



**FOOTPRINT
ECOLOGY**



Hatfield Forest

National Nature Reserve and Site of Special Scientific Interest

Visitor Survey and Impact Management 2018

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Footprint Contract Reference: 486

Date: 25/03/2019

Version: Final

Recommended Citation: Saunders, G., Liley, D., Panter, C., Weitowitz, D. (2018). Hatfield Forest: Visitor Survey and Impact Management. Unpublished report by Footprint Ecology for the National Trust.

Summary

1. This work was commissioned by the National Trust as Hatfield Forest is showing severe signs in winter of being over-capacity in terms of visitor traffic, and is currently registered as 'Unfavourable, Recovering' by Natural England after their condition survey. The National Trust has instigated an 'Every Step Counts' strategy, with the aim of finding solutions to resolve the impacts in the long-term.
2. A survey was undertaken of visitors to Hatfield Forest over winter (2017-18) and summer (2018). Interview data were gathered and analysed to provide evidence on visitor origins, attitudes and behaviour. Extrapolations were made, within the limits of the available data, to gauge how overall numbers of visits may compare with numbers of individual visitors. The zone of influence from which Hatfield Forest is currently drawing most of its visitors was calculated, and compared with future residential housing figures to gauge the likely impact of rising housing levels on visitor numbers. Based on these findings and observations of the Forest, guidance is offered on how the current severe impact of visitors may be managed in the future.

Survey method

3. Visitor data were collected at six survey points at Hatfield Forest, two of them at drive-in locations (Shell House car park and Main Entrance car park), two at walk-in locations (Takeley Hill gate and Elmans Green gate), one within the forest (Eight Wantz Ways) and a final survey point in the summer overflow car park (Elgin's car park – summer survey only).
4. In the winter 104 hours of survey time were spent, across 13 days between late December 2017 and mid-February 2018, with survey dates spread to include weekdays and weekends, holiday periods and non-holiday. During the non-holiday period (late January/early February), an equal amount of survey time was allocated to each of the five survey locations (16 hours at each). During the holiday periods a further 12 hours was spent at each of the two drive-in locations, given the larger numbers of people accessing those locations.
5. In the summer, a further 104 hours of survey were undertaken, in August and September 2018. Survey effort was evenly split between weekdays and weekends. Surveys included the August bank holiday Monday and weekend, 'Woodfest' and the rest in normal term time.
6. Counts ('tallies') of visitors were maintained at all locations as part of the survey work, and a total of 3,856 people (plus 1,118 dogs) were recorded as passing all survey locations during the 208 hours of survey time.
7. For the January 2018 survey period only, during which survey time was equal at the five main survey locations, total tallied numbers of people at each location were: Shell House 244; Main entrance car park 529; Takeley Hill 121; Elmans Green 169; Eight Wantz Ways 68.
8. The average number of people per hour was highest on Boxing day at Shell House, with 123 people per hour (pph) passing, followed by the Entrance car park in the Christmas period, 76 pph, and on Boxing day, 67 pph, and the Elgins car park on the August Bank Holiday Monday, 65 pph.

9. Across all survey locations 647 visitors were approached, and of these, 405 people agreed to be interviewed, 153 refused to be interviewed, and 89 were encountered who had been interviewed already.

Survey results

10. **Purpose of and reasons for visits:** Nearly half of all interviewees were walking dogs (43%), but this varied between locations and survey dates (i.e. from 5% to 100%). Only five interviewees (1.2%) described themselves primarily as wildlife-watching (though wildlife interest was commonly stated as a reason for enjoying visiting the site). Closeness to home, rural/wild feel, and variety of scenery were the primary reasons given by interviewees for their visits.
11. **Frequency of visits:** around 10% of interviewees stated that they visit the Forest daily, another 10% most days and another 20% visit one to three times per week. Therefore, around half of those questioned were very frequent users of the site. Visitors using the walk-in gates were more frequent users than those at the car parks.
12. **Number of visits and regular visitors:** Data on frequency of visits can be extrapolated to gauge how many visits people are making to the Forest overall, and how many individuals are involved. A very rough scaling-up of these limited data, if access were the same throughout the year, would suggest 92,000 visits per annum, made by 934 individuals. This is based solely on January/February figures, from four entrance points, and does not account for higher summer figures, other entrances, or special events such as Woodfest; i.e. the totals reflect the core level of year-round use. However, it does suggest that a high level of visitor traffic is being generated by a relatively small number of individuals.
13. The number of visits per person per year is much higher at the Takeley entrance than elsewhere, suggesting visitors entering here tend to be more frequent users of the site.
14. **Seasonality:** 65% of interviewees stated that they visit the Forest equally frequently throughout the year.
15. **Longevity of visiting:** 54% of interviewees stated that they have been visiting the Forest for more than 10 years. Just over 10% had only begun visiting within the last year, although this figure was less than 5% in the winter.
16. **Observations by visitors:** Many visitors were conscious of the increasing number of visitors over recent years (15% referred to this), of restrictions placed on access by the Trust (16% referred to this), and of muddier paths (8%) – however these values were higher in winter.
17. **Perceptions of value of site:** When asked to rate Hatfield Forest for its value to them on various grounds, 92% gave a maximum 5 for greenspace value, 86% gave a 5 for wildlife value, but only 64% gave a 5 for historical value.
18. **Transport to site:** 85% of interviewees had arrived by car, and given the proportion of time spent surveying at the main entrance and Shell House car parks this is not surprising. However, it was notable that many interviewed at the walk-in gates at Takeley Hill and Elmans Green stated they had arrived by car.
19. **Patterns of access:** Route data (i.e. where interviewees go within Hatfield Forest) shows that visitors originating at the main car parks are following different patterns in their use of the

site compared to visitors coming through the northern gates. Routes followed by car park-originating visitors are concentrated around the road and boardwalk around the café and lake area. Those entering at Elmans Green are concentrated down the corridor past the Doodle Oak site, before scattering to follow a variety of routes back. There is a marked concentration of traffic through the Eight Wantz Ways, south west to north east. While survey effort across the site was different between seasons, it appears that more of the site was being used in summer, with more minor paths used and more access in the west of the site.

20. **Distance walked:** The average distance being walked by visitors was just over 3km (mean and median; 3.0 and 3.5km), though joggers and cyclists are obviously travelling considerably further. Visitors starting at the car parks are generally walking slightly less far than those entering at the northern gates. Those walkers passing through Eight Wantz Ways tend to be following longer routes (median 4.2km).
21. **Faithfulness to Hatfield Forest, and preparedness to use other greenspace:** About 1 in 10 interviews reported that Hatfield Forest is the only greenspace they are using, while another 32% state that at least three quarters, but not all, their visits are to the Forest. For a further 31%, Hatfield is the destination for only about a quarter of their visits to local greenspace. Faithfulness solely to Hatfield Forest was most marked for those entering at Takeley Hill, and walking as far as Eight Wantz Ways.
22. Just over 20% of interviewees stated that if Hatfield Forest had not been available to them, there was no other site they would have visited. However, just over 70% could name an alternative choice. Alternative choices stated were varied and most often unspecific ('local fields' or 'farm tracks near home'), but the commonest stated alternatives were the Lee or Stort Valley, Wimpole Hall, Great Notley Country Park (Braintree) or simply the Flitch Way.
23. 67% of interviewees stated that they would consider using an alternative greenspace if such a site were created near to Hatfield Forest – however this value was higher in winter (76%). Overall, 14% stated that they expressly would not. The most commonly stated features people said they would want to see in such an alternative greenspace were a café, attractive surroundings, better parking, toilets, and better paths. Around a quarter would want any new site to have a natural feel.
24. **Origin of visitors:** Analysis of postcode data used the distance measure from the survey point to the home postcode of the interviewee (i.e. 'as the crow flies'). The median from all interviews was 7.8km (i.e. 50% of visitors originated from within 7.8km). The 75th percentile from such data provides a good indication of the broad area where most visitors originate from. The data are complex to summarise as different survey points were covered at different times of year. Key figures for these 75th percentiles were:
 - All interviewees: 17.8km;
 - Woodfest interviewees only: 32.2km (interviews took place at Shell House and Elgin's)
 - August bank holiday only: 24.6km (interviews at Shell House, Entrance car-park and Elgin's)
 - Winter term time: 10.8km (interviews at all survey points apart from Elgin's)
 - At individual survey points (different survey effort across year) the 75th percentiles ranged from 28.3km (Elgin's) to 7.1km (Elman's Green). The mean

value across survey points (i.e. 75th percentile calculated separately for each survey point and then an average taken for each survey point) was 14.6km.

25. We have used the 75th percentile in this way at a range of other sites to define a broad area from where recreation use typically originates. The results from Hatfield would suggest a 14.6km radius of the site would work to capture a zone of influence that would encompass the majority of visitors across the year and across survey points.

Current and future housing levels and effects on Hatfield Forest

26. Within 2km of Hatfield Forest, the number of houses increased by 35% between 2003 and 2017 (based on datasets held by Footprint Ecology). Within a 5km radius the increase has been 22%, and within 10km the increase has been 20%.
27. Spatial data for housing allocations in Uttlesford district, and allocation data for East Hertfordshire, Epping Forest and Braintree districts obtained from published local plans (East Herts Pre-submission District Plan Consultation 2016; Epping Forest District Local Plan Submission Version 2017; Braintree Publication Draft Local Plan 2017), were used with the visitor postcode data from this survey, to estimate how visitor numbers might be expected to change as a result of future housing being built. This showed that visitor numbers to Hatfield Forest originating from within a 15km radius of the site can be expected to increase by 22% once allocated housing is in place. While this figure should be regarded as very approximate, it demonstrates that a marked increase in access to Hatfield Forest is to be expected in the coming years.

Developing the Trust's strategy for managing visitor impact

28. The main avenues open to the Trust to maintain and increase its management of visitor impact are assessed, based on the elements of 'Every Step Counts': Strategic planning, Acquisition, Community involvement, Forest infrastructure and Forest works.
29. This survey has shown that alternative greenspace available to actual and potential visitors to Hatfield is very limited, with Hatfield Forest providing the best and most favoured option for people seeking natural greenspace within at least a 15km radius. It is therefore essential that local authorities provide suitable alternative natural greenspace (SANGS) for all larger new developments (above 10 units), rather than implicitly or explicitly allowing any further reliance on the presence of Hatfield Forest as default greenspace.
30. The impacts of increasing visitor numbers to Hatfield Forest will not be dealt with purely by spending money on mitigation. However, mitigation measures could help increase the resilience of the Forest to future visitor pressure. The Local Planning Authority can seek a financial contribution towards mitigation work from development proposals, in consultation with the Trust, when determining new planning applications. Such contributions would be secured through a Section 106 Agreement signed by all parties.
31. This survey shows that a large majority of current visitors to Hatfield Forest would be open to the notion of visiting an alternative nearby greenspace if one were provided, and if it offered the facilities people have come to expect of such a facility. If the Trust were in a

position to acquire or help to acquire such an alternative space, there is a good prospect that such a facility could help spread the visitor load away from the Forest itself.

32. **Messaging:** This survey has suggested that the very large level of visitor traffic through Hatfield Forest may be being generated by relatively few individuals, who are visiting the site very frequently. A substantial proportion of the most frequent visitors are accessing the site on foot through the boundary pedestrian gates, and many of these are very longstanding users of the site.
33. It may be assumed that longstanding, very regular users have the greatest sense of ownership of the Forest, and in some cases a sense of entitlement, yet there is little provision for delivering consistent, clear messages to this audience, as they are less likely to frequent the central hub where most information and interpretation is to be found.
34. More comprehensive visitor messaging and positive engagement is essential if management programmes like temporary ride closures are to be effective. Messages need to be consistent, and carried through all media – fixed interpretation, verbal messaging, social media, printed media etc.
35. **Involvement:** It will be very important to continue to invest staff time in developing stakeholder dialogue, through the current stakeholder group and plans for a forum. The objectives of this work should be (a) to create a conduit for gaining a better understanding of visitor attitudes and concerns, (b) to create ambassadors from amongst local people/users, who are able and willing to convey management messages to their peers; and (c) for the Trust to be actively engaging with, and respecting the views of, local people.
36. **Volunteers** represent a hugely valuable frontline in engaging with users, as well as carrying out works and roles on site. More volunteers could be trained to take part in visitor engagement, especially away from the central hub area. Volunteers are already helping with photographic monitoring of path condition. This role could be combined with visitor engagement, in a single volunteer function, so that volunteers can monitor paths and talk to people about what they are doing, and how their behaviour affects the site.
37. **Path surfacing:** Some experimentation is underway in applying different types of temporary or permanent surface to some paths (eg south west of the Shell House car park). There could be a case for identifying a popular circular route through the northern woodlands, surfacing that route, and encouraging visitors to use that route instead of the wider network. However this might be hard to reconcile with the need to preserve the historic soil profile and surface features.
38. **Veteran trees:** Measures to keep visitors away from veteran tree boles need to be stepped up, through physical barriers and enhanced messaging. The tendency of children to build shelters with dead branches around the boles of veteran trees, though desirable as a play activity in its own right, needs to be diverted away from sensitive trees to more suitable areas.
39. **Path closures:** Save for recourse to drastic infrastructural changes such as hard surfacing of many rides, the best strategy for ameliorating trampling damage is temporary ride closures. This approach is being used, but is generating some bad feeling, and path closures are being ignored by some users. A stepping up of path closure rotations must be accompanied by messaging about their purpose. Many visitors are familiar with the idea of a coppice

rotation, so path closures could also be described as a rotation, carried out as a normal part of husbanding the Forest.

40. There is also a case for altering the timing of woodland management works, both to reduce physical damage to woodland soils, especially during wet winters, and also to demonstrate that the Trust is taking its own steps to avoid damage caused by its own operations, and hence improve its case for persuading visitors to alter their own behaviour.
41. **Monitoring:** To improve its ability to assess visitor impact and translate that impact into management responses, the Trust needs to ensure its monitoring data is consistent and reliable, both in terms of recording visitor numbers, and recording visitor impact. Monitoring needs to be made more consistent and regular, by:
 - Improving the reliability of gate counter data, so that visitor numbers can be correlated more accurately with visitor impact
 - Deriving a practicable set of impact indicators, which can realistically be measured regularly to discern trends, including presence/absence of key species in heavily used and comparatively lightly used locations, vegetation density in fixed quadrats, soil bulk density at fixed and random recording points, and deadwood distribution in fixed photographically-monitored locations.
 - Carrying out a more extensive and regular programme of photographic monitoring of ride condition
 - Establishing twinned comparison sites, with controls for reference (e.g. undisturbed veteran tree boles, and little-used rides) to be compared with tree boles and rides in heavy-use areas.
 - Extending the red/amber/green path condition monitoring score, and using this more extensively in messaging to visitors.

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Acknowledgements

This report was commissioned by the National Trust. We are grateful to Sarah Barfoot, Henry Bexley, Ade Clarke and Stuart Warrington for their support, discussion and comment. Our thanks also to Alex Ross, Planning Policy Officer at Uttlesford District Council for the provision of housing data.

We are grateful to all those visitors who gave their time to be interviewed as part of this work.

1. Introduction

Recreation at Hatfield Forest – the issue

- 1.1 Hatfield Forest is a nationally unique, immensely valuable environmental and historical site, with a historical record and ecological continuity unmatched in the UK. It is held by the National Trust in perpetuity, and visitor use has been increasing over time, such that the current level of visitor pressure it is experiencing is unsustainable. Through its 'Every Step Counts' strategy the Trust is working hard to improve the resilience of the Forest and manage access without compromising visitors' experience, yet it is becoming clear that, without the means to offset rising visitor pressure, the long-term health of Hatfield Forest is in doubt.
- 1.2 Footprint Ecology was commissioned by the National Trust in late 2017 to contribute to the Trust's strategy for managing visitor impact at Hatfield Forest. Footprint Ecology's involvement with a wide range of visitor surveys and access management strategies across the UK brings a national perspective to Hatfield Forest, allowing the Trust's existing 'Every Step Counts' strategy to be contextualised and strengthened.

This report

- 1.3 The overall objective of this piece of work was to contribute to the story of Hatfield Forest and its conservation challenge in the 21st century and help build a practical strategy for the Forest in the context of recreational provision and accessible greenspace in the wider local area.
- 1.4 The Trust wished to enhance its understanding of visitor numbers, origin and behaviour when visiting the Forest, and hence the first element of the work involved a systematic set of visitor surveys, during the winter period only, within and on the periphery of the Forest, carried out between Christmas 2017 and mid-February 2018. Surveys gathered data on visitor origins/distance travelled, reasons for visiting, and routes followed on site. This data supplemented data on visitor numbers already gathered by the Trust over recent years. The survey was then extended to include other times of year.
- 1.5 Visitor postcode data were used to map zones of influence, and compare these to locations of proposed future development, so that the impact of future development could be extrapolated. Visitor data were contextualised by comparison to similar work on other sites, notably Epping Forest, and to national trends. The report offers projections as to how the Forest may be expected to respond to current visitor pressure if levels continue as they are at present, or

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increase. Inferences about sustainable levels of access to ensure the future integrity of the site are made within the scope of available knowledge.

- 1.6 Armed with the data from these surveys, the report builds upon the Trust's innovative 'Every Step Counts' strategy for on- and off-site management and mitigation, by offering advice on how this strategy might be more fully realised.

2. The value and significance of Hatfield Forest

Summary of ecological and historical interest

- 2.1 Hatfield Forest has a rich history which has been documented more thoroughly than almost any other similar site in the UK, notably through the work of Dr Oliver Rackham (Rackham 1998). That history provides a continuous record stretching back nearly 1000 years, to the establishment of a royal hunting forest by the Norman kings between 1100 and 1446, with ownership of the Forest resting variously with Robert the Bruce, Edward I and Henry VI. Following the relinquishing of forest rights during the Tudor period the Forest was owned by Henry VIII. Subsequently the Forest transferred into private ownership, including by the Houblon family in the C17th, who undertook landscaping in the central area of the site, with the involvement of Capability Brown. The site was donated to the National Trust in 1924.



Figure 1: One of the iconic veteran hornbeam pollards at Hatfield Forest

- 2.2 It can be said with some certainty that Hatfield Forest provides an unbroken link back to the prehistoric 'Wildwood', before human settlement of the UK, and that its wooded areas have never been cleared of woodland.
- 2.3 The Forest has a large area of ancient woodland, represented by large expanses of coppice and coppice-with-standards. These are subject to continuing traditional management by the Trust.
- 2.4 Hatfield Forest has a highly valuable assemblage of veteran pollard trees (eg. Figure 1), which are fragile and open to damage. There are 884 veteran trees of 8 different species on the site, notably of hornbeam and hawthorn. These trees are well recorded. The Forest has a rich bark and deadwood biodiversity associated with veteran trees, which is similarly vulnerable. Epiphytic plants and saproxylic invertebrate records are extensive.
- 2.5 The Forest has a rich variety of open habitats, carrying unimproved calcareous and neutral grassland and wetland habitats, as well as areas of semi-improved grassland. Unimproved grassland and low scrub communities combine on woodland rides to provide valuable ecotonal (edge) habitats, offering sunny, shaded and sheltered microclimates for a wide array of insects.
- 2.6 The Forest has a diverse fauna including fallow deer, several bat species, and rich assemblages of breeding birds, butterflies and moths, in addition to its rich wider invertebrate diversity.
- 2.7 Hatfield Forest has a highly unusual degree of ecological continuity. Historical records and field evidence mean we know the site has been continuously wooded, uncultivated, and managed, probably since the beginning to human settlement. It therefore provides a living link to the 'Wildwood'.
- 2.8 The Forest's soils are vulnerable to visitor pressure. The soils are derived from heavy underlying Boulder Clay and are ill-draining. While such soils can become very hard and resistant to foot traffic in summer, in winter they are very vulnerable to poaching. The trend towards wetter winters exacerbates this vulnerability, as illustrated during the winter of 2017/18.

Status, conservation and setting

- 2.9 Hatfield Forest is subject to several national designations. 404 hectares was designated a Site of Special Scientific Interest originally in 1956 (together with Wall Wood). Woodside Green area at the south west corner of the site was declared a National Nature Reserve in 1994.

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- 2.10 There are two Scheduled Ancient Monuments within the Forest (The Warren and Portingbury Hills). There are also four listed buildings (The Shell House, Warren House, Forest Lodge and Wall Wood Cottage).
- 2.11 There are no public rights of way within Hatfield Forest, but the National Trust maintains an extensive network of permissive paths, and it has been the policy of the Trust not to close the Forest to public access on foot.

3. Recreational access and its impacts

Recreation as a service with a cost

- 3.1 Human beings have impacted on the landscape and nature of Hatfield Forest for thousands of years, and the modern character of the Forest reflects the interaction of human use and wild nature. That interaction has fluctuated in response to changing needs, fashions, ownerships, social structures and available labour. However, the fact that the Forest has endured to the present day demonstrates that all previous uses have succeeded, consciously or otherwise, in sustaining the basic qualities and ingredients of the place. Coppice management, for example, although as an extractive industry can appear dramatic and damaging, works with the natural capacity of trees to regenerate themselves.
- 3.2 Latterly the Forest and its managers have had to adapt to a new role, providing not just timber and grazing, but recreational experiences for visitors. This is a consequence both of National Trust ownership, with its accompanying ethos of access for all, and changes in society as a whole, with more interest in walking in the countryside, more leisure time, and higher dog ownership. Recreational use, though not an extractive industry like coppicing, nevertheless exacts a cost, physically and financially, on the land. The ability of the Forest to fulfil this role sustainably, depends on its capacity to regenerate in the face of this cost.
- 3.3 The costs of recreational use manifest physically in the wear exacted on the ground, trees and other features of the site, disturbance of wildlife, contamination by importation of foreign materials (dog faeces, litter, invasive plants), and consequent impacts on habitats. The costs manifest psychologically in terms of the effects of large numbers of visitors on the individual's experience of the place, and in the impacts of interactions with visitors on staff and volunteers. The costs manifest financially in the staffing and capital costs of accommodating visitor traffic and repairing deleterious impacts.

Categorising visitor impacts

- 3.4 Ecological impacts of visitors fall into the following categories:
- Vegetation damage (in grassland, woodland and marshy wetland habitats), affecting height, biomass, cover, root systems and species diversity and plant community composition
 - Soil compaction and erosion
 - Changes in soil hydrology and chemistry (enrichment)
 - Changes in soil invertebrate community
 - Changes in soil mycorrhizae and bacterial assemblages
 - On forest rides and glades, loss of ecotonal (edge) habitats

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- Damage to deadwood habitats and living trees
- Changes in epiphytic and saproxylic flora and fauna
- Contamination, e.g. from litter, nutrient enrichment (dog fouling etc.)
- Disturbance to wildlife (presence, behaviour, breeding success) from human (and dog) presence, noise, physical impact
- Increased fire risk
- Impacts on the Trust's ability to manage the site

3.5 Impacts are affected by initial vegetation, soil type, slope and drainage, and by the scale, frequency and seasonality of wear.

Overview of impacts at Hatfield Forest

3.6 At Hatfield, the most striking visual example of impacts is from trampling (e.g. Figure 2), on vegetation and soils on rides and other thoroughfares, with associated trampling damage spreading into woodland habitats alongside rides.



Figure 2: An example of severe trampling pressure from recreation and Forest works, leading to loss of central ride vegetation, edge vegetation, and spread of impact into adjoining woodland (Spittlemore Coppice)

3.7 There are a range of other impacts which are less obvious, but may be equally significant ecologically, including more subtle effects on deadwood fauna, tree boles,

and deeper soil chemistry, all having a substantial effect on the features of greatest conservation importance on the site.



Figure 3: root compaction and bark damage on veteran hornbeam (Edge of Elgin Coppice)

Vegetation damage

- 3.8 Trampling reduces plant species diversity, cover, biomass and height and damages root systems and this can be the case in all habitats. It also inflicts changes to the physical and chemical properties of soils by increasing levels of compaction, bulk density, run-off and exposure of mineral soil horizons and decreasing infiltration rates and porosity (Cole 1987; Littlemore 2006). Recreational trampling also induces indirect changes to habitats where associated fauna such as ground and soil dwelling invertebrates (Littlemore & Barker 2001) or small mammals and birds (Hearn 1981) live and breed.
- 3.9 As an example for one habitat type, the relationship between trampling pressure and ground flora response in British woodlands was studied by Littlemore and Barker (2001). They found that the ability of plants to tolerate trampling was more a function of the ability to recover than to resist. Though most vegetation types appear to recover from trampling within a year or two if the pressure is removed, the effects may be long-lasting, with for example the ability of bluebell plants *Hyacinthoides non-scripta* to produce seed-bearing stalks was reduced two years after trampling ceased.

- 3.10 A further study by Amrein et al. (2005) demonstrated that soil compaction was enhanced by recreational trampling, causing a decrease in cover, height and species richness of both herb and shrub layers. They found that the similarity in species composition between the above-ground vegetation and seed bank was significantly lower in disturbed than in control areas.

Soil compaction

- 3.11 The ecological effects of human trampling include soil compaction, changes in soil hydrology and chemistry, changes to the soil invertebrate community (with an overall reduction in numbers of invertebrates), changes in plant communities (depending on the degree of wear), with bare ground and soil erosion an ultimate consequence of heavy use. The degree of change and damage depends on the soil type, slope, drainage and hydrology, scale, frequency and seasonality of wear and the composition of the initial vegetation (Underhill-Day 2005). Coarse textured soils with low levels of organic matter are particularly vulnerable to compaction from trampling and are more vulnerable when wet than when dry.

Vegetation damage and soil compaction in forests

- 3.12 When the above impacts on vegetation and soils take place in woodlands such as Hatfield Forest, there are a number of consequences:
- Loss of herb-rich grassland. Many areas of grassland at Hatfield Forest represent permanent pasture with a very long history, which have never been cultivated. Some of these are inherently herb-rich, with diverse associated mycorrhizal communities below ground. Trampling reduces species diversity and can have a permanent effect on the vegetation community even after trampling pressure is removed.
 - Loss of ground flora.
 - Loss of ecotone. The ecotone is the sequence of habitats at the junction between open grassland and closed woodland, including tall herb and scrub. This is generally a rich habitat providing sheltered conditions for invertebrates such as butterflies. Trampling eats into this zone, often removing it entirely.
 - Damage to woodland soils. The soils of Hatfield Forest represent examples of the original soil profile in the 'wildwood' cover of the UK, pre-dating human settlement. These contain a relatively undisturbed plant and fungal flora and invertebrate fauna, affected only by traditional woodland harvesting activity. Repeated compaction, especially in wet winter conditions, can render these soils incapable of draining naturally, and damage their capacity to continue natural decomposition cycles.
 - Damage to deadwood habitats and ancient coppice. The fauna associated with standing and lying dead wood is one of the most significant features of Hatfield Forest's biodiversity. This habitat relies upon undisturbed conditions

where a large proportion of dead wood is allowed to decompose gradually, often while still attached to the tree. Access close to veteran trees and old coppice stands, and associated play activities which make use of dead branches etc, interrupts the natural process of decay and compromises invertebrate habitat.



Figure 4: example of trampling affecting the central vegetation on a ride, and the ecotonal edge zone, with only the drainage ditch acting as a restraint in the middle ground (NE of Eight Wantz Ways)

The concept of carrying capacity

- 3.13 As an ancient semi-natural landscape, the Forest has a finite capacity to absorb visitor impacts, beyond which the effects of those impacts will begin to be irreversibly damaging. Management interventions, in terms of physical repair of damage, reinforcement of features, management of visitor traffic and influencing of visitor behaviour, can delay the point at which capacity is reached, but that point will still arrive if the scale of visitor use continues to rise.
- 3.14 Visitor carrying capacity can be defined as 'the maximum intensity of use, measured in terms of the number of people a year woodland ground flora can withstand without undergoing an unacceptable degree of ecological change away from the original

ecosystem condition considered desirable' (Littlemore and Barker 2001). This could be extended to relate to other species and interests besides ground flora, for example soil quality or fungi.

- 3.15 Carrying capacity on any one habitat or location depends on a variety of interplaying factors including vegetation community, soil type, hydrology, season, and weather conditions, some of which are fixed and some of which are variable. A 'rule of thumb' calculation of carrying capacity is therefore difficult to derive.
- 3.16 Carrying capacity will also vary according to feature. For example, the number of visits that might cause a reduction in bird breeding territories may be very different from the number that might create footfall around an oak tree that would result in damage to soil structure.
- 3.17 A working measurement of carrying capacity can, however, begin to be derived through observation and measurement, if the following are in place:
- Regular monitoring of the condition of a given location or feature
 - A set of indicators of ecological condition which allow negative thresholds of impact to be defined (ie the point at which impact becomes lastingly damaging)
 - Accurate measurements of numbers of visitors, which can be correlated with the condition of the given feature, both geographically and temporally
 - Records of weather conditions, which can similarly be correlated with the condition of the feature.
- 3.18 If all this information were available, it might be possible to identify the point at which visitor numbers and weather conditions conspire to create particular levels of damage to ecological condition, at least for features whose condition can be measured effectively.

4. Visitor Survey Methodology

4.1 The visitor survey undertaken for this report involved interviews and counts of people at a sample of locations across Hatfield Forest in the winter and summer of 2017-2018. The counts provide an overview of visitor flows at each point and the visitor interviews, involving a random sample of people, provide data on visitor origins, visitor profile and factors that influence behaviour.

Survey locations

4.2 Visitor surveys involving face-face interviews and counts of visitors were undertaken for a total of 208 hours evenly split between winter (26th December 2017 and 12th February 2018) and summer (24th August and 14th September 2018). Visitor survey locations are shown in Map 1 and summarised in Table 1.

Table 1: Summary of survey locations

Survey point ID	Location Name	Details
1	Shell House Car-Park	Main car-park, surveyor positioned on path running from car-park towards lake. Surveyed in summer and winter.
2	Entrance Car-Park	Surveyor positioned just outside car-park, near small kiosk. Surveyed in summer and winter.
3	Fritch Way, Takeley Hill	Surveyor positioned at gateway from Fritch Way. Surveyed in summer and winter.
4	Eight Wantz Way	Main hub where eight forest rides meet, with surveyor positioned to intercept visitors passing on any of the eight tracks. Surveyed in summer and winter.
5	Fritch Way, Elmans Green	Surveyor positioned at gateway from Fritch Way. Surveyed in summer and winter.
6	Elgin's Car Park	The overflow parking area used in the summer months. Tally counts of people by car park entrance, but once parked. Surveyed in summer only.

Survey dates

4.3 Surveys dates were selected for summer and winter, and during both we surveyed during key busy periods (e.g. around Christmas, the August bank holiday and during the summer Woodfest event). Survey effort and timing is discussed below and summarised by survey point in Table 2.

Winter

- 4.4 The December 2017 surveys were conducted in the Christmas holidays, when patterns of use of the site are potentially different from other times. Surveys were conducted on Boxing Day and on 28th December and focussed on the main car-park locations of Shell House and the Entrance Car Park. Each was surveyed for 4 hours on Boxing Day (Entrance Car Park in the morning and Shell House in the afternoon) and 4 hours on 28th of December (Shell House in the morning and Entrance Car Park in the afternoon).
- 4.5 Further survey dates were selected to sample more typical winter recreational use and fieldwork was conducted during late January/early February with even coverage across all survey points, involving sixteen hours at each, evenly split between weekend days and weekdays and split into two-hour periods to allow standard recording sessions spread across daylight hours. An additional day was then added during half-term (which again focussed on the main car-parks).

Summer

- 4.6 The summer surveys were conducted in late August through to early September. The August Bank Holiday Monday was selected for surveying and the weekend of this bank holiday too. We also surveyed over the weekend of the on-site festival, Woodfest, during both the Saturday and Sunday this was occur. Other days of survey were during usual term time.
- 4.7 Survey point 6 at Elgin's car park was not surveyed in winter, as this is an overflow car park in use during the summer only (also the location of Woodfest parking). Although the car park often did not open until after the start of the first survey session and therefore this session was conducted at the entrance car park. Otherwise the entrance car park was not selected for surveying in the summer.
- 4.8 Trying to achieve coverage across all these locations meant that surveying effort was less even between weekdays and weekends, and survey points. However, this was achieved during the winter baseline and therefore values can be related back to these.

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Table 2: Survey effort and timings (in hours) at each location.

Period	Type of day	Time of year/ special events	1. Shell House	2. Entrance Car Park	3. Takeley Hill	4. Eight Wantz Way	5. Elman's Green	6. Elgin's Car Park	Total
Subtotal Dec 2017			8	8					16
	weekday	Christmas holidays	4	4					8
	weekday	Boxing day	4	4					8
Subtotal Jan/Feb 2018			20	20	16	16	16		88
	weekday	Half term	4	4					8
	weekday	Term time	8	8	8	8	8		40
	weekend	Term time	8	8	8	8	8		40
Subtotal Aug/Sept 2018			22	6	20	16	20	20	104
	weekday	Term time	10	4	12	8	16	6	56
	weekend	Term time			4	4			8
	weekday	Bank holiday	4	2				2	8
	weekend	Bank holiday			4	4	4	4	16
	weekend	Woodfest	8					8	16
Total			50	34	36	32	36	20	208

Surveying procedure

Interviews

4.9 The questionnaire (Appendix 1) was conducted using tablet computers running SNAP survey software. Potential interviewees were selected at random, based on the next person seen by the surveyor (if not already conducting an interview). Interviewee's routes within Hatfield Forest were recorded in the field as lines on paper maps, cross referenced to the questionnaire data.

Visitor counts ("tallies")

4.10 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 enable us to compare sites in terms of visitor volume/footfall, and to identify what proportion of visitors were interviewed at each location. The counts are approximate as they were maintained while interviews were being conducted and, at busy sites in particular, it is difficult to maintain an accurate

count simultaneously while talking to an interviewee. Nonetheless the totals broadly capture the level of busyness at each location and are comparable. During Woodfest a tally count was not recorded as the site was far too busy, and interview data was more important to collect – attendance counts (e.g. ticket sales) would provide better information on visitor numbers.

Survey timing and logistics

4.11 Surveyors undertook counts and visitor interviews within our standard two-hour periods for the different times of year. Winter surveys took place using the following times; 0700-0900; 0930-1130; 1200-1400; 1430-1630, while summer surveys used extended hours; 0700-0900; 1030-1230; 1400-1600; 1700-1900. During winter months, surveyors did however terminate the survey work earlier if it was particularly dark to ensure people were not approached in the dark to be interviewed.

Weather

4.12 During the December surveys, weather conditions were fairly typical. On Boxing Day, the morning was sunny and cold, but with increasing cloud cover and rainfall in the afternoon such that it was dark at 1600. On 28th December it was cold but sunny (there had been widespread frost overnight)¹. Surveys in late January/early February were also in fairly typical weather for the time of year. The latter half of January was generally mild, cloudy, with occasional rain², while February had slightly above-average hours of sunshine, and also above average rainfall³.

4.13 For summer surveys, late August was generally unsettled and somewhat cooler than the rest of August, and occasional bands of rain⁴. September started more settled, warmer and with plenty of sunshine, with most rainfall limited to relatively infrequent showers⁵.

¹ <https://www.metoffice.gov.uk/climate/uk/summaries/2017/december>

² <https://www.metoffice.gov.uk/climate/uk/summaries/2018/january>

³ <https://www.metoffice.gov.uk/climate/uk/summaries/2018/february>

⁴ <https://www.metoffice.gov.uk/climate/uk/summaries/2018/august>

⁵ <https://www.metoffice.gov.uk/climate/uk/summaries/2018/september>

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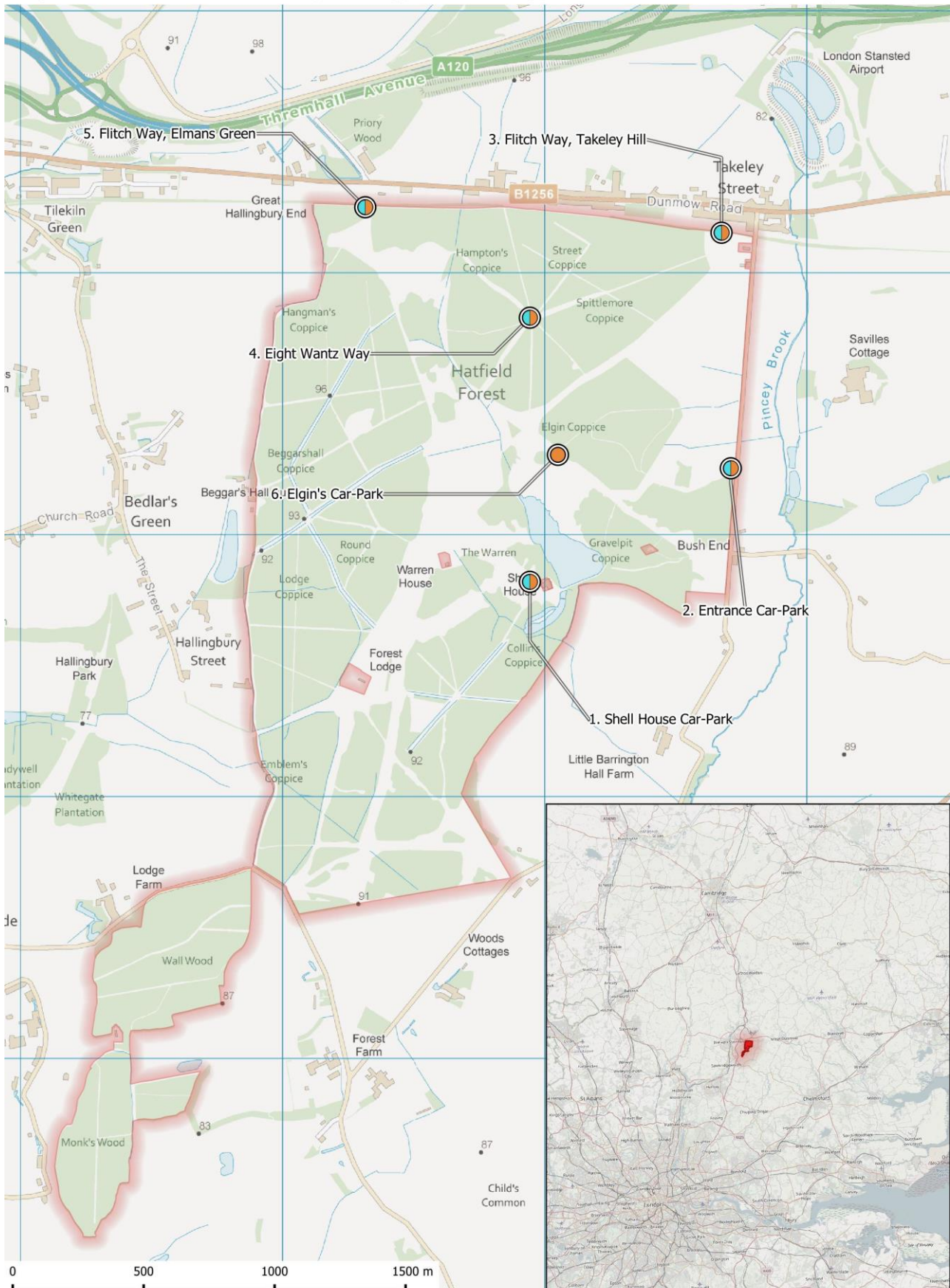
Table 3: Survey effort at each location.

Period		1. Shell House	2. Entrance Car Park	3. Takeley Hill	4. Eight Wantz Way	5. Elman's Green	6. Elgin's Car Park	Total
Winter	Number of survey sessions	14	14	8	8	8	0	52
	Sessions with rainfall	4	1	3	1	3	-	12
	Average cloud cover (8ths)	5.2	3.0	5.1	5.6	5.0	-	4.6
Summer	Number of survey sessions	11	3	10	8	10	10	52
	Sessions with rainfall	2	0	2	2	0	0	6
	Average cloud cover (8ths)	5.8	7	5	5.4	3.3	4.6	5

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Map 1: Location of Hatfield Forest (inset map) and of survey point locations labelled by timing of surveys.



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5. Visitor Survey Results: Tally data

Visitor numbers

- 5.1 In total, over the 208 hours of surveying, 3,856 people were counted (of which 975 were minors), from 1,744 groups, with an additional 1,118 dogs. Numbers of people counted during surveying are summarised in Table 4, and Map 2.
- 5.2 Surveys were equally split between winter and summer; 104 hours in summer with 1,277 people observed and 104 hours in winter with 2,579. However, the locations surveyed differed and no counts were made during Woodfest; as such raw totals, as shown in Table 4 are not always comparable.
- 5.3 Survey effort was variable at the different locations, as such the totals were expressed as the averages per hour to account for variable survey effort. These are summarised in Figure 5 and Table 4 for each location, season and types of day.

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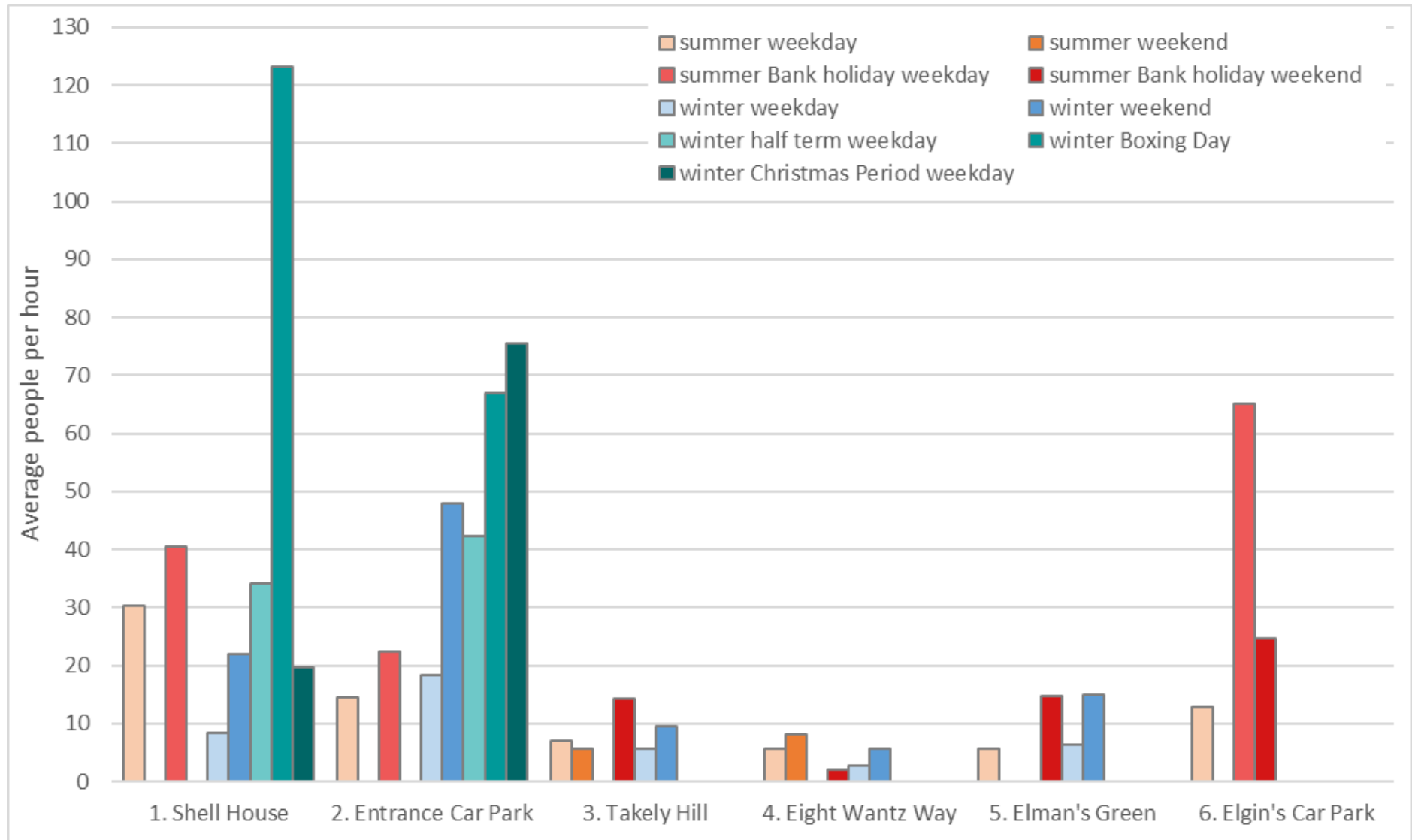


Figure 5: Averaged number of people per hour on the different seasons and types of day.

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Table 4: Raw number of people recorded from tally data, survey effort (number of hours) is noted in brackets, and a simple average number of people per hour calculation based on these two values. Special event days are listed separately, and as bolder rows, compared to typical weekday and weekend use. For the Winter surveys the ratio of weekday to weekend recorded was calculated (all these were late Jan/Feb).

	Winter: December/ January / February						Summer: August / September					Total
	Boxing day	Christmas period Weekday	Half Term	Weekday	Weekend	ratio weekday to weekend	Bank holiday Weekday	Bank holiday Weekend	Woodfest	Weekday	Weekend	
Total people (hours of survey)												
1. Shell House	493 (4)	79 (4)	137 (4)	68 (8)	176 (8)	28:72	162 (4)		N/A (8)	302 (10)		381 (20)
2. Entrance Car Park	268 (4)	302 (4)	169 (4)	146 (8)	383 (8)	28:72	45 (2)			58 (4)		698 (20)
3. Takeley Hill				45 (8)	76 (8)	37:63		57 (4)		85 (12)	23 (4)	121 (16)
4. Eight Wantz Way				22 (8)	46 (8)	32:68		8 (4)		45 (8)	33 (4)	68 (16)
5. Elman's Green				50 (8)	119 (8)	30:70		59 (4)		90 (16)		169 (16)
6. Elgin's Car Park						-	130 (2)	99 (4)	N/A (8)	78 (6)		310 (20)
Total	761 (8)	381 (8)	306 (8)	637 (48)	800 (40)	29:71	337 (8)	223 (16)	N/A (16)	658 (56)	56 (8)	2579 (104)
Average people per hour												
1. Shell House	123.3	19.8	34.3	8.5	22.0	-	40.5	-	-	30.2	-	28.3
2. Entrance Car Park	67.0	75.5	42.3	18.3	47.9	-	22.5	-	-	14.5	-	40.3
3. Takeley Hill	-	-	-	5.6	9.5	-	-	14.3	-	7.1	5.8	7.9
4. Eight Wantz Way	-	-	-	2.8	5.8	-	-	2.0	-	5.6	8.3	4.8
5. Elman's Green	-	-	-	6.3	14.9	-	-	14.8	-	5.6	-	8.8
6. Elgin's Car Park	-	-	-	-	-	-	65.0	24.8	-	13.0	-	15.5
Total	95.1	47.6	38.3	8.3	20.0	-	42.1	13.9	-	11.8	7.0	18.5

Seasonal comparison and special events

- 5.4 Differences in visitor numbers between locations are conflated by changes in the availability of parking provision with a summer only car park being used. For example Shell House was much busier in the summer (30.2 people per hour on weekdays) compared to the winter (8.5 per hour on weekdays). Other locations seemed to have a broadly similar level of footfall between seasons – though possibly a slight decrease at Eight Wantz Way in the summer in favour of the other locations or due to use shifting to before 7am.
- 5.5 Surveys in both summer and winter were targeted at key special events/holidays to capture busy periods. In the winter, the Boxing day survey showed almost 15 times the level of use at Shell House; 123.3 people per hour compared to 8.5 on a typical weekday in winter, while the entrance car park showed an increase of around 3.7 times (across both this averaged to 11 times greater use). Another survey day conducted the day after Boxing day (“Christmas period” in Table 4) showed less of an increase; 2.3 times at Shell House, and 4 times at the entrance car park (across both is averaged to 5.7 times greater use).
- 5.6 In the summer, we targeted the August bank holiday. Comparison of visitor numbers at the entrance car park, Shell House and Elgin’s showed on average, around 3.6 times greater use on the Bank Holiday Monday, compared to a typical weekday at this time of year. Also, the Bank Holiday weekend showed 2 times greater use compared to a typical weekend (based on data for Takeley Hill and Eight Wantz Way). Tally counts during Woodfest were too difficult to achieve so could not be compared.

Weekday- weekend comparison

- 5.7 Weekday and weekend comparisons were easiest investigated in winter, where there was equal effort on typical days. Table 4 shows weekends were consistently busier, with a ratio of around 70:30 – therefore approximately 2.3 times as many people typically are present on weekends than weekdays.
- 5.8 In summer, there is the suggestion of only slightly higher or similar use at weekends compared to weekdays.

Group composition

- 5.9 The composition of groups, in terms of the number of people in a group, number of dogs and number of minors, could vary considerably between locations, seasons, and on special days. Using the tally count totals of the people, minors and dogs we can calculate typical numbers per group.
- 5.10 Across survey points, the overall group size across all count data averaged 2.2 people per group (of which 0.6 were minors), and 0.6 dogs per group. This differed markedly

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between survey points and seasons. These differences are summarised in Table 5. Largest group sizes, more than 2.5 people per group, were recorded at Shell House, the entrance and Elgin's car parks, both in summer and winter. The highest number of dogs per group was at Eight Wantz Way. At this location, there were on average 1.2 dogs per group in summer and 1.3 in winter. The Shell House car park seem popular with families all year round and was highest in summer. However, all the above patterns are influenced by different surveying effort on atypical days, such as Bank Holidays, which was not always even between survey locations.

Table 5: Summary of group sizes (average people per group), typical frequency of dogs (average dogs per group) and of children (average minors per group) on the different types of day between summer and winter. Note different parts of the site were surveyed in different time periods and during different events. Top two highest and lowest values for each column are highlighted in bold in red and blue.

Day type	Season	Average people (inc. minors) per group	Average dogs per group	Average minors per group
1. Shell House	Summer	2.3	0.6	1.0
	Winter	2.6	0.4	0.7
2. Entrance Car Park	Summer	1.4	1.1	0.1
	Winter	2.8	0.7	0.7
3. Takeley Hill	Summer	1.4	0.5	0.1
	Winter	1.5	0.6	0.3
4. Eight Wantz Way	Summer	1.6	1.2	0.1
	Winter	1.7	1.3	0.2
5. Elman's Green	Summer	1.4	0.5	0.0
	Winter	1.6	0.7	0.1
6. Elgin's Car Park	Summer	2.6	0.8	0.8
Total		2.2	0.6	0.6

5.11 During the winter there was a consistent survey effort between five of the survey locations in the more typical, term time period – as shown in Table 6. This comparison is more useful to understand the differences between locations and between survey points. From Table 6, the survey locations at Shell House and the entrance car park were most similar, with group sizes usually at or above 2 people per group. Dogs per groups was highest at Eight Wantz Way, particularly during the week, and numbers of minors highest at Shell House and the entrance car park, particularly at weekends.

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Table 6: Summary of group sizes (average people per group), typical frequency of dogs (average dogs per group) and of children (average minors per group) on the typical, term time, weekdays and weekend days in the winter. Survey effort was even between locations and types of day. Top two highest and lowest values for each column pair are highlighted in bold in red and blue.

Survey Point	Average people (inc. minors) per group		Average dogs per group		Average minors per group	
	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend
1. Shell House	2.1	2.0	0.6	0.6	0.6	0.6
2. Entrance Car Park	1.9	2.6	1.0	0.6	0.2	0.8
3. Takeley Hill	1.3	1.7	0.4	0.7	0.1	0.5
4. Eight Wantz Way	1.4	1.8	1.6	1.1	0.0	0.3
5. Elman's Green	1.4	1.6	0.7	0.6	0.0	0.2
Total	1.7	2.1	0.8	0.7	0.2	0.5

5.12 The differences for the atypical, special days, such as Bank Holidays are shown in Table 7. While the survey locations selected on each day differed and therefore values are not strictly comparable, there are some patterns suggested. The highest group sizes recorded were on the Boxing Day Bank Holiday, with 3.4 people per group. This survey date also had the largest number of minors per group, on average just over one in every group. However, the second highest group size was recorded during the pooled data from all more typical survey dates – 2.9 people per group. Number of dogs per group was usually higher on these atypical, special event days compared to the all other typical days combined. Number of minors was variable within these atypical days, with the highest on the Boxing Day, but lowest at the August Bank Holiday weekend – but these locations surveyed were all except for Shell House and the entrance car park, which often had high numbers of minors.

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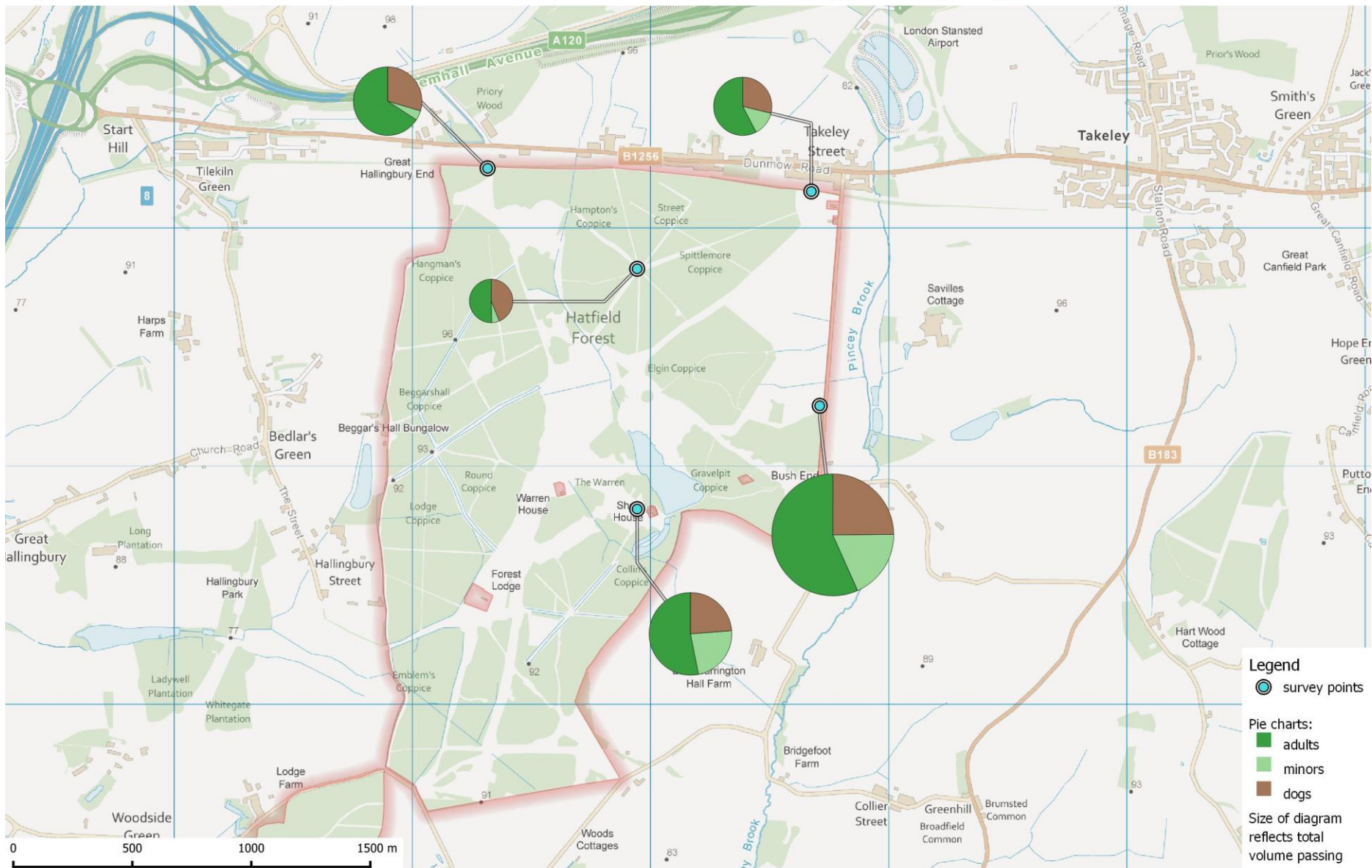
Table 7: Summary of group sizes, typical frequency of dogs and of children on the different atypical days surveyed. Note different parts of the site were surveyed in different time periods and during different events. Top two highest and lowest values for each column are highlighted in bold in red and blue.

Season	Average people (inc. minors) per group	Average dogs per group	Average minors per group
Boxing day (weekday)	3.4	0.5	1.1
Christmas period (weekday)	1.9	0.7	0.4
February Half Term (weekday)	2.7	0.4	1.0
August Bank Holiday (weekend)	1.9	0.6	0.2
August Bank Holiday (weekday)	2.2	0.8	0.8
All other days combined	2.9	0.4	0.6
Total	2.2	0.6	0.6

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Map 2: Pie charts to indicate the comparative number of adults, minors and dogs at each survey point during the typical weekday and weekend in winter.



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6. Visitor Survey Results: Interview data

Number of interviews

- 6.1 In total, surveyors approached 647 people or groups of people to be interviewed. Of these, 405 people or groups of people were willing to be interviewed (63%) – hereafter referred to as interviewees. The mean length of time to conduct an interview was 11.6 minutes (including the information logged by the surveyor after the interview was complete).
- 6.2 Of the 647 people approached, 153 people refused to be interviewed (24%). People refusing to be interviewed were either running/cycling/exercising and therefore unwilling to stop (particularly on the Flich Way); too busy and in a rush, family groups (who often said children were too cold); or people were simply unwilling to take part due to grievances with parking, site management etc. Refusals were roughly evenly split between seasons but were very unevenly distributed between survey points (see Table 8). These refusals ranged from 17% -31% of people approached in each season. Across all seasons, at the Elmans Green survey point on the Flich Way, 30% (24) of people approached refused to be interviewed. Conversely, at the Elgin’s car park only 19% (15) people refused an interview (note that surveys were only conducted here in the summer).

Table 8: Number of people approached in total, and the number (and % of total people approached) of refusals, people already interviewed, and interviewees at each location and in summer and winter.

Survey point	Total people approached	Refusals	Already interviewed	Interviewed
Winter				
1. Shell House	88	17 (19)	12 (14)	59 (67)
2. Entrance Car Park	132	30 (23)	27 (20)	75 (57)
3. Takeley Hill	39	10 (26)	14 (36)	15 (38)
4. Eight Wantz Way	23	4 (17)	4 (17)	15 (65)
5. Elman's Green	39	12 (31)	3 (8)	24 (62)
6. Elgin’s car park	n/a	n/a	n/a	n/a
Summer				
1. Shell House	109	27 (25)	5 (5)	77 (71)
2. Entrance Car Park	24	6 (25)	7 (29)	11 (46)
3. Takeley Hill	40	10 (25)	6 (15)	24 (60)
4. Eight Wantz Way	33	10 (30)	4 (12)	19 (58)
5. Elman's Green	41	12 (29)	7 (17)	22 (54)
6. Elgin’s car park	79	15 (19)	0 (0)	64 (81)
Total	647	153 (24)	89 (14)	405 (63)

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- 6.3 Since surveyors spent extended periods at the same sites over more than one day, they inevitably encountered some people that had already been interviewed. Overall, 89 people (or groups of people) were approached who had already been interviewed previously (Table 8). These did not occur in equal proportions between survey points. Overall, the survey point at Takeley Hill had the highest proportion of 'repeat visitors' (20 interviewees, 25%), while Eight Wantz Way (8 interviewees, 14%) and Elman's Green (10 interviewees, 13%) had much lower proportions, and Elgin's car park had none. However, the patterns observed are influenced by the differing levels of survey effort – with more survey effort, it is more likely that repeat visitors are encountered.
- 6.4 Most interviews were undertaken in summer (217 interviews), compared in winter (188 interviews), despite equal survey effort (Table 9). This was due to busier days in the summer and the effect of the August bank holiday and Woodfest event. Overall totals showed uneven split of interviews between locations; at Shell House (136 interviews, 34%), followed by the main entrance car park (86, 21%), Elgin's car park (64 interviews, 16%), Elman's Green (46 interviews, 11%), Takeley Hill (39, 10%), and Eight Wantz Way (34 interviews, 8%).

Table 9: Summary of the survey effort, number of interviews and averaged interviews per hour at each survey location. Bold values for the average number of interviews per hour indicate those with 2.0 or more interviews per hour.

		1. Shell House	2. Entrance Car Park	3. Takeley Hill	4. Eight Wantz Way	5. Elman's Green	6. Elgin's Car Park	Total
Survey effort (hours)	Summer	22	6	20	16	20	20	104
	Winter	28	28	16	16	16	0	104
	Total	50	34	36	32	36	20	208
Number of interviews (percentage)	Summer	77 (36)	11 (5)	24 (11)	19 (9)	22 (10)	64 (30)	217 (100)
	Winter	59 (31)	75 (40)	15 (8)	15 (8)	24 (13)	n/a	188 (100)
	Total	136 (34)	86 (21)	39 (10)	34 (8)	46 (11)	64 (16)	405 (100)
Average number of interviews per hour	Summer	3.5	1.8	1.2	1.2	1.1	3.2	2.1
	Winter	2.1	2.7	0.9	0.9	1.5	n/a	1.8
	Total	2.7	2.5	1.1	1.1	1.3	3.2	1.9

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6.5 Overall, the average number of interviews per hour ranged from 2.7 at Shell House to 1.1 at Takeley Hill and Eight Wantz Way. However, the overall patterns were heavily influenced by the different days surveyed and their inherent busyness. Table 10 provides the average number of interviews per hour for each survey location during the different survey day types to show how different days influence the composition. Woodfest was the busiest of any of the survey days with 76 interviews conducted over the two days - an average of 38 per survey day and 4.8 per hour. While the tally data provide the best information on visitor numbers, comparison of interview rates (shown per hour in Table 10) highlights comparatively low levels of use at the three northern survey locations.

Table 10: The average number of interviews per hour conducted at each location separated for the different seasons and types of day. Bold values for the average number of interviews per hour indicate those with 2.0 or more interviews per hour.

			1. Shell House	2. Entrance Car Park	3. Takeley Hill	4. Eight Wantz Way	5. Elman's Green	6. Elgin's Car Park	Total
Summer	Term time	Weekday	2.7	1.5	1.2	1.3	0.9	1.8	1.5
	Term time	Weekend			1.0	1.8			1.4
	Bank holiday	Weekday	2.5	2.5				4.0	2.9
	Bank holiday	Weekend			1.5	0.5	2.0	2.3	1.6
	Woodfest	Weekend	5.0					4.5	4.8
Winter	Term time	Weekday	1.1	2.1	1.1	0.8	1.1		1.3
	Term time	Weekend	2.8	2.8	0.8	1.1	1.9		1.9
	Christmas	Weekday	1.5	3.3					2.4
	Half-term	Weekday	2.0	2.5					2.3
	Boxing day	Weekday	3.5	3.3					3.4

6.6 Averaged group size of interviewees was 2.3 people per group, and a fairly even split between genders (419 males, 515 females). In total, 185 of the interviewed groups were with a dog (46%) – of these most were with just one dog (69%); remaining interviewed groups with dogs had either two (24%) or more than two (3%).

6.7 Minors featured in 24% of interviewed groups (lone minors were not interviewed), with on average 0.45 minors per group overall. This value was on average, 0.45 minors per group at the entrance car park and 0.68 minors per group at Shell House, while at all other locations it was less than 0.1. The highest average number of minors per group was recorded in winter; on Boxing Day (0.96), the Christmas period (1.11) and February half term (1.33).

Visitor types and activities

Visit type

- 6.8 Across all interviews, the majority interviewees (91%, 369 interviewees) were on a day trip / short visit from home. Of the remaining 9%, just over 5% (22) of interviewees were staying away from home on holiday (e.g. second home or on holiday) and 3% (12) people were staying away from home with friends or family. Finally, just two interviewees (0.5%) were on site for “other” reasons – both were flying from Stanstead later that day, one from Hastings, one from Germany.
- 6.9 The relative number of people who were not visiting directly from home would be expected to vary on the special days. However, it was only during the Woodfest event that the percentage of interviewees who were not visiting directly from home was notably greater. During Woodfest, overall 26% of interviewees were not travelling directly from home, rising to 48% when considering interviewees intercepted at Shell House only. At the Elgin’s car park there was a noticeable effect of Woodfest with the percentage of interviewees (3%), at a similar level recorded in term time and the Bank holiday Monday. The August Bank Holiday weekend, Christmas Period, and Summer Term time, along with Woodfest, were the main occasions when interviewees not directly from home featured. It was also notable that Shell House attracted the highest proportion of interviewees who were on holiday. Interestingly, on Boxing Day visitor numbers were high, but there was a relatively small proportion of interviewees who were not from home – just one interviewee.

Table 11: Number (and percentage) of interviewees who were not visiting directly from home i.e. on holiday, staying with friends/family, or other for each survey point, season and type of day. Bold values indicate those with more than 10% of interviewees who were not visiting directly from home.

		1. Shell House	2. Entrance Car Park	3. Takeley Hill	4. Eight Wantz Way	5. Elman's Green	6. Elgin's Car Park	Total
Summer	Bank holiday weekday	0 (0)	0 (0)				0 (0)	0 (0)
Summer	Bank holiday weekend			0 (0)	1 (50)	1 (13)	1 (11)	3 (12)
Summer	Term time	6 (22)	0 (0)	0 (0)	0 (0)	1 (7)	1 (9)	8 (9)
Summer	Woodfest	19 (48)					1 (3)	20 (26)
Winter	Boxing day	1 (7)	0 (0)					1 (4)
Winter	Christmas	1 (17)	1 (8)					2 (11)
Winter	Half time	0 (0)	0 (0)					0 (0)
Winter	Term time	1 (3)	1 (3)	0 (0)	0 (0)	0 (0)		2 (2)
Total		28 (21)	2 (2)	0 (0)	1 (3)	2 (4)	3 (5)	36 (9)

Activity

- 6.10 Overall, across all data, the largest number of interviewees (175, 43%) were dog walking, followed by 106 (26%) people who were simply walking without a dog and then those attending Woodfest (61, 15%).
- 6.11 The data can simply be split between summer and winter to show the overall seasonal patterns. This has been used to show the number of interviewees from different activities visually as pie charts for each survey point, separately for summer and winter in Map 3. Map 3 shows some broad patterns; more exercising (cycling/running) at the northern survey points close to the Flich Way, higher proportions of dog walkers at Eight Wantz Way (and consistently so between seasons), higher proportions of walkers at the southern survey points and of family outings at Shell House. The main difference between summer and winter was observed at the entrance car park when the proportion of dog walkers and overall interviewee numbers changed radically.
- 6.12 However, the relative survey effort between survey points and types of day differed and this could cause these observed differences. As dog walkers made up a considerably proportion of main activities, the differing proportion of interviewees conducting this activity is summarised by survey locations and time periods in Table 12.

Table 12: The percentage of interviewees who were dog walking for each survey point, season and type of day. Bold values indicate those when the percentage of dog walkers on the particular type of day was lower than the overall for each survey point.

		1. Shell House	2. Entrance Car Park	3. Takeley Hill	4. Eight Wantz Way	5. Elman's Green	6. Elgin's Car Park	Total
Summer	Bank holiday weekday	30	80				25	39
Summer	Bank holiday weekend			50	50	75	44	56
Summer	Term time	44	100	44	82	57	45	57
Summer	Woodfest	5					11	8
Winter	Boxing day	7	62					33
Winter	Christmas	17	23					21
Winter	Half time	25	30					28
Winter	Term time	58	64	60	80	46		60
Total		29	57	51	79	54	23	43

- 6.13 The overall percentage of interviewees dog walking was 43%. The percentage differed between survey points, with high percentages (over 50%) consistently recorded at Takeley Hill and Eight Wantz Way. Other survey points were often variable, depending on the type of day. Overall, the highest percentages of dog walkers were recorded in term time, in both summer and winter (57% and 60% respectively). During the summer term time surveys the percentage of dog walkers interviewed was as high as 100% at the entrance car park (however this was based on only six interviewees). This was radically different from the 23% and 30% dog walkers at this location in the winter Christmas period and winter half term. Both the entrance car park and Shell House showed much lower proportions of dog walkers in the winter holiday or half term periods, largely in favour of walking (overall 48% of interviewees on Boxing day at both survey points pooled) and family outings (overall 42% of interviewees during the Christmas period at both survey points pooled).
- 6.14 Table 12 suggests different parts of the site have different appeals to certain user groups. However, patterns can clearly be conflated by different survey effort on different parts of the site. As such we used data during a period of equal survey, the winter term time (January/February), during which all survey points received equal effort (8hrs on both a weekday and weekend). Data on activities are summarised for each survey point in Figure 2.
- 6.15 Figure 2 shows the percentage of interviewees dog walking was generally more consistent in this "typical" period than surveys on in holidays or special periods

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suggest. However, it appears that Eight Wantz Way has the highest proportion of dog walkers. The Shell House car park was the most variable in activities recorded and bird/wildlife watching was most popular both here and at the entrance car park.

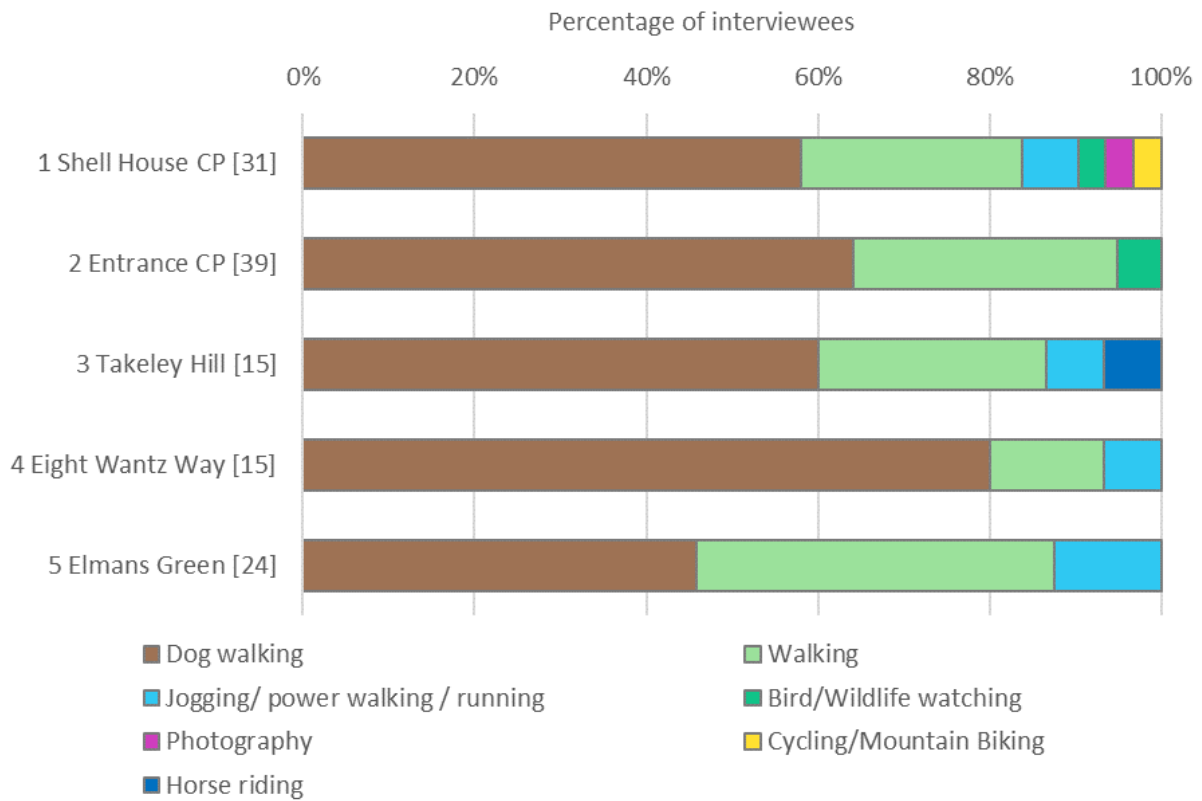
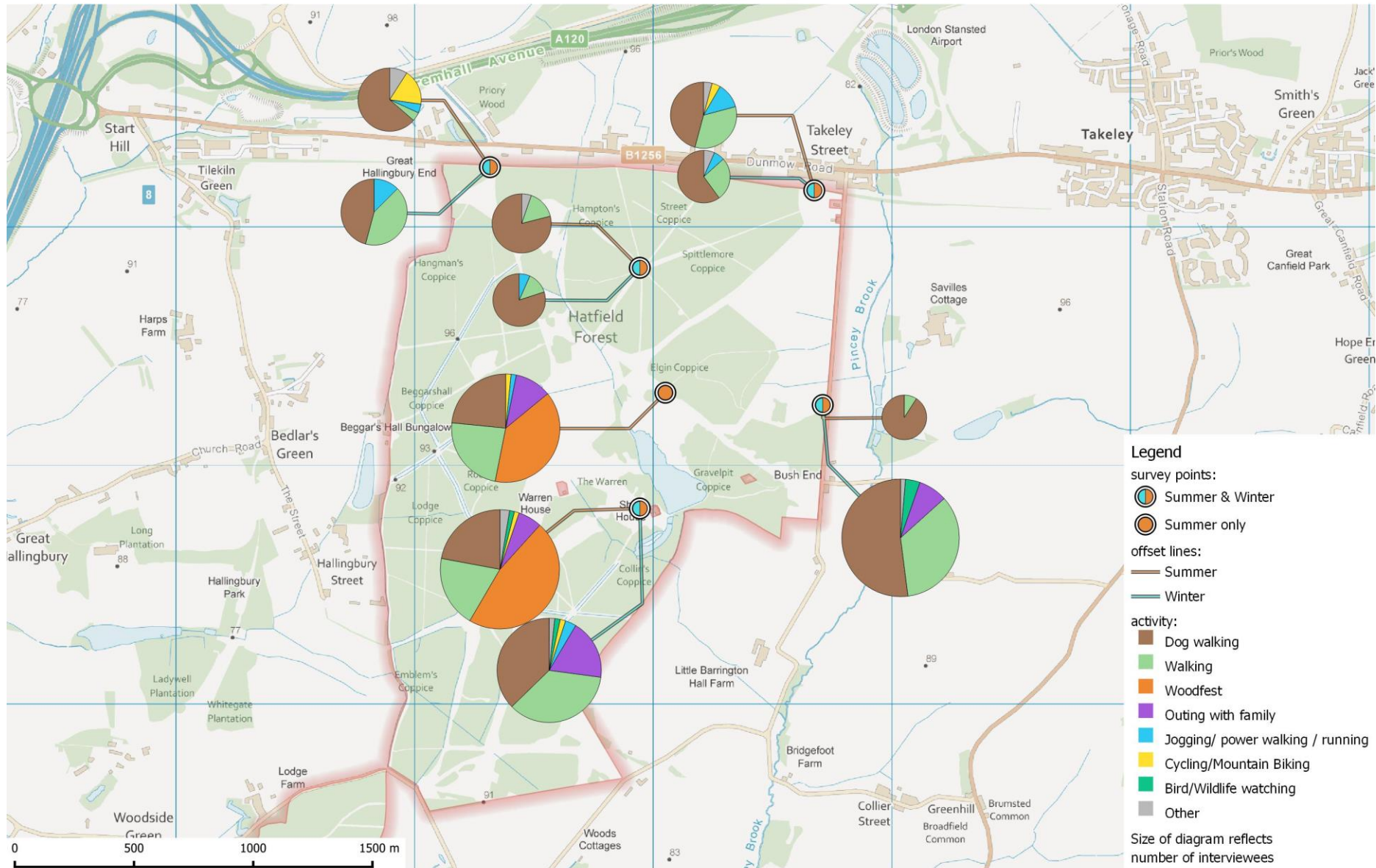


Figure 6: Percentage of interviewees undertaking particular activities (from Q2) by survey point. Values in square brackets indicate the number of interviewees.

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Map 3: Pie charts to indicate the activities of interviewees from the different survey points, shown separately for summer and winter.



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Visiting patterns

Visit duration

- 6.16 Interviewees were asked to state how long they had spent/were going to spend on site and responses were categorised by the surveyor. Overall, most interviewees visited for relatively short periods of time. For 172 interviewees (43%), the visit duration was 1-2 hours. A further 93 (23%) interviewees were visiting for between 30 minutes and 1 hour, followed by 58 (14%) for 2 to 3 hours. As such, across all surveys just over two-thirds of interviewees (276, 69%), were on site for less than two hours. In summer this percentage was roughly half (51%), a result of longer visits, while in winter this percentage was clearly the majority of interviewees (88%). Interviewees who were on site for more than 4 hours were not recorded in the winter at all. However, in the summer 19% were on site for more than 4 hours and during the woodfest event this was 49%.
- 6.17 There appeared to be little difference between survey locations in the north and south of Hatfield Forest examined in the winter term time (Figure 7). Shell House car park had the highest proportion of people (21 interviewees, 68%) who stayed for 1-2 hours, followed by Eight Wantz Way in the northern area (10 interviewees, 67%). Averaged visit times based on all percentages suggest visit duration was shortest at Elman's Green (around 60 minutes) and longest at Shell House car park (around 100 minutes).

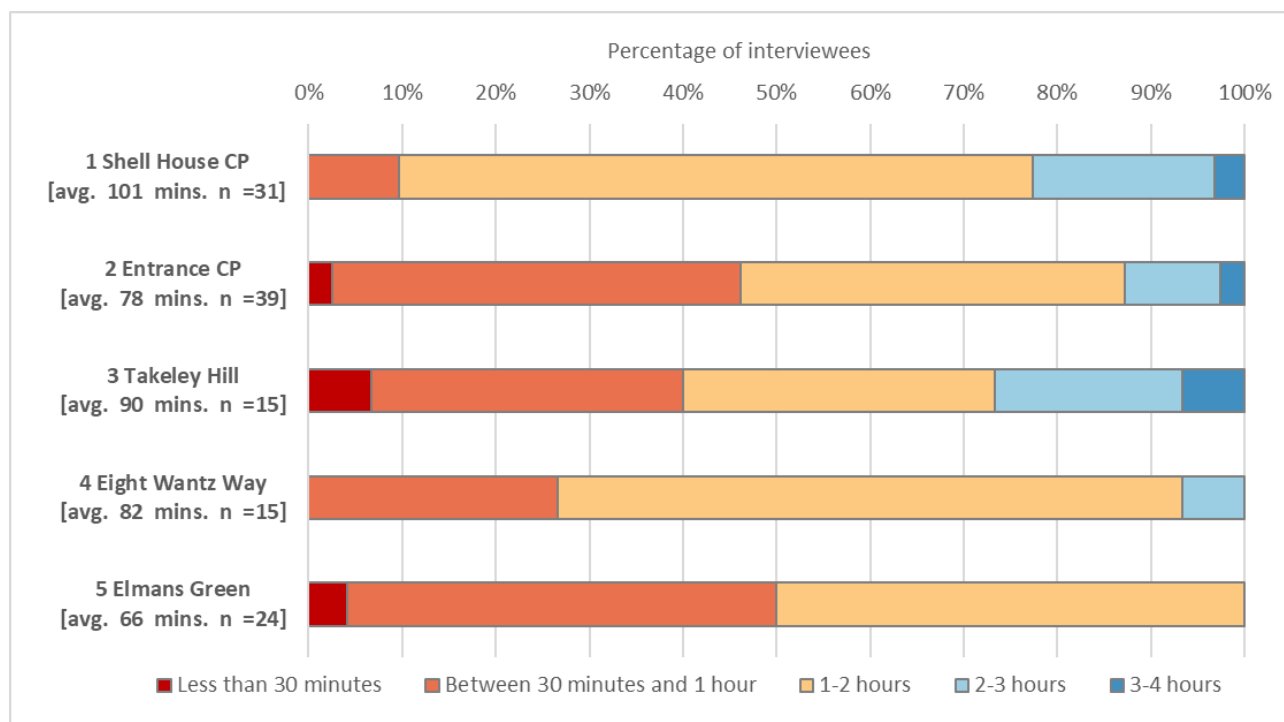


Figure 7: Percentage of interviewees and visit duration (from Q4). Based only on data from the winter term time surveys.

Visit frequency

- 6.18 Interviewees' responses for visit frequency were categorised by the number of visits they made in a year (e.g. "10 visits a year") or how frequently they visited (e.g. "once a week"). As for the visit duration, we calculated the average number of annual visits for particular locations or time periods, using the categorical data⁶.
- 6.19 Overall, the most common visit frequency was 1 to 3 times per week (79 interviewees, 20%), followed closely by those on their first visit to the site (78 interviewees, 19%) (Figure 8). However, this was highly variable between types of day and influenced by very high numbers of interviewees on their first visit to the site for the Woodfest event. The different percentages for each visit frequency class can best be summarised using averages to provide a number of annual visits made for a typical interviewee on each type of day.
- 6.20 A typical interviewee from surveys during Woodfest would make an average of 20 visits a year, the lowest number of any survey type of day. This compared to the highest values recorded on any survey day observed in term time, in summer and winter, with around 109 and 120 visits respectively. On these survey days, around 14-17% of (summer – winter respectively) were daily visitors and 47-57% frequent visitors, making more than 40 visits a year (summer – winter respectively).

⁶ "More than once a day" =450 visits per year "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.

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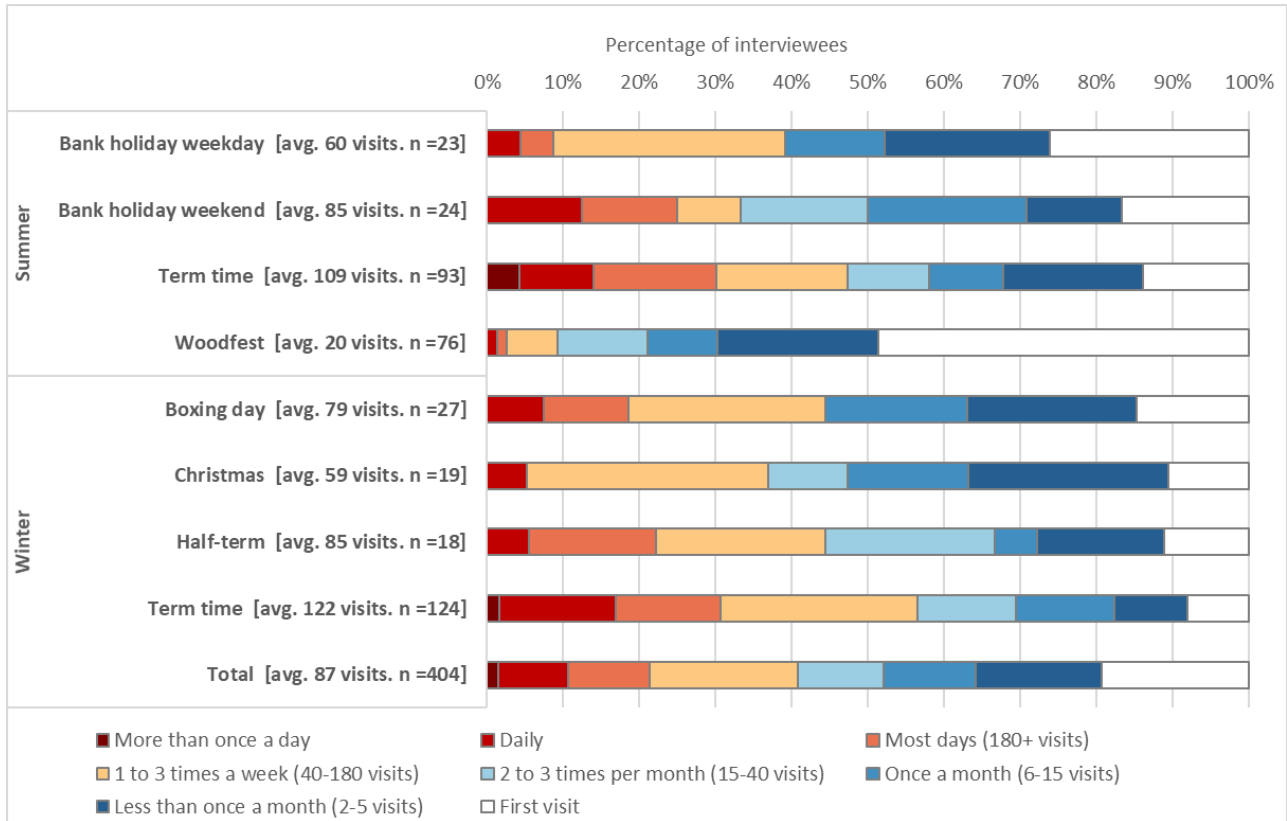


Figure 8: Percentage of interviewees and frequency of visit (from Q3) by survey point, using all data, separated by the types of day.

6.21 To better examine differences between survey points, we again used only the winter term time data. This showed the main car parks (Shell House, Main Entrance) tended to have higher proportions of people who visit less frequently (Figure 9), 39-48% making more than 40 visits a year and just 3-16% coming daily or more frequently. The survey locations in the northern section of Hatfield Forest (Takeley Hill, Eight Wantz Way, Elmans Green) appeared to be frequented by a higher proportion of more regular visitors. At these locations, on average 75% visited more than 40 times a year and 27% were daily or more frequent.

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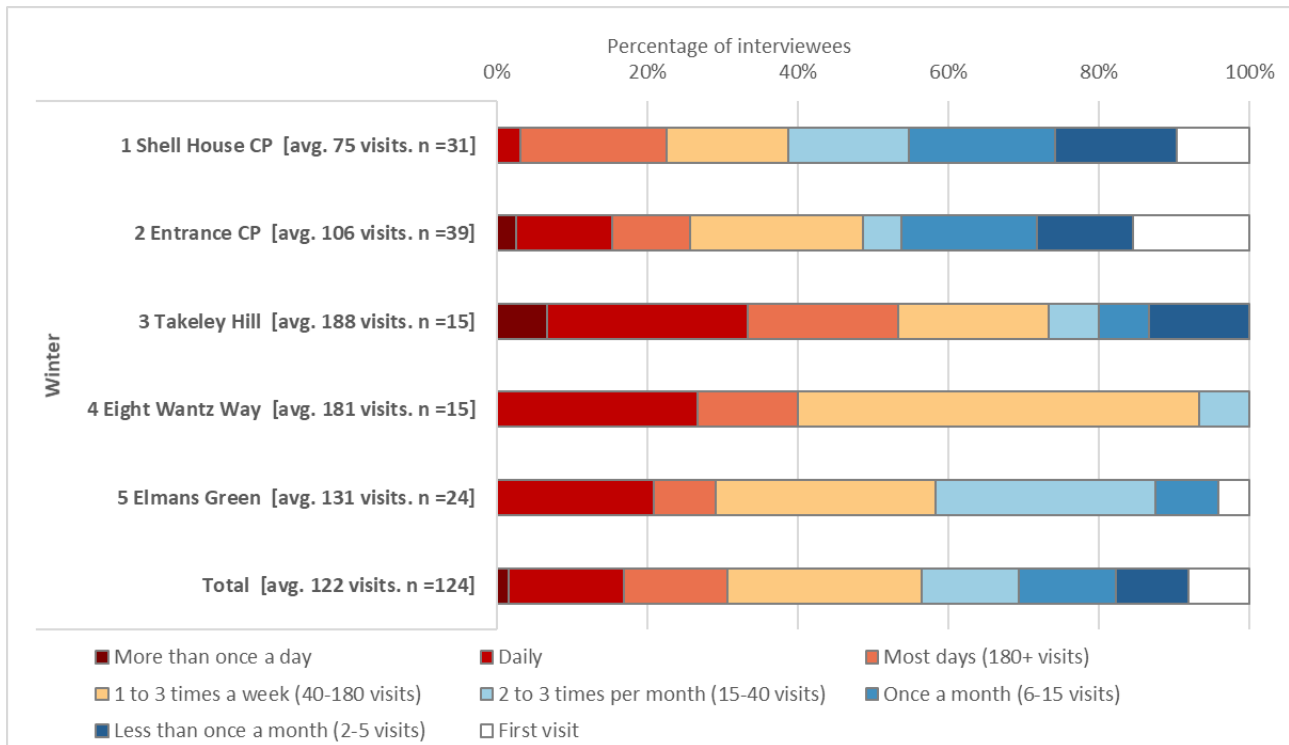


Figure 9: Percentage of interviewees and frequency of visit (from Q3) by survey point, based only on data from the winter term time surveys.

Visit frequency, number of visits per person and annual estimates

6.22 These data on visit frequencies can be used to calculate how many visits per year each interviewee typically makes by using the above visit frequencies and visits per annum. These averages are shown per survey point in Table 13. The average number of visits per person per year is much higher at Takeley Hill than the other survey points, highlighting that interviewees here tend to visit much more regularly than those at the other survey locations.

6.23 Using tally data, we can scale up the data to give an annual total, which – based on the winter term time (January/February) data alone - would suggest around 92,000 visits per annum (Table 13). This is very approximate and relates solely to the January/February (outside holiday period) visit rates, applied year-round. The estimate solely relates to the surveyed entry points; any special events, or increases in use through the seasons (e.g. during the summer) would add to this, and as such it is likely to be a considerable underestimate. The National Trust has been gathering data from gate counters at main access points for three years, and as the reliability of this data improves it will be possible to estimate actual visitor movements more accurately. Data from the gate counters indicate much higher totals across the year and highlight that our totals relate to the mid winter, off-peak use, i.e. potentially the core use at the main survey points.

6.24 Using the frequency data, we can calculate the number of individuals that this total relates to – i.e. individual people (Table 13). This would suggest that around 85% of visits per year come to the site through the Entrance Car-park or Shell House Car-park and that around 90% of the individuals visiting the site (at least based on the ratios from January/February) come through these two car-parks. The 92,000 visits are potentially made by around 934 people

Table 13: Tally data and estimates of visits per year and number of individuals at each survey location. Data used are the winter term time (January/February) data which had equal survey effort at each location. Tally data are the number of people entering the site, with Eight Wantz Way excluded as it is not an entry point. We have included the Shell House survey point but it should be noted that the survey location was on the lake shore and therefore there may be some people entering who were missed, and also some overlap with the other survey points.

Survey point	Tally data ¹			Visits per week ²	Visits per year ³	Average visits per person per year ⁴	Individuals ⁵
	weekday	weekend	total				
1 Shell Hse	44	95	139	513	26,650 (29)	75	356 (38)
2 Entrance CP	78	199	277	985	51,220 (56)	106	483 (52)
3 Takeley Hill	3	33	36	101	5,265 (6)	188	28 (3)
5 Elmans Green	15	30	45	169	8,775 (10)	131	67 (7)
Total	140	357	497	1,768	91,910 (100)	122	934 (100)

¹ Tally data are for January/February, outside school holidays/Christmas period. Same level of survey effort (16 hours) at each location

² Visits per week is the tally data scaled up to a week, assuming 10 hours of daylight per day and 5 weekdays and 2 weekend days per week.

³ Visits per year is the visits per week scaled up to 52 weeks

⁴ Average visits per person per year is calculated from the frequency of visit data; using previously mentioned values

⁵ Number of individuals is calculated as the visits per year divided by the average visits per person per year

Time of day

6.25 In question 5, interviewees were asked at what times of the day they usually visit Hatfield Forest based on a number of categories, allowing for multiple answers (see questionnaire for categories). Across all data, 70 interviewees (17%) said they were on a first visit, so unable to comment. A further 115 (28%) suggested it varied, they didn't know, or they didn't have a typical time of day that they visited. For the remaining 220 interviewees, late morning (29% interviewees) was the most frequently recorded response, followed by midday (20%).

6.26 There were some differences between survey locations (Table 12). A high percentage of interviewees on their first visit to the site, or who were unable to state a visit pattern, were recorded at Shell House and Elgins car park. The entrance car-park was the location with the highest percentage of people who tended to visit at midday while Takeley Hill had the highest percentage of interviewees visiting in the morning and

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evening while Eight Wantz Way had very few interviewees who tended to visit late afternoon or evening.

Table 14: Numbers (% of interviewees) and times of day they tended to visit Hatfield Forest. Note multiple responses could be recorded per interviewee and therefore totals in each column do not match the total number of interviewees. Grey shading reflects highest value in each row.

Response	1. Shell House	2. Entrance Car Park	3. Takeley Hill	4. Eight Wantz Way	5. Elman's Green	6. Elgin's Car Park	Total
Varies / Don't know	46 (34)	16 (19)	7 (18)	11 (32)	13 (28)	22 (34)	115 (28)
First visit	36 (26)	7 (8)	2 (5)	2 (6)	3 (7)	20 (31)	70 (17)
Early morning (before 7 am)	8 (6)	2 (2)	5 (13)	4 (12)	5 (11)	2 (3)	26 (6)
Late morning (7 -10 am)	22 (16)	38 (44)	21 (54)	15 (44)	18 (39)	4 (6)	118 (29)
Midday (10 am -2 pm)	19 (14)	25 (29)	7 (18)	2 (6)	12 (26)	16 (25)	81 (20)
Early afternoon (2 - 4 pm)	8 (6)	1 (1)	3 (8)	5 (15)	5 (11)	6 (9)	39 (10)
Late afternoon (4 - 6 pm)	8 (6)	3 (3)	8 (21)	1 (3)	5 (11)	2 (3)	27 (7)
Evening (after 6 pm)	5 (4)	1 (1)	4 (10)	2 (6)	3 (7)	4 (6)	19 (5)
Number of interviewees	136	86	39	34	46	64	405

Time of year

6.27 Interviewees indicated the seasons they tended to visit (again with multiple answers were possible). Across all surveys, 71 interviewees (18%) suggested they were on a first visit and therefore could not say, and a further four simply said they did not know (1%). The vast majority of interviewees, 262 interviewees (65%), suggested they visited equally all year round.

6.28 There were only subtle differences between survey points, but main differences of interest were between the seasons surveyed. The highest percentage of interviewees who were unable to answer the question was during Woodfest, 49%, compared to 9% in winter term time, 15% in summer term time and 8% on the bank holiday weekend. Woodfest also had the lowest percentage of interviewees who suggested they equally visited all year, 43% of interviewees, compared to 78% during at February half term.

6.29 Interviewees who did select a single season – 72 interviewees (18%) – often selected more than one of the four seasons, on average 1.4 seasons were selected by an interviewee. As such these have been expressed as the percentage of responses separately in Table 12. Overall, summer was the most frequently given in 60% of the responses, which was consistent between summer and winter surveying periods.

Table 15: Summary of times of year selected by interviewees shown for different survey periods. Note selection of an individual season could have multiple choices, therefore for each season these are summarised as the percentage of responses, rather than interviewees.

Season	Period	Number of interviewees	% interviewees: Don't know/ first visit	% interviewees: Equally all year round	% of remaining responses			
					Spring	Summer	Autumn	Winter
Summer:		217	26	59	20	60	16	4
	Bank holiday weekday	23	17	65	0	50	33	17
	Bank holiday weekend	25	8	72	17	83	0	0
	Term time	93	15	68	26	52	19	4
	Woodfest	76	49	43	18	73	9	0
Winter:		188	10	71	12	60	12	16
	Boxing day	27	15	56	8	54	23	15
	Christmas	19	11	68	0	75	0	25
	Half time	18	11	78	0	100	0	0
	Term time	124	9	73	16	58	10	16
Total		405	19	65	16	60	14	10

Length of time visiting

- 6.30 The majority of interviewees, 217 (54%), have been coming to Hatfield Forest for more than 10 years. Very few people seem only recently to have discovered Hatfield Forest, with 43 interviewees (11%) who have been visiting for less than or approximately 1 year and just 7 interviewees (2%) that have been visiting for less than 6 months.
- 6.31 Comparisons between different parts of the site were conducted using consistent data from the winter term time period (see Figure 10). Differences were slight, however the highest percentages of people visiting for over 10 years were recorded at the northern sites (Figure 10); for example, at Eight Wantz Way (9 interviewees, 60%) and Elmans Green (15 interviewees, 63%). Takeley Hill was notable for having a high proportion of more recent visitors, with 13% only visiting for 6 months – however this is based on only two interviewees.

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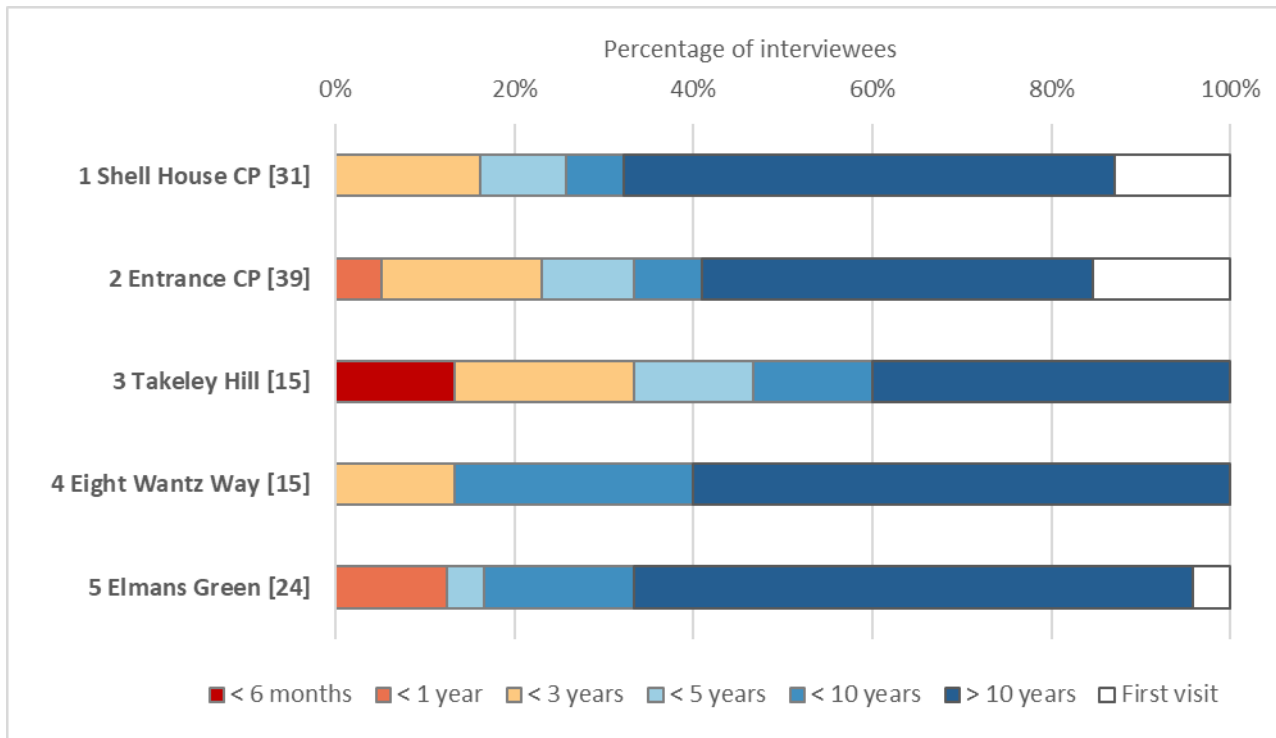


Figure 10: Percentage of interviewees and length of time visiting Hatfield Forest (from Q7), by survey point, based only on data from the winter term time surveys. Values in square brackets indicate the number of interviewees.

6.32 Differences between survey periods were also subtle. Special days such as Woodfest, Boxing day and the following day (“Christmas period”) showed few “new” visitors who had not been coming to the site for a long time – no more than 10% who had not been coming for less than 3 years. Conversely, these days could have a high proportion of first-time visitors. Visitors who had only recently started coming to the site were more common in half term or term time periods rather than these special event days.

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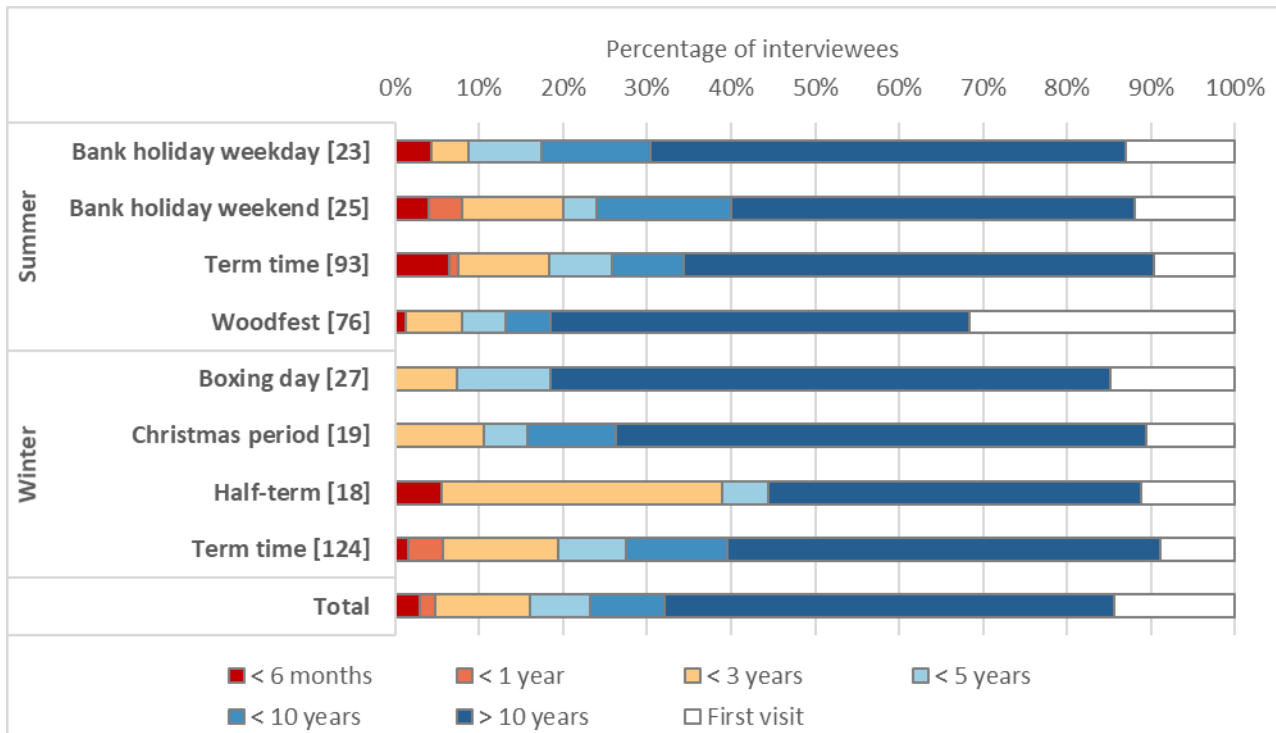


Figure 11: Percentage of interviewees and length of time visiting Hatfield Forest by survey period. Values in square brackets indicate the number of interviewees.

Changes over time

6.33 Those people who had previously visited Hatfield Forest were asked whether they had noticed any changes on the site over time (Q8), with responses categorised by the surveyor to various predetermined categories. Just under a fifth (15%) of interviewees noticed that there has been an increase in the number of people visiting, but only 3% specifically mentioned the number of cars (Figure 12). In terms of site access, the most frequently noticed change was access restrictions imposed (16%), followed by muddier paths (8%) and more difficulty parking (3%). It was notable there were slight differences between seasons; in the winter more interviewees suggested paths were muddier, and it was harder to park, while those in summer suggested more events were taking place. A wide range of ‘other’ changes were also identified by interviewees (52% giving ‘other’ reasons that did not fit the predetermined categories).

6.34 These ‘other’ changes were recorded as free text and subsequently grouped (Figure 13). The most frequently listed ‘other’ change was more management (27%), followed by improved paths (19%) and better management (13%). Some responses were the opposite and more negative, or a positive or negative opinion not given. For example, excessive clearance (e.g. tree felling; 4%) and poor management (e.g. disappearance of wildlife and forest; 7%).

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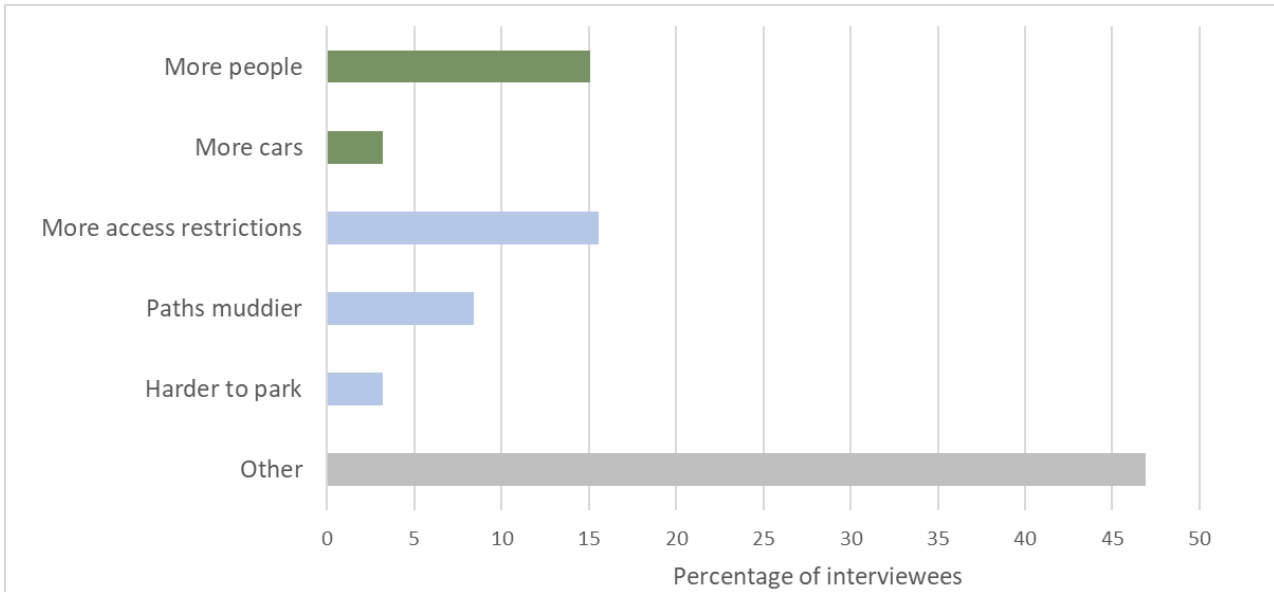


Figure 12: Changes identified by interviewees (from Q8). Data are pooled across all survey locations. Responses are sorted into visitor volume (green), access issues (light blue) and other (grey).

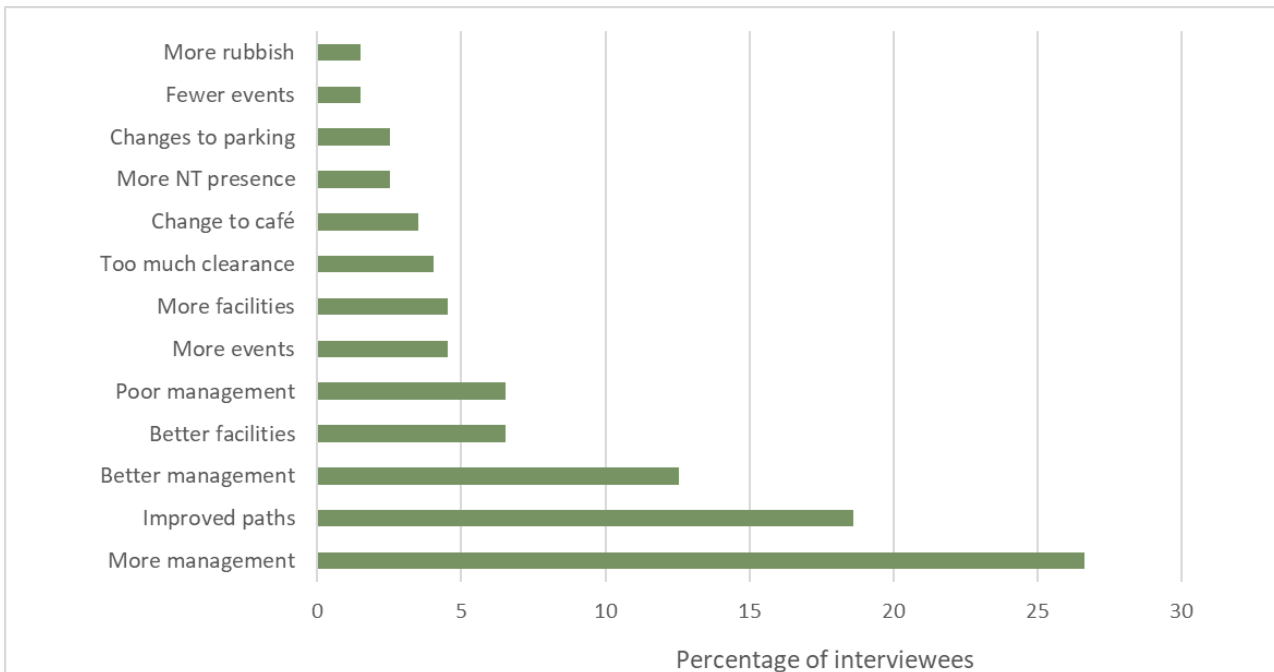


Figure 13: Bar chart showing broadly grouped 'other' changes noticed by percentage of interviewees mentioning 'other' changes (190 interviewees). Data pooled for all survey points and periods.

Mode of transport

6.35 A total of 344 (85%) interviewees had travelled to Hatfield Forest by car/van, followed by 51 (13%) interviewees on foot, 7 (2%) on bicycle and 3 (0.5%) by other means (train, horse and mobility scooter), see Table 16. There was a marked difference between

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survey locations, with the Shell House car park, the Main Entrance and Elgin's car park almost exclusively being accessed by car. Eight Wantz Way, Elmans Green and had around three quarters visiting by car (63-77%), while Takeley Hill had a higher proportion of people visiting on foot compared to any other mode of transport (54%).

Table 16: Number (%) of interviewees and their mode of transport to Hatfield Forest across the six survey locations. Values in bold reflect highest value in each column.

Transport Mode	1 Shell House CP	2 Entrance CP	3 Takeley Hill	4 Eight Wantz Way	5 Elmans Green	6 Elgins CP	Total
Car / van	127 (93.4)	86 (100)	14 (35.9)	26 (76.5)	29 (63)	62 (96.9)	344 (84.9)
On foot	8 (5.9)	(0)	21 (53.8)	8 (23.5)	12 (26.1)	2 (3.1)	51 (12.6)
Bicycle	1 (0.7)	(0)	1 (2.6)	(0)	5 (10.9)	(0)	7 (1.7)
Other	(0)	(0)	3 (7.7)	(0)	(0)	(0)	3 (0.7)
Total	136 (100)	86 (100)	39 (100)	34 (100)	46 (100)	64 (100)	405 (100)

Routes on site

Route lengths

6.36 Routes taken/going to be taken by interviewees were mapped for 383 of those questioned – for any of those attending Woodfest a route map was not completed as they were not going far or vice versa they were attending for the whole festival. A total of 219 (57%) indicated that they were following a normal route (Table 17). However, 57 (15%) interviewees could not comment on their typical route length as it was their first visit. Forty-seven (12%) interviewees were following a shorter than normal route.

Table 17: Number (%) of interviewees commenting on their route length across the five survey locations. Bold values reflects highest value in each column.

Route Length	1 Shell House CP	2 Entrance CP	3 Takeley Hill	4 Eight Wantz Way	5 Elmans Green	6 Elgins CP	Total
Yes, normal	60 (51.3)	68 (81.9)	27 (71.1)	25 (73.5)	20 (45.5)	19 (29.7)	219 (57.6)
Longer than normal	1 (0.9)	0 (0)	5 (13.2)	1 (2.9)	1 (2.3)	1 (1.6)	9 (2.4)
Shorter than normal	12 (10.3)	7 (8.4)	2 (5.3)	4 (11.8)	13 (29.5)	9 (14.1)	47 (12.4)
Not sure / no typical route length	17 (14.5)	1 (1.2)	2 (5.3)	2 (5.9)	7 (15.9)	19 (29.7)	48 (12.6)
First visit	27 (23.1)	7 (8.4)	2 (5.3)	2 (5.9)	3 (6.8)	16 (25)	57 (15)
Total	117 (100)	83 (100)	38 (100)	34 (100)	44 (100)	64 (100)	380 (100)

6.37 At all individual survey points, with the exception of survey point 6 at Elgin's, the majority of interviewees were conducting a normal route. The proportion of interviewees at Elgins car park conducting routes of a normal length was just 30%.

Primarily this was due to a high proportion, of interviewees who were not sure or did not have a typical route, as many as were conducting a normal route, 30%. Of the interviewees who did suggest their route was different from normal, at all but at Takeley Hill, most interviewees suggest their route was shorter than normal. A shorter than normal route was particularly common at Elman's Green (30%). The differences in survey points are driven in part by the different levels of effort on different types of day. Elgin's had more survey effort in summer, and in particular during Woodfest, which had a high percentage of interviewees who were on their first visit or did not have a typical route on site (Table 18).

Table 18: Number (%) of interviewees commenting on their route length across the survey timings. Bold values reflect highest value in each column.

Route Length	Summer				Winter			
	Bank holiday weekday	Bank holiday weekend	Term time	Woodfest	Boxing day	Christmas	Half-term	Term time
Yes, normal	11 (47.8)	15 (62.5)	51 (55.4)	9 (15.5)	20 (74.1)	12 (63.2)	15 (88.2)	86 (71.7)
Longer than normal			4 (4.3)					5 (4.2)
Shorter than normal	6 (26.1)	3 (12.5)	14 (15.2)	5 (8.6)	1 (3.7)	4 (21.1)		14 (11.7)
Not sure / no typical route length	3 (13)	3 (12.5)	12 (13)	21 (36.2)	2 (7.4)	1 (5.3)		6 (5)
First visit	3 (13)	3 (12.5)	11 (12)	23 (39.7)	4 (14.8)	2 (10.5)	2 (11.8)	9 (7.5)
Total	23 (100)	24 (100)	92 (100)	58 (100)	27 (100)	19 (100)	17 (100)	120 (100)

Factors affecting routes

6.38 Factors that influenced visitor routes (Q11) were recorded based on a series of predetermined categories and answers that did not fit these categories were recorded as 'other' and details logged as free text. 'Other' factors were listed by 148 interviewees (37%) (Figure 14). Of the predetermined categories, 57 (14%) interviewees stated that group members had affected their route and 46 (11%) people were guided by previous knowledge of the area/experience.

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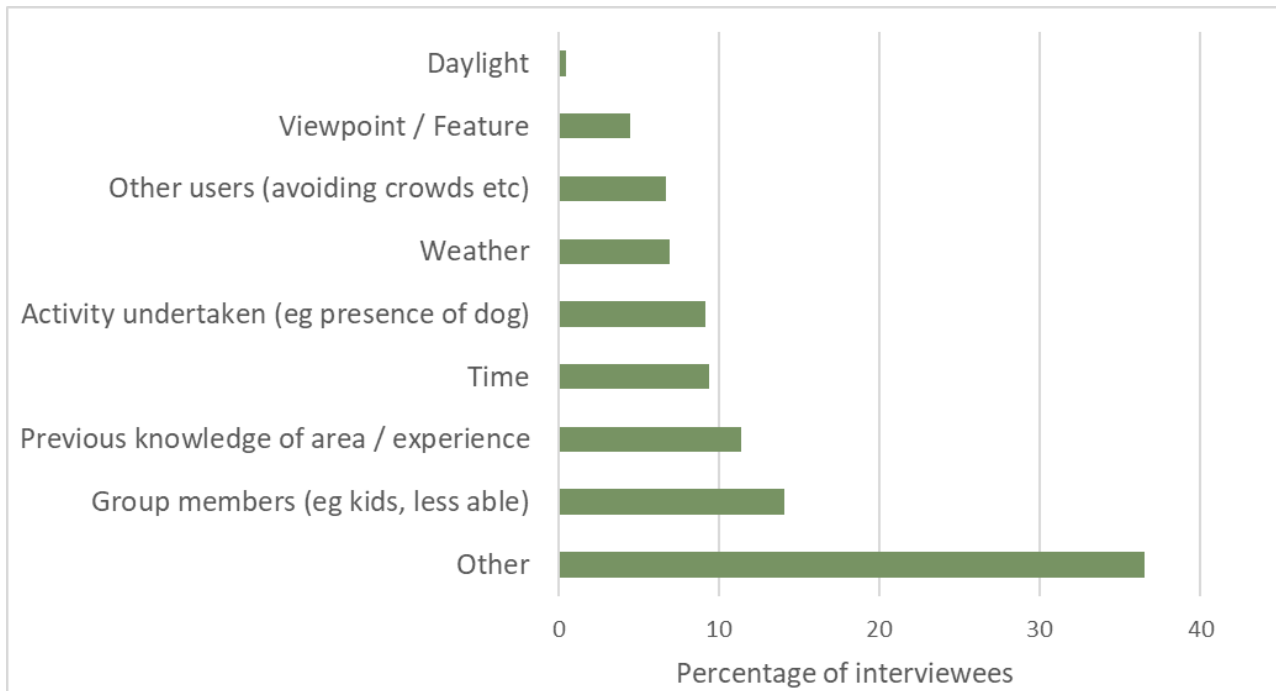


Figure 14: Percentage of interviewees referring to specific (predetermined) factors that influenced their choice of route on the day interviewed (Q11). Data pooled for all dates and all survey points.

6.39 'Other' factors were very diverse, and the free text responses are summarised in Figure 16. Key themes included 16 (4%) responses which related to wildlife, 15 (4%) responses which related to seeking variety and 13 (3%) that related to the NT café. Path condition was a notable factor given by 12 (3%), and this included both positive (e.g. following the new path) or negative (e.g. avoiding the bumpy paths) reasons. Seasonal differences suggest more people were avoiding icy paths in winter but seeking out open sunny areas or conducting a walk around the lake. In summer, Woodfest was a key factor and more people appeared to be exploring rather than following any normal or set route.

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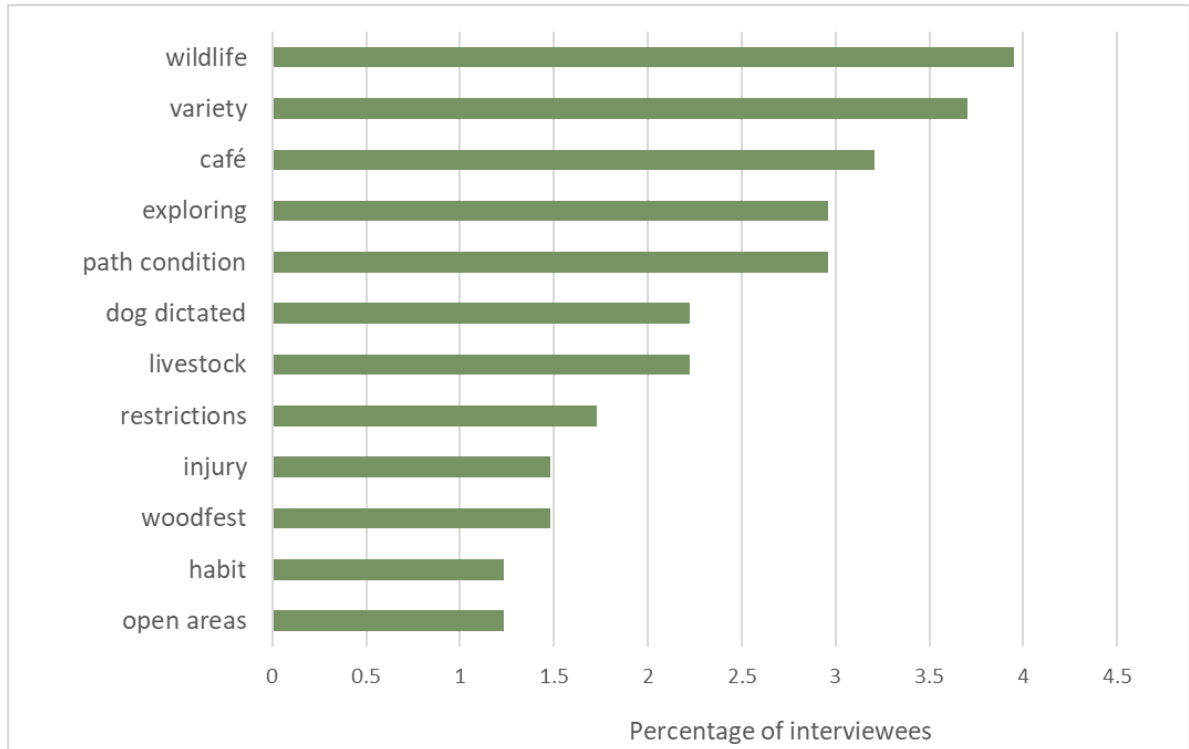


Figure 15: Percentage of interviewees referring to “other” factors that influenced their choice of route on the day interviewed (Q11). Data pooled for all dates and all survey points. Categories given by less than 3 interviewees are not shown.



Figure 16: Word cloud summarising free text responses relating to factors that influenced choice of route on the day interviewed (Q11). Free text responses were recorded as accurately as possible by the surveyors (note where responses were long they were summarised) and supplement the predetermined categories (shown in Figure 14).

Route length

6.40 Routes were clipped to the bounds of the site and route lengths calculated. Overall the median route length was 3.0km and the mean was 3.5km, but routes ranged from 80m to the longest route of 9.1km.

6.41 Route lengths are summarised by activity in Figure 17. The longest median route length was recorded for cyclists/mountain bikers (5.8km), while photographers were the user group with the second longest route lengths (median: 4.9km). Dog walkers, walkers (median: 2.94km) and wildlife watchers had a similar route length (medians; 2.9-3.1km) much very similar typical route lengths (Figure 17). Finally, shortest routes were conducted by people on family outings, those at Woodfest and horse riders had the shortest route length. Comparisons showed that the statistically significant differences between all these activities (Kruskal-Wallis; $H=54.5$, $df=11$, $p < 0.001$).

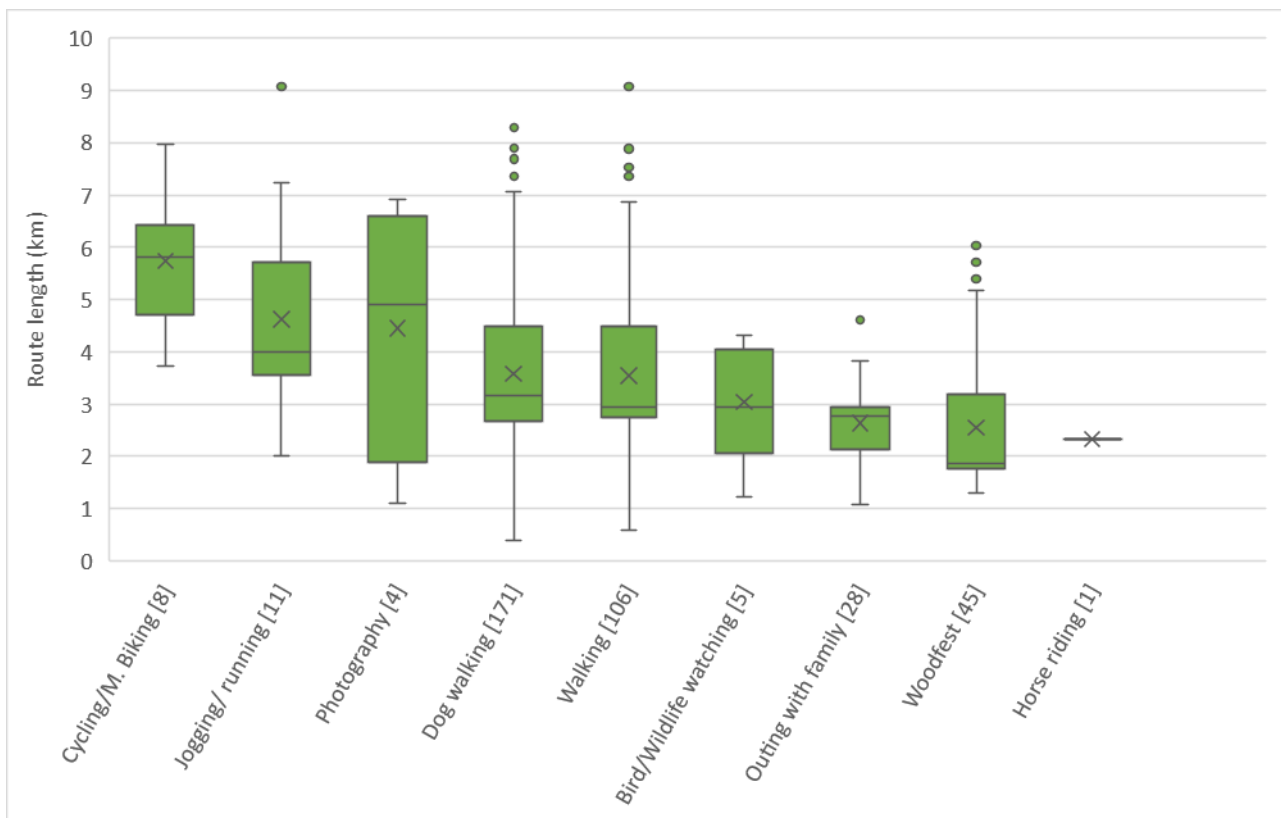


Figure 17: Boxplot of route lengths split by activity of interviewees across the activities (numbers in brackets show the number of interviewees in each group). The horizontal band represents the median, crosses the mean, the upper and lower whiskers represent the 25th and 75th quartile of the data, and circular markers indicate outliers. Categories sorted by mean values.

6.42 Differences were also apparent in route length between survey points (Figure 18) and these differences were highly significant (KW test; $h=38.8$, $df = 5$, $p < 0.001$). The shortest median route length was recorded for interviewees at Elgins car park (median: 2.0km),

followed by the Entrance (2.9km) and Shell House (3.0km). The survey points in the northern part of Hatfield Forest, Takeley Hill (median= 3.9km), Eight Wantz Way (median= 4.2km) and Elmans Green (median= 3.9km) had longer typical route lengths.

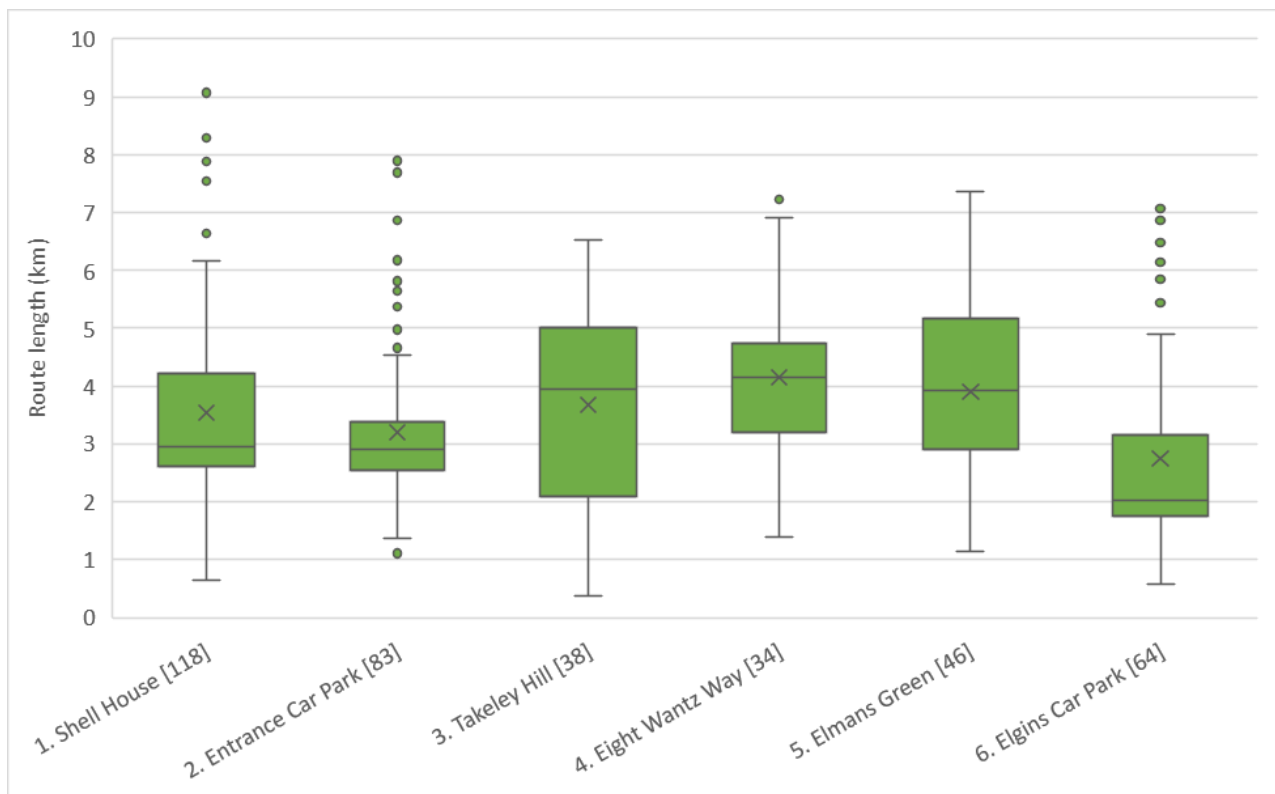


Figure 18: Boxplot of route lengths split by survey locations (numbers in brackets show the number of interviewees in each group). The horizontal band represents the median, crosses the mean, the upper and lower whiskers represent the 25th and 75th quartile of the data, and circular markers indicate outliers.

- 6.43 Main differences between survey points and activities were conflated by differences between seasons, however, and these differences were not significant (KW test; $H=2.95$, $df = 7$, $p=0.890$). The shortest median route length was recorded for the summer Bank holiday weekend (median: 2.7km), and longest during the winter half term (3.2km).
- 6.44 When looking at median route lengths between transport mode statistically significant differences were evident (KW test; $H=122.7$, $df3$, $p=0.007$). The seven interviewees arriving at the site by bicycle had the longest median route length (median: 5.8km). The shortest routes were conducted by people arriving other (2.3km) or by car (2.9km).

Distribution of routes

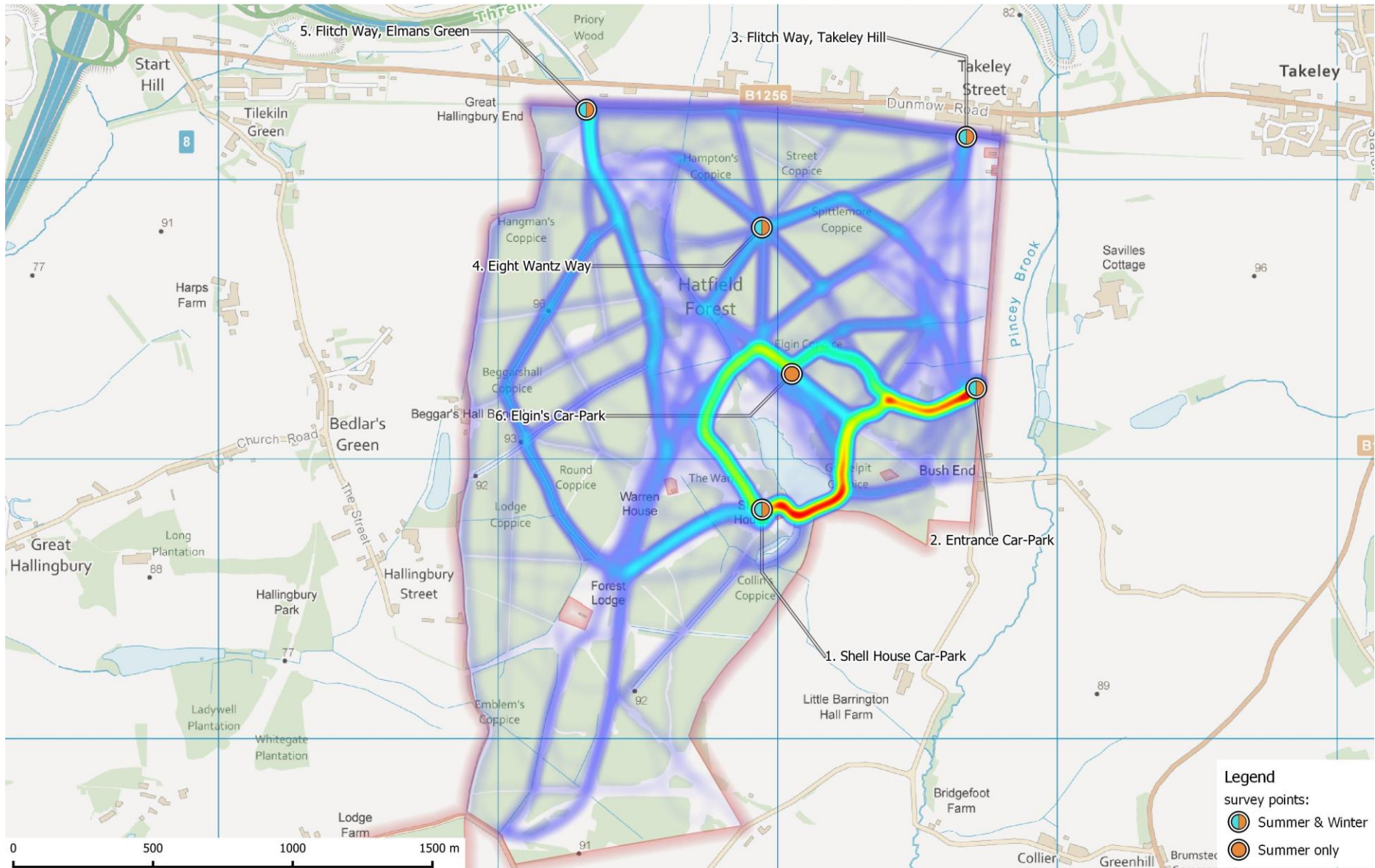
- 6.45 The route heatmap in Map 4 was created by converting visitor routes to evenly spaced points. The colouring reflects the point density in different areas of the map.

- 6.46 The route heatmaps in Map 5 provide route data for each season while map 6 shows the data by separate survey location, and indicates that the visitor use from different areas does not converge on the same site features. For example, most visitors (red colour) from the Shell House car park and Main Entrance car park target the lake and café area. Interviewees entering at Takeley Hill or Elmans Green tend to remain in the northern area of the site. Eight Wantz Way appears to act as a central hub, receiving some visitors from all entrance points.
- 6.47 The route data analysis illustrates the unique spatial visitor pattern in Hatfield Forest, effectively with two different 'types' of visitors. This was reinforced by anecdotal evidence in interviews. Visitors interviewed in the north often complained about the large crowds in the café area and too much development on site, while visitors in the lake area often highlighted the well-maintained paths and the café as major drivers of their visit.

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Map 4: Heatmaps to indicate the distribution of all interviewees routes, from high numbers (red) to low (blue).

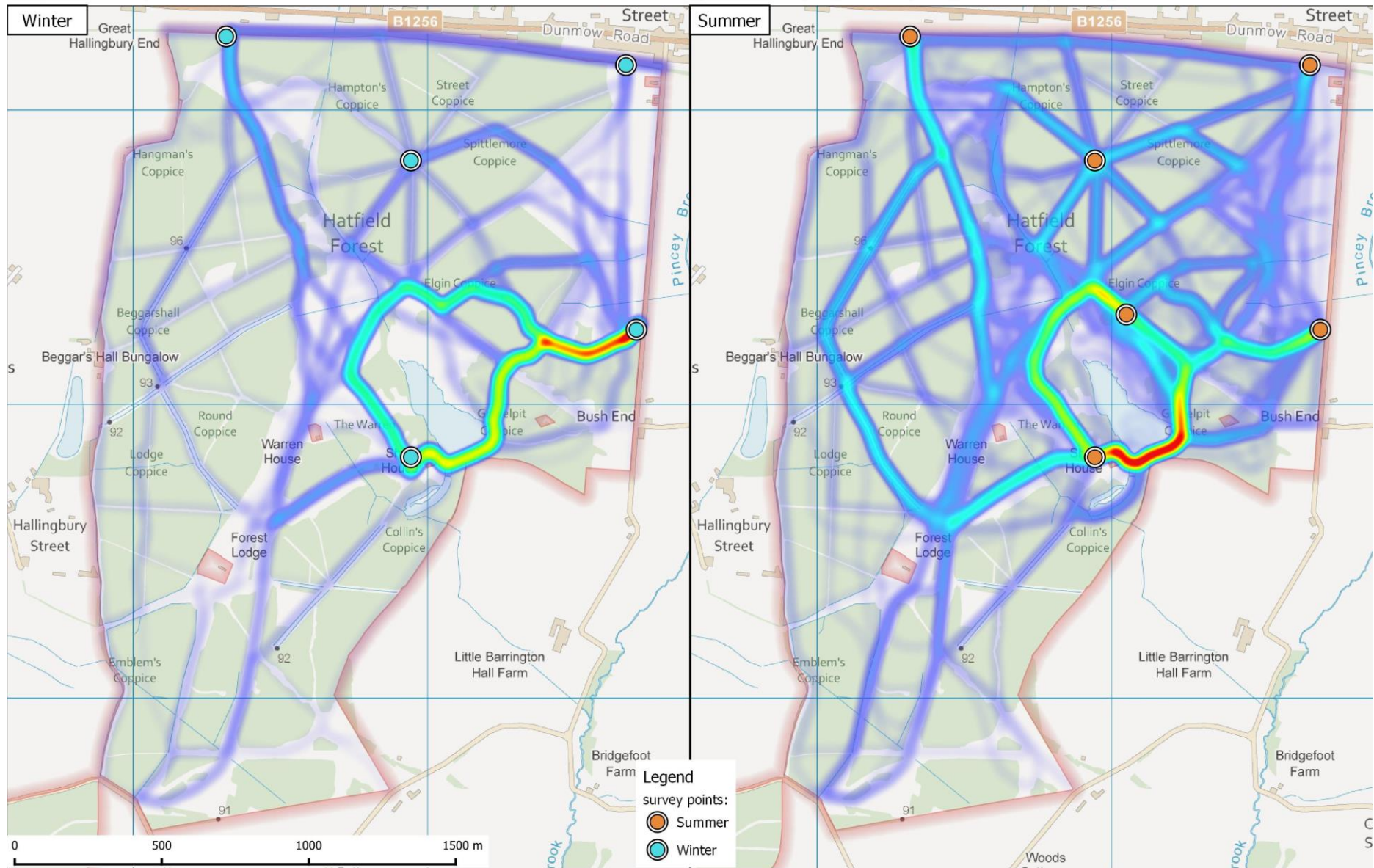


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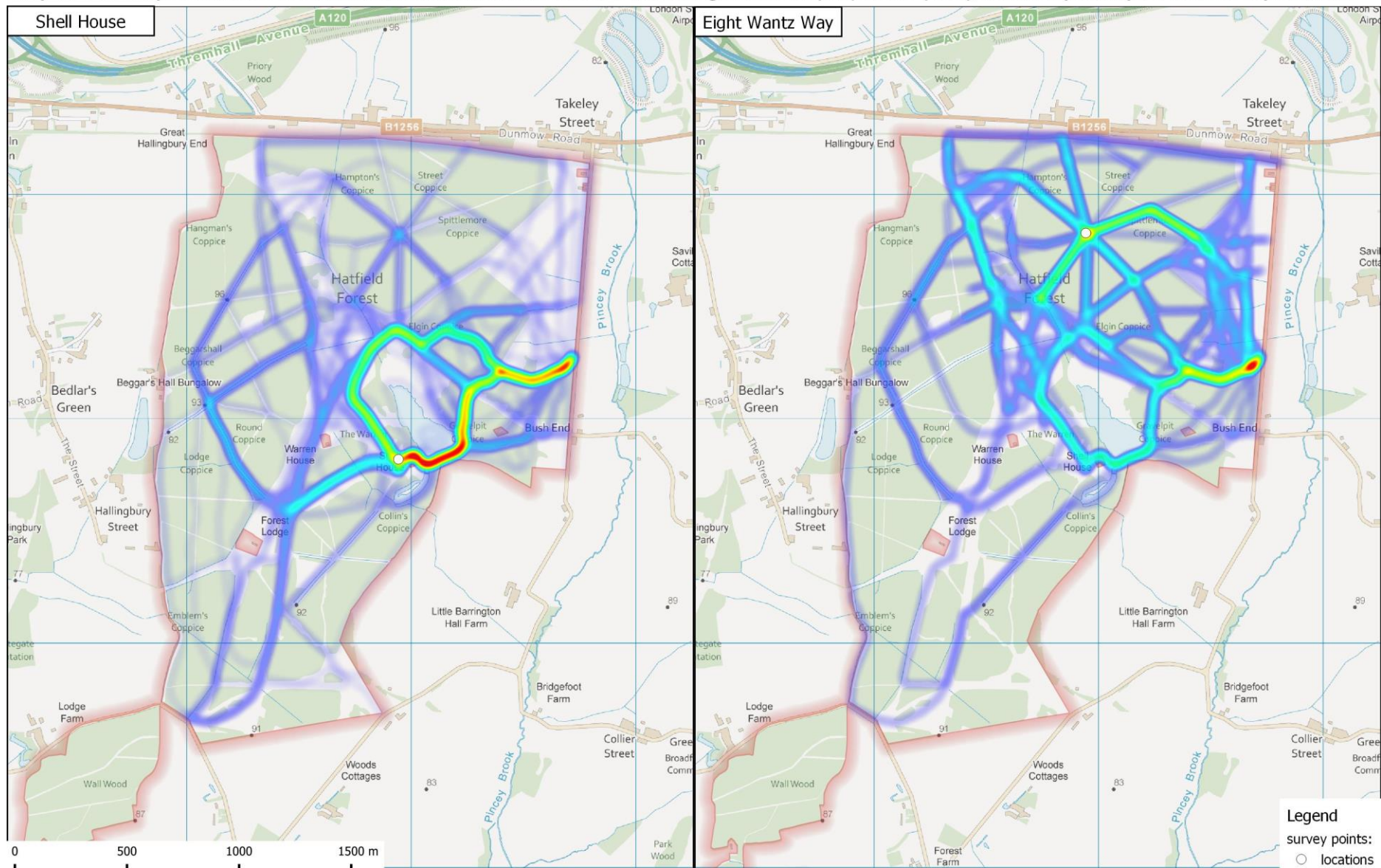
Map 5: Heatmaps to indicate the distribution of all interviewees routes, from high numbers (red) to low (blue), shown separately for summer and winter.



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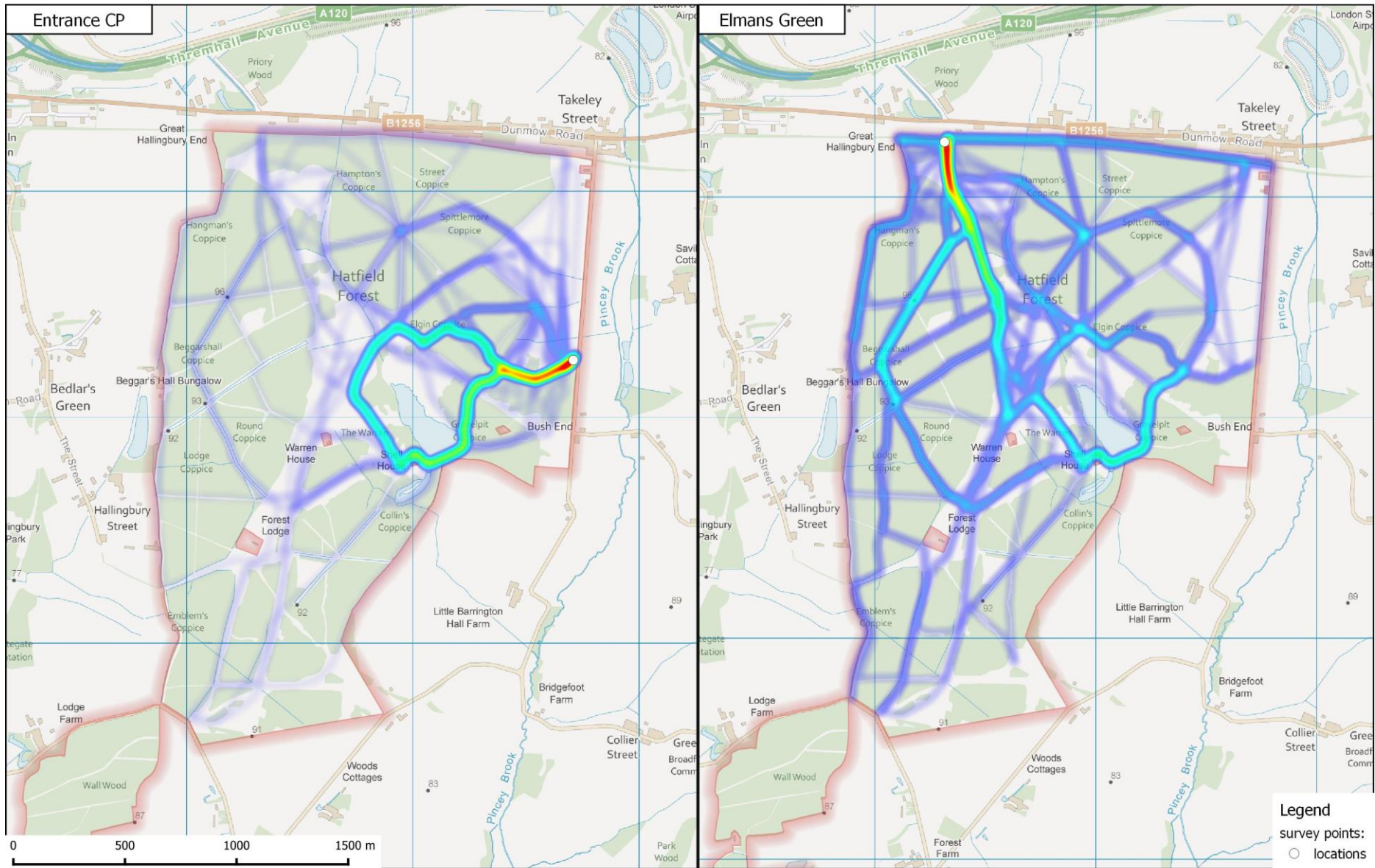
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Map 6a: Heatmaps to indicate the distribution of all interviewees routes, from high numbers (red) to low (blue), shown separately for each survey location.



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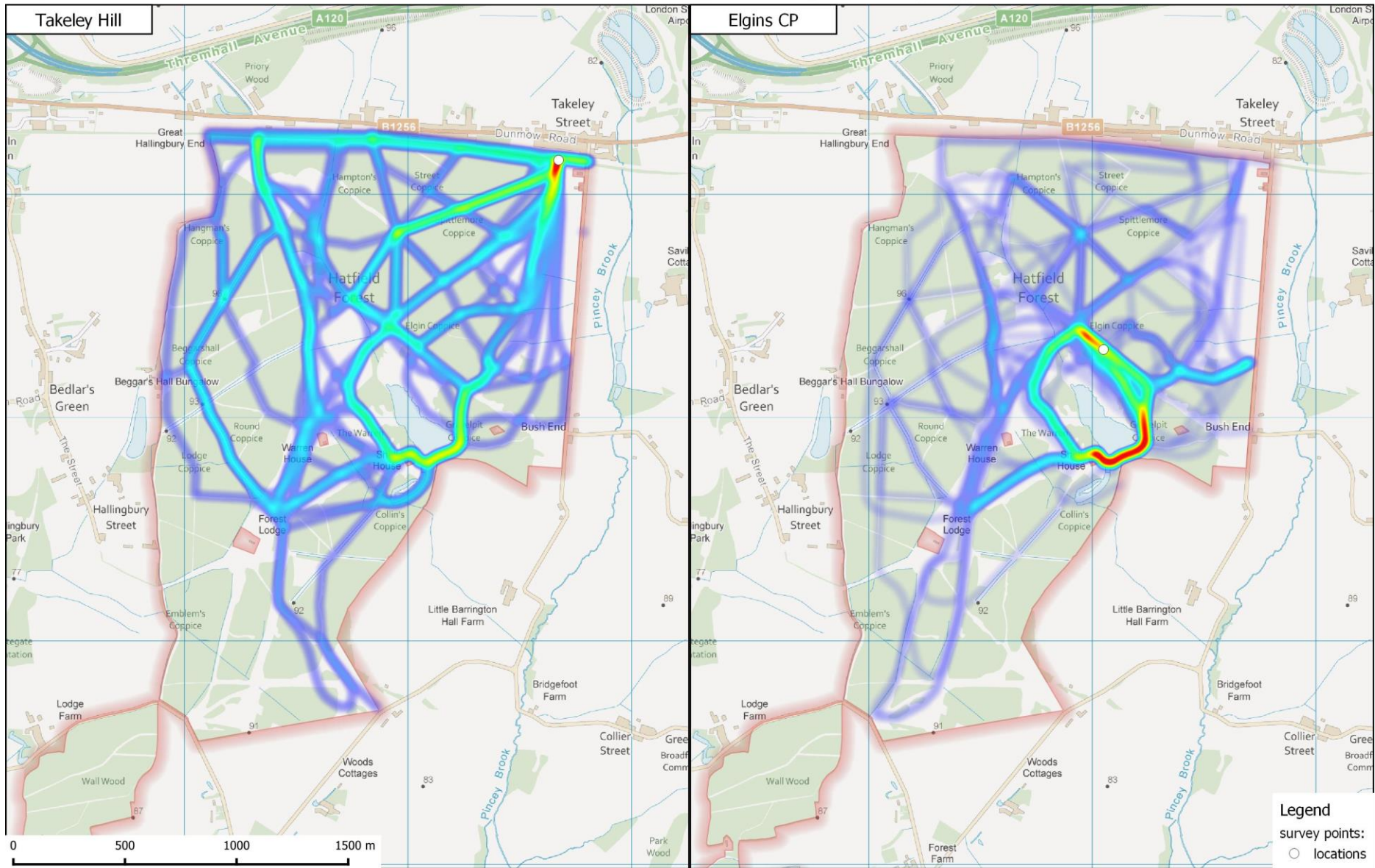
Map 6b: Heatmaps to indicate the distribution of all interviewees routes, from high numbers (red) to low (blue), shown separately for each survey location.



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Map 6c: Heatmaps to indicate the distribution of all interviewees routes, from high numbers (red) to low (blue), shown separately for each survey location.



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Current site choice

Reasons underpinning site choice

- 6.48 Interviewees were asked to state their reasons for visiting Hatfield Forest, allowing for multiple responses with all listed, but followed up by asking interviewees to select just one main factor. The most frequent single choice main reason for visiting given by interviewees was the proximity of Hatfield Forest to home (20%; Figure 19), followed closely by grouped “other” factors (19%). Another significant theme emerging from the responses related to the nature and landscape of the site; 9% of interviewees visit because of the rural feel/wild landscape, 6% because of the scenery/variety of views and 4% due to a particular wildlife interest. A surprisingly low proportion of interviewees mentioned factors related to dog walking. Only 6% stated that Hatfield Forest is good for a dog/dog enjoys it and only 3% mentioned the ability to let dog off lead as a reason for visiting.
- 6.49 The pooled “other” factors include a wide range of responses which did not fit into the categories provided to the surveyors, however these were recorded as free text. Responses frequently mentioned, included; Woodfest, big open spaces, peaceful, easy terrain/walks, the trees and history, exploring somewhere new, social aspects: meeting friends, or other dogs, and being members of the National Trust.

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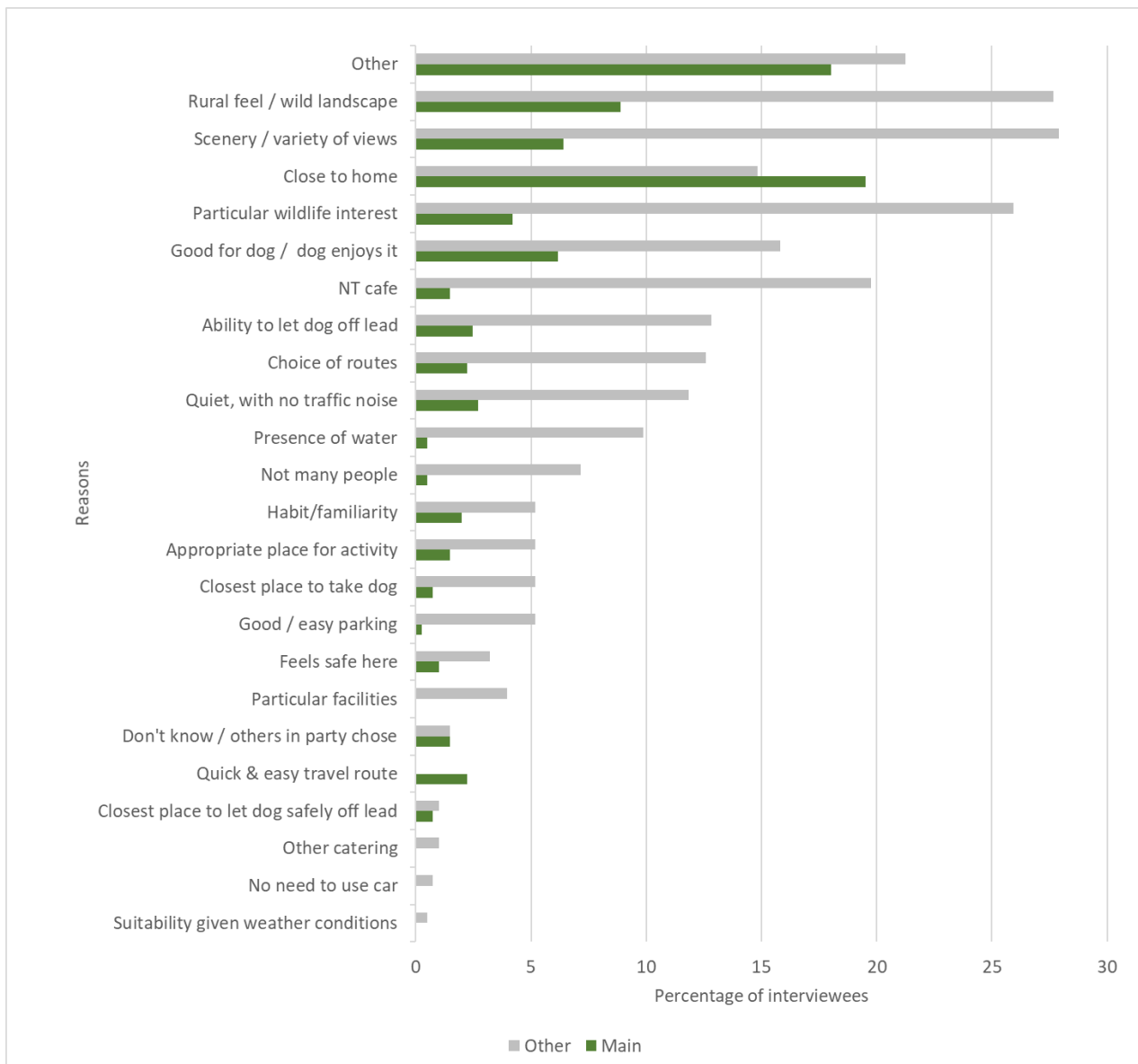


Figure 19: Bar chart of the reasons (main reason and 'other', grey) why interviewees are visiting Hatfield Forest shown as percentage of interviewees. Data are sorted by overall sum of responses in each category.

Proportion of visits to Hatfield Forest

6.50 For just under 1 in 10 interviewees (35 interviewees, 9%), all visits for their chosen activity (that being undertaken on the day of the interview) took place at Hatfield Forest. There is therefore a small core of visitors who appear almost exclusively to visit this site and do not use other greenspaces. A further 87 interviewees (22%), indicated that at least three-quarters (but not all) their visits for their chosen activity are made to Hatfield Forest. However, the largest category, given by 131 interviewees, 32%, make less than 25% of their visits for their chosen activity. For these interviewees

a range of other existing greenspaces must also be visited, some probably more frequently than Hatfield.

- 6.51 Data on the proportion of visits to Hatfield Forest are summarised by survey location in Figure 20. There were many more visitors who were unsure at Elgins and Shell House, but otherwise patterns across survey points are broadly similar. Takeley Hill and Eight Wantz Way appeared to have the highest proportions of interviewees with all their visits at Hatfield Forest (12-18%).
- 6.52 Data are summarised by activity in Table 19. Dog walkers and runners/joggers had a reasonable proportion of exclusive visitors to Hatfield (30% and 25% respectively). small or large proportion of their activity on site. Dog walkers, runners/joggers and walkers appeared to be fairly exclusive visitors; with 22% of walkers suggesting that 75% or more of their visits to greenspaces took place at Hatfield.

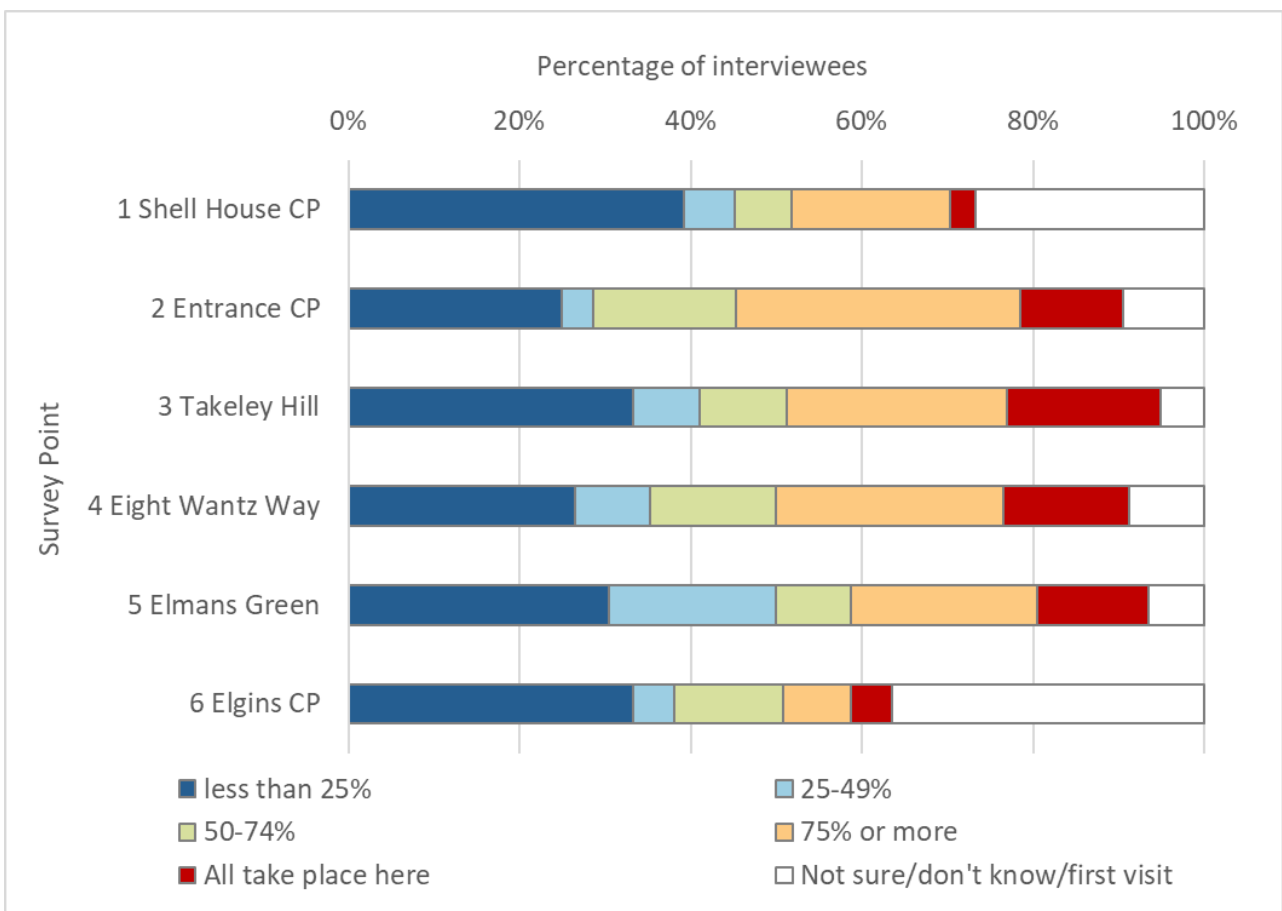


Figure 20: Proportion of time spent by interviewees for their chosen activity (from Q14) split by survey location.

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Table 19: Number (%) of interviewees and their proportion of time spent in Hatfield Forest (from Q14) by activity. Bold values indicate the two highest value in each column.

Proportion Time	Dog walking	Walking	Woodfest	Outing with family	Jogging/running	Cycling/M. Biking	Bird/Wildlife watching	Photography	Total
less than 25%	53 (30)	38 (36)	18 (30)	9 (31)	5 (42)	3 (38)	1 (20)	2 (50)	131 (32)
25-49%	12 (7)	8 (8)	3 (5)	3 (10)	1 (8)	(0)	(0)	1 (25)	29 (7)
50-74%	24 (14)	8 (8)	3 (5)	4 (14)	1 (8)	1 (13)	2 (40)	1 (25)	44 (11)
75% or more	53 (30)	23 (22)	5 (8)	2 (7)	2 (17)	1 (13)	(0)	(0)	87 (21)
all take place here	24 (14)	5 (5)	1 (2)	1 (3)	3 (25)	1 (13)	(0)	(0)	35 (9)
not sure/ don't know/ first visit	8 (5)	23 (22)	30 (49)	9 (31)	(0)	2 (25)	2 (40)	(0)	75 (19)
Total	175 (100)	106 (100)	61 (100)	29 (100)	12 (100)	8 (100)	5 (100)	4 (100)	405 (100)

Alternative locations visited

- 6.53 The majority of 284 (72%) interviewees could name an alternative site they would have visited had Hatfield forest not been open to them (Figure 21), while 85 (22%) interviewees stated they would not have visited anywhere else today if they could not come here, and 27 (7%) people were not sure / didn't know.
- 6.54 The most frequently given response by interviewees (38 interviewees, 17%) was that would have visited a greenspace near home (often simply referred to 'local fields', 'farm tracks near home' or 'farmland' or similar), without specifically naming a destination. It was also noted that many stated they would simply use the Flich Way (18, 8%). Fourteen interviewees (65) would have visited the Lee & Stort Valley and 12 (5%) would have visited Wimpole Hall.

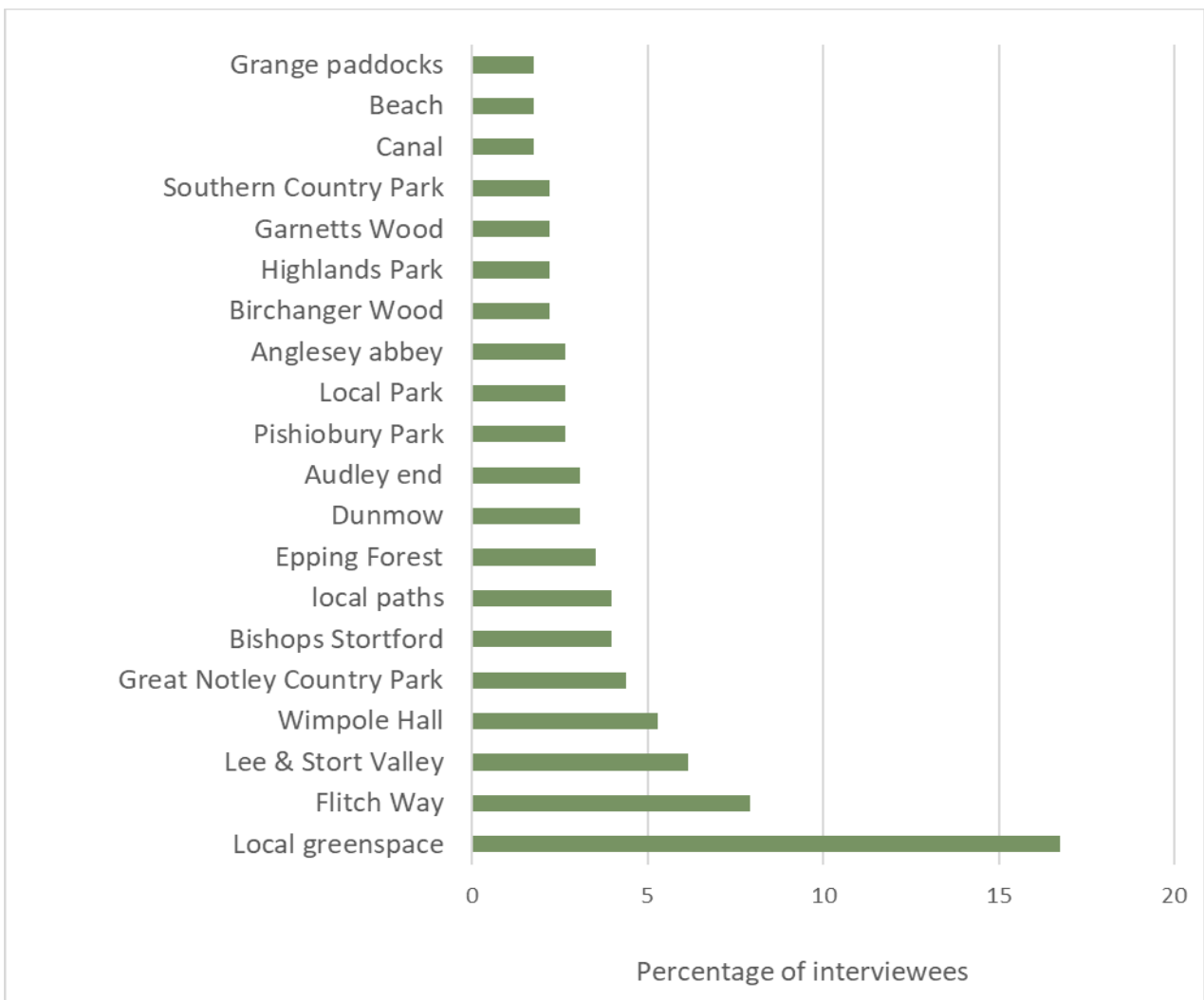


Figure 21: Named alternative sites (the one location the interviewee would have visited that day if they could not have visited Hatfield Forest), from Q15.

Potential for new greenspace

- 6.55 Most interviewees (267, 67%) stated that they would consider using an alternative, expansive greenspace if a new such site were created near Hatfield Forest. Seventy-seven (19%) respondents were not sure / didn't know and fifty-seven (14%) interviewees stated that they would not consider an alternative to Hatfield Forest.
- 6.56 Features that interviewees would like to see in new local greenspace are summarised in Figure 22. A large proportion of interviewees (127, 32%) people wanted to have refreshments (e.g. a café) available at a new site, followed by 81 (20%) who desired toilets (particularly noted in summer). Other frequently desired features also included; attractive surroundings (55, 14%), the ability to let dog off lead (52, 13%), being safe for dogs (51, 13%) and better parking facilities (45, 11% - particularly in winter). Roughly 7% of interviewees (29) weren't looking for any specific features in the new greenspace.

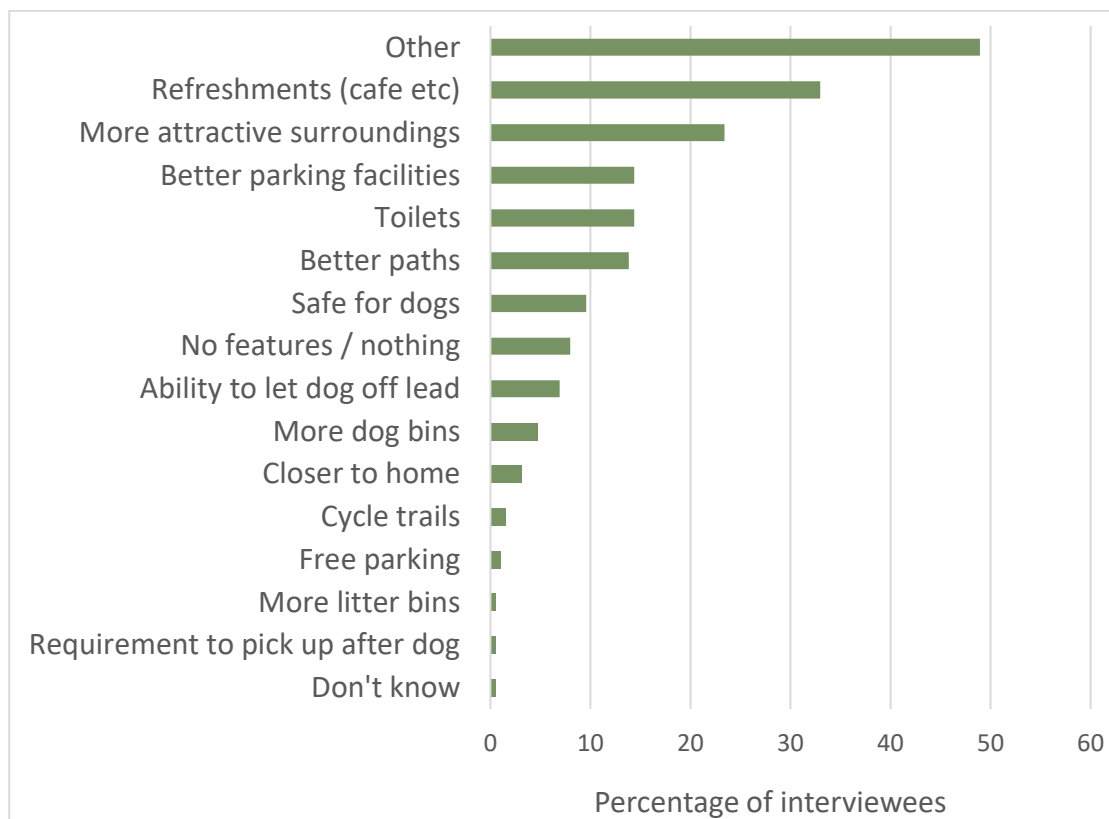


Figure 22: Features interviewees would like to see in an alternative greenspace (from Q17).

- 6.57 Just over 200 (208), 52% of interviewees identified 'other' features that did not match the predetermined categories on the list. Most of these related to the habitat, ecology and 'feel' of a site. For example, the largest proportion of responses (20%) interviewees indicated they wanted a 'natural' site, and 16% interviewees who were looking for woodland, however, 10% wanted open spaces instead. Many interviewees were keen

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that a new site be child-friendly (10%), have good accessibility (7%) and large enough (5%). Responses are summarised in Figure 23.



Figure 23: ‘Other’ features listed by interviewees that they would like to see in alternative greenspace sites (free text responses from q17). Word cloud generated online⁷ using words mentioned at least three times.

⁷ <https://www.wordclouds.com/>

Importance of Hatfield Forest to interviewees

6.58 In Question 13 interviewees were asked to score what they think the importance of Hatfield Forest to be, as a greenspace for people to visit, for its wildlife and for its history. The order of the three categories was randomised within the questionnaire. Responses are summarised in Figure 24. A very high proportion of interviewees, 372 (92%), rated Hatfield Forest as a 5 for its value as a greenspace, followed by 20 (5%) that rated it 4. Interviewees rated Hatfield Forest similarly high for its wildlife; 352 (86%) rated it a 5, followed by 37 (9%) giving it a 4. The site was rated lowest for its historical value, with 261 (64%) interviewees giving it a 5, but 56 (14%) giving it a 3.

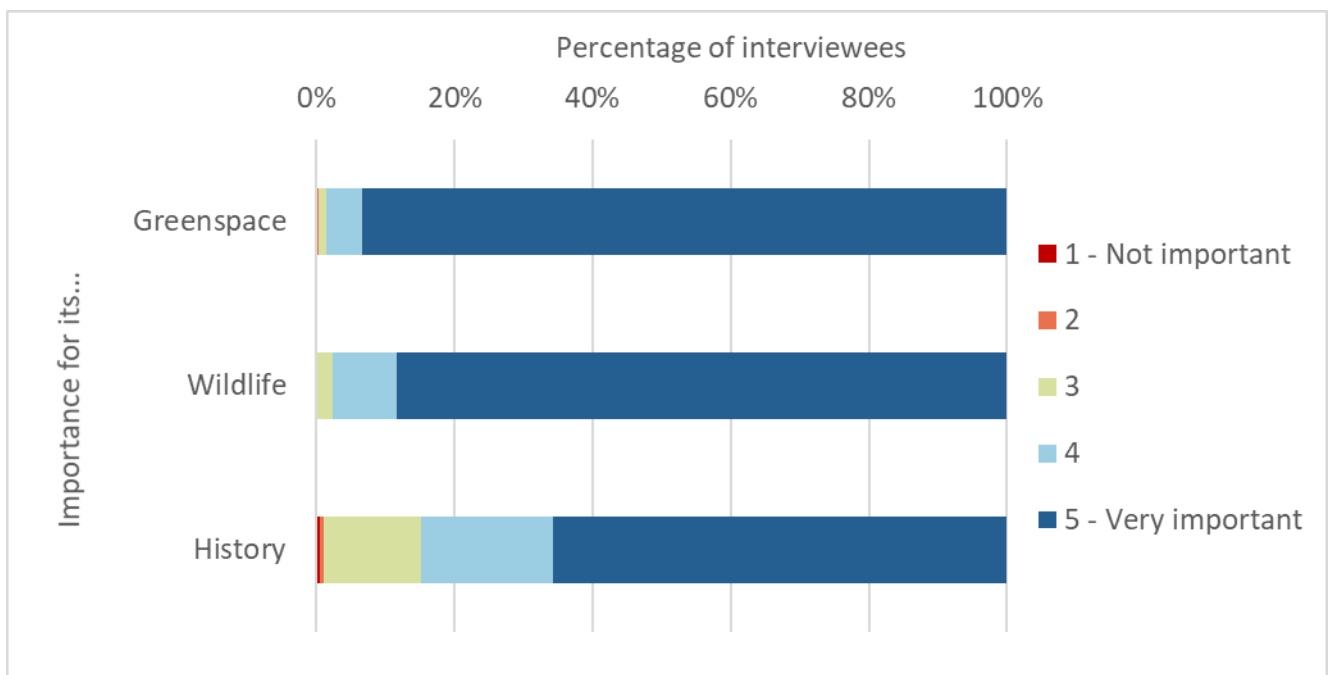


Figure 24: Stacked bar chart of ratings (1-5) given to different aspects of Hatfield Forest by the % of interviewees choosing the respective ratings.

Visitor origins: Postcode data

6.59 In total, 363 interviewees (90%) provided valid geo-referenced postcodes (3 were from abroad, 23 declined to provide a postcode, and 15 provided an invalid postcode). Some of the largest distances were from three interviewees (linear distances over 200km) who were visiting; from near Leeds, Taunton and Swansea. Interviewees who were on holiday or visiting friends or family had generally travelled the furthest distances; half of all these interviewees lived within 29km or 32km (respective median values). This compared to just 7.5km for visitors travelling directly from home.

6.60 Across all interviewees, the median distance travelled by interviewees was 7.8km and the mean was 16.4km; 75% of interviewees had come from 17.8km. The median and

mean are very different because the mean is more influenced by the large outlier distance values. Differences between survey effort and seasons mean these overall values may have some uneven bias (i.e. due to the influence of bank holidays, Woodfest etc.), and therefore it is important to consider differences between seasons and types of day.

6.61 During the winter term time surveys, survey effort was consistent across locations, with a single full weekday and weekend day at each location. This allows us to examine differences between survey points and this is summarised in Table 20. Table 20 shows the range of values recorded, providing the minimum and maximum values, averages as both mean (with standard error) and median (which is the distance for 50% nearest postcodes), and the third quartile (Q3, which represents the 75% nearest postcodes). Differences between survey points were examined using a statistical test to see if these differences were genuine. The result of this test showed a highly significant result, giving a very high level of confidence that survey points were different in the linear distances recorded (Kruskal Wallis test; $H=21.37$, $df=4$, $p<0.001$).

Table 20: Summary statistics for the linear distances travelled by interviewees. Based on winter term-time data only, using all interviewees, including those not directly from home.

Survey point	N interviewees	N providing postcode	Mean \pm SE	Median	Q3 (75 th percentile)	Min- Max
1. Shell House	31	29	12.6 + 2.3	8.4	15.4	2.8 - 62.4
2. Entrance Car Park	39	31	20.4 + 8.1	6.2	15.2	1.2 - 239.9
3. Takeley Hill	15	14	5.5 + 2.0	1.7	8.5	0.2 - 27.0
4. Eight Wantz Way	15	15	6.0 + 1.0	6.0	7.8	0.7 - 14.7
5. Elman's Green	24	20	5.7 + 1.6	3.8	5.0	0.5 - 30.1
Total	124	109	11.7 + 2.5	6.1	10.8	0.1 - 239.9

6.62 We compared differences between seasons and types of day by calculating the Q3 for each season/type of day at each survey location – as shown in Table 21. These are useful to indicate the radius from which of a large portion (three-quarters) of interviewees have come from, and how this differs at different survey points and on different types of day.

6.63 Table 21 shows some differences between seasons. The largest radius 75th percentile was 32km during Woodfest, followed by the August bank holiday Monday (25km) and the February half term (18km). This compared to the smallest of just 9.5km during the Christmas period (28th December), followed by summer term time (10km) and winter

term time (11km). Apart from the Christmas period, there appears clear differences in the draws between term time and special event periods.

- 6.64 A test for the level of confidence in these differences was undertaken using data from Shell House, which had most seasons/types of day surveyed. At this location there were no significant differences (KW test; H=8.18, df=6, p=0.225). However, this treats each survey period separately and therefore some sample sizes for groups were small and this conclusion may be limited.

Table 21: Summary of Q3 values by survey point and survey timing. Bold values are those greater than the overall Q3 of 17.81km. For details of survey effort (hours) and weekday/weekend split see methods (Table 2).

		1. Shell House	2. Entrance Car Park	3. Takeley Hill	4. Eight Wantz Way	5. Elman's Green	6. Elgin's Car Park	Q3 value for all surveys on given day	Mean
Summer	Bank holiday weekday (Mon)	28.5	9.3				29.7	24.6	22.5
	Bank holiday weekend			25.4		7.4	28.3	15.0	20.4
	Term time	20.0	5.4	6.8	15.5	9.1	11.1	10.0	11.3
	Woodfest	32.5					30.5	32.2	31.5
Winter	Boxing day	22.0	8.5					13.7	15.3
	Christmas	16.7	8.4					9.5	12.6
	Half term	33.5	13.1					18.3	23.3
	Term time	15.4	15.2	8.5	7.8	5.0		10.8	10.4
Total		25.7	9.8	8.1	8.3	7.1	28.3	17.8	14.6

- 6.65 The simple radius of the nearest three-quarters of interviewees is useful, however the distributions of interviewees postcodes is rarely uniform. The distribution is often better mapped and the 75% nearest visualised using convex hulls; which show the extent covered by these postcodes (often best thought of as a string wrapped around these points)
- 6.66 Map 6 shows the distribution of all postcodes and the extent of convex hulls around the 75% and 95% nearest postcodes to each survey point, based on all data pooled together.
- 6.67 The mean across all six survey point values in their 75th percentiles values was 14.6km⁸ – providing an indication of the scale of the visitor catchment and a potential zone of

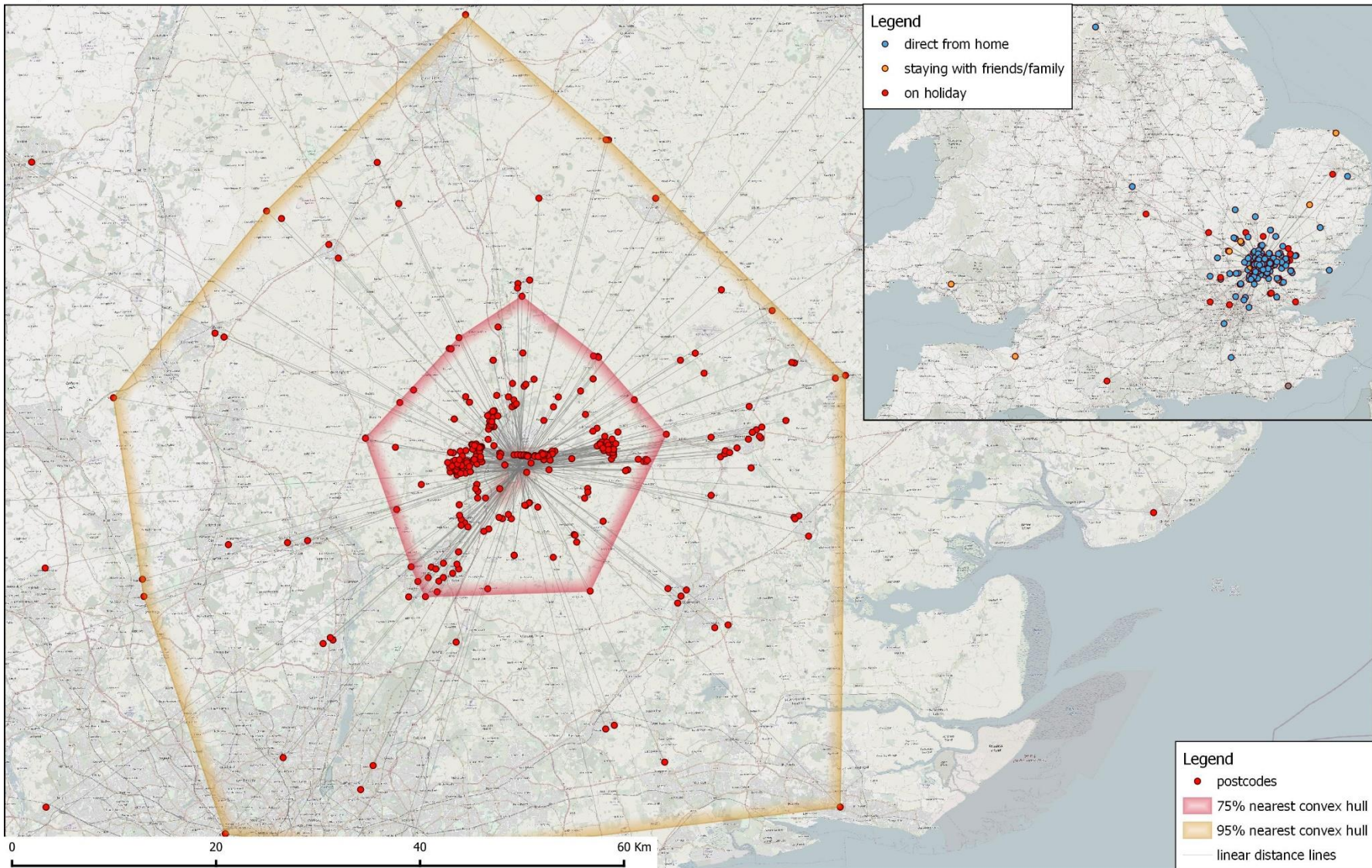
⁸ i.e. this the average of the six values in the total row in Table 21

influence for Hatfield Forest based on the visitor data from across the year. The extent of the 75% nearest postcode convex hull covers Bishop Stortford, to the north as far as the edge of Saffron Waldon, to the east past Great and Little Dunmow, to the south beyond Sawbridgeworth as far as Harlow, and to the west to Standon and Puckeridge. A 95% convex hull includes the above and extends as far as Cambridge, Baldock, Welwyn City Garden, Walthamstow, Romford, Brentwood, Basildon, Braintree and Haverhill.

- 6.68 The difference between season was best examined with just term time values. For the six survey points in summer, the mean across the 75th percentile was 11.3km compared to the five survey points in the winter which showed a 75th percentile of 10.4km.
- 6.69 Maps 7 to 13 show plots of postcodes according to interviewee activity, survey date, survey point, mode of transport used, and stated frequency of visit. In these maps overlapping postcodes within 600m are offset as concentric rings.
- 6.70 Numbers of postcodes within successive 1km rings out from Hatfield Forest are summarised in Table 14. Despite differences in survey points between seasons, this table still shows some evidence of increased visitor draw in summer. In winter we interviewed 131, 81% of interviewees, visitors who had come from within 15km of the Forest. In summer this value was 137 interviewees – 68%.

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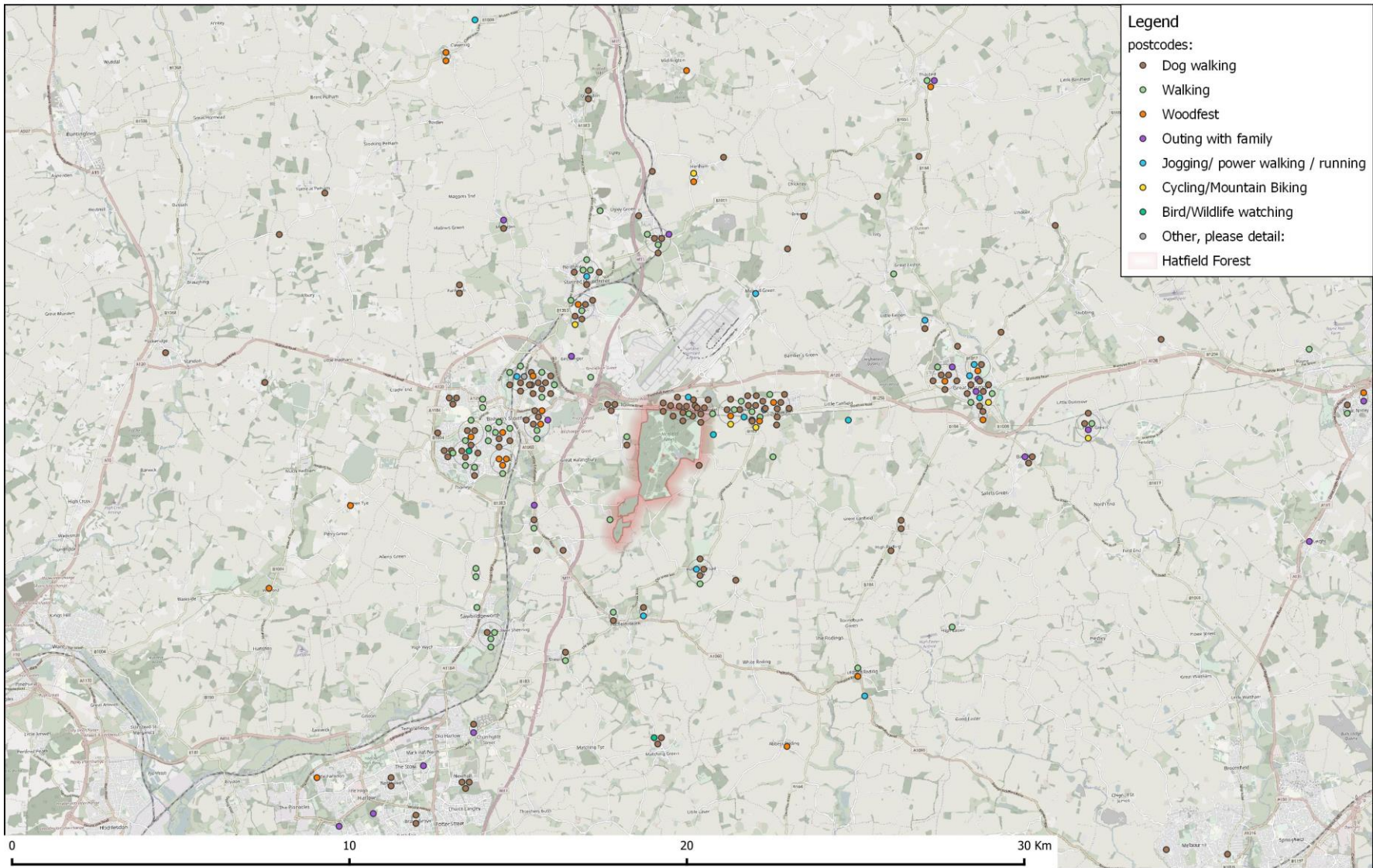
Map 7: The distribution of all postcodes categorised by visit type (inset) and more local postcodes with convex hulls around the 75% and 95% nearest.



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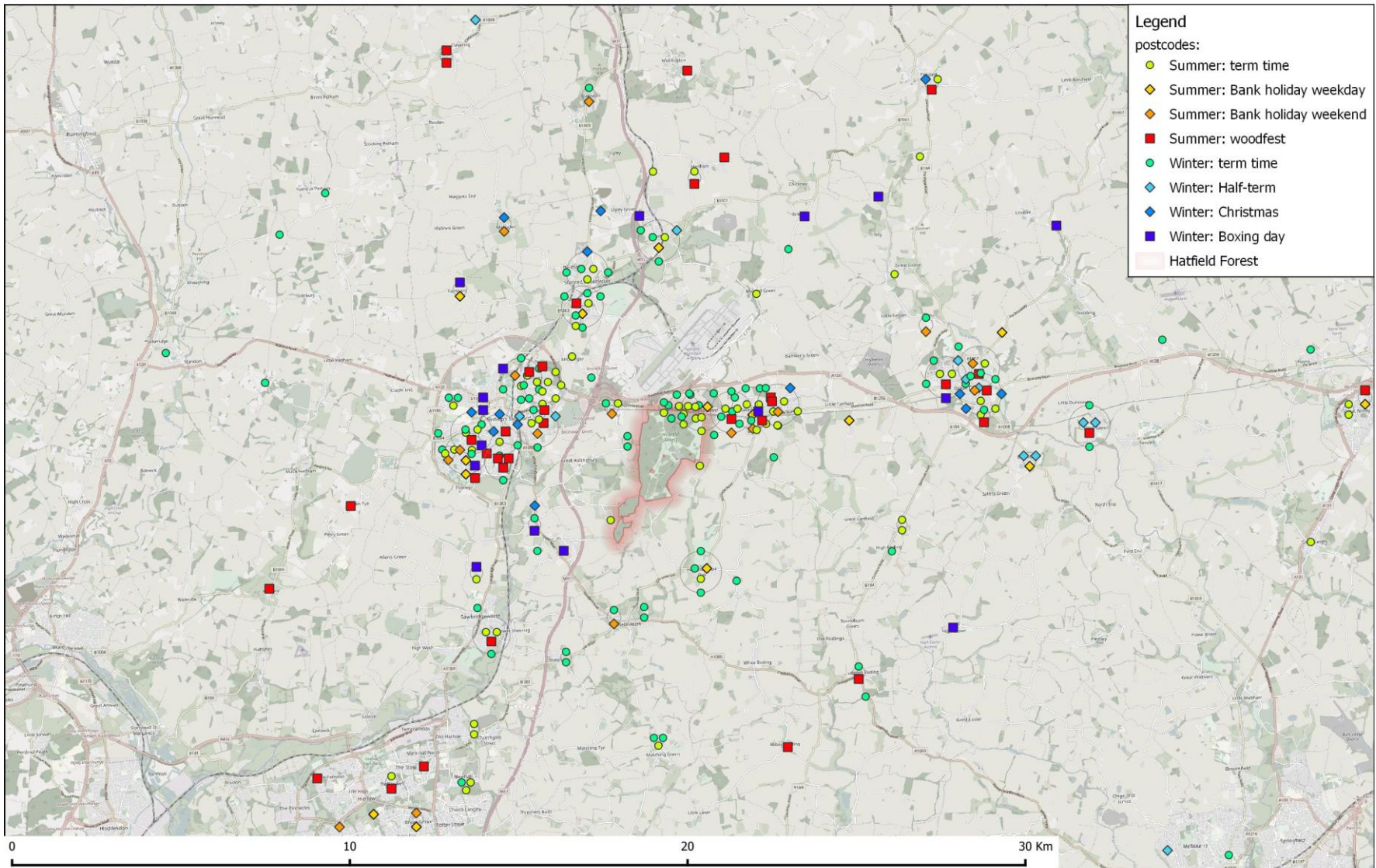
Map 8: The distribution of local postcodes, categorised by activity.



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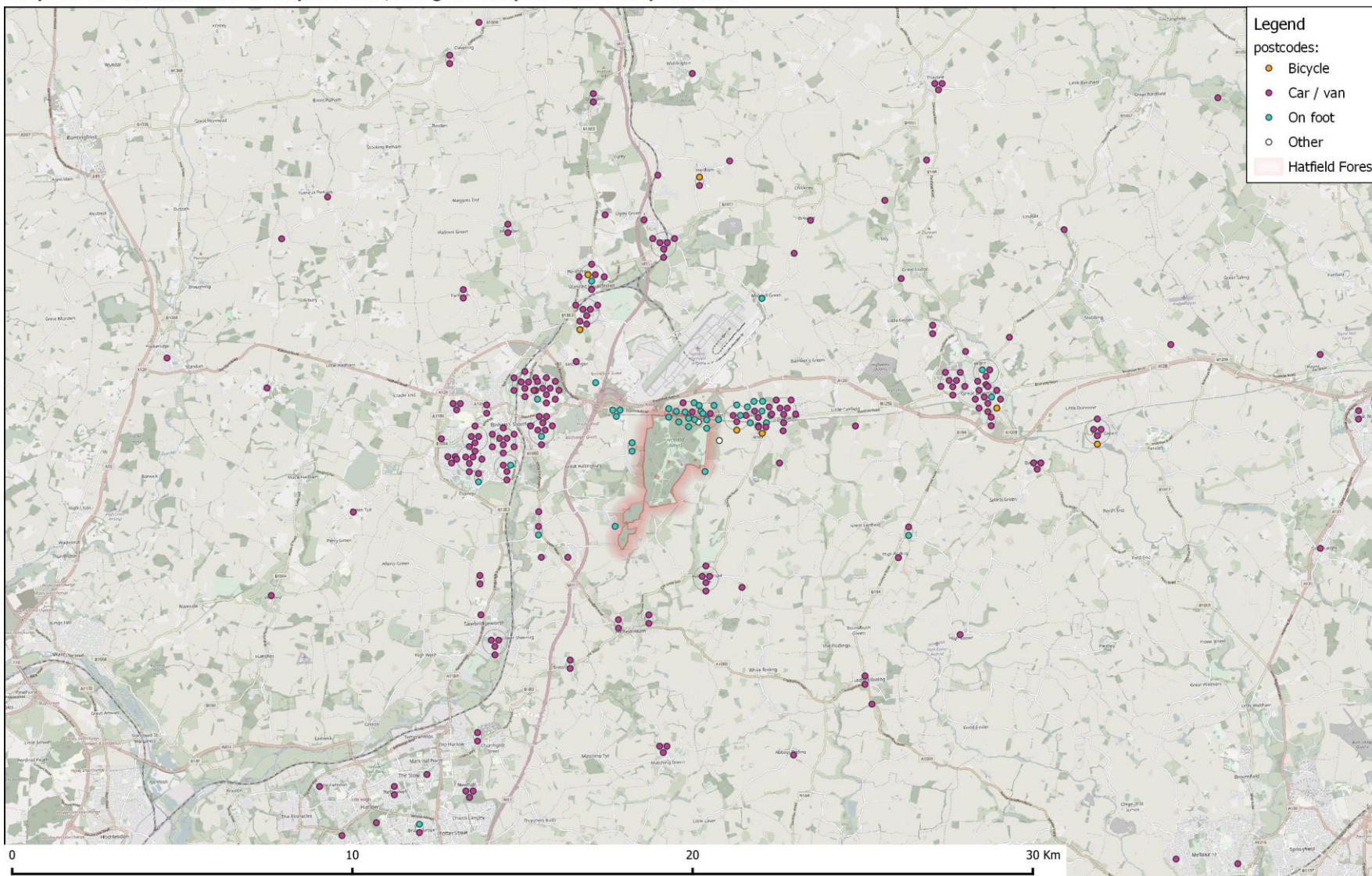
Map 9: The distribution of local postcodes, categorised by survey timing.



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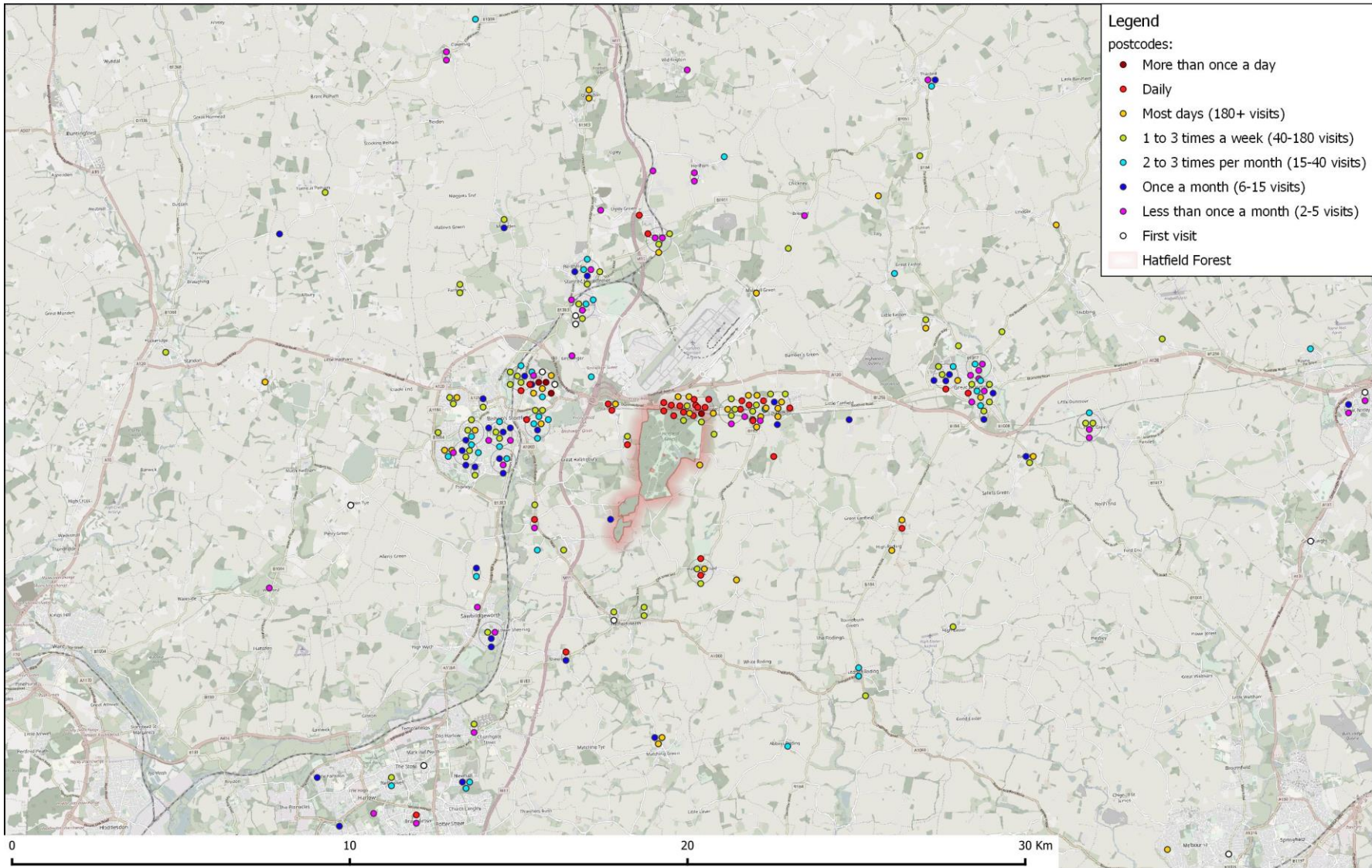
Map 10: The distribution of local postcodes, categorised by mode of transport used.



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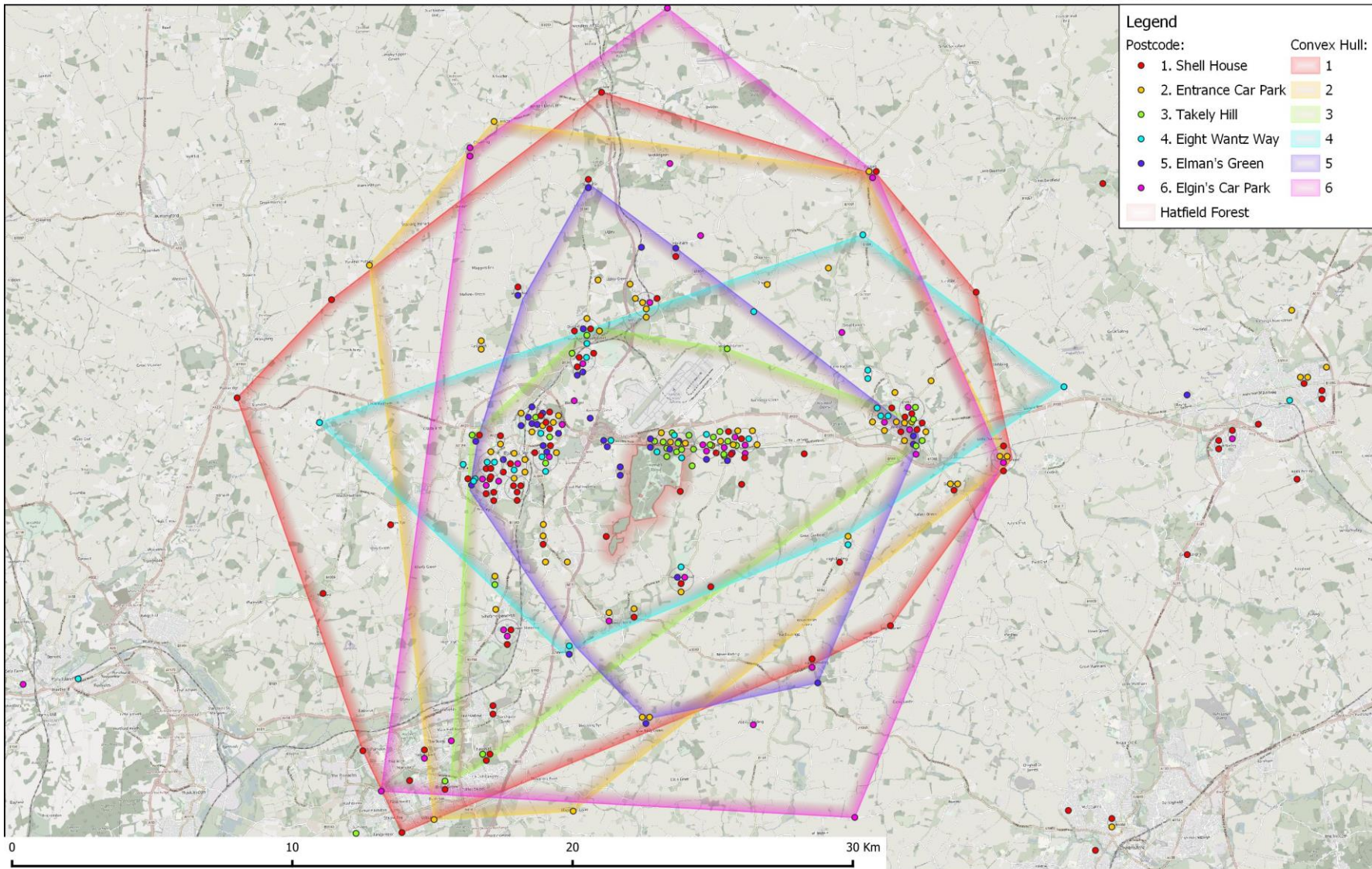
Map 11: The distribution of local postcodes, categorised by visit frequency.



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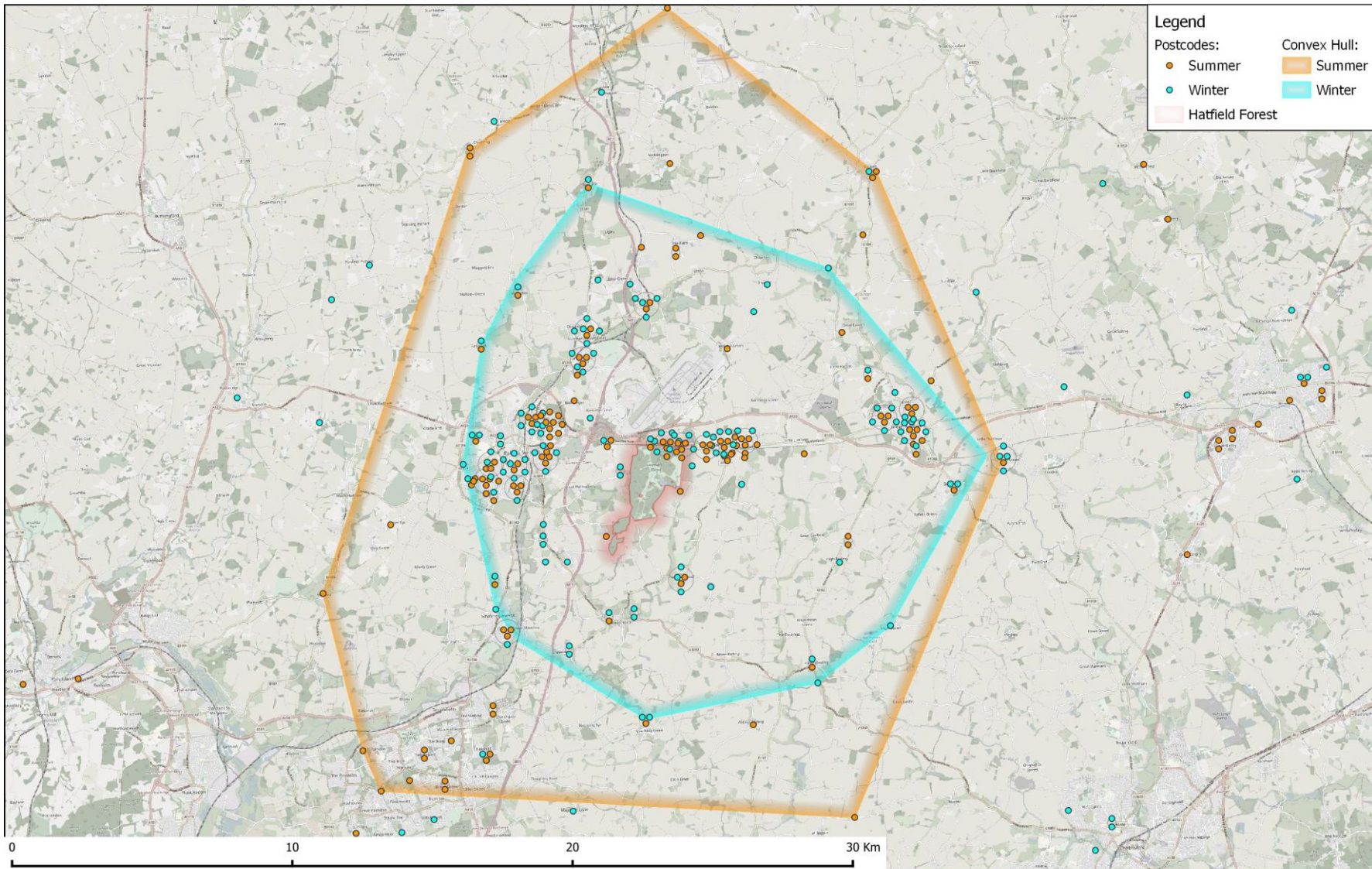
Map 12: The distribution of local postcodes, categorised by survey point, with convex hulls around the 75% nearest for each survey point.



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Map 13: The distribution of local postcodes, categorised by season, with convex hulls around the 75% nearest for each season.



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Table 22: Summary of the total number of interviewees within each distance band.

Concentric ring (km)	Number of interviewees postcodes within ring (cumulative percentage of interviewees)		
	Summer	Winter	Overall
0 - 1	16 (8.0)	14 (7)	30 (8.3)
1 - 2	13 (14.4)	11 (12.4)	24 (14.9)
2 - 3	10 (19.4)	15 (19.9)	25 (21.8)
3 - 4	23 (30.8)	18 (28.9)	41 (33.1)
4 - 5	19 (40.3)	21 (39.3)	40 (44.1)
5 - 6	6 (43.3)	11 (44.8)	17 (48.8)
6 - 7	5 (45.8)	6 (47.8)	11 (51.8)
7 - 8	13 (52.2)	8 (51.7)	21 (57.6)
8 - 9	12 (58.2)	10 (56.7)	22 (63.6)
9 - 10	6 (61.2)	6 (59.7)	12 (66.9)
10 - 11	5 (63.7)	1 (60.2)	6 (68.6)
11 - 12	3 (65.2)	8 (64.2)	11 (71.6)
12 - 13	5 (67.7)	4 (66.2)	9 (74.1)
13 - 14	1 (68.2)	1 (66.7)	2 (74.7)
14 - 15	0 (68.2)	1 (67.2)	1 (74.9)
15 - 16	2 (69.2)	0 (67.2)	2 (75.5)
16 - 17	1 (69.7)	1 (67.7)	2 (76.0)
17 - 18	0 (69.7)	2 (68.7)	2 (76.6)
18 - 19	1 (70.1)	2 (69.7)	3 (77.4)
19 - 20	7 (73.6)	3 (71.1)	10 (80.2)

Overview of visitor data and comparison with other sites

- 6.71 Footprint Ecology has undertaken similar visitor surveys at a wide range of sites across England, including a wide variety of SSSI sites and sites that are internationally important for nature conservation (such as Special Protection Areas ‘SPAs’ and/or Special Areas of Conservation ‘SACs’). These surveys have often been commissioned to inform impact assessment work relating to housing growth and changes in recreation, for example setting zones of influence around sites within which new housing growth would be expected to generate an increase in the level of recreation.
- 6.72 A summary of some of these surveys are provided in Table 12. We have selected sites that include woodland, wood pasture or veteran tree interest such as Burnham Beeches, Epping Forest, Trowbridge woods and Farnham Park. Other sites such as Ashdown Forest or the Pebblebed Heaths are relatively discrete sites with a woodland element (although both these sites are largely heathy in character). We have also included Therfield Heath, near Royston as it is relatively close to Hatfield Forest and

also in eastern England we have included data from across Norfolk sites⁹ (including Thetford Forest, the Brecks, the Broads, the coast etc.). A selection of metrics are selected to allow a comparison across sites. We have not included overall visitor numbers or tally data as these are different at each site and few locations have accurate data on annual visitor numbers.

- 6.73 It can be seen that the scale of survey results in terms of sample size from Hatfield Forest are equivalent. Hatfield Forest is interesting in that it appears to have a lower proportion of dog walkers compared to some other sites, a smaller proportion of daily visitors and the distances from which visitors are coming are further. This would suggest Hatfield Forest does have a larger draw than some of the other sites in the table. It is not however equivalent to the Norfolk sites where the data show much larger distances between home postcodes and survey points (note that the Norfolk summary statistics for distances only relate to those on a short visit from home that day). The Norfolk interview data also show a smaller proportion of dog walkers and daily visitors compared to Hatfield Forest.
- 6.74 Each site is different in terms of the facilities, draw, size, other nearby greenspace and the management of access. The surveys are also all slightly different in that they were tailored to each location – for example not all include survey data from across the year. As such the comparison needs to be treated with caution but potentially highlights the influence of the Woodfest data and other results from the summer survey work.

⁹ For a full list of sites included in this survey see Panter *et al.* (2017)

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Table 23: Summary of selected metrics for different visitor surveys undertaken by Footprint Ecology. Norfolk surveys slightly different from others as involved multiple sites across the county (e.g. the Brecks, the coast, the Broads, the Valley Fens), all of which were SPA or SAC.

	Hatfield Forest	Burnham Beeches	Epping Forest	Ashdown Forest	Therfield Heath	Pebblebed Heaths	Trowbridge woods	Norfolk sites	Farnham Park
Designations	SSSI	SSSI, SAC	SSSI, SAC	SSSI, SAC, SPA	SSSI	SSSI, SPA, SAC	SAC, SSSI	SPA, SAC, SSSI	SSSI
Year of survey	2017-2018	2013	2017	2016	2017-2018	2015	2017	2015-2016	2014
Total interviews	405	359	462	452	487	492	430	1341	337
Number (%) on short visit directly from home	369 (91)	339 (94)	456 (99)	444 (98)	391 (98)	460 (93)	421 (98)	885 (66)	
Number (%) dog walkers	175 (43)	202 (56)	226 (49)	312 (69)	384 (97)	359 (73)	337 (78)	549 (41)	169 (50)
Number (%) interviewees at least daily	43 (11)	156 (43) ¹	109 (24)	100 (22)	262 (66)	87 (18)	229 (53)	241 (18)	191 (57)
Number (%) interviewees arriving by car	344 (85)	304 (85)	357 (77)	367 (81)	290 (73)	448 (91)	144 (33)	1033 (77)	127 (38)
Total number postcodes	363	327	415	441	363	472	472	1312	313
Median distance home postcode - survey point (km)	7.8	3.2	3.1	4.9	1.9	5.4	0.7	11.2 ²	1.2
75th percentile home postcode - survey point (km) all interviewees	17.8	7.3	6.2	9.6	5.8	8.2	1.8	32.8 ²	
Median distance home postcode - survey point, dog walkers only (km)	6.3	2.9	2.6	4.1	5.2	5.1			0.9
median route length	3.0	2.7	3.9	2.6	2	3.1	1.7	4.3	2.33

¹ categories slightly different in this survey, and the figures given relate to number people visiting at least three times per week

² these figures for interviewees travelling from home on short visit only and exclude holiday makers

7. Residential development and greenspace around Hatfield and influence on visitor numbers

Housing change

7.1 The density of housing across the area of Essex surrounding Hatfield Forest has increased markedly in recent years. We compared data on the number of residential properties present in 2003 (the earliest year such GIS data are held by Footprint Ecology) to 2018, using data from postcode databases that give the number of residential properties per postcode. We compared the data for the two years using a range of different distance bands out to 10km. Data (summarised in Table 24) indicate that over the period 2003-2018 there have been particularly marked changes in the levels of housing very close to Hatfield Forest.

Table 24: Summary of change in total number of houses with distance from Hatfield Forest (data for Uttlesford District only).

Radius out from Forest	Number of houses in 2003	Number of houses in 2018	Difference (2003 to 2018)	% increase 2003-2018
0-1km	335	618	283	84%
0-2km	1561	2100	539	35%
0-5km	21,700	26,471	4771	22%
0-10km	47,718	57,423	9705	20%

Future housing allocations

7.2 Housing allocation data and information from relevant local plans were collated in a single GIS layer to provide an indication of future housing growth in the vicinity of Hatfield Forest. The aim was to provide a snapshot of possible future development, broadly in line with relevant Local Plans; an overview of potential sites and housing volumes across multiple authorities. Given that the relevant local plans are at different stages and cover different timescales the new development scenario captured is indicative, but sufficient to suggest the scale of likely change in the coming years.

7.3 Data from the Regulation 18 Draft Local Plan for Uttlesford District (2017) were supplied by Uttlesford District Council and provided an indication of future growth in this district. The spatial data supplied by Uttlesford District Council were simplified to give a single point location for each new housing allocation, and we then added the following allocation data from other districts, again with each allocation plotted as a single point representing the relevant number of houses:

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- Allocations in the Epping Forest District Plan (Submission Version 2017) within 15km radius of Hatfield Forest SSSI;
- Allocations within the East Herts Local Plan (Pre-submission Consultation Version 2016) within a 15km radius Hatfield Forest;
- East of Harlow site: 2,600 dwellings (cited in Epping Forest Plan);
- West Braintree Garden Community site (where within 15km) (Braintree Publication Draft Local Plan 2017).

- 7.4 For Harlow, the Epping Forest District Plan (Submission Version, 2017) indicates a further 6,600 dwellings in addition to the 2,600 at the East of Harlow site, and so these 6,600 were evenly spread across the relevant 1km buffers.
- 7.5 In order to derive a very approximate projection of how visitor numbers might be expected to change as a result of this potential future housing being, we used the GIS data on allocations to estimate the overall scale of change in housing, and related this back to the interview data. We used 1km concentric bands, drawn in the GIS around Hatfield Forest SSSI, out to 15km. For each buffer we calculated a figure for the current housing, future housing (based on allocations) and the number of interviewees from our survey.
- 7.6 The data are summarised in Table 25 and Map 12 shows the distribution of allocated development sites referred above.
- 7.7 For each 1km band we have estimated the percentage change in housing and applied this percentage to the number of interviews to get an estimate of the potential change in access. This represents the number of additional interviews that might be expected to be completed were the survey to be repeated in the future once the additional housing had come forward.
- 7.8 Overall the data suggest that a 29% increase in housing (some 29,345 new dwellings) is likely (based on allocations in relevant local plans) within a 15km radius of Hatfield Forest. Housing development in the current Uttlesford District Plan alone will lead to an 18% increase in total housing within 5km of the Forest, and a 36% increase within 10km.
- 7.9 During the 2018 survey we interviewed 272 visitors who had come from within 15km of the Forest. The analysis suggests that if the potential new housing were to be built, an additional 59 interviewees would be expected from within the 15km radius, i.e. **an increase in visitor numbers to Hatfield Forest of 22%**. This gives a broad and very approximate indication of the likely increase in access to Hatfield Forest from within 15km potentially associated with the new housing. In other words, we would expect visitor numbers to increase by around 22% over the next 15-20 years or so.
- 7.10 It should be emphasised that there are some caveats with the approach used. We have mapped allocations as simple, single dots and then assigned each dot to a single 1km

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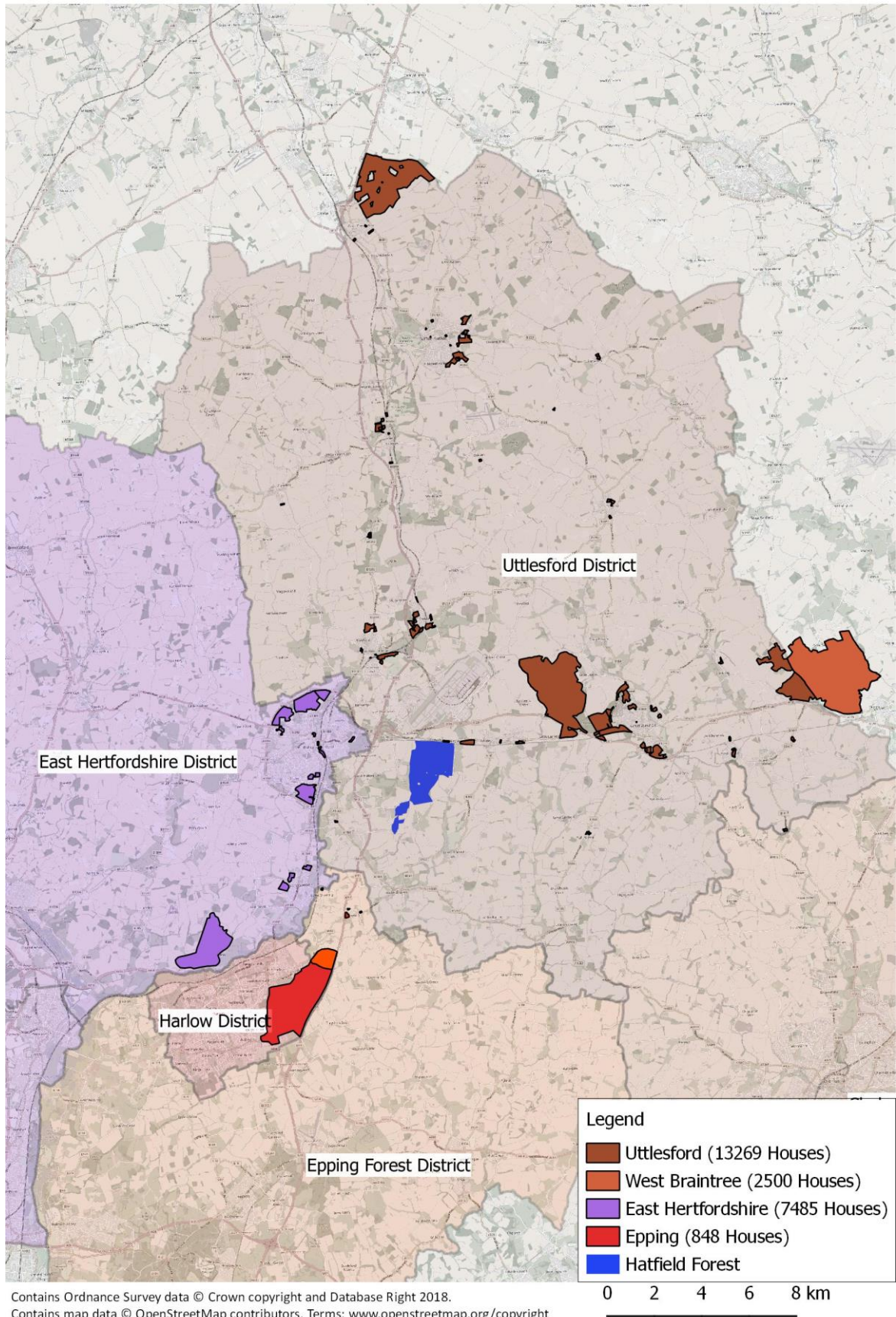
distance band around Hatfield Forest. Large allocations could span more than one of our bands. We have assumed that all development within a given 1km band will have the same likelihood of generating a new visit to Hatfield Forest, whether north, south, east or west of Hatfield Forest, without taking into account travel routes, motorways etc. Also, our estimate of new development relates only to the local authorities listed above, and the allocations in the relevant plans; we have not taken into account windfall and small-scale development outside of the published allocations. Nonetheless, the results suggest a marked increase in access to Hatfield Forest is to be expected in the coming years.

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Table 25: Interview data, current and future housing within 1km concentric rings drawn around Hatfield Forest SSSI.

Distance band	Interviewee postcodes	Current housing (2018)	Future housing	% increase housing	Estimate of additional visitors
0-1	30	618	60	9.7	2.9
1-2	24	1482	0	0.0	0.0
2-3	25	3601	50	1.4	0.3
3-4	41	8459	465	5.5	2.3
4-5	40	12311	4715	38.3	15.3
5-6	17	5042	1724	34.2	5.8
6-7	11	3141	2265	72.1	8.0
7-8	21	5595	1047	18.7	3.9
8-9	22	7257	4269	58.8	12.9
9-10	12	9917	1100	11.1	1.3
10-11	6	10317	4204	40.7	2.4
11-12	11	10737	1250	11.6	1.3
12-13	9	8567	1223	14.3	1.3
13-14	2	7817	2686	34.4	0.7
14-15	1	5430	4287	78.9	0.8
Total	272	100291	29345	29.3	59.3

Map 12: Distribution of allocated development sites around Hatfield Forest

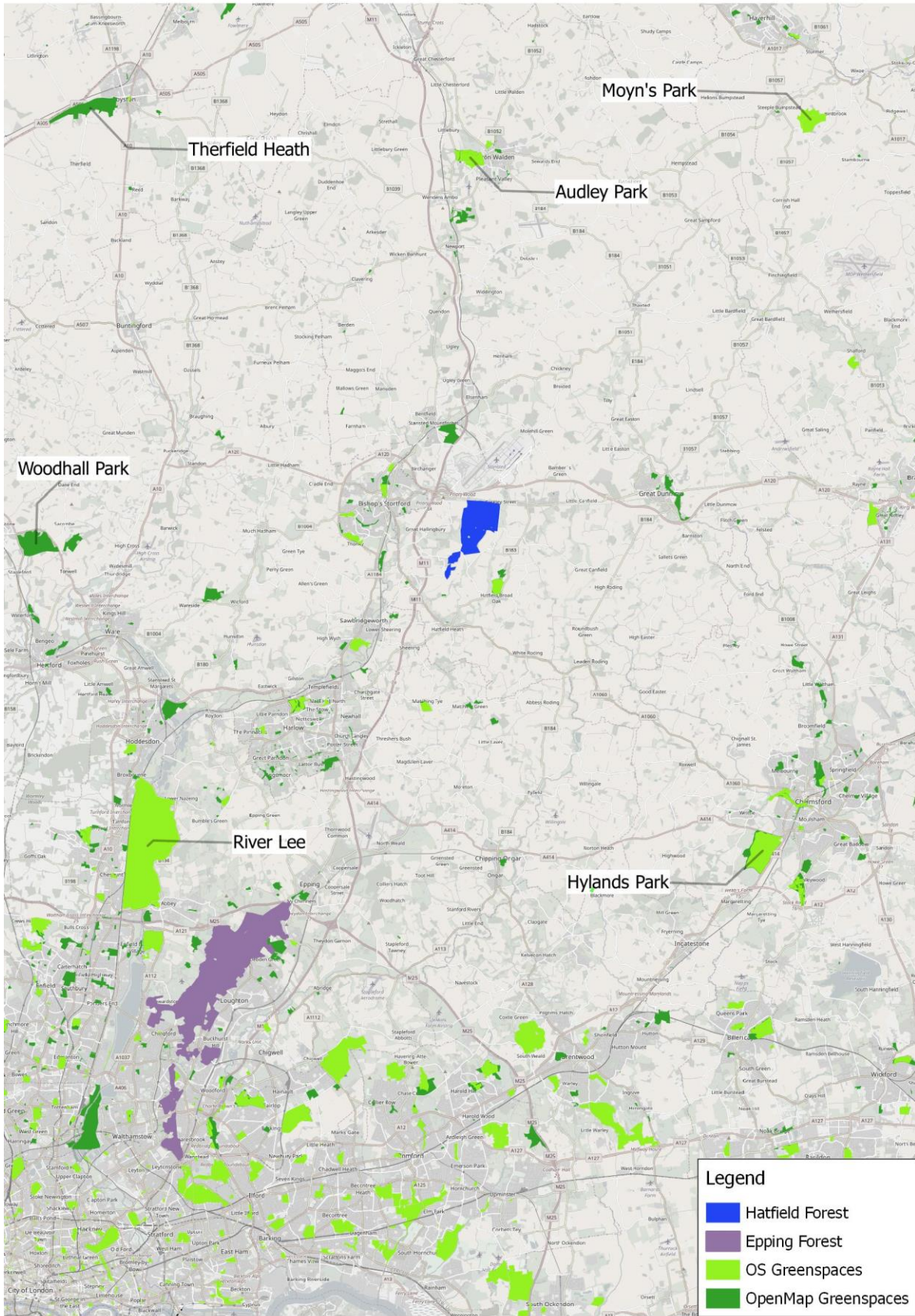


Current alternative available greenspace

- 7.11 Map 13 shows the distribution of alternative greenspace around Hatfield Forest, based on available OS and OpenMap data. The map shows the immediate area of the Forest, and the wider setting out as far as Epping Forest and the Lee Valley, plus the public parks of North London. This illustrates starkly that while options for residents closer to London seeking greenspace are relatively wide, the area of Essex around Hatfield Forest has a dearth of such options, leaving Hatfield Forest very vulnerable to current and future demand.

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Map 13: Current alternative greenspaces around Hatfield Forest

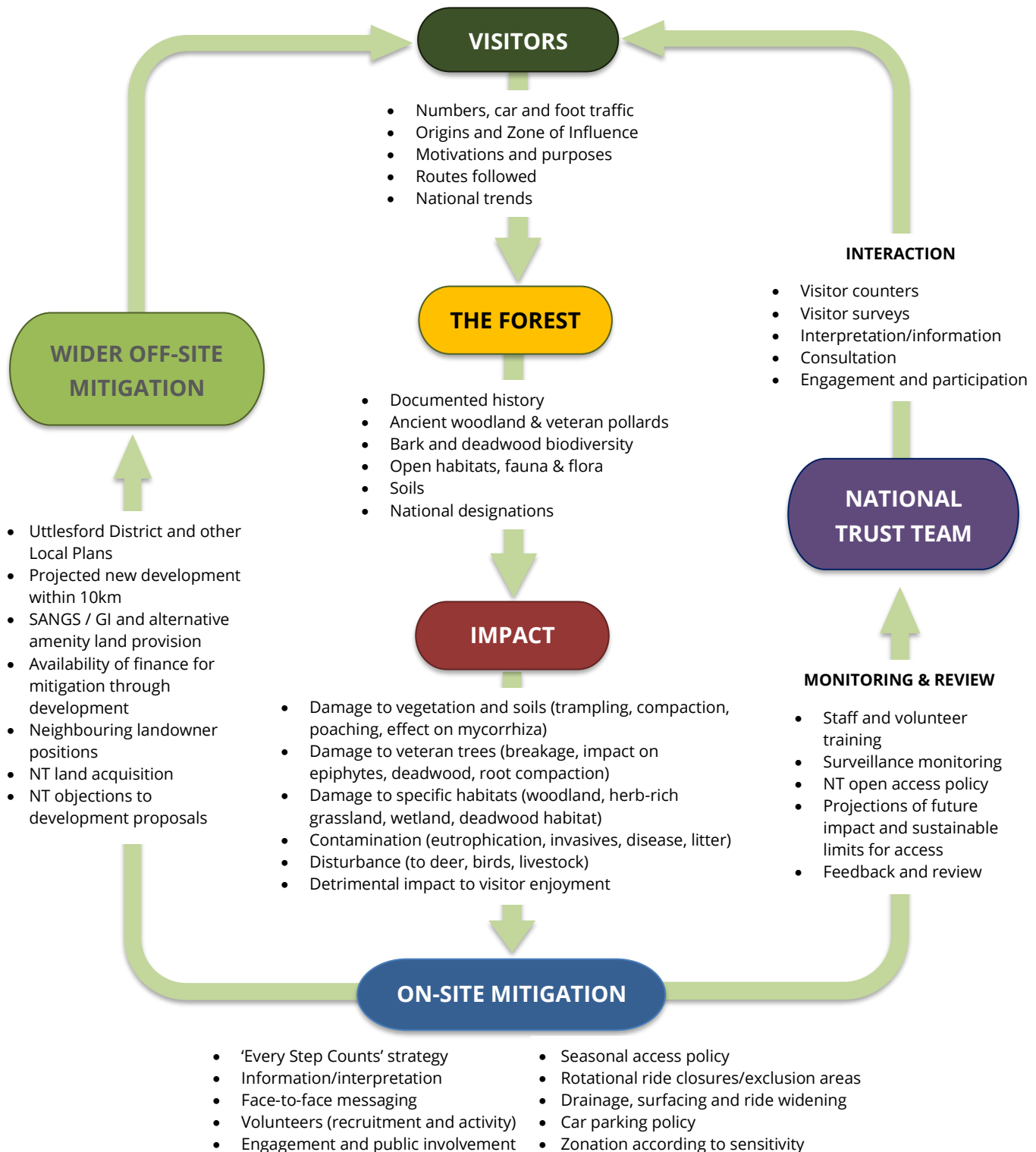


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8. Visitor impact management

Summary of relationships at Hatfield Forest



Developing the Trust's strategy for managing visitor impact

8.1 The main avenues open to the Trust to maintain and increase its management of visitor impact are assessed, based on the elements of 'Every Step Counts' (ESC):

- Strategic planning
- Acquisition
- Community involvement
- Forest infrastructure
- Forest works

This section addresses these elements and suggests ways in which the strategy might be extended and enhanced.

Strategic planning and acquisition

8.2 This visitor survey has shown that alternative greenspace available to actual and potential visitors to Hatfield is very limited, with Hatfield Forest providing the best and most favoured option for people seeking natural greenspace within a radius of more than 10km. It is therefore essential that local authorities provide suitable alternative natural greenspace (SANGS) for all larger new developments, rather than implicitly or explicitly allowing any further reliance on the presence of Hatfield Forest as default greenspace. Proposals for major new housing developments (of 10 dwellings or more) should provide appropriate on-site public open space and green infrastructure.

8.3 Local Planning Authorities can seek financial contributions towards mitigation work from development proposals, in consultation with the Trust, when determining new planning applications. Such contributions could be secured through a Section 106 Agreement signed by all parties. Mitigation measures financed in this way could help increase the resilience of the Forest to future visitor pressure. While such mitigation would not by themselves solve the issues with visitor pressure, it could help support the costs of containment measures and monitoring work, as described elsewhere in this section.

8.4 Uttlesford District Council and other relevant local authorities could include a policy in their relevant Local Plans to ensure adequate mitigation and a strategic approach to resolving the issues discussed here. This would be similar to the emerging approach at Epping Forest where development coming forward within a zone of influence of the Forest contributes towards mitigation measures to resolve impacts from recreation.

8.5 This survey shows that a large majority of current visitors to Hatfield Forest would be open to the notion of visiting an alternative nearby greenspace if one were provided, and if it offered the facilities people have come to expect of such a facility. If the Trust were in a position to acquire or help to acquire such an alternative space, there is a good prospect that such a facility could help spread the visitor load away from the

Forest itself. A new site would need to be close enough to Hatfield Forest to divert pressure away from the Forest, would need to be of sufficient size to provide an adequate dog walking space, and provide at least basic facilities (ideally toilets, parking, and possibly refreshments). It would also need to be attractive in its own right in landscape terms. If established on land with similar characteristics to the Forest in terms of soil type and drainage, but without the environmental and historical constraints of the Forest, then paths within a new site would need surfacing to be robust enough to absorb heavy use.

Visitor messaging

- 8.6 This survey has suggested that the very large level of visitor traffic through Hatfield Forest may be being generated by relatively few individuals, who are visiting the site very frequently. A substantial proportion of the most frequent visitors are accessing the site on foot through the boundary pedestrian gates, and many of these are very long-standing users of the site.
- 8.7 It may be assumed that long-standing, very regular users have the greatest sense of ownership of the Forest, and in some cases a sense of entitlement, yet there is currently only limited provision for delivering consistent, clear messages to this audience, as they are less likely to frequent the central hub where most information and interpretation is to be found. More comprehensive visitor messaging and positive engagement is essential if management programmes like temporary ride closures are to be effective. Messages need to be consistent, and carried through all media – fixed interpretation, verbal messaging, social media, printed media etc. Face to face contact is likely to be most effective in delivering management messages and gaining the trust of users (see Volunteers section below).
- 8.8 It is also important that the way the Forest is described, makes clear its status as a National Nature Reserve, rather than simply a country park.

Involvement

- 8.9 Following the recent work carried out for the Trust by Dialogue Matters, it will be very important to continue to invest staff time in developing stakeholder dialogue, through the current stakeholder group and plans for a forum. A forum should meet regularly to enable Trust staff to feed back to stakeholders on ESC activity, and to seek feedback from stakeholders themselves. The objectives of this work should be (a) to create a conduit for gaining a better understanding of visitor attitudes and concerns, (b) to create ambassadors from amongst local people/users, who are able and willing to convey management messages to their peers; and (c) for the Trust to be seen to be engaging with, and respecting the views of, local people.

Volunteers

- 8.10 Volunteers represent a hugely valuable frontline in engaging with users, as well as carrying out works and roles on site. More volunteers could be trained to take part in visitor engagement, especially away from the central hub area. Volunteers are already helping with photographic monitoring of path condition. This role could be combined with visitor engagement, in a single volunteer function, so that volunteers can monitor paths and talk to people about what they are doing, and how their behaviour affects the site. Such an approach, though initially labour intensive, may be more effective as a means to deliver management messages than fixed notices and online information. Its effectiveness would depend upon finding the right individual volunteers (gregarious, diplomatic, resilient), as well as training them adequately.

Path surfacing

- 8.11 Some experimentation is underway in applying different types of temporary or permanent surface to some paths (e.g. south west of the Shell House car park). These experiments will yield useful information on appropriate treatments for very high-usage locations. There could be a case for identifying a popular circular route through the northern woodlands, surfacing that route, and encouraging visitors to use that route instead of the wider network. However, this would be hard to reconcile with the need to preserve the historic soil profile and surface features, and is not desirable as a first course of action.
- 8.12 There may be scope for further experimentation around soil aeration, bark mulching and other treatments, as short-term remedial measures and an on-going study at Hatfield Forest by Reading University should provide comparative results and inform how successful such treatments can be.

Veteran trees

- 8.13 Measures to keep visitors away from veteran tree boles need to be stepped up, through physical barriers and enhanced messaging. In some high-access locations, simple measures like installing low bollards around a tree, accompanied by discrete signage (Figure 25) asking people to maintain their distance from the tree, appear to have been heeded.



Figure 25: signage beside large oak near Shell House

- 8.14 The tendency of children to build shelters with dead branches around the boles of veteran trees, though desirable as a play activity in its own right, needs to be diverted away from sensitive trees to more suitable areas.

Path closures

- 8.15 Save for recourse to drastic infrastructural changes such as hard surfacing of many rides, the best strategy for ameliorating trampling damage is temporary ride closures. This approach is being used (see Figure 26), but is generating some bad feeling, and path closures are being ignored by some users. A stepping up of path closure rotations must be accompanied by messaging about their purpose. Many visitors are familiar with the idea of a coppice rotation, so path closures could also be described as a rotation, carried out as a normal part of husbanding the Forest. It is important that path closures follow a logical pattern, and that this pattern is communicated. As such, closures need to be linked to monitoring results (vegetation survey and photographic monitoring). In addition, there is a case for adopting the 'traffic light' approach in how

path closures are signed, to match the red/amber/green condition scoring used on maps of the Forest.



Figure 26: Closed section of ride in Spittlemore Coppice

- 8.16 There is a case for altering the timing of some woodland management works, both to reduce physical damage to woodland soils, especially during wet winters, and also to demonstrate that the Trust is taking its own steps to avoid damage caused by its own operations, and hence improve its case for persuading visitors to alter their own behaviour. Coppicing operations could be 'risk assessed' each year in terms of their likely impact on soils, given the prevailing weather conditions.

Monitoring

- 8.17 To improve its ability to assess visitor impact and translate that impact into management responses, the Trust needs to ensure its monitoring data is consistent and reliable, both in terms of recording visitor numbers, and recording visitor impact. Monitoring needs to be made more consistent and regular, by:
- **Improving the reliability of gate counter data, so that visitor numbers can be correlated more accurately with visitor impact.**
- 8.18 Gate counters have been installed in recent years on all major access points, providing a valuable tool for measuring numbers entering and exiting the site. There have been teething problems with some of these in terms of obtaining reliable data, and this is not an unusual situation, given the risk of vandalism, false readings and other problems. However it continues to be important to improve the reliability and consistency of data, both to allow comparisons of data from one year to the next, and also to allow comparison between visitor numbers and ecological impact within the Forest.
- **Deriving a practicable set of impact indicators, which can realistically be measured regularly to discern trends.**
- 8.19 For monitoring data to be collected regularly and consistently, it is important that indicators to be measured are practicable and realistic, and within the capacity of staff and volunteers to record easily. Viable indicators could include the presence of species (eg oxlip) which are vulnerable to trampling pressure; the height, composition and density of ride vegetation (measured in fixed-point quadrats or along fixed transect lines); and the quantity and state of dead wood (for example, whether deadwood is attached to trees, entire or broken, and showing evidence of having been moved or impacted). Indicators need to be measured regularly, in the same places, over an extended period, to allow trends to be identified and connections made to other data, such as gate counters.
- 8.20 Soil condition could be monitored through the measurement of bulk density, based on detailed maps of soil type, targeted to gauge relative bulk density across the widths of selected rides, including wide grassy rides and narrower woodland paths. This would help with an understanding of where footfall or management practices have caused long term damage, and where it is recoverable. Long term or permanent damage may have been caused in some locations, in the sense that soils have become too puddled to enable tree roots to penetrate.
- **Carrying out a more extensive and regular programme of photographic and botanical monitoring of ride condition.**

- 8.21 There is currently a regular practice of photographing rides through the seasons, to document their condition and feed into path condition scoring. However there is scope to make this more comprehensive and systematic. Photographs should be taken from the same locations on each occasion, ideally located using fixed points such as a post in the ground, or satellite-located coordinates.
- 8.22 Similarly, botanical monitoring should be carried out in a regularised fashion, for example using randomised quadrats on a fixed transect line across a ride, allowing vegetation condition to be monitored in the central area, ecotonal edges, and into the woodland on either side. Transect locations should be relocatable, either with fixed posts at either end or using satellite coordinates. Transects should be established on a selection of heavily used routes, and also in light-use areas for comparison.
- **Establishing twinned comparison sites, with controls for reference (eg undisturbed veteran tree boles, and little-used rides) to be compared with tree boles and rides in heavy-use areas.**
- 8.23 The fenced-off plane crash site (from the 1999 Korean Airways crash) on the central west side of the site has provided an unplanned control, representing a plot of woodland and rides which have been almost completely undisturbed for nearly two decades. This is a rather extreme example of a control, as the rides are now becoming overgrown and do not represent an ideal, but they provide a stark contrast to heavily used rides elsewhere.



Figure 27: Undisturbed ride vegetation in the fenced-off plane crash area (NW corner of Lodge Coppice)

- 8.24 Full botanical monitoring of ride flora and tree condition in this area would provide a baseline against which the condition of equivalent heavily used areas of the Forest could be compared. Outside of this unique location, there may be other parts of the Forest which enjoy little access by virtue of their location, which could provide control examples.
- 8.25 Another form of comparison is provided by photographs held by the Trust of rides in previous years. These can show quite starkly how ride condition has changed, but they do not allow for systematic comparisons.
- **Adopting a red/amber/green path condition monitoring score and using this in messaging to visitors.**
- 8.26 A 'traffic light' scoring system is already in place and is used on public maps of the site to provide a simple visual representation of 'path health' around the Forest. This could be developed further, both by extending the scoring across all rides throughout the Forest (for completeness and comparison), and by adopting the red/amber/green visuals in signage at the entrance to the rides themselves, as well as on maps at visitor hubs. A 'red light' sign at the entrance to a closed ride could help reinforce the message that red = damage = no access permitted.

Defining carrying capacity

- 8.27 The perception of the National Trust's staff at Hatfield Forest, whose knowledge and familiarity with the site is greatest, is that the site is already beyond its carrying capacity in terms of visitor numbers, especially during the winter period when soils are wet and most prone to damage. However, carrying capacity is a difficult concept and needs to be defined and demonstrated in an objective, externally verifiable manner, to confirm current perceptions, and this requires a structured approach.
- 8.28 As the above monitoring components bed in, and begin to yield data which can be correlated, a working measurement of carrying capacity can begin to be derived, based on the combined analysis of:
- The condition of given locations and features of high ecological importance;
 - A set of indicators of ecological condition which allow negative thresholds of impact to be defined (ie the point at which impact becomes lastingly damaging)
 - Accurate measurements of numbers of visitors, which can be correlated with the condition of the given feature, both geographically and temporally
 - Records of weather conditions, which can similarly be correlated with the condition of the feature.



Figure 28: Hurdles and signage guiding visitors away from a damaged area of hornbeam pollards

9. References

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Appendix 1: Visitor Survey Questionnaire



Good morning/afternoon. I am conducting a visitor survey on behalf of the National Trust, who are interested in understanding more about visitor use here. Can you spare me a few minutes please?

Q1 ...

- Are you on a day trip/short visit and have travelled directly from your home today... *if no*
- Are you on a short trip/short visit & staying away from home with friends or family ... *if no*
- Are you staying away from home, e.g. 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?** *Tick closest answer. Do not prompt. Single response only.*

- Dog walking
- Walking
- Jogging/ power walking / running
- Outing with family
- Cycling/Mountain Biking
- Bird/Wildlife watching
- Enjoying scenery/ fresh air
- Photography
- Meeting up with friends
- Picnic
- Horse riding
- Fishing
- Visiting cafe
- En route to airport
- Other, please detail:

Further details

Q3 Over the past year, roughly how often have you visited Hatfield Forest? *Tick closest answer, single response only. Only prompt if interviewee struggles.*

- More than once a day
- Daily
- Most days (180+ 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:

Q4 How long have you spent / will you spend at Hatfield Forest today? *Single response only.*

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

Further details

Q5 Do you tend to visit Hatfield Forest at a certain time of day? Tick closest answers. Multiple answers ok.

- Early morning (before 7 am)
- Late morning (between 7 am and 10 am)
- Midday (between 10 am and 2 pm)
- Early afternoon (between 2 pm and 4 pm)
- Late afternoon (between 4 and 6 pm)
- Evening (after 6 pm)
- Varies / Don't know
- First visit

Further details

Q6 Do you tend to visit Hatfield Forest more at a particular time of year for [insert 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

Hatfield Forest
Visitor Survey & Impact Management 2018

Q7 How long have you been visiting Hatfield Forest? *Single response only. Do not prompt.*

- | | |
|---|----------|
| <input type="radio"/> Don't know | Go to Q9 |
| <input type="radio"/> First visit | Go to Q9 |
| <input type="radio"/> less than or approximately 6 months | Go to Q8 |
| <input type="radio"/> less than or approximately 1 year | Go to Q8 |
| <input type="radio"/> less than or approximately 3 years | Go to Q8 |
| <input type="radio"/> less than or approximately 5 years | Go to Q8 |
| <input type="radio"/> less than or approximately 10 years | Go to Q8 |
| <input type="radio"/> more than 10 years | Go to Q8 |

Q8 Over the time you have been visiting Hatfield Forest, are there any particular changes you have noticed? *Do not prompt. Tick any responses as relevant.*

- Paths muddier
- Harder to park/issues with parking
- More people
- More cars
- More restrictions on access and where to go

Further details:

Q9 How did you get here today? *if necessary prompt with: What form of transport did you use? Single response only.*

- Car / van
- On foot
- Bus
- Bicycle
- 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. Use P to indicate where the visitor parked, E to indicate the start point and X to indicate the exit. Mark the route with a line; a solid line for the actual route and a dotted line for the expected or remaining route.

Q10 Is / was your route today the normal 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

Q11 What, if anything, influenced your choice of route here today? Tick closest answers, do not prompt. Multiple responses ok.

- Weather
- Daylight
- Time
- Other users (avoiding crowds etc)
- Group members (eg kids, less able)
- Muddy tracks / paths
- Previous knowledge of area / experience
- Activity undertaken (eg presence of dog)
- Interpretation / leaflets / promotion
- Viewpoint / Feature
- Other, please detail

Further details:

Hatfield Forest
Visitor Survey & Impact Management 2018

Q12 Why did you choose to visit this Hatfield Forest today, rather than another local site? *Tick all responses given by visitor in the 'other' column. Do not prompt, tick closest answers. Then ask Which single reason would you say had the most influence over your choice of site to visit today? Tick only one main reason. Use text box for answers that cannot be categorised and for further information.*

	Other	Main
Don't know / others in party chose	<input type="radio"/>	<input type="radio"/>
Close to home	<input type="radio"/>	<input type="radio"/>
No need to use car	<input type="radio"/>	<input type="radio"/>
Quick & easy travel route	<input type="radio"/>	<input type="radio"/>
Good / easy parking	<input type="radio"/>	<input type="radio"/>
Particular facilities	<input type="radio"/>	<input type="radio"/>
NT cafe	<input type="radio"/>	<input type="radio"/>
Other catering on edge of site	<input type="radio"/>	<input type="radio"/>
Choice of routes	<input type="radio"/>	<input type="radio"/>
Feels safe here	<input type="radio"/>	<input type="radio"/>
Quiet, with no traffic noise	<input type="radio"/>	<input type="radio"/>
Not many people	<input type="radio"/>	<input type="radio"/>
Scenery / variety of views	<input type="radio"/>	<input type="radio"/>
Rural feel / wild landscape	<input type="radio"/>	<input type="radio"/>
Particular wildlife interest (including trees)	<input type="radio"/>	<input type="radio"/>
Habit/familiarity	<input type="radio"/>	<input type="radio"/>
Good for dog / dog enjoys it	<input type="radio"/>	<input type="radio"/>
Ability to let dog off lead	<input type="radio"/>	<input type="radio"/>
Closest place to take dog	<input type="radio"/>	<input type="radio"/>
Closest place to let dog safely off lead	<input type="radio"/>	<input type="radio"/>
Appropriate place for activity	<input type="radio"/>	<input type="radio"/>
Suitability of area in given weather conditions	<input type="radio"/>	<input type="radio"/>
Presence of water	<input type="radio"/>	<input type="radio"/>
Other, please detail	<input type="radio"/>	<input type="radio"/>

Further details:

Hatfield Forest
Visitor Survey & Impact Management 2018

Q13 Please rate the following statements as to how well they describe Hatfield Forest's importance to you. Please rate each with a value from 1 to 5, with 1 indicating you don't support the statement at all and 5 indicating very strong support? *Order of statements is randomised.*

	1	2	3	4	5
Hatfield Forest is important as a greenspace for people to visit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hatfield Forest is important for it's nature and wildlife	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hatfield Forest is important for it's heritage and history	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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

Q14 What proportion of your weekly visits for [given activity] take place at Hatfield Forest 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

Q15 Which one location would you have visited instead today if you could not visit here? *Do not prompt, tick closest answer.*

- Not sure/Don't know
- Nowhere/wouldn't have visited anywhere
- Site Named

Record site name:

Hatfield Forest
Visitor Survey & Impact Management 2018

Q16 If there was a new area created near to Hatfield Forest that provided an expansive area of countryside for people to visit, would you be likely to go there?

- Yes
- Not sure/don't know/perhaps
- No

Q17 If a new site were created to provide an alternative location for your activities, what features would you want to see there? Multiple responses ok. Prompt if necessary.

- No features / nothing
- Don't know
- More dog bins
- Safe for dogs
- Ability to let dog off lead
- No requirement to pick up after dog
- Requirement to pick up after dog
- Better path surfacing / path network
- More litter bins
- Refreshments (cafe etc)
- Visitor centre
- Toilets
- Measures in place to control other users
- Better or easier parking facilities
- Free parking
- Closer to home
- Cycle trails
- Dedicated routes for horse riding
- More attractive surroundings
- Other, please detail

Further details:

Q24 TO BE COMPLETED AFTER INTERVIEW FINISHED.

Surveyor initials	<input type="text"/>
Survey location code	<input type="text"/>
Map Reference Number	<input type="text"/>
Gender of respondent	<input type="text"/>
Total number in interviewed group	<input type="text"/>
Total males	<input type="text"/>
Total females	<input type="text"/>
Total minors (under 18)	<input type="text"/>
Total number of dogs	<input type="text"/>
Number of dogs seen off lead	<input type="text"/>

Q25 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.*