FOOTPRINT ECOLOGY

Visitor survey, recreation impact assessment and mitigation requirements for the Chilterns Beechwoods SAC and the Dacorum Local Plan

Chris Panter, Durwyn Liley, Sophie Lake, Phil Saunders & Zoe Caals

FOOTPRINT ECOLOGY, FOREST OFFICE, BERE ROAD, WAREHAM, DORSET BH20 7PA
WWW.FOOTPRINT-ECOLOGY.CO.UK
01929 552444

Footprint Contract Reference: 628
Date: 20th March 2022
Version: Final
Recommended Citation: Panter, C., Liley, D., Lake, S., Saunders, P., & Caals, Z. (2022). Visitor survey, recreation impact assessment and mitigation requirements for the Chilterns Beechwoods SAC and the Dacorum Local Plan. Report by Footprint Ecology for Dacorum Borough Council.
Cover photo: © Footprint Ecology

.

Summary

This report presents the results of a visitor survey and recreation impact assessment of the Chilterns Beechwoods SAC and nearby nature conservation sites and considers the implications in terms of mitigation measures to address recreation impacts. The work has been commissioned by Dacorum Borough Council to inform the Habitats Regulations Assessment (HRA) of their emerging Local Plan.

Section 2 Desk-based review and context: Key findings

The qualifying features of the SAC are Beech forests on neutral to rich soils, dry grasslands and scrublands on chalk or limestone and the Stag Beetle.

Ashridge Commons and Woods SSSI and Tring Woodlands SSSI are component parts of the SAC and are almost entirely publicly accessible; only the northern part of Ashridge Commons and Woods SSSI (Ringshall Coppice) has no public access. We estimate there are around 30 parking locations (504 parking spaces) at Ashridge Commons and Woods SSSI and 9 locations (38 spaces) at Tring Woodlands SSSI. At Ashridge Commons and Woods SSSI, 228 parking spaces were at parking locations at Monument Drive and we estimate space for around 474 more vehicles there on the verges.

Data from automated vehicle counters from 2017 showed a peak use of Monument Drive on the August bank holiday Monday of 1,500 vehicles entering the drive and around 450 vehicle movements per hour.

The Outdoor Recreation Valuation Tool (ORVal) estimates 26,740 visits per year to Tring Woodlands and 230,421 visits per year to the Ashridge Commons and Woods (these are extracted from a model that predicts access levels to different places around the country). These are likely to be significant under-estimates.

Drawing on the literature, impacts of recreation that are relevant to the qualifying features of the SAC potentially relate to the following:

- **Damage**: encompassing trampling and vegetation wear, soil compaction and erosion, trampling can cause direct mortality for some fauna and we have extended damage to include impacts from dead wood removal for Stag Beetles;
- **Contamination**: including nutrient enrichment (e.g. dog fouling), litter, invasive species;
- **Fire**: increased incidence and risk of fire;
- **Other**: all other impacts, including harvesting and activities associated with site management, for example the difficulties in achieving necessary grazing.

Section 3 Evidence of current impacts: Key findings

Walk-over surveys were undertaken to determine the extent of current recreation issues and potential risks (from increased recreation) at the sites.

Ashridge Commons and Woods

Recreational impacts were observed throughout Ashridge and were severe in some areas. They were particularly intense in the central areas north and south of Monument Drive (e.g. Aldbury Common and Old Copse, and Pitstone Common up towards Flat Isley) and also Northchurch Common. Just under 500 incidences of recreational damage were recorded. Damage through trampling was the most widespread impact, with widened paths and widespread incidence of bare compacted and sometimes churned ground with some path junctions now supporting extensive areas of poached ground. In many areas, but particularly the narrower desire lines through wooded areas, trampling had resulted in the exposure of tree roots (including those of veteran trees) and damage to tree roots. Other issues included widespread den building and damage from bikes wherever there was topographical variation. Eutrophication from dog fouling was widespread and a number of campfires/barbeque remains were noted.

Tring Woodlands

Most of the site was not unduly impacted by recreation, but isolated instances of littering or dog fouling were recorded. Some tracks showed significant signs of erosion/wear (including bicycle tire tracks and hoof prints) and widening. There were occasional desire lines leading to erosion in steeper areas and evidence of at least 3 campfires.

SSSIs outside SAC

10 SSSIs were visited and included in the recreation assessment work. All the sites visited are potentially vulnerable to impacts from recreation and some were showing signs of pressure although impacts were generally localised. Severe erosion was however apparent at Ivinghoe Hills SSSI.

Section 4 Vehicle counts: Key findings

Driven transects were undertaken to count all vehicles at both formal and informal parking locations and alongside verges around the relevant parts of the SAC. Transects took place on 10 different dates spread across the period May – August. Results from these counts included:

- Across the 10 transects a total of 3,422 vehicles were counted (across all parking locations and verges) with a median of 326;
- Individual counts ranged from 179 (on a weekday in late June) to 477 (on a late May weekend);
- In total, 22 vehicles were counted on verges away from Monument Drive;

- The average for the Ashridge part (including Ivinghoe Beacon) was 317.6 vehicles and 24.7 for Tring Woodlands;
- Weekends tended to be around 40% higher than weekdays;
- Even on the busiest days there were many more parking spaces than vehicles, suggesting the availability of parking is not setting any kind of ceiling on visitor numbers at present;
- On average, the number of vehicles on Monument Drive as a whole was 139.7 vehicles (split such that 83.6 were in the parking locations and 56.1 parking roadside);
- Monument Drive therefore accounted for 41% of all the vehicles counted on the transect (i.e. accessing both sites combined), 44% of vehicles in the Ashridge section of the transect and 51% of all vehicles within 500m of the SAC at Ashridge;
- For the Ashridge Commons and Woods SSSI, extrapolating the vehicle counts to give an estimate of people arriving by car would suggest around 4,718 people arriving by vehicle per day.

The vehicle count data are from just 10 counts, none of which picked up the high numbers of vehicles that have regularly been reported in the past and which can occur on holidays and particularly sunny days.

Section 5 Visitor surveys: Key findings

Visitor surveys were undertaken within and around Chilterns Beechwoods SAC in Spring/Summer 2021. Surveys included direct counts of visitors (tally counts) and face to face interviews with a random sample of visitors at 14 survey points. Key findings from these surveys included:

- In total, 3,968 groups were recorded passing the survey points over the 512 hours of survey;
- These groups comprised 7,670 people – equating to an average group size of 1.9 and an overall figure of 15 people per hour passing survey points across the whole survey;
- Counts were highest at weekends compared to weekdays and highest at Easter compared to other times of year;
- 1,164 interviews were undertaken;
- 97% of interviewees were visiting directly from home, 2% were on holiday in the area and 1% were staying locally with friends/family;
- The most common stated main activity was dog walking (48% of interviewees), followed by walking (39%) while other, less frequent activities, included jogging/running (3%) and cycling (3%);
- 80% of interviewees arrived at the site by car and 17% arrived on foot;
- The typical visit duration was around 1.5 hrs (87 minutes) and showed some variation between survey locations and time of year (visits were shorter at Easter);
- The typical visit frequency was around 114 visits per year – equivalent to just over 2 visits per week or 10 visits a month, this varied by survey period (interviewees at Easter tended to be more frequent visitors);
- Close to home was by far the most important reason that visitors had chosen to visit the location where interviewed (as opposed to another local site), particularly at Tring (42% of interviewees) but also at Ashridge (22% of interviewees);
- Route lengths undertaken by visitors were mapped as part of the interview and ranged from 0.08km to 27km, with a typical route length (median) of 3.0km;

- 80% of interviewees had not used any sources of information to plan their visit on the day of the interview; dog walkers and those who visited daily or more than once a day were the least likely to use any information before visiting;
- Interviewees were asked to name other sites they also visited: at Ashridge the two most frequently named alternatives were Ivinghoe Beacon and Tring Park while at Tring Woodlands the two main alternative sites were Tring Park and Ashridge.
- 73% of interviewees (81% at Tring and 73% at Ashridge) stated that they would be likely to use a new Country Park (or other area of greenspace) were a new country park to be created;
- Woodland and extensive/good walking routes were identified as key features for such a facility by those interviewed at Tring, while at Ashridge, café and toilets were also important;
- The survey generated 1075 visitor postcodes: across all interviewees, the median distance from the home postcode to interview location was 5.5km, and 75% lived with a 12.6km radius of the survey point;
- The 75th percentile for those travelling from home was 12.6km for those interviewed at Ashridge (10.3km if Monument Drive survey points excluded) and 1.6km for the Tring Woodlands survey points.

Section 6 Implications for mitigation: Key findings

In line with many other European sites around the country and in common with other Beechwood sites with similar qualifying features we recommend that a strategic approach to mitigation is established and this should extend to both the Tring Woodlands SSSI and Ashridge Commons and Woods SSSI.

We identify the potential for likely significant effects potentially extending out to 12.6km from the Ashridge Commons and Woods SSSI and recommend this for the zone of influence. We also highlight the need to limit growth in particularly close proximity (500m) to the SAC boundary, which will avoid some of the greatest risks.

Growth in Dacorum from the Local Plan could represent an increase in the number of residential dwellings by around 6.5% (minimum) within 12.6km (and any growth in neighbouring authorities would be additional to this).

Mitigation measures are suggested and would comprise a mix of Strategic Access Management and Monitoring measures ('SAMM'), targeted on the SAC and the provision of alternative greenspace to deflect access. Mitigation needs to be secured in-perpetuity.

Contents

Summary 3
Contents 7
Acknowledgements 10
1. Introduction 11
Overview 11
Balancing recreation and nature conservation 11
Legislative context 12
Report structure and approach 13
Geographic scope and relevant sites 16
2. Desk based review and context 18
Overview 18
Chilterns Beechwoods SAC 18
Relevant component SSSIs 18
Other SSSIs 19
Distribution of SAC qualifying features 20
Access infrastructure in the SAC 20
Previous visitor surveys and existing visitor data from the SAC 23
Potential impacts of recreation on SAC interest 26
Site Improvement Plan 26
Conservation objectives 26
Condition Assessment 26
Desk-based Review 27
3. Evidence of current impacts 30
Overview 30
Methods 30
Habitat mapping and identification of important ecological features 31
Current recreation impacts 31
Vulnerable features 31
Sites surveyed 31
Results 33
Ashridge Commons and Woods 33
Tring Woodlands 41
Aldbury Nowers 44
Alpine Meadow 44
Little Heath Pit 44
Oddy Hill and Tring Park 45
Roughdown Common 46
Tring Reservoirs 46
Dancersend 49
Dancersend Waterworks 49
Ivinghoe Hills 49
Pitstone Hill 50
Discussion – vulnerable features 53

4. Vehicle counts 57
Overview 57
Methods 57
Transect coverage 57
Timing and dates of transects 60
Results 61
Overall totals 61
Extent of verge parking 62
Spatial distribution of parking 63
Comparison of weekends/weekdays and comparative fullness of car parks 63
Types of vehicles 64
Estimates of overall visitor use from driving transects (Ashridge Commons and Woods SSSI only) 65
Discussion 65

5. Visitor surveys 69
Overview 69
Methods 69
Survey timing 69
Survey point selection 70
Survey Approach 74
Tally data 74
Time of day 75
Weather 75
Tally data results 76
Footfall 76
Person visits (overall visit numbers) 81
Group composition 81
Interview data 85
Visit type (Q1) 86
Activity (Q2 & 3) 87
Transport (Q4) 91
Visit duration and frequency (Q5, 6, 7 & 8) 93
Reasons for visiting (Q9) 98
Routes (Q10, 11, 12 & 13) 100
Information used (Q14, 15, 16, 17) 107
Alternative sites (Q18, 20, 21) 107
Improvements to existing or new greenspaces (Q22, 23, 24) 111
Postcodes (Q25) 115
Linear distances 118
Summary metrics 125

6. Implications for mitigation 127
The need for mitigation at the Chilterns Beechwoods SAC 127
Impacts of Covid and implications for mitigation 128
Strategic mitigation approaches in other parts of the country 129
Zone of influence for the Chilterns Beechwoods SAC 132
Development exclusion zone 133
Potential future growth in the Dacorum Local Plan 133

Recommended mitigation approaches 134
SAMM (Strategic Access Management and Monitoring) 134
The role of the café at Monument Drive 137
SANGs/Additional GI 138
Implementation 139
References 142
Appendix 1: Designated features of surveyed SSSIs that are not part of the Chilterns Beechwoods SAC (grouped by broad habitat type) 147
Appendix 2: Habitat map for Ashridge Commons and Woods SSSI 149
Appendix 3: Map of recreation impacts at Tring Woodlands SSSI 151
Appendix 4: Maps of recreation impacts at Dacorum SSSIs that are not within the Chilterns Beechwoods SAC 153
Appendix 5: Map of key areas at Oddy Hill and Tring Park SSSI 158
Appendix 6: Maps of recreation impacts at selected SSSIs outside Dacorum 160
Appendix 7: Vehicle Counts 164
Appendix 8: Summary of survey point selection in relation to the number of access points and parking provision 165
Appendix 9: Visitor survey questionnaire 166
Appendix 10: Visitor survey summary statistics relating to linear distances 176
Appendix 12: Suggested SANG guidelines 185
Appendix 13: Summary of impact assessments and other data for surrounding SSSI sites 187

Acknowledgements

This report has been commissioned by Dacorum Borough Council to support the Habitat Regulations Assessment of the Local Plan.

We are grateful to the following for advice, support and discussion: Samantha Cheater (Lepus Consulting), Mark Vallance, Andy Coulson-Phillips (BBOWT), Julia Carey (BMERC), Matt Thomson (Chilterns AONB), Ronan Leydon, Rebecca Williams (Dacorum Borough Council), Bernie Fleming , Martin Hicks (Hertfordshire Ecology), Christopher Laine, Andrew Marsh (Historic England), Nina Crabb, Matthew L'Estrange, Paul Miller, Emily Smith (National Trust), Ellen Satchwell, Marc Turner, Doug Wallace (Natural England), Ian Frogatt and Luke Shenton (Woodland Trust).

Visitor survey work was undertaken by: Abigail Dodge, Graham Blight, Hannah Howells, Jackie Lake, Jenny Price, Sue Powner, David Sadler and Mark Sumner. Thanks also to Emma Bishop and Fenella Lewin (all Footprint Ecology) for data entry, survey coordination and GIS.

1. Introduction

Overview

1.1 This report presents the results of a visitor survey and recreation impact assessment of the Chilterns Beechwoods SAC and nearby nature conservation sites and considers the implications in terms of mitigation measures to address recreation impacts. The work has been commissioned by Dacorum Borough Council to inform the Habitats Regulations Assessment (HRA) of their emerging Local Plan. This section of the report sets the scope and context of the work.

Balancing recreation and nature conservation

1.2 In the UK, many of our most important nature conservation sites have legal rights of access, for example through Public Rights of Way or Open Access through the Countryside and Rights of Way Act (CRoW) 2000. People are often drawn to such sites as they are large, scenic and often few other alternatives exist. Recreation use can include a variety of activities, ranging from the daily dog walks to competitive adventure and endurance sports. There can therefore be a difficult balancing act between providing for an increasing demand for access without compromising the integrity of protected wildlife sites.

1.3 There is now a strong body of evidence showing how increasing levels of access can have negative impacts on wildlife. Visits to the natural environment have shown a significant increase in England as a result of the increase in population and a trend to visit more (O'Neill, 2019). During the Covid pandemic access levels have increased further and local outdoor space has become critical for many in providing places for recreation, including space to socialise and exercise (Day, 2020; Kleinschroth & Kowarik, 2020).

1.4 The challenges are particularly acute in southern England, where population density is highest. Nature conservation impacts are varied and include disturbance, increased fire risk, contamination and damage (for general reviews see: Liley et al., 2010; Lowen et al., 2008; Ross et al., 2014; Underhill-Day, 2005).

1.5 The issues are not however straightforward. It is now increasingly recognised that access to the countryside is crucial to the long term success of nature conservation projects, for example through enforcing pro-environmental behaviours and a greater respect for the world around us (Richardson et al., 2016). Access also brings wider benefits to society that include benefits to mental/physical health (Keniger et al., 2013; Lee & Maheswaran, 2011; Pretty et al., 2005) and economic benefits (ICF GHK, 2013; ICRT, 2011; Keniger et al., 2013; The Land Trust, 2018). Nature conservation bodies are trying to encourage people to spend more time outside and government policy is also promoting countryside access in general (e.g. through enhancing coastal access). Issues are likely to be site specific, as the distribution of vulnerable features, the way people behave and the types of access that take place will vary between locations.

Legislative context

1.6 Dacorum Borough Council's emerging local plan will set the levels of housing growth for the Borough over the period 2020-2038 and will allocate land for development.

1.7 Part of the Chilterns Beechwoods Special Area of Conservation (SAC) lies within Dacorum Borough. This is an extensive SAC, designated for its beech forests, semi-natural dry grasslands and scrub, and its population of Stag Beetles *Lucanus cervus*. The SAC extends into the neighbouring districts of South Oxfordshire and former districts of Aylesbury Vale and Wycombe (now Buckinghamshire Council) and Windsor and Maidenhead. SACs are part of the national network of 'European sites' [1]; they are the most important sites for nature conservation, form the cornerstone of UK nature conservation policy and are afforded the highest degree of protection in domestic policy and law.

1.8 The designation, protection and restoration of European sites is embedded in the Conservation of Habitats and Species Regulations 2017, as amended, which are commonly referred to as the 'Habitats Regulations'. Importantly, the most recent amendments (the Conservation

[1] This term is long established in government policy e.g. ODPM Circular 06/2005: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System (16 August 2005), to be read in conjunction with the current NPPF, other Government guidance and the current version of the Habitats Regulations.

of Habitats and Species (amendment) (EU Exit) Regulations 2019 [2]) take account of the UKs departure from the EU.

1.9 The overarching objectives of the national network is to maintain, or where appropriate, restore habitats and species listed in Annexes I and II of the Habitats Directive to a Favourable Conservation Status, and contribute to ensuring, in their area of distribution, the survival and reproduction of wild birds and securing compliance with the overarching aims of the Wild Birds Directive.

1.10 The appropriate authorities must have regard to the importance of protected sites, coherence of the national site network and threats of degradation or destruction (including deterioration and disturbance of protected features).

1.11 It is anticipated that the emerging Dacorum Local Plan is likely to set a level of growth of over 16,000 new homes over the period 2020-2038. This will have a range of implications for European sites. Dacorum Borough Council, as the competent authority, should only adopt a plan where it can be ascertained that there will not be an adverse effect on the integrity of any European site(s) (or there are particular exceptional circumstances).

1.12 This report has been commissioned to inform the Habitats Regulations Assessment and specifically considers the issues of recreation impacts on the Chilterns Beechwoods SAC. This is the main focus of the report. In addition, we also consider a number of nearby SSSIs, recognising that there is a risk of impacts to the SSSI interest from increasing recreation, in particular that any mitigation measures instigated within the SAC that deflect visitors elsewhere may have consequences for SSSIs.

Report structure and approach

1.13 Figure 1 provides an overview of the structure and content of this report. We consider the scale of current recreation impacts through the collation of material relating to the qualifying features of the SAC (Section 2) and have conducted site visits to locate vulnerable features and assess current

[2] The amending regulations generally seek to retain the requirements of the 2017 Regulations but with adjustments for the UK's exit from the European Union. See Regulation 4, which also confirms that the interpretation of these Regulations as they had effect, or any guidance as it applied, before exit day, shall continue to do so.

levels of impact (Section 3). The results from visitor survey fieldwork (Section 4) provides the data on the links between housing and recreation.

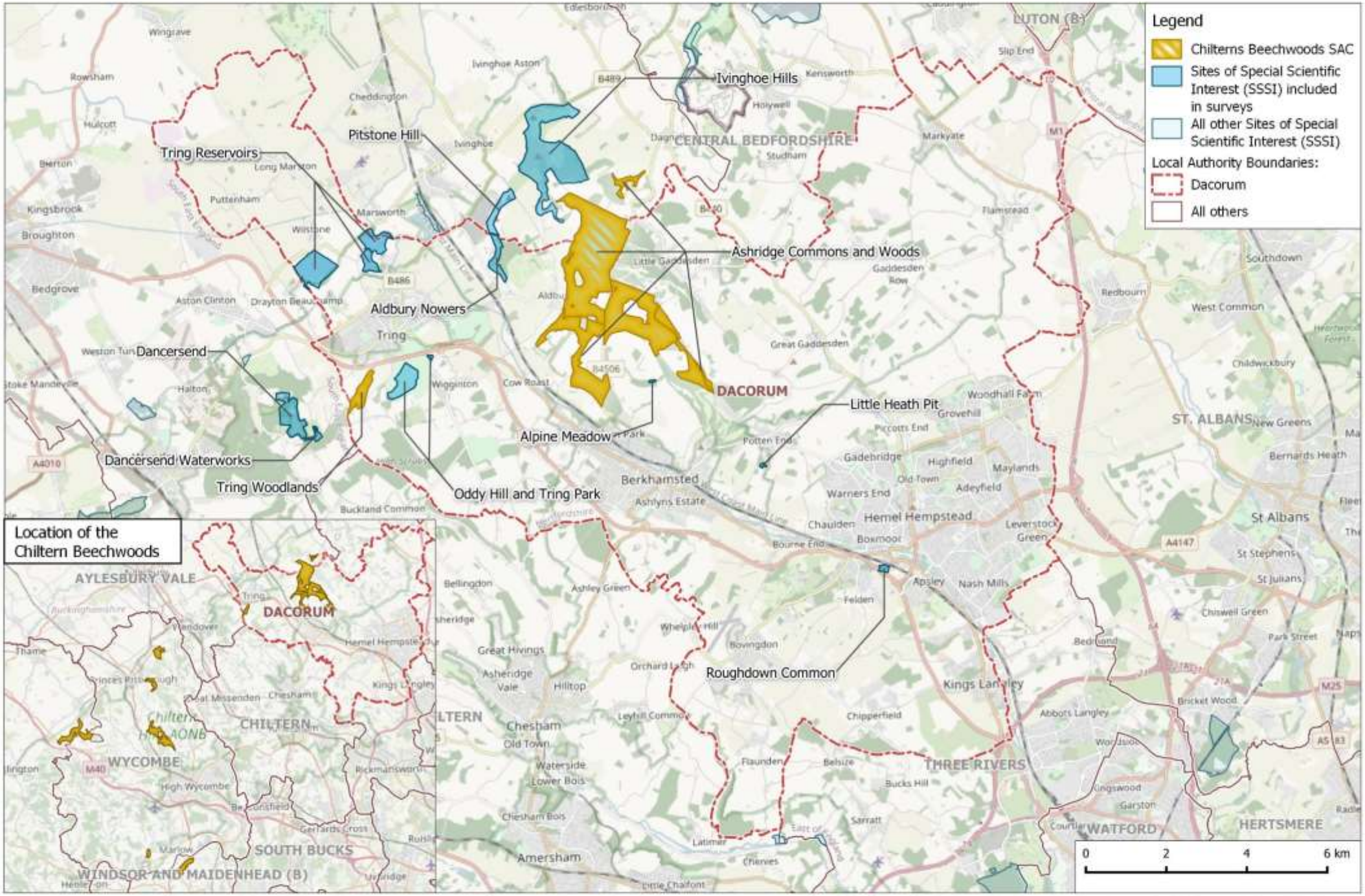
1.14 By collecting data on how people behave, what they do and where they live, the implications of housing growth for recreation and the SAC can be determined. Section 5 sets out these implications and sets out recommendations for mitigation.

Figure 1: Summary of the structure of this report and how it links to the Local Plan (blue) and HRA (purple).

Geographic scope and relevant sites

1.15 The report is focussed on the component parts of the Chilterns Beechwoods SAC relevant to Dacorum, these are the Ashridge Common and Woods SSSI and Tring Woodlands SSSI (Map 1). A number of nearby SSSI sites are also included in the impact assessment work as they provide a similar visitor experience and the assessments provide a check of possible issues should recreation use be deflected to those sites in the future.

Map 1: The location of the relevant SAC and SSSI sites. Inset map shows the location of the whole Chilterns Beechwoods SAC.



2. Desk based review and context

Overview

2.1 This section of the report provides background and context for later sections, summarising the conservation importance of sites and a desk-based review of existing data on visitors and a review of the nature conservation impacts of recreation in relation to the qualifying features.

Chilterns Beechwoods SAC

2.2 The Chilterns Beechwoods SAC extends for 1276.5 ha and designated for the following qualifying features:

- H9130 Asperulo-Fagetum beech forests ('Beech forests on neutral to rich soils')
- H6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia). ('Dry grasslands and scrublands on chalk or limestone').
- S1083 Stag Beetle *Lucanus cervus*

2.3 The SAC is made up of a number of component woodlands dominated by Beech and lying on the scarp of Chilterns and the slopes of the Chilterns plateau. They represent the most extensive area of native beech woodland in England. The Beech woods vary in composition and character depending on slope, substate, aspect and soil depth. Notable or rare plants associated with the beech woodland include Coralroot Bittercress *Cardamine bulbifera*, Southern Woodrush *Luzula forsteri*, Red Helleborine *Cephalanthera rubra* and Lesser Hairy-brome *Bromus benekenii*. The woods have also held Ghost Orchid *Epipogium aphyllum*.

2.4 The grassland interest of the SAC relates to species-rich chalk grassland and this has a restricted distribution within the SAC, with the main areas being Windsor Hill and Ellesborough and Kimble Warrens.

2.5 The Stag Beetle is the UK's largest terrestrial beetle and the larvae live in decaying tree stumps and fallen timber where these lie in contact with the ground.

Relevant component SSSIs

2.6 Ashridge Commons and Woods SSSI, situated on the Hertfordshire/Buckinghamshire border, towards the northern end of the Chiltern escarpment, forms a significant part of the Chilterns Beechwoods SAC. The site lies on wet, acidic clay with more base-rich, flinty chalk soils on the scarp slopes. The SSSI comprises a mixture of ancient and secondary woodland, plantation, scrub and open bracken areas and grassland. The SSSI was much more open in the recent past – areas of wood pasture were colonised by scrub and woodland during the 20th Century. The woodland supports a rich woodland bird community, locally and nationally rare plant species under the beechwoods, and a range of invertebrates particularly saproxylic beetles associated with dead wood and old trees. It contains an exceptional assemblage of veteran and ancient trees and associated decaying wood fauna.

2.7 SSSI features as listed on the Natural England Designated Sites View[3] are:

- Assemblages of breeding birds - Mixed: Scrub, Woodland
- U4 - *Festuca ovina - Agrostis capillaris - Galium saxatile* grassland
- Variety of breeding bird species (70)
- W12 - *Fagus sylvatica - Mercurialis perennis* woodland
- W14 - *Fagus sylvatica - Rubus fruticosus* woodland

2.8 Ashridge Commons and Woods is predominantly under the ownership and management of the National Trust.

2.9 Tring Woodlands SSSI lies at the eastern end of the Chilterns on the steep north-west facing Middle Chalk escarpment, and extend onto the plateau capped by clay-with-flints. There is a rich flora present, indicating that the woodland has been long established. The site is owned by Hertfordshire County Council and leased to Dacorum Borough Council.

Other SSSIs

2.10 A number of other SSSIs were included in the geographic scope of the study to be included in the impact assessment work. These SSSIs are shown in Map 1 in the previous section. These SSSIs are all in close proximity to the SAC. For completeness, the relevant interest features for all the SSSIs are summarised in Appendix 1.

[3] Accessed through the Natural England website

Distribution of SAC qualifying features

2.11 A nature conservation evaluation of Ashridge was undertaken by the National Trust in 2019 (NT National Consultancy, 2019) and included the results of vegetation and zoological surveys undertaken between 2016 and 2018 plus records from previous surveys (between 2016 and 2018). The maps from this survey highlight areas of Priority Habitat (now Natural Environment and Rural Communities Act (2006) Section 41 habitats of principal importance) but not Annex I habitat specifically. These maps provide a foundation for the fieldwork described in section 3.

2.12 There have been records of Stag Beetles present on the site in recent years, an important flagship for a notable wider community of important saproxylic (dead wood) invertebrates. Surveys undertaken by Andy Foster, commissioned by the National Trust, provide a wealth of information, including new records for the site. The records highlight the national importance of the site, with the beech and oak supporting the greatest diversity of invertebrates. Ashridge has an exceptionally high Saproxylic Quality Index (SQI) score; ranking the site of international important and of higher status than Sherwood Forest (James, 2019).

Access infrastructure in the SAC

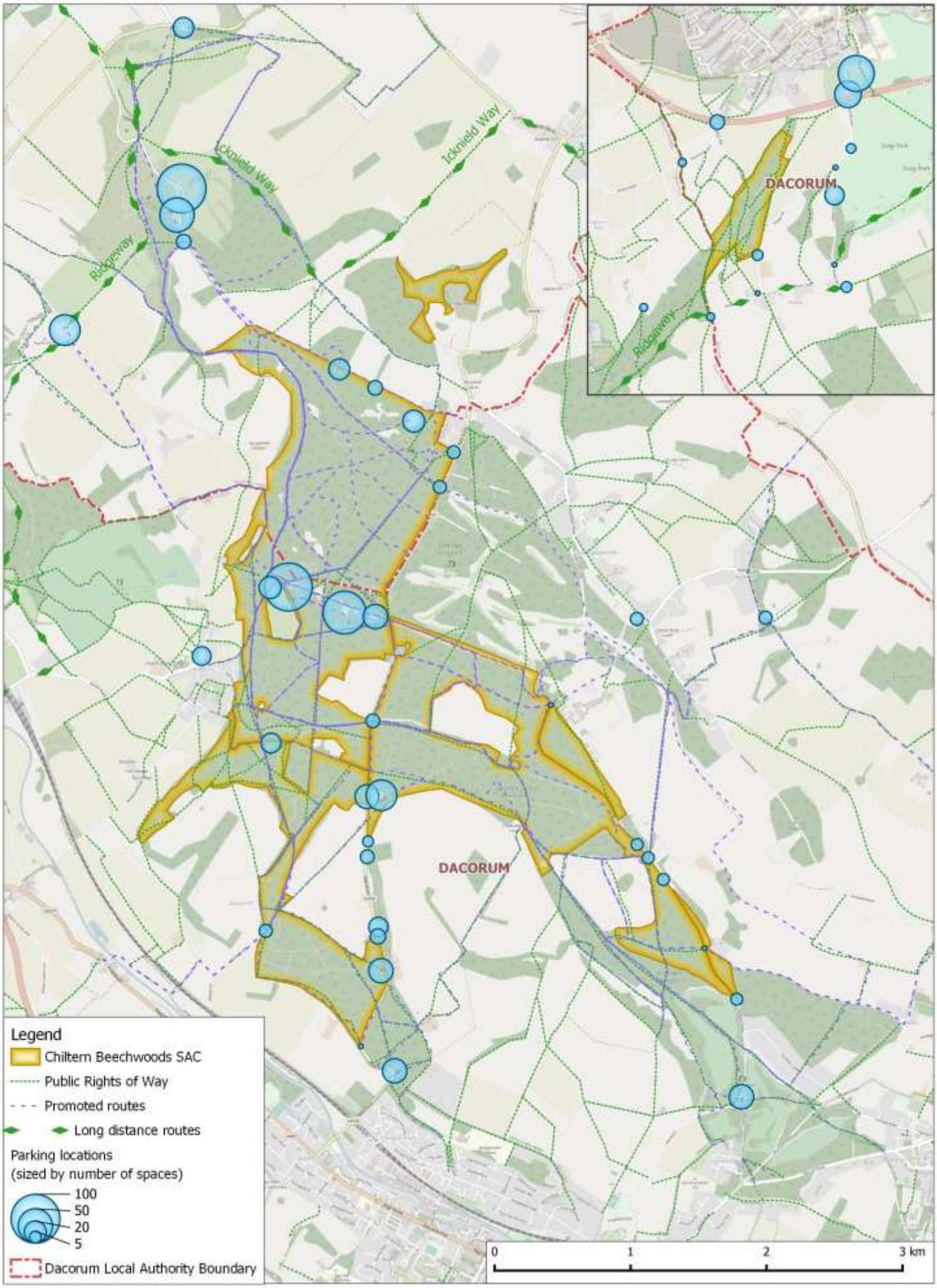
2.13 The two SACs are publicly accessible sites, the only area where there is no public access is the northern most end of the Ashridge Commons and Woods SSSI (Ringshall Coppice).

2.14 There are number of public rights of way and a large number of long distance paths (Hertfordshire Way, Chiltern Way, Ickneild Way) and National Trust promoted walks (see Map 2). National Trust named walks include; Foresters' Walk Trail, Rangers' Ramble Walk, Wildlife Woodland trail and Woodland Walk trail plus a number of self-led walk, such as the Ashridge Estate boundary trail.

2.15 Map 2 shows the path network along with parking locations which were mapped. A total of 30 discrete parking locations were identified within 500m of the Ashridge Commons and Woods SSSI and 9 within 500m of the Tring Woodlands SSSI. The number of parking spaces provided amounted to 504 spaces at Ashridge Commons and Woods SSSI and 38 at Tring Woodlands SSSI. At Monument Drive, 228 spaces were recorded across 5 discrete parking locations (i.e. formal/ semi-formal parking

areas), but verge side parking is common between these discrete areas. Given Monument Drive is around 700m long, if vehicles were parking end on with slightly wider spacing than parking bays (i.e. 3 m), this equates to space for a further 467 vehicles. The National Trust use logs to reduce the available end on, verge parking along Monument Drive, and as such in June 2021 (based on satellite imagery), the number of spaces is estimated from these verges is estimated at 244 spaces, therefore totalling an estimate of 472 spaces at Monument Drive (visitor centre car park, other designated parking areas and verge parking along Monument Drive). However, this is likely to be an underestimate, given parking behind these logs is visible on the aerial images. These aerial images over time show the logs have been increased, thereby reducing the total available parking spaces. Clearly counts of over 600 vehicles recorded by the National Trust in 2018 were possible, based both on their data and available aerials. The current estimate of 472 spaces at Monument Drive would account for 63% of all the spaces at parking locations within 500m of the Ashridge Commons and Woods SSSI.

Map 2: Recreational infrastructure around the SACs



Previous visitor surveys and existing visitor data from the SAC

2.16 A number of datasets were kindly supplied by the National Trust and provide useful context on use of the site. Counts of vehicles at Monument Drive were conducted by National Trust staff/volunteers at a range of dates in 2017, 2018 and 2019. The overall average (mean) was 215 vehicles and of particular interest are some of the peak counts on key days:

- Sunday (Father's Day) 18/06/2017: 423 vehicles
- August bank holiday Monday (28/08/2017):600 vehicles
- Boxing Day (26/12/2017): 314 vehicles
- Easter Sunday (01/04/2018): 453 vehicles
- Easter Sunday (06/05/2018): 675 vehicles

2.17 An automated counter has been used on Monument Drive to assist in recording the number of vehicles using this parking area. The automated counter has suffered with issues in terms of data gaps and errors, particularly in relation to busy periods when stationary vehicles block the sensor. Concerns have been raised by the National Trust that these counts are therefore not accurate, but they do serve to indicate broad patterns. A 2017 report produced by Linetop reviewed data collected by the sensor between December 2014 and October 2016. Peak periods were in April/May, followed by a peak smaller peaks in July/August and in October. Fewer vehicles were typically counted in January/February. The vehicle counts suggest the number of vehicles entering per day on Sundays represented a 200% increase on the weekday levels. The counters suggested a total of around 1,500 vehicles entering Monument Drive on the 2017 August bank holiday Monday. Peak traffic around the August bank holiday was suggested to involve 450 vehicle movements per hour and a peak parking requirement of 350 spaces.

2.18 More recently the automated counter has been modified and recalibrated to be able to work with times when the site is congested. Over the period June – December 2020, the number of vehicles per month ranged from 24,865 – 31,725, with all months showing a marked increase compared to 2019 (with increases ranging from 9% in August to 75% in November 2020).

2.19 National Trust also collects some observational counts of people and groups, which suggest average group sizes of 2.4 people per group (n=60

groups) on the 30th December 2018, compared an average of 2.15 people per group (n=559 groups) from counts in the 2018 October half term.

2.20 The National Trust were able to supply a summary of visitor surveys undertaken in 2013 by a market research company, Arkenford. These surveys covered the busy Easter period, but it was very cold and the reports do not provide details of the survey locations and survey effort, however we believe the work was focussed on Monument Drive. Interviewees were asked about motivations for getting out of the house, for which fresh air and exercise were the two most common responses. At weekends, Arkenford's research noted, the reasons include a relative increase in some of the smaller categories, such as a change of scene and dining. The most common reasons given for coming to the Ashridge Estate were "to go for a walk" (29%), "to walk the dog" (27%) and "to entertain the children" (21%). The survey also showed that those in the age bracket of over 75 years old were twice as likely to be visiting for walking. The research also highlighted that the majority of interviewees didn't not plan in advance; 60% choose to visit on the day and 80% within 24 hours of their visit. Finally, factors for choosing Ashridge were rated and ranked. The top two factors overall were "good walks" and "easy parking" - with 63% of interviewees rating "good walks" as very important and 59% rating "easy parking" as very important.

2.21 The National Trust also conducted some of their own surveys in 2019. These were also focused around Monument Drive. A total of 67 interviews were conducted and one of the most interesting questions related to the reasons for visiting. This included a mixture of activities and also site infrastructure and multiple responses could be given. The most common response was "walking" (69%), followed by "café" (48%), "shop" (28%) and "dog walking" (27%).

2.22 A further source of data on visitor numbers are the estimates provided by the Outdoor Recreation Valuation Tool (ORVal), developed by the Land, Environment, Economics and Policy Institute (LEEP) at The University of Exeter[4]. The values are derived from a complex statistical model based around a Recreation Demand Model to predict number of visits for a site. The model uses a range of factors: socio-economic characteristics of local residents, day of the week, month of the year, transport, cost-benefits for

[4] ORVal: Version 2.0 https://www.leep.exeter.ac.uk/orval/

individuals and several attributes of the greenspaces. This model is also informed by Monitor of Engagement with the Natural Environment (MENE) data[5].

2.23 The predictions for the compartments used in ORVal suggest that there are an estimated 26,740 visits per year to Tring Woodlands and 230,421 visits per year to the Ashridge Commons and Woods. It should be noted that the predications are based on land compartments that do not exactly match the SAC boundaries, with some areas of the SAC not included in the predictions and areas outside the SAC boundaries included. Furthermore, the tool does not account for factors such as the relative attractiveness and draw of features and for example will therefore fail to account for the particular draw of Monument Drive. The estimates are therefore approximate and accurate estimates of visitor numbers are difficult to determine.

[5] https://www.gov.uk/government/collections/monitor-of-engagement-with-the-natural-environment-survey-purpose-and-results

Potential impacts of recreation on SAC interest

Site Improvement Plan

2.24 Natural England's site improvement plan[6] for the SAC identifies a range of current pressures and threats to the SAC. Public access/disturbance is ranked 6th in the list, and the plan notes that "*removal of dead wood by the public is an issue on some parts of the SAC. This could impact in saproxylic invertebrate fauna. Also storm-damaged dead wood may be removed in the interests of health and safety, and tidiness*."

2.25 The plan sets out a need for actions that include engaging visitors with the nature conservation features of the SAC and raising awareness among landowners about appropriate management.

Conservation objectives

2.26 The supplementary conservation advice for the SAC[7] specifically mentions recreation pressure with respect to the root zones of veteran trees and the target to maintain the soil structure within and around the root zones of the mature and ancient tree cohort in an uncompacted condition. The supporting evidence and notes state "*unless carefully managed, activities such as construction, forestry management and trampling by grazing livestock and human feet during recreational activity may all contribute to excessive soil compaction around ancient trees. Recreational pressure including walking and mountain biking can be an issue in this SAC*."

Condition Assessment

2.27 Natural England's condition assessments are not designed to pick up changes in access and are not necessarily comprehensive enough to identify changes in impacts on sites arising from recreation use. They are instead snapshot 'health checks' of the SSSI and can be quite dated, for example the Tring Woodlands were last assessed in 2009. Nonetheless the condition assessments can provide useful context and background.

2.28 The condition assessment for the Ashridge Commons and Woods SSSI[8] records 86.3% of the site as in favourable condition and 13.7% of the site

[6] See Natural England website, accessed July 2021, SIP dated 2015
[7] See Natural England website, accessed July 2021
[8] See relevant page on Natural England website, accessed July 2021

in unfavourable recovering condition. The key reason for the unfavourable recovering assessment is the effect of deer browsing which is having an adverse effect on regeneration.

2.29 The condition assessment for the Tring Woodlands SSSI[9] records 100% of the site in unfavourable recovering condition. The assessment records that the site was, at the time, below targets for temporary open space, regeneration and canopy targets.

Desk-based Review

2.30 Reviews of the scientific literature of urban effects (which include recreation) on ancient woodland have been carried out on behalf of the Woodland Trust in 2008 (Corney et al., 2008) and subsequently updated (Ryan, 2012). There is also a review of recreation impacts undertaken by Footprint Ecology for the Woodland Trust (Liley et al., 2019). A useful review of impacts of recreational use of woodland covering the literature between 1990-2010 was also published by the Forestry Commission (Marzano & Dandy, 2012), and research prior to this time is covered in an earlier review by Anderson & Radford (1992). More general reviews of recreation impacts include those by Buckley (2004), Lowen *et al.* (2008) and Liley *et al.* (2010). Drawing on the literature, impacts of recreation that are relevant to the qualifying features of the SAC potentially relate to the following broad themes:

- **Damage**: encompassing trampling and vegetation wear, soil compaction and erosion, trampling can cause direct mortality for some fauna and here damage could include impacts from dead wood removal for Stag Beetles;
- **Contamination**: including nutrient enrichment (e.g. dog fouling), litter, invasive species;
- **Fire**: increased incidence and risk of fire;
- **Other**: all other impacts and activities associated with site management, for example the difficulties in achieving necessary grazing.

2.31 These are summarised in Figure 2.

[9] See relevant page on Natural England website, accessed July 2021

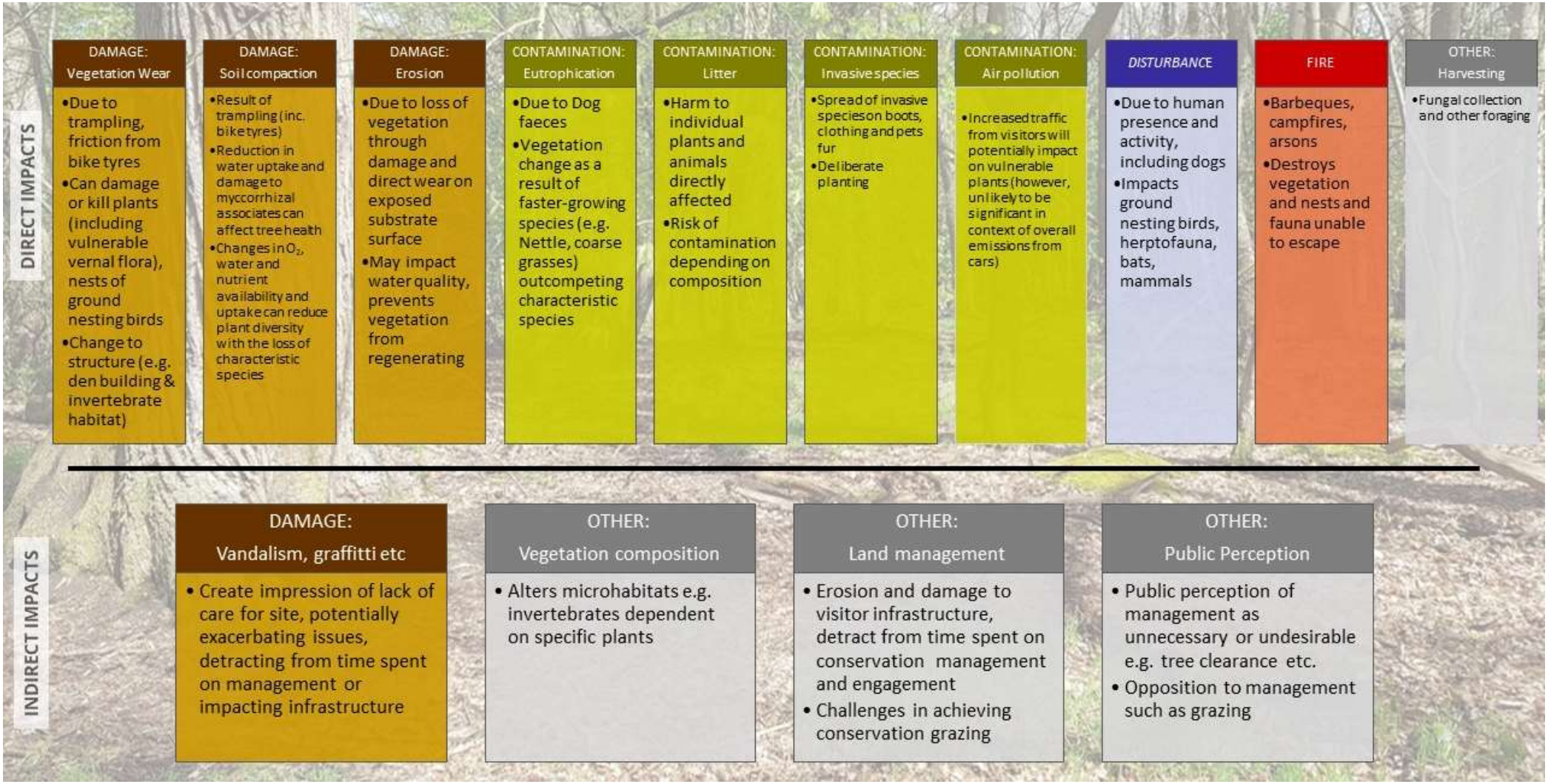


Figure 2: Potential Impact pathways whereby recreation may impact relevant sites. Italics denotes impacts not relevant to SAC interest.

Section 2 Desk-based review and context: Key findings

The qualifying features of the SAC are Beech forests on neutral to rich soils, dry grasslands and scrublands on chalk or limestone and the Stag Beetle.

Both Ashridge Commons and Woods SSSI and Tring Woodlands SSSI are publicly accessible and only the northern part of Ashridge (Ringshall Coppice) has no public access. We estimate there are around 30 parking locations (504 parking spaces) at Ashridge Commons and Woods and 9 locations (38 spaces) at Tring Woodlands. At Ashridge 228 parking spaces were at parking locations at Monument Drive and we estimate space for around 474 more vehicles there on the verges.

Data from automated vehicle counters from 2017 showed a peak use of Monument Drive on the August bank holiday Monday of 1,500 vehicles entering the drive and around 450 vehicle movements per hour.

The Outdoor Recreation Valuation Tool (ORVal) estimates 26,740 visits per year to Tring Woodlands and 230,421 visits per year to the Ashridge Commons and Woods (these are extracted from a model that predicts access levels to different places around the country). These are likely to be significant under-estimates.

Drawing on the literature, impacts of recreation that are relevant to the qualifying features of the SAC potentially relate to the following:

- **Damage**: encompassing trampling and vegetation wear, soil compaction and erosion, trampling can cause direct mortality for some fauna and we have extended damage to include impacts from dead wood removal for Stag Beetles;
- **Contamination**: including nutrient enrichment (e.g. dog fouling), litter, invasive species;
- **Fire**: increased incidence and risk of fire;
- **Other**: all other impacts, including harvesting and activities associated with site management.

3. Evidence of current impacts

Overview

3.1 This section of the report draws on the desk-based review set out in Section 2 and provides the results from site visits and fieldwork to identify the scale of current recreation impacts.

Methods

3.2 Walk-over surveys were undertaken to provide evidence of current recreation issues and potential risks at the sites. The data provide a snapshot at a particular time, with visits targeted to cover a period when the qualifying features were likely to be particularly sensitive. An overview of the data collection is provided in Figure 3.

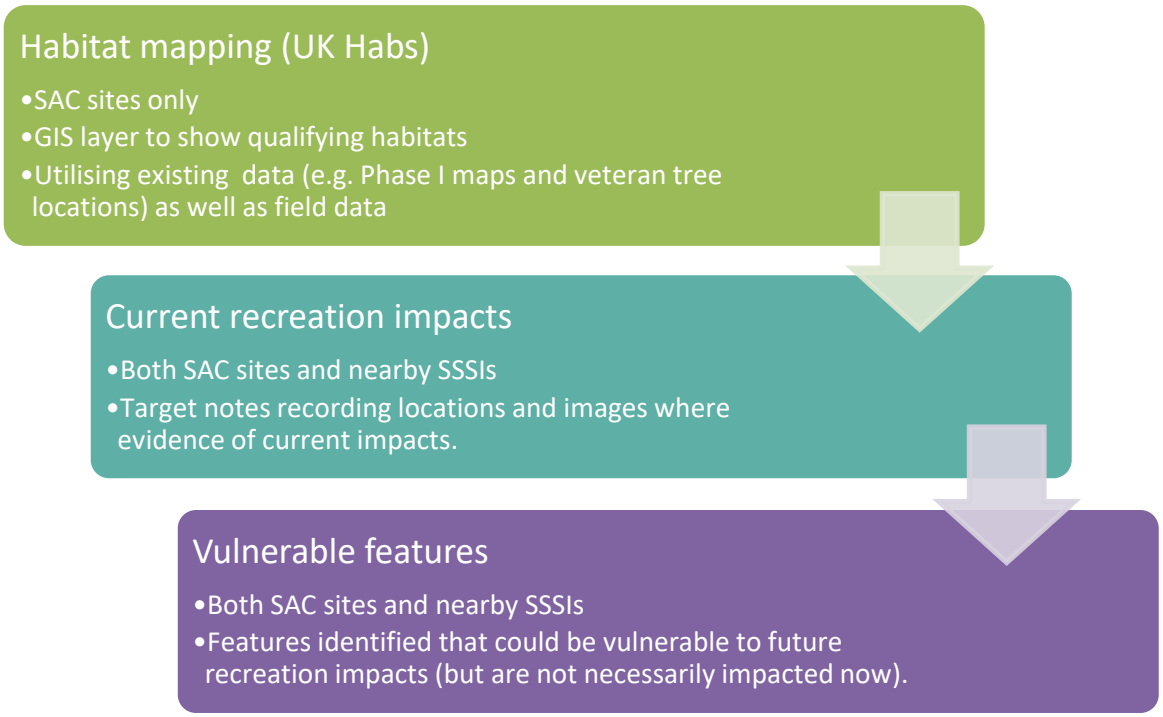


Figure 3: Overview of data collected

Habitat mapping and identification of important ecological features

3.3 An ecological walkover survey of the sites was carried out between May and September 2021, during which all habitats present within the site boundaries were identified and mapped using UK Habitat Classification definitions[10] (SAC sites only). Areas of higher value habitat, and those habitats/features with potential to support qualifying features of the SAC were mapped. The focus was on habitats and individual species were not mapped.

Current recreation impacts

3.4 Any apparent evidence of recreational activity (both negative and positive) upon the sites' important ecological features was mapped and target notes recorded during the walkover survey. Such evidence included, but was not limited to, observations of erosion along footpaths, high densities of dog fouling, litter, invasive species (where the distribution could be influenced by recreation), evidence of fires and barbeques, trampling of damage and exposed roots on slopes, etc. Target notes included particular species (e.g. locations where specific invertebrates or rare plants are noted).

3.5 Important ecological features included those qualifying habitats and species for which the sites are designated, alongside opportunistic records of other notable species/habitats present and/or those particularly susceptible to the impacts of recreation. Target notes related to specific locations allowing them to be mapped as point data or in a few cases as lines. Notes were categorised according to the type and severity of impact and photos (GIS tagged) taken.

Vulnerable features

3.6 Any features that are potentially vulnerable but where there is no current evidence of impact were also considered. This ensured that the ecological walkovers were not solely focussed on current impacts but also that any features that might be vulnerable in the future (e.g. to further increases in recreation) were identified.

Sites surveyed

[10] UK Habitat Classification

3.7 Surveyed sites are listed in Table 1, and included ones outside the Chilterns Beechwoods SAC. The sites were identified primarily through dialogue with the Hertfordshire County Council Landscape, Ecology, Archaeology Design and Sustainability support team/Dacorum Borough Council and include some sites outside the SAC where there may be risks from increased access and in particular sites where there is a risk that any displacement from the SAC (perhaps as a result of different visitor management) could have impacts on the SSSI interest. Qualifying features of the SAC and all the SSSIs covered in this report are summarised in the previous section of the report.

Table 1: SSSIs subject to impact assessment survey. Grey shaded rows are within the SAC. Main habitat drawn from Natural England designated sites view and the condition tables for the relevant sites.

Site name	Area (ha)	No. of units	Main habitat
Ashridge Commons and Woods (including areas outside of Dacorum)	613.3	7	Broadleaved, mixed and yew woodland - lowland
Tring Woodlands	24.2	1	Broadleaved, mixed and yew woodland - lowland
Aldbury Nowers	19.8	3	Broadleaved, mixed and yew woodland – lowland, Calcareous grassland - lowland
Alpine Meadow	0.8	1	Calcareous grassland - lowland
Little Heath Pit	1.2	1	Earth heritage
Oddy Hill and Tring Park	36.0	3	Calcareous grassland - lowland
Roughdown Common	3.7	1	Calcareous grassland - lowland
Tring Reservoirs	100.0	7	Standing open water and canals, Acid grassland - lowland
Dancersend	47.1	7	Broadleaved, mixed and yew woodland - lowland, Calcareous grassland - lowland
Dancersend Waterworks	4.0	1	Calcareous grassland - lowland
Ivinghoe Hills	210.4	8	Arable and horticulture, Calcareous grassland – lowland, Broadleaved, mixed and yew woodland - lowland
Pitstone Hill	22.4	1	Calcareous grassland - lowland

Results

Ashridge Commons and Woods

Habitats and important features

3.8 Ashridge Commons and Woods is a large, complex, site supporting a range of semi-natural habitats over chalk escarpments and deeper, acidic, plateau soils. Ancient semi-natural Beech stands are particularly found on the western scarp slope near Aldbury, at parts of Harding's Rookery and, most notably, at Frithsden Beeches. Secondary woodland, mostly comprising Birch with some Pedunculate Oak and Beech, is now found on what was once open common land (Ivinghoe, Pitstone, Aldbury and Berkhamsted Commons). Many of these areas have a Bracken and Bramble dominated ground flora, but there are also glades with remnant acid grassland. Areas of mixed broadleaved woodland, often characterised by young Beech with Oak, Birch, and Sycamore are also present. More base rich areas tend to support Dog's Mercury with species such as Wood Melick, Woodruff and Sanicle, while there are also some eye-catching Bluebell stands (e.g. Old Copse and north of Moneybury Hill). Some of these are clearly plantation (including on ancient woodland sites), although the boundaries can be hard to determine on site. There are areas of Sweet Chestnut coppice, also Ash – Field Maple – Hazel coppice, blocks of mixed conifer-broadleaved plantation, and small areas of conifer plantation. Veteran trees (mainly Beech and Oak) are widespread across the site. The map in Appendix 2 shows the main habitat types based on the 2016-18 National Trust survey and our field visit, plus target notes from our field visits and veteran tree locations (supplied by the National Trust).

Current recreation impacts

3.9 Recreational impacts were observed throughout Ashridge and were severe in some areas. They were particularly intense in the central areas north and south of Monument Drive (e.g. Aldbury Common and Old Copse, and Pitstone Common up towards Flat Isley) and also Northchurch Common. Just under 500 incidences of recreational damage were recorded. These tended to be examples encountered along the main paths and therefore are an underestimate as not all routes could be followed. In addition, not all incidences were recorded separately, such as when found regularly within a short distance of one another (e.g.

concentrations of dog fouling, poached areas, etc.). Map 3 shows the types of impacts recorded[11] and the severity. Where impacts were present along linear sections, for example at Monument Drive, these have been represented as a series of dots. Maps 4 and 5 provide a summary of the habitats and impacts across the site. Figure 4 illustrates some of the impacts observed.

Trampling

3.10 Damage through trampling was the most widespread impact. The site supports a dense network of Public Rights of Way, woodland rides, and informal "desire line" paths. Very few of these paths still supported vegetation or leaf litter at the time of the walkover survey. In addition, many were significantly widened (frequently up to 5m) and, where surfaced, were also trampled alongside the surfaced area. On paths in wetter areas the soil was churned, and the path was often further widened where people (including cyclists and horse riders) had sought to avoid the worst of the mud. Path junctions were particularly impacted, with bare, compacted, and sometimes churned areas up to 20m wide in diameter. On many paths, but particularly the narrower desire lines through wooded areas, trampling had resulted in the exposure of tree roots (including those of veteran trees). Effort had been made to deter visitors from leaving the main paths in some places (particularly along the advertised Bluebell routes) by stacking fallen deadwood into low dead hedging. At such locations, the tracks were generally completely bare of vegetation between the dead hedges, which were sometimes still breached by desire lines and resulting damage to the Bluebell-dominated ground flora. Given the density of paths within the site, there is both significant loss of ground flora and potential significant impacts upon veteran trees.

3.11 Trampling and compaction was also notable off paths around veteran trees, which is of particular concern. This was especially the case for Beech trees, which tend to be more accessible, as their dense canopy prevents the growth of a thick ground flora (such as Bramble and Bracken) that would deter visitors from approaching. In addition, such

[11] Note that the map shows only the primary impact type. For many paths, damage was recorded as the primary impact and contamination as a secondary, therefore contamination is under-represented on this map.

trees generally no longer supported epiphytic vegetatio[12]n and the exposed roots at the base of the trunk were generally rubbed bare, in contrast to unaffected trees. Other direct damage to trees, such as graffiti and damage to branches, was only infrequently recorded.

3.12 Further damage was caused by the building of woodland dens. These are frequent throughout almost all of the site and result in the removal of dead wood from the ground, reducing the habitat available for invertebrates associated with fallen deadwood, including Stag Beetle. They also draw interest from visitors, and areas with dens appeared to be more trampled than would be expected from the act of den building alone.

3.13 Damage to heritage features (wood banks) was also evident, particularly where such features run alongside paths or where paths cross them. Map 3 includes potential heritage features mapped from Lidar (note that these features were not systematically surveyed, but impacts were recorded where the features were encountered during the walkover surveys). There was also notable damage from bikes wherever there was some topographical variation, for example on the western scarp slope and in quarry pits, where some bike jumps had also been created. Bike tracks were observed throughout the site on all types of paths.

Contamination

3.14 Contamination was widespread throughout the site, generally as a result of dog faeces. This has resulted in eutrophication, leading to changes in vegetation composition, and can be seen in the replacement of woodland flora with strips of Nettle, Broad-leaved Dock and coarse grasses along path margins. It is also seen in acid grassland, with the replacement of finer grasses such as Common Bent, Sweet Vernal-grass, etc, with nitrogen-loving species such as Perennial Ryegrass. It was particularly noticeable where edge vegetation was still present along the most heavily used woodland paths and on Northchurch Common.

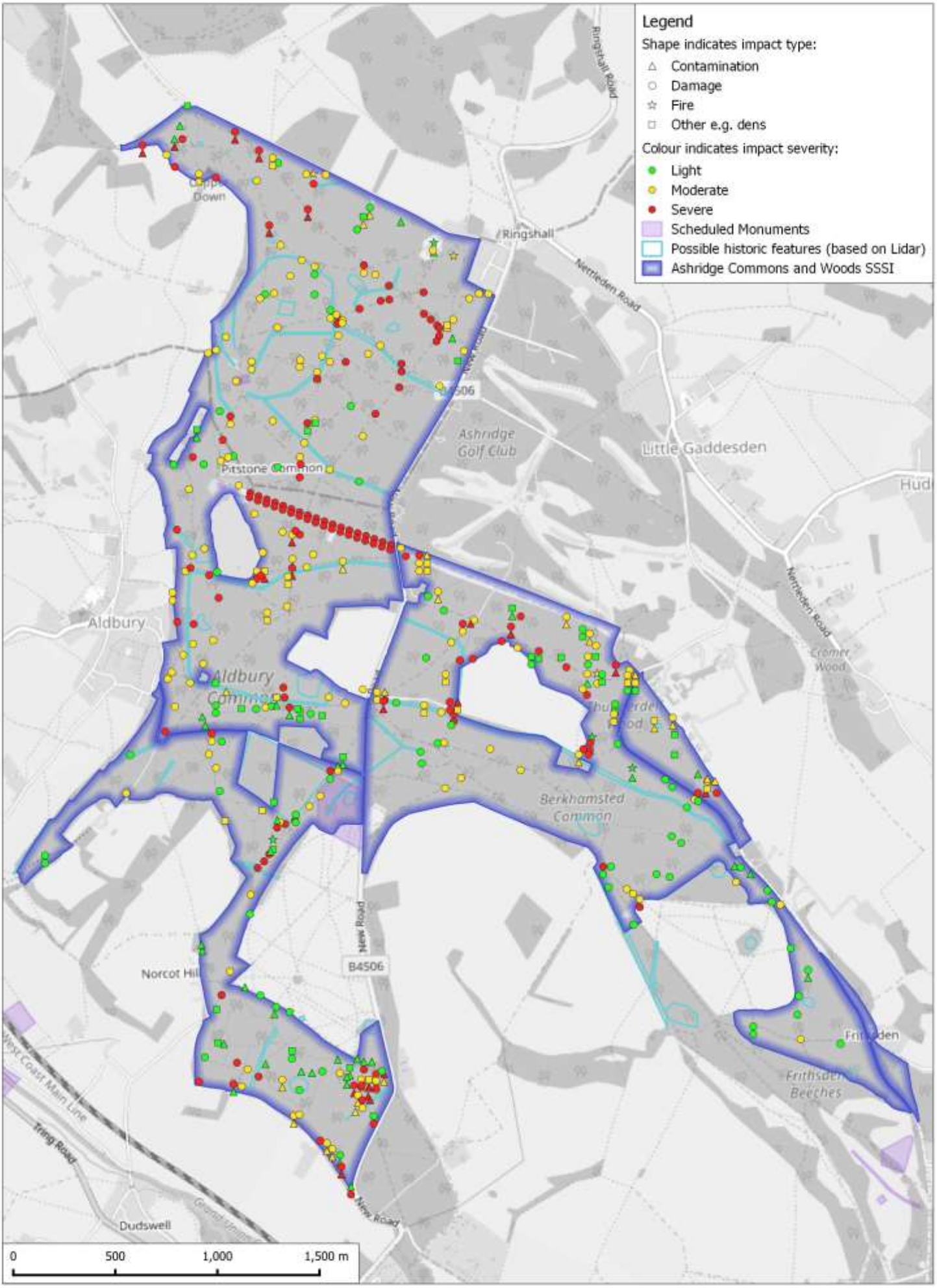
3.15 Occasional litter (rubbish) was observed but was not a major concern.

Fire

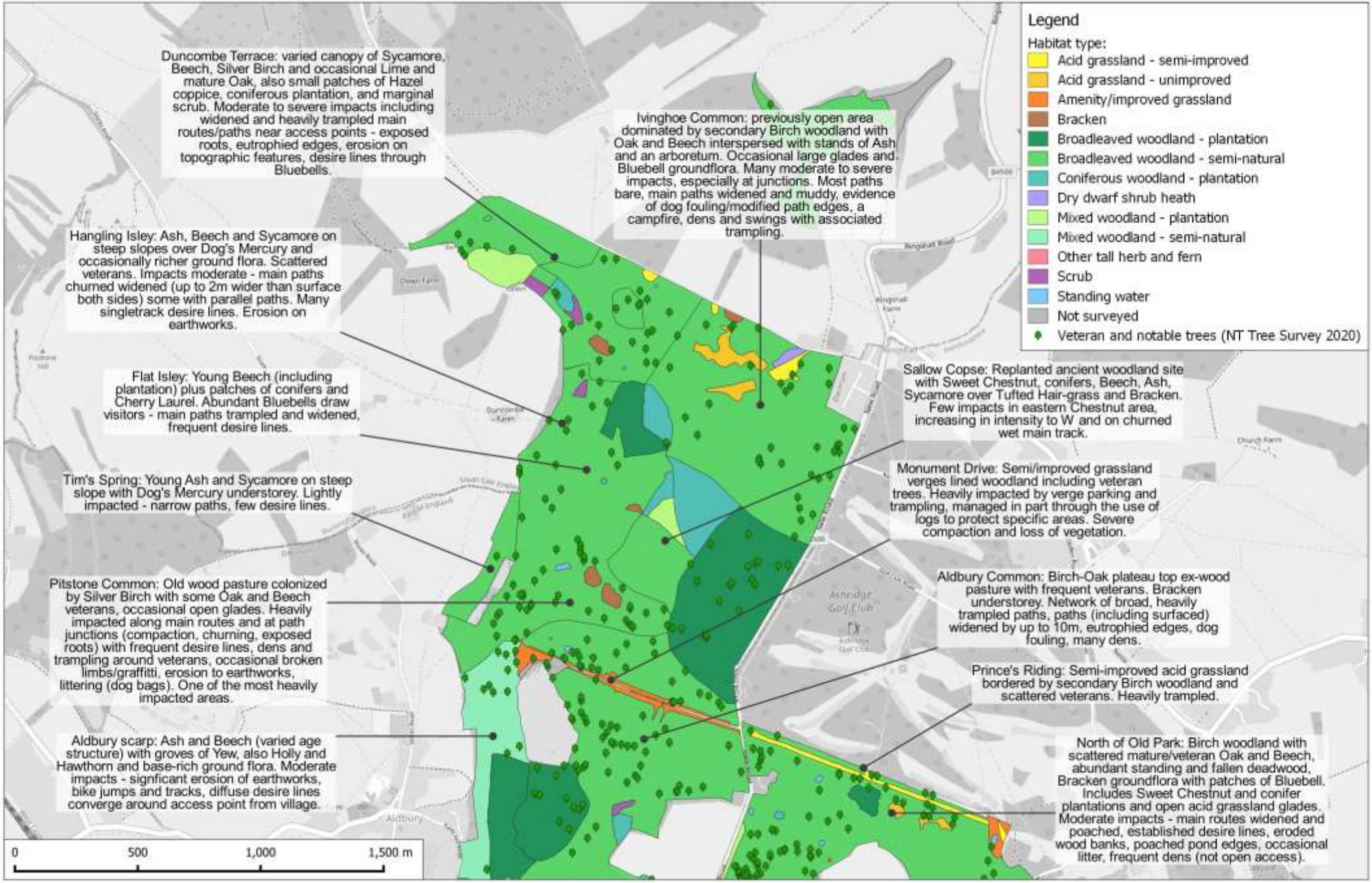
[12] Epiphytic vegetation includes plants that gain nutrient and moisture from the air and rain, and grow on another plant, such as mosses and lichens on trees

3.16 The remains of a small number of campfires/barbeques were observed. The risk of wildfire is low within the woodlands, although it is greater within open habitats – the risk is likely to increase due to climate change.

Map 3: Observed impacts of recreation at Ashridge Commmons and Woods SSSI. Overlapping points have been shifted slightly.



Map 4: Ashridge Commmons and Woods SSSI habitats and summary of observed impacts from recreation (north)



Map 5: Ashridge Commmons and Woods SSSI habitats and summary of observed impacts from recreation (south)

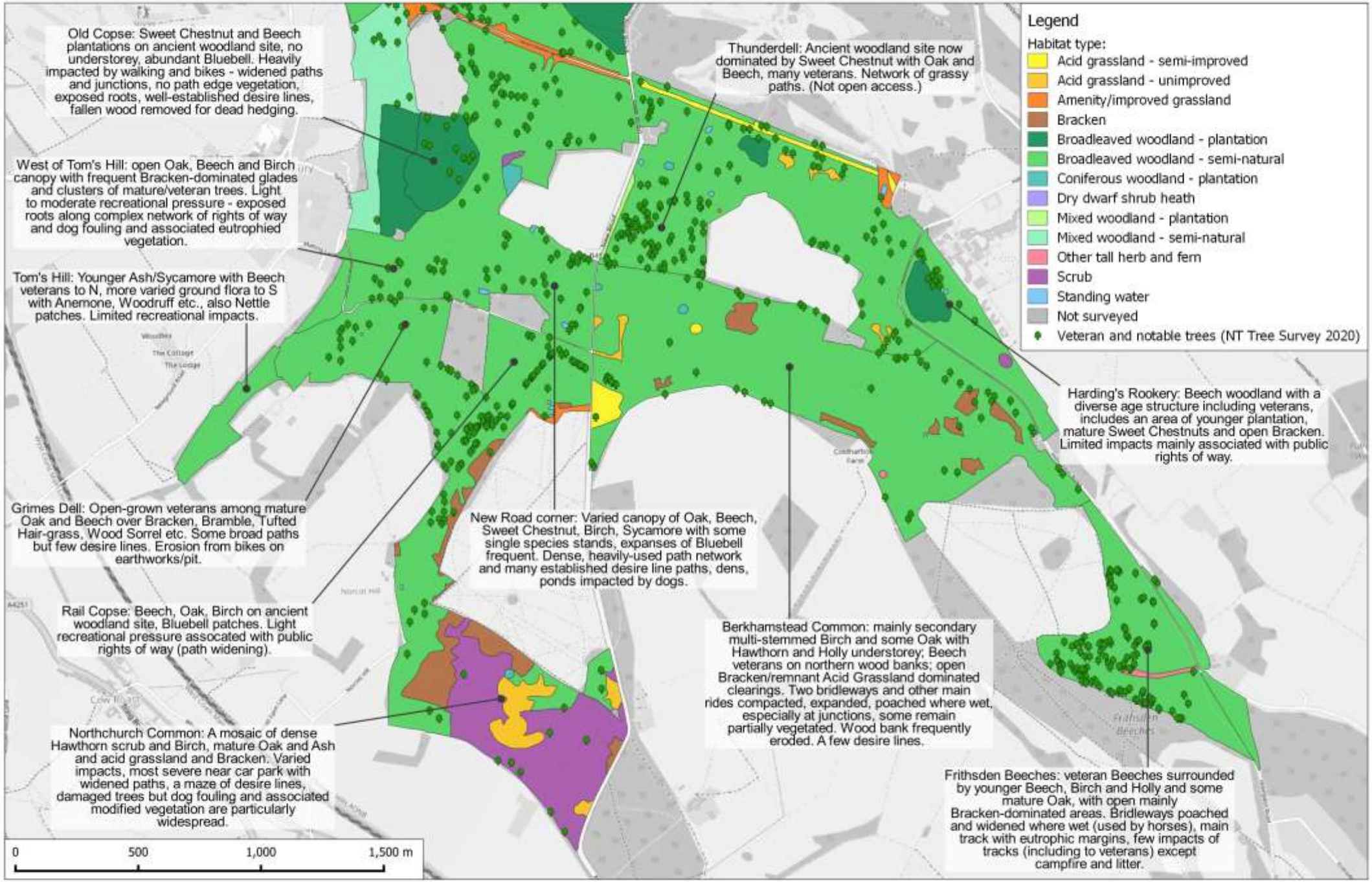


Figure 4: Impacts of recreation at Ashridge Commons and Woods: a) trampled area around a veteran Beech; b) erosion to a woodbank and exposed tree roots; c) path junction with heavy trampling and puddling; d) path widening with loss of vegetation; e) desire line through a Bluebell wood, which has been blocked off to prevent further damage; f) signs of nutrient enrichment at the sides of a path; g) campfire amongst veteran trees; h) large den made of collected deadwood, and trampling around it

Tring Woodlands

3.17 Tring Woodlands, also known as Grove Wood and Stubbing's Wood, is predominantly semi-natural broadleaved woodland. Beech is the dominant species, particularly in the south-east of the site, and there are several veterans throughout. Ash and Yew are also common, and there are some areas of Hazel coppice and Holly. On the lower slopes, there is a diverse mix of smaller trees and shrubs, including Cherry, Dogwood, Field Maple, Hawthorn and Wayfaring-tree. The ground flora varies throughout the site: on the plateau to the south-east of the site there are large areas of Bluebell with some Bramble and Bracken, whereas on the slopes it is more varied, with species such as Dog's Mercury, Woodruff, Yellow Archangel and Sanicle. Map 6 provides target notes from the walkover survey.

3.18 Most of the site was not unduly impacted by recreation, with only a few isolated instances of littering or dog fouling. However, some tracks showed significant signs of erosion/wear (including bicycle tire tracks and hoof print) and widening. There were occasional desire lines leading to erosion in steeper areas. In the west of the site, by the entrance from West Leith, there was a large, trampled area under mature Sycamore and Beech trees where at least three campfires had been made. In Beech woodland on the eastern side of the site, two dens had been constructed using deadwood. See Appendix 3 for a map showing the locations of impacts and Figure 5 for a selection of photos.

Map 6: Habitats and summary of recreation impacts at Tring Woodlands SSSI

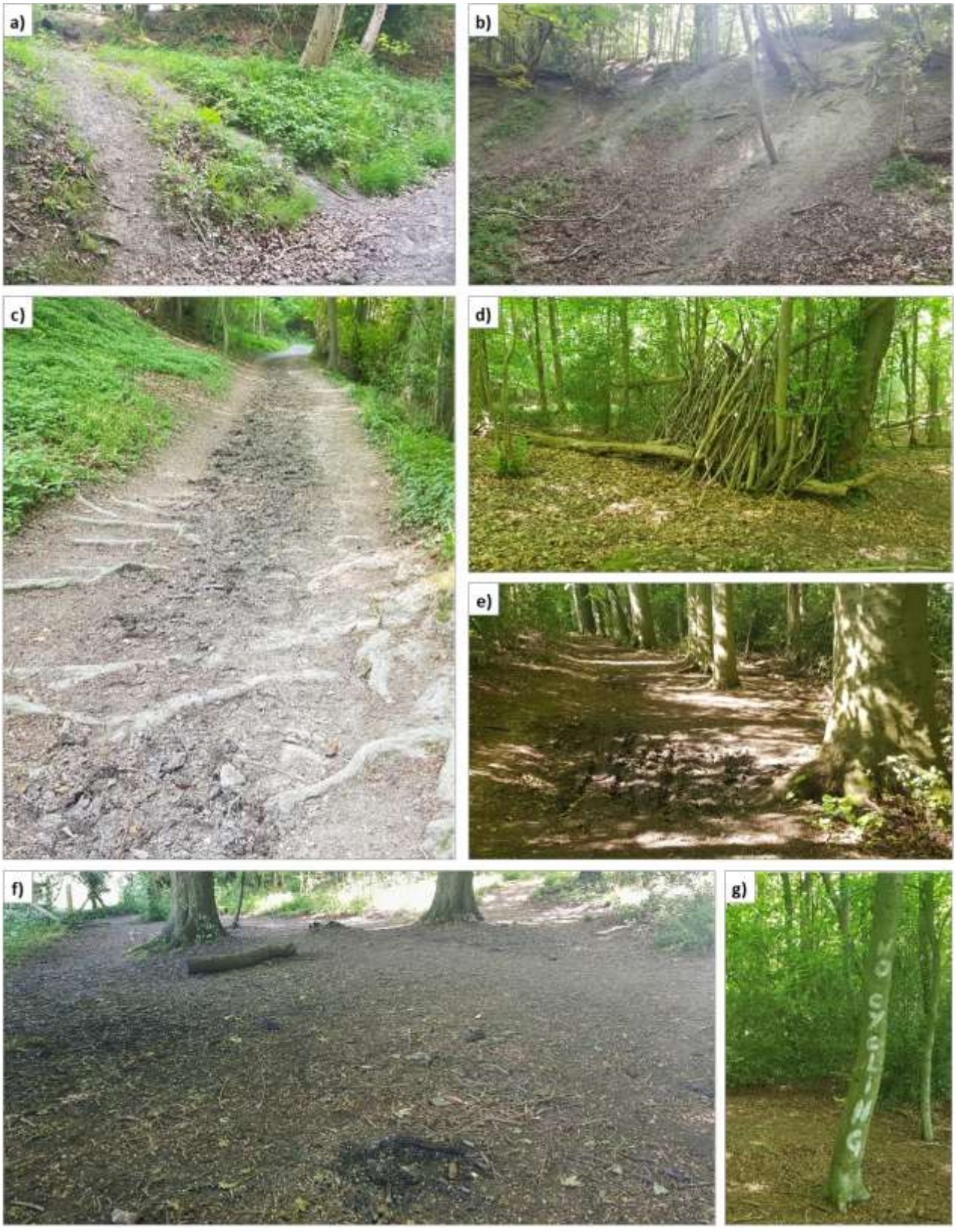


Figure 5: Impacts of recreation at Tring Woodlands: a) erosion to bank between footpath and bridleway; b) erosion on slope near to West Leith access point; c) exposed tree roots on bridleway; d) den made of collected deadwood; e) muddy section of footpath along eastern edge of site; f) trampled area with fire sites; g) 'no cycling' painted on a tree.

Aldbury Nowers

3.19 Located on the county border, and contiguous with Pitstone Hill in Buckinghamshire, the site contains one of the best remaining areas of chalk downland in the county as well as one of the finest examples of ancient 'beech hanger' woodland in Hertfordshire. The grassland areas have historically suffered from scrub encroachment, and the site is also important for a range of butterfly species.

3.20 Most recreational use appeared to be concentrated along the public footpath running north to south through the site. This path also forms part of the Ridgeway National Trail. Damage was observed at several points along this path, in the form of erosion or compaction to the path surface, with tree roots often exposed. In places, the path had also widened or was braided. Damage was particularly noticeable around steps on steep slopes. Despite this, a range of woodland plants were present, with large areas of Dog's Mercury, and White Helleborine close to the footpath. No impacts of recreation were seen in the areas of chalk grassland, which is largely fenced off, with the fencing potentially limiting the recreational pressure. See Appendix 4 for a map of observed impacts and Figure 6 for site photos.

Alpine Meadow

3.21 Alpine Meadow is a small area of unimproved calcareous grassland on a sheltered, south-facing slope which supports a diverse assemblage of chalk grassland species, including abundant orchids.

3.22 The only recreation impacts recorded were around the two entrances to the site: the northern entrance had some wear on the path and area by the bench and interpretation board, and the southern entrance, under tree cover, had a wide area of bare ground. No signs of recreation were observed elsewhere in the site, and it did not appear to have much usage, other than on the main footpath cutting through it. See Appendix 4 for a map of observed impacts and Figure 6 for site photos.

Little Heath Pit

3.23 Designated for its geological/pedological interest, the site incorporates Plio-Pleistocene deposits which are thought to be amongst the earliest "plateau deposits" preserved in Britain.

3.24 The pit itself is close to Bullbeggars Lane and is fenced off for safety and protection of the geological interest, with a small interpretation board for

visitors. Elsewhere on site there were no signs of any recreation access. The only impact noted was not from recreation, but a large pile of garden waste, presumably from a nearby property that has a gate leading directly into the SSSI. See Appendix 4 for a map of observed impacts and Figure 6 for site photos.

Oddy Hill and Tring Park

3.25 One of the largest remaining areas of unimproved chalk downland in Hertfordshire, the site comprises two areas of calcareous grassland located to the south of Tring. A shorter, grazed, sward is present at the bottom of the scarp slope on site, with a longer sward supporting abundant anthills located on the less heavily grazed scarp slope. The site supports a diverse range of chalk grassland species, with several locally notable/range-restricted species, including the Chiltern Gentian, present.

3.26 When surveyed in June 2019 (Saunders & Lake, 2019), evidence of recreational impacts upon the site were generally localised, with the main observed impacts comprising trampling and erosion centred upon the site's path network. Nevertheless, trampling effects appeared to be largely limited to the vicinity of established pathways currently, with relatively little indication of systemic trampling away from desire lines and paths (within the scarp grasslands at least).

3.27 Some of the footpaths within the main parkland areas (e.g. that running directly east-west from the Tring Museum Bridge) have however been subject to heavy (localised) erosion, with bare soil present along extensive sections of their lengths. This was also the case for several of the site's access points, where patches of bare earth were obvious. Where present, the vegetation in the centre of the paths was modified and dominated by species such as Perennial Ryegrass and Broad-leaved Plantain, which are able to withstand trampling pressure. Towards the edge of the track the sward becomes more diverse, with species such as Lady's Bedstraw, Yarrow and other grasses, but is still notably less diverse than at 10m from the track, where additional species such as Glaucous Sedge, Hop Trefoil, Stemless Thistle, Rough Hawkbit, etc, are found.

3.28 There was also abundant evidence of site users going 'off-piste' along the edge of surfaced footpaths located within the areas of woodland within the site boundary. This has led to some trampling of vegetation along the edge of these paths, although this was again generally localised in extent.

3.29 Extensive trampled areas, and evidence of removal/moving of standing dead wood material, were noted in the woodland 'den building' area in the south of the site. Furthermore, evidence of a small, recent, fire was found on the southern edge of the scarp grasslands.

3.30 There was also some direct observation of dog fouling, despite the presence of dog waste bins, at a small number of locations across the site. This was in addition to the presence of at least one bag of dog waste hung in a tree on the northern border of the site's main woodland block.

3.31 On the well-drained slopes above, the sward is most diverse with classic chalk grassland species including Pyramidal Orchid, Fairy Flax, Salad Burnet etc. and little sign of nutrient enrichment or trampling. On the slopes, trampling impacts are generally limited to single track paths which result in shorter, less diverse, vegetation.

3.32 The map in Appendix 5 identifies some higher value areas of the site which are particularly vulnerable to recreation impacts. These include areas of calcareous grassland, ancient woodland, veteran trees, piles of deadwood and bare ground that is of importance for ground-nesting Hymenoptera.

Roughdown Common

3.33 This is a small area of unimproved calcareous grassland mosaic, interspersed with scrub, including areas of Juniper, with part of the site formed from an old chalk quarry. The grassland sward supports a diverse assemblage of plant species.

3.34 There was some localised erosion along several narrow desire line paths on the steep slope of the former quarry, exposing the chalk substrate. Elsewhere, damage from footfall was minimal, with only light wear. Three fire sites were noted, although it is possible that two of these were associated with site management rather than recreation. Contamination was also infrequent, with only one observation each of rubbish and dog fouling. See Appendix 4 for a map of observed impacts and Figure 6 for site photos.

Tring Reservoirs

3.35 The site comprises four spring-fed reservoirs (Wilstone, Startop's End, Marsworth and Tringford) located at the foot of the Chilterns escarpment, showing characteristics typical of shallow marl lakes. A diverse floral community is present within the fen, meadow and open water habitats, with these wetland habitats in turn supporting a range of breeding, passage, and wintering birds,

including nationally important numbers of wintering Shoveler. The SSSI is also important for a range of invertebrate taxa, including dragonflies.

3.36 Litter was observed in several places, especially around (or in) Wilstone and Startop's End reservoirs. In some cases rubbish bins were overflowing, despite there being other bins nearby. Trampling damage to paths was mainly along the north-west and north-east sides of Wilstone reservoir and along the northern perimeter of Startop's End and Marsworth reservoirs, adjacent to the canal. This is likely to reflect the volume of visitors, since these areas are closest to the car parks at Startop's End (a Pay and Display car park with approximately 70 spaces) and at Wilstone (a free car park with approximately 20 spaces) and the wide road verges in this area also provide ample parking. The remains of a campfire were found next to a den in the woods just to the south of Tringford reservoir. See Appendix 4 for a map of observed impacts and Figure 6 for site photos.

3.37 Watersports and swimming are not permitted at the reservoirs, and dogs should be kept under close control so disturbance to waterbirds should be minimal. The habitats likely to be used by birds for breeding and feeding are mostly away from footpaths, however there are a few areas, such as the north-east corner of Marsworth reservoir where there could be a risk of disturbance or habitat damage.

Figure 6: a) Erosion on the main footpath through Aldbury Nowers; b) Alpine Meadow; c) Little Heath Pit; d) Oddy Hill and Tring Park; e) Former quarry at Roughdown Common with desire line paths; f) Rubbish at Marsworth Reservoir; g) Potential for bird disturbance at Startop's End Reservoir

Dancersend

3.38 Located on a fold in the Chilterns scarp, this site supports a variety of woodland, grassland and scrub habitats. The calcareous grassland present is extremely diverse and supports a range of notable species, and the woodland ground flora is also outstandingly rich. The site is also important for Lepidoptera, including Chalkhill Blue.

3.39 There are some public footpaths through the site as well as some permissive footpaths. There is no public access to Coombe Hill in the north of the site.

3.40 Recreational impacts appeared to be minimal, with some light to moderate wear to paths in places, but mostly very localised. Most paths and rides had little or no bare ground, and no rubbish was seen at all. See Appendix 6 for a map of observed impacts and Figure 7 for site photos.

Dancersend Waterworks

3.41 This is a small area of artificial banks, basins and plateaux supporting an unusually rich assemblage of herbs, grasses, and shrubs. Many species characteristic of the Chilterns calcareous grassland flora are present, including several uncommon and locally rare plants such as the Chiltern Gentian.

3.42 Access to this part of the reserve is restricted to BBOWT permit holders only, and there is no public access at all to the northern part of the SSSI around the settlement tanks. A public footpath runs just within the southern boundary of the SSSI, in Pavis Woods, separated from the rest of the SSSI by a barbed wire fence. This is a narrow path (<0.5m across) with some light wear but no signs of widening, with Wood Melick and Dog's Mercury present alongside the path. There were no impacts of recreation observed within the fenced part of the SSSI. See Appendix 6 for a map of observed impacts and Figure 7 for site photos.

Ivinghoe Hills

3.43 One of the largest areas of biologically rich chalk downland remaining in the Chilterns, this site consists of a mix of calcareous grassland (alongside more improved grassland types), arable area, semi-natural woodland (including ancient woodland at Clipper Down Wood and The Coombe) and scrub. The chalk grassland on site supports a diverse floral community, including a range of southern UK chalk specialists, and the site is also important for a range of invertebrates (including Lepidoptera). There are some veteran trees, for example a line of Beeches adjacent to Duncombe Terrace. The SSSI also

contains several scheduled ancient monuments (SAMs): the hill fort and associated bowl barrows at Ivinghoe Beacon and Gallows Hill, and an earthwork at Wards Coombe.

3.44 Many of the paths around Ivinghoe Beacon, Beacon Hill and Steps Hill are clearly suffering from erosion due to visitor use, and in places this is severe, particularly on the steeper slopes. There are two parallel paths leading from Beacon Road up towards the trig point at Ivinghoe Beacon which are both eroded, compacted and up to 6m wide. The area between these two paths has mostly been roped off to allow the chalk grassland to recover. On less steep sections of these two paths, the damage is less severe and there are some grassy sections. However, some of the grassy areas on or near the paths have noticeably less diverse vegetation than areas away from the paths. There is an extremely steep public footpath west of the Ivinghoe Beacon trig point which has some deeply eroded scars. The other location where erosion was severe was on the steep slope from Steps Hill down into Incombe Hole, where a series of 'pigeon hole' steps has developed down the side of the hill. These steps are, however, quite narrow and so there is still a diverse range of flora alongside them including Devil's-bit Scabious and Harebell.

3.45 There were only four observations of dog fouling in this SSSI, and four observations of rubbish. See Figure 7 for site photos and Appendix 6 for a map showing observed impacts, scheduled monuments and the areas which are currently roped off.

3.46 The area around Ivinghoe Beacon would be further damaged by any increase in visitor numbers, with the areas of chalk grassland and the heritage features being particularly vulnerable.

Pitstone Hill

3.47 Pitstone Hill is an area of calcareous grassland on a steeply sloping, west-facing escarpment of the Chilterns. The grassland on the steeper parts of the slope is very rich botanically and supports several locally and nationally uncommon plants. Small areas of improved pasture, mixed woodland and scattered scrub are also present. There are dykes and holloways[13] present at various locations throughout the site.

3.48 Most of the impacts observed at Pitstone Hill related to path erosion or widening, but none of these were judged to be severe. There were just six

[13] See https://heritageportal.buckinghamshire.gov.uk/Monument/MBC3802 for details.

instances of rubbish observed during the survey. See Appendix 6 for a map of observed impacts and Figure 7 for site photos.

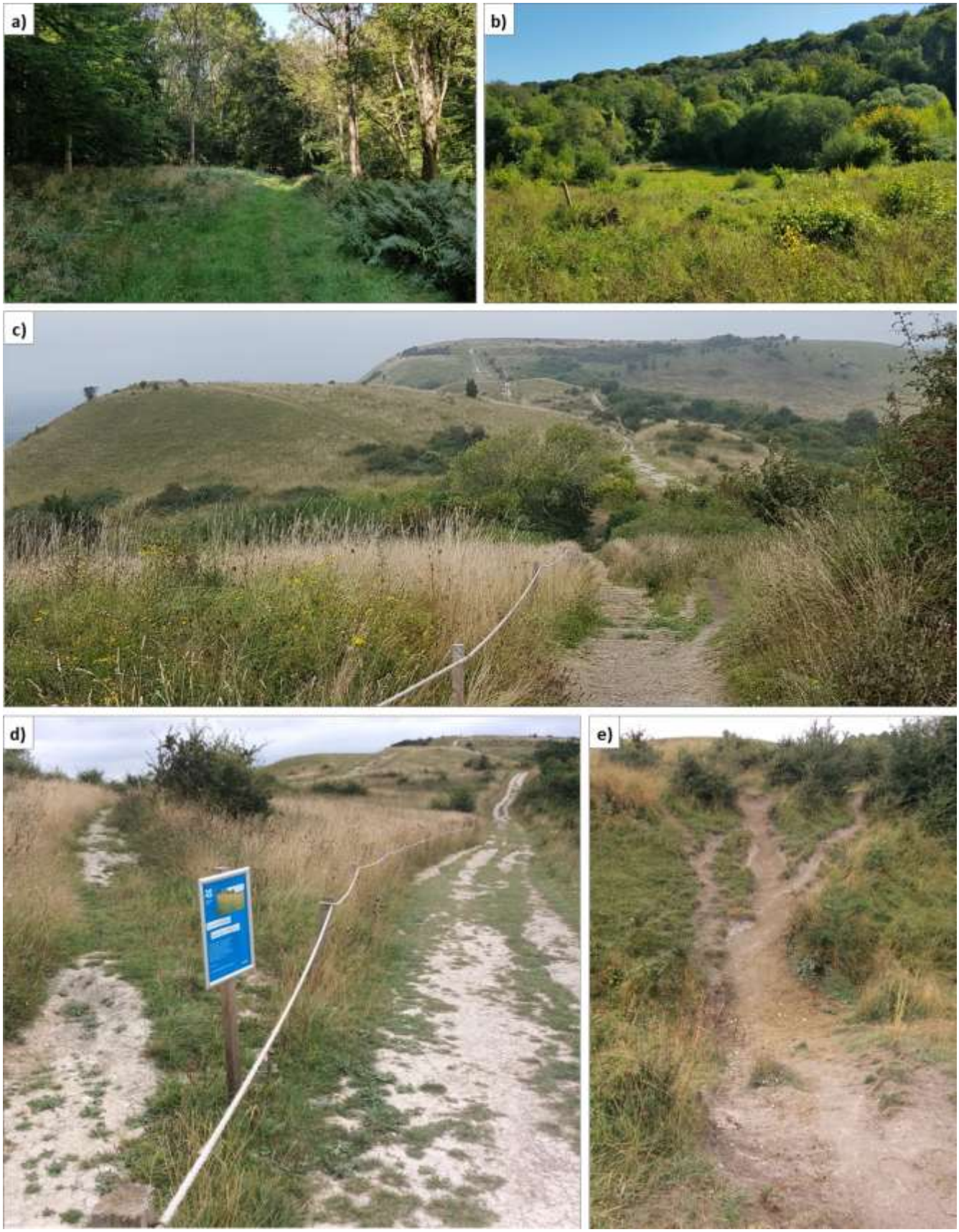


Figure 7: a) Typical woodland ride at Dancersend; b) Dancersend Waterworks with Pavis Woods behind; c) Chalk grassland and scrub at Ivinghoe Hills; d) Path up to Ivinghoe Beacon with desire line blocked off; e) Erosion to earthworks at Pitstone Hill

Discussion – vulnerable features

3.49 Features vulnerable to an increase in recreation pressure are described below for the SAC sites (Ashridge and Tring Woodlands) and summarised in Table 2 for the additional SSSIs.

3.50 Ashridge Commons and Woods is a complex site with a range of mainly woodland habitats, including ancient semi-natural woodland, secondary semi-natural woodland on previously open or wood pasture habitat, broad-leaved plantation, coniferous plantation, mixed plantation and semi-natural woodland that has been interplanted with both native and non-native species. Boundaries are hard to define in the field and in some cases rely on historic information on previous management (e.g. ancient woodland).

3.51 The most vulnerable habitat is the Annex I habitat H9130 Asperulo-Fagetum beech forests ('Beech forests on neutral to rich soils')[14], which will be negatively impacted by an increase in damage and contamination. Although Beech is present throughout (and in places dominant) some of these areas are plantation and of less value, although those areas have the potential to develop into Annex I habitat in time and are still part of the SAC. The areas where the Annex I habitat is best represented, and which we consider to be the most vulnerable to any increase in recreational pressure, are Frithsden Beeches and much of Harding's Rookery (see Map 5). There are additional areas, notably Aldbury Scarp, with habitat that relates to this Annex I type. The remainder of the semi-natural woodland, in addition to being of value in its own right, also plays a supporting role in the conservation of the key Annex I areas. Although more robust that these areas, it is also somewhat vulnerable. This is particularly the case where there is a vernal flora (e.g. including Bluebells), also orchids such as White Helleborine and Fly Orchid.

3.52 Veteran trees, and the specialist fauna and flora they support, are a key feature throughout almost all of the site. Such trees are vulnerable to an increase in recreational pressure regardless of the habitat they are found within. There is already a concerning level of trampling and associated compaction around many veteran trees and this is likely to become more severe with an increase in visitor numbers. As the existing paths become busier (and muddier), they are likely to continue to expand and visitors are also likely to seek alternative routes and create new desire lines. This means that trees that are currently unaffected are likely to become exposed to trampling damage (including that associated

[14] https://sac.jncc.gov.uk/habitat/H9130/

with den building). Maps 4 and 5 show the current distribution of veteran trees. Trampling around mature trees may also reduce their longevity – these "ancients of the future" are also vulnerable to an increase in recreational pressure.

3.53 Visitor pressure is varied across the site, with some areas having more intrinsic appeal than others. Areas with a Bluebell-dominated flora (e.g. see Maps 4 and 5) are particularly attractive (although this is limited to the flowering season). Areas with the most topographical variation, including the western scarp slope, chalk pits and smaller features such as wood banks, are a magnet for mountain bikers - the steep slopes also make them more vulnerable to erosion. Any increase in visitor numbers may disproportionately affect these areas. However, it will also impact on areas that are currently quieter as visitors are displaced from busier areas.

3.54 A further consideration at Ashridge is the impact of increased recreation on realising future aspirations for the site. For example, there is a long-term aspiration to restore some areas of the commons to wood pasture. This would require selective thinning of secondary woodland and livestock grazing. Grazing can be problematic on sites with high visitor numbers even when effective consultation is carried out to ensure that the views of visitors who may not understand or agree with the management or underlying motivations are taken into account. Visitors do not always appreciate the presence of livestock and there can be problems with interactions with dogs, vandalism of infrastructure and disease risk.

3.55 Tring Woodlands is similarly vulnerable to increased recreational pressure, although the Annex I habitat is less clearly defined here. Recreational pressure is currently largely confined to existing tracks and paths – any increase is likely to result in further path expansion, erosion to slopes, eutrophication and the creation of new desire lines.

Table 2: Summary of vulnerable features at SSSIs surveyed

Site name	Vulnerable features	Vulnerability to increased recreation
Aldbury Nowers	Woodland flora; chalk grassland	Vulnerable due to small size and sensitive habitat - potential for damage to chalk grassland and exacerbation of impacts on woodland flora and Beech trees through footpath widening
Alpine Meadow	Chalk grassland	Vulnerable due to very small size and sensitive habitat
Little Heath Pit	Geological interest	Geological interest potentially vulnerable (e.g. if fencing breached)

Site name	Vulnerable features	Vulnerability to increased recreation
Oddy Hill and Tring Park	Chalk grassland	Large site with sensitive habitat, already busy, loss and modification of vegetation along and adjacent to paths likely to increase
Roughdown Common	Chalk grassland	Part of a larger site. Chalk slopes vulnerable to erosion, orchid flora in base of quarry vulnerable to trampling.
Tring Reservoirs	Birds (both breeding and non-breeding)	Already busy, year-round bird sensitivities, vulnerable areas e.g. north-east corner of Marsworth Reservoir.
Dancersend	Woodland flora; chalk grassland	Existing wide network of paths through sensitive habitat - chalk grassland and woodland ground flora are vulnerable.
Dancersend Waterworks	Chalk grassland	Sensitive habitat with rare species. Current access by permit only – any increase in recreation could result in greater relative change.
Ivinghoe Hills	Chalk grassland; historic features; veteran trees	Sensitive habitat, already very busy with dense clusters of localised impacts that would increase with increased visitor pressure (particularly vulnerable are the chalk grassland and heritage features around Ivinghoe Beacon).
Pitstone Hill	Chalk grassland; historic features	Vulnerable due to sensitive chalk grassland and varied topography, which increases risk of erosion.

Section 3 Evidence of current impacts: Key findings

Walk-over surveys were undertaken to determine the extent of current recreation issues and potential risks (from increased recreation) at the sites.

Ashridge Commons and Woods

Recreational impacts were observed throughout Ashridge and were severe in some areas. They were particularly intense in the central areas north and south of Monument Drive (e.g. Aldbury Common and Old Copse, and Pitstone Common up towards Flat Isley) and also Northchurch Common. Just under 500 incidences of recreational damage were recorded. Damage through trampling was the most widespread impact, with widened paths and widespread incidence of bare compacted and sometimes churned ground with some path junctions now supporting extensive areas of poached ground. In many areas, but particularly the narrower desire lines through wooded areas, trampling had resulted in the exposure of tree roots (including those of veteran trees) and damage to tree roots. Other issues included widespread den building and damage from bikes wherever there was topographical variation. Eutrophication from dog fouling was widespread and a number of campfires/barbeque remains were noted.

Tring Woodlands

Most of the site was not unduly impacted by recreation, but isolated instances of littering or dog fouling were recorded. Some tracks showed significant signs of erosion/wear (including bicycle tire tracks and hoof prints) and widening. There were occasional desire lines leading to erosion in steeper areas and evidence of at least 3 campfires.

SSSIs outside SAC

10 SSSIs were visited and included in the recreation assessment work. All the sites visited are potentially vulnerable to impacts from recreation and some were showing signs of pressure although impacts were generally localised. Severe erosion was however apparent at Ivinghoe Hills SSSI.

4. Vehicle counts

Overview

4.1 This section of the report provides the methods and results of driven transects to count vehicles within and around the Chilterns Beechwoods SAC in Spring/Summer 2021.

Methods

4.2 At many sites, those arriving by car will make up the majority of people accessing the site and counts of vehicles can therefore be a useful way to gauge levels of access and understand the relative distribution of access. Driven transects were therefore undertaken to count all vehicles at parking locations and alongside verges around the relevant parts of the SAC.

4.3 Vehicle counts were undertaken in part to understand the issue of verge parking, which has become an increasing problem in and around the SAC. The National Trust and others have been struggling with verge side parking and the new access routes this creates into the SAC. In response to this the National trust have been deploying logs since before the pandemic on road verges to prevent cars parking, although their use has heightened with increased levels of access during the pandemic. Because of this interest in verge parking, the counts were targeted to the broadly busier periods of the summer (especially the school holidays) and focused to the middle of the day.

4.4 Transects were conducted in as small a survey window as possible to allow a snapshot of the levels of access at that moment in time, and give some comparison between car parks which were counted at 'roughly' the same time.

Transect coverage

4.5 Surveys covered all identified parking locations (including formal car parks, informal parking and laybys) across both parts of the SAC (Ashridge Commons and Woods and Tring Woodlands). The Ashridge counts extended to Ivinghoe Beacon in the North, Hudnall Car Park and the War Memorial car park on Berkhamsted Golf Course in the East, Northchurch Common and Norcott car park in the South, and Aldbury in the West. The route covered a total of 52 identified parking locations (numbered in Map 7), with those relevant to the SSSIs considered as those within 500m of the sites. For the Ashridge Commons and Woods SSSI this therefore included 30 parking locations and 8 locations for

the Tring Woodlands SSSI. The counts also recorded the number of cars parked on verges alongside key road stretches (see Map 7), including specifically:

- All parking along Monument Drive (outside of recognised parking locations) these are shown seperately in Map 7 and not listed as a verge parking in the results.
- Beacon Road (between Ivinghoe Beacon and Ringshall)
- New Road: B4506 (between Ringshall and the end of Northchurch Common)
- Tom's Hill Road (between Aldbury and New Road: B4506)

4.6 The count of vehicles on the verges was recorded for each 'section' of road between parking locations. We also recorded any car park closures and the presence of any logs alongside road verges in each section (these logs are used by the National Trust to deter verge side parking).

4.7 Map 7 shows the distribution of the logs along verges as mapped during the first vehicle count – mapped for each side of the road separately. This shows logs present along 25 different road sections. These sections amount to 3.2km with the longest being the 800m section along the northern side of Tom Hill Road, however within the sections the logs were not necessarily always continuous, with some gaps between them (meaning verge parking was sometimes still possible).

4.8 The Ashridge Commons and Woods SAC is a largely standalone site in which we could quantify parking locations which mostly provide access to the SAC. However, at Tring Woodlands SAC, most parking is for Tring Park and visitors may often not see the sites as separate, furthermore the vast majority of visitors access on foot. As such an annual estimate was calculated for Ashridge Commons and Woods SAC only.

Map 7: The parking locations to be counted, including lengths of verges surveyed and the location of logs on the first transect.

Timing and dates of transects

4.9 Driving transects were conducted on 10 separate dates. The number of transects was evenly split between weekdays and weekends and were spaced to cover a range of different dates. The time it took to complete each transect was around 3 hours (around 1.5 hours of driving). We programmed transects between the hours of 9 am (earliest start time) and 5 pm (latest target finish time). Surveys were weighted towards lunchtime/early afternoon as this was when peaks in levels of access were most likely and therefore when parking alongside verges was more likely. The direction of travel was alternated between survey dates to try to reduce any bias relating to the order locations were counted. The first survey was conducted in May, with 2 per month in May, June and July and 4 in August.

Table 3: Driving transect survey coverage by type of day and time of day.

	09:00 (est. finish c.12:00)	12:00 (est finish time c.15:00)	14:00 (est. finish time c.17:00)	Total
Weekday	1	2	2	5
Weekend	1	2	2	5
Total	**2**	**4**	**4**	**10**

Results

Overall totals

4.10 Across the 10 transects a total of 3,410 vehicles were counted (across all parking locations and verges); counts ranged from 179 to 472 (Figure 8). The average number of vehicles recorded across the area (both parking locations and verges) per count was 341.0 (mean) and 325 (median)..

4.11 On average 1.1 of the parking locations were closed, with a maximum of 2 closed on 3 counts. One car park was consistently closed (ID: 20, corner of the B4506 near Northchurch House) and several other parking locations were closed occasionally or partially closed (mostly for resurfacing). Transects took on average 2hrs and 40mins to complete.

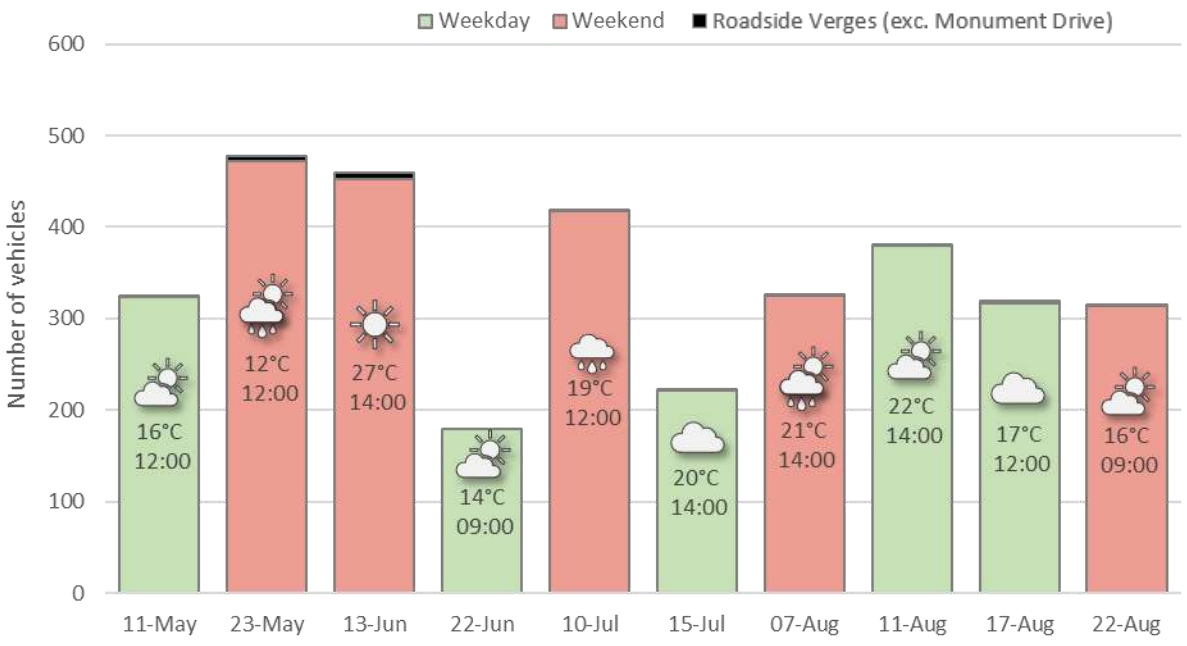


Figure 8: Summary of the total number of vehicles on each transect date. Weekday and weekend counts are coloured differently, and the time and general weather conditions are shown. The black bar indicates the amount of vehicles parking along roadside verges (i.e. away from Monument Drive).

4.12 As Figure 8 indicates, the weather during the counts was variable and though most surveys were not conducted during periods of rain (7/10), many days were warm but overcast (see Appendix 7 for summary). This was unfortunate as it is likely the warm, sunny days are when verge parking is likely to be more common.

Table 4: The number of vehicles on each of the 10 counts, shown across all car parks and verges, Tring Woodlands, Ashridge Commons and Woods and various subsets of these. Green rows indicate weekdays and red rows indicate weekends.

Transect no.	Date	All parking locations and verges	Tring Woodlands (500m of SSSI)	Ashridge Commons and Woods (500m of SSSI)	Ashridge Commons and Woods Roadside Verges (Exc. Monument Drive, 500m of SSSI)	Monumet Drive Pakring Locations	Monument Drive verges between parking locations
Number of parking locations counted		**52**	**8**	**30**		**5**	**5**
1	11/05/2021	52	8	255	1	101	50
2	23/05/2021	324	3	334	4	117	83
3	13/06/2021	472	11	334	4	106	122
4	22/06/2021	452	4	121	0	51	0
5	10/07/2021	179	7	267	1	92	60
6	15/07/2021	417	4	144	0	59	28
7	07/08/2021	221	2	231	1	89	32
8	11/08/2021	325	1	294	3	108	98
9	17/08/2021	389	7	222	3	96	69
10	22/08/2021	317	4	213	1	81	20
Average across 10 counts		**341.0**	**4.6**	**241.5**	**1.8**	**90.0**	**56.2**

Extent of verge parking

4.13 The number of vehicles parked along verges within the SAC is shown in Figure 8 and Table 5. At Tring Woodlands SSSI only 1 vehicle was recorded on verges within 500m across all 10 transects. At Ashridge Commons and Woods SSSI away from Monument Drive, 18 vehicles were recorded on verges within 500m of the SAC, giving an average of 1.8 (mean) vehicles on verges per transect across both the SAC sites. As such, at Ashridge Commons and Woods SSSI the number of vehicles on verges (away from Monument Drive) typically represented around 0.8% of all vehicles seen on the transects.

4.14 Across all parking locations, including away from the SAC, on a single transect the highest count of vehicles on verges was 7 (across 3 road sections: the road up to Ivinghoe Beacon, between Steps Hill and Dockey Wood and Harding's Rookery). This was on the third transect, 13th June, on a sunny and hot (27°C) day, and where the total was 452 vehicles (second highest total) and therefore the verge parking during that count accounted for 1.5%. On this transect for

parking locations within 500m of the Ashridge Commons and Woods SSSI the total vehicles were 334, of which 4 were on verges ((1.2%)).

4.15 The presence of logs alongside road verges was recorded. The use of logs along Monument Drive was reasonably consistent across the site and was also fairly consistent along the sections between Ivinghoe Beacon and Dockey Wood, but otherwise the use of logs was variable and they were present along some road sections but not all.

Spatial distribution of parking

4.16 The number of vehicles at each location is shown in Map 8. It should be noted that the counts at Monument Drive were broken down into 5 individual parking locations, and the counts included the verges in between, and as such figures for number of vehicles on individual verges are included in Map 8.

4.17 There were obvious differences between sites with an average for the parking locations within 500m of the Ashridge part of the SAC of 241.5 vehicles and 4.6 for the parking locations within 500m of the Tring part of the SAC.

4.18 On average, the number of vehicles on Monument Drive as a whole was 146.2 vehicles (split such that 90.0 were in the parking locations and 56.2 on verges between parking locations). As an average, Monument Drive therefore accounted for 60.5% of all vehicles at car parks within 500m of the SAC at Ashridge.

Comparison of weekends/weekdays and comparative fullness of car parks

4.19 Summary statistics for weekends and weekdays are summarised in Table 5. The mean counts on weekends were around 40% higher compared to weekdays.

4.20 We estimated how full each car park was with reference to our estimate of the number of spaces at each. The parking location with the highest level of use compared to its capacity was the first layby immediately after the gate on Monument Drive (number 33 on Map 8), which averaged 128% (i.e. more cars than spaces, potentially suggesting logs were moved or the spaces were under-estimated), followed by the car park in front of Greyhound Inn (number 39 on Map 8) where the average percentage fullness was 115%. At this location the exact bounds of where people could park was ambiguous, so the estimate of capacity was difficult. All other parking locations were at or below 60% fullness as an average. The maximum percent fullness was below 80% for 56% (29) of parking locations and across maximum counts the average percent fullness was

75%, suggesting that even on the busiest days there are many more spaces than there are vehicles.

Table 5: Summary of vehicle counts (all parking locations) from 10 counts.

Metric	Statistic	Weekday	Weekend	Total
Number of vehicles (all parking locations and verges)	Mean	285.2	399.2	**342.2**
	Median	319	418	**326**
Number of vehicles on verges	Mean	1.2	3.2	**2.2**
	Median	1	2	**1.5**
	Average % on verges	0.38	0.75	**0.57**
	Maximum % on verges	0.63	1.53	**1.53**
Percentage fullness of parking locations (i.e. number of vehicles as a percentage of parking spaces)	Mean	23.88	36.68	**30.28**
	Median	23.55	37.54	**27.54**
	Max	27.57	44.94	**44.94**

Types of vehicles

4.21 At all parking locations a total of 83 vans were recorded parked across all counts; there were73 vehicles with roof or rear mounted racks for bikes and 32 campervans/caravans. Only 5 branded commercial dog walker vehicles were seen across all counts (all in the first half of the counts in May, June and July). On weekdays, the vans and also vehicles with rear mounted/roof racks amounted to 3% of all vehicles for each group (Table 6).

Table 6: Average number (%) of vehicles by type and type of day.

Vehicle type	Total across all counts	Average per transect	
		Weekday	Weekend
Cars	3220	265.2 (93%)	378.8 (94.9%)
Vans	83	9 (3.2%)	7.6 (1.9%)
Branded dog walking vehicles	5	0.8 (0.3%)	0.2 (0.1%)
Campervans/ caravans	32	1.2 (0.4%)	5.2 (1.3%)
Horse boxes	2	0.2 (0.1%)	0.2 (0.1%)
Vehicles with roof/rear racks	73	8.2 (2.9%)	6.4 (1.6%)
Minibus – coach	7	0.6 (0.2%)	0.8 (0.2%)
All vehicles	**3422**	**285.2 (100%)**	**399.2 (100%)**
Bicycles	13	0.8	1.8

Estimates of overall visitor use from driving transects (Ashridge Commons and Woods SSSI only)

4.22 Data from the driving transects can be combined with information from the interview data (discussed in later sections) to allow visitor numbers to be extrapolated. From the interview data, key metrics for those arriving by car were:

- the average group size was 2.14;
- the average visit duration was 88 mins (i.e. 1.5 hrs); and
- 89% of those interviewed at Ashridge had accessed the site by motor vehicle.

4.23 Using these metrics, and the data for the 30 car parks (and associated verges) relevant to Ashridge Commons and Woods SSSI, the average of 241.5 vehicles equates to around 516.8 people per count. If we assume access is across a 12hr day (7am to 7pm), this provides 8, 1.5-hr windows and therefore an estimate of 4,135 people per day. Scaling this figure up to account for those 11% of people who had not arrived by motor vehicle (i.e. accessed on foot) gives a total of 4,645 people per day.

4.24 Extrapolating this estimate to the whole year would give a ball park figure of 1.7 million people per year at the Ashridge Commons and Woods SSSI. These figures are clearly very approximate and are derived from just 10 transects spread across a limited time window. We have not derived similar estimates for Tring Woodlands as the interview data show a high proportion of visitors walk to the site and furthermore many of the parking locations overlap with Tring Park (with a high proportion of visitors likely to be using Tring Park only) and as such the number of vehicles at Tring Woodlands is less reliable as a proxy for visitor numbers. .

Discussion

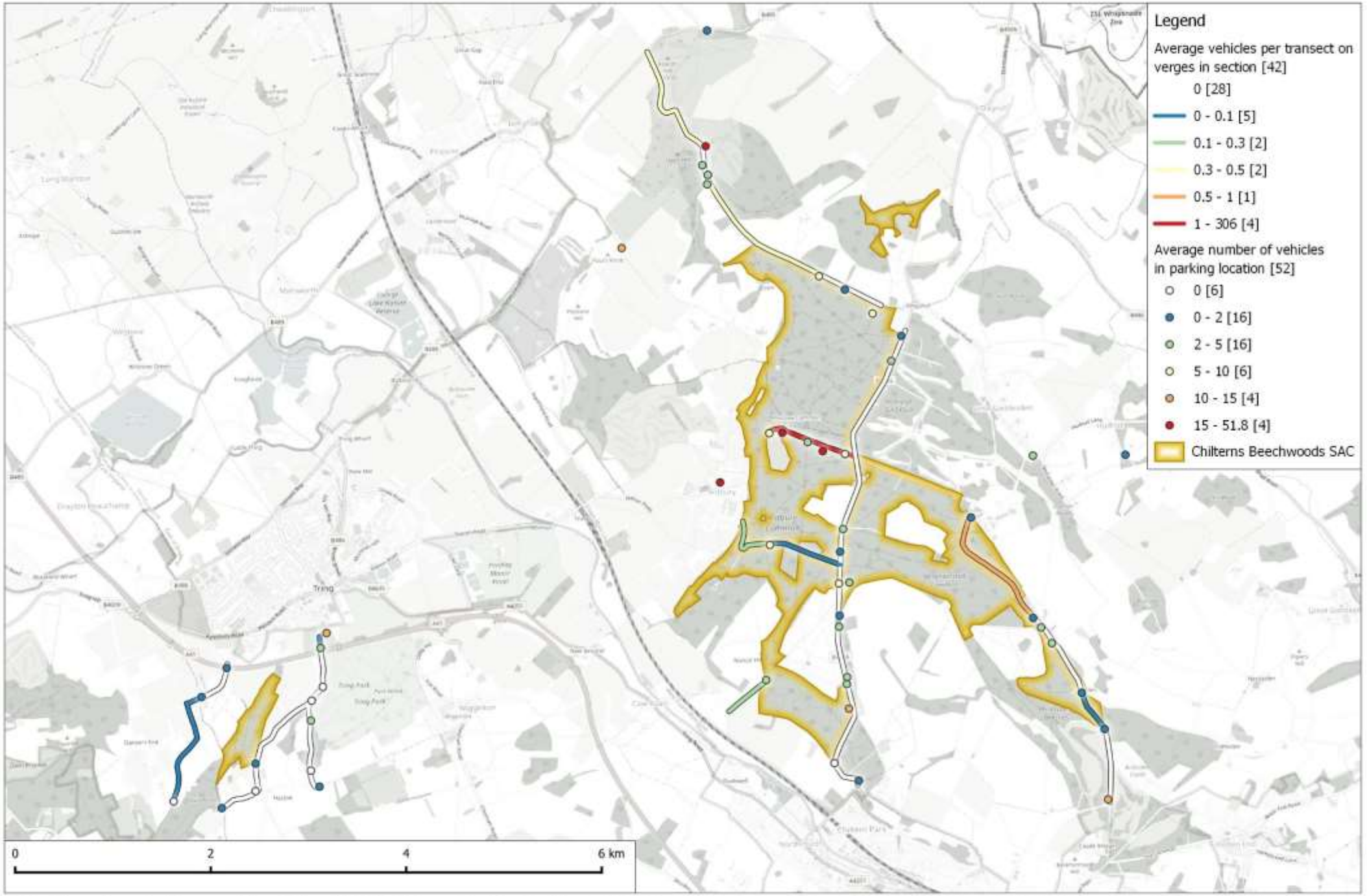
4.1 The levels of access reported here are based on a very limited number of transects and results suggest the levels of verge parking are very low - this is contrary to as reported by many stakeholders and our understanding of the visitor use experienced in previous years. Nonetheless, our estimate for Ashridge Commons and Woods SAC of 1.7 million is relatively high and while clearly approximate, indicates the pressures on the site. The figure is clearly well above the desk based estimates of 0.25 million from ORVal. Further surveys would add greater confidence.

4.2 The results can be compared with data collected by the National Trust from an automated counter placed on the entrance to Monument Drive. However, this has suffered technical issues, at a time of writing only the 11th May transect has a comparable figure. This totalled 700 vehicles entering over the day, equating to 58.3 per hour (assuming a 12hr day) with even access across the day. This compares to our figure of 149 at a single moment in time (c.14:10) along the whole of Monument Drive.

4.3 The use of the logs to control verge parking is a relatively recent measure, commenced before the covid pandemic (c. 2019 onwards) as the verge parking has been a long standing concern . The low levels of verge parking recorded in this data could suggest that the widespread use of logs is working well, or could be a factor of the weather at the time of the surveys.

4.4 Access at Tring Woodlands SAC based our interview data (see later section) is mostly on foot and parking has less relevance to overall visitor numbers.

Map 8: The results of driving transects with the average number of vehicles per parking location and per verge section.



Section 4 Vehicle counts: Key findings

Driven transects were undertaken to count all vehicles at parking locations and alongside verges around the relevant parts of the SAC. Transects took place on 10 different dates spread across the period May – August. Results from these counts included:

- Across the 10 transects a total of 3,422 vehicles were counted (across all parking locations and verges) with a median of 326;
- Individual counts ranged from 179 (on a weekday in late June) to 477 (on a late May weekend);
- In total, 22 vehicles were counted on verges away from Monument Drive;
- The average for the Ashridge part (including Ivinghoe Beacon) was 317.6 vehicles and 24.7 for Tring Woodlands;
- Weekends tended to be around 40% higher than weekdays;
- Even on the busiest days there were many more parking spaces than vehicles, suggesting the availability of parking is not setting any kind of ceiling on visitor numbers at present;
- On average, the number of vehicles on Monument Drive as a whole was 139.7 vehicles (split such that 83.6 were in the parking locations and 56.1 parking roadside);
- Monument Drive therefore accounted for 41% of all the vehicles counted on the transect (i.e. accessing both sites combined), 44% of vehicles in the Ashridge section of the transect and 51% of all vehicles within 500m of the SAC at Ashridge;
- Extrapolating the vehicle counts to give an estimate of people arriving by car would suggest around 4,718 people arriving by vehicle per day.

The vehicle count data are from just 10 counts, none of which picked up the high numbers of vehicles that have regularly been reported in the past and which can occur on holidays and particularly sunny days.

5. Visitor surveys

Overview

5.1 This section of the report describes the visitor surveys undertaken within and around Chilterns Beechwoods SAC in Spring/Summer 2021. Surveys included direct counts of visitors (tally counts) and face to face interviews with a random sample of visitors.

Methods

Survey timing

5.2 The surveys were undertaken through 2021, including the Easter holidays, summer term time (before the school holidays) and Summer school holidays (Table 7).

Table 7: Summary of the visitor survey design.

Period	Number of survey points	Number of survey days	Survey hours	Comments
Spring: Easter holidays	12	12 (weekdays only)	96	Surveys conducted in Easter holidays (when schools were off) – surveying on **weekdays only** (Mon-Fri, excluding bank holidays)
Summer: Term Time	12	24	192	Surveys conducted in June/July in School Term Time – surveys with a full day on a **weekday and weekend** at each point
Summer: School Holidays	14	26	224	Surveys conducted in July/August in Summer holidays (when schools are off) – surveys with a full day on a **weekday and weekend** at each point

5.3 The spread of survey effort and timing of surveys were chosen to reflect times when visitor numbers were expected to be high and when impacts from recreation use were likely. The choice of timing was also influenced by the coronavirus pandemic.

5.4 Typically, Easter is a time with high footfall along with many public engagement events run by the National Trust at Ashridge (for example the Easter egg hunt event) and there is specific seasonal interest relating to spring flowers (e.g. Bluebell woods). Due to the coronavirus pandemic, no events were scheduled

during 2021. The site was however open and visitor numbers were expected to be high based on early indications in February/ March 2021 when the National Trust indicated that visitor numbers were high. Due to concerns that the coronavirus restrictions might mean Easter 2021 was particularly atypical due to more local use, survey effort was scaled back to just a weekday at each survey point. We avoided the Easter bank holiday Monday to allow us to have comparable data from the different locations.

Survey point selection

5.5 Survey locations were carefully selected to ensure a representative sample (good spatial coverage, range of types of access points, size of car parks etc.) across the area of interest and were chosen following initial discussion with the National Trust (as primary owners of Ashridge Estate) and Dacorum Borough Council/Hertfordshire County Council Ecology (as leasees/owners of Tring Woodlands). Checks were also made of data on various websites to pick-up popular routes for different activities. Surveys took place at 14 locations comprising:

- 1 survey point on the Tring Woodlands SSSI, part of the Chilterns Beechwoods SAC;
- 1 survey point on the Woodland Trust's linking land next to the Tring Woodlands SSSI;
- 10 survey points across the Ashridge Commons and Woods SSSI, part of the Chilterns Beechwoods SAC, – chosen by stratifying across access points (based on parking capacity);
- 2 survey points covering non-SAC areas in close proximity – these survey points were selected to provide a comparison with the SAC data and were only surveyed in the summer school holidays.

5.6 The two survey points for the Tring Woodlands SSSI involved the obvious access points into the site from West Leigh and from the Park-Woods linking land (where there is lots of parking)[15]. For the remaining survey points in the Ashridge Commons and Woods SSSI, we conducted a desk-based review of all access points and estimated the number of parking spaces (from Google aerials and street view). The access points were grouped according to the number of spaces, allowing survey points to be stratified based on parking capacity (i.e.

[15] It should be noted that visitor surveys were also conducted by Footprint Ecology in 2019 at Tring Park, for the Woodland Trust and therefore comparable data for the Tring Park data are available in a separate report

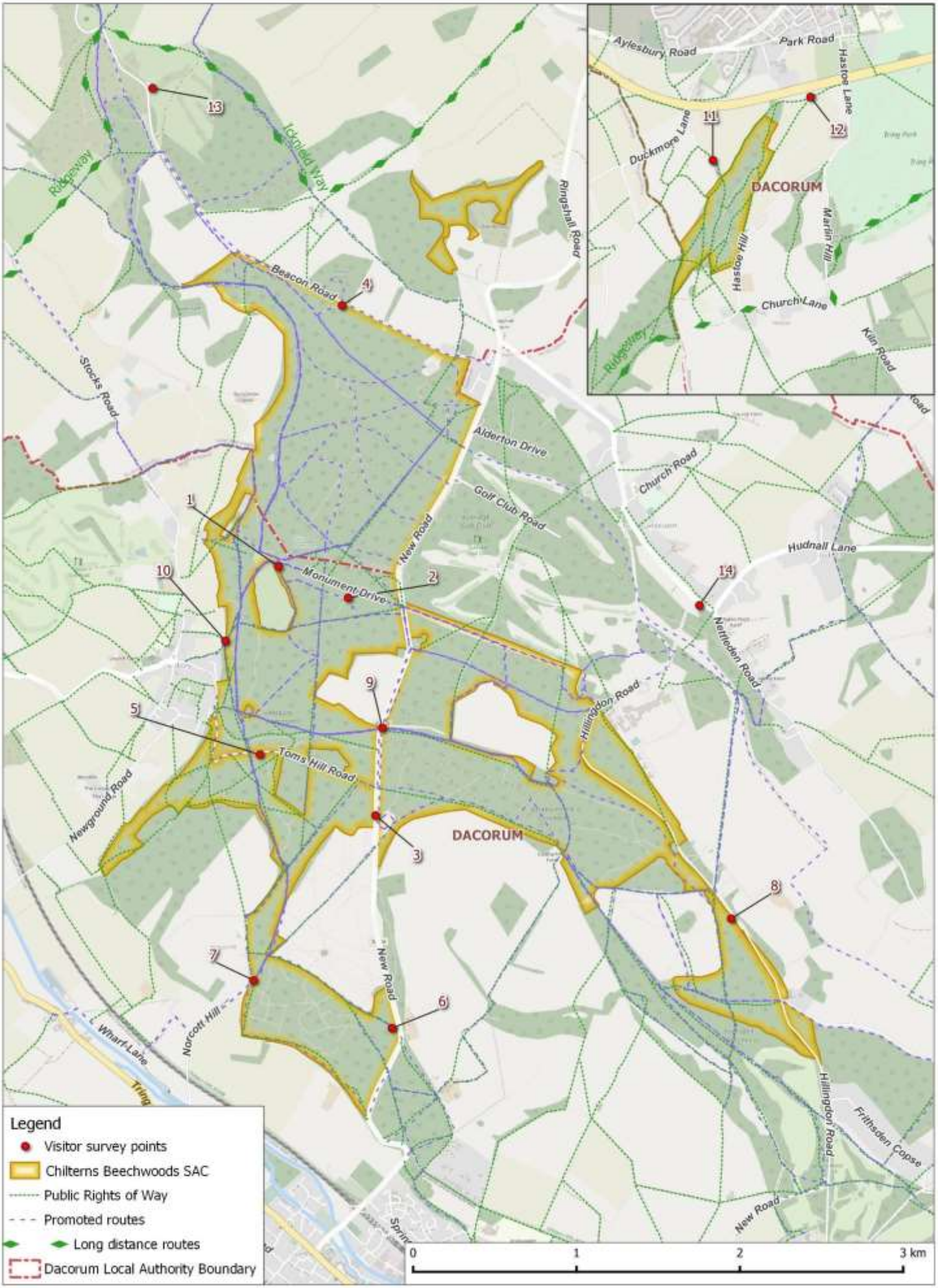
ensuring a range of different sizes of car park) (see Appendix 8 for summary). The final selection of survey points is shown in Map 9 and Table 8.

Table 8: Final survey point selection for the study. Shading reflects the different parts of the SAC and is used through this section in figures and tables

Survey point	Comments and rationale
Ashridge Commons and Woods SSSI (part of the SAC)	
1: Monument Drive – Café	Surveyor roamed the car park. Tally counts likely to be an underestimate (but can be supported by NT counter data[16]). Survey point covers main access point. Anticipated to include families, short and long-distance walkers, café visitors.
2: Monument Drive – Barracks Square	Surveyor roamed the tarmac car park. Survey point covers the main access point. Tally counts likely to be an underestimate (but can be supported by NT counter data[16]). Anticipated to include walkers, horse riders and cyclists
3: B4506 layby & Dick's Camp	Survey point includes a large layby, plus informal parking over large open areas. Surveyors swapped location every hour to cover the other side of the road when the parking area on the east side of the road was open. Tally count only covered the west half.
4: Dockey Wood	Surveyor roamed the car park. Survey point is at the northern end of SAC and known to be popular for access to bluebell woods.
5: Tom's Hill car park	Survey point is a reasonable sized car park in the centre of the SAC.
6: Northchurch Common	Survey location provides access onto a busy part of Northchurch Common, the southern end of the site. Car park is known to be frequently used by those visiting the café over the road – people heading in this direction were not interviewed or counted in the tallies.
7: Norcott Hill	Covers a small but busy, informal access point from Berkhamsted
8: Frithsden Beeches	Covers a small but busy, informal access point and chosen to provide data for this arm of the SAC.
9: B4506 – Berkhamsted Common	Covers a relatively small car park, but is on a popular route with scope to intercept people accessing from a range of access points.
10: Aldbury foot access	Covers access primarily on foot from Albury, and also includes those using the perimeter path.
Tring Woodlands SSSI (part of the SAC)	
11: West Leigh	Survey point is on the Byway Open to All Traffic from Tring. Likely to be popular with range of users including runners, dog walkers, horse riders, cyclists. Covers the access from Tring without much nearby parking.
12: Park Woods linking land	Location on a junction between public rights of way which head to the SAC. Covers access from parking locations, under the A41 and the Tring Woodland Trust/ Museum parking
Non-SAC survey points	
13: Ivinghoe Beacon	Major visitor site, with range of potential issues from recreation. Surveyed only in Summer school holidays.
14: Little Gaddesden	Thought to be a less popular visitor site, but near the SAC. Surveyed only in Summer school holidays.

[16] At time of writing, NT counter data was incomplete.

Map 9: Location of visitor survey points.



Survey Approach

5.7 Surveys involved interviews with a random sample of interviewees and counts of all people passing. The questionnaire (Appendix 9) was conducted using tablet computers running SNAP survey software[17]. Potential interviewees were selected at random, based on the next person seen by the surveyor (if not already conducting an interview). The interviewee's route was plotted in the field (as part of the interview) as lines on paper maps, cross referenced to the questionnaire data by a unique map number.

5.8 Each surveyor carried a photo ID name badge and was wearing a branded hi-vis jacket (that identified them as from Footprint Ecology, rather than National Trust, Council etc.) No unaccompanied minors were approached or interviewed.

Tally data

5.9 Alongside the interview data, surveyors maintained a tally of all people passing, recording groups, individuals and dogs. The tallies also logged the number of minors, horses and bicycles. The counts enabled direct comparison of sites in terms of visitor volume/footfall and provided a check as to the proportion of visitors interviewed at each location. The counts were approximate as they were maintained while interviews were being conducted and, at busy sites, it was sometimes difficult to maintain an accurate count simultaneously while conducting an interview. This was especially the case at Monument Drive where the tally counts are likely to underestimate total visitor numbers. Nonetheless the totals broadly capture the level of recreation, composition of different classes i.e. minors, cyclists etc, at each location and are comparable.

5.10 The counts were split to separately record those entering at the survey point (e.g. people parking and starting their walk), those leaving and any others passing through (e.g. cyclists passing through car park). The sum of all people (entering/leaving/passing) is the overall 'footfall' indicating the level of busyness of the location. Estimates of the number of person visits were derived using the counts of those entering to avoid double counting the same group entering and leaving. We combined the total leaving with half the total of those passing to give person visits (with the exception of survey points 6 and 10 where the approach to counting was specifically tailored to the specific location).

5.11 At survey point 6: Northchurch Common those going to the café opposite were not included in the overall estimate of visit numbers at that location (if they

[17] https://www.snapsurveys.com/

were solely using the parking location to use the farm shop/café over the road and outside the SAC). At survey point 10: Aldbury foot access, the tally included those entering/leaving from the village, but passing included all those walking the perimeter of the site, and these were not included in the estimate of person visits at that location.

Time of day

5.12 Counts and visitor interviews took place within standard two-hour periods with survey effort stratified across weekdays and weekends (main survey) and standardised across survey points. The survey times were: 07:00 - 09:00, 10:30 - 12:30, 14:00 - 16:00, 17:00 - 19:00 across all survey periods. Every effort was made to avoid adverse weather conditions (continuous heavy rain, severe weather warnings, storms etc.) and, if applicable, major televised events.

Weather

5.13 The first and last survey dates are given in Table 9, which also summarises the weather conditions, as recorded by the surveyors during the fieldwork. General weather patterns are summarised by the Met Office for 2021[18] and provide useful context. The Easter surveys were conducted in a relatively dry, but cold period of weather. The start of the month was settled, but turned very cold, with lots of frosts. Overall it was dry and sunny, but unusually cold, with some snowfall logged for certain survey sessions. The summer term time surveys were wetter, with the second half of the June and start of July very cool for the time of year and with numerous showers. For the summer school holidays, the first half of the month was also generally wet, but drier in the second half. However, it was very cloudy in August, with the Met Office summary suggesting it was the dullest August for 60 or more years.

Table 9: Summary of survey timing and weather conditions.

Time of year	Survey dates	Number of survey sessions	% sessions					Averaged 8ths cloud cover
			with rain	cool	mild	warm	hot	
Spring: Easter holidays 2021	6th – 16th Apr	48	23	96	4	0	0	4.5
Summer: Term Time 2021	17th Jun – 11th Jul	96	54	15	61	20	3	7.2
Summer: School Holidays 2021	31st Jul – 4th Sept	112	33	25	31	37	4	6.4

[18] https://www.metoffice.gov.uk/research/climate/maps-and-data/summaries/index

Tally data results

Footfall

5.14 In total, 3,968 groups were recorded passing the survey points over the 512 hours of survey. These groups comprised 7,670 people – equating to an average group size of 1.9 and an overall figure of 15 people per hour passing survey points across the whole survey. On the Ashridge Commons and Woods SAC (survey points 1 - 10) this figure was 40.9 people per hour, compared to just 19.2 on the Tring Woodlands SAC (survey points 11- 12).

5.15 The totals varied with the time of year and day type, with the lowest footfall on the term time weekdays and the highest footfall on the weekdays in the Easter holidays. However, tally count totals for each survey session were not significantly different at weekends compared to weekdays (Kruskal Wallis; $H = 3.07$, $df = 1$, $p = 0.080$; as easter weekdays were busy). There were significant differences between the time of year, with the Easter tally counts being highest ($H = 6.49$, $df = 2$, $p = 0.039$). The effect of type of day and time of year together was highly significant ($H = 21.26$, $df = 4$, $p < 0.001$).

5.16 Using the data from the summer surveys (term time and school holidays) only and comparing weekdays and weekends, the levels of access at weekends were 36% higher than the weekday average. Overall, over the summer around 61% of the footfall was at weekends, particularly in the summer term time (when 67% was at weekends). The differences between Ashridge Woods and Commons SAC and Tring Woodlands SAC are shown in

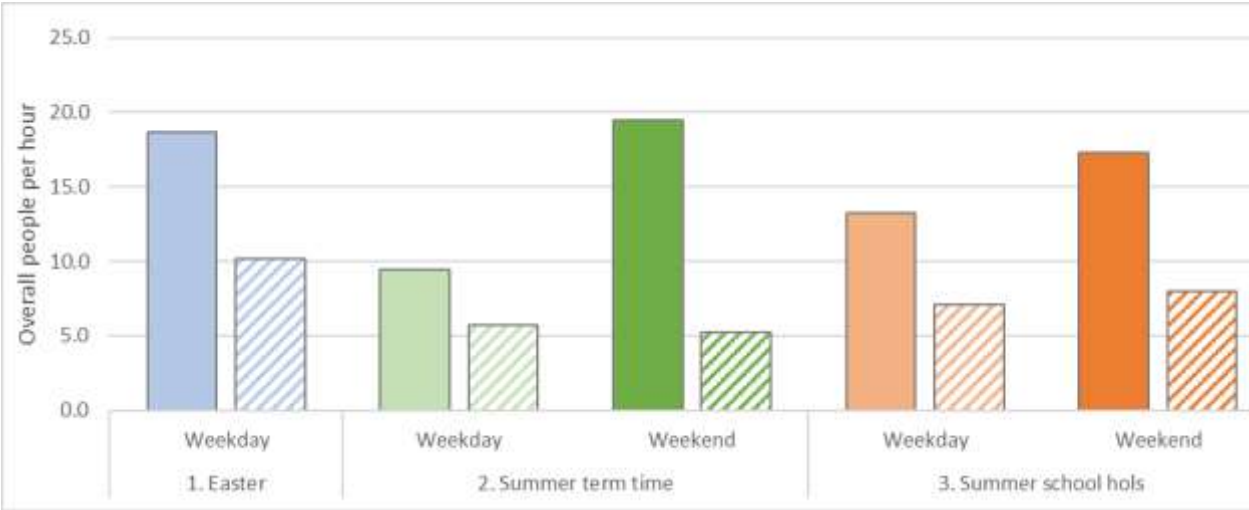


Figure 9.

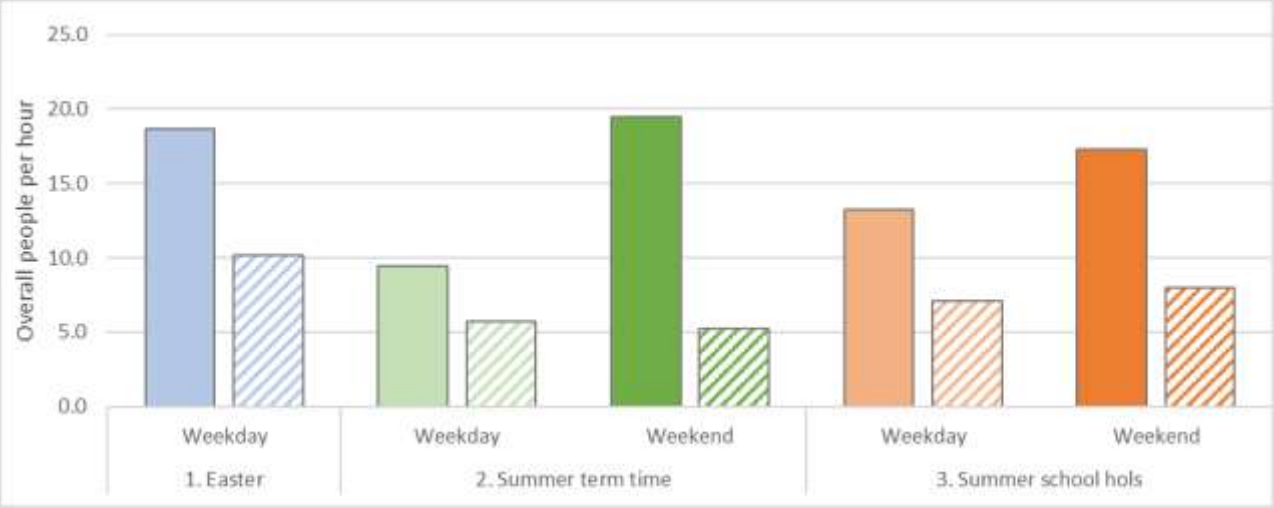


Figure 9: Total number of people per hour passing the survey point during each survey period. Solid bars indicate values at Ashridge Woods and Commons SAC (survey points 1 -10), while patterned bars indicate the values at Tring Woodlands SAC (survey points 11 - 12).

5.17 Footfall was unevenly distributed across the day and peaks of up to 25 people per hour at both the sites were recorded (Figure 10). Differences between totals for time periods were highly significant (Kruskal Wallis; H = 55.59, df = 3, p < 0.001). Most interesting is the consistent relatively low level of footfall in the first session; 07:00-09:00, compared to the other more variable time slots.

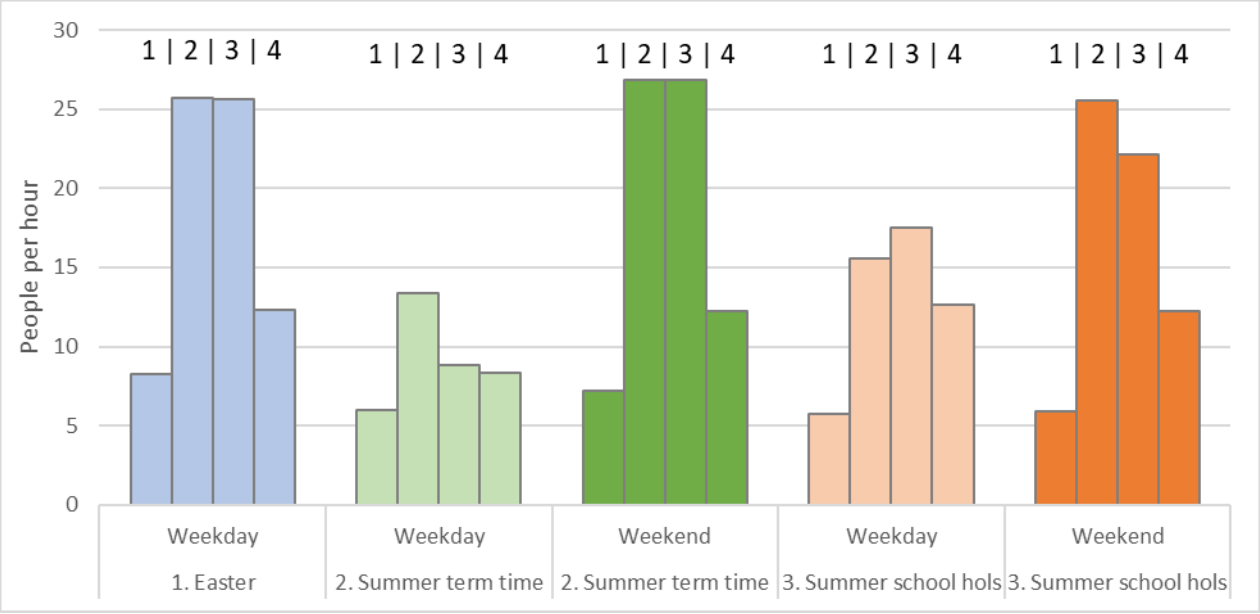


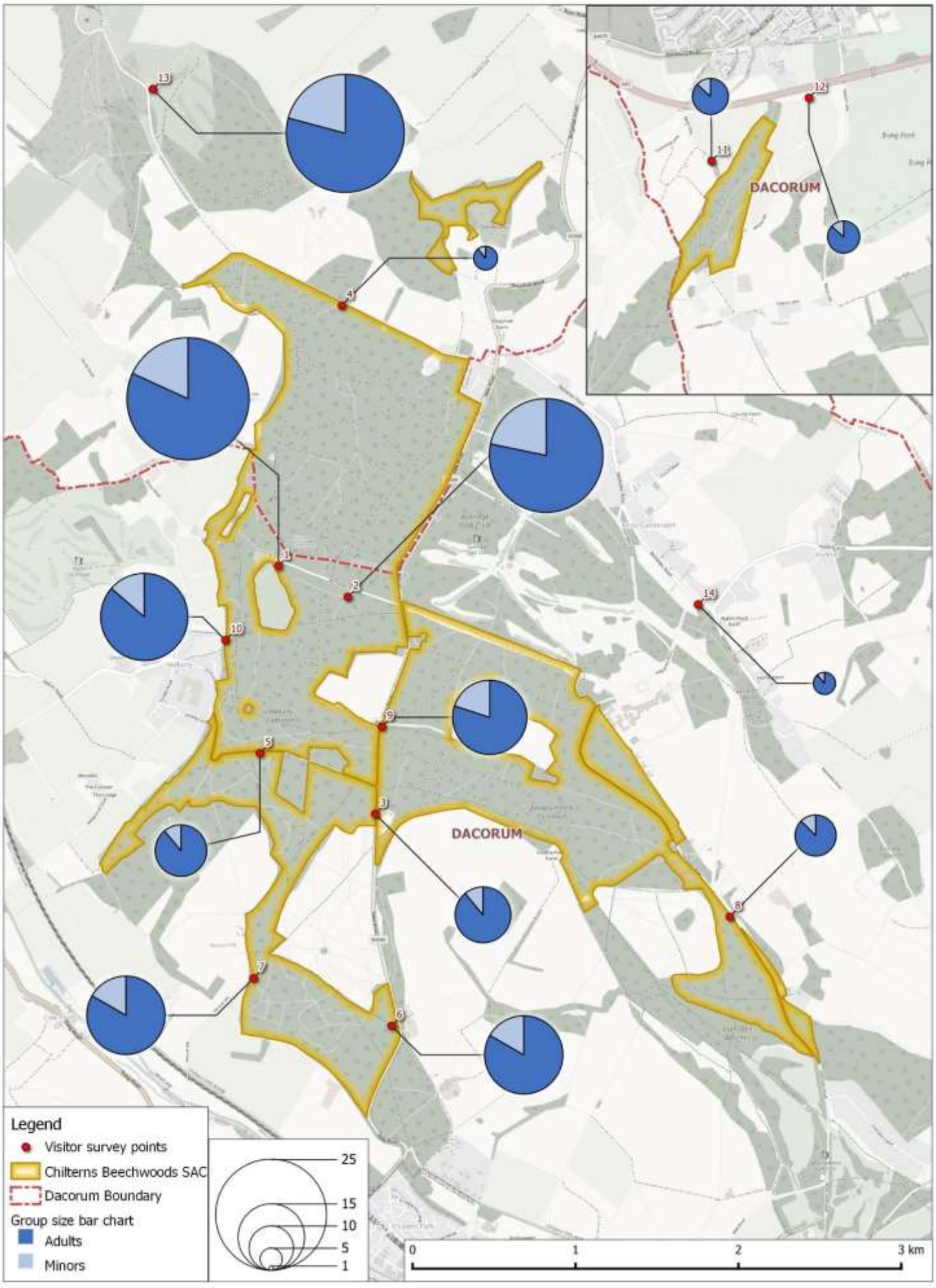
Figure 10: Footfall by time of year and survey day and time of day. Numbered time periods are: 1= 07:00-09:00, 2= 10:00-12:00, 3= 13:00-15:00, 4= 17:00-19:00.

5.18 Tally counts for individual survey points are summarised in Map 10 and Table 10 which show how access was distributed between the different survey points. The highest level of footfall was recorded at survey point 1 along Monument Drive with the tally counts recording over 27 people per hour entering (although it is important to note that the tally counts here were difficult to undertake and are likely to be an underestimate). The next busiest location was 13: Ivinghoe Beacon (26.6 people per hour) and then the other survey point on Monument Drive (survey point 2; 25.6 people per hour), and 10: Aldbury foot access (19.7 people per hour, including counts of the perimeter of the site near Monument Drive).

5.19 Map 10 includes a breakdown of the relative proportion of adults and minors in the tally counts. At survey point 2: Monument Drive – Barracks Square, Survey point 9: B4506 – Berkhamsted Common and survey point 13: Ivinghoe Beacon at least 20% of the people passing were minors, indicating relatively high use by family groups. By contrast, at survey point 5: Tom's Hill car park and 14: Little Gaddesden the percentage of minors was less than 9%.

5.20 Tally counts on individual survey days are shown by survey point in Figure 11. Individual survey dates could be variable and counts were typically higher at weekends. However, across all the summer surveys, two survey points had higher levels of access on weekdays compared to weekends (these were survey points, 11: West Leigh and 14: Little Gaddesden which had 27% and 37% greater access on weekdays than weekends respectively).

Map 10: The proportion of adults and minors sized by the number of people entering per hour.



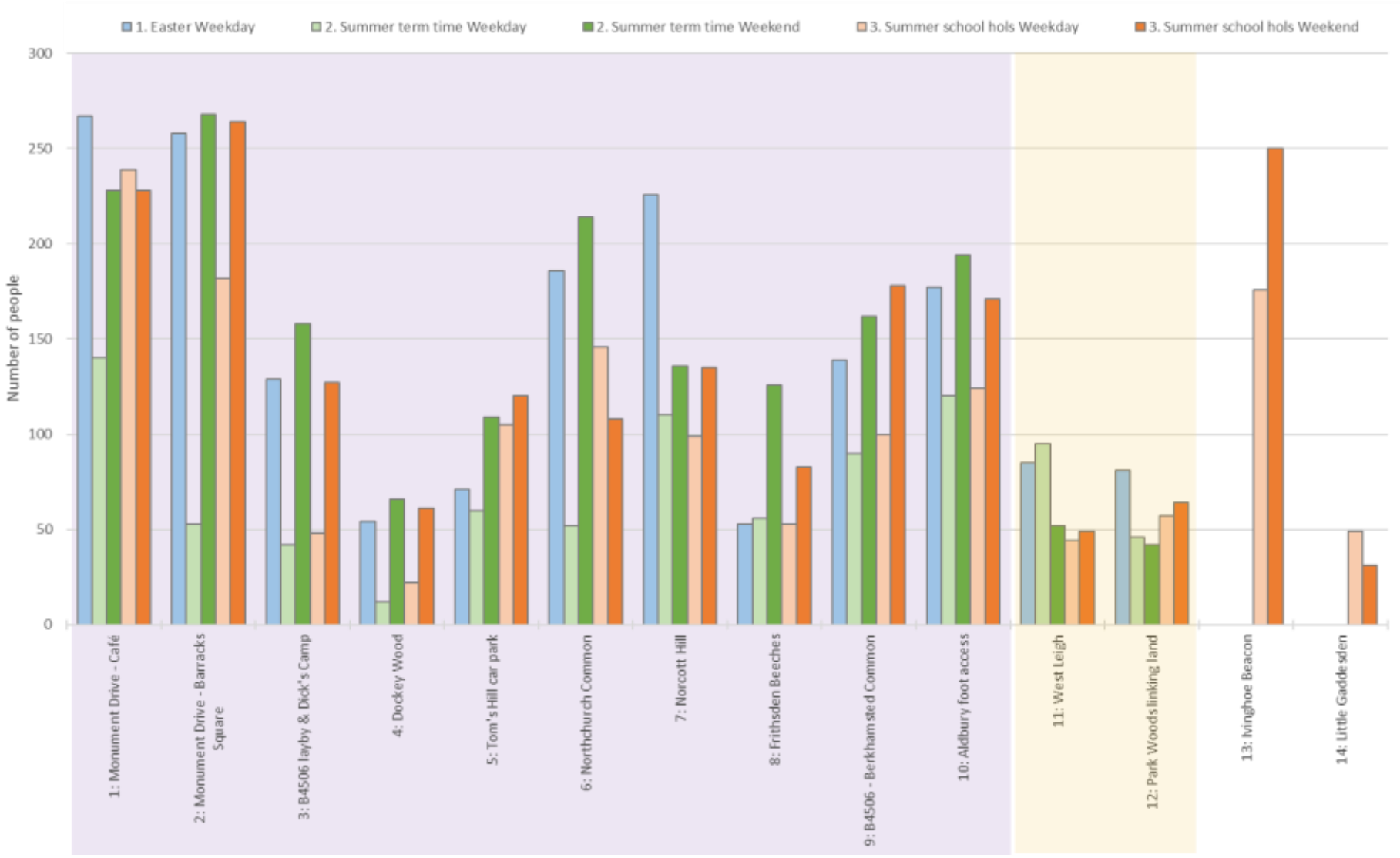


Figure 11: The total footfall recorded in terms of all people passing, by survey day in each time of year and by type of day, for each survey point. Background shading indicates survey points at the Ashridge Commons and Woods SAC (purple) and Tring Woodlands SAC (yellow).

Person visits (overall visit numbers)

5.22 To estimate the overall number of person visits, we used the totals counted entering the site, combined with half the passing count (except for at survey points 6 and 10, which were based on entering only). Values for each survey point are given in Table 10.

5.23 Across all the survey points the data indicate a total of 3,890 people entering. The totals equate to an average of 107.5 per hour (across all 14 survey points), an average of 8.2 entering per hour per survey point for the survey points on the Ashridge part of the SAC and 4.2 at the Tring part of the SAC.

Group composition

5.24 On average, each group typically comprised 2.0 people, of which 0.4 were minors. A typical group was accompanied by 0.7 dogs per group and 0.1 individuals per group were on a bicycle.

5.25 Group sizes and composition differed slightly between times of year and day type (Figure 12). Group sizes were larger at weekends and during the school holidays, with the number of minors per group higher in the term time weekend and the numbers of dogs per group higher on weekdays.

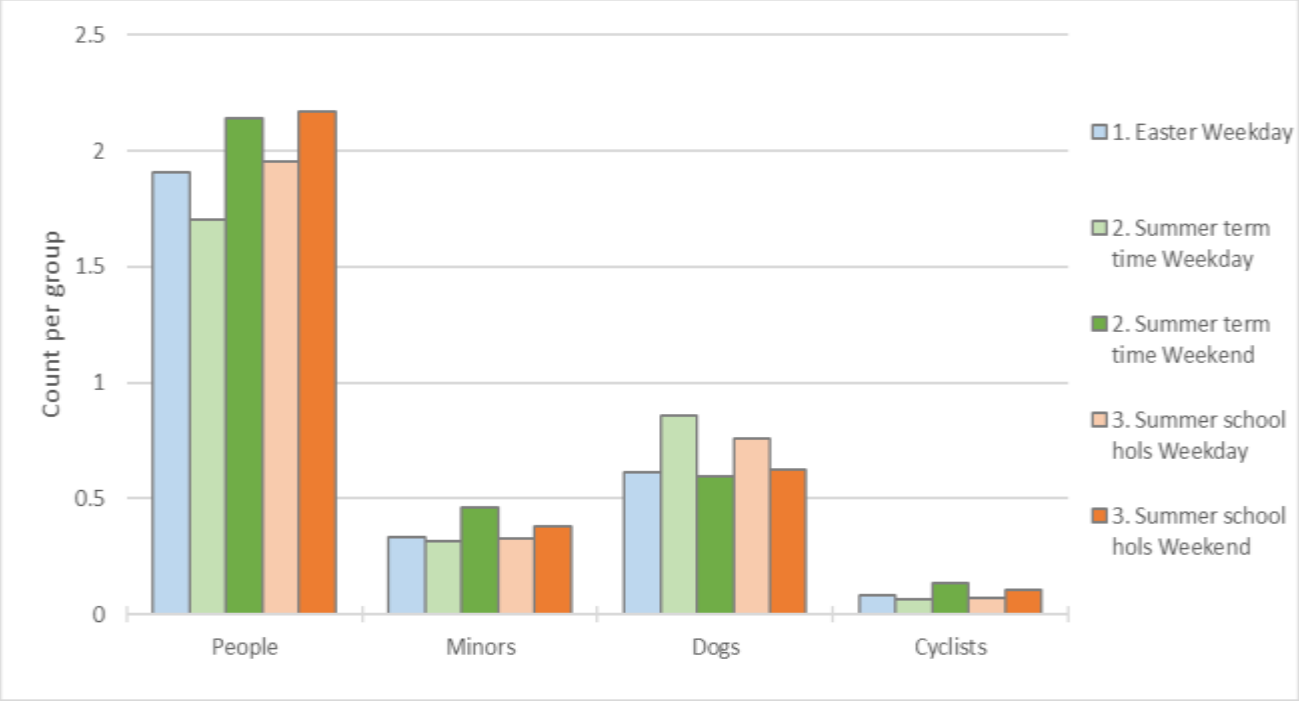


Figure 12: Average people, minors, dogs and cyclists per group by time of year

5.26 Average group composition varied slightly between the Ashridge survey points and the Tring survey points, with a higher group size 2.0 people per group at Ashridge compared to 1.7 at Tring. Groups at Ashridge typically contained more minors per group (0.4 compared to 0.3) and more dogs (0.7 compared to 0.5).

5.27 Differences between survey points were more obvious and are summarised in Map 11 and Figure 13. The number of minors per group was highest at Ivinghoe Beacon and the survey points on Monument Drive, with on average around 0.5 minors per group (reflecting a higher proportion of families using these sites). It was notable how much higher the number of dogs per group was at survey location 8: Frithsden Beeches with 1.4 dogs in every group (equivalent to 0.86 dogs for every 1 person entering). The average number of cyclists per group was highest at survey point 9: B4506 – Berkhamsted Common with 0.27 cyclists per group, and those on bikes accounted for 13.7% of all people entering.

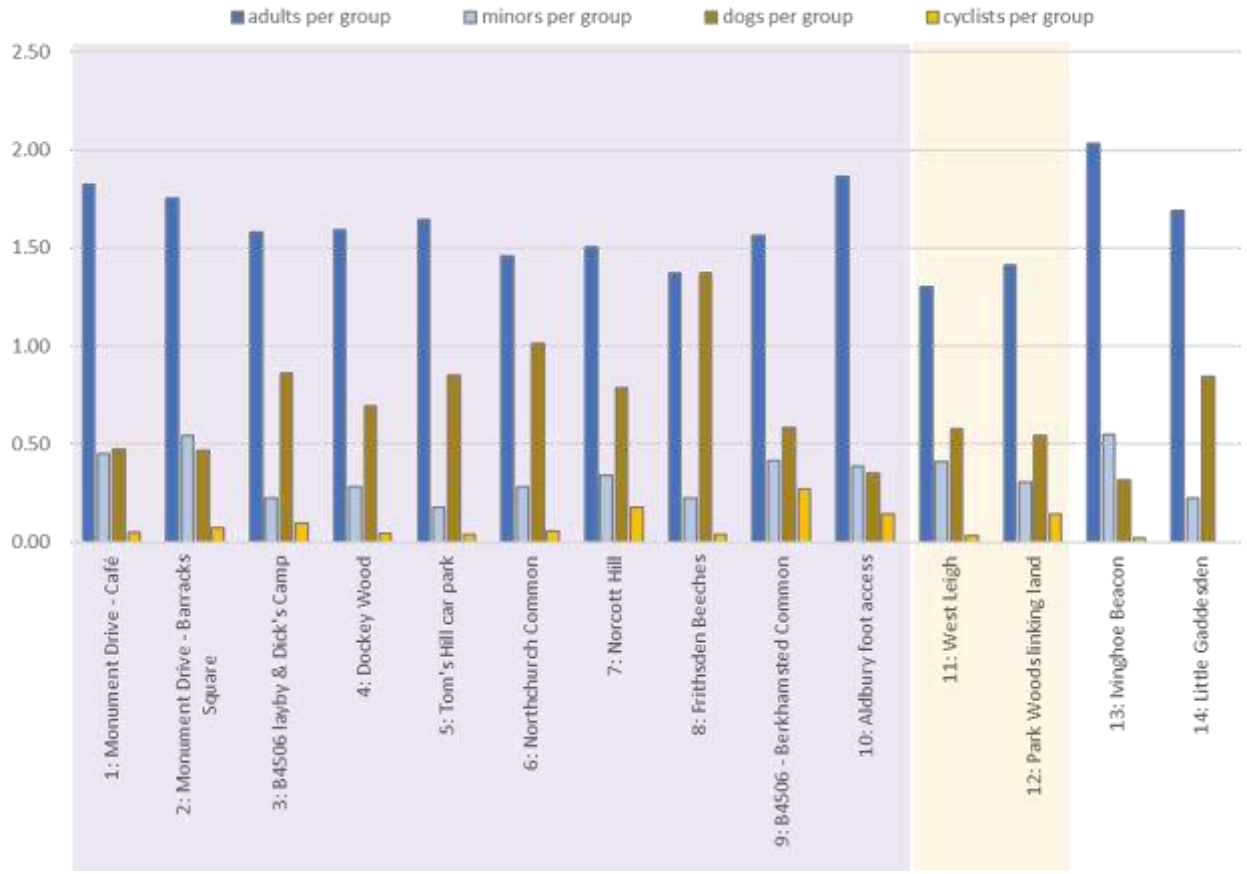


Figure 13: Average group sizes by survey point, based on tally totals of all footfall. The dame data are shown in Map 11. Background shading indicates survey points at the Ashridge Commons and Woods SAC (purple) and Tring Woodlands SAC (yellow).

Map 11: Group size and composition from tally counts.

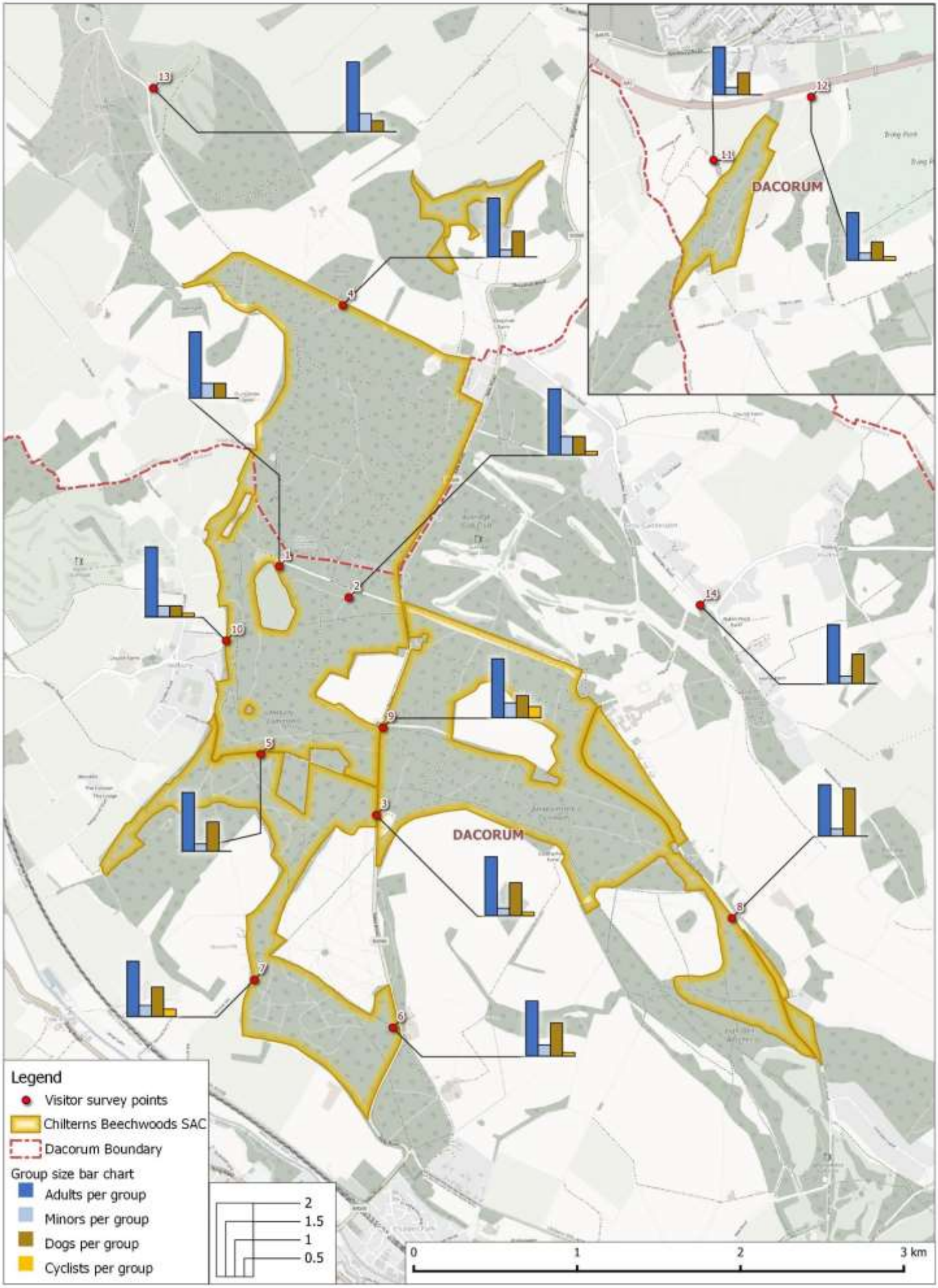


Table 10: Summary of tally data. Table uses data from all times of year and survey points. Values are coloured red for the highest 4 values and blue for the lowest 4 values in each column. Background shading indicates survey points at the Ashridge Commons and Woods SAC (purple) and Tring Woodlands SAC (yellow).

	Person visits per hour	Overall footfall per hour	Group size	Adults per group	Dogs per group	Minors per group	Cyclists per group	% of people who were minors	% of people who were bikes
1: Monument Drive – Café	**14.9**	**27.6**	**2.2**	**1.8**	**0.4**	**0.4**	0.0	20	**2**
2: Monument Drive – Barracks Square	**13.6**	**25.6**	**2.3**	**1.8**	**0.5**	**0.5**	0.1	**24**	3
3: B4506 layby & Dick's Camp	6.0	12.6	1.8	1.6	**0.9**	0.2	0.1	**12**	5
4: Dockey Wood	**2.7**	**5.4**	1.8	1.6	0.7	0.2	**0.0**	15	2
5: Tom's Hill car park	5.9	11.6	1.8	1.6	0.8	**0.2**	**0.0**	**10**	2
6: Northchurch Common	7.1	17.7	**1.7**	**1.5**	**0.9**	0.3	**0.1**	16	3
7: Norcott Hill	9.5	17.7	1.8	1.5	**0.8**	0.3	**0.2**	18	**10**
8: Frithsden Beeches	**4.8**	9.3	**1.6**	**1.4**	**1.3**	**0.2**	**0.0**	**14**	2
9: B4506 – Berkhamsted Common	8.4	16.7	2.0	1.6	0.6	**0.4**	**0.3**	**21**	**14**
10: Aldbury foot access	**9.7**	**19.7**	**2.2**	**1.9**	**0.3**	0.3	**0.1**	17	**6**
11: West Leigh	4.8	**8.1**	**1.6**	**1.3**	0.6	0.2	0.0	**24**	**2**
12: Park Woods linking land	**3.6**	**7.3**	**1.5**	**1.3**	0.5	**0.2**	0.1	18	**8**
13: Ivinghoe Beacon	**14.4**	**26.6**	**2.4**	**1.9**	**0.3**	**0.5**	0.0	**21**	**1**
14: Little Gaddesden	**2.7**	**5.0**	1.7	1.6	0.8	**0.2**	**0.0**	**12**	**0**
Total	**7.7**	**15.0**	**1.9**	**1.6**	**0.7**	**0.3**	**0.1**	**18**	**5**

Interview data

5.28 A total of 1,759 groups of people were approached to be interviewed (Table 11), and 1,164 interviews were undertaken (76% of groups approached). 188 of the groups approached (11%) had already been interviewed (and were not re-interviewed). This was notably highest at 12: Park Woods linking land, where 22% of the groups approached had already been interviewed. This suggests that there are high levels of regular, repeat visitors at this location.

5.29 Those who were unable to be interviewed due to language issues accounted for 0.7% of groups (13 groups). The number of people who refused to be interviewed are summarised in Table 11. A total of 2 people (<1%) were noted as specifically refusing to be interviewed due to stating concerns about Covid. A high percentage of refusals (above 30%) were recorded at survey point 9: B4506 – Berkhamsted Common and 12: Park Woods linking land.

Table 11: Number (%) of groups approached, refusals and the totals interviewed, by survey point. Background shading indicates survey points at the Ashridge Commons and Woods SAC (purple) and Tring Woodlands SAC (yellow).

Interviews	All groups approached	Refusals – Covid	Refusals – other reason	Language issues	Already Interviewed	Interviewed
1: Monument Drive – Café	212	0 (0)	47 (22)	0 (0)	14 (7)	151 (71)
2: Monument Drive – Barracks Square	134	0 (0)	28 (21)	0 (0)	12 (9)	94 (70)
3: B4506 layby & Dick's Camp	116	0 (0)	23 (20)	0 (0)	3 (2)	90 (78)
4: Dockey Wood	67	0 (0)	11 (61)	0 (0)	8 (12)	48 (72)
5: Tom's Hill car park	138	2 (1.4)	4 (3)	0 (0)	17 (12)	115 (83)
6: Northchurch Common	199	0 (0)	43 (22)	0 (0)	20 (10)	136 (68)
7: Norcott Hill	128	0 (0)	36 (28)	3 (2)	17 (13)	72 (56)
8: Frithsden Beeches	112	0 (0)	18 (16)	0 (0)	12 (11)	82 (73)
9: B4506 – Berkhamsted Common	146	0 (0)	44 (30)	0 (0)	19 (13)	83 (57)
10: Aldbury foot access	134	0 (0)	38 (28)	2 (2)	14 (10)	80 (60)
11: West Leigh	135	0 (0)	39 (29)	0 (0)	17 (13)	79 (59)
12: Park Woods linking land	138	0 (0)	48 (35)	0 (0)	30 (22)	60 (44)
13: Ivinghoe Beacon	71	0 (0)	8 (11)	8 (11)	3 (4.2)	52 (73)
14: Little Gaddesden	29	0 (0)	5 (17)	0 (0)	2 (6.9)	22 (76)
Total	**1759**	**2 (<1)**	**392 (22)**	**13 (1)**	**188 (11)**	**1164 (66)**

5.30 Over time, the overall proportion of refusals decreased (Table 12), with people being more cautious to stop and be interviewed at Easter. While only 2 people specifically stated they didn't want to be interviewed due to Covid concerns, Covid may have influenced refusal rates in general without visitors articulating their concerns. At Easter the colder weather may also have influenced whether people were happy to stop and be interviewed. Refusals were also highest on the term time weekdays, perhaps when people have less available time to linger. The proportion of those approached who had already been interviewed also rose, suggesting the level of sampling in this study was sufficient.

Table 12: Number (%) of people approached by time of year and type of day, and breakdown into refusal (covid or other), not interviewed due to language issues, those already interviewed and those interviewed.

Time of year & day type	All people approached	Refusals – Covid-	Refusals – other reason	Language issues	Already Interviewed	Interviewed
1. Easter	325	0 (0)	81 (25)	0 (0)	13 (4)	231 (71)
Weekday	325	0 (0)	81 (25)	0 (0)	13 (4)	231 (71)
2. Summer term time	605	1 (<1)	174 (29)	5 (1)	40 (7)	385 (64)
Weekday	259	1 (<1)	91 (35)	0 (0)	21 (8)	146 (56)
Weekend	346	0 (0)	83 (24)	5 (1)	19 (6)	239 (69)
3. Summer school holidays	829	1 (<1)	137 (17)	8 (1)	135 (16)	548 (66)
Weekday	406	1 (<1)	60 (15)	0 (0)	73 (18)	272 (67)
Weekend	423	0 (0)	77 (18)	8 (2)	62 (15)	276 (65)
Total	**1759**	**2** (<1)	**392 (22.3)**	**13 (0.7)**	**188 (10.7)**	**1164 (66.2)**

Visit type (Q1)

5.31 Overall, 1128 interviewees (97%) were visiting directly from home, 22 (2%) were on holiday in the area and 13 (1%) were staying locally with friends/family.

5.32 In the Easter period, 99% (228) were visiting directly from home, with just 3 interviewees (1%) not visiting directly from home. At all other times of year, the percentage visiting directly from home was 96 – 97% (Table 13). At individual survey points the percentage of those visiting directly from home ranged from 96% to 100%, except for at survey point 1: Monument Drive – Café (93%) and survey point 13: Ivinghoe Beacon (90%). For the summer school holiday surveys, just 4 survey points had less than 95% visitors directly from home, these were survey points 1: Monument Drive – Café (90%), survey point 13: Ivinghoe Beacon (90%), survey point 7: Norcott Hill (94%) and 10: Aldbury foot access (94%).

Table 13: Percentage of interviewees visiting directly from home, by survey point and time of year. Background shading indicates survey points at the Ashridge Commons and Woods SAC (purple) and Tring Woodlands SAC (yellow).

Survey point	n	Easter	Summer Term Time	Summer Holidays	Total
Number of interviews	-	231	385	548	1164
1: Monument Drive – Café	151	96.4	90.4	93.0	92.7
2: Monument Drive – Barracks Square	94	100	91.4	97.6	95.7
3: B4506 layby & Dick's Camp	90	100	100	100	100
4: Dockey Wood	48	100	100	100	100
5: Tom's Hill car park	115	100	95.7	98.1	97.4
6: Northchurch Common	136	100	100	97.2	98.5
7: Norcott Hill	72	100	100	93.8	97.2
8: Frithsden Beeches	82	100	100	100	100
9: B4506 – Berkhamsted Common	83	94.7	97.0	96.8	96.4
10: Aldbury foot access	80	100	95.7	94.4	96.3
11: West Leigh	79	100	100	96.7	98.7
12: Park Woods linking land	60	91.7	100	96.3	96.7
13: Ivinghoe Beacon	52	-	-	90.4	90.4
14: Little Gaddesden	22	-	-	100	100
All survey points	**1164**	**98.7**	**96.9**	**96.2**	**-**

Activity (Q2 & 3)

5.33 Overall, the most common stated main activity was dog walking (558 interviewees, 48%)[19]. The next most common was walking (458 interviewees, 39%) and other, less frequent activities included jogging/running (36 interviewees, 3%) and cycling (31 interviewees, 3%).

5.34 Main activity by time of year is summarised in Figure 14. Dog walking was always the most common main activity, particularly on summer term time weekdays when it accounted for 58% of interviewees. Dog walking accounted for the lowest percentage (43%), on the summer school holidays due to increases in other activities, such as social activities (meeting up with friends, outing with family, picnicking). These accounted for 7% during the summer school holidays (while overall this was the main activity for 4% of interviewees).

[19] Note that activity types were classified based on the interviewees' response. While 48% of interviewees stated their main activity was dog walking, 56% of interviewees had one or more dogs with them. Many other interviewees who reported main activities other than dog walking, but had 1+ dogs with them included 63 walkers (14% of those walking), 12 runners (33% of those running) and 21 of those on an 'outing with the family' (6% of this main activity group).

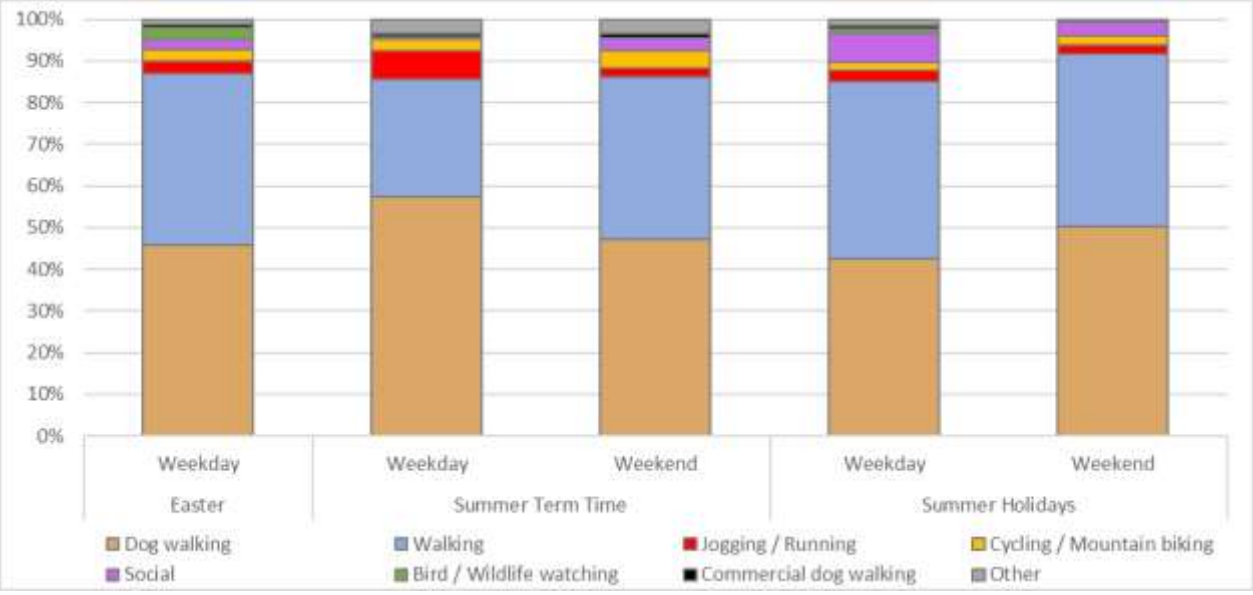


Figure 14: Percentage of interviews by time of year and day.

5.35 At individual survey points, the percentage of dog walkers varied greatly from a maximum of 71% at 3: B4506 layby & Dick's Camp and 70% at 8: Frithsden Beeches to 25% at 13: Ivinghoe Beacon and 29% at 10: Aldbury foot access (Map 12 and Table 14). Other activities that were notable at particular survey points included: jogging and cycling at 9: B4506 – Berkhamsted Common (8% and 7%), jogging at 12: Park Woods linking land (7%), social meetings at 13: Ivinghoe Beacon (8%) and 1: Monument Drive – Café (6%), commercial dog walking at 14: Little Gaddesden (5%) and horse riding at 11: West Leigh (3%).

5.36 A number of main activities were categorised as 'other' and included visiting the café, Duke of Edinburgh expeditions, foraging etc. One of the most common 'other' activities related to food or drink, mentioned by 9% (99 interviewees). These 99 included 26% of cyclists (8 cyclists), 14% of walkers (63) and 10% of those on an outing with the family (3). Food and drink related activities were cited by 30% of interviewees (24 interviewees) at survey point 10: Aldbury foot access, 22% (34) at 1: Monument Drive – Café and 18% (17) at 2: Monument Drive – Barracks Square.

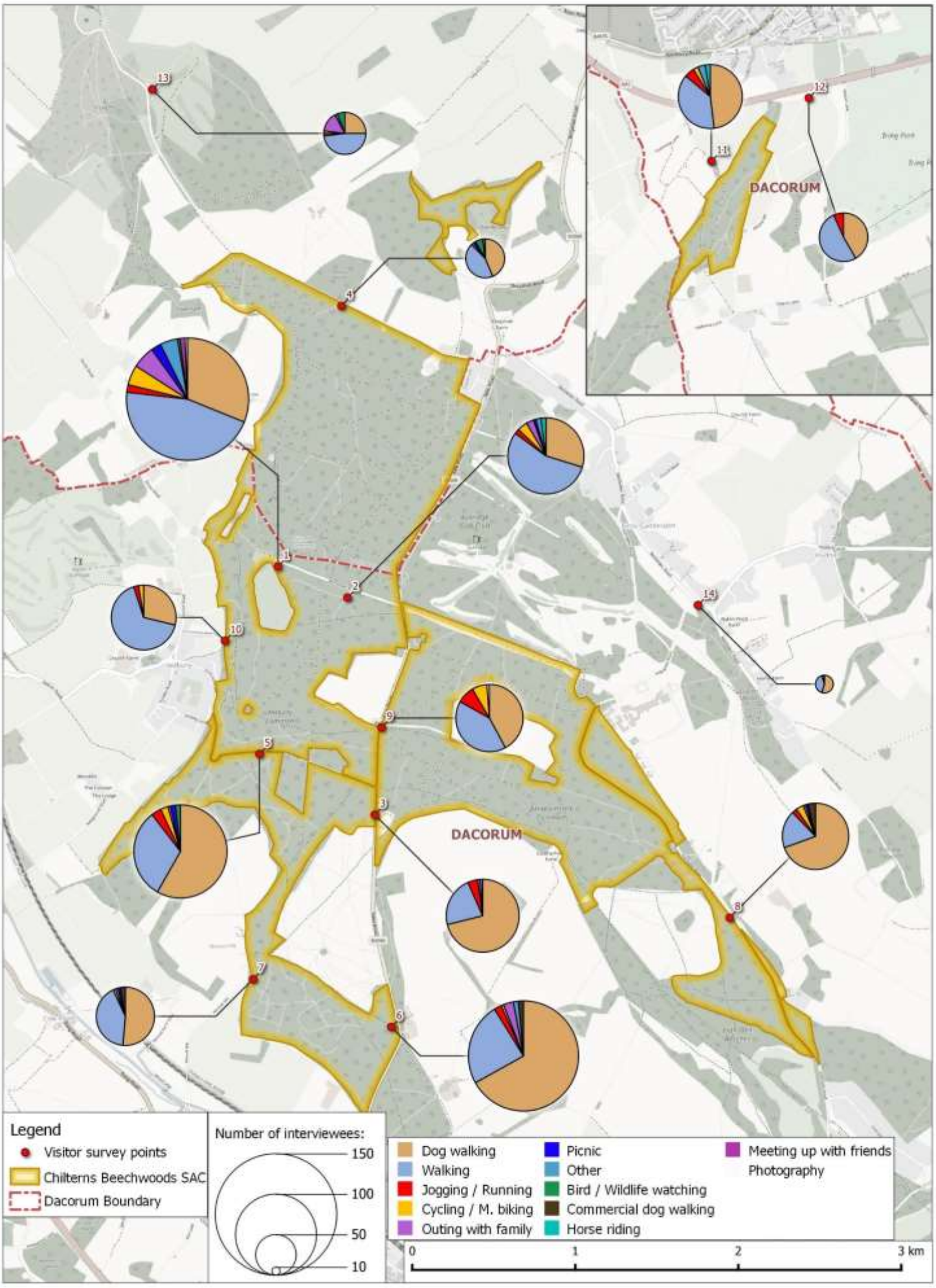
5.37 Interviewees were also asked to state any other activities they were conducting in addition to the main activity. The most common additional activity was walking (which was most common with dog walkers, but also those meeting up with friends, bird/wildlife watching, picnicking etc). Dog walking was also a common second activity; of the 36 interviewees jogging/running, 6 said they were also dog walking and of the 31 interviewees cycling, 2 were also dog walking. Of the 3 interviewees whose main activity was meeting up with friends,

2 were also having a picnic and of the 10 interviewees whose main activity was having a picnic, 5 were having an outing with the family.

Table 14: Number (%) of interviewees by main activity and survey points. Red values indicate highest value in each row. Background shading indicates survey points at the Ashridge Commons and Woods SAC (purple) and Tring Woodlands SAC (yellow).

Survey point	Dog walking	Walking	Jogging / Running	Cycling / Mountain biking	Social	Commercial dog walking	Horse riding	Other
1: Monument Drive – Café	47 (31)	**69 (46)**	3 (2)	8 (5)	9 (6)	0 (0)	0 (0)	6 (4)
2: Monument Drive – Barracks Sq.	28 (30)	**52 (55)**	2 (2)	4 (4)	2 (2)	0 (0)	2 (2)	1 (1)
3: B4506 layby & Dick's Camp	**64 (71)**	20 (22)	4 (4)	0 (0)	1 (1)	0 (0)	0 (0)	0 (0)
4: Dockey Wood	**21 (44)**	**21 (44)**	0 (0)	0 (0)	3 (6)	0 (0)	0 (0)	2 (4)
5: Tom's Hill car park	**67 (58)**	36 (31)	4 (3)	3 (3)	2 (2)	0 (0)	0 (0)	2 (2)
6: Northchurch Common	**91 (67)**	33 (24)	3 (2)	1 (1)	2 (1)	2 (1)	0 (0)	0 (0)
7: Norcott Hill	**37 (51)**	30 (42)	0 (0)	1 (1)	0 (0)	2 (3)	0 (0)	1 (1)
8: Frithsden Beeches	**57 (70)**	15 (18)	2 (2)	3 (4)	0 (0)	3 (4)	0 (0)	1 (1)
9: B4506 – Berkhamsted Common	**35 (42)**	34 (41)	7 (8)	6 (7)	1 (1)	0 (0)	0 (0)	0 (0)
10: Aldbury foot access	23 (29)	**53 (66)**	2 (3)	2 (3)	0 (0)	0 (0)	0 (0)	0 (0)
11: West Leigh	**38 (48)**	30 (38)	4 (5)	2 (3)	3 (4)	0 (0)	2 (3)	0 (0)
12: Park Woods linking land	25 (42)	**31 (52)**	4 (7)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
13: Ivinghoe Beacon	13 (25)	**25 (48)**	1 (2)	1 (2)	4 (8)	0 (0)	0 (0)	0 (0)
14: Little Gaddesden	**12 (55)**	9 (41)	0 (0)	0 (0)	0 (0)	1 (5)	0 (0)	0 (0)
Total	**558 (48)**	**458 (39)**	**36 (3)**	**31 (3)**	**27 (2)**	**8 (1)**	**4 (0)**	**13 (1)**

Map 12: The main activities recorded from interviews at each survey point.



Transport (Q4)

5.38 Overall, 80% of interviewees (935) arrived at the site by car, with 17% (200) on foot, 1% (14 interviewees) came on a bicycle, and just 1% on public transport (9 train and 2 bus). For the two main activities, the percentage of interviewees arriving by car was 85% (473) for dog walkers and 75% (344) for walking. The main activity with the highest proportion of those arriving on foot was jogging/ running (11 interviewees, 31% of those conducting this activity arrived on foot). Just under half (42%, 13) of interviewees whose activity was cycling arrived by bicycle, with the rest bringing their bicycle with them by car. There were relatively little differences in modes of transport between time of year and day type, although there were relatively high levels of access on foot at Easter (49 interviewees, 21%), perhaps due to more local use following on from covid restrictions.

5.39 Differences in the mode of transport used were most marked when comparing between survey points (Figure 15). The highest proportion of interviewees arriving by car was at 13: Ivinghoe Beacon (52, 100%), 5: Tom's Hill car park (114, 99%), 1: Monument Drive – Café (149, 99%) and 2: Monument Drive – Barracks Square (93, 99%). Access by bicycle was highest at survey point 10: Aldbury foot access (3, 4%) and 9: B4506 – Berkhamsted Common (3, 4%), and by public transport, also at 10: Aldbury foot access (7, 9%). Access on foot dominated at both the Tring survey points, 11: West Leigh and 12: Park Woods linking land. Overall, at Tring, 82% of interviewees (115) had travelled by means other than a car.

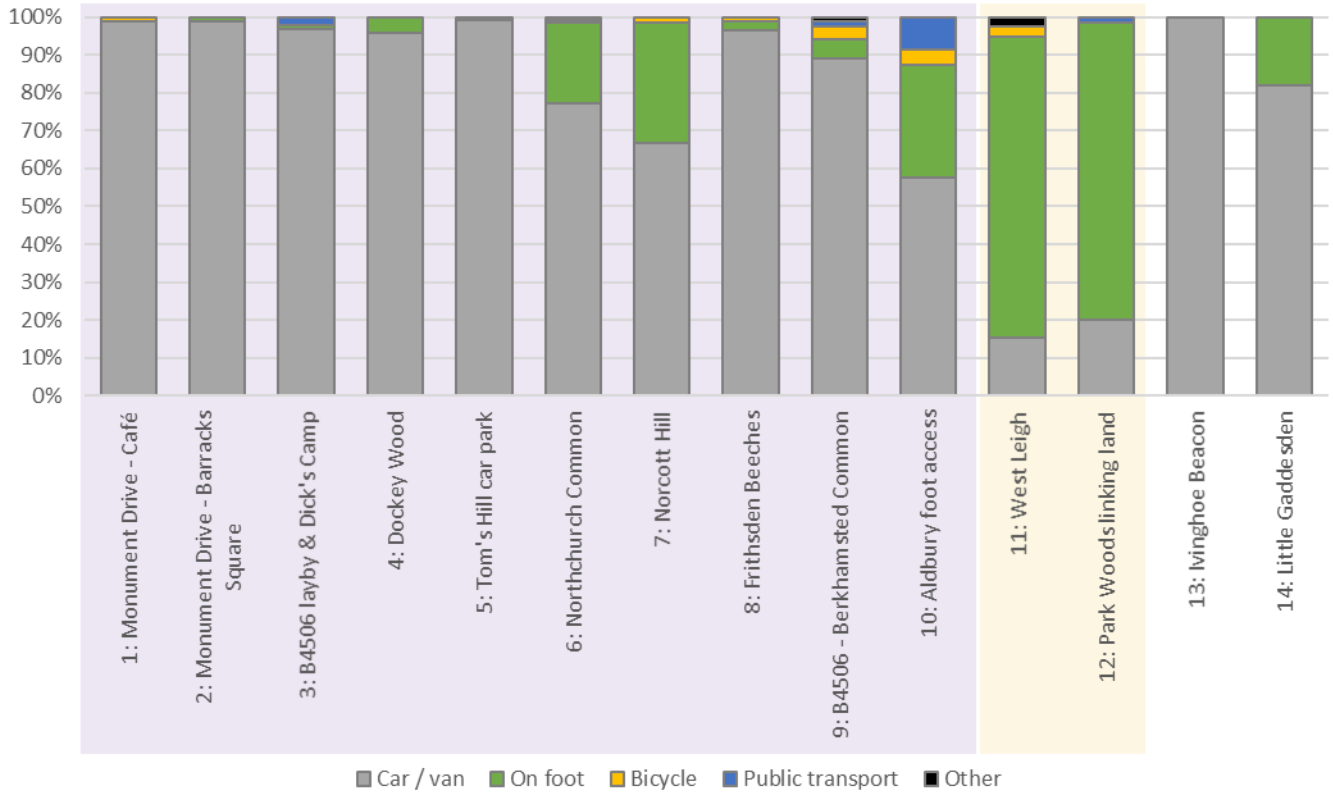


Figure 15: Percentage of interviewees by mode of transport and, by survey point (data from all interviews across all times of year). Background shading indicates survey points at the Ashridge Commons and Woods SAC (purple) and Tring Woodlands SAC (yellow).

Visit duration and frequency (Q5, 6, 7 & 8)

5.40 Overall, 602 interviewees (52%) currently visited the location were interviewed at the same frequency as before the pandemic, and had not changed how frequently they visited as a result of Covid. Of the remaining interviewees, 335 (29%) suggested they were visiting more, and 167 (14%) that they were visiting less.

5.41 The time interviewees spent on site (or were intending to spend) were categorised by the surveyor as part of the interview. Around 2 in 5 (40%, 464 interviewees) stated that they were on site for between 30 minutes to 1 hour. A further 427 interviewees (37%) were visiting for 1 to 2 hours. Just 210 interviewees (9%) reported they were on site for more than 2 hours.

5.42 Across all interviews, the typical visit duration[20] was around 1.5 hrs (87 minutes). Visit duration showed some variation between survey locations (Figure 16) with estimates for individual sites ranging from 56 minutes at 8: Frithsden Beeches (where 79% were visiting for no more than 1 hour), to 146 minutes (almost 2.5 hrs) at 10: Aldbury foot access, where 50% were visiting for more than 2 hours.

5.43 There were differences between times of year with the averaged visit duration being shorter at Easter, averaged at 77 minutes compared to 87 minutes in the Summer Term Time and 90 minutes in the Summer Holidays. However, these were relatively slight differences, perhaps mostly driven by weather.

[20] We converted the categories as single numbers as follows: Less than 30 minutes = 20 minutes; Between 30 minutes and 1 hour = 45 minutes; 1 to 2 hours = 90 minutes, 2 to 3 hours = 150 minutes.

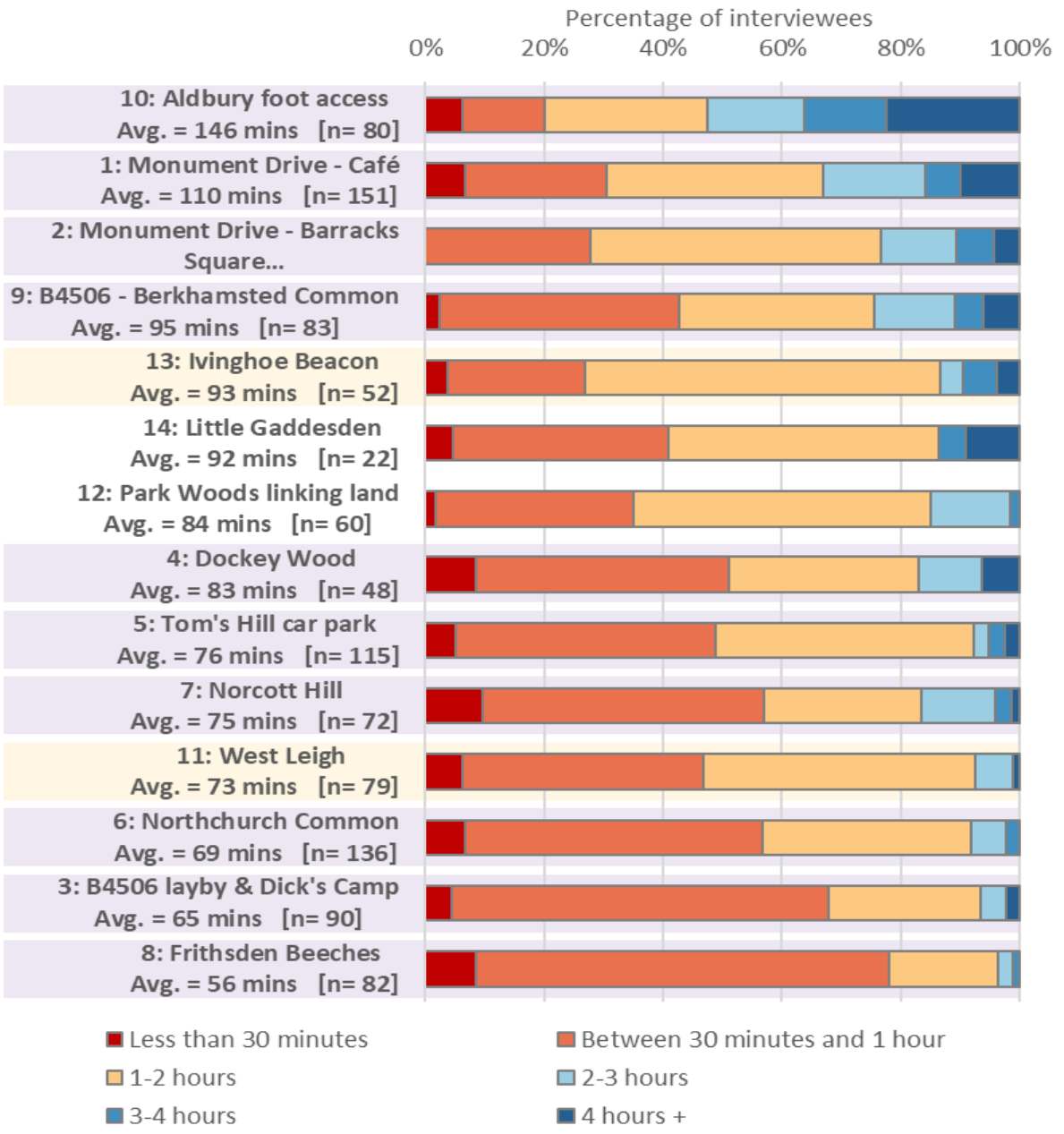


Figure 16: % of interviewees and visit duration by survey point. Number of interviewees is given in brackets and survey points are sorted by the average visit duration. Background shading indicates survey points at the Ashridge Commons and Woods SAC (purple) and Tring Woodlands SAC (yellow).

5.44 Across all interviewees, we estimated a typical visit frequency[21] of around 114 visits per year to the site – equivalent to just over 2 visits per week or 10 visits a month. This varied by survey period, with interviewees reporting they visited

[21] We scaled up the categories as follows: "More than once a day" visits per year = 700 "Daily" = 350 visits, "Most days (180+ visits)" =200 visits, "1 to 3 times a week (40-180 visits)" = 110 visits, "2 to 3 times per month (15-40 visits)" =27.5 visits, "Once a month (6-15 visits)" =10.5 visits, "Less than once a month (2-5 visits)" = 3 visits and "First visit" =1.

more frequently at Easter – averaging 130 visits per year – compared to the Summer holidays when interviewees averaged 100 visits per year.

5.45 Overall, a third of interviewees (370 interviewees, 33%) said they visited 1 to 3 times a week (40-180 visits per year). The second most commonly frequency was less than once a month (2-5 visits per year), reported by 144 interviewees (13%). Also noteworthy is that a combined 13% of interviewees (144 interviewees) stated they visiting daily or more than once a day (i.e. 300+ visits a year). In addition, approximately 1 in 10 were on a first visit to the site (95 interviewees, 9%).

5.46 Data on visit frequencies are summarised by survey point in Figure 17 and Map 13. The ranking in Figure 17 highlights the survey points with the most infrequent visitors, notably Ivinghoe Beacon and Monument Drive (survey points 1, 2 & 13) where typically a visitor makes between 30 to 60 visits per year (i.e. 2 to 5 visits per month). At these locations between 10% to 18% of interviewees were on a first visit and between 20% to 30% of interviewees reported visiting less than once a month. At the opposite scale, with typical averages of 150-170 visits per year (or around 3 visits per week), were survey points; 7: Norcott Hill, 8: Frithsden Beeches, 3: B4506 layby & Dick's Camp and 11: West Leigh. At these locations between 18% to 26% were visiting daily or more than once a day.

5.47 The interviewees were asked to consider if they visited more at a particular time of year, with just under three-quarters suggesting they visited equally all year round (832 interviewees, 71%). Of those who did select a season, the most common was summer, recorded by 190 interviewees (47% of the interviewees who selected a season and 16% of all interviewees overall). This was followed by spring (116 interviewees, 29% of those who selected a season), autumn (78 interviewees, 19%) and winter (21 interviewees, 2%).

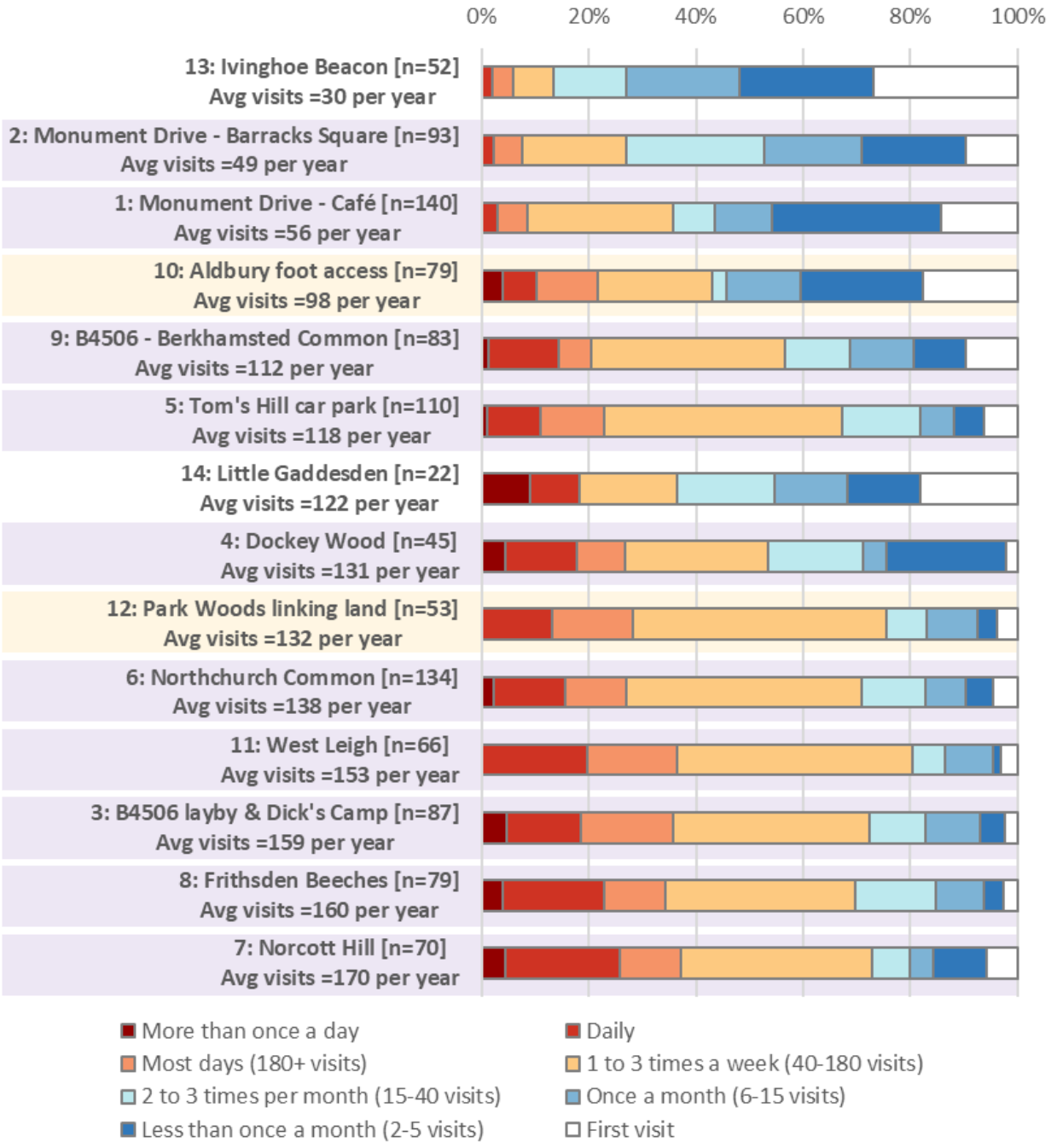
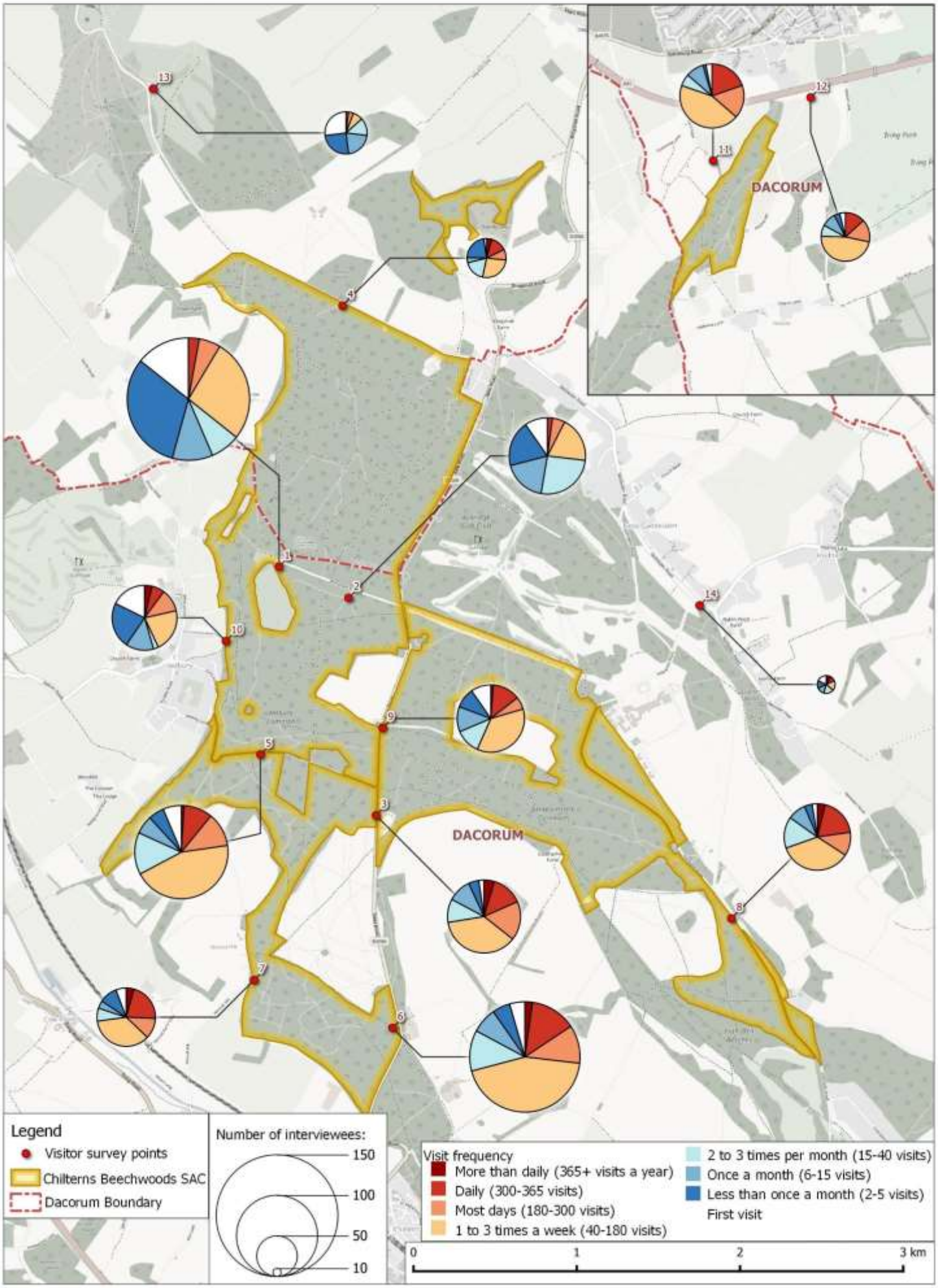


Figure 17: % of interviewees and visit frequency, by survey point. Number of interviewees is given in brackets and survey points are sorted by the average number of visits. Background shading indicates survey points at the Ashridge Commons and Woods SAC (purple) and Tring Woodlands SAC (yellow).

Map 13: The visit frequencies recorded from interviews at each survey point.



Reasons for visiting (Q9)

5.48 The most frequently cited reasons for visiting the location where the interview took place (as opposed to another local site) are summarised in Figure 18. Responses were categorised by the surveyor during the interview using pre-determined categories. The figure highlights the overwhelming importance of proximity to home, particularly at the Tring survey locations (where it is was the reason for site choice for 59 interviewees, 42%) but also at Ashridge (where given by 201 interviewees, 22%). Other common factors at both sites were visiting for scenery / variety of views (98 interviewees, 10% at Ashridge; 12 interviewees, 9% at Tring) and for a change / variety (102 interviewees, 11% at Ashridge and 17 interviewees, 12%) at Tring.

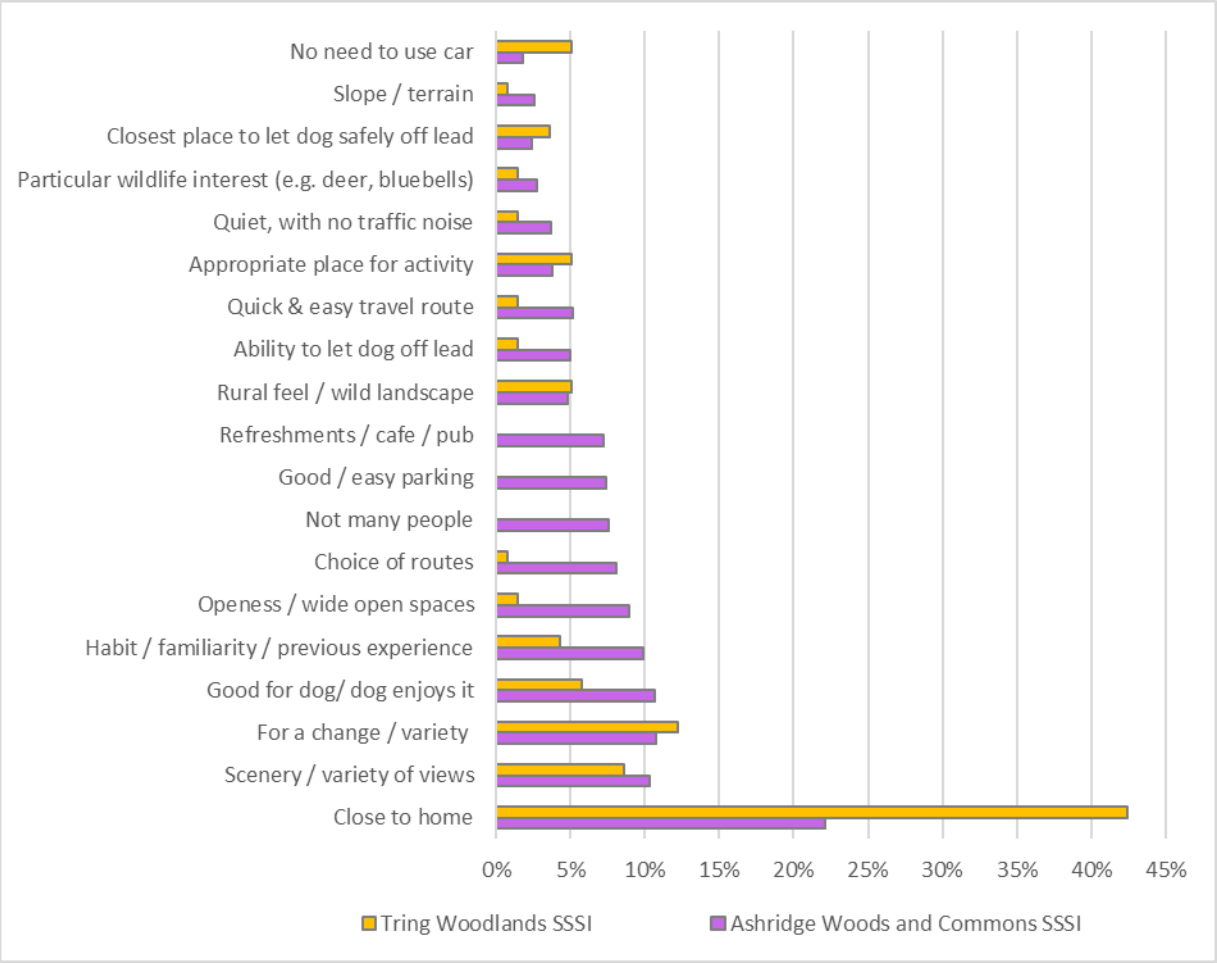


Figure 18: Reasons for visiting the interview location rather than another site. Percentage of interviewees shown separately for the Tring Woodlands SSSI survey points (11 & 12) and Ashridge Commons and Woods SSSI (1 – 10).

5.49 At individual survey points, close to home was ranked in the top three reasons for site choice at all locations (Table 15) except for 3: B4506 layby & Dick's Camp and 13: Ivinghoe Beacon. At Ashridge close to home was the top factor at all locations except survey points; 1: Monument Drive – Café (where refreshments/café/pub was the most common reason, cited by 16%), 3: B4506 layby & Dick's Camp (where not many people was the most common reason, 23%), 4: Dockey Wood (not many people was the most common reason, 19%), 5: Tom's Hill car park (for a change / variety, 22%) and 8: Frithsden Beeches (Good for dog/ dog enjoys it, 24%).

Table 15: Top three ranked reasons for site choice, by survey point. Background shading indicates survey points at the Ashridge Commons and Woods SAC (purple) and Tring Woodlands SAC (yellow).

Survey point	n	1st	2nd	3rd
1: Monument Drive - Café	151	Refreshment/cafe / pub (16%)	Close to home (14%)	Good for dog/ dog enjoys it (11%)
2: Monument Drive - Barracks Square	94	Close to home (17%)	Choice of routes (16%)	For a change / variety (14%)
3: B4506 layby & Dick's Camp	90	Not many people (23%)	Openness / wide open spaces (17%)	For a change / variety (14%)
4: Dockey Wood	48	Not many people (19%)	Close to home (15%)	Quick & easy travel route Particular wildlife interest (e.g. deer, bluebells Scenery / variety of views (10%)
5: Tom's Hill car park	115	For a change / variety (22%)	Habit / familiarity / previous experience (21%)	Close to home (18%)
6: Northchurch Common	136	Close to home (33%)	Openness / wide open spaces (22%)	Refreshments / cafe / pub Habit / familiarity / previous experience (11%)
7: Norcott Hill	72	Close to home (50%)	No need to use car (11%)	Good for dog/ dog enjoys it Choice of routes (8%)
8: Frithsden Beeches	82	Good for dog/ dog enjoys it (24%)	Close to home (21%)	Not many people (15%)
9: B4506 - Berkhamsted Common	83	Close to home (16%)	Scenery / variety of views (12%)	Refreshments / cafe / pub For a change / variety (8%)
10: Aldbury foot access	80	Close to home (35%)	Scenery / variety of views (18%)	Choice of routes (14%)
11: West Leigh	79	Close to home (48%)	For a change / variety (10%)	Quiet, with no traffic noise (9%)
12: Park Woods linking land	60	Close to home (35%)	For a change / variety (15%)	Scenery / variety of views (10%)
13: Ivinghoe Beacon	52	Scenery / variety of views (38%)	Openness / wide open spaces (19%)	Not many people Habit / familiarity / previous experience Rural feel / wild landscape (8%)
14: Little Gaddesden	22	Choice of routes (27%)	Rural feel / wild landscape Good for dog/ dog enjoys it (23%)	Not many people Close to home (18%)

Routes (Q10, 11, 12 & 13)

5.50 Interviewees were shown a map and asked to indicate to route they had taken or were planning to take. Some interviewees were unable to provide an exact route and overall, a route was mapped for 1,150 interviews.

5.51 Map 14 shows the route data as collected, with darker lines indicating more overlapping routes. Route densities are also shown based on a grid where the shading represents the number of routes intersecting each cell as a percentage of the number of interviewees at each SSSI. These density maps are shown for Ashridge Commons and Woods SSSI (excluding survey points 13 and 14) in Map 15 and Tring Woodlands SSSI in Map 16.

5.52 Across all mapped routes, the average route length was 3.9km (mean) and 3.0 (median). Values ranged from 0.08 km to 27km and three quarters of interviewees were conducting routes of 4.8km or less (i.e the 75th percentile). At Ashridge Commons and Woods SSSI (survey points 1 – 10) and Tring Woodlands, the median value (3.0km) was the same.

5.53 The route lengths are shown by survey point in Table 16. The highest median values (over 4 km) were recorded at survey points 9: B4506 - Berkhamsted Common and 10: Aldbury foot access. The locations with the smallest median values were at 1: Monument Drive – Café, 8: Frithsden Beeches and 11: West Leigh (all less than 2.5 km).

Table 16: Route length by survey point. SAC only reflects routes clipped within the SAC boundary. The top three and bottom three values are highlighted in red and blue respectively. Background shading indicates survey points at the Ashridge Commons and Woods SAC (purple) and Tring Woodlands SAC (yellow).

	Whole route			SAC only			% whole route mean in SAC
	n	Mean route length (km)	Median route length (km)	n	Mean route length (km)	Median route length (km)	
1: Monument Drive - Café	152	**3.22**	**2.03**	152	2.37	1.87	74
2: Monument Drive - Barracks Square	95	**4.27**	3.15	95	**3.31**	**3.00**	**77**
3: B4506 layby & Dick's Camp	90	3.26	2.77	90	1.90	1.58	58
4: Dockey Wood	45	3.36	2.75	45	2.58	**2.73**	**77**
5: Tom's Hill car park	111	3.49	2.86	111	2.33	2.02	67
6: Northchurch Common	133	4.07	3.34	133	2.00	1.59	49
7: Norcott Hill	72	4.00	**3.64**	72	1.97	1.42	49
8: Frithsden Beeches	82	**2.92**	**2.40**	82	**0.76**	**0.50**	**26**
9: B4506 - Berkhamsted Common	80	**5.38**	**4.56**	80	**4.30**	**4.16**	**80**
10: Aldbury foot access	80	**5.94**	**5.13**	80	2.59	2.63	44
11: West Leigh	78	**3.13**	2.92	78	**0.96**	**0.71**	**31**
12: Park Woods linking land	61	3.69	3.50	60	**0.85**	**0.72**	**23**
13: Ivinghoe Beacon	49	4.23	3.37	8	2.51	2.26	59
14: Little Gaddesden	22	4.09	**2.16**	7	**2.65**	2.51	65

5.54 The length of route, clipped to the SAC boundary, reflects the routes that were undertaken solely within the SAC. The lowest percentages of the overall route that were in the SAC were recorded at the Tring survey points (11 and 12) and 8: Frithsden Beeches – where typically a quarter of route was in the SAC. For the survey points which were located outside the SAC boundary - 13: Ivinghoe Beacon 14: Little Gaddesden, 17% and 32% of interviewees respectively, entered the SAC.

5.55 Route lengths differed by activity. The median route length for those whose main activity was dog walking was 2.8km and for those walking it was 3.5km. Cycling routes were typically 6.0km (median) and those meeting socially typically 2.0km (but note smaller sample sizes for these activities). The typical percentage of the route which was on the SAC was lowest for commercial dog walkers (25%) as these were mostly interviewed at survey points with open, undesignated habitats (i.e. 6: Northchurch Common, 8: Frithsden Beeches and 14: Little Gaddesden – see Map 12).

5.56 As a check, interviewees were asked if their route length as mapped on the day of the interview was typical of their normal route at the site. Overall, 68% of interviewees (786) said it was typical of their visit. The remaining interviewees reported they were on a first visit and couldn't comment (69 interviewees, 6%), were not sure (170 interviewees, 11%), were undertaking a longer route (28 interviewees, 3%) or a shorter route than normal (159 interviewees, 14%).

5.57 Interviewees were asked if they were following any named walks or long-distance paths. Overall, 234 interviewees (20%) gave a named route, the most common routes followed were the Foresters Walk (36 interviewees) and the Ashridge Boundary trail (41 interviewees). The percentage following a marked route was highest at 1: Monument Drive – Café, where 77 interviewees (51%) named a route, but across all others it averaged just 17% of interviewees (181).

5.58 A wide range of factors influenced the choice of route and included factors such as health, National Trust material, avoiding livestock/deer, seeing wildlife, quiet areas and circular walks. Some of the most common responses are given in Figure 19 which highlights the importance of previous knowledge, time available, group members and weather in influencing route choice.

5.59 As part of recording the interviewee's route, the surveyors asked where they had parked. Overall, 37 interviewees stated they had parked on a verge (4% of interviewees who had arrived by car). Across all interviewees, 695 (60%) had parked at the survey point where the interview was conducted.

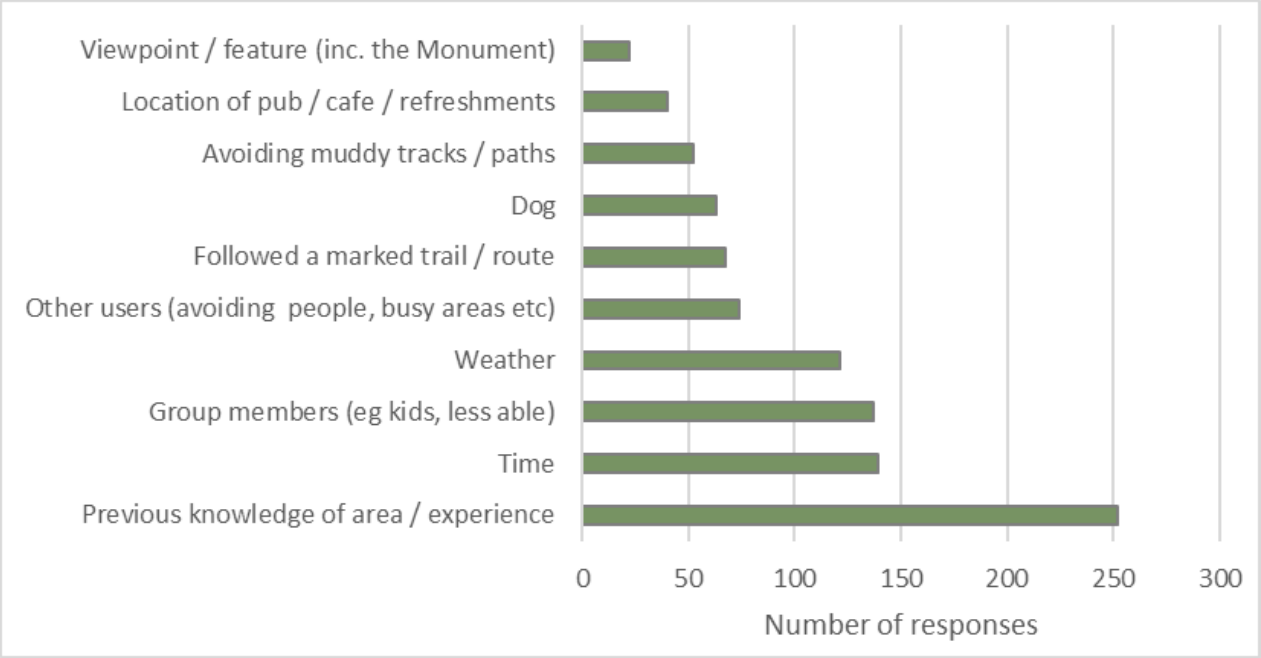
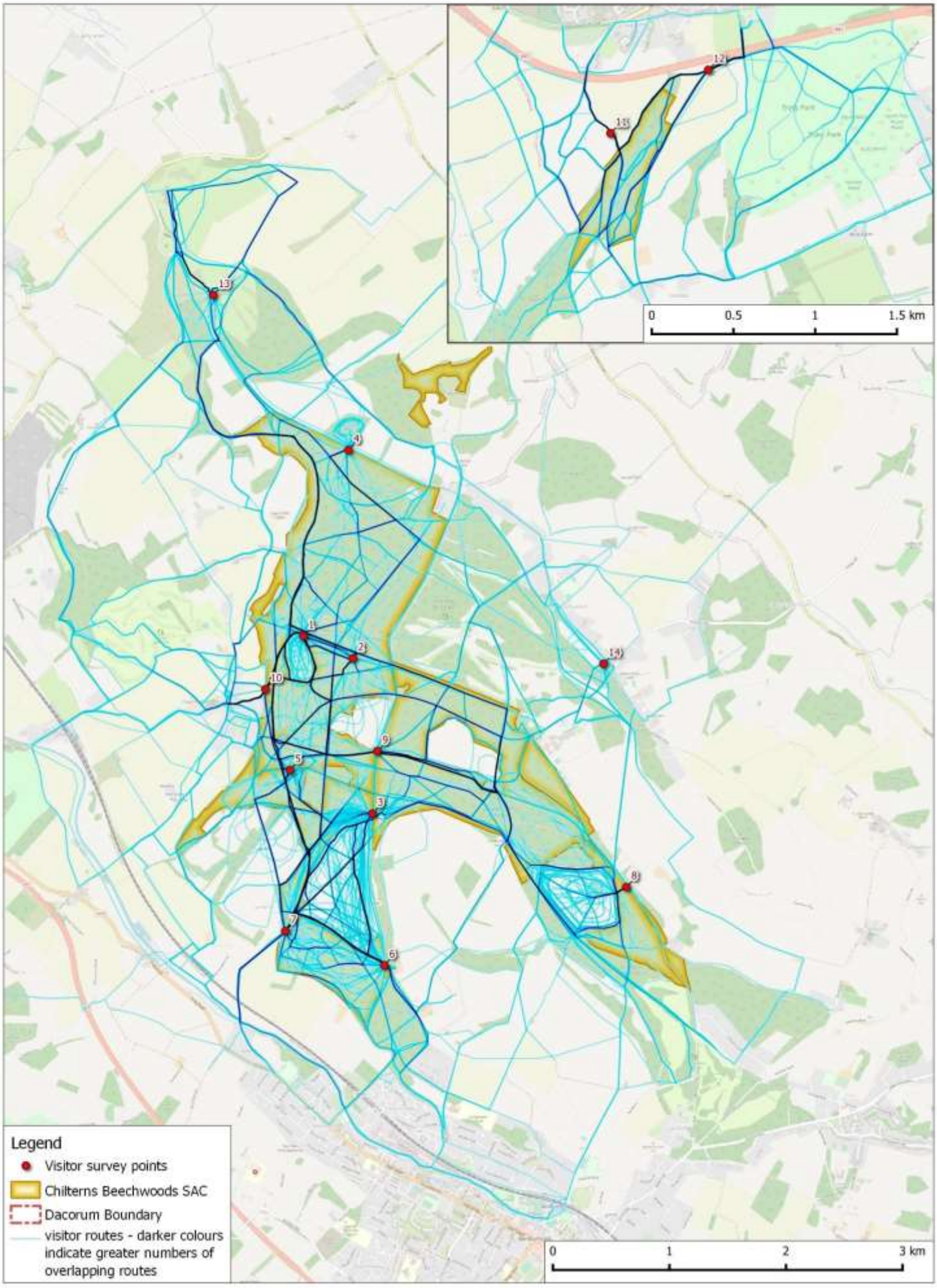
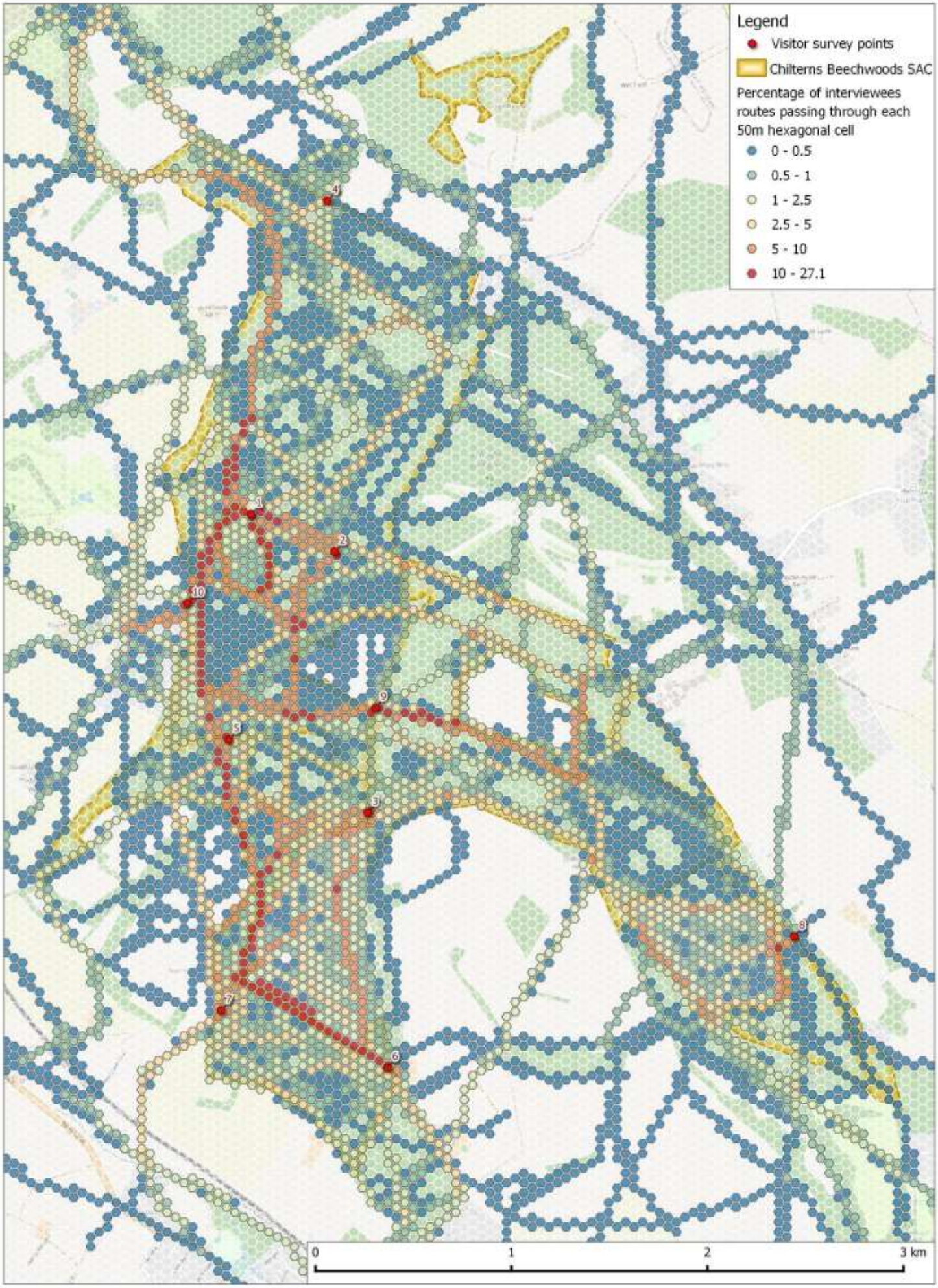


Figure 19: Number of interviewees and broad reasons as to what influenced their choice of route. Factors categorised as part of interview and those given by more than 20 interviewees are shown. Note, interviewees could give multiple factors as part of their response.

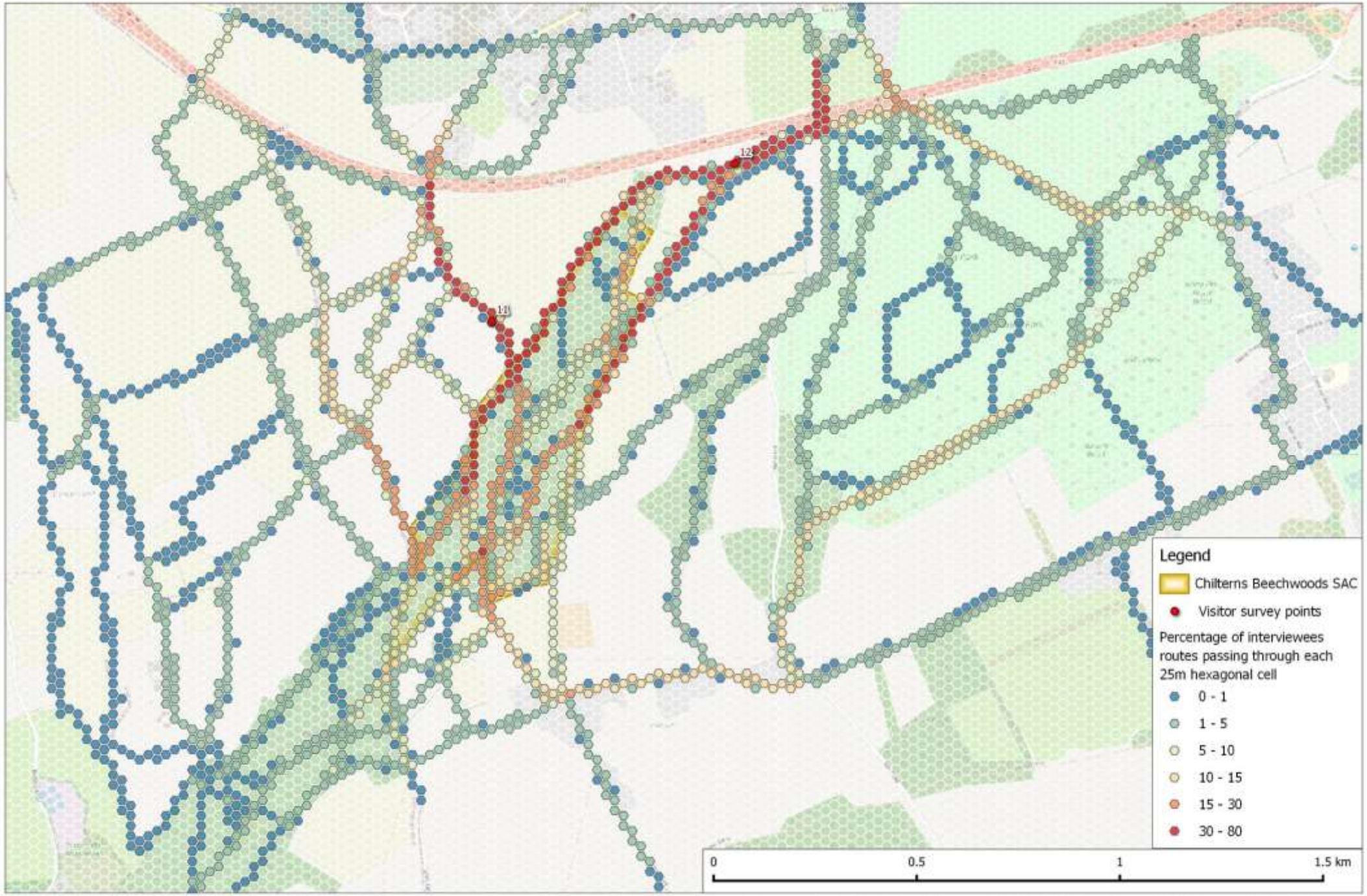
Map 14: All interviewee routes with overlapping darker routes to indicate higher footfall.



Map 15: The Ashridge SAC density of routes per 50m hexgonal cell (considering only survey points 1-10).



Map 16: The Tring Woods SAC density of routes per 50m hexgonal cell.



Information used (Q14, 15, 16, 17)

5.61 Surveyors asked interviewees to state what information they used to plan their visit, specifically asking about websites, social media, smartphone apps, maps (online or paper), leaflets and recommendations from friends or family (the order randomised in the interview).

5.62 Overall, 933 interviewees (80%) reported they used none of these sources of information before visiting that day. The remaining 231 interviewees (20%) used one or more of the 6 information sources suggested. Dog walkers were least likely to use any information before visiting (516 interviewees, 92%), while for those visiting for photography, cycling / mountain biking, picnicking or "other" activities, between 40% and 50% had used at least one of these information sources. For those visiting daily or more than once a day, only 2 interviewees (1%) had used any information sources, compared to three quarters of those interviewees on a first visit (63 interviewees, 74% of those on a first visit).

5.63 The most common information source was maps (online or paper), given by 126 interviewees (11% of all interviewees and 55% of all the interviewees who used one or more information source). This was followed websites (used by 82 interviewees, 7% of all the interviewees and 35% of those who used an information source). Most of these responses related to the National Trust website (45 interviewees), with smaller numbers referring to the Chilterns AONB, Ordnance Survey or Google. Use of websites was highest at survey point 10: Aldbury foot access (20%) and Monument Drive (1 & 2, 19% and 13%), but no higher than 5% at all other locations. The next most frequently cited information source was smart phone apps (78, 7% overall), with the top 4 apps recorded as Ordnance Survey (20 interviewees), Google (19), National Trust (9) and Strava (6). Other information sources were recommendations from friends and family (62 interviewees, 5%), leaflets (16 interviewees, 1%) and social media (11 interviewees,1%).

Alternative sites (Q18, 20, 21)

5.64 Interviewees were asked to name up to three other sites they also visited for the activity they were conducting on the day of the interview. First, second and third choices alternative sites were recorded. Site names were logged as given and then checked and tidied using standard names where possible, keeping as much detail as possible. As such some names reflect specific parts of sites (e.g. 'Ashridge Monument') while others reflect large areas.

5.65 Named alternatives included a number of other parts of the SAC and also high-profile sites such as Ivinghoe Beacon, Tring Park, Dunstable Downs, Wendover Woods and the Grand Union Canal. However, a wide range of sites were given, up to 483 individual sites, and as such, relatively few single locations stood out in the list. These data indicate that interviewees clearly visit a wide range of alternatives and these are given in a word cloud in Figure 20.

5.66 At Tring Woodlands SSSI the most common alternative was Tring Park the with 23% of all alternatives referring to this location. At Ashridge, answers were more diverse and Ivinghoe Beacon accounted for 7% of all named sites, followed by Tring Park (8%).

Table 17: Top 11 alternative sites as named by interviewees for survey points at Ashridge Commons and Woods SSSI I (1-10) and Tring Woodlands SSSI (11 &12)., considering all named (1st, 2nd and 3rd).

Ashridge Commons and Woods SSSI survey points	Number (%) of all named sites
Ivinghoe Beacon	123 (7)
Tring Park	93 (5)
Dunstable Downs	82 (5)
Wendover Woods	78 (5)
Canal	61 (4)
Northchurch Common	46 (3)
Ashridge Monument	42 (2)
Pitstone Hill	38 (2)
Pancake Woods	33 (2)
Ashridge	32 (2)
Tring reservoirs	30 (2)

TringWoodlands SSSI survey points	Number (%) of all named sites
Tring Park	82 (23)
Ashridge	38 (11)
Wendover Woods	29 (8)
Reservoir	22 (6)
Canal	19 (5)
Ivinghoe Beacon	13 (4)
Dancers End	10 (3)
Tring reservoirs	9 (3)
Wilstone reservoir	7 (2)
Ridgeway	6 (2)
Aldbury	6 (2)

Figure 20: Word cloud of all recorded site names from interviewees.

5.67 The alternative site choices are shown by survey point in Table 18. The survey points with large draws include high profile alternative sites (e.g. Ivinghoe Beacon, Dunstable Downs, Wendover Woods). At the more local survey points, alternative sites often included less well-known sites, such as Pancake Woods, Pitstone Hill and the various sites along the Canal. Overall, 51 of the first named alternatives related to any part of the Canal and 34 named Pancake Woods or the adjacent Hockeridge Woods.

Table 18: The top three most commonly given first named sites by survey point. Data from all interviewees but any SAC sites or references to other parts of the Chilterns Beechwoods SAC have been excluded. The percentages are still based on all interviewees. Background shading indicates survey points at the Ashridge Commons and Woods SAC (purple) and Tring Woodlands SAC (yellow).

	Rank 1	Rank 2	Rank3
1: Monument Drive - Café	Ivinghoe Beacon 15 (11%)	Wendover Woods 14 (10%) / Dunstable Downs 14 (10%)	Canal 6 (4%)
2: Monument Drive - Barracks Square	Dunstable Downs 12 (15%)	Wendover Woods 5 (6%) / Ivinghoe Beacon 5 (6%)	Canal 4 (5%) / Rushmere Country Park 4 (5%) / Tring Park 4 (5%)
3: B4506 layby & Dick's Camp	Tring Park 8 (10%)	Ivinghoe Beacon 6 (8%)	Dunstable Downs 4 (5%)
4: Dockey Wood	Ivinghoe Beacon 5 (11%)	Tring Park 4 (9%)	Pitstone Hill 3 (7%)
5: Tom's Hill car park	Tring Park 12 (11%)	Ivinghoe Beacon 11 (10%)	Wendover Woods 7 (7%)
6: Northchurch Common	Ashridge 7 (6%) / Pancake Woods 7 (6%)	Ashridge Monument 6 (6%)	Ivinghoe Beacon 5 (5%) / Bridgewater School Fields 5 (5%) / Canal 5 (5%)
7: Norcott Hill	Tring Park 9 (15%)	Canal 6 (10%)	Ashridge 5 (8%)
8: Frithsden Beeches	Northchurch Common 11 (15%)	Ashridge Monument 7 (9%)	Ashridge 4 (5%) / Ashridge Estate 4 (5%) / Pancake Woods 4 (5%)
9: B4506 - Berkhamsted Common	Ivinghoe Beacon 6 (8%)	Pitstone Hill 5 (7%) / Ashridge Estate 5 (7%)	Wendover Woods 4 (5%) / Dunstable Downs 4 (5%)
10: Aldbury foot access	Wendover Woods 5 (8%) / Ivinghoe Beacon 5 (8%)	Stocks Golf Club 3 (5%) / Ridgeway 3 (5%) / Dunstable Downs 3 (5%)	Pitstone Hill 2 (3%) / Tring reservoirs 2 (3%) / Boxmoor 2 (3%) / Canal 2 (3%)
11: West Leigh	Tring Park 29 (38%)	Ashridge 9 (12%)	Wendover Woods 6 (8%)
12: Park Woods linking land	Tring Park 28 (47%)	Wendover Woods 5 (8%) / Ashridge 5 (8%) / Canal 5 (8%)	Berkhamsted Common 2 (3%) / Reservoir 2 (3%) / Tring reservoirs 2 (3%)

5.68 Interviewees were asked (Q18) what proportion of their visits (for their given main activity) took place at the location where interviewed and these proportions were categorised by the surveyor into broad percentage bands. A breakdown by the component part of the SAC is shown in Figure 21 and suggests relatively little difference, however at Ashridge the percentage of interviewees who only visit the location where interviewed was slightly higher - perhaps related to the greater proportion who said they visit more than once a day compared to Tring.

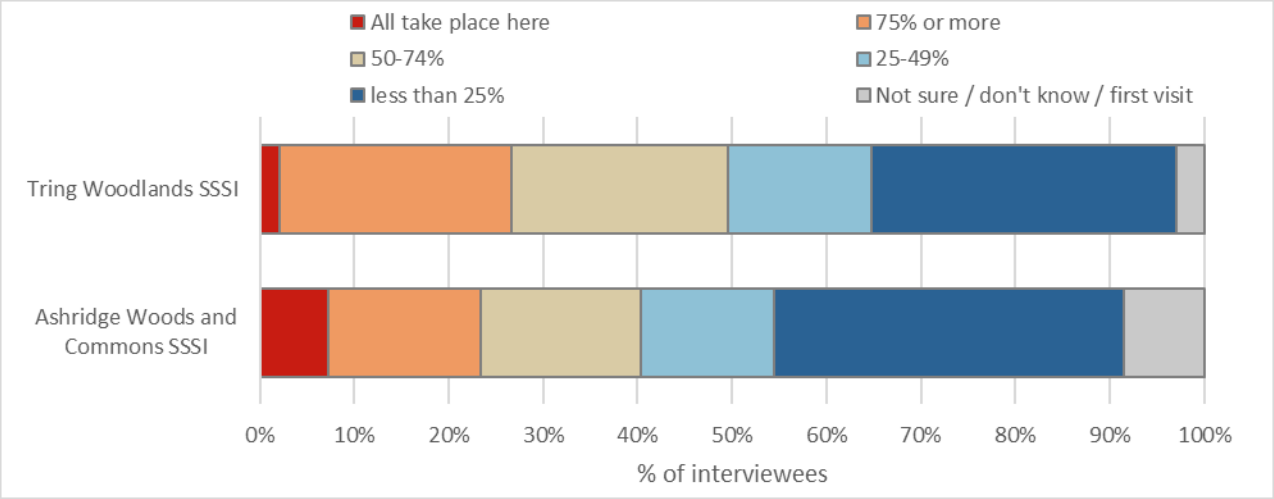


Figure 21: % of visits undertaken at location where interviewed, by the two SSSI components of the SAC.

Improvements to existing or new greenspaces (Q22, 23, 24)

5.69 Interviewees were asked if they had any suggestions as to how any of the alternative sites mentioned could be improved to make them better for people to visit (Q22). Most interviewees suggested no improvements were needed and often expressed concerns that sites were already busy. Generally, people were happy with the greenspaces locally, and where improvements had been made these were sometime more contentious. For example, improvements at Wendover Woods were generally viewed positively, but some disliked the facilities and considered it was now overcrowded.

5.70 Overall, 395 interviewees (34%) identified a potential improvement for one of the greenspaces they had mentioned as an alternative. The suggestions were wide ranging and included accessibility, solving issues of littering and dog fouling, improvements to tracks, terrain and issues with livestock on other sites. Figure 22 summarises some of the suggestions given by at least 5 interviewees, expressed as a percentage of those had suggested an improvement. A quarter of all suggestions related to more or better parking. Given that some of the alternative sites named by interviewees included other parts of the SAC, which have known parking issues, this is hard to disentangle, but clearly highlights parking as a general issue locally and something which could be viewed positively at a new site. Other improvements related to general infrastructure and facilities (i.e. dog waste bins, litter bins, café, toilets), but also included more signage on sites, resolving issues with overgrown vegetation (particularly on footpaths and along the canal) and potential for solving issues with cyclists through dedicated cycle routes.

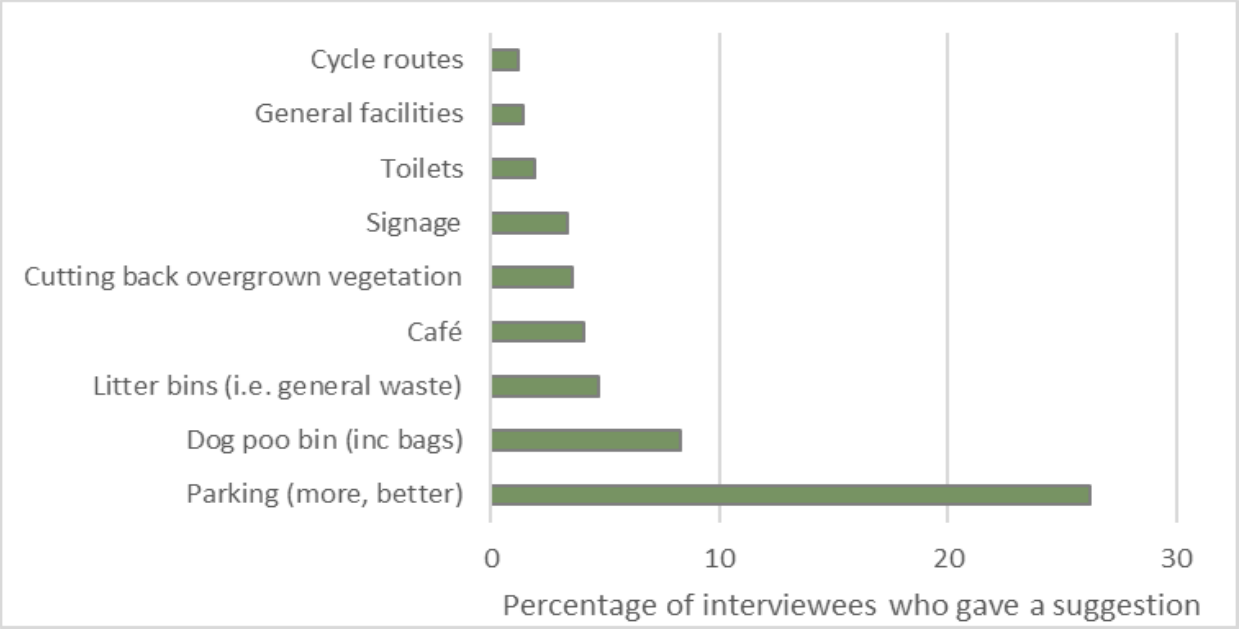


Figure 22: Responses to the request for any improvements to other alternative sites they visited. Figure is derived from the total of 395 interviewees who gave a suggested improvement.

5.71 Interviewees were asked if a new Country Park (or other area of greenspace) were to be created, would they be likely to use it? (Q23). Overall, responses were positive and 73% (850) suggested they would use a new site. The uptake was greater at the Tring Woodlands SSSI survey points (112 interviewees, 81% 112 interviewees), compared to Ashridge Commons and Woods SSSI survey points (694 interviewees, 73%).

5.72 Responses were consistent across activity groups, apart from those who were meeting socially or wildlife/bird watching, who were more likely to suggest they would not use a new site. At individual survey points the uptake was highest at 11: West Leigh (82%), and over 75% at survey points 4: Dockey Wood, 9: B4506 - Berkhamsted Common, and the Monument Drive survey points (1 and 2).

5.73 A follow up question asked interviewees "If a new site were created, such as a Country Park, or other area of greenspace, what features do you think it should include to make it work for [their given activity]?" (Q24). Across all the data for both sites, responses were varied, but popular answers overall included woodland, a café and extensive/ good walking routes (Figure 23). Note related topics of natural/wild spaces, toilets/ infrastructure and accessibility/good paths also featured in the responses. A break down by individual survey points is also given in Table 19. The presence of a café ranked high, especially with other visitor facilities, such as toilets, for those interviewed at Monument Drive and Ivinghoe Beacon. The factor "woodland", a desire for wooded sites, was also

ranked high, but this varied between interview locations. The third most common feature overall - of "extensive / good walking routes", was a more consistent, moderately high ranking feature, appearing in the top 3 suggested features for all survey points with the exception of 4: Dockey Wood and 13: Ivinghoe Beacon.

5.74 Figure 23 shows the differences between the two parts of the SAC and highlights the differences between Tring Woodlands and Ashridge Commons and Woods SSSI, with "woodland" high at both but "café" the highest at Ashridge Commons and Woods SSSI.

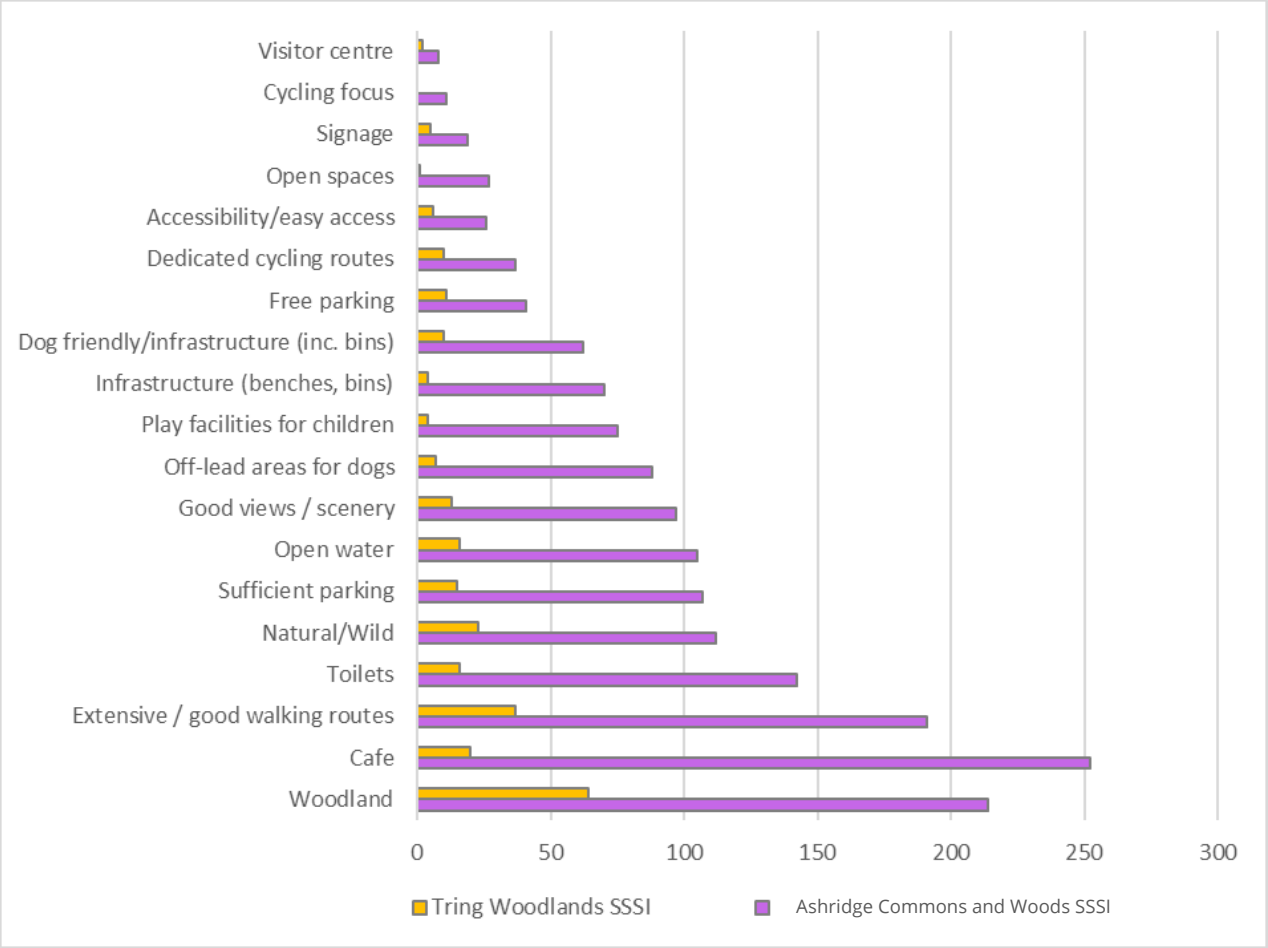


Figure 23: Number of interviewees and features they would like to see at a new country park or area of greenspace. Suggestions with less than 10 interviewees not shown.

Table 19: % of interviewees likely to use a new country park or other greenspace, followed by the top three ranked features interviewees would like to see at a new site. Note interviewees could give multiple features. Overall top three features; Café, Woodland and Extensive / good walking routes are colour coded. Background shading indicates survey points at the Ashridge Commons and Woods SAC (purple) and Tring Woodlands SAC (yellow).

	n	Likely to use a new greenspace		Features for a new greenspace		
		% yes	% no	Rank 1	Rank 2	Rank 3
1: Monument Drive - Café	151	77	8	**Cafe** (41%)	Toilets (30%)	**Extensive / good walking routes** (21%)
2: Monument Drive - Barracks Square	94	77	**4**	**Cafe** (32%)	**Extensive / good walking routes** (29%)	Toilets (27%)
3: B4506 layby & Dick's Camp	90	69	**14**	**Woodland** (21%)	**Extensive / good walking routes** (14%)	**Cafe** (13%)
4: Dockey Wood	48	**79**	**4**	**Cafe** (35%)	Open water (23%)	Sufficient parking (21%)
5: Tom's Hill car park	115	73	7	**Woodland** (28%)	Extensive / good walking routes (25%)	**Cafe** (22%)
6: Northchurch Common	136	69	10	**Woodland** (28%)	**Cafe** (23%)	**Extensive / good walking routes** (17%)
7: Norcott Hill	72	**65**	13	**Cafe** (24%)	**Extensive / good walking routes** (21%)	**Woodland**
8: Frithsden Beeches	82	70	9	Off-lead areas for dogs (17%)	**Woodland**	**Extensive / good walking routes** (15%)
9: B4506 - Berkhamsted Common	83	77	5	**Woodland** (22%)	**Cafe** (20%)	**Extensive / good walking routes** (18%)
10: Aldbury foot access	80	74	6	**Cafe** (38%)	**Woodland** (35%)	**Extensive / good walking routes** (25%)
11: West Leigh	79	**82**	**4**	**Woodland** (51%)	**Extensive / good walking routes** (32%)	Natural/Wild (18%)
12: Park Woods linking land	60	**78**	7	**Woodland** (40%)	**Extensive / good walking routes** (20%)	**Cafe** (17%)
13: Ivinghoe Beacon	52	**63**	**13**	**Cafe** (35%)	Toilets (25%)	Good views / scenery (15%)
14: Little Gaddesden	22	**50**	**27**	Natural/Wild (23%)	Good views / scenery (18%)	**Woodland**
Total	**1164**	**73**	**8**	**Cafe (25%)**	**Woodland (25%)**	**Extensive / good walking routes (20%)**

Postcodes (Q25)

5.75 Of the 1,164 visitors interviewed, a total of 1,075 interviewees gave a full valid home postcode (92% of interviewees). The mapped distribution of all these postcodes is shown in Map 17.

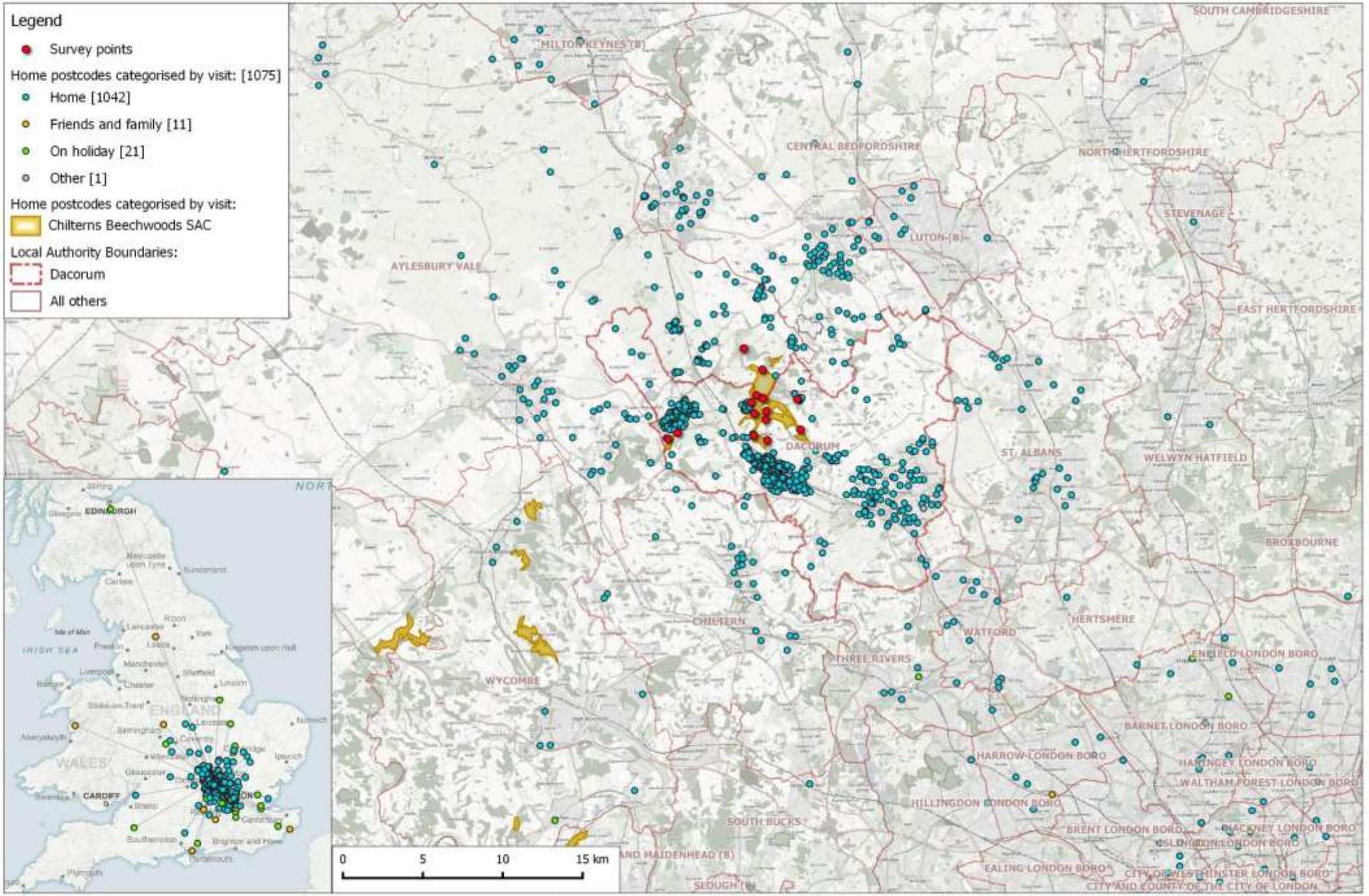
5.76 Across all the 1,075 postcodes, 622 (58%) were located in Dacorum. For those interviewees visiting directly from home, 620 interviewees (60%) were from Dacorum. In the Easter surveys there was more local use with 141 interviewees (65%) from Dacorum, compared to 272 interviewees (56%) of interviewees from Dacorum in the Summer holidays.

5.77 There was marked variation between the two parts of the SAC (Table 20). For the Tring Woodlands SSSI survey points, for those visiting directly from home, 112 interviewee home postcodes (85%) were located within Dacorum. This contrasts to the survey points at the Ashridge Commons and Woods SSSI where 487 interviewees (58%) visiting directly from home were residents of Dacorum.

Table 20: Number (%) of interviewee home postcodes from by local authority (visits from home only used, top 5 areas shown). Note that Aylsbury Vale and Chilterns are both part of Buckinghamshire Council.

	n	Dacorum District	Aylesbury Vale (Bucks Council)	Central Bedfordshire	St. Albans District	Chiltern District (Bucks Council)
Tring Woodlands SSSI (survey points 11 & 12)						
Easter	30	26 (87%)	3 (10%)	0 (0%)	0 (0%)	1 (3%)
Summer Holidays	50	43 (86%)	4 (8%)	0 (0%)	0 (0%)	2 (4%)
Summer Term Time	52	43 (83%)	8 (15%)	1 (2%)	0 (0%)	0 (0%)
Total	**132**	**112 (85%)**	**15 (11%)**	**1 (1%)**	**0 (0%)**	**3 (2%)**
Ashridge (survey points 1-10)						
Easter	187	115 (61%)	18 (10%)	19 (10%)	5 (3%)	5 (3%)
Summer Holidays	286	164 (57%)	34 (12%)	23 (8%)	11 (4%)	4 (1%)
Summer Term Time	373	208 (56%)	50 (13%)	46 (12%)	8 (2%)	9 (2%)
Total	**846**	**487 (58%)**	**102 (12%)**	**88 (10%)**	**24 (3%)**	**18 (2%)**
Survey points 1-12						
Easter	217	141 (65%)	21 (10%)	19 (9%)	5 (2%)	6 (3%)
Summer Holidays	336	207 (62%)	38 (11%)	23 (7%)	11 (3%)	6 (2%)
Summer Term Time	425	251 (59%)	58 (14%)	47 (11%)	8 (2%)	9 (2%)
Total	**978**	**599 (61%)**	**117 (12%)**	**89 (9%)**	**24 (2%)**	**21 (2%)**

Map 17:The distribution of all postcodes (inset map) and more locally in and around Dacorum.



Linear distances

5.79 We calculated the linear distance between the interviewee's home postcode and the interview location. This is a straight line (Euclidean) distance which does not account for the practicalities of access (i.e. road network, barriers to access). Across all interviewees (all survey points), the average distance was 12.8km (mean) or 5.5km (median), and three quarters of interviewees lived within a 12.6km radius of the survey point (75th percentile), see Table 21.

5.80 These distances varied markedly with visit type, with the 75th percentile for those visiting on holiday being over 100km. Statistical tests showed a highly significant difference between these groups (Kruskal Wallis, H = 76.36, df = 3, p < 0.001) and as such only data relating to interviewees visiting directly from home are considered beyond this point.

Table 21: Summary of linear distances (survey point to home postcode, km) by visit type.

Visit type	Interviewees providing postcodes	Mean ± SE	Median	Q3 (75th percentile)	Min – Max
Home	1042	10.2 +- 0.4	5.3	11.7	0.1 - 131.4
On holiday	21	91.9 +- 21.2	69.0	104.4	23.3 - 482.1
Friends and family	11	102.8 +- 26.1	59.9	146.0	1.4 - 259.6
Other	1	n/a	n/a	n/a	12.6 - 12.6
Total	**1075**	**12.8 +- 0.8**	**5.5**	**12.6**	**0.1 - 482.1**

5.81 The linear distances are shown by survey periods in Table 22. The distances were typically shorter at Easter compared to the other periods and this was marginally significant at the 0.05 level (although note the unbalanced survey design, with points 13 & 14 only included in the summer school holidays). If points 13 & 14 are dropped from the analysis to give a balanced design, some slight differences remain with shorter distances at Easter, but these differences were not statistically significant.

Table 22: Summary statistics for the linear distance between the interviewee home postcode and the survey point, for visitors from home only, by survey period and location..

Survey period	Interviewees from home providing postcodes	Mean ± SE	Median	Q3 (75th percentile)	Min – Max
All interviewees (H = 7.48 DF = 2 P = 0.024)					
1. Easter (weekday only)	217	9.1 +- 1.0	4.9	9.7	0.1 - 131.4
2. Summer term time	336	10.7 +- 0.8	5.2	11.8	0.1-99.7
3. Summer school holidays	489	10.4 +- 0.6	5.7	12.6	0.2 - 110.6
Total	**1042**	**10.2 ± 0.4**	**5.3**	**11.7**	**0.1 - 131.4**
Ashridge sites (H = 4.07 DF = 2 P = 0.131)					
1. Easter (weekday only)	187	10.3 +- 1.1	5.6	11.0	0.1-131.4
2. Summer term time	286	12.2 +- 0.9	6.1	13.3	0.2-99.7
3. Summer school holidays	373	10.9 +- 0.7	5.9	12.9	0.2 - 110.6
Total	**846**	**11.2 +- 0.5**	**5.7**	**12.6**	**0.1 - 131.4**
Tring sites (H = 2.45 DF = 2 P = 0.294)					
1. Easter (weekday only)	30	1.5 +- 0.3	1.1	1.6	0.1 - 8.5
2. Summer term time	50	2.6 +- 0.8	1.0	1.6	0.1 - 38.9
3. Summer school holidays	52	2.3 +- 0.4	1.2	2.0	0.4 - 15.5
Total	**132**	**2.2 +- 0.4**	**1.1**	**1.7**	**0.1 - 38.9**

5.82 98 interviewees (10%) arrived on foot or by bicycle at Ashridge Commons and Woods SSSI and 112 (81%) at Tring Woodlands SSSI. Considering only these interviewees, the median linear distance was 1.3 km at Ashridge and 1.0km for Tring. The 75th percentile was 2.7 km for Ashridge and 1.3 km for Tring. Postcodes of those who arrived on foot are shown in Map 18 which also includes local housing density to reflect the clear links between foot access and housing in close proximity. A 500m buffer around the SAC is shown for context.

5.83 Table 23 gives summary statistics for the linear distances between home postcodes and the interview location, broken down by survey point. The differences between survey points were statistically significant (H = 436.06, df = 13, $p < 0.001$). There were marked variations ranging from a 75th percentile value of 35.5km (10: Aldbury foot access) to 1.6km (12: Park Woods linking land). At the Ashridge Commons and Woods part of the SAC, there were 3 survey points with a 75th percentile between 5 and 10 km, 3 survey points with a distance between 10 and 15km, 1 between 15km and 20km and 2 more than 20km. The Aldbury foot access point seemed to have a particularly wide draw,

which may be in part attributable to good transport links and the nearby pub providing a slightly different visitor experience to other locations. It might also be assumed that those interviewed at survey point 10: Aldbury foot access were those from Monument Drive – however only 15 of the 46 interviewees (32%) here that arrived by car had parked on Monument Drive, most appeared to have parked at a range of other car parks, including Aldbury and Pitstone Hill

5.84 Differences between survey points are shown using convex hulls around the 75th percent nearest home postcodes in Map 19 and further maps are provided in Appendix 10.

Table 23: Summary statistics for linear distances between interviewee home postcodes and the survey point (km). Data for those on a short visit from home only. Note that there was reduced survey effort at points 13 and 14 and these data are therefore not directly comparable. Red and blue highlighted values indicated the top 3 and bottom 3 values respectively. Background shading indicates survey points at the Ashridge Commons and Woods SAC (purple) and Tring Woodlands SAC (yellow).

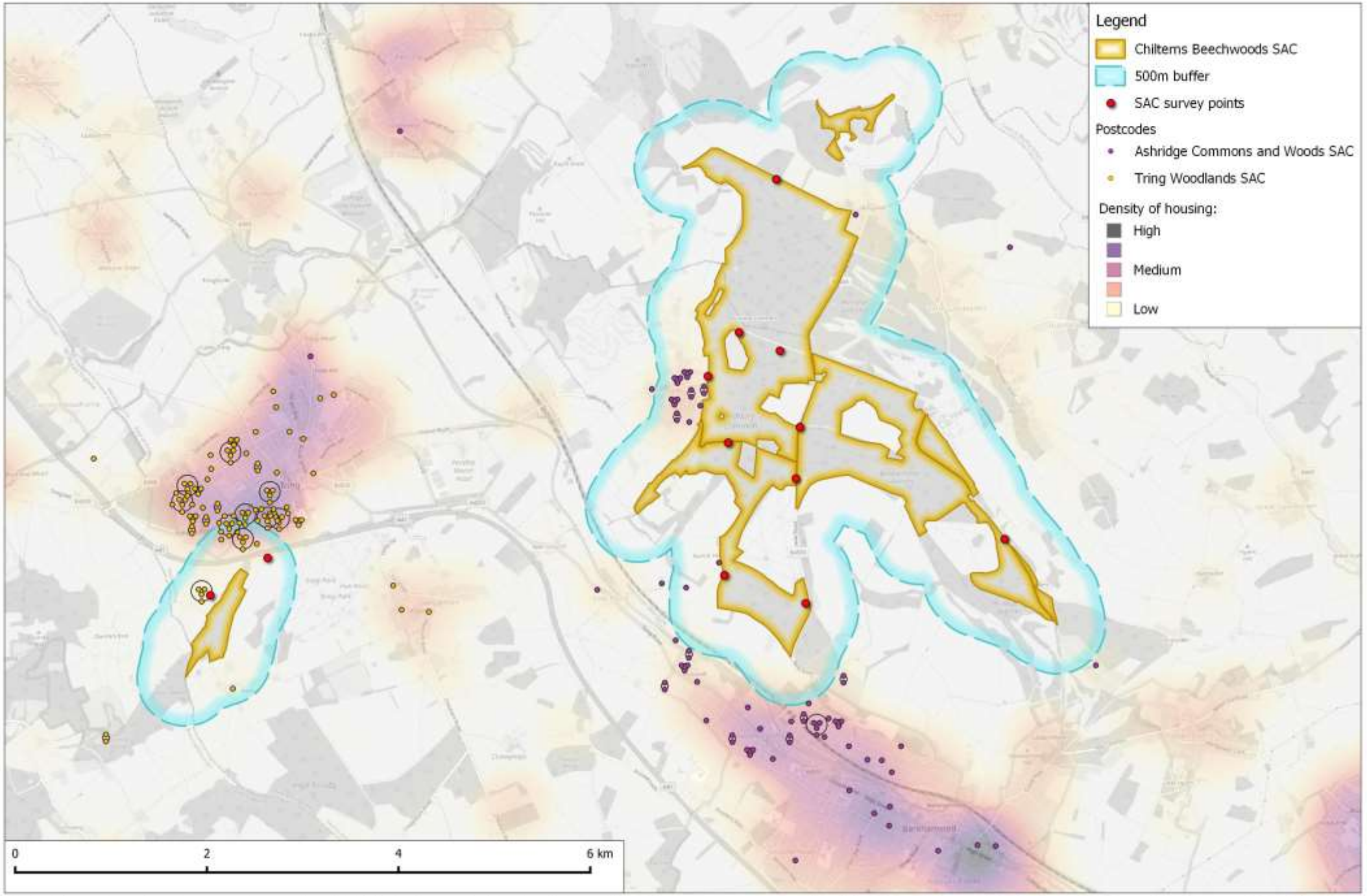
Survey point	n	Mean ± SE	Median	Q3 (75th percentile)	Range
1: Monument Drive - Café	127	**19.2** +- 1.8	**12.5**	**24.8**	1.2 - **131.4**
2: Monument Drive - Barracks Square	87	14.3 +- 1.2	10.2	15.6	1.0 - 62.1
3: B4506 layby & Dick's Camp	82	9.5 +- 0.9	6.0	11.0	1.4 - 42.4
4: Dockey Wood	45	13.4 +- 2.3	8.8	13.5	0.9 - **99.7**
5: Tom's Hill car park	106	8.2 +- 0.9	5.0	9.7	0.6 - 70.1
6: Northchurch Common	123	6.3 +- 1.2	**2.3**	5.9	0.9 - **110.6**
7: Norcott Hill	63	5.3 +- 1.6	2.4	**3.7**	**0.1** – 94.0
8: Frithsden Beeches	74	**5.0** +- 0.5	3.4	6.0	1.6 – 34.0
9: B4506 - Berkhamsted Common	70	11.1 +- 1.3	5.6	14.1	1.3 - 42.5
10: Aldbury foot access	69	**18.2** +- 2.2	**11.0**	**35.5**	**0.2** - 87
11: West Leigh	76	**2.6** +- 0.6	**1.1**	**2.0**	**0.1** - 38.9
12: Park Woods linking land	56	**1.8** +- 0.3	**1.1**	**1.6**	0.4 - 8.7
13: Ivinghoe Beacon	43	**16.7** +- 1.9	**13.3**	**20.7**	2.9 - 51.7
14: Little Gaddesden	21	8.8 +- 1.9	7.2	9.9	0.2 - 37.9

5.85 The smallest convex hulls were for the Tring Woodlands SSSI, which encompass half of Tring, Wigginton and Dancers End. At the Ashridge Commons and Woods SSSI the two smallest were survey point 7: Norcott Hill, which encompasses less than half of Berkhamsted and 8: Frithsden Beeches covering the other half of Berkhamsted, parts of Hemel (Gadebridge and Warners End), Potters End and Gaddesden.

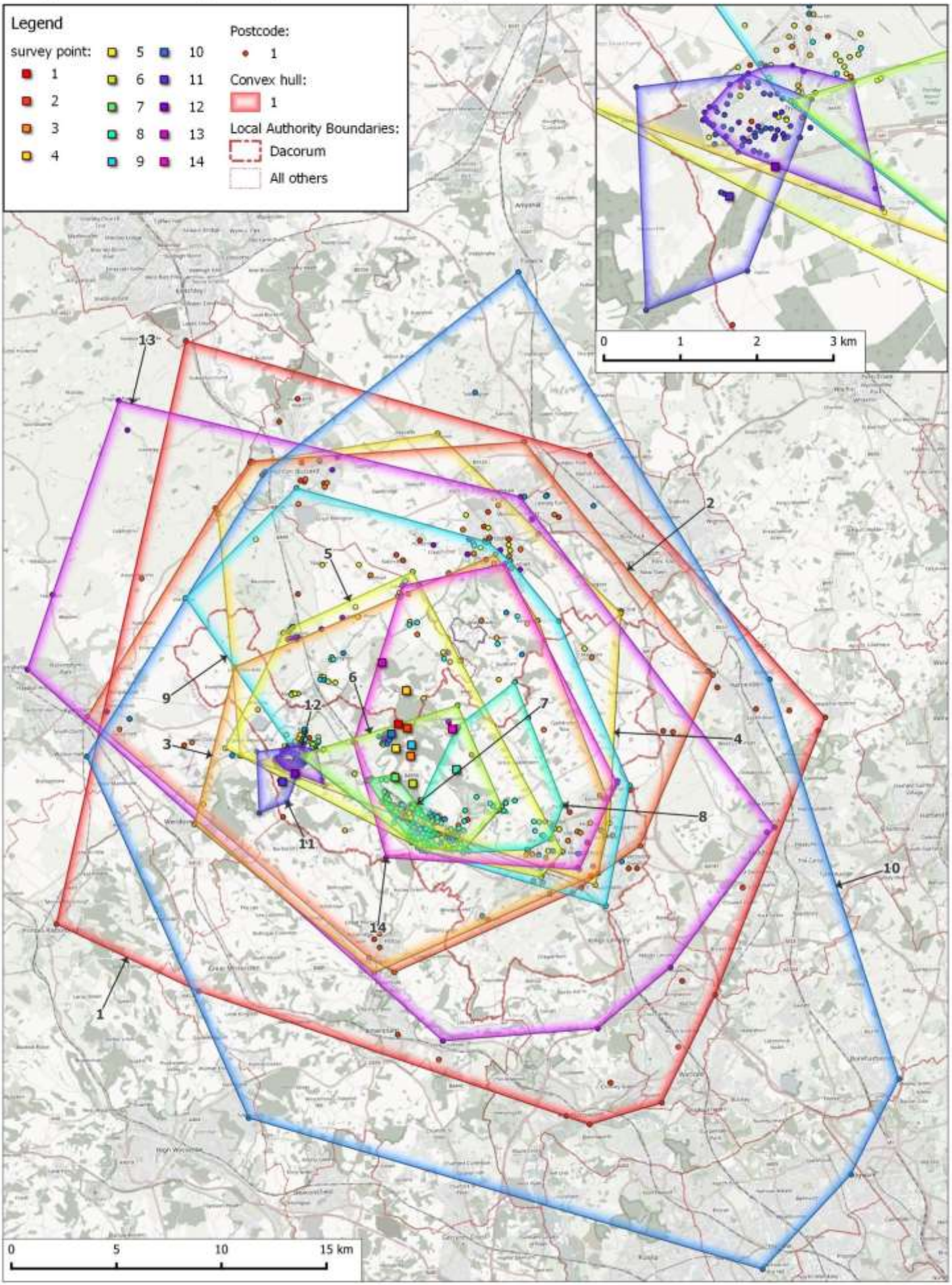
5.86 The 75th percentiles for dog walking (8.4 km), and jogging/running (7.4 km) were relatively small compared to larger distances for walkers (16.7km), and groups

on an outing with family (21.5km). There were differences between the two parts of the SAC, but at both, distances tended to increase with decreasing visit frequency. For example at the Ashridge Commons and Woods SSSI , the 75th percentile for the daily (or more than daily) visitors was 5.2km; for those visiting 1 to 3 times a week (40-180 visits), 75% lived within 7.9km; for those visiting less than once a month (2-5 visits) 75% lived within 29.0km and for those on a first visit this increased again to 45.1km. Differences between activities and by visit frequency are provided in Appendix 10.

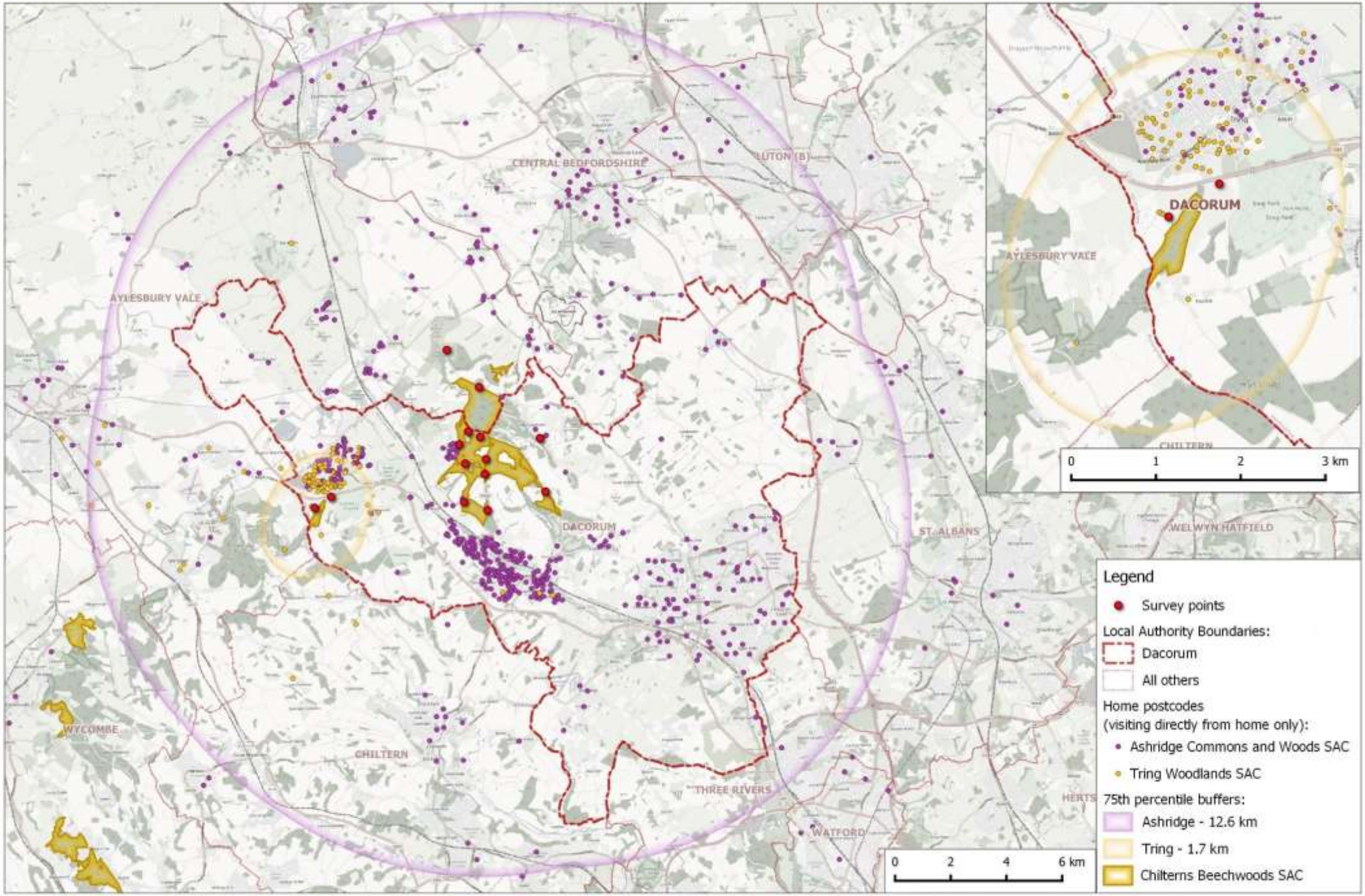
Map 18: The distribution of visitor home postcodes of those visiting directly from home and arriving on foot shown in relation to a 500m buffer.



Map 19: Convex hulls around the 75th percentile for each survey point. Convex hull and postcides are all categorised in a corresponding colour to the survey point.



Map 20: The 75th percentile distances applied as a buffer to each site.



Summary metrics

5.87 Summary metrics from the visitor survey – across all survey points and for selected groupings of survey points - are given in Table 24 to provide an overview of the data and allow direct comparison.

Table 24: Summary metrics for all survey points combined and selected groupings. Grey shaded rows reflect metrics from the tally data (as opposed to the interview data). * indicates metric reflects interviews with visitors on short visit, directly from home.

Visitor metric	All survey points (Points 1-14)	Tring Woodlands only (11&12)	Ashridge survey points, Monument Drive only (1 & 2)	Ashridge survey points, excl. Monument Drive (3-10)	Survey points outside SAC (13 & 14)
Number of survey points	14	2	2	8	2
Total hours fieldwork	512	80	80	320	32
Mean group size	1.9	1.7	2.3	1.9	2.4
Mean number dogs per group	0.7	0.6	0.5	0.8	0.4
Mean people per hour per survey point, passing	15.1	7.7	26.5	13.8	15.8
Mean people per hour entering	6.6	3.6	13.7	5.2	8.5
Mean dogs per hour entering	2.27	1.2	2.8	2.6	1.5
Number of interviews	1164	139	245	706	74
% interviewees on short day visit from home	97	98	94	98	93
% interviewees activity: dog walking*	49	46	32	57	36
% interviewees with a dog*	57	49	41	66	41
% interviewees activity: walking*	39	43	50	34	43
% interviewees arriving by car*	80	17	99	85	94
% interviewees visiting daily or more than once a day*	13	15	3	16	7
% visiting close to home*	24	43	15	25	10
Average number of visits per year per interviewee*	112	125	53	134	61
Median distance to home postcode (km*)	5.29	1.09	11.46	4.88	9.49
75th percentile for postcode data (km*)	11.6	1.70	20.33	9.95	20.17
Median distance to home postcode (km, all visitors)	5.52	1.1	11.92	4.93	9.99
75th percentile for postcode data (km, all visitors)	12.6	1.79	25.69	10.34	21.04

Section 5 Visitor surveys: Key findings

Visitor surveys were undertaken within and around Chilterns Beechwoods SAC in Spring/Summer 2021. Surveys included direct counts of visitors (tally counts) and face to face interviews with a random sample of visitors at 14 survey points. Key findings from these surveys included:

- In total, 3,968 groups were recorded passing the survey points over the 512 hours of survey;
- These groups comprised 7,670 people – equating to an average group size of 1.9 and an overall figure of 15 people per hour passing survey points across the whole survey;
- Counts were highest at weekends compared to weekdays and highest at Easter compared to other times of year;
- 1,164 interviews were undertaken;
- 97% of interviewees were visiting directly from home, 2% were on holiday in the area and 1% were staying locally with friends/family;
- The most common stated main activity was dog walking (48% of interviewees), followed by walking (39%) while other, less frequent activities, included jogging/running (3%) and cycling (3%);
- 80% of interviewees arrived at the site by car and 17% arrived on foot;
- The typical visit duration was around 1.5 hrs (87 minutes) and showed some variation between survey locations and time of year (visits were shorter at Easter);
- The typical visit frequency was around 114 visits per year – equivalent to just over 2 visits per week or 10 visits a month, this varied by survey period (interviewees at Easter tended to be more frequent visitors);
- Close to home was by far the most important reason that visitors had chosen to visit the location where interviewed (as opposed to another local site), particularly at Tring (42% of interviewees) but also at Ashridge (22% of interviewees);
- Route lengths undertaken by visitors were mapped as part of the interview and ranged from 0.08km to 27km, with a typical route length (median) of 3.0km;
- 80% of interviewees had not used any sources of information to plan their visit on the day of the interview; dog walkers and those who visited daily or more than once a day were the least likely to use any information before visiting;
- Interviewees were asked to name other sites they also visited: at Ashridge the two most frequently named alternatives were Ivinghoe Beacon and Tring Park while at Tring Woodlands the two main alternative sites were Tring Park and Ashridge.
- 73% of interviewees (81% at Tring and 73% at Ashridge) stated that they would be likely to use a new Country Park (or other area of greenspace) were a new country park to be created;
- Woodland and extensive/good walking routes were identified as key features for such a facility by those interviewed at Tring, while at Ashridge, café and toilets were also important;
- The survey generated 1075 visitor postcodes: across all interviewees, the median distance from the home postcode to interview location was 5.5km, and 75% lived with a 12.6km radius of the survey point;
- The 75th percentile for those travelling from home was 12.6km for those interviewed at Ashridge (10.3km if Monument Drive survey points excluded) and 1.6km for the Tring Woodlands survey points.

6. Implications for mitigation

6.1 This section of the report sets out recommendations for mitigation, drawing on the findings from the previous sections that show recreation impacts and the visitor survey findings.

The need for mitigation at the Chilterns Beechwoods SAC

6.2 The impact assessment has shown that there are clear and widespread issues at Ashridge Commons and Woods SSSI. Recreational impacts were observed throughout and were severe in some areas. Trampling damage was the most widespread impact, with widened paths and widespread incidence of bare, compacted and sometimes churned ground with some path junctions now supporting extensive areas of poached ground. In many areas, but particularly the narrower desire lines through wooded areas, trampling had resulted in the exposure of tree roots (including those of veteran trees) and damage to tree roots. Other issues included widespread den building and damage from bikes wherever there was topographical variation. Eutrophication from dog fouling was widespread and a number of campfires/barbeque remains were noted. Impacts at Tring Woodlands were more isolated, however there were some signs of significant erosion/wear and widening of paths. These impacts at both Ashridge Commons and Woods SSSI and Tring Woodlands SSSI have the potential to undermine the conservation objectives for the SAC and are linked to the sheer volume of visitors, the activities undertaken and the distribution of use.

6.3 The issues are clearly visible now and are extensively documented in this report. Further increases in recreation use and visitor numbers are likely to exacerbate the issues and potentially make any restoration harder. It is not safe to assume any additional recreation use will not cause additional damage because damage is already visible (e.g. Monz et al., 2013). Marked increases in local housing will result in more people living near to the site and increases in recreation use are likely. As such it will not be possible to rule out adverse effects on integrity from the cumulative effects of housing growth around the SAC. Mitigation measures therefore need to be established to address impacts from future housing growth in relevant local plans.

6.4 The issues are apparent now, and as such mitigation measures need to be carefully designed to fit with existing management and measures to address current impacts. In order for mitigation to be relied on it needs to be effective,

reliable, timely, guaranteed to be delivered and as long-term as necessary to achieve the objectives (Tyldesley & Chapman, 2021).

6.5 Mitigation for recreation impacts can be challenging to deliver as the impacts relate to a housing growth over a wide area and the impacts occur at sites where developers and potentially the local authority have little or no influence in terms of the management in place. Influencing people's behaviour can be difficult and at many countryside sites there is a legal right of access. For this reason mitigation is best established strategically, enabling development by ensuring the necessary mitigation is deliverable and effective and achieved in as cost effective way as possible.

6.6 Strategic mitigation provides the potential for a suite of mitigation measures to function together and this can give the confidence that adverse effects arising from recreation have been prevented. In most instances when developing a strategy for development, each measure taken alone is unlikely to give that certainty. A combination of measures, developed and targeted after analysis of available information, gives greater certainty.

Impacts of Covid and implications for mitigation

6.1 The survey results are a snapshot and reflect conditions at the time of survey. For example, we understand the car park at Ashridge that lies to the east of the B4506, on acid grassland, had been temporarily closed due to the ground conditions and impacts from vehicles. Hence during the survey visits impacts here were not necessarily discernible. Such examples reflect that recreation impacts are likely to vary over time and there is on-going management.

6.2 The surveys took place at a time when there has been increased access to the countryside as a result of Covid, the National Trust have however indicated that the pressures of the site have ongoing for many years. As such, while impacts such as path widening and trampling could be exacerbated by the Covid pandemic, they are long standing issues and not just a covid phenomenon.

6.3 The summer surveys took place when covid restrictions were easing/ had largely eased (i.e. in August) – although with some restrictions on foreign travel which may have resulted in more 'staycations' and therefore still some potential for elevated levels of use. Surveys in the summer encompassed both school holiday and term time dates allowing a set full of comparable data for summer. Summer school holiday and term time weekday data was also comparable with the Easter weekdays. The changes in covid restrictions mean the summer data are likely to reflect more 'typical' use with less of an impact resulting from covid.

6.4 Looking to the future it is not clear how access patterns will change. Many people have discovered local sites and the importance of local greenspace during the pandemic and dog ownership has increased (Morgan et al., 2020). It is therefore not safe to assume that visitor numbers will drop to pre-covid levels. Long term visitor monitoring and management that adapts to changing circumstances and dynamic patterns of visitor use will be important.

Strategic mitigation approaches in other parts of the country

6.5 In other parts of the UK, strategic approaches to mitigation have been established where a local authority or multiple local authorities have worked together to establish a series of avoidance and mitigation measures carefully designed to resolve the in-combination impacts associated with recreation from local development. These strategies enable development and also ensure that adequate mitigation is secured and carefully planned. By securing the mitigation up front the local authorities, as competent authorities, can be confident that adverse effects on integrity can be ruled out at plan-level. Furthermore, mitigation measures might be easier to secure and work best if established strategically, rather than piecemeal with each development application. Of particular relevance to the Chilterns Beechwoods SAC, strategic approaches to mitigation have been established (or are being set up) at Burnham Beeches SAC, Epping Forest SAC, the New Forest SAC/SPA/Ramsar and the Cotswolds Beechwoods SAC. At all these sites there are similarities in the interest features present and the issues involved.

6.6 Rangers and infrastructure projects (such as creating alternative visitor destinations) are common themes in strategic mitigation for European sites, and all schemes also include monitoring to target and hone interventions. Other measures within these schemes have included dog projects, interpretation, changes to infrastructure, codes of conduct and various engagement approaches. Many of these interventions are widespread and commonly used and there are a range of studies that support their effectiveness (e.g. Allinson, 2018; Burger & Leonard, 2000; Medeiros et al., 2007; Williams et al., 2017), and in addition evidence for their effectiveness continues to grow and our understanding improve. Many such as the use of rangers, signage and fencing are routinely used to manage visitors at a range of different locations.

6.7 Many of the measures bring wider benefits besides simply providing mitigation. Enhancing access, providing better connections between local people and their environment, providing education resources and providing new green

infrastructure all have wide benefits for society and potential economic benefits.

6.8 An overview of a range of different mitigation schemes is provided in Appendix 11. Key points to draw from the other schemes include:

- Many schemes are long running (e.g. Dorset and Thames Basin Heaths are both approaching 15 years), highlighting that the approach can work well and in these examples the mitigation schemes have developed and grown over time;
- Schemes are in place across the country and relate to a range of SAC and SPA sites and different issues;
- Mitigation approaches vary, with a package of measures tailored to each individual site – there is no set package or standard approach;
- In some cases the scheme is set out in a joint SPD that covers multiple local planning authorities; there are also examples where authorities have an agreed overarching strategy (but no SPD) and equally examples where neighbouring authorities approach mitigation in a different way, without a joined up approach. The advantages of a consistent approach will be the clarity for developers and ease of delivery.

6.9 In many cases these schemes have been complex to set up and some involve multiple European sites and a range of local authorities (notably Norfolk where an overarching approach has been set up at a county-wide level).

6.10 Most schemes have a clear split between off-site infrastructure (i.e. alternative greenspace sites to deflect visitors) and on-site measures such as wardening on the European site. These are often referred to as SANG (Suitable Alternative Natural Greenspace) or SAMM (Strategic Access Management and Monitoring) respectively. These are usually split into separate payments. SAMM payments are used to fund wardening, on-site access management, education/awareness raising and monitoring. Where there are multiple landowners and organisations then a separate body is established to deliver the mitigation, for example Bird Aware Solent, the Thames Basin Heaths Partnership or the Urban Heaths Partnership (in Dorset). Where there is a single or main landowner, then it makes sense for them to deliver the mitigation, as is the case with the Corporation of London who manage Burnham Beeches SAC and Epping Forest SAC.

6.11 Off-site infrastructure (i.e. green space away from the European sites, such as SANG) can be delivered in a range of ways. For large developments, the developer can provide greenspace, potentially directly linked to the development site. In some cases, local authorities will create and manage a

SANG, drawing on funds from multiple developments. These are often referred to as 'strategic SANG' and a good example is the Dawlish Countryside Park[22] in Teignbridge. There are also examples where existing spaces have been improved – for example Shepherd's Meadow in Bracknell or Upton Country Park in Dorset. Existing spaces can be improved through new car parking, better access, promotion, vegetation management, paths and other facilities. While SANGs are usually targeted towards dog walkers, walkers, runners etc., in some cases, the approaches are quite novel, for example a BMX track/jumps in Dorset.

6.12 These infrastructure projects can clearly be varied, but in all cases, they have to work to draw visitors away from the relevant European site. Those schemes that do not have SANG are virtually all coastal where it is recognised that there is a challenge in providing alternatives given the particular draw of the sea. In the Thames Basin Heaths and in Dorset there are clear guidelines for SANGs/infrastructure projects as to what will work, with criteria for the design, types of infrastructure, size etc. These have guidelines have been derived from survey data, experience and case examples and provide a clear means to assess potential capacity and ensure adequate mitigation is available for a given quantum of development.

6.13 For many of the examples of mitigation schemes an exclusion zone is fundamental to ensuring the mitigation package is effective. European sites, where there are exclusion zones, include the Thames Basin Heaths (400m), the Dorset Heaths (400m), Cannock Chase (400m) and Burnham Beeches (500m). Within the zone there is a presumption against development, i.e. ensuring no increase in the number of dwellings. There are particular risks associated with development in such close proximity and mitigation options are not as effective and the exclusion zone ensures the worst impacts are avoided.

6.14 Recreation use is much higher from homes directly adjacent to the European site and it is typically considered very difficult to deflect such access with alternative greenspace, as there is little scope to intercept visitors or provide significant alternatives. Fire risk, fly-tipping and other urban effects are also more acute where development is in close proximity to the boundary. Mitigation approaches such as access management and wardening are likely to be less relevant for development in close proximity to European sites as it is harder to intercept visitors who enter from multiple informal access points (e.g.

[22] See relevant page on the Teignbridge District Council website for details

back gardens and cut-throughs) and people are likely to use the sites at a wide range of times of day (and even during the night).

Zone of influence for the Chilterns Beechwoods SAC

6.15 The zone of influence determines the area within which new housing will trigger a likely significant effect (alone or in-combination). Within the zone it is therefore necessary for all applications for new housing growth to be subject to appropriate assessment (stage 2 of the HRA process) and mitigation is likely to be necessary to rule out adverse effects on integrity. By establishing a strategic approach and securing the mitigation in advance, the HRA process can be streamlined as the in-combination effects of growth are addressed strategically.

6.16 The postcode data provides the necessary evidence to show the zone of influence. The use of the 75th percentile has become a standard way to define a zone of influence (Liley, et al., 2021) and from Map 19 it would appear that virtually the whole of Dacorum would fall within such a zone. In terms of administration, it may be sensible to simply establish the zone to cover the whole authority. If a strategic approach to mitigation is to be established with other authorities then a zone needs to be more precisely defined.

6.17 A more nuanced approach could set the boundary at 12.6km reflecting the 75th percentile (for those visiting the Ashridge Commons and Woods SSSI directly from their home). Monument Drive has a particular draw, in part due to the café, and as such visitors come from slightly further afield – if the zone were to be defined excluding the data from Monument Drive the 75th percentile (those visiting from home only) would be 10.3km. The choice of 12.6km or 10.3km could depend on the mitigation measures incorporated and the long-term management of the café and adjacent parking at Monument Drive as a visitor destination. Given the relatively small difference in the two distances and the range of values for the 75th percentile across all survey points, we would suggest that 12.6km is used, with the scope for this to be reviewed in the long term (post-covid).

6.18 The use of a 12.6km zone of influence is relatively large compared to some other strategic mitigation schemes (see Appendix 11), but not exceptional – for example 13km is used for the Suffolk Sandlings and the Suffolk Coastal sites and 15km is used at Cannock Chase SAC. The scale of a zone is influenced in part by the relative draw of the site, but also by the distribution of housing and urban centres relative to the European site and by the availability of other greenspace in the surrounding countryside.

6.19 We recommend that the zone of influence is applied to the SAC at Ashridge Commons and Woods SSSI only. At Tring Woodlands SSSI visitors were particularly local and were mostly accessing the site on foot (just 17% arriving by car). It should be noted that a new car park has been consented and as such the levels of use and distances people travel to reach the site may change. However, it would seem unlikely that it would change sufficiently to extend outside the 12.6km zone applied to Ashridge Commons and Woods SSSI. While impacts were less severe at Tring Woodlands, further recreation use has the potential to undermine the conservation objectives at the site. As such, mitigation from housing growth within the 12.6km (applied to Ashridge Commons and Woods SSSI) should relate to both parts of the SAC, however implementation will need to be most focussed towards the Ashridge parts.

6.20 The approach of having a consistent zone applied to different parts of the SAC when visitor data vary by location is entirely consistent with other mitigation schemes. For example, the Dorset Heaths have a 5km zone applied to the entire SAC. This covers multiple different SSSIs that include rural sites with limited access and much busier heaths in more urban locations. The evidence base from which the zone was derived related to a pooled data from a survey undertaken by Footprint Ecology involving a sample of access points (Clarke et al., 2006; Panter & Caals, 2020).

Development exclusion zone

6.21 We also recommend that development in close proximity to the SAC boundary is restricted. Such restrictions could potentially be best established through a further zone where there is a presumption against development. We suggest the zone should relate to 500m, in line with Burnham Beeches SAC. Map 18 shows foot access and local housing density and where housing is within 500m of the SAC (e.g. to the west of Ashridge Commons and Woods SSSI or at Tring Woodlands SSSI) there is a high density of postcodes. Such users will be difficult to deflect.

Potential future growth in the Dacorum Local Plan

6.22 Future growth within the Dacorum Plan could be around 14,500 new dwellings and there are currently around 222,703 dwellings within 12.6km of the Ashridge Commons and Woods SSSI. Growth in Dacorum alone therefore could represent a minimum increase of around 6.5% within 12.6km. Growth in other local authorities would increase the 6.5% figure and give the in-combination effect of growth. An increase in housing of 6.5% will not necessarily mean an increase in recreation use of 6.5% - as visitor rates will vary within the zone of influence (the

closer people live the more likely they will be to visit). If the distribution of new housing matched the distribution of current housing then a 6.5% increase would be expected and it provides a useful guide to the scale of mitigation necessary to address the risks associated with Dacorum's Local Plan.

Recommended mitigation approaches

SAMM (Strategic Access Management and Monitoring)

6.23 SAMM would comprise measures at the Chilterns Beechwoods SAC to address recreation impacts and make them more resilient to increased recreation. These would need to be established by the National Trust (at Ashridge Estate) and extend to Tring Woodlands (Dacorum Borough Council). We suggest some possible areas for consideration.

6.24 We suggest SAMM at Ashridge could be established based on a **'zone' map** that identifies areas within the site that are sensitive and those that are more robust. This map could be informed by the data within this report and could be live, such that it changes over time and in response to the seasons, monitoring results, ground conditions etc. Path surfacing and other interventions could be targeted as appropriate (increasing the resilience of some areas) and the monitoring could inform adaptive management, forming the basis to direct interventions and underpin how access is managed and promoted at the site.

6.25 A similar approach has been used at Hatfield Forest by the National Trust where regular monitoring assigns paths to a category (red, amber or green). A particular issue at Hatfield Forest is path widening, poaching and damage to paths that leads to changes in vegetation. The monitoring then informs which paths are temporarily closed (using hurdles, signs etc.) and the map is used on interpretation and the National Trust website to inform visitors which paths are closed. Hatfield Forest is not common land and this makes closing paths easier, but such an approach is still possible at Ashridge through temporary signage and how visitor flows are managed. A similar system could work well at Ashridge (and the monitoring also be extended to Tring Woodlands).

6.26 This map would then inform other interventions, which could comprise (but would not necessarily be limited to):

- Additional staffing costs to cover **increased wardening time** (with tasks to include direct engagement with visitors through patrolling the site, raising awareness of the nature conservation importance of the site, directing visitors and influencing visitor behaviour);

- **A review of parking** around Ashridge with the potential to carefully reduce and rationalise parking. Parking areas should be clearly defined and with suitable interpretation and clear route options starting from the car park (to limit desire lines forming), at Tring Woodlands it will be necessary to understand changes to parking and the implications;
- **Path maintanance,** surfacing and edging, as appropriate;
- **Signs and interpretation** as appropriate to help manage visitor flows and direct access along well defined routes, with options for temporary signage;
- **Redirecting visitor flows** through signs, apps, engagement, temporary barriers on paths (hurdles or deadwood) to limit use of desire lines and informal paths;
- **Education & awareness raising** through social media, the internet and face-face engagement around the nature conservation issues on the site and where to go (for example directing people where to see bluebells) and redistributing access (potentially even off site, e.g. to SANGs);
- **Measures to address contamination** from dog fouling (these could include targeted engagement at certain areas, increased provision of bins that can take dog waste,
- **Dedicated areas for certain activities** such as den making, so that the impacts can be contained;

6.27 Monitoring would need to be factored into the mitigation such that it took place regularly and provided a feedback loop to provide early warning, inform the communication with the public and help to target the interventions. Monitoring should include both the assessment of impacts (informing the zone map) and visitor surveys (counts and interviews), with the interviews undertaken more sporadically (potentially at 3 or 5 year intervals).

6.28 The cost of SAMM may need to fluctuate depending on the monitoring results and over time it may be necessary for resources to be directed towards different aspects of SAMM. This could be achieved through money being collected through developer contributions and a governance structure established whereby spending was authorised each year, informed by the monitoring.

6.29 For example, initially it may be that money needs to focus on establishing the monitoring, funding increased wardening time and funding the review of parking. In the longer term the focus may switch to social media, general awareness raising and communication to keep messages fresh and maintain awareness. The process is summarised in Figure 24. The flexibility is important

as access use may well also change over time. The visitor impact assessment and data collection presented here have been undertaken during a time when Covid has influenced patterns of use of greenspaces for recreation (for example through people using local greenspace more or trying to maintain social distancing while on-site) and there is uncertainty as to how much access patterns might further change in the future. Furthermore, new types of access such as electric bikes are becoming more common and will influence visitor travel patterns and how they behave when on-site.

Figure 24: Summary of how monitoring used to inform SAMM

The role of the café at Monument Drive

6.30 The café at Monument Drive is long established and has a particular draw. In order to understand the potential influence of the café we reviewed the visitor survey data and filtered the data to determine the number of 'café-related interviewees'. We identified these as interviewees who gave either their main activity as visiting the café, a secondary activity that was either café, coffee or ice cream or where their reason for site choice was related to coffee, ice cream or the visitor centre. In total this filtered data set was 129 interviewees (11%). The only survey locations with no café-related interviewees were 11 and 12 (i.e. Tring Woodlands). Café-related interviewees accounted for 30% of those interviewed at survey point 1 Monument Drive – café; 22% of those at survey point 2 Monument Drive – Barracks Square and 24% of those at survey point 10 Aldbury foot access.

6.31 There were 66 interviewees in total at Monument Drive (survey points 1 and 2) that were categorised as café-related visitors. Interestingly, these visitors did tend to come from slightly further afield (56 gave valid home postcodes and were on a short visit from home, these postcodes were a median distance of 12.4km from the survey point and 75% came from within 26.4km). It was clear many of these visitors were not just visiting the café, for example 36% had at least 1 dog with them and the median route length was 2.71km, reflecting many were combining use of the café with a walk.

6.32 From these data we suggest there is potential for the café to play a role in mitigation or resolving some of the current pressure. This needs careful review and consideration of the potential for the location to work to engage with visitors and influence their behaviour, the scope to manipulate visitor dwell time

and numbers within the site and the potential to relocate or dilute the provision of facilities at this location.

SANGs/Additional GI

6.33 SANG is the term given to greenspaces that are created or enhanced with the specific purpose of absorbing recreation pressure that would otherwise occur at European wildlife sites. SANGs are created, or existing greenspaces enhanced to create a SANG, in order to absorb the level of additional recreation pressure associated with new development. SANGs are however not the only way that green infrastructure can provide mitigation. There may be other opportunities, for example through providing dedicated cycle infrastructure. In some other parts of the country, mitigation measures have included provision of dedicated cycling facilities (BMX tracks near heathlands) or very specific measures such as enhancements to parking to increase capacity at countryside sites away from a European site.

6.34 These SANG/infrastructure projects dovetail with SAMM in that they provide additional space for recreation and should provide realistic alternatives. With SAMM in place, visitors will become more aware of their impacts and access better managed and some use will be deflected away from the Chilterns Beechwoods SAC entirely. Over time the emphasis for recreation use will shift to the sites enhanced for recreation – such as SANG – rather than the nature reserves.

6.35 We suggest that all new residential development within the zone of influence should contribute towards SAMM and in addition either provide bespoke SANG (e.g. as part of a large development) or contribute towards SANG/infrastructure projects. This flexibility is important as for example large greenfield allocations may be able to provide suitable greenspace while small windfall development is unlikely to be able to deliver any meaningful SANG or green infrastructure. SANG guidelines are set out in Appendix 12.

6.36 An important consideration in SANG provision (and potentially in relation to management of visitors within the SAC) is the scope for nearby sites to absorb additional recreational use. Semi-natural greenspaces that might provide alternatives are shown in Map 20. Some of these sites (the SSSIs shown in blue) were visited as part of the impact assessments, while the other sites have been identified from the standard Ordnance Survey layer of open greenspace and also from common land (which has a right of access). We have undertaken a desk-based review of sites (supplemented with the site visits as relevant) and we summarise information such as the amount of parking, site size and any

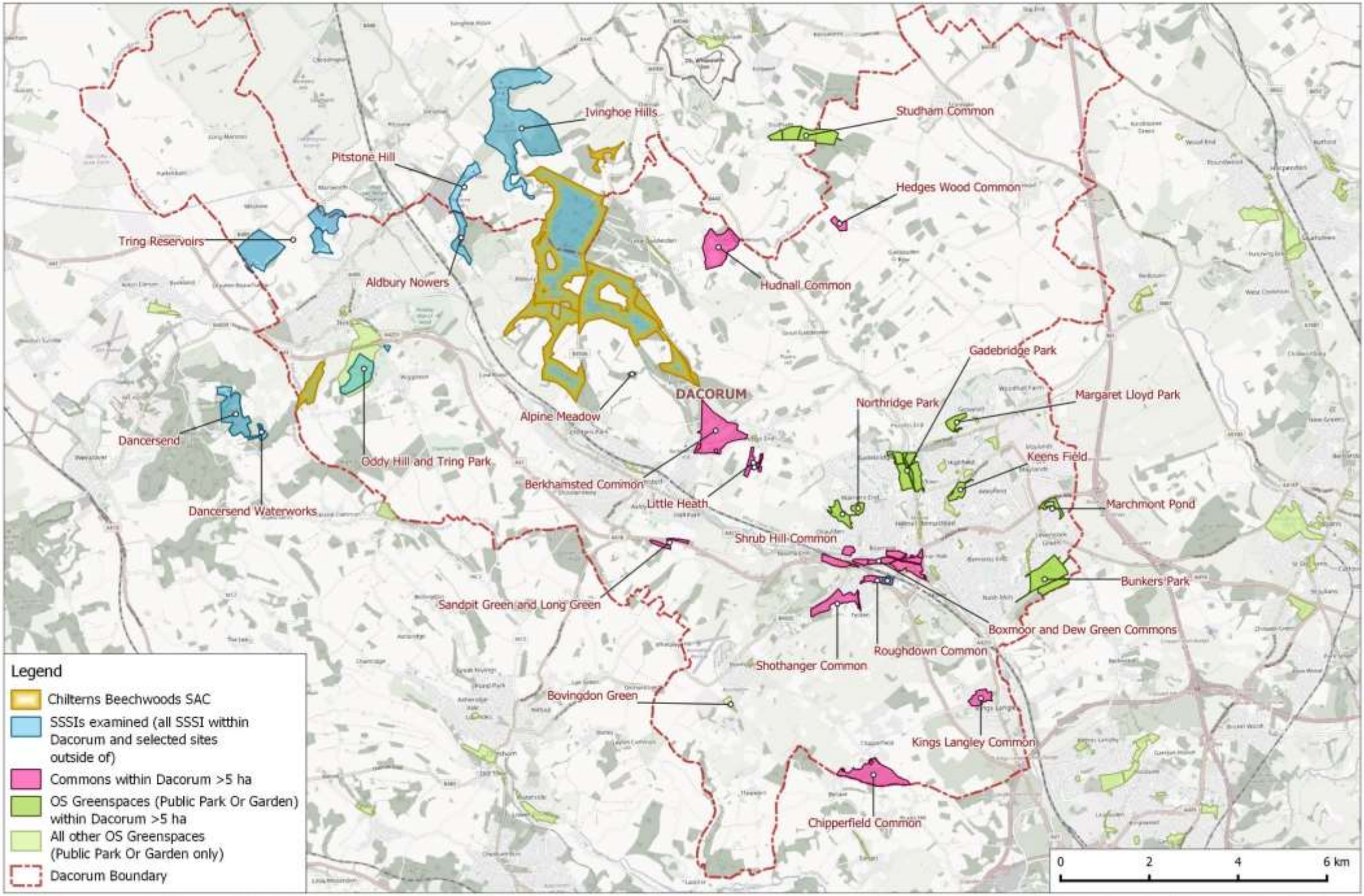
estimates of visitor use as a preliminary step to identifying any locations that could have a role as SANGs. Results are summarised in Appendix 13, which suggests that there is very limited or no capacity at the SSSIs at least.

Implementation

6.37 Mitigation will need to be set out in a clear strategy and agreed with relevant stakeholders and in particular mitigation delivery will be dependent upon the National Trust. Various models exist as the strategy could be implemented and key considerations are set out below:

- The strategy may need to extend to other neighbouring local authorities and could therefore be a joint approach or local authority-specific;
- The strategy could be established as an SPD and could be a joint SPD across authorities (however other models exist, see Appendix 11 for examples).
- Monies could be collected as developer contributions or through CIL;
- Consideration needs to be made as to a governance structure so that mitigation money is spent appropriately and targeted with flexibility to respond to changes in access and emerging issues;
- Mitigation will need to be secured in-perpetuity and money will need to therefore be set aside to ensure adequate long term funding provision, the amount of money set aside may need to vary on an annual basis.

Map 21: Distribution of SSSIs examined, plus selected commons (exc. the SAC) and greenspaces within Dacorum.



Section 6 Implications for mitigation: Key findings

In line with many other European sites around the country and in common with other Beechwood sites with similar qualifying features we recommend that a strategic approach to mitigation is established and this should extend to both the Tring Woodlands SSSI and Ashridge Commons and Woods SSSI.

We identify the potential for likely significant effects potentially extending out to 12.6km from the Ashridge Commons and Woods SSSI and recommend this for the zone of influence. We also highlight the need to limit growth in particularly close proximity to the SAC boundary (500m), which will avoid some of the greatest risks.

Growth in Dacorum from the Local Plan could represent an increase in the number of residential dwellings by around 6.5% (minimum) within 12.6km (and any growth in neighbouring authorities would be additional to this).

Mitigation measures are suggested and would comprise a mix of Strategic Access Management and Monitoring measures ('SAMM'), targeted on the SAC and the provision of alternative greenspace to deflect access. Mitigation needs to be secured in-perpetuity.

References

Allinson, E. (2018). *The role of suitable alternative natural greenspace in protecting high value wildlife sites* [PhD, Southampton]. https://eprints.soton.ac.uk/427307/

Anderson, P., & Radford, E. (1992). *A review of the effects of recreation on woodland soils, vegetation and fauna*. English Nature.

Buckley, R. (2004). *Environmental impacts of Ecotourism*. CABI.

Burger, J., & Leonard, J. (2000). Conflict resolution in coastal waters: The case of personal watercraft. *Marine Policy*, *24*(1), 61–67. https://doi.org/10.1016/S0308-597X(99)00013-5

Clarke, R. T., Liley, D., Underhill-Day, J. C., & Rose, R. J. (2006). *Visitor access patterns on the Dorset Heaths*. English Nature Research Report 683.

Corney, P. M., Smithers, R. J., Kirby, J. S., Peterken, G. F., Le Duc, M. G., & Marrs, R. H. (2008). *The impact of development on nearby ancient woodland*. Woodland Trust.

Day, B. H. (2020). The Value of Greenspace Under Pandemic Lockdown. *Environmental and Resource Economics*, *76*(4), 1161–1185. https://doi.org/10.1007/s10640-020-00489-y

ICF GHK. (2013). *The economic impact of Natural England's National Nature Reserves* (Natural England Commissioned Report No. NECR131).

ICRT. (2011). *The Economic Potential of Nature Tourism in Eastern Yorkshire* (p. 61). http://mediafiles.thedms.co.uk/Publication/YS-EY/cms/pdf/YNT%20ICRT%20Report,%20Nature%20Tourism%20in%20Eastern%20Yorkshire.pdf

James, T. J. (2019). *Beetles of Hertfordshire – corrections and amendments, with an update on additional species, and other important new records*. *51*(1), 11–30.

Keniger, L. E., Gaston, K. J., Irvine, K. N., & Fuller, R. A. (2013). What are the Benefits of Interacting with Nature? *International Journal of Environmental Research and Public Health*, *10*(3), 913–935. https://doi.org/10.3390/ijerph10030913

Kleinschroth, F., & Kowarik, I. (2020). COVID-19 crisis demonstrates the urgent need for urban greenspaces. *Frontiers in Ecology and the Environment*, *18*(6), 318–319. https://doi.org/10.1002/fee.2230

Lee, A. C. K., & Maheswaran, R. (2011). The health benefits of urban green spaces: A review of the evidence. *Journal of Public Health*, *33*(2), 212–222. https://doi.org/10.1093/pubmed/fdq068

Liley, D., Lake, S., Panter, C., & Saunders, P. (2019). *Potential impacts of recreation on Woodland Trust reserves: A general review* (Unpub. No. 521). Footprint Ecology / Woodland Trust.

Liley, D., Lake, S., Underhill-Day, J., Sharp, J., White, J., Hoskin, R., Cruickshanks, K., & Fearnley, H. (2010). *Welsh Seasonal Habitat Vulnerability Review*. Footprint Ecology / CCW.

Liley, D., Panter, C., & Chapman, C. (2021). Zones of influence for strategic housing growth and recreation impacts: Review and best practice. *Habitats Regulations Assessment Journal*, *16*, 20–22.

Liley, D., Panter, C., & Rawlings, J. (2015). *A review of suitable alternative natural greenspace sites (SANGs) in the Thames Basin Heaths area* [Unpublished Report].

Lowen, J., Liley, D., Underhill-Day, J., & Whitehouse, A. T. (2008). *Access and Nature Conservation Reconciliation: Supplementary guidance for England.* internal-pdf://NECR013 Access and N C Reconciliation - Supp Guidance-2802587904/NECR013 Access and N C Reconciliation - Supp Guidance.pdf

Marzano, M., & Dandy, N. (2012). *Recreational use of forests and disturbance of wildlife. A literature review.* Forestry Commission. https://www.forestry.gov.uk/pdf/FCRP020.pdf/$FILE/FCRP020.pdf

Medeiros, R., Ramosa, J. A., Paivaa, V. H., Almeidac, A., Pedroa, P., & Antunes, S. (2007). Signage reduces the impact of human disturbance on little tern nesting success in Portugal. *Biological Conservation*, *135*(1), 99–106.

Monz, C. A., Pickering, C. M., & Hadwen, W. L. (2013). Recent advances in recreation ecology and the implications of different relationships between recreation use and ecological impacts. *Frontiers in Ecology and the Environment*, *11*(8), 441–446. https://doi.org/10.1890/120358

Morgan, L., Protopopova, A., Birkler, R. I. D., Itin-Shwartz, B., Sutton, G. A., Gamliel, A., Yakobson, B., & Raz, T. (2020). Human–dog relationships during the COVID-19 pandemic: Booming dog adoption during social isolation. *Humanities and Social Sciences Communications*, *7*(1), 1–11. https://doi.org/10.1057/s41599-020-00649-x

NT National Consultancy. (2019). *Nature conservation evaluation: Ashridge Estate, Herfordshire & Buckinghamshire.* National Trust.

O'Neill, R. (2019). *Monitor of Engagement with the Natural Environment – The national survey on people and the natural environment. Headline report 2019* (NECR No. 275). Natural England and the Office for National Statistics.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/828552/Monitor_Engagement_Natural_Environment_2018_2019_v2.pdf

Panter, C., & Caals, Z. (2020). *Dorset Heaths 2019 Visitor Survey* (Unpub. Report No. 545). Urban Heaths Partnership.

Pretty, J., Griffin, M., Peacock, J., Hine, R., Selens, M., & South, N. (2005). A countryside for health and well-being: The physical and mental health benefits of green exercise. *Countryside Recreation*, *13*(1), 2–7.

Richardson, M., Cormack, A., McRobert, L., & Underhill, R. (2016). 30 Days Wild: Development and Evaluation of a Large-Scale Nature Engagement Campaign to Improve Well-Being. *PLOS ONE*, *11*(2), e0149777. https://doi.org/10.1371/journal.pone.0149777

Ross, K., Liley, D., Austin, G., Clarke, R. T., Burton, N. H., Stillman, R. A., Cruickshanks, K., & Underhill-Day, J. (2014). *Housing development and estuaries in England: Developing methodologies for assessing the impacts of disturbance to non-breeding waterfowl*. Footprint Ecology, unpublished report for Natural England.

Ryan, L. (2012). *Impacts of nearby development on ancient woodland – addendum*. The Woodland Trust. https://www.woodlandtrust.org.uk/mediafile/100168353/Impacts-of-nearby-development-on-the-ecology-of-ancient-woodland-addendum.pdf

Saunders, P., & Lake, S. (2019). *Ecological Walkover Assessment, Visitor Survey, and Identification of Potential Impacts of Recreation on the Woodland Trust's Tring Park Site* (Unpub. No. 547). Footprint Ecology / Woodland Trust.

The Land Trust. (2018). *The Economic Value of Greenspaces*. The Land Trust.

Tyldesley, D., & Chapman, C. (2021). *The Habitats Regulations Handbook*. DTA Publications. https://www.dtapublications.co.uk/handbook/

Underhill-Day, J. C. (2005). *A literature review of urban effects on lowland heaths and their wildlife*. English Nature. internal-pdf://EN RR 623, John Day literature review of urban effects-3794804480/EN RR 623, John Day literature review of urban effects.pdf

Williams, D. R., Child, M. F., Dicks, L. V., Okendon, N., Pople, R. G., Showler, D. A., Walsh, J. C., zu Ermgassen, E., & Sutherland, W. J. (2017). Bird Conservation. In W. J. Sutherland, L. V. Dicks, N. Okendon, & R. K. Smith (Eds.), *What Works in Conservation 2017*. Open Book Publishers. http://www.conservationevidence.com/actions/309

Appendix 1: Designated features of surveyed SSSIs that are not part of the Chilterns Beechwoods SAC (grouped by broad habitat type)

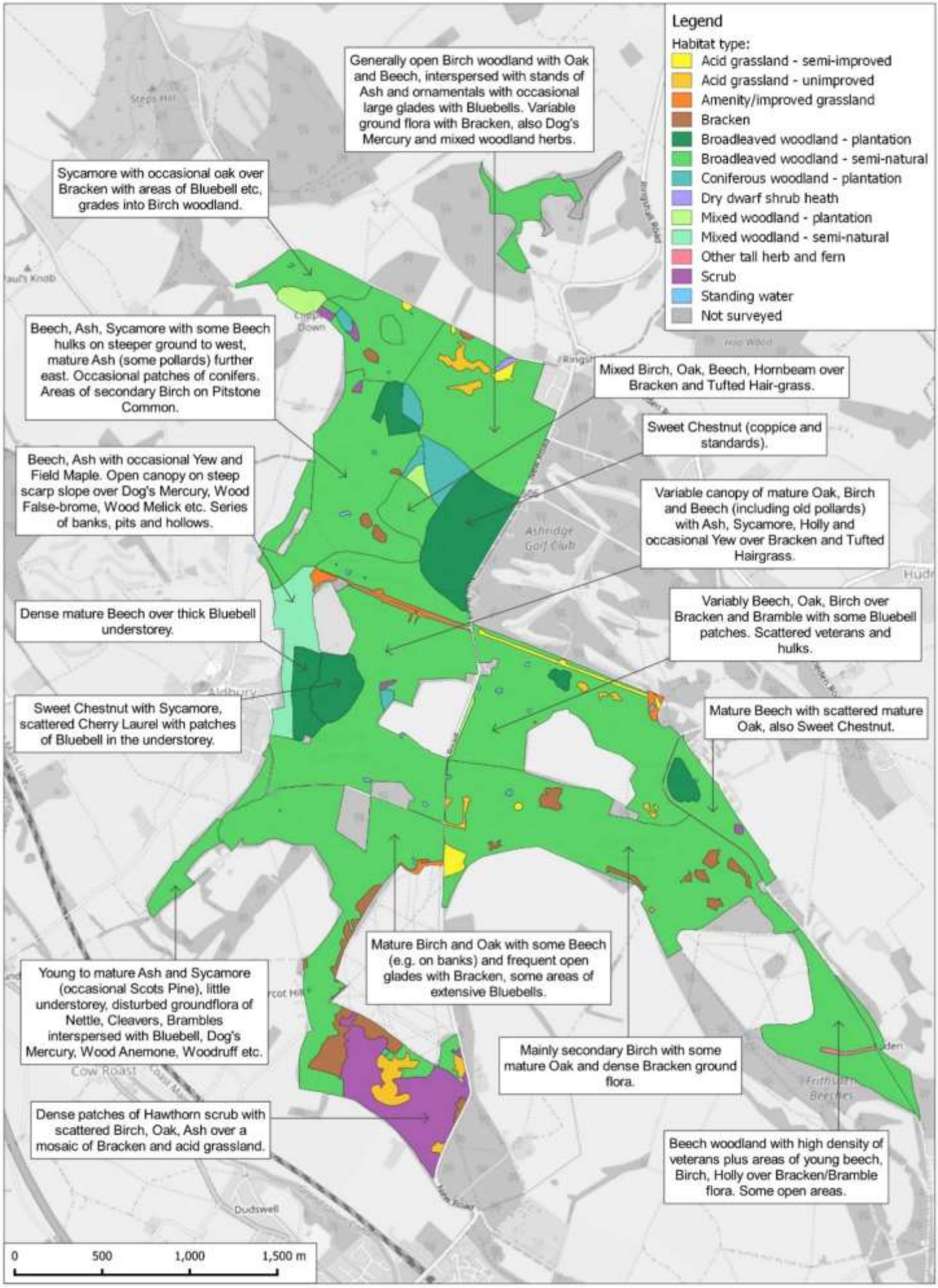
This appendix summarises the SSSI interest features for the different SSSIs. These include the component SSSIs that are within the SAC (denoted with an *) and relevant to this study, and also the SSSI sites outside the SAC that were identified by Dacorum Borough Council and Hertfordshire County Council as sites to be included in the impact assessment work.

SSSI name	Woodland habitats		Grassland habitats			Wetland habitats			Vascular plant assemblage	Invertebrate interest		Ornithological interest				Geological interest
	W12 - *Fagus sylvatica - Mercurialis perennis* woodland	W14 - *Fagus sylvatica - Rubus fruticosus* woodland	CG3 - *Bromus erectus* lowland calcareous grassland	CG2 - *Festuca ovina - Avenula pratensis* lowland calcareous grassland	CG6 - Dry grassland/ scrub transitions (MG1-related, CG2d-related)	M22 - *Juncus subnodulosus - Cirsium palustre* fen meadow	S4 - *Phragmites australis* swamp and reed-beds	S5 - *Glyceria maxima* swamp		Populations of nationally scarce butterfly species - *Hamearis lucina*, Duke of Burgundy	Outstanding dragonfly assemblage	Aggregations of non-breeding birds - Shoveler, *Anas clypeata*	Assemblages of breeding birds - Lowland open waters and their margins	Assemblages of breeding birds - Mixed: Scrub, Woodland	Variety of breeding bird species	
Sites located within (entirely or partially) Dacorum																
Ashridge Commons and Woods*	✓	✓		✓										✓	✓	
Tring Woodlands*	✓	✓														
Aldbury Nowers	✓		✓						✓							
Alpine Meadow			✓		✓											

Little Heath Pit																✓
Oddy Hill and Tring Park				✓												
Roughdown Common				✓												
Tring Reservoirs						✓	✓	✓			✓	✓	✓			
Notable sites located just outside of Dacorum																
Dancersend	✓	✓	✓	✓						✓						
Dancersend Waterworks				✓												
Ivinghoe Hills	✓	✓	✓	✓					✓	✓						
Pitstone Hill			✓	✓												

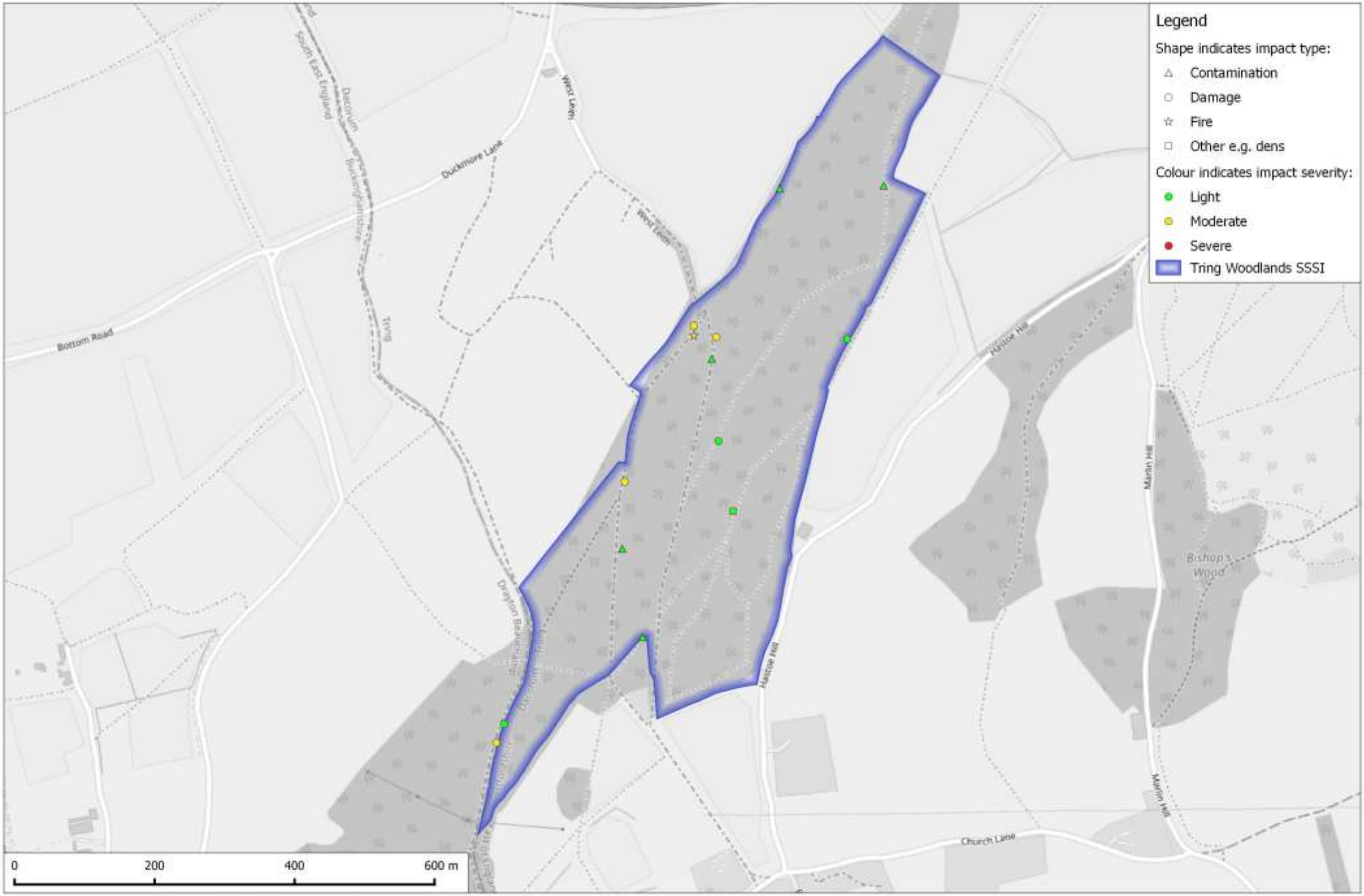
Appendix 2: Habitat map for Ashridge Commons and Woods SSSI

Ashridge Commmons and Woods SSSI habitats



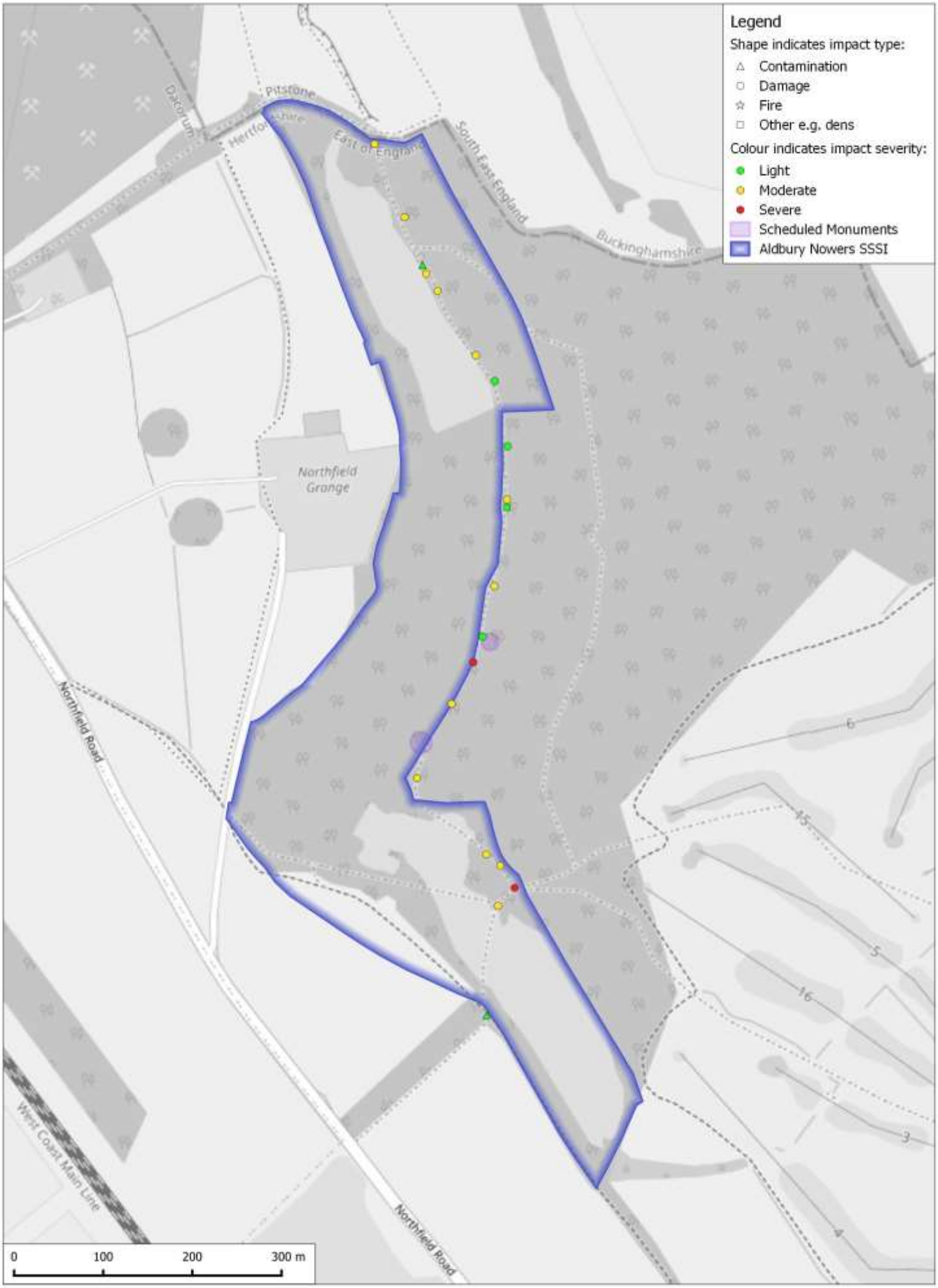
Appendix 3: Map of recreation impacts at Tring Woodlands SSSI

Recreation impacts at Tring Woodlands SSSI. Overlapping points have been shifted slightly.

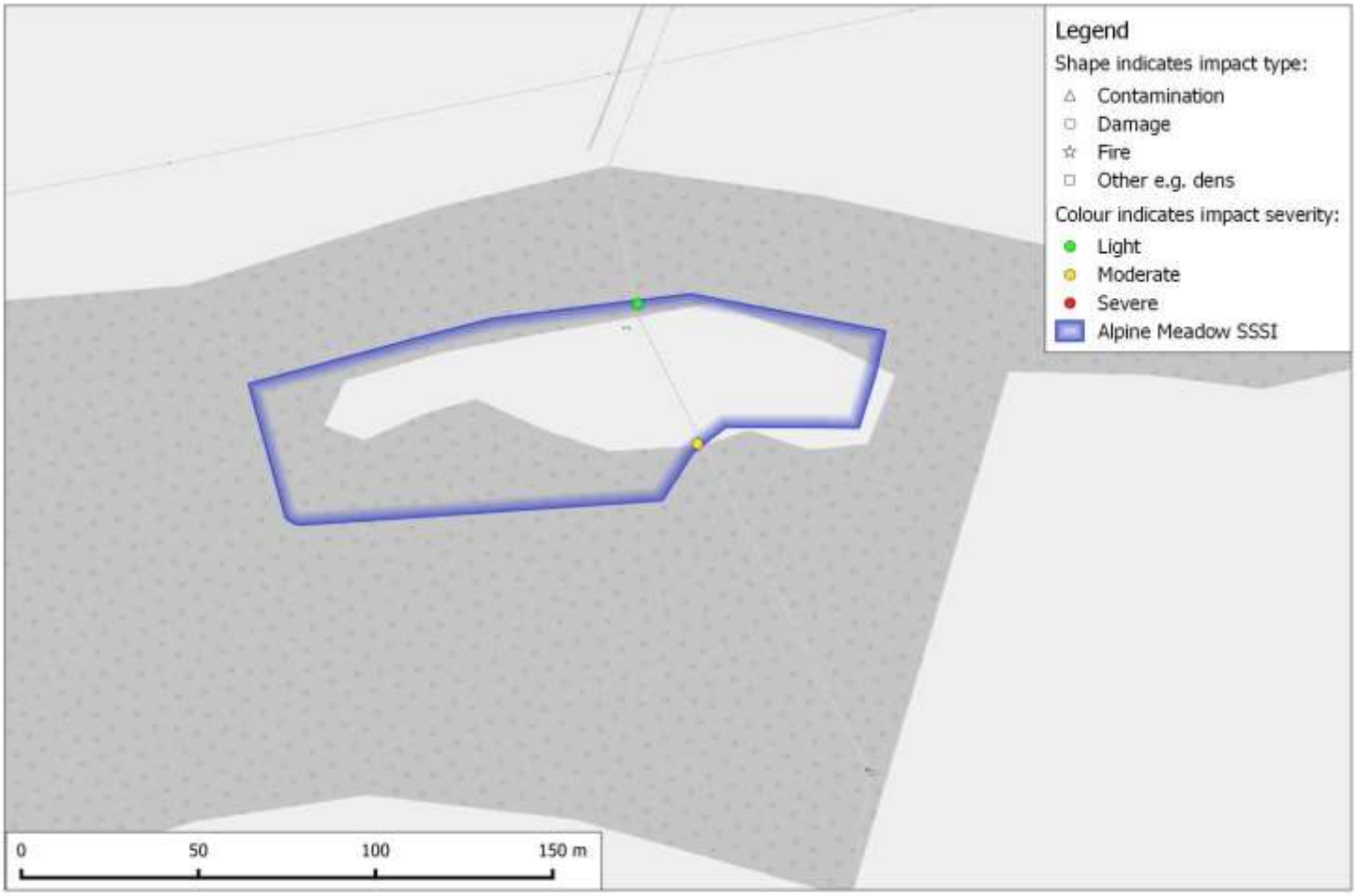


Appendix 4: Maps of recreation impacts at Dacorum SSSIs that are not within the Chilterns Beechwoods SAC

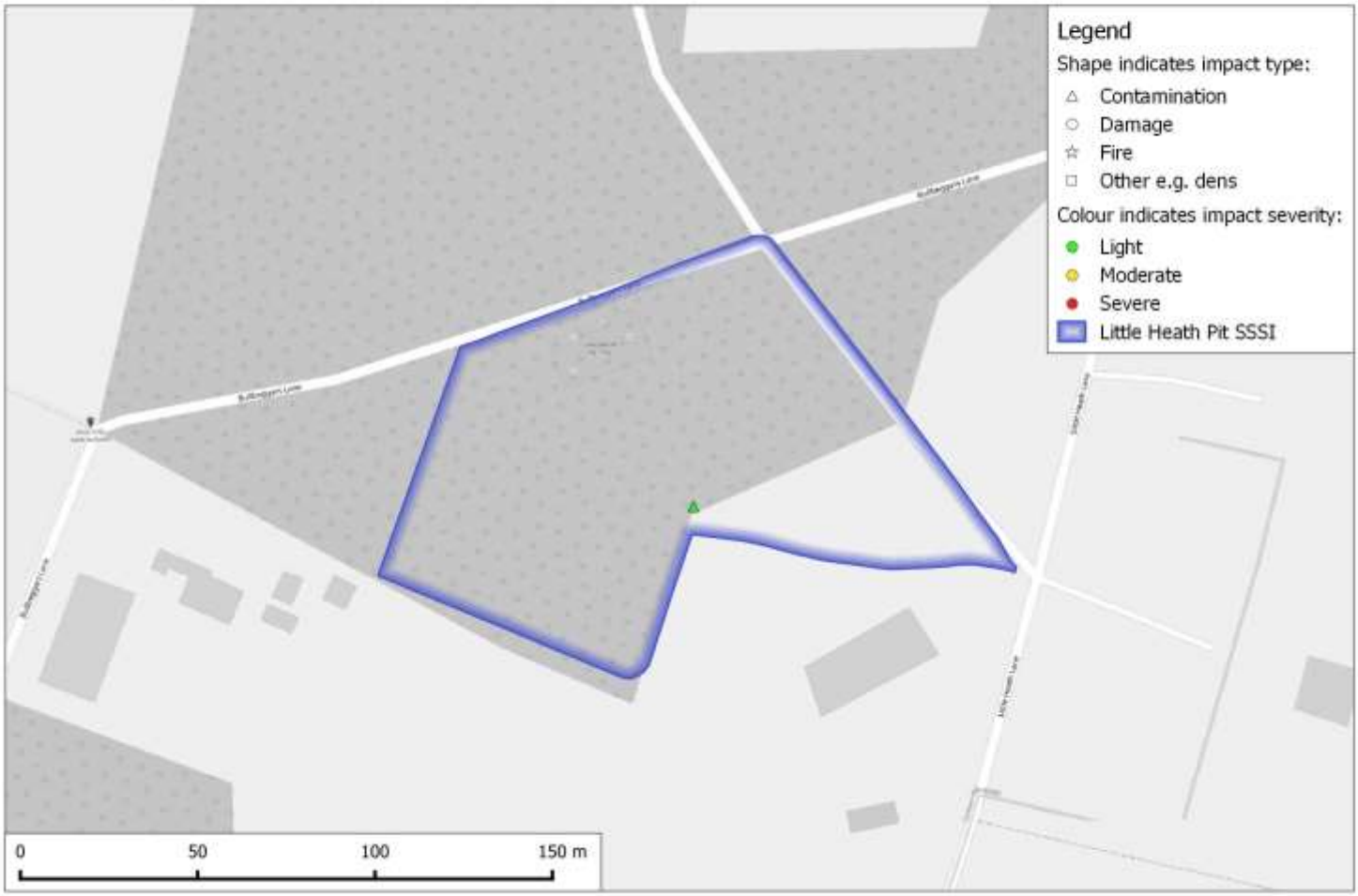
Observed impacts of recreation at Aldbury Nowers SSSI. Overlapping points have been shifted slightly.



Observed impacts of recreation at Alpine Meadow SSSI.

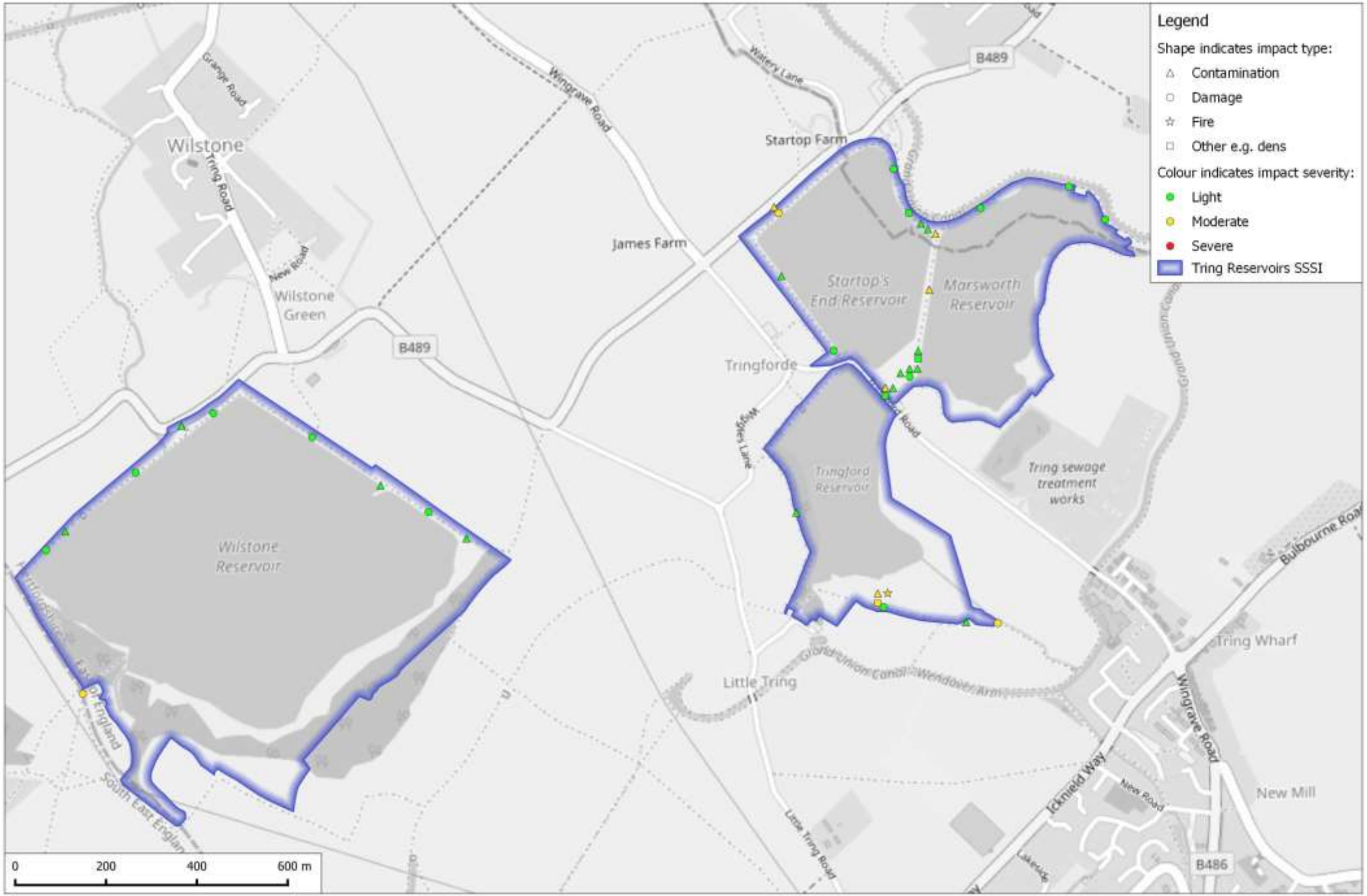


Observed impacts of recreation at Little Heath Pit SSSI.



Observed impacts of recreation at Roughdown Common SSSI.

Observed impacts of recreation at Tring Reservoirs SSSI. Overlapping points have been shifted slightly.



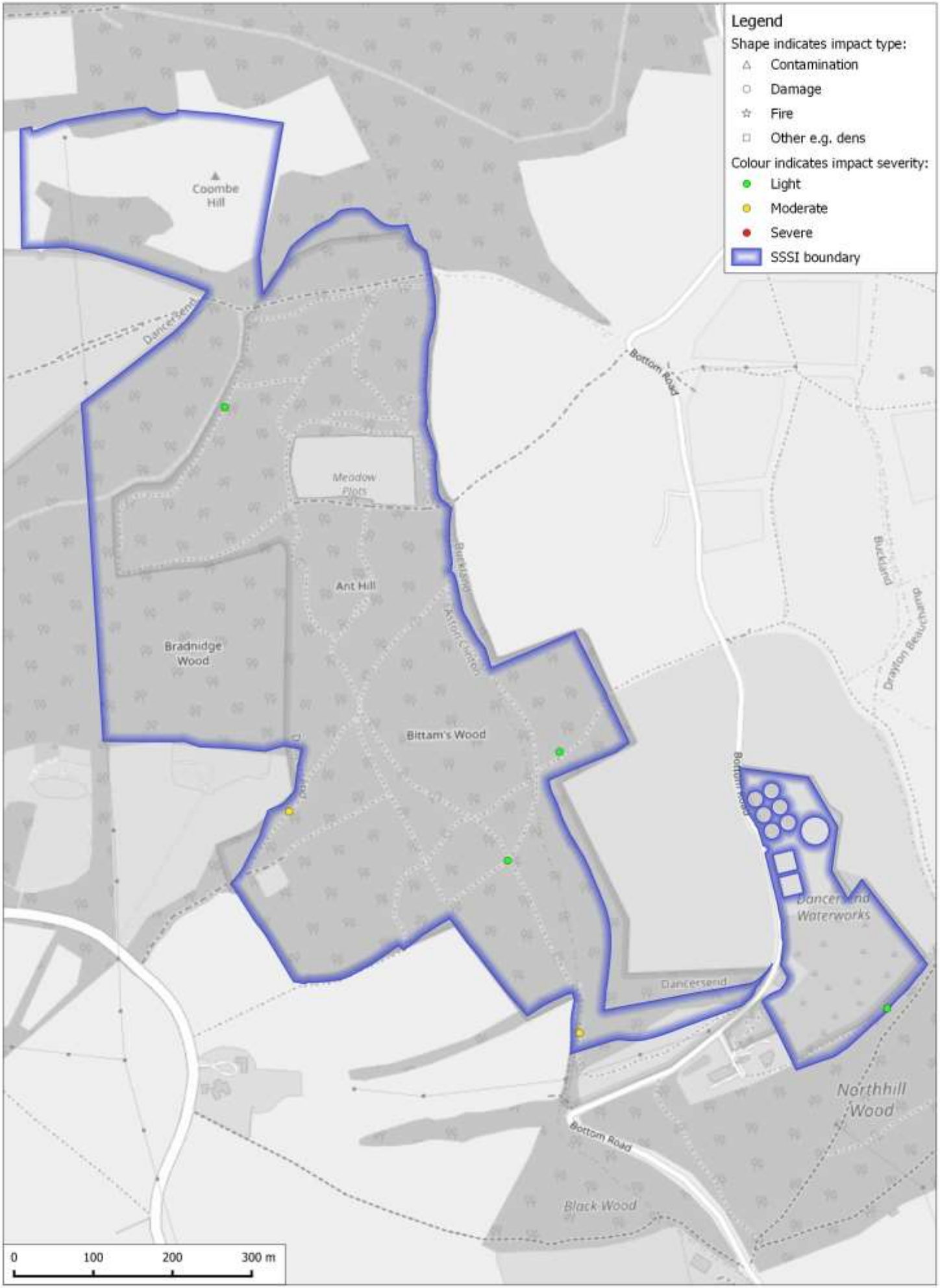
Appendix 5: Map of key areas at Oddy Hill and Tring Park SSSI

This map is taken from a previous report on the potential impacts of recreation at Tring Park (Saunders & Lake, 2019).

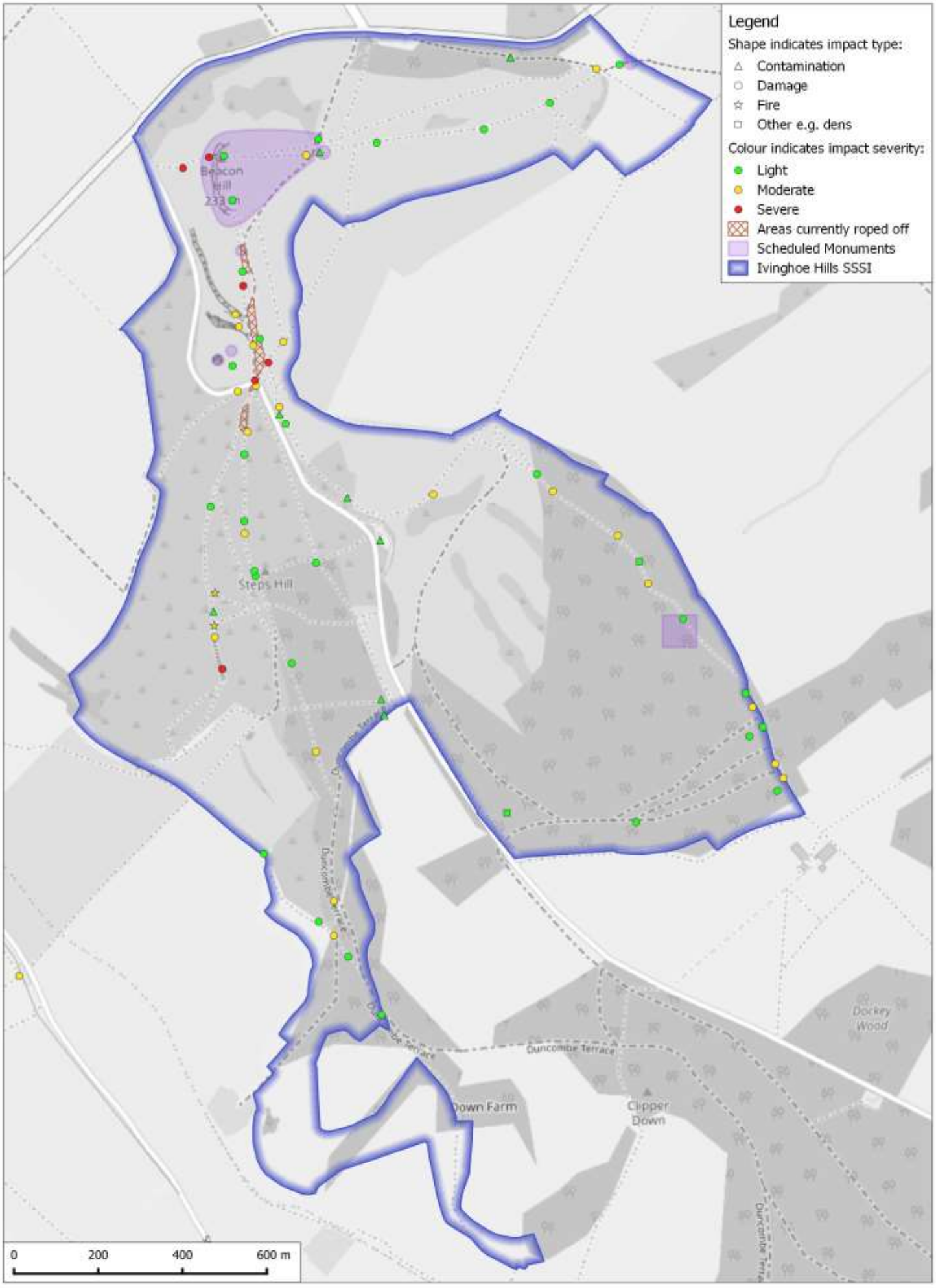
Map 3: Higher value areas for ecological features on site and suggestions for mitigation and/or management

Appendix 6: Maps of recreation impacts at selected SSSIs outside Dacorum

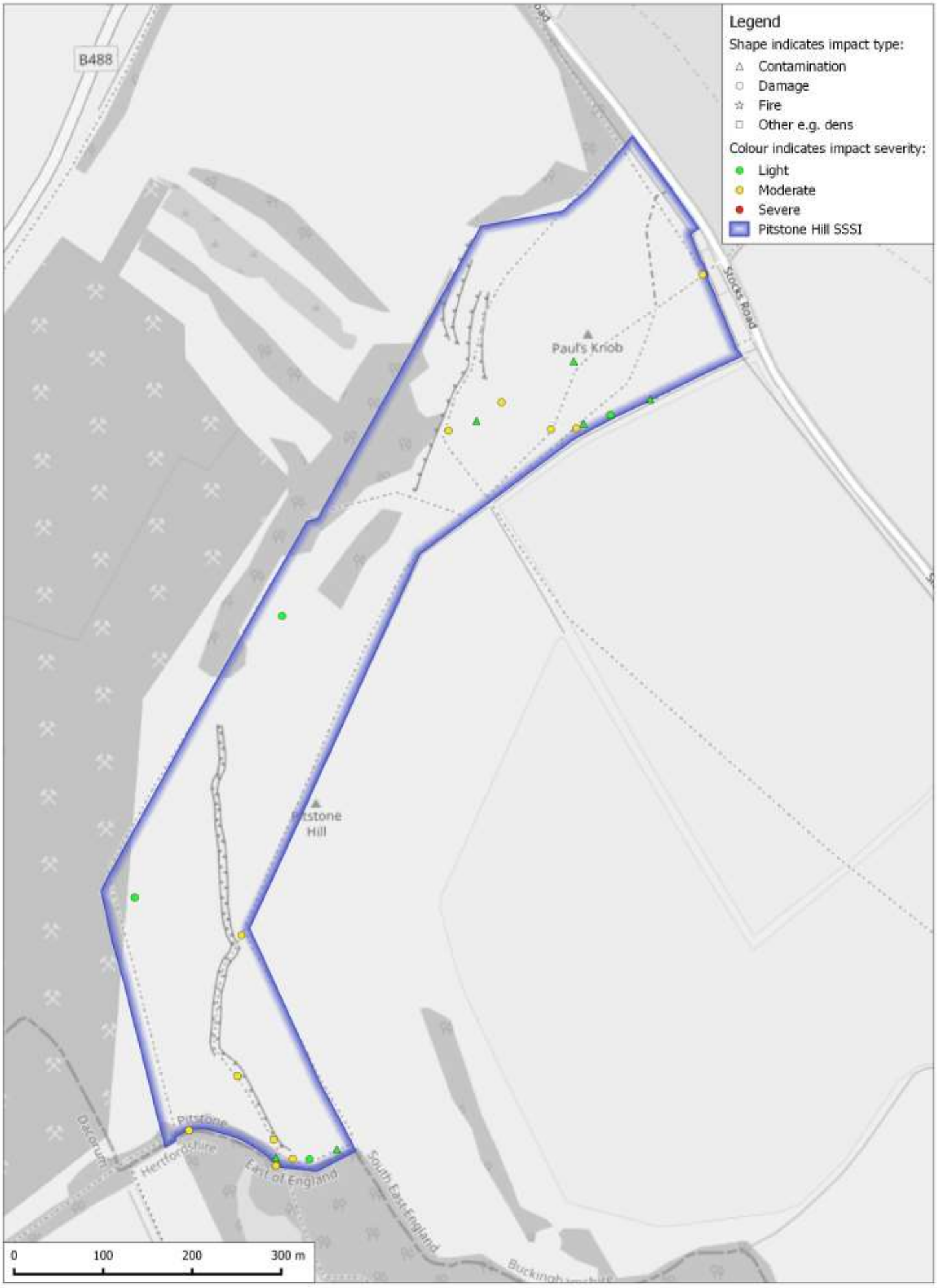
Observed impacts of recreation at Dancersend SSSI and Dancersend Waterworks SSSI



Observed impacts of recreation at Ivinghoe Hills SSSI. Overlapping points have been shifted slightly.



Observed impacts of recreation at Pitstone Hill SSSI. Overlapping points have been shifted slightly.



Appendix 7: Vehicle Counts

Table 25: Structure of the driving transect methodology, with duration and weather conditions on the transect given.

Type of day	Transect date	Weekday/ Weekend	Start time	Finish time	Rain	Cloud cover (8ths)	Weather notes
Term time	11-May	Weekday	12:00	15:30	N	8	Changeable. Overcast at start, periods of bright sunshine. Light breeze. warm (16°C).
	23-May	Weekend	12:00	15:11	Y	6	Showers, heavy when they happen, sunny in between. Not overly warm (12°C)
	13-Jun	Weekend	14:00	17:07	N	1	Sunny and hot (27°C)
	22-Jun	Weekday	09:00	11:29	N	8	Overcast, occasional sunshine (14°C)
	10-Jul	Weekend	12:00	14:38	Y	7	Overcast, some drizzle (19°C)
	15-Jul	Weekday	14:00	16:30	N	7	Overcast and warm (20°C)
School Holidays	07-Aug	Weekend	14:00	16:20	Y	4	Sunny with clouds. Started to rain at end. (21°C)
	11-Aug	Weekday	14:00	16:27	N	6	Sunny and cloudy. (22°C)
	17-Aug	Weekday	12:00	14:20	N	8	Overcast but fine (17°C)
	22-Aug	Weekend	09:00	11:10	N	7	Overcast/some sun. Some roads flooded due to overnight rain (16°C)

Appendix 8: Summary of survey point selection in relation to the number of access points and parking provision

The table summarises the number of access points at each site and the overall parking provision and the survey points selected.

Location type	Number of parking spaces	Number of access points	Number of survey points	Suggested survey locations (✓ = NT suggestions)
Ashridge Commons and Woods SSSI: Access points with parking	50+	1 (Monument Drive)	2	1: Monument Drive: Café (✓) 2: Monument Drive – Barracks Square
	20-50	4	2	3: B4506 layby & Dick's Camp (✓) 4: Dockey Wood (✓),
	10-20	4	2	5: Tom Hill car park (✓), 6: Northchurch Common (✓)
	1-10	11	3	7: Norcott Hill, 8: Frithsden Beeches (✓) 9: B4506 – Berkhamsted Common (✓)
Ashridge Commons and Woods SSSI: Access points without parking	-	19	1	10: Aldbury foot access (✓)
Tring Woodlands SSSI	-	8	2	11: West Leigh 12: Park-Woods linking land
Non- SAC survey points		-	2	13: Ivinghoe Beacon 14: Little Gaddesden
Total	**-**	**-**	**14**	

Appendix 9: Visitor survey questionnaire

Good morning / afternoon. I am conducting a survey on behalf of the Dacorum Borough Council who are interested in gathering the views of people who are visiting the greenspaces locally. Can you spare me a few minutes please?

Q1 Firstly...

- ◯ **Are you on a short visit and have travelled directly from your home today** ... *tick if yes, if no then ask next*
- ◯ **Are you staying away from home with friends or family** ... *if no*
- ◯ **Are you staying away from home, for example in a second home, mobile home or on holiday**
- ◯ *If none of the above* **How would you describe your visit today?**

Further details

Q2 **What is the main activity you are undertaking today?** *Do not prompt. Follow with any further activities in the next question*

	Main Activity (tick only one)
Dog walking	◯
Commercial dog walking	◯
Walking	◯
Jogging / Power walking / Running	◯
Cycling / Mountain biking	◯
Meeting up with friends	◯
Outing with family	◯
Bird / Wildlife watching	◯
Fishing	◯
Photography	◯
Picnic	◯
Horse riding	◯
Other fitness / sports	◯
Other, please detail:	◯

Further details:

Q3 **Are there any other activities you or other members in your group are undertaking today?** *Tick as many other activities as the interviewee gives*

	Other (multiple responses ok here)
Dog walking	☐

Commercial dog walking	☐
Walking	☐
Jogging / Power walking / Running	☐
Cycling / Mountain biking	☐
Meeting up with friends	☐
Outing with family	☐
Bird / Wildlife watching	☐
Fishing	☐
Photography	☐
Picnic	☐
Horse riding	☐
Other fitness / sports	☐
Other, please detail:	☐

Further details:

Q4 **What mode of transport did you use to reach the site today?** *Multiple responses possible, to record all transport used (e.g. car then bike)*

- ☐ Car / van
- ☐ On foot
- ☐ Bicycle
- ☐ Bus
- ☐ Train
- ☐ Other, please detail

Further details:

Q5 **How long have you spent / will you spend at this site today?** *Single response only. Tick closest.*

- ○ Less than 30 minutes
- ○ Between 30 minutes and 1 hour
- ○ 1-2 hours
- ○ 2-3 hours
- ○ 3-4 hours
- ○ 4 hours +

Further details

Q6 **Has the coronavirus pandemic changed how often you visit this site?** *Await answer and If yes follow with* **Have your visits increased or decreased?** *Do not prompt. Single response only.*

- ◯ No, visiting the same as before
- ◯ Don't know
- ◯ Yes, visiting more
- ◯ Yes, visiting less

Further details

Q7 **Before the pandemic, roughly how often would you have visited this site?** *Tick closest answer, single response only. Use example frequency or estimate of visits per year. Do not prompt.*

- ◯ More than once a day (365+ visits a year)
- ◯ Daily (300-365 visits)
- ◯ Most days (180-300 visits)
- ◯ 1 to 3 times a week (40-180 visits)
- ◯ 2 to 3 times per month (15-40 visits)
- ◯ Once a month (6-15 visits)
- ◯ Less than once a month (2-5 visits)
- ◯ Don't know
- ◯ First visit
- ◯ Other, please detail

Further details:

Q8 **Normally, do you tend to visit this site more at a particular time of year for [***insert their given activity***]?** *Multiple answers ok.*

- ☐ Spring (Mar-May)
- ☐ Summer (Jun-Aug)
- ☐ Autumn (Sept-Nov)
- ☐ Winter (Dec-Feb)
- ☐ Equally all year
- ☐ Don't know
- ☐ First visit

Further details:

Q9 **Why did you choose to visit this specific location today, rather than another local site?** *Tick all responses given. Do not prompt, tick closest answers. Use text box for answers that cannot be categorised and for further information.*

Don't know / others in party chose ◯

Close to home	○
No need to use car	○
Quick & easy travel route	○
National Trust membership	○
Good / easy parking	○
Particular facilities	○
Refreshments / cafe / pub	○
Choice of routes	○
Well marked routes	○
Slope / terrain	○
Feels safe here	○
Quiet, with no traffic noise	○
Not many people	○
Habit / familiarity / previous experience	○
Scenery / variety of views	○
Rural feel / wild landscape	○
Openess / wide open spaces	○
Heritage	○
Good for dog/ dog enjoys it	○
Ability to let dog off lead	○
Closest place to take dog	○
Closest place to let dog safely off lead	○
Appropriate place for activity	○
Suitability of area in given weather conditions	○
Particular wildlife interest (e.g. deer, bluebells and other woodland plants)	○
For a change / variety	○
Covid considerations (avoiding others, busy areas etc.)	○
Other, please detail	○

Further details:

Now I'd like to ask you about your route today. Looking at the area shown on this map, can you show me where you started your visit today, the finish point, and your route please. *Probe to ensure route is accurately documented and prompt for parking if needed. Use **P** to indicate where the visitor parked, **E** to indicate the start point and **X** to indicate the exit. If walking from home/holiday accomodation etc., then start the route from the nearest road. Mark the route with a line, using a solid line for the actual route and a dotted line for the expected or remaining route, and use a directional **arrow** on the route.*

Q10 No need to read this question, just use this to record the parking location. Was this a number parking location? if so give the number.

- ◯ Numbered parking location on the map
- ◯ Parked on a roadside/verge

Number of parking location from map or other notes:

Q11 **Is / was your route today the typical length when you visit here for [***insert given activity***]?** *Tick closest answer, do not prompt. Single response only.*

- ◯ Yes, normal
- ◯ Much longer than normal
- ◯ Much shorter than normal
- ◯ Not sure / no typical visit
- ◯ First visit

Q12 **What, if anything, determined your route today?** *Tick closest answers. Multiple responses ok. If interviewee struggles, prompt with: "***What influenced where you went today?***"*

- ☐ Weather
- ☐ Daylight
- ☐ Time
- ☐ Other users (avoiding other people, busy area etc)
- ☐ Group members (eg kids, less able)
- ☐ National Trust material
- ☐ Avoiding muddy tracks / paths
- ☐ Followed a marked trail / route
- ☐ Previous knowledge of area / experience
- ☐ Activity undertaken (e.g. presence of dog or needing to stick to cycle trails, add details)
- ☐ Location of pub / cafe / refreshments
- ☐ Passing public toilets
- ☐ Viewpoint / feature (inc. the Monument)
- ☐ Other, please detail

Further details:

Q13 **Is your route following any named walks or long distance paths?** *some key routes given for ease of recording - can select multiple routes - and if any others given then write in further details.*

- ☐ Yes, Chiltern Way
- ☐ Yes, Icknield Way
- ☐ Yes, Herfordshire Way
- ☐ Yes, Foresters Walk
- ☐ Yes, Rangers Ramble
- ☐ Yes, Wildlife Walk
- ☐ Yes, Ashridge Boundary trail
- ☐ Yes, Ancient Tree Walk
- ☐ Yes, Woodlands Walk
- ☐ Yes, Meadleys Meadow
- ☐ Yes, Duncombe Terrrace Family Walk
- ☐ Yes, other / not specified
- ☐ No
- ☐ Not sure/ Dont know

Further details:

I'd now like to ask about information you use to plan your visit here today.

Q14 Ask the following in turn, note order randomised.

	Yes	No	Don't know / Unsure
Did you use any websites when planning your visit today?	○	○	○
Did you use any social media when planning your visit today?	○	○	○
Did you use a smartphone app when planning your visit today?	○	○	○
Did you use any maps (online or paper) when planning your visit today?	○	○	○
Did you use any leaflets when planning your visit today?	○	○	○
Did you follow any recommendations from friends or family your visit today?	○	○	○

Q15 **You indicated that you used websites to plan your visit today, which websites did you use?** [Routed from above Q] Use further details to record particular feeds, channels or content.

Q16 **You indicated that you used social media to plan your visit today, which social media platform and accounts, posts or feeds did you use?**[Routed from above Q] Use further details to record particular accounts, posts, feeds or content.

Q17 **You indicated that you used a smartphone app to plan your visit today, which app did you use?** [Routed from above Q] Use further details to record particular app and if neeed any channels or specific content.

Further details (record any other details):

I would now like to ask about other local sites that you visit for [*their given activity*].

Q18 **What proportion of your weekly visits for [***their given activity***] take place here, compared to other sites. Can you give a rough percentage?** *Do not prompt.*

- ◯ All take place here
- ◯ 75% or more
- ◯ 50-74%
- ◯ 25-49%
- ◯ less than 25%
- ◯ Not sure / don't know / first visit

Please could you tell me the name of up to 3 other sites that you also visit for [*their given activity***]? Please list them starting with the one you visit most frequently.** *Record names as carefully as possible. Ask for spelling if necessary.*

Q19 Name of Site 1 *(most frequently visited)*

Q20 Name of Site 2

Q21 Name of Site 3

Q22 **Have you any suggestions as to how any of the sites you have mentioned could be improved to make them better for people to visit?**

Q23 **If a new Country Park, or other area of greenspace, was created for [***interviewee's given activity***] locally do you think you would be likely to use it?** *Do not prompt, tick closest answer.*

- ◯ Not sure / Don't know / Can't tell
- ◯ Yes
- ◯ Maybe
- ◯ No

Further details:

Q24 **If a new site were created, such as a Country Park, or other area of greenspace, what features do you think it should include to make it work for [***interviewee's given activity***]?** *Do not prompt. Tick any options as relevant.*

- ☐ Cafe
- ☐ Visitor centre
- ☐ Toilets
- ☐ Sufficient parking
- ☐ Free parking
- ☐ Extensive / good walking routes
- ☐ Dedicated cycling routes
- ☐ Bike hire
- ☐ Dedicated horse riding routes
- ☐ Off-lead areas for dogs
- ☐ Play facilities for children
- ☐ Good views / scenery
- ☐ Woodland
- ☐ Open water
- ☐ Other (give details)

Further details:

Q25 **What is your full home postcode?** *This is an important piece of information, please make every effort to record correctly.*

Q26 *If visitor is unable or refuses to give postcode:* **What is the name of the town or village where you live?**

Q27 *If visitor is on holiday ask:* **Which town / village / campsite are you staying in?**

Q28 Are there any changes you would like to see here with regards to how this area is managed for access?

Q29 **Finally, do you have any further comments or general feedback about your visit?**

That is the end. Thank you very much indeed for your time.

Q30 **TO BE COMPLETED AFTER INTERVIEW FINISHED.**

Surveyor initials	
Survey location code	
Map Reference Number	
Sex of respondent	
Total number in interviewed group	
Total males in group	
Total females in group	
Total minors (under 18) in group in group	
Total number of dogs	
Number of dogs seen off lead in group	

Q31 **Surveyor comments**. *Note anything that may be relevant to the survey, including any changes to the survey entry that are necessary, eg typos / mistakes / changes to answers / additional information.*

Appendix 10: Visitor survey summary statistics relating to linear distances

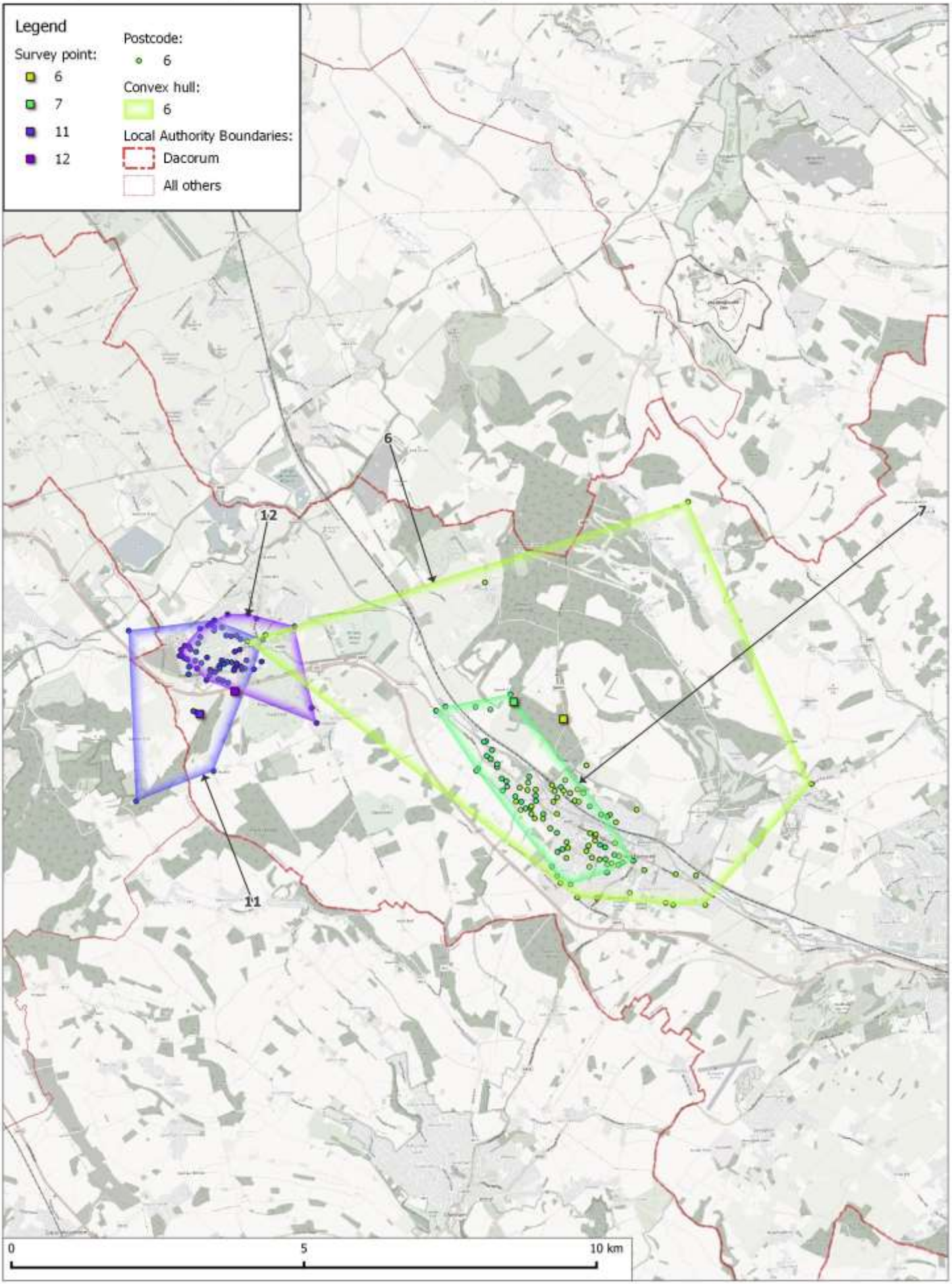
Summary statistics based on linear distances between interviewees' home postcode and the survey point for different activities. Data are only for those interviewees on a short visit and travelling directly from home. The rows are sorted by the number of interviewees.

	Interviewees from home provideing postcodes	Mean ± SE	Median	Q3 (75th percentile)	Min – Max
Dog walking	511	6.8 ± 0.4	4.5	8.4	0.1 - 74.4
Walking	409	13.6 ± 0.8	8.0	16.7	0.1 - 131.4
Jogging / Running	33	5.8 ± 1.2	4.0	7.4	0.1 - 37.9
Cycling / Mountain biking	26	11.6 ± 2.8	6.3	10.3	2.5 - 62.1
Outing with family	25	18.8 ± 4.3	13.3	21.5	1.6 - 110.6
Other	12	15 ± 3.2	14.3	24.4	0.8 - 32.4
Bird / Wildlife watching	9	12.6 ± 2.9	8.7	19.0	4.3 - 30.8
Commercial dog walking	6	5.1 ± 1.4	3.9	8.8	1.6 - 10.3
Picnic	4	38.7 ± 19.1	25.1	79.0	10.3 - 94
Horse riding	3	4.3 ± 1.3	4.4	6.5	2 - 6.5
Meeting up with friends	3	50.8 ± 24.2	51.6	92.2	8.5 - 92.2
Photography	1	10.6	10.6	n/a	10.6

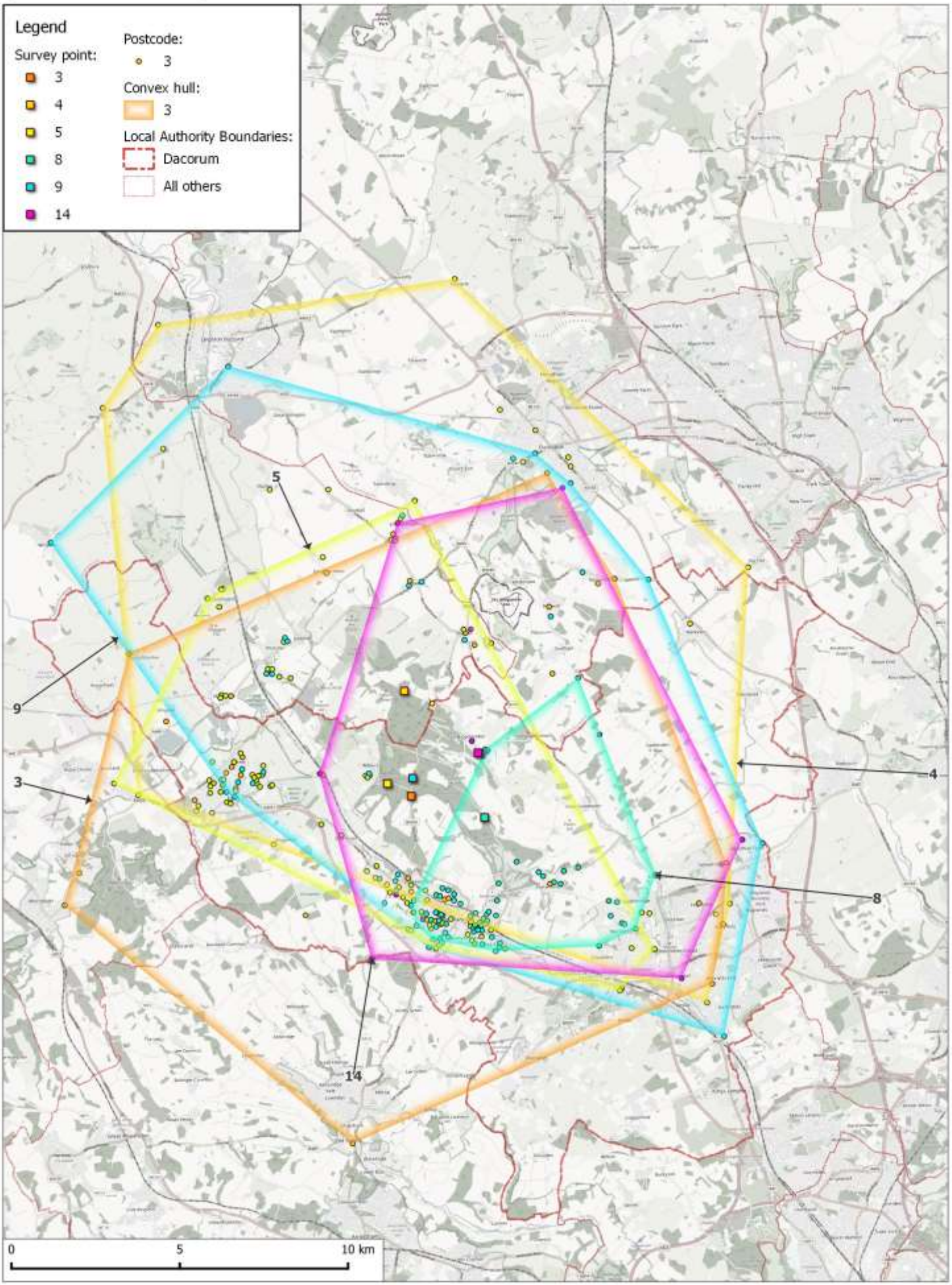
Summary statistics based on linear distances between interviewees' home postcodes and the survey point, shown for different visit frequencies. Data are only for those interviewees on a short visit and travelling directly from home. The rows are sorted by the number of interviewees.

Survey point	Interviewees from home provideing postcodes	Mean ± SE	Median	Q3 (75th percentile)	Min – Max
All interviewees					
More than once a day (365+ visits a year)	17	2.8 +- 0.5	2.7	5.0	0.1 - 5.7
Daily (300-365 visits)	113	3.9 +- 0.4	2.9	5.0	0.1 – 35.0
Most days (180-300 visits)	106	4.4 +- 0.4	3.8	6.2	0.1 - 18.2
1 to 3 times a week (40-180 visits)	340	5.7 +- 0.4	4.1	6.9	0.1 - 98.2
2 to 3 times per month (15-40 visits)	123	10.3 +- 0.9	7.0	12.4	0.7 - 51.7
Once a month (6-15 visits)	110	13.5 +- 1.8	9.5	14.0	0.8 – 146.0
Less than once a month (2-5 visits)	133	24.6 +- 3.0	16.3	28.9	0.8 - 259.6
First visit	87	44.5 +- 6.1	35.2	45.4	2 - 482.1
Other, please detail	41	19.7 +- 4.3	10.1	25.4	0.7 - 101.5
Ashridge sites					
More than once a day (365+ visits a year)	15	3.2 +- 0.4	2.8	5.1	0.1 - 5.7
Daily (300-365 visits)	90	4.3 +- 0.5	3.3	5.2	0.2 – 35.0
Most days (180-300 visits)	85	5.2 +- 0.4	4.5	7.2	0.2 - 18.2
1 to 3 times a week (40-180 visits)	279	6.2 +- 0.4	4.6	7.9	0.3 - 98.2
2 to 3 times per month (15-40 visits)	103	9.9 +- 0.8	7.2	11.9	1.8 - 40.7
Once a month (6-15 visits)	84	11.8 +- 1.2	9.8	13.9	1.3 - 74.4
Less than once a month (2-5 visits)	110	21.4 +- 1.7	16.9	29.0	1 - 131.4
First visit	55	34 +- 3.1	32.4	45.1	2 - 110.6
Tring sites					
Daily (300-365 visits)	20	1.2 +- 0.3	0.7	1.0	0.1 - 5.3
Most days (180-300 visits)	19	0.9 +- 0.1	0.9	1.2	0.1 - 2.5
1 to 3 times a week (40-180 visits)	53	2.0 +- 0.3	1.2	1.6	0.1 - 9.5
2 to 3 times per month (15-40 visits)	7	3.3 +- 2.0	1.4	1.8	0.7 - 15.5
Once a month (6-15 visits)	11	2.9 +- 0.8	1.2	5.1	0.8 - 8.5
Less than once a month (2-5 visits)	3	1.6 +- 0.5	1.6	2.4	0.8 - 2.4
First visit	3	16 +- 11.5	6.9	38.9	2.2 - 38.9
Other, please detail	16	2.6 +- 0.7	1.2	3.1	0.7 – 8.0

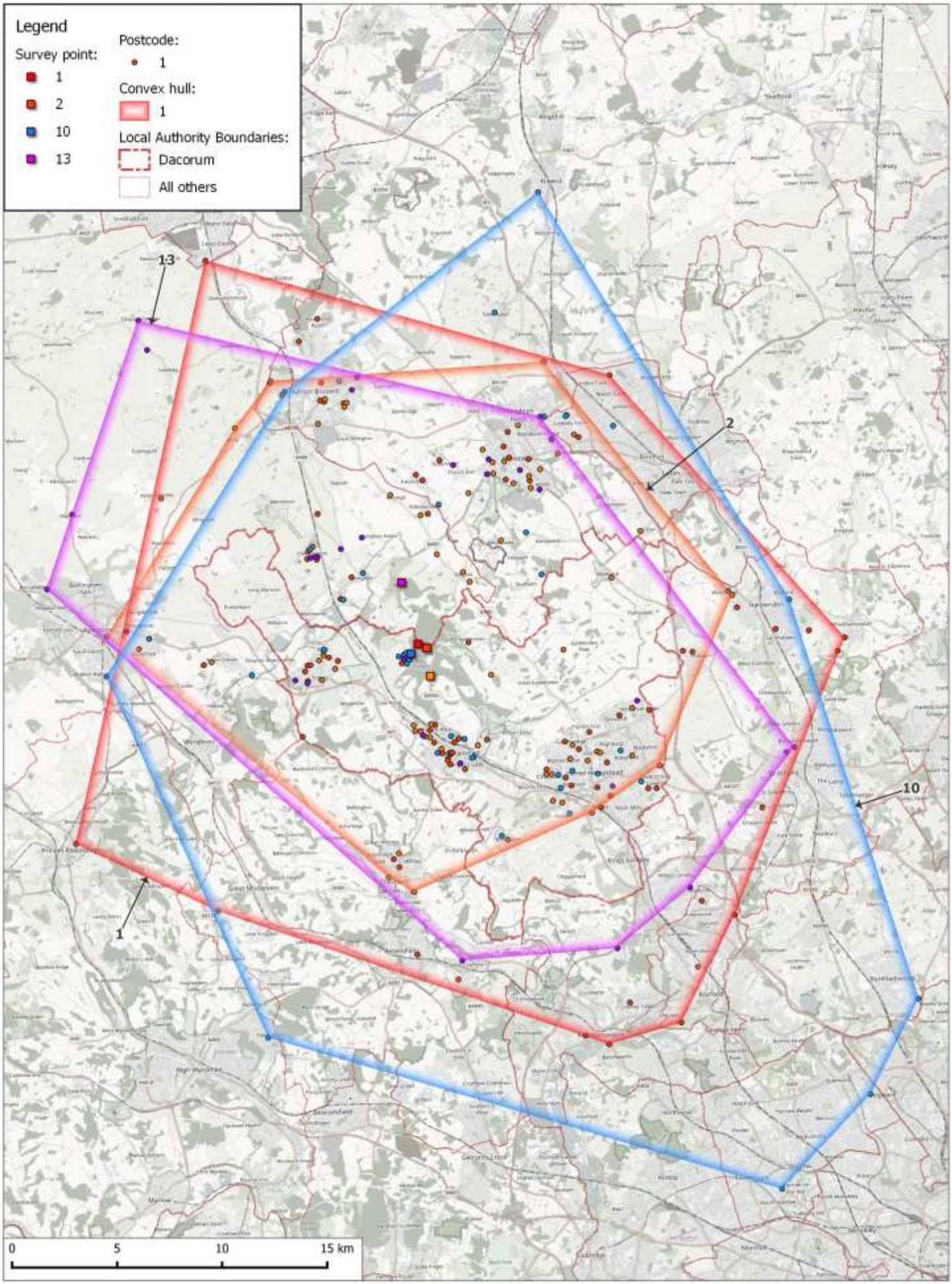
Appendix Map: Convex hulls around the 75th percentile for the 4 smallest. Convex hull and postcodes are all categorised in a corresponding colour to the survey point.



Appendix Map: Convex hulls around the 75th percentile for the 6 medium sized. Convex hull and postcodes are all categorised in a corresponding colour to the survey point.



Appendix Map: Convex hulls around the 75th percentile for the 4 largest. Convex hull and postcodes are all categorised in a corresponding colour to the survey point.



Appendix 11: Selected examples of other European site mitigation schemes

This appendix summarises a selection of other European site mitigation schemes and broad approaches for mitigation in-place. The table only gives examples of schemes relating to recreation and urban effects[23]. The table only includes schemes that are established and it should be noted that there are also a number of schemes in development. Hyperlinks relate to project specific websites or relevant local authority pages with further information and details. ZOI refers to zone of influence (e.g. for collection of developer contributions).

Area	Issues & sites addressed by mitigation strategy	'Exclusion zone'	ZoI	SANGs/GI	Wardening	Other mitigation measures	Monitoring measures	Further details and notes
Thames Basin Heaths	Recreation and urbanisation; heathland SPA	400m	5km	Minimum of 8ha of SANGs per 1000 residents	Thames Basin Heaths Partnership, currently c. 9 full time equivalents	Dog Project, education work and dedicated education officer.	Automated counters, vehicle counts, interviews, fire records, bird monitoring.	Long-running scheme. Each local authority has produced their own SPD/mitigation in line with agreed strategic approach.
South-east Devon	Recreation and urbanisation; sand dune SAC, heathland SPA/SAC and estuary SPA/Ramsar.	400m around heathland only	10km	Some SANG at strategic locations identified in strategy	2 Full-time equivalents.	Dog Project, bird refuges on estuary, patrol boat on estuary, codes of conduct.	Targeted work on effectiveness of refuges; some visitor survey work	3 local authorities, and various zones reflecting the relevant European sites.

[23] Note that there are also schemes addressing water quality, air quality etc.

Area	Issues & sites addressed by mitigation strategy	'Exclusion zone'	ZoI	SANGs/GI	Wardening	Other mitigation measures	Monitoring measures	Further details and notes
Solent	Recreation impacts for 3 coastal SPA/Ramsar sites	No	5.6km	Some SANGs plus other infrastructure set out in mini 'Access Management Assessments' each focussed on different sections of coast.	Team of rangers	Awareness raising and wider promotion.	Automated counters, vehicle counts, interviews, targeted work testing effectiveness of ranger presence.	Bird Aware Project established with strong branding. More site-specific projects and awareness raising work still being developed.
Cannock Chase	Recreation impacts to heathland SAC	400m	15km	No	Delivery Officer and Engagement Officer only so far	Parking strategy and access management strategy for the SAC with series of interventions and targeted measures.	Vehicle counts, interviews.	6 local authorities have signed a joint memorandum of understanding which ensures joint approach
North Kent	Recreation impacts for 3 coastal SPA/Ramsar sites	No	6km	No	3 rangers	Dog Project, Codes of Conduct, Signage and Interpretation and Site Specific Enhancements	Visitor and bird monitoring.	4 local authorities, each with slightly different approaches to developer contributions.
Essex Coast	Recreation impacts for 9 coastal	No	4.5-20.8km	No	Ranger team being built up over time, will include	Education and communication, codes of conduct,	Visitor surveys, bird monitoring	11 local planning authorities, joint SPD in preparation.

Area	Issues & sites addressed by mitigation strategy	'Exclusion zone'	ZoI	SANGs/GI	Wardening	Other mitigation measures	Monitoring measures	Further details and notes
	SPA/Ramsar sites and 1 SAC				water-based ranger.	habitat-based measures.	and vegetation monitoring	
Burnham Beeches	Recreation and urbanisation impacts for a woodland SAC	500m	5.6km	No	1 Engagement Ranger/SAC Ambassador	Electronic interpretation, events and promotion, access plan/carrying capacity study	Visitor surveys, soil and ecological impacts	Each local authority will develop their own mitigation approach. Zones and information presented relate to Chilterns and South Bucks.
Suffolk Coast	Recreation impacts for 8 coastal/estuary sites including mix of SAC, SPA and Ramsar	No	13km	Large sites only.	Delivery officer and team of rangers	Dog Project, codes of conduct, signage and interpretation, awareness raising, range of site specific projects	Visitor surveys (counts and interviews), bird monitoring,	4 local authorities and joint strategy covering numerous sites along large stretch of coast
South Tyneside	Recreation impacts for coastal SAC and a coastal SPA	No	6km	No	Delivery office and 0.5 full time equivalent ranger post	Dog Project, review of parking.	Automated counters and bird surveys	Interim strategy established.
Poole Harbour	Recreation impacts for coastal SPA and Ramsar	No	Variable, not based on specific distance	Rolling 5 year programme of Infrastructure Projects	Project coordinator and a warden	Leaflets, litter clearance and engagement	Visitor and bird surveys	2 local authorities with a joint SPD

Area	Issues & sites addressed by mitigation strategy	'Exclusion zone'	ZoI	SANGs/GI	Wardening	Other mitigation measures	Monitoring measures	Further details and notes
New Forest	Recreation impacts for SAC/SPA/Ramsar	No	District Awide (note Test Valley currently apply a 13.6km zone)	8ha per 1000 residents for sites over 50 dwellings	Funding for additional National Park ranger time	Programme of enhancement of footpaths/rights of way and existing open spaces.	Site condition, visitor patterns.	Link and details given relate to New Forest District. Each authority currently following own approach with longer term aim for a more joined-up approach
Ashdown Forest	Recreation (and urban effects) for heathland SPA	Yes	7km	Contributions towards SANG or options for developers to provide	Through Ashdown Forest Conservators	Code of conduct, awareness raising, volunteer dog rangers, dog related events	Visitor monitoring on SANG and the SPA	6 local authorities with work in partnership since 2012
South Pennine Moors SPA	Recreation, urban effects and supporting habitat for moorland SPA and SAC	400m	7km for recreation; 2.5km for supporting habitat	Improvements to existing GI	3 rangers and a delivery officer	Interpretation, awareness raising, access infrastructure, parking.	Visitor surveys, ecological monitoring	Draft SPD

Appendix 12: Suggested SANG guidelines

The following guidance sets out suggested principles for SANG delivery. In order to have confidence that greenspace is of a suitable size and quality the following attributes should be met:

- SANG should be provided at a rate of 8ha per 1000 new residents; this per ha standard is equivalent to 0.0192ha per dwelling (assuming an occupancy rate of 2.4 people per dwelling).
- Sites with sports grounds, playing fields or children's play areas are unlikely to meet the criteria for SANG or if such features are present they should not be counted towards the per ha standard.
- Where sites have existing visitor use, this existing use will need to be taken into account when applying the per ha standard. This will require visitor survey data to be available. Sites are likely to have additional capacity where average visitor use is less than 1 person per ha per hour[24]. Where existing sites are already well used, there will be a need to demonstrate that the measures will be effective, and this may require some delivery upfront.
- The focus for the SANGs should be large sites of at least 40ha (which will accommodate suitably long routes[25]), however smaller sites (15ha and above) may work, depending on the location and quality.
- SANGs should provide parking that is free or significantly cheaper than parking at the European sites. A guide to parking provision should be in the region of 1.5 spaces per ha of SANG[26].
- They should be quiet countryside locations, away from traffic noise (i.e. the motorway), industrial sites etc. They should have a sense of space, and be a viable alternative to the Chilterns Beechwoods.
- They should contain a variety of habitats and be scenic, ideally with views.
- They should provide attractive, informal areas for dog walking: a range of walk lengths on relatively dry terrain, including some of at least 2.5km where dogs can be safely off the lead during the whole walk.

---

[24] This provides a guide or approximate benchmark, typically busier than the relevant European sites but less than an urban park (see Liley et al., 2015). Sites will need to be considered on a case-case basis.

[25] A square with sides of 625m would be just under 40ha and provide for a linear route (around the perimeter) of 2.5km.

[26] This figure will depend on how close the SANG is to housing and the proportion of visitors that might arrive on foot or by bicycle. A busy SANG site might be expected to have up to 1 person visiting per ha per hour. Given that visitor numbers will not be constant every hour (i.e. there will be peak times of visiting) and easy parking is likely to be an important draw (meaning a need to ensure confidence to park), we suggest 1.5 spaces per ha.

- They should provide routes that attract walkers, potentially including families. Walks are likely to need to be circuits with some interest (such as viewpoints, heritage features etc.).
- The site(s) should provide access all year round, without areas becoming waterlogged or inaccessible due to wet or muddy terrain.
- They should provide routes that work for cycling, potentially accommodating family cycling groups and mountain bikes as a low-key destination.
- Access points to the SANG(s) should be primarily within a 5km radius or 10 minute drive and easily accessible by road from the development. Some direct foot access and good access routes for cyclists would be ideal. Direct access on foot would mean some SANG provision within around 500m radius of proposed housing locations.
- SANGs should be recognisable as a 'destination' such that sporadic visitors are drawn from a wide area and such that the site also attracts more regular (at least weekly) visitors. As such they will need to be positively promoted and welcoming.
- On-site infrastructure should be relatively low key, and could include the following as appropriate:
    - Small scale visitor centre/shelter (not necessarily staffed);
    - Interpretation (providing information about the area)
    - Wayfinding infrastructure to direct people around the site
    - Some surfaced paths/boardwalks
    - Wildlife viewing facilities (such as screens)
    - Range of paths (some waymarked) that provide a range of different routes and circuits, potentially including some longer routes for cycling (perhaps family groups and relatively low-key mountain bike circuits) but not such that other access (e.g. appeal to dog walkers) is compromised
    - Access to water for dogs to drink, bathe and splash in
    - Benches/informal seating
    - Viewpoints
- SANGs will need to be promoted through a range of different ways, including signage, so that they are easy to find and local residents (both new and existing) are well aware of the site.
- SANGs will need to provide access in perpetuity, and therefore require some legal mechanism to ensure this.
- Sites with significant nature conservation interest (SSSI) or particualrly vulnerable species present are unlikely to be suitable as SANG.

Appendix 13: Summary of impact assessments and other data for surrounding SSSI sites

This appendix summarises data from SSSIs included in the impact assessment and provides an indication of potential carrying capacity at those sites. It also includes a selection of commons which could also provide a similar visitor experience to Ashridge. Sites included in the table are also shown on Map 20 within the main body of the report. Current visitor levels figures are estimates from the Outdoor Recreation Valuation Tool (ORVal), developed by the Land, Environment, Economics and Policy Institute (LEEP) at The University of Exeter. The predictions are a guide only and are derived from modelling rather than any specific data collected at the site. We use red and green arrows to highlight whether we suspect the predictions are an underestimate or overestimate. Houses within 500m provides an indication of how much very local use each site may get and the number of dedicated parking spaces reflects the potential for visitors to come from further afield. Sites are assigned red, amber or green in the penultimate column as to whether the impact assessments identified concerns for further recreational use.

Site	Ha	Current visitor levels (ORVal)	People per ha per hr	Green over estimate, red under estimate	Houses within 500m	Dedicated parking spaces	% of visitors naming	RAG scoring for concerns	Further capacity?
SSSIs (exc. Tring Woodlands and Ashridge Commons and Woods)									
Ivinghoe Hills	210.5	118,919 (59.5ha & footpath)	0.15	↘	14	120	6.4	Red	Although a large site, footfall is very concentrated and dense clusters of impacts observed. It is a very busy and sensitive site.

Site	Ha	Current visitor levels (ORVal)	People per ha per hr	Green over estimate, red under estimate	Houses within 500m	Dedicated parking spaces	% of visitors naming	RAG scoring for concerns	Further capacity?
Tring Reservoirs	56.5, 28.7 & 14.8	606,443 (footpath)	1.66		656	130	1.7	Amber	Busy site, but more robust with relatively little impacts so far, but year around sensitivities
Dancersend	47.1	22,736 (53.1ha)	0.13		33	8	0.5	Amber	Wide network of paths although still vulnerable
Oddy Hill and Tring Park	34.9 & 1.1	159,320 (109.0 ha)	1.21		70	85	10.2	Amber	Important site, already recreation pressures observed in albeit a relatively limited area. Issues were often localised, but sensitive site which is already relatively busy.
Pitstone Hill	22.3	71,649 (footpath)	0.88		3	30	2.5	Red	Current impacts were not severe, but high vulnerability due to very varied topography of the chalk grassland
Aldbury Nowers	19.8	25,021 (42.9ha)	0.35		3	0	0.2	Red	Limited impacts currently, but small site and therefore access is concentrated along one footpath
Dancersend Waterworks	4.0	22,736 (53.1ha)	1.56		12	0	0	Red	Permit only access – as such, very few impacts observed, and therefore access changes

Site	Ha	Current visitor levels (ORVal)	People per ha per hr	Green over estimate, red under estimate	Houses within 500m	Dedicated parking spaces	% of visitors naming	RAG scoring for concerns	Further capacity?
									would have a greater relative change
Roughdown Common SSSI	3.7	29,683 (0.6 ha)	2.20	↘	558	0	0	Red	SSSI is part of wider site (also listed below), chalk slopes sensitive to recreation
Little Heath Pit	1.2	n/a	0.00		70	0	0	Red	Geological interest is fenced, but a small site and potential for relatively small increases in visitors to change the site
Alpine Meadow	0.8	10,266 (5.1ha)	3.52	↗	1	0	0.1	Red	Small site, calcareous grassland with abundant orchids, currently limited recreation - high concern that any increases in recreation will easily alter this site No capacity.
Common land (>5ha, exc. the SAC)									
Berkhamsted Common	66.6	-	-		635	55		-	Golf course
Boxmoor and Dew Green Commons	51.0	533,283 (32.32ha)	2.86		6406	165	6.4	-	Some playing fields
Hudnall Common	47.5	28,169 (23.25ha)	0.16		63	115	1.7	-	
Chipperfield Common	46.5	70,946 (42.57ha)	0.42		479	25	0.5	-	

Site	Ha	Current visitor levels (ORVal)	People per ha per hr	Green over estimate, red under estimate	Houses within 500m	Dedicated parking spaces	% of visitors naming	RAG scoring for concerns	Further capacity?
Shothanger Common	23.4	26,055 (6.13 ha & footpath)	0.31		496	0	10.2	-	Golf course closed?
Kings Langley Common	12.6	69,264 (9.31ha)	1.51		1242	5	2.5	-	
Roughdown Common	9.7	44,956 (6.19ha)	1.27		933	10	0.2	-	
Hedges Wood Common	6.1	24,371 (footpath)	1.09		154	6	0	-	
Sandpit Green and Long Green	5.8	33,711 (6.50ha)	1.59		201	0	0.1	-	
OS greenspaces (>5ha)									
Bunkers Park	48.38	72,207 (35.81ha)	0.41		1726	0	0.6	-	Large site, suggested more capacity but assessment made prior to crematorium construction
Studham Common	39.76	84,115 (26.88ha)	0.58		233	225	0.4	-	Large rural site
Gadebridge Park	38.84	357,492 (40.01ha)	2.52		4623	25	0	-	Urban site, likely no capacity
Shrub Hill Common	13.24	110,348 (10.19ha)	2.28		3212	15	0	-	Urban site, likely no capacity
Keens Field	10.17	208,681 (16.88ha)	5.62		4294	0	0	-	Very urban site, no capacity

Site	Ha	Current visitor levels (ORVal)	People per ha per hr	Green over estimate, red under estimate	Houses within 500m	Dedicated parking spaces	% of visitors naming	RAG scoring for concerns	Further capacity?
Margaret Lloyd Park	8.93	95,946 (8.50ha)	2.94		2975	35	0	-	Urban site, likely no capacity
Marchmont Pond	6.26	53,762 (5.25 ha)	2.35		1686	0	0	-	Urban site, likely no capacity
Northridge Park	5.59	53,873 (5.13ha)	2.64		2386	10	0.3	-	Urban site, likely no capacity