, harvestmen & pseudoscorpions)
- Isopoda (woodlice)
- Thysanura (bristletails)
- Ephemeroptera (mayflies)
- Odonata (dragonflies & damselflies)
- Plecoptera (stoneflies)
- Orthoptera (grasshoppers & crickets)
- Dictyoptera (cockroaches)
- Dermaptera (earwigs)
- Hemiptera-Heteroptera (true-bugs)
- Hemiptera-Homoptera (hoppers)
- Neuroptera (lace-wings)
- Mecoptera (scorpion-flies)
- Lepidoptera (butterflies & moths)
- Trichoptera (caddis flies)
- Diptera (true flies)
- Aculeate Hymenoptera (ants, bees & wasps)
- Coleoptera (beetles)

The main emphasis of the survey was to find as many species with conservation designations as possible within the reviewed groups.

SURVEYS AND SITE VISITS

The site was visited by the author on the

Standard field techniques were employed to sample the invertebrate fauna across the site. These included sweeping vegetation with a wide mouthed sweep net, beating trees and bushes over a beating tray, and grubbing amongst tussocks and key host plant rosettes etc. In addition a battery-powered suction sampler was used to sample ground dwelling invertebrates.

A 0.5mm mesh pond net was used to sample the aquatic habitats.

RESULTS

A total of 152 taxa were recorded including 11 with conservation statuses (the criteria for the statuses are given in appendix 2). Seven of these were not recorded in 2018 (these are shown in bold in table 2).

Table 1. Species with a conservation status

| Species | Family | Order | Conservation status |
|--------------------------------|---------------|------------|---------------------|
| <i>Nigma puella</i> | Dictynidae | Araneae | NS |
| <i>Ero aphana</i> | Mimetidae | Araneae | NS |
| <i>Philodromus buxi</i> | Philodromidae | Araneae | NS |
| <i>Diplapion stolidum</i> | Apionidae | Coleoptera | Nb |
| <i>Chrysolina marginata</i> | Chrysomelidae | Coleoptera | NR;NT |
| <i>Podagrica fuscicornis</i> | Chrysomelidae | Coleoptera | NS |
| <i>Platynaspis luteorubra</i> | Coccinellidae | Coleoptera | NS |
| <i>Trichosirocalus rufulus</i> | Curculionidae | Coleoptera | [Na];Na |
| <i>Mordellistena parvula</i> | Mordellidae | Coleoptera | NS |
| <i>Acinia corniculata</i> | Tephritidae | Diptera | [RDB 1] |
| <i>Asiraca clavicornis</i> | Delphacidae | Hemiptera | Nb |

Additional Nationally Scarce species

ARACHNIDA

Nigma puella (Ditynidae) - Bleeding heart spider NS

A distinctive spider found on foliage on trees and bushes. Much increased and locally frequent on bushes and foliage across the south-east.

Ero aphana (Mimetidae) NS

A pirate spider once considered a great rarity. It has spread dramatically over past 20 years or so and is now a common species often found under ivy on walls and in dense shady places.

***Philodromus buxi* (Philodromidae) NS?**

A false crab spider which was thought extinct at the time of the review, having only ever been found at Bloxworth, Dorset by O. Pickard-Cambridge in the nineteenth century. It was rediscovered on two separate dates in 2014 in a Malaise trap located on a green roof in Greenwich (Wilson, 2015), it is proving widespread in Greater London and clearly spreading rapidly. It occurs on trees and bushes. Likely to be assigned as nationally scarce.

***Asiraca clavicornis* (Delphacidae) NS**

A very distinctive hopper with long antennae. It was very local in the home counties but is clearly spreading with records out in SW Surrey and West Kent in recent years.

COLEOPTERA

***Diplapion stolidum* (Apionidae) Nb**

A small black seed weevil associated with ox-eye daisy. Local but occurring widely in lowland England.

***Chrysolina marginata* (Chrysomelidae) NS**

A dark metallic leaf beetle with a pale edge to the elytra. It is associated with yarrow and was considered a great rarity largely restricted to Breckland. However it has been found at sites in Hampshire (Denton, 1997) and West Kent and Hertfordshire in past 20 years and may be widespread. This may be the first modern record for Middlesex (VC21)

***Podagrica fuscicornis* (Chrysomelidae) NS**

A blue and orange flea-beetle with pale legs. It feeds on common mallow and has increased markedly in recent years.

HABITAT ASSESSMENT- USING ISIS TO MEASURE SITE QUALITY

Although there is currently no standard framework for evaluating the invertebrate value of a site as part of Ecological Impact Assessment. Most active invertebrate ecologists have adopted the Pantheon database tool developed by Natural England and the Centre for Ecology & Hydrology. Pantheon is an online spreadsheet used to analyse invertebrate sample data and assess assemblage data for favourable versus unfavourable condition by SSSI standards. Hence, if an assemblage or suite of assemblages are found to be in favourable condition this would indicate that the site is likely to be of significant importance for invertebrates. Further information on Pantheon is available here: <http://www.brc.ac.uk/pantheon/about/pantheon>

Users import lists of invertebrates (called "samples") into Pantheon, which then matches the species to the preferred name in the *UK species inventory* (A list of species maintained by the Natural History Museum). Not all macro-invertebrate taxa are included in the database. To date over c13,000 species have been assessed, this being about a quarter of the total macro-invertebrate fauna (estimated at 37,000). It remains limited to those taxa and families where there is enough ecological information to give a fair level of coding accuracy. These include species such as beetles, flies, bugs and hoppers, moths, ants, bees, wasps, spiders and molluscs.

The method for defining species resources was broadly similar to that followed in Natural England Research Report 024 (Webb *et. al.*, 2010).

‘For each species, a literature search was undertaken. All relevant ecological information was extracted and added to a spreadsheet. This included ‘structural elements of the habitats that the species is generally associated with (e.g. emergent vegetation, seed heads) and/or other environmental factors that it requires, host plant and/or animal species alongside ecological guild of larvae as well as adults where these differed, (e.g. herbivore, carnivore). Only those resources which were considered important to the species in completing its life cycle were included’.

The assemblage types are labelled in terms that relate to their favoured habitats in order to make them accessible to non-specialists. However, they are actually defined by lists of characteristic species that are generally found together in nature. Two levels are recognised in the classification. Broad assemblage types (BATs) are a comprehensive series of assemblage types that are characterised by more widespread species. They can be expressed in lists from a wide range of sites. Specific assemblage types (SATs) are characterised by ecologically restricted species and are generally only expressed in lists from sites with conservation value. Since 2008 there has also been a third category of assemblage types that cut across this classification. They are mainly defined by lists of species dependent on a particular environmental resource, such as flowers as a source of pollen and nectar. The assemblage type classification is given below. Textual descriptions of each assemblage type and its habitats have been prepared for incorporation into a web-based database. See Table 1.

Table 2. A break-down of the available ISIS assemblage types with number of species assigned to each assemblage.

| Arboreal assemblage types | |
|--|-------------------------------------|
| A1 arboreal canopy (846) | |
| A2 wood decay (1118) | A211 heartwood decay (175) |
| | A212 bark & sapwood decay (503) |
| | A213 fungal fruiting bodies (89) |
| | A215 epiphyte fauna (20) |
| Field layer assemblage types | |
| | F001 scrub edge (179) |
| | F002 rich flower resource (241) |
| | F003 scrub-heath and moorland (344) |
| | F006 dung (99) |
| F1 unshaded early successional mosaic (1188) | F111 bare sand & chalk (440) |
| | F112 open short sward (200) |
| F2 grassland & scrub matrix (1910) | F221 montane & upland (101) |
| F3 shaded field & ground layer (480) | |

Table 3. PANTEHON RESULTS FROM 10.6.2021

| Broad biotope | SAT | No. of species | SQI | Species with conservation status | Code | Reported condition |
|-----------------|------------------------|----------------|-----|----------------------------------|------|--------------------------------|
| tree-associated | bark & sapwood decay | 5 | 100 | | A212 | Unfavourable (5 of 19 species) |
| open habitats | scrub edge | 4 | 100 | | F001 | Unfavourable (4 of 11 species) |
| open habitats | bare sand & chalk | 4 | 425 | 3 | F111 | Unfavourable (4 of 19 species) |
| open habitats | rich flower resource | 3 | 100 | | F002 | Unfavourable (3 of 15 species) |
| open habitats | open short sward | 2 | 250 | 1 | F112 | Unfavourable (2 of 13 species) |
| open habitats | scrub-heath & moorland | 1 | 400 | 1 | F003 | Unfavourable (1 of 9 species) |

SURVEY LIMITATIONS

Clearly diurnal surveys will miss the vast majority of night flying species (moths, many Ichneumons etc.), further survey in early spring and later in the summer will also yield more species.

ECOLOGICAL ASSESSMENT

The assemblage is of local interest primarily associated with the open herb rich verges and banks.

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APPENDICES

APPENDIX 1. SPECIES LIST 10.6.2021

| Species | Family | Order | Conservation status | Larval feeding guild |
|------------------------------|----------------|---------|---------------------|----------------------|
| <i>Eratigena sp.</i> | Agelenidae | Araneae | common | predator |
| <i>Amaurobius similis</i> | Amaurobiidae | Araneae | common | predator |
| <i>Araniella cucurbitina</i> | Araneidae | Araneae | common | predator |
| <i>Clubiona comta</i> | Clubionidae | Araneae | common | predator |
| <i>Nigma puella</i> | Dictynidae | Araneae | NS | predator |
| <i>Bathyphanes gracilis</i> | Linyphiidae | Araneae | common | predator |
| <i>Linyphia triangularis</i> | Linyphiidae | Araneae | common | predator |
| <i>Ero aphana</i> | Mimetidae | Araneae | NS | predator |
| <i>Philodromus albidus</i> | Philodromidae | Araneae | common | predator |
| <i>Philodromus buxi</i> | Philodromidae | Araneae | NS | predator |
| <i>Philodromus cespitum</i> | Philodromidae | Araneae | common | predator |
| <i>Pholcus phalangioides</i> | Pholcidae | Araneae | common | predator |
| <i>Pisaura mirabilis</i> | Pisauridae | Araneae | common | predator |
| <i>Heliophanus cupreus</i> | Salticidae | Araneae | common | predator |
| <i>Heliophanus flavipes</i> | Salticidae | Araneae | common | predator |
| <i>Salticus scenicus</i> | Salticidae | Araneae | common | predator |
| <i>Sitticus pubescens</i> | Salticidae | Araneae | common | predator |
| <i>Tetragnatha extensa</i> | Tetragnathidae | Araneae | common | predator |
| <i>Tetragnatha montana</i> | Tetragnathidae | Araneae | common | predator |
| <i>Steatoda nobilis</i> | Theridiidae | Araneae | common | predator |

INVERTEBRATE SURVEY OF NORTH LONDON BUSINESS PARK, 2021

| | | | | |
|------------------------------------|---------------|----------------|---------|--------------|
| <i>Diaea dorsata</i> | Thomisidae | Araneae | common | predator |
| <i>Misumena vatia</i> | Thomisidae | Araneae | common | predator |
| <i>Xysticus cristatus</i> | Thomisidae | Araneae | common | predator |
| <i>Eriophyes similis</i> | Eriophyidae | Trombidiformes | common | parasite |
| <i>Vasates quadripedes</i> | Eriophyidae | Trombidiformes | common | parasite |
| <i>Anobium punctatum</i> | Anobiidae | Coleoptera | common | xylophagous |
| <i>Aspidapion aeneum</i> | Apionidae | Coleoptera | common | herbivore |
| <i>Aspidapion radiolus</i> | Apionidae | Coleoptera | common | herbivore |
| <i>Diplapion stolidum</i> | Apionidae | Coleoptera | Nb | herbivore |
| <i>Ischnopterapion virens</i> | Apionidae | Coleoptera | common | herbivore |
| <i>Malvapion malvae</i> | Apionidae | Coleoptera | common | herbivore |
| <i>Protapion apricans</i> | Apionidae | Coleoptera | common | herbivore |
| <i>Pseudapion rufirostre</i> | Apionidae | Coleoptera | common | herbivore |
| <i>Cantharis rustica</i> | Cantharidae | Coleoptera | common | predator |
| <i>Bruchidius varius</i> | Chrysomelidae | Coleoptera | common | herbivore |
| <i>Chrysolina marginata</i> | Chrysomelidae | Coleoptera | NR;NT | herbivore |
| <i>Crepidodera aurea</i> | Chrysomelidae | Coleoptera | common | |
| <i>Longitarsus suturellus</i> | Chrysomelidae | Coleoptera | common | herbivore |
| <i>Podagrica fuscicornis</i> | Chrysomelidae | Coleoptera | NS | herbivore |
| <i>Adalia bipunctata</i> | Coccinellidae | Coleoptera | common | |
| <i>Adalia decempunctata</i> | Coccinellidae | Coleoptera | common | predator |
| <i>Coccinella septempunctata</i> | Coccinellidae | Coleoptera | common | predator |
| <i>Harmonia axyridis</i> | Coccinellidae | Coleoptera | common | predator |
| <i>Platynaspis luteorubra</i> | Coccinellidae | Coleoptera | NS | predator |
| <i>Rhyzobius chrysomeloides</i> | Coccinellidae | Coleoptera | common | predator |
| <i>Scymnus frontalis</i> | Coccinellidae | Coleoptera | common | saprophagous |
| <i>Barypeithes araneiformis</i> | Curculionidae | Coleoptera | common | herbivore |
| <i>Hypera nigrirostris</i> | Curculionidae | Coleoptera | common | herbivore |
| <i>Hypera postica</i> | Curculionidae | Coleoptera | common | herbivore |
| <i>Mecinus pascuorum</i> | Curculionidae | Coleoptera | common | herbivore |
| <i>Mecinus pyraster</i> | Curculionidae | Coleoptera | common | herbivore |
| <i>Pachyrhinus lethierryi</i> | Curculionidae | Coleoptera | common | |
| <i>Sitona humeralis</i> | Curculionidae | Coleoptera | common | herbivore |
| <i>Sitona lineatus</i> | Curculionidae | Coleoptera | common | herbivore |
| <i>Trichosirocalus rufulus</i> | Curculionidae | Coleoptera | [Na];Na | herbivore |
| <i>Trichosirocalus troglodytes</i> | Curculionidae | Coleoptera | common | herbivore |
| <i>Tychius picirostris</i> | Curculionidae | Coleoptera | common | herbivore |
| <i>Anthrenus verbasci</i> | Dermeestidae | Coleoptera | common | |
| <i>Agriotes obscurus</i> | Elateridae | Coleoptera | common | herbivore |
| <i>Kibunea minuta</i> | Elateridae | Coleoptera | common | herbivore |
| <i>Cartodere bifasciata</i> | Latridiidae | Coleoptera | common | |
| <i>Malachius bipustulatus</i> | Malachiidae | Coleoptera | common | predator |
| <i>Mordellistena parvula</i> | Mordellidae | Coleoptera | NS | |
| <i>Oedemera lurida</i> | Oedemeridae | Coleoptera | common | predator |
| <i>Anaspis maculata</i> | Scraptiidae | Coleoptera | common | predator |

| | | | | |
|----------------------------------|------------------|------------|---------|--------------|
| <i>Anaspis pulicaria</i> | Scraptiidae | Coleoptera | common | predator |
| <i>Forficula auricularia</i> | Forficulidae | Dermaptera | common | |
| <i>Dioctria baumhaueri</i> | Asilidae | Diptera | common | predator |
| <i>Leptogaster cylindrica</i> | Asilidae | Diptera | common | predator |
| <i>Empis livida</i> | Empididae | Diptera | common | predator |
| <i>Chloromyia formosa</i> | Stratiomyidae | Diptera | common | saprophagous |
| <i>Pachygaster atra</i> | Stratiomyidae | Diptera | common | saprophagous |
| <i>Eristalis arbustorum</i> | Syrphidae | Diptera | common | saprophagous |
| <i>Merodon equestris</i> | Syrphidae | Diptera | common | herbivore |
| <i>Paragus haemorrhous</i> | Syrphidae | Diptera | common | predator |
| <i>Sphaerophoria scripta</i> | Syrphidae | Diptera | common | predator |
| <i>Acinia corniculata</i> | Tephritidae | Diptera | [RDB 1] | herbivore |
| <i>Chaetostomella cylindrica</i> | Tephritidae | Diptera | common | herbivore |
| <i>Tephritis vespertina</i> | Tephritidae | Diptera | common | herbivore |
| <i>Urophora quadrifasciata</i> | Tephritidae | Diptera | common | herbivore |
| <i>Urophora stylata</i> | Tephritidae | Diptera | common | herbivore |
| <i>Xyphosia miliaria</i> | Tephritidae | Diptera | common | herbivore |
| <i>Elasmucha grisea</i> | Acanthosomatidae | Hemiptera | common | herbivore |
| <i>Anthocoris confusus</i> | Anthocoridae | Hemiptera | common | predator |
| <i>Orius niger</i> | Anthocoridae | Hemiptera | common | herbivore |
| <i>Pemphigus spyrothecae</i> | Aphididae | Hemiptera | common | herbivore |
| <i>Aphrophora alni</i> | Aphrophoridae | Hemiptera | common | |
| <i>Neophilaenus campestris</i> | Aphrophoridae | Hemiptera | common | herbivore |
| <i>Philaenus spumarius</i> | Aphrophoridae | Hemiptera | common | |
| <i>Aphrodes makarovi</i> | Cicadellidae | Hemiptera | common | herbivore |
| <i>Arthaldeus pascuellus</i> | Cicadellidae | Hemiptera | common | herbivore |
| <i>Deltocephalus pulicaris</i> | Cicadellidae | Hemiptera | common | herbivore |
| <i>Eupteryx aurata</i> | Cicadellidae | Hemiptera | common | herbivore |
| <i>Oncopsis alni</i> | Cicadellidae | Hemiptera | common | herbivore |
| <i>Oncopsis carpini</i> | Cicadellidae | Hemiptera | common | herbivore |
| <i>Oncopsis flavicollis</i> | Cicadellidae | Hemiptera | common | herbivore |
| <i>Oncopsis subangulata</i> | Cicadellidae | Hemiptera | common | herbivore |
| <i>Streptanus sordidus</i> | Cicadellidae | Hemiptera | common | herbivore |
| <i>Tachycixius pilosus</i> | Cixiidae | Hemiptera | common | |
| <i>Coreus marginatus</i> | Coreidae | Hemiptera | common | herbivore |
| <i>Coriomeris denticulatus</i> | Coreidae | Hemiptera | common | herbivore |
| <i>Asiraca clavicornis</i> | Delphacidae | Hemiptera | Nb | herbivore |
| <i>Gerris lacustris</i> | Gerridae | Hemiptera | common | predator |
| <i>Kleidocerys resedae</i> | Lygaeidae | Hemiptera | common | herbivore |
| <i>Nysius senecionis</i> | Lygaeidae | Hemiptera | common | herbivore |
| <i>Closterotomus norwegicus</i> | Miridae | Hemiptera | common | herbivore |
| <i>Closterotomus trivialis</i> | Miridae | Hemiptera | common | herbivore |
| <i>Deraeocoris flavilinea</i> | Miridae | Hemiptera | common | herbivore |
| <i>Deraeocoris lutescens</i> | Miridae | Hemiptera | common | herbivore |
| <i>Dicyphus errans</i> | Miridae | Hemiptera | common | herbivore |

| | | | | |
|----------------------------------|-----------------|-------------|--------|-----------|
| <i>Leptopectera dolabrata</i> | Miridae | Hemiptera | common | herbivore |
| <i>Liocoris tripustulatus</i> | Miridae | Hemiptera | common | herbivore |
| <i>Phylus coryli</i> | Miridae | Hemiptera | common | herbivore |
| <i>Pinalitus cervinus</i> | Miridae | Hemiptera | common | herbivore |
| <i>Plagiognathus arbustorum</i> | Miridae | Hemiptera | common | herbivore |
| <i>Psallus perrisi</i> | Miridae | Hemiptera | common | herbivore |
| <i>Psallus ambiguus</i> | Miridae | Hemiptera | common | herbivore |
| <i>Psallus salicis</i> | Miridae | Hemiptera | common | herbivore |
| <i>Psallus varians</i> | Miridae | Hemiptera | common | herbivore |
| <i>Stenodema laevigata</i> | Miridae | Hemiptera | common | herbivore |
| <i>Himacerus mirmicoides</i> | Nabidae | Hemiptera | common | predator |
| <i>Nabis rugosus</i> | Nabidae | Hemiptera | common | predator |
| <i>Aelia acuminata</i> | Pentatomidae | Hemiptera | common | herbivore |
| <i>Pentatoma rufipes</i> | Pentatomidae | Hemiptera | common | |
| <i>Psylla alni sensu stricto</i> | Psyllidae | Hemiptera | common | |
| <i>Psyllopsis fraxini</i> | Psyllidae | Hemiptera | common | |
| <i>Corizus hyoscyami</i> | Rhopalidae | Hemiptera | common | herbivore |
| <i>Eurygaster testudinaria</i> | Scutelleridae | Hemiptera | common | herbivore |
| <i>Andrena minutula</i> | Andrenidae | Hymenoptera | common | nectivore |
| <i>Apis mellifera</i> | Apidae | Hymenoptera | common | nectivore |
| <i>Bombus pascuorum</i> | Apidae | Hymenoptera | common | nectivore |
| <i>Bombus terrestris</i> | Apidae | Hymenoptera | common | nectivore |
| <i>Crossocerus podagricus</i> | Crabronidae | Hymenoptera | common | predator |
| <i>Formica fusca</i> | Formicidae | Hymenoptera | common | |
| <i>Lasius niger</i> | Formicidae | Hymenoptera | common | predator |
| <i>Myrmica scabrinodis</i> | Formicidae | Hymenoptera | common | |
| <i>Amblyteles armatorius</i> | Ichneumonidae | Hymenoptera | common | parasite |
| <i>Armadillidium vulgare</i> | Armadillidiidae | Isopoda | common | |
| <i>Porcellio scaber</i> | Porcellionidae | Isopoda | common | herbivore |
| <i>Cameraria ohridella</i> | Gracillariidae | Lepidoptera | common | herbivore |
| <i>Phyllonorycter platani</i> | Gracillariidae | Lepidoptera | common | herbivore |
| <i>Polyommatus icarus</i> | Lycaenidae | Lepidoptera | common | herbivore |
| <i>Chorthippus brunneus</i> | Acrididae | Orthoptera | common | herbivore |
| <i>Chorthippus parallelus</i> | Acrididae | Orthoptera | common | |
| <i>Meconema meridionale</i> | Meconematidae | Orthoptera | common | |
| <i>Roeseliana roeselii</i> | Tettigoniidae | Orthoptera | common | herbivore |
| <i>Cepaea hortensis</i> | Helicidae | Pulmonata | common | herbivore |
| <i>Cornu aspersum</i> | Helicidae | Pulmonata | common | herbivore |
| <i>Aegopinella nitidula</i> | Oxychilidae | Pulmonata | common | |

Appendix 2. Status categories for rare and Notable species

Red Data Book Category 1 (RDB 1) – Endangered

Definition.

Taxa in danger of extinction *in Great Britain* and whose survival is unlikely if the causal factors continue operating.

Included are those taxa whose numbers have been reduced to a critical level or whose habitats have been so dramatically reduced that they are deemed to be in immediate danger of extinction. Also included are *some* taxa that are *possibly* extinct.

Criteria.

Species which are known *or believed to occur* as only a single population within one 10 km square of the National Grid.

Species which only occur in habitats known to be especially vulnerable.

Species which have shown a rapid or continuous decline over the last twenty years and are now *estimated* to exist in five or fewer 10 km squares.

Species which are *possibly* extinct *but have been recorded this century* and if rediscovered would need protection.

Red Data Book Category 2 (RDB 2) - Vulnerable

Definition.

Taxa *believed* likely to move into the endangered category in the near future if the causal factors continue operating.

Included are taxa of which most or all of the populations are decreasing because of *over-exploitation*, extensive destruction of habitat or other environmental disturbance; taxa with populations that have been seriously depleted and whose ultimate security is not yet assured; and taxa with populations that are still abundant but are under threat from serious adverse factors throughout their range.

Criteria.

Species declining throughout their range.

Species in vulnerable habitats.

Red Data Book Category 3 (RDB 3) – Rare

Definition.

Taxa with small populations *in Great Britain* that are not at present endangered or vulnerable, but are at risk.

These taxa are usually localised within restricted geographical areas or habitats or are thinly scattered over a more extensive range.

Criterion.

Species which are estimated to exist in only fifteen or fewer 10 km squares. *This criterion may be relaxed where populations are likely to exist in over fifteen 10 km squares but occupy small areas of especially vulnerable habitat*

Nationally Scarce Category A - Notable A (Na)

Definition.

Taxa which do not fall within **RDB** categories but which are none-the-less uncommon in Great Britain and are thought to occur in 30 or fewer 10 km squares of the National Grid or, for less well recorded groups, within seven or fewer vice-counties.

Nationally Scarce Category B - Notable B (Nb)

Definition.

Taxa which do not fall within **RDB** categories but which are none-the-less uncommon in Great Britain and are thought to occur in between 31 and 100 10 km squares of the National Grid or, for less well recorded groups, within eight and twenty vice-counties.

Nationally Scarce - Notable (N)

Definition.

Taxa which do not fall within **RDB** categories but which are none-the-less uncommon in Great Britain and are thought to occur in between 16 to 100 10 km squares of the National Grid. Species within this category are often too poorly known for their status to be more precisely estimated.

Summary of the IUCN categories and criteria.

- **REGIONALLY EXTINCT (RE)**

A taxon is Extinct when there is no reasonable doubt that the last individual has died. In this review the last date for a record is set at fifty years before publication.

- **CRITICALLY ENDANGERED (CR)**

A taxon is Critically Endangered when the best available evidence indicates that it meets any of the criteria A to E for Critically Endangered.

- **ENDANGERED (EN)**

A taxon is Endangered when the best available evidence indicates that it meets any of the criteria A to E for Endangered.

- **VULNERABLE (VU)**

A taxon is Vulnerable when the best available evidence indicates that it meets any of the criteria A to E for Vulnerable.

- **NEAR THREATENED (NT)**

A taxon is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.

- **LEAST CONCERN (LC)**

A taxon is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category.

GB Rarity Status categories and criteria

- **Nationally Rare (NR)**

Native species which have not been recorded from more than 15 British hectads since 31st December 1979 and where there is reasonable confidence that exhaustive recording would not find them in more than 15 hectads. This category includes species which are probably extinct.

- **Nationally Scarce (NS)**

Native species which are not regarded as Nationally Rare AND which have not been recorded from more than 100 British hectads since 31st December 1979 and where there is reasonable confidence that exhaustive recording would not find them in more than 100 hectads.

Other species status terminology.

- **Local.** Species that are restricted in distribution either geographically or by habitat. Also used for species that are widespread but infrequently encountered, e.g. encountered in no more than 300 10km squares of the national Ordnance Survey grid since 1970. Or those species listed as such, based upon modern geographical data, by ISIS (2010) and/or relevant recording schemes.
- **Widely Scattered.** Generally distributed but at low densities.
- **Southern.** Mainly or completely confined to southern England and/or its westerly or easterly regions – as indicated.
- **Common.** Generally widespread throughout the UK.
- **Unknown.** Usually indicates a lack of available data for difficult taxa but may also imply recent taxonomic confusion.

REFERENCES

- 1 Froglife (1999) Reptile survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesworth
- 2 Herpetofauna Groups of Britain and Ireland (HGBI), (1998) Evaluating local mitigation/translocation: best practice and lawful standards