footprint ECOLOGY

Cannock Chase SAC Visitor Survey

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Summary

This report sets out the results of a visitor survey undertaken at Cannock Chase between autumn 2010 and summer 2011. Visitor survey work involved counts of people entering/passing at the same locations (tally data); counts ('snapshots') of the number of cars parked at parking locations; and face-to-face interviews (1430 hours) conducted by volunteers and Local Authority staff at a range of survey points. The survey work and questionnaire was designed and implemented by the Local Authority/Area of Outstanding Natural Beauty (AONB). Most of the survey work was focused around the Special Area of Conservation (SAC) within the AONB.

Tally Data

- Across all survey locations, visitor rate was 19 people per hour
- Birches Valley, Marquis Drive and Moors Gorse were the busiest sites
- Across all sites, 33% of visitors were walking, 26% dog walking, 24% cycling.
- There were significant differences in the proportions of users undertaking different activities at different survey locations: walkers made up a high proportion of visitors at Oldacre Lane; Moors Gorse accounted for the majority (93%) of cyclists and at Abraham's Valley horse riders accounted for nearly a third (31%) of users.
- Weekends were significantly busier than weekdays
- There was no significant difference between visitor numbers at surveyed locations in the spring/summer and autumn/winter. In fact some autumn/winter weekend days appeared particularly busy, suggesting that access levels are relatively high throughout the year.

Car counts

- The number of vehicles parked in 105 different parking locations was counted on 18 different occasions.
- The total number of vehicles counted per visit, across all locations, ranged from 166 (mid week in June) to 1095 (a Sunday in early July).
- Weekend counts were conducted on 3 weekend dates in the summer. These tended to be the highest counts.
- The Marquis Drive area and Birches Valley were by far the busiest locations. Away from these locations the pattern was mainly one of lots of diffuse, scattered parking, with lots of parking locations with lower levels of use.
- Only five parking locations had no cars in at all over the 18 counts.

Questionnaire data

- In total 4809 face-to-face interviews were conducted, mostly in the autumn/winter period and the spring/summer period.
- Walking (62% of interviewees), dog walking (45%), mountain biking (18%) and cycling (17%) were activities that interviewees undertook at Cannock Chase. Interviewees were able to indicate that they undertook multiple activities (hence the percentages add up to more than 100).
- People who stated they came to walk accounted for a particularly high percentage of visitors at locations 1 (Marquis Drive), 6 (Commonwealth Cemetery), 7 (Punchbowl Car-park), 8 (Stepping Stones), 20 (Spring Slade Lodge) and 29 (Gentleshaw Common). People who

stated they came to walk their dog(s) accounted for a particularly high percentage of visitors at locations 25 (Duffields) and 29 (Gentleshaw Common). People who came to mountain bike accounted for a particularly high percentage (some 90% of interviewees) at survey point 28 (Moors Gorse).

- Cycling, mountain biking and 'eating out' were activities that appeared to be particularly orientated towards weekends.
- Over half of the interviewees visited every week or more frequently. Due to some issues with the wording of the questionnaire and the coding of responses the proportion of people visiting so frequently could be higher still.
- 3625 (75%) of interviewees indicated that they had been visiting Cannock Chase for more than five years. Survey locations where there was a high percentage of people who had only been visiting in the last five years included location 28 Moors Gorse (55%), location 2 Birches Valley (48%) and location 10 Fair Oak Pools (40%).
- Mountain biking stands out as an activity with a markedly higher proportion of people who have recently started visiting the site (within the last 5 years).
- The majority of visits were relatively short, with 4049 (84%) of questionnaires recording a duration of less than 3 hours. The most commonly recorded duration was 1-2 hours, with 1533 (32%) questionnaires recording this category. Only 141 (3%) interviewees stated that they were visiting for the full day and 38 (1%) involved an overnight stay.
- Dog walkers tended to visit for shorter periods (42% less than one hour).
- A quarter (24%) of interviewees visit (at least sometimes) on their own and over half (52%) visit (at least sometimes) with their family.
- Mountain biking and orienteering appeared to be activities where a high proportion of people undertaking these activities do so as part of a group of friends.
- People visiting during the week tended to be more regular in the time of day they visited and a higher proportion visited before 9am compared to weekends.
- By far the majority of interviewees stated that they came by car (85% of interviewees. Some 13% of respondents indicated they travelled to the site on foot.
- The location with the highest number of interviewees who travelled by car was Marquis Drive. Survey points 13 (Hazel Slade Nature Reserve, outside the SAC), 15 (Brook Lane Corner) and 24 (West Cannock Farm) are notable in that a small proportion of people appear to travel by car; at these three sites a larger percentage of people indicated that they walked to the site.
- The reasons why interviewees chose to visit the location where they were interviewed varied. "Attractive scenery" was the most commonly recorded option, with 63% of visitors citing this as a reason to in their choice of location. "Good for walking" (56%) and "close to home" (55%) were other popular choices.
- A total of 3206 of interviewees' postcodes were geocoded, enabling two-thirds (67%) of interviews to be georeferenced to a full home postcode and plotted within a GIS. These showed people visiting from all over the country, but the majority of home postcodes mapped fell broadly within a geographic area that was bounded by Stoke-on-Trent, the north side of Birmingham, Telford and Tamworth.
- Overall, half of all visitors lived within 6.24km of the point where interviewed and 75% (i.e. the third quartile) of interviews were with people who lived within a radius of 15.13km from the survey point.
- Comparing local authority administrative areas, Cannock Chase District and Stafford Borough were the two authorities with the highest proportions of visitors (29% and 24% of interviewees respectively). Other authorities where more than 5% of visitors originated included Lichfield (14%), South Staffordshire (9%) and Walsall (5%).

- After taking into account the volume of housing in different areas, Cannock Chase (Central) and Lichfield District (Burntwood) were the subareas with the highest numbers of visitors interviewed per dwelling.
- Visitor rates (i.e. number of people interviewed per dwelling) declined with distance away from the SAC boundary and reached a low, flat visitor rate between 10km and 15km from the SAC boundary.
- Mountain bikers came the furthest distances (median distance from home postcode to survey point = 11.20km), with home postcodes showing a wide scatter of locations including the south-east of Birmingham. Dog walkers and runners appeared to be particularly local (these were the only two activities where the median distance from home postcode to survey point was less than 5km).
- People visiting at weekends tended to live further away from Cannock Chase and frequent visitors tended to be the most local.
- Extrapolating the data to give the number of visitors per year is difficult and the data are not suitable for use to produce precise, reliable estimates. It would appear that somewhere around half a million car visits are made to the surveyed car parks (i.e. scaling up using counts of cars). Scaling up the counts made at the visitor survey points would indicated somewhere around 2 million people passing the surveyed locations per year.

New housing and implications of future development

Data provided by local authorities indicates the level and spatial distribution of new housing that may occur in the period to c.2026. The number of new houses proposed across all the relevant local authorities is around 78,000, an increase of around 10%. Considering where the new houses will be built in relation to the postcodes generated from the visitor survey would suggest that the overall change in visitor levels (across all relevant local authority boundaries only) will be in the region of 15%. This percentage change is indicative, but suggests the scale of likely change.

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1. Introduction

Overview

1.1 This report sets out the results of a visitor survey undertaken between the late autumn 2010 and the summer of 2011 at Cannock Chase. The visitor survey was commissioned to provide visitor information necessary to consider:

- How development around Cannock Chase might link to recreational use of Cannock Chase
- Provide the information necessary to inform future management of recreation and access at Cannock Chase

Background

1.2 This report sits alongside a number of other pieces of work that include an assessment of the impacts of recreation on the nature conservation interest at Cannock Chase. An observational study looking at how people behave while visiting Cannock Chase and a report considering the mitigation options to reduce the impacts of development around Cannock Chase SAC.

1.3 Cannock Chase is managed for recreation Cannock Chase is an Area of Outstanding Natural Beauty (AONB) located relatively close to the Stafford, Birmingham, Wolverhampton Walsall and a number of other urban settlements. The AONB was designated in 1958 and the places responsibility upon public bodies to "have regard to the purpose of conserving and enhancing the natural beauty of the area of outstanding natural beauty".

1.4 The AONB is important for nature conservation. Cannock Chase represents the largest area of heathland habitat surviving in the English Midlands. Although much diminished in area from its original extent, as with all lowland heathland zones, the habitat and dependent species are of very high nature conservation importance. The Site of Special Scientific Interest (SSSI) at Cannock Chase was notified in 1987 and covers 1264.3 hectares. Almost all of this area (1236.93 ha) has subsequently been designated[1], as a Special Area of Conservation (SAC) under the provisions of the European Habitats Directive.

1.5 An issue for nature conservation in the UK is how to accommodate increasing pressure for new homes and other development without compromising the integrity of protected sites. There is now a strong body of evidence showing how increasing levels of development, even when well outside the boundary of protected sites, can have negative impacts on the sites. The issues are particularly acute in southern England, where work on heathlands (Mallord 2005; Underhill-Day 2005; Liley & Clarke 2006; Clarke, Sharp, & Liley 2008; Sharp *et al.* 2008) and coastal sites (Saunders *et al.* 2000; Randall 2004; Liley & Sutherland 2007; Clarke *et al.* 2008; Liley

[1] 14 June 2005

2008; Stillman *et al.* 2009) provides compelling indications of the links between housing, development and nature conservation impacts.

1.6 The issues are not, however, straight forward. It is now increasingly recognised that access to the countryside is important, bringing a range of benefits such as increasing people's awareness of the natural world or improving health and well being (English Nature 2002; Alessa, Bennett, & Kliskey 2003; Morris 2003; Bird 2004; Pretty *et al.* 2005).

1.7 There is therefore the potential for conflict where high human populations occur alongside areas of conservation importance, particularly where there are existing rights of access to those sites. The issues revolve around the provision of access in such a way that the nature conservation interest is not compromised. Where the nature conservation interest is designated as a European Protected site (SAC, SPA or Ramsar) there are particular implications. European sites are protected through the provisions of the Conservation of Natural Habitats and Species Regulations 2010 (SI no. 490), which transpose both the Habitats Directive (Council Directive 92/43/EEC) and the Wild Birds Directive (Council Directive 79/409/EEC) into UK law.

1.8 With respect to the impacts of access on relevant sites, Regulation 61 ensures that competent authorities can only agree to a plan/project which is likely to have a significant effect (alone or in-combination) after having determined that it will not adversely affect the integrity of any European site (subject to imperative reasons of over-riding public interest and consideration of alternative solutions). Impacts associated with recreational activities that can be linked to plans or projects should therefore be avoided through the correct application of Regulation 61 by competent authorities. Regulation 61 applies to all European sites and therefore covers both SACs and SPAs (listed Ramsar features are also protected as a matter of government policy). New development and strategic development plans must therefore address any impacts of increased recreation to European sites.

1.9 Also relevant is Article 6(2) of the Habitats Directive, which requires Member States to take appropriate steps to avoid, in the SACs and SPAs, the deterioration of natural habitats and the habitats of species as well as disturbance of the species for which the areas have been designated. Article 6(2) states that "*member states shall take appropriate steps to avoid..... deterioration of natural habitats.... as well as disturbance of the species...";* the wording therefore puts a responsibility on the member state to address such issues where they arise.

1.10 A key issue to be taken into account in respect of recreational impact strategies associated with any new development is whether a credible link can be made between the potential impacts and development per se (and hence with a 'plan or project' as identified in regulation 61). It is not simply a matter of how far away visitors are drawn from on a regular basis; it is important to understand how access levels relate to the impacts per se.

1.11 Hence the critical need for a better understanding of access patterns around Cannock Chase. Previous work by Footprint Ecology at Cannock Chase in 2009 produced an evidence base to inform appropriate assessments relating to Cannock Chase SAC and a visitor impact mitigation strategy. The evidence base highlighted the high number of existing houses and current high levels of visitor use, yet was limited by the availability of up-to-date and accurate visitor data. In response to the need for better data, a visitor survey was commenced across the SAC and AONB in 2010. In this report we analyse that visitor data and present the results. The report is focused on the access patterns within Cannock Chase. We refrain from considering the implications in terms of mitigation measures or 'zones of influence' as such these are considered in detail within the mitigation report.

2. Methods

Visitor survey work undertaken

2.1 Visitor survey work involved two distinct data sets. Face-to-face surveys at selected locations and counts of parked cars. The face-to-face surveys involved counts and interviews with visitors at a range of access points around the AONB. The car counts were essentially snapshots of the number and distribution of parked cars around the AONB, and these were collected by a surveyor driving a standard circuit and counting/mapping all the parked vehicles. Map 1 shows visitor survey locations used in the face-to-face surveys and Map 2 shows car-parks and parking locations included on parking transects.

Face-to-face surveys

2.2 The face-to-face surveys were conducted by volunteers coordinated by the AONB unit. All surveys were done by pairs of surveyors, each wearing an AONB volunteer t-shirt, badge and hi-visibility jacket and positioned at the survey locations shown in Map 1.

2.3 The sites selected included five points where the survey point was not at a car-park or access point. These locations were: the Stepping Stones (Site 8), Sherbrook Valley (site 9), Fair Oak Pools (site 10), Oldacre Lane (Site 21) and Abraham's Valley (site 27). The locations also included four locations that were well outside the SAC. These locations were: Castle Ring (Site 4); Hazel Slade Nature Reserve (Site 13); Gentleshaw Common (Site 29) and Shoal Hill Cocksparrow Lane Car Park (Site 30). Where we refer to all locations the totals etc. include data from these four survey locations. Where we refer to "SAC sites only" we refer to all other sites besides these four. It should be noted that some of the survey locations were outside the SAC but, due to their proximity and access links we have included them with the SAC survey locations as visitors parking/entering here would be able to access the SAC directly.

2.4 There were five survey periods: Autumn/Winter (exc. Christmas), Christmas/New Year, Easter, Spring/Summer, Summer holidays defined as follows:.

- Autumn/Winter October 2010 – March 2011 exc. Christmas,
- Christmas December 21st 2010 – January 3rd 2011
- Easter April 6th –April 20th 2011
- Spring/Summer May 1st – June 30th 2011
- Summer Holidays July 19th 2011 – August 31st 2011

2.5 Surveys took place at both weekends and weekdays. The survey was broken down into sessions during which around two hours of surveying were conducted. Across all seasons and survey locations, 623 different survey sessions were completed. Just

over half (357 sessions) occurred within 'standardised' time periods (2.5 hours long and starting at 07:30; 10.30; 13:30 or 16:30).

2.6 Volunteers signed up to undertake the survey work at particular locations and surveys periods were sometimes split across multiple days or undertaken on the same day, depending on the preference of the surveyor.

2.7 Survey effort at the different survey points was not consistent in that the survey periods were not followed rigorously by the volunteers and not all survey periods were covered at each location during each survey period.

2.8 During each survey period surveyors counted people (i.e. number of people rather than number of groups) that passed them/used the access point and a tally was recorded by activity, categorising people into standard categories: walking, dog-walking, cycling, horse-riding, "stay in car" and other.

2.9 Surveyors were instructed to interview as many people as possible on a random basis. Interviews were not conducted with anyone who appeared under 18, only one person was interviewed group with the intention to try to ensure a good range of age and gender.

2.10 The questionnaire is in Appendix 1. It was designed by the County Council/AONB staff and included eleven questions. Most responses were recorded using tick boxes, with the surveyors reading out the different options on the questionnaire.

Car counts

2.11 All parking locations were mapped and assigned a unique identifier prior to the commencement of the survey. A total of 105 different parking locations were included, and this total involved some that were outside the SAC. The surveyor(s) drove a pre-defined circuit (direction was varied) and separately counted the number of cars, cars with cycle racks, coaches, minibuses and motor bikes at each of the 105 locations. Part-way through the surveys additional data relating to the number of vans were recorded. Totals for vans (where counted separately) were totalled with the number of cars to allow direct comparison between all counts. In total eighteen surveys (i.e. complete circuits/transects) were completed, covering a range of dates (eleven different dates), days and times of year.

Data handling, collation and analysis

2.12 Face-to-face data were entered by the AONB unit using separate excel sheets for each survey period and each survey location, with the tally data and questionnaire data on each sheet. These data were split into separate files containing the tally data and the questionnaire data, with the individual worksheets merged to give a single file for the tally data and a single file for the questionnaire data.

2.13 All questionnaires were given a unique ID allowing cross-reference through the analysis and with GIS files.

2.14 A number of issues were encountered when combining and checking the data. With the questionnaire data some fields contained a mixture of numeric and text codes and abbreviations. Data were individually filtered and checked for errors and where these were obvious the data were corrected and codes simplified where possible. For example the yes/no field on question 4 contained entries such as "Y", "N" also "yes" and "no". There were also entries "T ", "n/a" as well as blank cells. We treated the "T" entries as "Y" (letters are next door on the keyboard) and the "n/a" entries were treated as blanks. For question 6 one entry there was one entry where duration was recorded as both 1-2 hours and half day, this was treated as a blank (no answer). With question 7 ("Do you tend to visit this area at a certain time of day?") there were ten instances of multiple responses. As one option was "time varies" these ten multiple responses were recoded to a single response: "time varies".

2.15 The phrasing/structure of question 2 (which related to both frequency of visit and season) made analysis awkward. Interviewee responses were recorded as "once a year", "once a month", "every week", "every day" or "other", and for each category the questionnaire attempted to record season. This meant that many questionnaires recorded multiple categories of frequency with different seasons, for example someone might visit "once a year" in the spring but "every week" in the autumn. The data entry was such that for some questionnaires a "1" was entered against a particular category (i.e. "once per year") indicating that the person visited once per year, while other entries would record specific seasons, combinations of seasons (e.g. "spring/summer/autumn") and sometimes "all year" (which was not an option on the questionnaire. These complexities made the frequency data difficult to collate and analyze. A check of the "other" entries indicated that many interviewers had not categorised the frequencies in a standard fashion – for example "other" entries were qualified with additional detail such as "4 days per week, all year", "every weekend, all year", "twice a week, all year" etc. We simplified the data by recording many entries, removing the information on seasons to simply give "once a year", "once a month", "every week", "every day" and "other". Where a questionnaire had multiple types of frequency recorded we categorised it according to the most frequent visit type (i.e. where "every week" and "every day" was recorded for the same questionnaire, we treated the response as "every day").

2.16 When combining the tally data we assumed all blank cells were zeros (zeros were sometimes present and sometimes not). There was an entry for Birches Valley on the 25th June when the car-park was closed and no people were counted. We omitted this entry from the analysis rather than treat it as a survey period with no visitors. There were a number of instances where two sessions were surveyed "back to back", and a single tally total was given. In these cases we split the tally total equally between the two survey periods. An additional problem was encountered when checking the tally when broken down between different categories of user; there was a "total visitors" column and a series of columns indicating the number of cyclists, dog walkers, walkers etc. There were 128 entries in the tally where the total people counted during the session didn't match the sum of the individual columns.

For 35 of these the breakdown total was higher, i.e. one was not consistently higher than the other. By default we used the higher of the two values, but all instances where the difference was greater than 50% were manually checked. Across all tally data the sum of "total people" was 28,361; using the breakdown of the totals the sum came to 28,127. Where there was a discrepancy between the two we took the maximum value – which when summed came to 28,596.

2.17 A consistent issue throughout the analysis relates to multiple coding of answers, which made it impossible to accurately breakdown visit totals by the different categories. This was a particular issue with question 2, question 3, question 8 and question 9. We make it clear in the results how we have treated the multiple coding, in particular how percentages etc have been derived.

GIS

2.18 All GIS was undertaken using MapInfo version 10.5. We present the car-park count data and visitor tally data on maps, using graduated pie-charts on the maps to highlight the variation in visitor numbers (with the wedges of the pie-chart showing different activities, such as the number of bikes with bike racks within the car-park counts) at different locations and different seasons. Such maps provide an easy visual comparison of where access levels are concentrated and by using the same scales we can directly compare between seasons etc.

2.19 Postcode data was geo-coded using postcode data (Code-point™), allowing us to tie each questionnaire (with a valid postcode) to a home location (accurate to 100m) in the GIS. All the postcode data used within this report was from the same data file, dated 2011. For each (geo-referenced) questionnaire the distance between the survey point and the home postcode was calculated and also the distance from the home postcode to the SAC boundary was calculated.

2.20 GIS data defining local-authority sub-area boundaries were provided by relevant local authorities and the number of interviewees per sub-area were then extracted.

2.21 Plots of visitor rates by distance were derived by plotting a series of distance bands around the SAC, at 500m intervals. For each of these bands (essentially a series of concentric rings) we calculated the number of houses (residential delivery points in the postcode data) and the number of people interviewed who had travelled from each band.

Future housing data

2.22 Housing data were provided by the relevant local authorities, in a combined data set showing indicative housing distribution and numbers for the future, reflecting respective local development framework documents. Details of how this housing layer was derived are provided in Appendix 4, which was written by local authority staff. The GIS data was provided as point data.

2.23 For four local authorities (East Staffordshire, Lichfield, Walsall and Wolverhampton) some of the housing totals were expressed as a single value for the entire authority

area or for a particular subarea, i.e. part or all of the data were not provided as points within the GIS. In these cases the totals represented housing that was expected to come forward but which could not be attributed to specific locations, for example windfall. The totals (2639 dwellings for East Staffordshire, 3952 dwellings for Lichfield; 3360 for Wolverhampton and 3084 for Walsall) were added by Footprint Ecology to the GIS data by evenly distributing the total across the relevant 1km bands.

2.24 In order to determine how development surrounding Cannock Chase might change, we summarised the new housing data by local authority sub-areas and by distance, using 1km distance bands surrounding the SAC.

Estimates of total visitor numbers

2.25 It is notoriously difficult to estimate total numbers of visitors to sites and there is no consistent or standardised approach used with the UK (e.g. Liley *et al.* 2009). There is potential to estimate visitor numbers using the car count data, the on-site tally data and the on-site questionnaires, but each has particular problems/issues which are considered in more detail in the relevant section.

3. Results

Identification of levels and patterns of visitor use across the SAC

Tally data

3.1 A total of 1430 hours of counts of people and face-face interviews were conducted. Across all locations and all seasons 28,101 people were counted 'entering' the site. This total, from the tally data was derived from 1429 hours of survey work, giving an overall visitor rate of 19 people per hour.

3.2 Survey effort was not consistent between sites (see Appendix 2 for summary of survey hours at each location). In order to compare between sites we therefore calculated visitor rates (i.e. visitors per hour) from the tally data for each location. These data are summarised in Table 1.

3.3 It can be seen that the counts show that Birches Valley Car Park was the busiest site, followed by Marquis Drive and then Moors Gorse. Perhaps surprisingly, for most sites the highest visitor rates were not during the summer, and it was autumn/winter weekends (for ten of the 30 survey locations) that the highest visitor rates were recorded. Seven Springs was the only location where visitor rates appeared to be highest in the summer.

3.4 The highest single visitor rate recorded at any single location was Birches Valley where the weekday counts in the autumn/winter period recorded a visitor rate of 120 people per hour. Aspens car-park also had a notable visitor rate of 117 people per hour – recorded for the autumn/winter period and the weekend counts. This count far exceeded the others at this location. Referring back to the survey notes it is not clear why the particular high rates were recorded for this session (for example there was no record of a large group visiting).

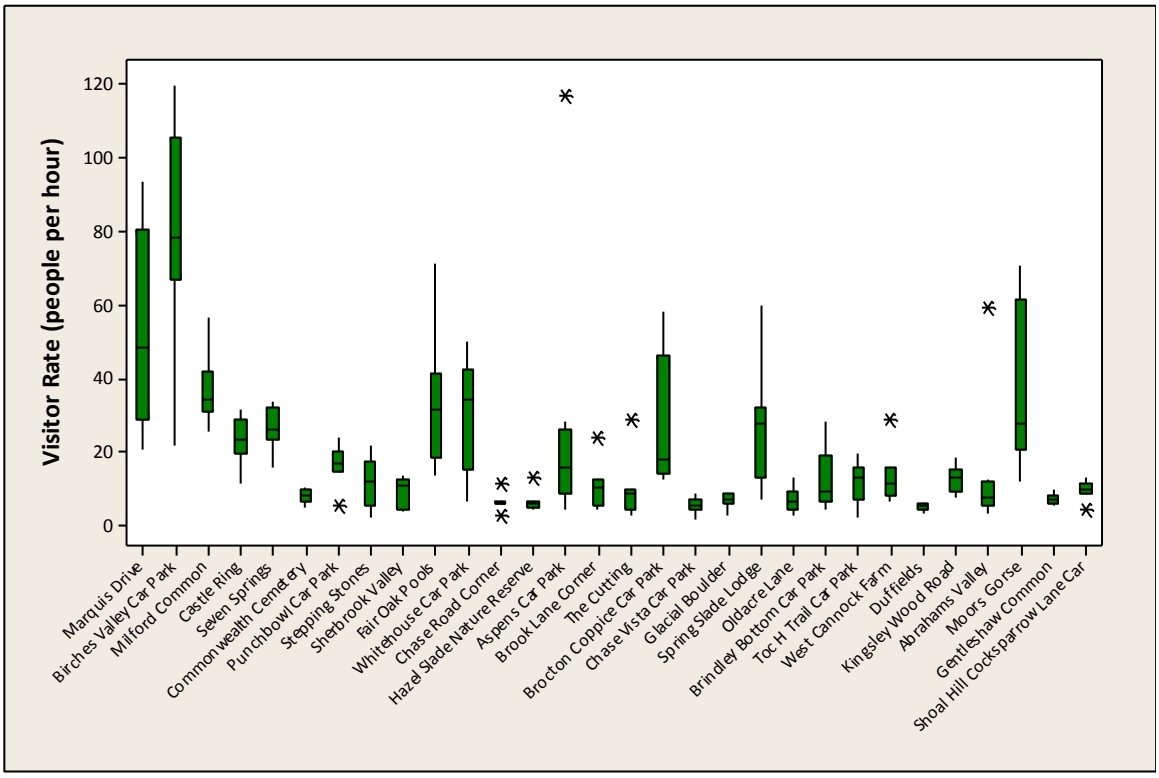

Figure 1: Visitor rates at each survey location. Box plot shows the data from Table 1.

Table 1: Visitor rates (people per hour) for different survey locations by time of year. WD indicates weekday and WE weekend day. For Christmas and Easter there were relatively few counts from the weekend and for these survey periods the data for weekdays and weekends are merged. Numbers in bold are the highest in each row. Rows highlighted in grey represent the 4 survey locations well outside the SAC.

Site No	Location	Autumn/winter		Christmas	Easter	Spring/summer		Summer holidays		All survey periods
		WD	WE			WD	WE	WD	WE	
1	Marquis Drive	26	41.7	20.5	73.8	36.1	**93.5**	82.9		55.5
2	Birches Valley Car Park	**119.7**	87.5	111.7	80.7	21.7	65.9	69.8		75.4
3	Milford Common	25.2	56.7		32.9		33.8	34.3		36.6
4	Castle Ring	22.2	**31.7**	11.3	21	18.6	29.5		27.2	24.2
5	Seven Springs	15.5	31	29.5	25.8	20.4	33.3	25.7	**33.6**	26
6	Commonwealth Cemetery	7.7	9.3	10	5					7.8
7	Punchbowl Car Park	5.2	**23.6**		18.8	19.9	14.9	14.5		17
8	Stepping Stones	15.7	6.1	1.9	**21.6**			11.4		11.9
9	Sherbrook Valley	4.6	12.1	3.5	13.4			11.7		9.5
10	Fair Oak Pools	13.3	**41.5**		40.8	25.1	71	18.6		31.7
11	Whitehouse Car Park	6.6	41.3	35.3	**50.2**	10.3	30.6		42.9	33
12	Chase Road Corner	6.1	11.3	2.4	5.9			5.8	6	6.3
13	Hazel Slade Nature Reserve	6.3	6.3	13	4.3	5.1	6	5		5.6
14	Aspens Car Park	7.7	**117.1**		20.4	12	17.7	14	4	28.2
15	Brook Lane Corner	5.1	**23.6**	12.4	11.8	4.1	10.1	6		10.3
16	The Cutting	8.8		28.5	9.9	2.8	9.3	4.4		8.2
17	Brocton Coppice Car Park	12.3	52.2	17.9	**57.9**	14.6	15	13.4	39.6	25.3
18	Chase Vista Car Park	7.5	5.2	1.5	8.7	3.8	6.3		5.1	5.5
19	Glacial Boulder	7.1	**8.8**	2.5	7.2			8.2		6.9
20	Spring Slade Lodge	31.2	17.7	**60**	32.6	6.8	30.7	11.6		24.7
21	Oldacre Lane	5.2	3.5	10.4	13	2.7	7.4	6.2	5.4	7
22	Brindley Bottom Car Park	4.2	9	**28**				8.7		9.8
23	Toc H Trail Car Park	16.9	**19.6**	2	12	6.4	14.7	7.6	12.7	12.8
24	West Cannock Farm	6.3	**15.8**	11	11.6	8		29		11.3
25	Duffields	5.4	5.9	3.2	5.5			**6.1**	4.4	5.2
26	Kingsley Wood Road	7.5	10.7	**18.4**	13.1	12.4	16.5	13.3	7.6	12.8
27	Abrahams Valley	4.9	12.4	3.2	6	6.4	**59.2**	8.5		9.8
28	Moors Gorse	11.8	**70.8**	21.3	21.6	34.2	69.6	20		36.8
29	Gentleshaw Common	5.5	7.4	6.8	8	6.6	**9.6**	5.8		7.2
30	Shoal Hill Cocksparrow Lane Car Park	8.7	**12.8**	4		**11.3**	10	8.7		9.4
	ALL SITES	14	26.2	17.6	22.3	13.1	**26.8**	19.1	19.6	20

3.5 The tally data is shown as rates in Map 3, with graduated symbols showing the number of people per hour, broken down by activity. Across all survey locations, from the tally data (summarised in Table 2) walkers were the most common activity counted, with 33% of visitors undertaking this activity. The percentage of dog walkers and cyclists was roughly similar (26% and 24% of visitors respectively). These three activities can be seen to clearly be the main activities undertaken, with more than four-fifths of visitors (83%) visiting to either walk (with or without a dog) or cycle.

3.6 There were significant differences between locations in the proportion of users counted undertaking different activities (χ^2_{130}=12896; p<0.001; note that Duffields, Chase Road Corner and Brindley Bottom were not included in the chi-square due to expected values of less than 5). The differences between locations can be seen in Figure 2. Walkers make up a high proportion of visitors at Oldacre Lane. Cyclists were recorded at all locations but Moors Gorse is notable as at this location they accounted for the majority (93%) of users. Horse riders were not recorded at all sites, Abraham's Valley stands out in that horse riders accounted for nearly a third (31%) of users.

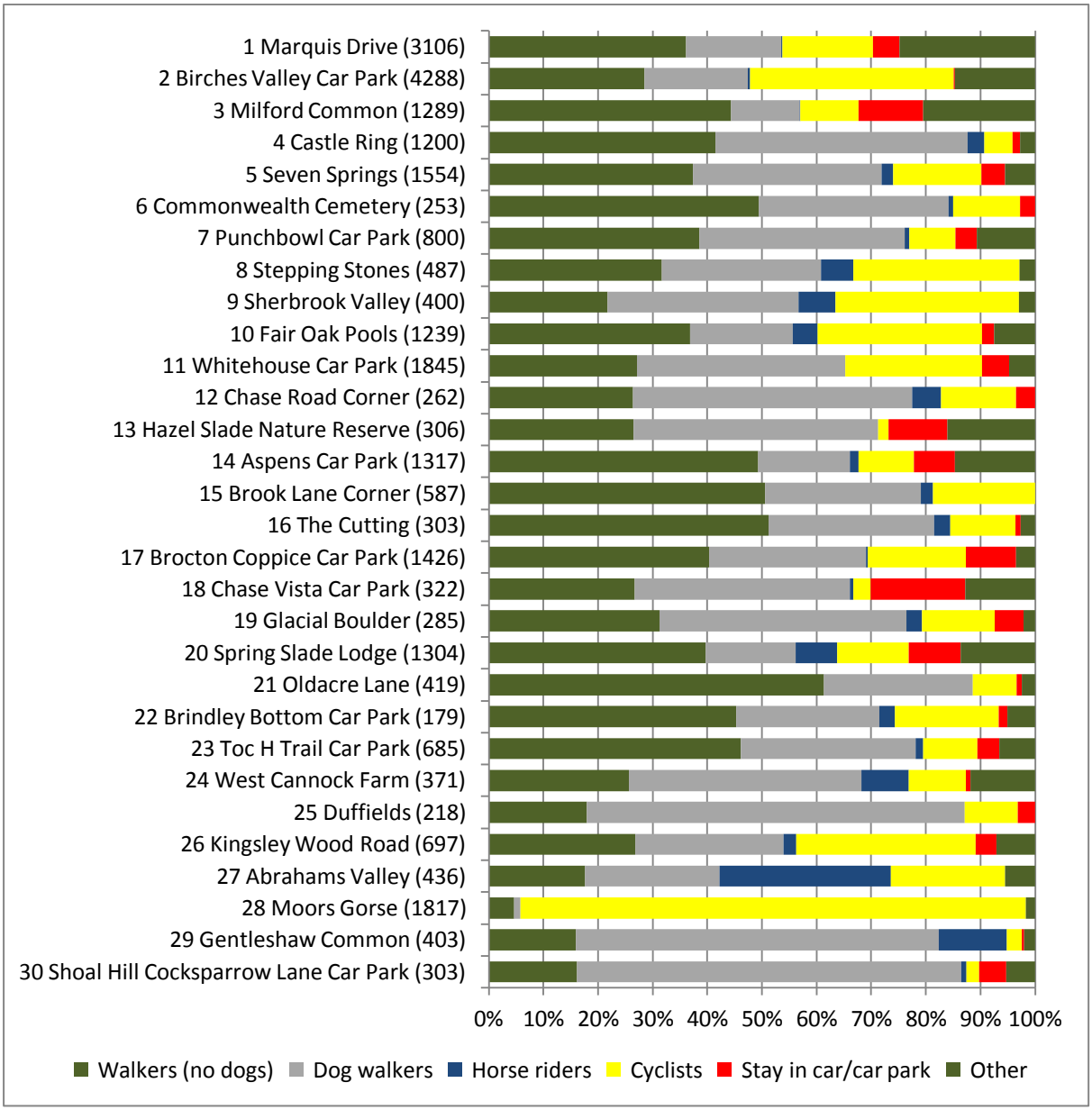

Figure 2: Percentages of visitors undertaking different activities at each location. From the tally data. Numbers in brackets after the site name indicates the total number of people counted at each location.

Table 2: Tally data, number and percentage of visitors counted undertaking different activities at each location, across all survey periods. Rows highlighted in grey represent the 4 survey locations well outside the SAC.

Site No	Location	Walkers (no dogs)		Dog walkers		Horse riders		Cyclists		Stay in car/car park		Other		Total
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
1	Marquis Drive	1,122	36	541	17	5	0	517	17	151	5	770	25	3,106
2	Birches Valley Car Park	1,224	29	810	19	17	0	1,600	37	8	0	629	15	4,288
3	Milford Common	572	44	162	13	1	0	137	11	153	12	264	20	1,289
4	Castle Ring	498	42	554	46	37	3	61	5	17	1	33	3	1,200
5	Seven Springs	580	37	538	35	32	2	252	16	67	4	85	5	1,554
6	Commonwealth Cemetery	125	49	88	35	2	1	31	12	7	3	0	0	253
7	Punchbowl Car Park	308	39	301	38	7	1	67	8	32	4	85	11	800
8	Stepping Stones	154	32	142	29	29	6	148	30	0	0	14	3	487
9	Sherbrook Valley	87	22	140	35	27	7	134	34	0	0	12	3	400
10	Fair Oak Pools	456	37	234	19	56	5	373	30	27	2	93	8	1,239
11	Whitehouse Car Park	500	27	704	38	0	0	462	25	92	5	87	5	1,845
12	Chase Road Corner	69	26	134	51	14	5	36	14	9	3	0	0	262
13	Hazel Slade Nature Reserve	81	26	137	45	0	0	6	2	33	11	49	16	306
14	Aspens Car Park	649	49	222	17	20	2	134	10	99	8	193	15	1,317
15	Brook Lane Corner	297	51	167	28	13	2	110	19	0	0	0	0	587
16	The Cutting	155	51	92	30	9	3	36	12	3	1	8	3	303
17	Brocton Coppice Car Park	575	40	409	29	5	0	256	18	131	9	50	4	1,426
18	Chase Vista Car Park	86	27	127	39	2	1	10	3	56	17	41	13	322
19	Glacial Boulder	89	31	129	45	8	3	38	13	15	5	6	2	285
20	Spring Slade Lodge	518	40	215	16	98	8	172	13	123	9	178	14	1,304
21	Oldacre Lane	257	61	114	27	0	0	34	8	4	1	10	2	419
22	Brindley Bottom Car Park	81	45	47	26	5	3	34	19	3	2	9	5	179
23	Toc H Trail Car Park	316	46	219	32	10	1	68	10	27	4	45	7	685
24	West Cannock Farm	95	26	158	43	32	9	39	11	3	1	44	12	371
25	Duffields	39	18	151	69	0	0	21	10	7	3	0	0	218
26	Kingsley Wood Road	187	27	189	27	16	2	229	33	27	4	49	7	697
27	Abrahams Valley	77	18	107	25	137	31	91	21	0	0	24	6	436
28	Moors Gorse	85	5	20	1	0	0	1,681	93	0	0	31	2	1,817
29	Gentleshaw Common	64	16	268	67	50	12	11	3	2	0	8	2	403
30	Shoal Hill Cocksparrow Lane Car Park	49	16	213	70	3	1	7	2	15	5	16	5	303
	Total	**9,395**	**33**	**7,332**	**26**	**635**	**2**	**6,795**	**24**	**1,111**	**4**	**2,833**	**10**	**28,101**

3.7 It was difficult to compare between weekdays and weekend days, between times of day and between times of year because survey effort varied, with different times, number of surveys, and duration of survey at each location. We filtered the data to extract counts that fitted the standard time periods[2] (i.e. allowing direct comparison) and then used paired t-tests to compare between matching data.

3.8 In order to compare weekdays and weekends we used only the autumn/winter and spring/summer data (there was insufficient data from weekends in the other survey periods). There were eighteen sessions where the same location had been surveyed (for standard time period) both at the weekend and the weekday within a given time of year. The weekend counts were higher for twelve of these tally counts and the differences were significant (mean on weekday = 25.3 $\pm$ 4.14; mean on weekend day = 42.7 $\pm$7.6; paired T=-2.49; p=0.02).

3.9 We used a similar approach to robustly compare visitor numbers at different times of year. Given that there were significant differences between weekends and weekdays, in order to compare between different times of year, we limited our comparison to autumn/winter compared to spring/summer, as for these two times of year we could separate weekends and weekdays. There were sixteen sessions where a direct comparison could be drawn. Spring/summer tally counts were higher than the autumn winter ones on seven of the 16 counts, but two of the autumn/winter counts were particularly high in comparison and overall the differences were not significant (autumn/winter mean = 61.6$\pm$30.0; spring/summer mean = 20.4 $\pm$5.8; T=1.17; p=0.26).

Car-park counts

3.10 Eighteen different counts were undertaken where all parking locations around the SAC were visited and the cars counted. Data are summarised in Appendix 3, which gives the totals for each location, range and median. The numbering in the Appendix allows direct cross referencing with Map 2. The total number of vehicles counted per visit, across all locations, ranged from 166 (mid week in June) to 1095 (a Sunday in early July) and are summarised in Figure 3. Weekend counts were conducted on only 3 weekend dates, with two counts on each date, giving six weekend counts, all done in the summer. Of the six weekend counts, five fell in the top six when all counts were ranked, indicating that weekend counts tended to be higher; with the lack of weekend counts in the rest of the year it is impossible to determine to what extent higher weekend use is consistent through the year. It is notable that one of the counts on the 30th December – falling between Christmas and New Year – was high, and comparable to some of the summer counts.

3.11 Map 4 shows the count data by location, with the graduated symbols showing the number of vehicles (across all counts) and the segments showing the different vehicle categories. Birches Valley is by far the busiest location (1599 vehicles counted across the 18 counts), and the area around Marquis Drive is also busy. Birches Valley also has the most cars with bike racks. Away from the Marquis Drive area and Birches Valley the

[2] 2.5 hours long and starting at 07:30; 10.30; 13:30 or 16:30

pattern is of lots of parking areas with lower levels of use, but it is clear that a wide range of parking locations are used. Only five parking locations had no cars in at all over the 18 counts. Cars with cycle racks were recorded at 27 locations. The other categories of vehicle were rarely recorded: coaches were recorded at four different parking locations, minibuses were recorded at six different locations, horse-boxes were recorded at six different locations and motorbikes also from six locations.

3.12 Not all the parking locations surveyed were linked to the SAC. The locations well outside the SAC are highlighted in Appendix 3, and combined these locations accounted for around a tenth (841 cars; 11%) of all the cars counted.

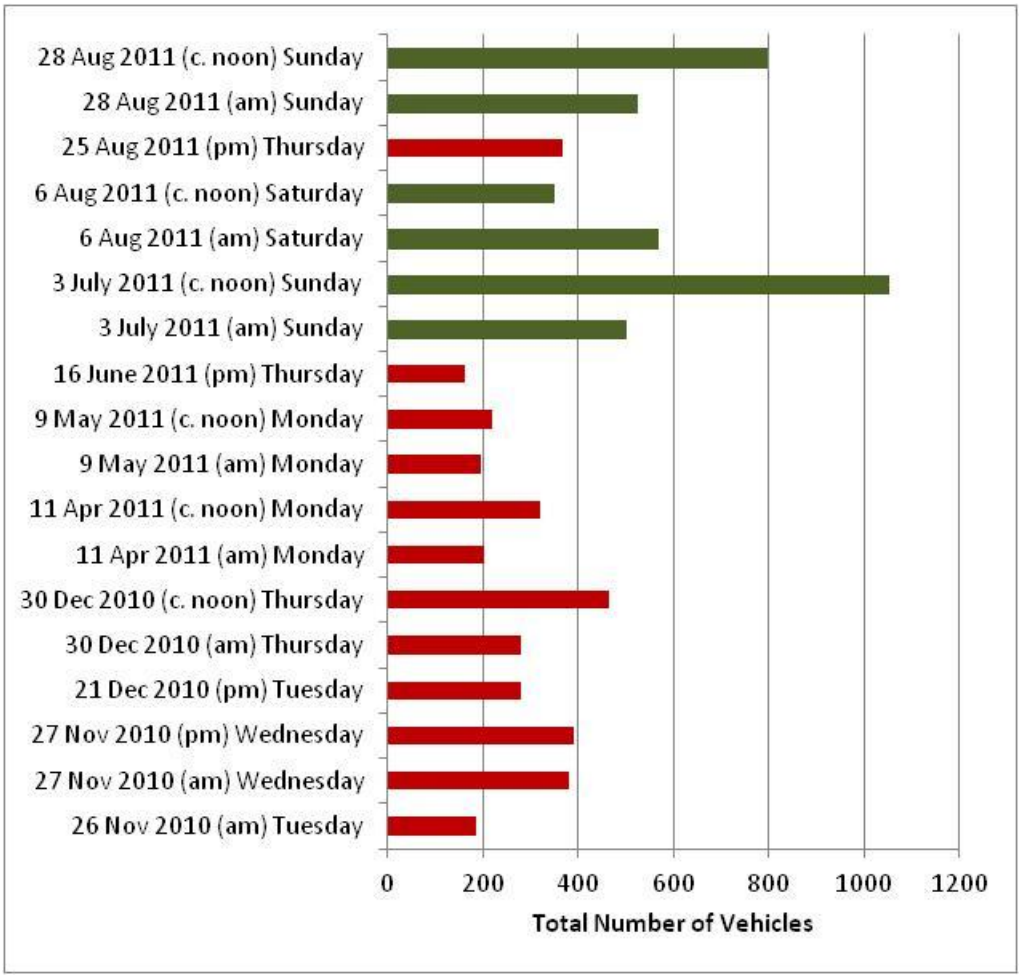

Figure 3: Total number of vehicles (all parking locations) on the eighteen surveys. Surveys are listed chronologically. Times in brackets refer to counts done in the morning (starting before 11:30am); around noon (starting between 11.30 and 13:00) or the afternoon (after 13:00). Green bars represent weekend counts, red shading weekdays; paler colours on each bar indicate the non SAC locations. Note also that the counts on 30 December and 11 April lie close to major holidays (Easter was the 23rd April).

Questionnaire data

Overview

3.13 In total 4809 face-face interviews were conducted. Roughly a third of all interviews (1531 interviews, 32%) were conducted during the autumn/winter period. Approximately a quarter of all interviews were conducted during the spring/summer period (1165

interviews, 24%). A total of 837 interviews (17%) were conducted during the Easter period, 731 (15%) during the summer holidays and 545 (11%) during the Christmas period.

Activities undertaken

3.14 Question 3 of the questionnaire asked visitors which activities they do "while you're here". Ten different types of activity were listed on the questionnaire and free text options ("Any other") could also be recorded. The question was not worded to give the activity undertaken during the visit when interviewed, and for the majority of interviews multiple different activities were recorded, for example 2338 interviews involved one activity, 1507 involved two activities, 562 involved 3 activities and one interviewee even undertook all ten of the activities listed in the questionnaire. While it is quite possible for people to undertake more than one activity simultaneously (for example it is possible walk the dog and play games during the walk), the high proportion of multiple responses to question 3 would suggest that the data indicates all the activities the interviewee undertakes. In other words someone who visits mostly to walk their dog (for example on a daily basis), yet who also occasionally visits with their children to play games (say during the holidays) would have both dog walking and playing games identified as the activities undertaken. **The responses to Question 3 therefore do not accurately record the number of people visiting to undertake different activities**.

3.15 We summarise the responses to question 3 in Table 3. It can be seen that the most frequently cited activities were walking (62% of interviewees), dog walking (45%), mountain biking (18%) and cycling (17%). We have added additional columns to indicate the degree of cross-over between some activities for which there is much overlap – dog walking & walking and cycling & mountain biking. These columns highlight some of the difficulties in interpreting these data. For example 2958 people stated that they came to walk and 2141 stated that they came dog walking, with 1108 interviews indicating that the interviewee came both to walk and to dog walk – i.e. of the 2958 people who came to do walking, 1108 (38%) came dog walking. For those 38% we cannot identify how many are both walking and dog walking at the same time, or sometimes coming to walk the dog and sometimes coming to walk. It is therefore not possible to accurately assess what proportion of visits involve walkers with dogs.

3.16 The shading in the table indicates those locations where different activities were particularly focused. The data from the table is also shown in Map 5, which provides a visual comparison between locations. People who stated they came to do walking accounted for a particularly high percentage of visitors at locations 1 (Marquis Drive), 6 (Commonwealth Cemetery), 7 (Punchbowl Car-park), 8 (Stepping Stones), 20 (Spring Slade Lodge) and 29 (Gentleshaw Common). People who stated they came to do dog walking accounted for a particularly high percentage of visitors at locations 25 (Duffields) and 29 (Gentleshaw Common). People who came to do Mountain Biking accounted for a particularly high percentage (some 90% of interviewees) at survey point 28 (Moors Gorse). Taking the main activities (walking, dog walking, cycling and mountain biking) the

proportion of people at each survey location that stated they undertook the activity was significantly different between locations (χ^2_{58}= 1186.5; P<0.001[3]).

[3] Note that cyclists and mountain bikers were merged in order to ensure no expected values in the Chi-square were less than 5.

Table 3: Numbers (%) of visitors at different survey locations and activities undertaken. Percentages are calculated using the total number of interviews at each site. Note that most people stated they undertook more than one activity and therefore the sum of each row will be greater than the total interviews. Light grey shading indicates cells (for the ten main types of activity) where the percentage undertaking the activity is higher at that site than the percentage across all sites. Dark grey shading indicates sites where at least 75% of interviewees responded that the did a particular activity.

Survey Location	Walking	Cycling	Dog walking	Horse Riding	Playing games	Running	Mountain Biking	Orienteering	Eating Out	Birdwatching	Other	Walking & Dog walking	Cycling & Mnt Biking	TOTAL INTERVIEWS
1	328 (79)	115 (28)	138 (33)	6 (1)	49 (12)	33 (8)	41 (10)	3 (1)	26 (6)	16 (4)	70 (17)	109 (26)	19 (5)	413 (100)
2	137 (52)	44 (17)	39 (15)	2 (1)	72 (27)	4 (2)	98 (37)	1 (0)	10 (4)	7 (3)	24 (9)	23 (9)	7 (3)	264 (100)
3	118 (74)	28 (18)	52 (33)	5 (3)	25 (16)	20 (13)	16 (10)	5 (3)	28 (18)	7 (4)	19 (12)	32 (20)	11 (7)	159 (100)
4	223 (60)	54 (14)	195 (52)	17 (5)	6 (2)	46 (12)	42 (11)	1 (0)	22 (6)	13 (3)	38 (10)	70 (19)	10 (3)	374 (100)
5	159 (66)	39 (16)	118 (49)	16 (7)	8 (3)	27 (11)	33 (14)	2 (1)	14 (6)	31 (13)	11 (5)	57 (24)	9 (4)	242 (100)
6	63 (80)	13 (16)	38 (48)	2 (3)	2 (3)	7 (9)	11 (14)	1 (1)	11 (14)	15 (19)	6 (8)	26 (33)	5 (6)	79 (100)
7	154 (89)	32 (18)	81 (47)	9 (5)	6 (3)	13 (8)	18 (10)	2 (1)	7 (4)	9 (5)	11 (6)	68 (39)	9 (5)	173 (100)
8	80 (76)	25 (24)	50 (48)	4 (4)	5 (5)	8 (8)	14 (13)	3 (3)	19 (18)	20 (19)	0	35 (33)	7 (7)	105 (100)
9	60 (75)	24 (30)	42 (53)	5 (6)	6 (8)	10 (13)	11 (14)	2 (3)	6 (8)	10 (13)	0	30 (38)	6 (8)	80 (100)
10	111 (71)	30 (19)	60 (38)	3 (2)	6 (4)	13 (8)	25 (16)	4 (3)	10 (6)	4 (3)	20 (13)	36 (23)	7 (4)	157 (100)
11	46 (46)	14 (14)	46 (46)	0	17 (17)	5 (5)	16 (16)	1 (1)	1 (1)	7 (7)	16 (16)	15 (15)	2 (2)	100 (100)
12	44 (60)	23 (32)	23 (32)	3 (4)	3 (4)	5 (7)	5 (7)	2 (3)	3 (4)	13 (18)	7 (10)	18 (25)	3 (4)	73 (100)
13	10 (37)	0	19 (70)	0	0	0	0	0	0	0	9 (33)	4 (15)	0	27 (100)
14	98 (62)	27 (17)	91 (58)	9 (6)	7 (4)	11 (7)	21 (13)	4 (3)	23 (15)	20 (13)	17 (11)	50 (32)	7 (4)	158 (100)
15	126 (82)	37 (24)	68 (44)	11 (7)	1 (1)	27 (18)	31 (20)	9 (6)	11 (7)	17 (11)	4 (3)	51 (33)	13 (8)	153 (100)
16	109 (69)	34 (22)	85 (54)	8 (5)	16 (10)	20 (13)	30 (19)	1 (1)	27 (17)	18 (11)	4 (3)	43 (27)	14 (9)	158 (100)
17	101 (70)	29 (20)	57 (39)	3 (2)	3 (2)	14 (10)	3 (2)	0	0	10 (7)	17 (12)	30 (21)	1 (1)	145 (100)
18	45 (54)	7 (8)	54 (64)	0	0	3 (4)	0	0	3 (4)	3 (4)	7 (8)	18 (21)	0	84 (100)
19	48 (74)	8 (12)	40 (62)	3 (5)	0	3 (5)	2 (3)	0	1 (2)	11 (17)	5 (8)	27 (42)	2 (3)	65 (100)
20	152 (75)	37 (18)	65 (32)	8 (4)	9 (4)	18 (9)	35 (17)	6 (3)	72 (35)	21 (10)	24 (12)	50 (25)	10 (5)	204 (100)
21	58 (73)	17 (21)	35 (44)	3 (4)	2 (3)	4 (5)	5 (6)	0	2 (3)	2 (3)	2 (3)	18 (23)	0	80 (100)
22	35 (67)	10 (19)	25 (48)	0	2 (4)	3 (6)	5 (10)	1 (2)	0	3 (6)	6 (12)	11 (21)	2 (4)	52 (100)
23	142 (60)	36 (15)	127 (54)	6 (3)	19 (8)	18 (8)	24 (10)	4 (2)	41 (17)	15 (6)	15 (6)	46 (19)	4 (2)	237 (100)

Survey Location	Walking	Cycling	Dog walking	Horse Riding	Playing games	Running	Mountain Biking	Orienteering	Eating Out	Birdwatching	Other	Walking & Dog walking	Cycling & Mnt Biking	TOTAL INTERVIEWS
24	28 (43)	9 (14)	46 (71)	10 (15)	5 (8)	5 (8)	9 (14)	1 (2)	3 (5)	2 (3)	2 (3)	16 (25)	4 (6)	65 (100)
25	60 (67)	14 (16)	77 (86)	1 (1)	10 (11)	2 (2)	12 (13)	0	10 (11)	11 (12)	4 (4)	48 (53)	9 (10)	90 (100)
26	105 (45)	58 (25)	93 (40)	5 (2)	5 (2)	23 (10)	34 (14)	3 (1)	10 (4)	21 (9)	10 (4)	22 (9)	5 (2)	235 (100)
27	67 (56)	29 (24)	57 (48)	8 (7)	3 (3)	25 (21)	30 (25)	4 (3)	5 (4)	11 (9)	6 (5)	26 (22)	4 (3)	120 (100)
28	64 (19)	28 (8)	28 (8)	0	1 (0)	12 (4)	299 (90)	4 (1)	3 (1)	3 (1)	7 (2)	12 (4)	11 (3)	334 (100)
29	142 (77)	16 (9)	147 (79)	14 (8)	3 (2)	14 (8)	8 (4)	0	14 (8)	18 (10)	13 (7)	109 (59)	2 (1)	185 (100)
30	45 (23)	1 (1)	145 (73)	4 (2)	0	6 (3)	4 (2)	1 (1)	8 (4)	10 (5)	13 (7)	8 (4)	0	198 (100)
TOTAL	2958 (62)	838 (17)	2141 (45)	165 (3)	291 (6)	399 (8)	882 (18)	65 (1)	390 (8)	348 (7)	387 (8)	1108 (23)	183 (4)	4809 (100)

3.17 The free text records for 'other' included a very wide range of different activities. Searching for individual words within the 387 'other' text entries revealed that 58 interviewees had given responses that included "photo" (i.e. "photography", "taking photos" etc.); 43 responses included "play" (e.g. "play area"); 33 responses included the word "picnic"; 24 responses included "go ape" and 21 responses included "fish".

Weekends and weekdays

3.18 More interviews were conducted on weekdays compared to weekends (2867 compared to 1942 interviews), however survey effort was nearly twice as high on weekdays compared to weekends, and combining data across all times of year, the visitor rate (interviews per hour of surveying) was higher at weekends compared to weekends. These visitor rates are summarised in Table 4.

3.19 Survey effort was much more balanced between weekends and weekdays for the autumn/winter period and the spring/summer period, and during these times the differentiation between the type of day is perhaps more important as people are more likely not to be at work during the Christmas, Easter and school holiday periods. We therefore repeat Table 4, this time using data from autumn/winter and spring/summer only (Table 5). It can be seen that the visit rates and ratios are broadly similar in the two tables. It is apparent that all activities take place both at weekends and weekdays, but it would appear that cycling and mountain biking are particularly orientated towards weekends. Those who visited Cannock Chase to eat out tended to be interviewed much more in the weekday compared to the weekend. There was a significant association between day and activity, as shown in the data in Table 5 (χ^2_{10}=42.078, p<0.001).

Table 4: Numbers of interviews by day (weekend or weekday). All times of year included. The visitor rate is the number of interviews per hour and the ratio is the weekday rate/weekend rate (i.e. values of 1 indicate similar rates, values below 1 indicate higher visitor rates at weekend compared to weekdays).

	Number of interviews		Visitor Rate		
	weekday	weekend	weekday	weekend	Ratio
survey effort			937.3 hours	492.2 hours	
Walking	1808	1150	1.9	2.3	0.8
Cycling	473	365	0.5	0.7	0.7
Dog Walking	1293	848	1.4	1.7	0.8
Horse Riding	98	67	0.1	0.1	1
Playing Games	196	95	0.2	0.2	1
Running	239	160	0.3	0.3	1
Mountain Biking	518	364	0.6	0.7	0.9
Orienteering	34	31	0	0.1	0
Eating Out	253	137	0.3	0.3	1
Birdwatching	232	116	0.2	0.2	1
Other	230	157	0.2	0.3	0.7
All visitors	**2867**	**1942**	**3.1**	**3.9**	**0.8**

Table 5: Numbers of interviews by day (weekend or weekday). Autumn/winter and Spring/summer only. The visitor rate is the number of interviews per hour and the ratio is the weekday rate/weekend rate (i.e. values of 1 indicate similar rates, values below 1 indicate higher visitor rates at weekend compared to weekdays).

	weekday	weekend	weekday	weekend	Ratio
survey effort			380.7 hours	373.2 hours	
Walking	698	890	1.8	2.4	0.8
Cycling	156	268	0.4	0.7	0.6
Dog Walking	584	690	1.5	1.8	0.8
Horse Riding	39	54	0.1	0.1	1
Playing Games	68	59	0.2	0.2	1
Running	88	129	0.2	0.3	0.7
Mountain Biking	179	314	0.5	0.8	0.6
Orienteering	14	27	0	0.1	0
Eating Out	112	91	0.3	0.2	1.5
Birdwatching	85	93	0.2	0.2	1
Other	88	130	0.2	0.3	0.7
All visitors	**1165**	**1531**	**3.1**	**4.1**	**0.8**

3.20 Visitor rates (i.e. interviews per hour) are summarised by day and time of year in Table 6. For all visitors, cycling and walking the highest visit rates were recording from Easter weekends, but given the low level of survey effort (just five locations were surveyed, with a total of 18.5 survey hours[4]) some caution is perhaps required. Weekends during the autumn/winter also tended to have fairly high visitor rates, and the rate for dog walking was highest at this time of year.

[4] See Appendix 2 for more details and a breakdown of survey effort by site

Table 6: Visitor rates (interviews per hour) by season and day. All survey locations. Dark grey cells highlight the highest values in each column.

	Time of year	Survey Effort	all visitors	Walking	Cycling	Dog Walking	Horse Riding	Playing Games	Running	Mountain Biking	Orienteering	Eating Out	Birdwatching	Other
weekday	Autumn/winter	191.9 hours	3.7	2.5	0.6	1.9	0.1	0.2	0.3	0.5	0.1	0.4	0.3	0.2
	Christmas	113.0 hours	3.5	2.2	0.7	1.6	0.2	0.1	0.4	0.8	0.1	0.2	0.3	0.2
	Easter	246.0 hours	3.1	2.1	0.6	1.3	0.1	0.3	0.3	0.6	0	0.3	0.3	0.2
	Spring/Summer	188.7 hours	2.4	1.2	0.2	1.1	0.1	0.1	0.2	0.5	0	0.2	0.1	0.2
	Summer holidays	197.6 hours	2.8	1.7	0.5	1	0.1	0.2	0.2	0.6	0	0.2	0.1	0.3
weekend	Autumn/winter	195.4 hours	4.2	2.5	0.8	2.1	0.1	0.1	0.3	0.6	0.1	0.1	0.3	0.3
	Christmas	39.5 hours	3.8	2.5	0.8	1.4	0.1	0.3	0.2	0.5	0.1	0.3	0.2	0.1
	Easter	18.5 hours	4.6	2.9	1.5	1.6	0.2	0.7	0.5	0.4	0.1	0.9	0.2	0.4
	Spring/Summer	177.8 hours	4	2.2	0.6	1.6	0.2	0.2	0.4	1.1	0.1	0.4	0.2	0.4
	Summer holidays	61.0 hours	2.8	1.8	0.7	1.2	0.1	0.2	0.2	0.4	0	0.3	0.2	0.3

Frequency of visit

3.21 The frequency with which interviewees stated that they visited Cannock Chase is given in Table 7. Just over a quarter of questionnaires were "other", i.e. it was the respondents first visit or their visiting pattern did not fit into the categories, whether because they visited in the "school holidays", "every weekend" or "every couple of months". This relatively high proportion of "other" means that the frequency data should be interpreted with caution. It seems that nearly one third of respondents visited "every week" and that this was the most common response. This was the case with all activities except dog walking and horse riding (where the highest proportion of users visited "every day") and Playing Games, where the highest proportion of users visited "once a month".

Table 7: Number(%) of interviewees by frequency and activity. Grey cells indicate the cell in each row with the highest percentage. Note that the first row (number of responses) is not the total of the cells below, but rather the total number of responses for the given frequency of visit, with many interviewees indicating that they undertook multiple activities.

	Unanswered (blank)	every day	every week	once a month	once a year	other	Grand Total
Number of responses	**34 (1)**	**1116 (23)**	**1479 (31)**	**760 (16)**	**144 (3)**	**1276 (27)**	**4809 (100)**
Walking	26 (1)	597 (20)	960 (32)	543 (18)	110 (4)	722 (24)	2958 (100)
Cycling	3 (0)	156 (19)	333 (40)	149 (18)	8 (1)	189 (23)	838 (100)
Dog Walking	11 (1)	862 (40)	607 (28)	217 (10)	33 (2)	411 (19)	2141 (100)
Horse Riding	(0)	61 (37)	46 (28)	20 (12)	2 (1)	36 (22)	165 (100)
Playing Games	2 (1)	37 (13)	87 (30)	93 (32)	14 (5)	58 (20)	291 (100)
Running	2 (1)	97 (24)	167 (42)	36 (9)	3 (1)	94 (24)	399 (100)
Mountain Biking	5 (1)	122 (14)	326 (37)	137 (16)	16 (2)	276 (31)	882 (100)
Orienteering	(0)	16 (25)	20 (31)	17 (26)	2 (3)	10 (15)	65 (100)
Eating out	4 (1)	53 (14)	137 (35)	88 (23)	19 (5)	89 (23)	390 (100)
Birdwatching	2 (1)	86 (25)	113 (32)	67 (19)	8 (2)	72 (21)	348 (100)

Length of time visiting Cannock Chase

3.22 Question four addressed how long interviewees have been visiting Cannock Chase, with the questionnaire design such that visitors that have only visited in the last five years can be identified from those that have been visiting for more than five years. There was also an additional question that asked whether the interviewee visits more now than in previous years.

3.23 Approximately one quarter (1160; 24%) of interviewees had only visited in the last five years. By contrast 3625 (75%) interviewees indicated that they had been visiting Cannock Chase for more than five years. There was marked variation between sites in the proportion of interviewees that indicated that they had been visiting only in the last five years (χ^2_{29}=443.63, p<0.001). Survey locations where there was a high percentage of people who had only been visiting in the last five years included location 28 Moors Gorse (55%), location 2 Birches Valley (48%) and location 10 Fair Oak Pools (40%). By contrast the proportion of interviewees that had been visiting only in the last five years was low at location 29 Gentleshaw Common (8%), location 15 Brook Lane Corner (9%), location 21 Oldacre Lane(11%) and location 3 Milford Common (12%).

3.24 Comparing between activities there were also significant differences in the proportion of interviewees who had only started visiting in the last five years (χ^2_9=203.38, p<0.001). The data are summarised in Table 8 and it can be seen that it is mountain biking that stands out as the activity with a markedly higher proportion of people who have recently started visiting the site. This could indicate that mountain biking is increasing in popularity at Cannock Chase.

Table 8: Interviewees visiting only in the last five years by activity

Activity	Number (%) of interviewees who have been visiting Cannock Chase only in the last five years	Total interviewees undertaking activity
Walking	565 (19)	2958
Cycling	185 (22)	838
Dog Walking	356 (17)	2141
Horse Riding	25 (15)	165
Playing Games	52 (18)	291
Running	69 (17)	399
Mountain Biking	325 (37)	882
Orienteering	9 (14)	65
Eating Out	56 (14)	390
Birdwatching	43 (12)	348

3.25 As part of question four, interviewees were asked if they visited more now than in previous years. Just over third of interviewees (1794, 37%) responded that they did not visit more now, while a roughly similar number (1692, 35%) responded that they were now visiting more. For the remainder (1323, 28%) no response was recorded. Responses by activity are summarised in Table 9. Mountain bikers were the activity type with the highest proportion (48%) of interviewees responding that they visit more now than in previous years, a further indication that mountain biking is increasing in popularity at Cannock Chase.

Table 9: Responses to the second part of question 4, "do you visit more now than in previous years?"; Numbers (%) by activity.

Activity	"No"	"Yes"	No. response recorded	Total interviewees undertaking activity
Walking	1092 (37)	1027 (35)	839	2958
Cycling	272 (32)	307 (37)	259	838
Dog Walking	867 (40)	738 (34)	536	2141
Horse Riding	63 (38)	57 (35)	45	165
Playing Games	81 (28)	122 (42)	88	291
Running	134 (34)	172 (43)	93	399
Mountain Biking	218 (25)	422 (48)	242	882
Orienteering	19 (29)	18 (28)	28	65
Eating Out	109 (28)	158 (41)	123	390
Birdwatching	126 (36)	128 (37)	94	348

Duration of Visit

3.26 The majority of visits were relatively short, with 4049 (84%) of questionnaires recording a duration of less than 3 hours. The most commonly recorded response was 1-2 hours, with 1533 (32%) questionnaires recording this category. Only 141 (3%) interviewees stated that they were visiting for the full day and 38 (1%) involved an overnight stay. Looking across activities, visits of 1-2 hour duration were the most common duration for most activities. Dog walkers were the only group where the highest proportion of visits were shorter than an hour, with 43% of interviews with people who came dog walking falling into the up to one hour category (Table 10). For those who indicated that they visited to play games, go mountain biking or go orienteering the highest proportion of visits were all greater than 2 hours.

Table 10: Duration of visit and activities. Table gives the number (%) by activity.

	Up to one hour	1-2 hours	2-3 hours	half day	full day	overnight	Unanswered (blank)	Total
All interviewees	**1397 (29)**	**1533 (32)**	**1119 (23)**	**559 (12)**	**141 (3)**	**38 (1)**	**22 (0)**	**4809 (100)**
Walking	769 (26)	1036 (35)	710 (24)	322 (11)	87 (3)	26 (1)	8 (0)	2958 (100)
Cycling	147 (18)	262 (31)	254 (30)	132 (16)	26 (3)	8 (1)	9 (1)	838 (100)
Dog Walking	894 (42)	785 (37)	330 (15)	93 (4)	22 (1)	14 (1)	3 (0)	2141 (100)
Horse Riding	34 (21)	60 (36)	43 (26)	21 (13)	6 (4)	1 (1)	(0)	165 (100)
Playing Games	47 (16)	83 (29)	119 (41)	34 (12)	7 (2)	1 (0)	(0)	291 (100)
Running	110 (28)	162 (41)	88 (22)	28 (7)	6 (2)	3 (1)	2 (1)	399 (100)
Mountain Biking	92 (10)	202 (23)	346 (39)	195 (22)	38 (4)	8 (1)	1 (0)	882 (100)
Orienteering	8 (12)	12 (18)	16 (25)	17 (26)	9 (14)	3 (5)	(0)	65 (100)
Eating out	74 (19)	124 (32)	118 (30)	55 (14)	14 (4)	4 (1)	1 (0)	390 (100)
Birdwatching	71 (20)	122 (35)	81 (23)	54 (16)	18 (5)	1 (0)	1 (0)	348 (100)

Group size

3.27 The actual number of people in each party was not recorded. Question 9 did ask about who the interviewee visited with, with the question being “when you visit Cannock Chase who do you come with?”. Seven options which could be recorded on the questionnaire were “alone”, “with family”, “with friends”, “with friends & family”, “with my dog”, “with my horse” and “in an organised party”. Multiple answers were recorded for many interviewees, so it is difficult to draw firm conclusions as to how many visits involve people on their own etc. The number of times each option was recorded are summarised in Table 11. It can be seen that around a quarter (24%) of interviewees visit (at least sometimes) on their own and over half (52%) visit (at least sometimes) with their family.

Table 11: Responses to question 9, addressing “who do you come with?”. Percentages are calculated from the total number of questionnaires (4809) rather than the number of responses to the question (there were multiple responses, resulting in 7717 responses from the 4809 questionnaires).

Group options (taken from question 9)	Number (%)
Alone	1144 (24)
With family	2510 (52)
With friends	1424 (30)

Group options (taken from question 9)	Number (%)
With family & friends	610 (13)
With my dog	1832 (38)
With my horse	96 (2)
In an organised party	101 (2)

3.28 The question wording is ambiguous in that it does not necessarily reflect the visit when interviewed, and the categories used are not clear. In 38 responses no response was recorded at all, in 2546 questionnaires one option was recorded and in the remaining 2225 questionnaires multiple responses (up to six) were selected. Reviewing the responses in more detail it was clear that there was some variation in how the surveyors had recorded information as, for example, some questionnaires simply ticked one option – "with my dog", potentially implying the person visited on their own, with their dog. However there were also instances where boxes on the same questionnaire were ticked both for "alone" and "with my dog", in which case it is not clear whether this is different from the questionnaires where "with my dog" was ticked on its own.

3.29 We filtered the data to extract all cases where there was just one response and used this data. In addition:

- Where 2 options were ticked and these options were "alone" and "with my dog" (162 instances) we treated these as if only "with my dog" had been ticked.
- Where 2 options were ticked and these options were "with family" and "with friends" (280 instances) we treated these as if only "with friends and family" had been ticked.
- Where three options had been ticked and these three were "with family", "with friends" and "with friends and family" (22 instances) we treated these as if only "with friends and family" had been ticked.

3.30 Using the above filtering resulted in 1799 (37%) questionnaires with multiple options selected which are therefore difficult to summarise. Of the remaining questionnaires, 362 (38% of all questionnaires) involved people visiting alone and visiting in a group (either with friends, with family or with friends and family) was recorded for 2054 (43%) of questionnaires (Table 12). Looking across activities (see Table 12) there is still some ambiguity as 3% of people who stated that they visit the site to walk their dog visited alone and a further 24% visited with their dog. Similarly 2% of people who stated that they came to the site to ride a horse came on their own and a further 4% came with a horse. Within Table 12 orienteering and mountain biking are of interest as it appears that at least a high proportion of people undertaking these activities do so as part of a group of friends.

Table 12: Types of group derived from question 9, showing number (%) of questionnaires for each category of group and by activity. See accompanying text for explanation as to how data are summarised. Grey shading indicates the single option with the highest percentage in each row.

	Single option recorded (or possible to assign to single category)							Multiple options selected	Total
	alone	with friends	with family	family & friends	organised party	with dog	with horse		
All questionnaires	**362 (8)**	**520 (11)**	**980 (20)**	**554 (12)**	**45 (1)**	**543 (11)**	**6 (0)**	**1799 (37)**	**4809 (100)**
Walking	191 (6)	237 (8)	795 (27)	412 (14)	33 (1)	155 (5)	(0)	1135 (38)	2958 (100)
Cycling	64 (8)	119 (14)	148 (18)	118 (14)	6 (1)	27 (3)	(0)	356 (42)	838 (100)
Dog Walking	56 (3)	41 (2)	148 (7)	101 (5)	2 (0)	512 (24)	(0)	1281 (60)	2141 (100)
Horse Riding	3 (2)	11 (7)	16 (10)	8 (5)	1 (1)	4 (2)	6 (4)	116 (70)	165 (100)
Playing Games	4 (1)	17 (6)	102 (35)	72 (25)	2 (1)	1 (0)	(0)	93 (32)	291 (100)
Running	39 (10)	40 (10)	41 (10)	38 (10)	4 (1)	35 (9)	(0)	202 (51)	399 (100)
Mountain Biking	86 (10)	204 (23)	101 (11)	170 (19)	4 (0)	20 (2)	(0)	297 (34)	882 (100)
Orienteering	4 (6)	8 (12)	4 (6)	4 (6)	4 (6)	6 (9)	(0)	35 (54)	65 (100)
Eating out	11 (3)	28 (7)	92 (24)	72 (18)	3 (1)	9 (2)	(0)	175 (45)	390 (100)
Birdwatching	23 (7)	27 (8)	73 (21)	50 (14)	4 (1)	21 (6)	(0)	150 (43)	348 (100)

Time of Day

3.33 The time of day that people tended to visit was captured in question 7, with the day split into a number of short blocks of time, in addition there was an option "time varies". There were ten questionnaires where respondents had recorded multiple time periods, and these were re-coded as "time varies". For 17 questionnaires no response was recorded.

3.34 The majority of interviewees (2846 questionnaires, 59% of responses) indicated that they tended to vary the time visited. Where a time period was given it was the mid morning period that appeared to be busiest (900 questionnaires, 19% tending to visit at this time only). There were significant differences between people interviewed on weekends and weekdays in the proportion tending to visit at particular times of day (χ^2_5=13.335; p=0.02). The differences were mainly in the "time varies" category, with a lower proportion of those interviewed at weekends giving this option. A higher proportion of those interviewed on weekdays tended to visit in the pre 9am period and at weekends a higher proportion of interviewees tending to visit in the 12-3 time period.

3.35 Data are summarised by activity in Table 13. There appears to be relatively little variation between activity types, with "time varies" being the most frequently cited response for all activities and of the specific time periods the 9am-12noon period consistently has the highest proportion of users.

Table 13: Times interviewees tended to visit by activity. Table gives the number (%) by activity.

	before 9	9am-12	12-3pm	3-5pm	after 5pm	time varies	blank	Grand Total
all questionnaires	**331 (7)**	**900 (19)**	**415 (9)**	**177 (4)**	**123 (3)**	**2846 (59)**	**17 (0)**	**4809 (100)**
Walking	165 (6)	515 (17)	269 (9)	110 (4)	64 (2)	1826 (62)	9 (0)	2958 (100)
Cycling	59 (7)	133 (16)	48 (6)	28 (3)	25 (3)	538 (64)	7 (1)	838 (100)
Dog Walking	184 (9)	356 (17)	165 (8)	76 (4)	54 (3)	1303 (61)	3 (0)	2141 (100)
Horse Riding	11 (7)	29 (18)	10 (6)	(0)	2 (1)	112 (68)	1 (1)	165 (100)
Playing Games	5 (2)	37 (13)	25 (9)	13 (4)	6 (2)	204 (70)	1 (0)	291 (100)
Running	22 (6)	63 (16)	11 (3)	8 (2)	19 (5)	275 (69)	1 (0)	399 (100)
Mountain Biking	36 (4)	175 (20)	48 (5)	21 (2)	23 (3)	577 (65)	2 (0)	882 (100)
Orienteering	3 (5)	10 (15)	3 (5)	1 (2)	2 (3)	46 (71)	(0)	65 (100)
Eating out	5 (1)	66 (17)	46 (12)	7 (2)	5 (1)	261 (67)	(0)	390 (100)
Birdwatching	23 (7)	60 (17)	26 (7)	13 (4)	6 (2)	220 (63)	(0)	348 (100)

3.36 Looking across sites (Figure 4) it can be seen that location 17 (Brocton Coppice) draws the highest proportion of visitors before 9am of any site. By contrast there were no interviewees at location 13 (Hazelslade) who tended to visit before 9am and at this location a particularly high proportion of visitors appear to vary the times they visit.

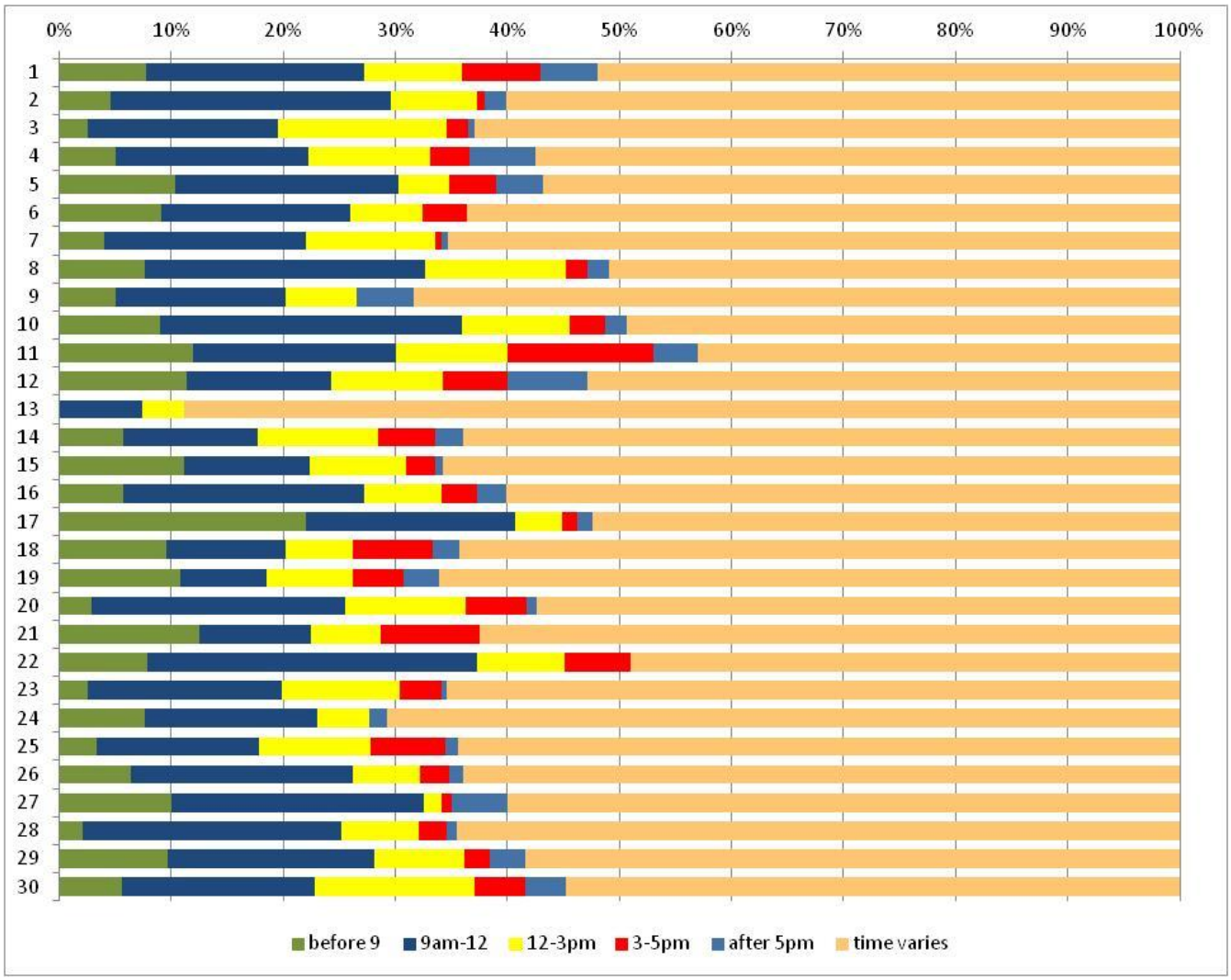

Figure 4: Percentage of visitors tending to visit during particular time locations, by location

Mode of Transport to Cannock Chase

3.37 Question eight asked how interviewees travel to Cannock Chase. Some (391 interviewees, 8%) respondents indicated that they travelled by more than one mode of transport, with up to five different transport modes being recorded for some individuals. While it is clearly possible for people to travel to the site by different means on different days, these multiple responses mean it is difficult to calculate the proportion of visits to the site made by different modes of transport.

3.38 By far the majority of interviewees stated that they came by car, with 85% of interviewees indicating that they travelled to Cannock Chase by car (Table 14). In terms of numbers of car-borne visitors, the first survey point (Marquis Drive) is the location with the highest number of interviewees who stated travelled by car. Survey points 13 (Hazel Slade Nature Reserve, outside the SAC), 15 (Brook Lane Corner) and 24 (West Cannock Farm) are notable in that a small proportion of people appear to travel by car; at these three sites a larger percentage of people indicated that they walked to the site. Together driving and walking were cited as modes of transport used by 98% of respondents, indicating that these two modes of transport predominate.

Table 14: Number (%) of interviewees and mode of transport at different survey locations. Some interviewees gave multiple responses (i.e. stated that they came by more than one mode of transport). The table therefore gives total responses at each site and the number of interviews at each site. Percentages are calculated for each row using the no. of interviews at each site, and the sum of percentages within each row is therefore greater than 100. Grey shading indicates the cell with the highest percentage for each row.

Site	Car	Walk	Cycle	Horse	Run	Motor cycle	Public transport	Total responses	No. Interviews at site
1	385 (93)	33 (8)	34 (8)	2 (0)	6 (1)	5 (1)	2 (0)	467	413
2	259 (98)	5 (2)	3 (1)	(0)	(0)	(0)	(0)	267	264
3	140 (88)	20 (13)	16 (10)	(0)	7 (4)	(0)	(0)	183	159
4	283 (76)	111 (30)	29 (8)	13 (3)	3 (1)	1 (0)	3 (1)	443	374
5	220 (91)	21 (9)	14 (6)	5 (2)	2 (1)	1 (0)	2 (1)	265	242
6	78 (99)	4 (5)	2 (3)	1 (1)	1 (1)	(0)	(0)	86	79
7	161 (93)	21 (12)	6 (3)	3 (2)	1 (1)	1 (1)	1 (1)	194	173
8	93 (89)	12 (11)	9 (9)	1 (1)	2 (2)	1 (1)	1 (1)	119	105
9	72 (90)	7 (9)	7 (9)	3 (4)	1 (1)	(0)	(0)	90	80
10	130 (83)	22 (14)	8 (5)	2 (1)	1 (1)	(0)	(0)	163	157
11	86 (86)	7 (7)	8 (8)	(0)	(0)	1 (1)	(0)	102	100
12	50 (68)	3 (4)	2 (3)	1 (1)	(0)	(0)	(0)	56	73
13	4 (15)	24 (89)	(0)	(0)	(0)	1 (4)	(0)	29	27
14	150 (95)	8 (5)	13 (8)	1 (1)	1 (1)	1 (1)	(0)	174	158
15	50 (33)	87 (57)	14 (9)	8 (5)	5 (3)	(0)	1 (1)	165	153
16	138 (87)	17 (11)	16 (10)	1 (1)	3 (2)	(0)	2 (1)	177	158
17	119 (82)	16 (11)	13 (9)	(0)	2 (1)	(0)	2 (1)	152	145
18	82 (98)	(0)	2 (2)	(0)	(0)	1 (1)	(0)	85	84
19	59 (91)	8 (12)	(0)	3 (5)	(0)	(0)	1 (2)	71	65
20	189 (93)	17 (8)	8 (4)	2 (1)	5 (2)	4 (2)	1 (0)	226	204
21	48 (60)	25 (31)	6 (8)	(0)	2 (3)	1 (1)	(0)	82	80
22	46 (88)	5 (10)	2 (4)	(0)	1 (2)	(0)	(0)	54	52
23	217 (92)	9 (4)	11 (5)	1 (0)	(0)	(0)	1 (0)	239	237
24	17 (26)	47 (72)	6 (9)	2 (3)	(0)	(0)	1 (2)	73	65
25	82 (91)	7 (8)	5 (6)	(0)	(0)	(0)	(0)	94	90
26	220 (94)	7 (3)	7 (3)	(0)	2 (1)	1 (0)	(0)	237	235
27	93 (78)	17 (14)	19 (16)	3 (3)	7 (6)	1 (1)	(0)	140	120
28	299 (90)	6 (2)	43 (13)	(0)	1 (0)	(0)	3 (1)	352	334
29	130 (70)	65 (35)	5 (3)	10 (5)	(0)	(0)	1 (1)	211	185
30	183 (92)	10 (5)	2 (1)	3 (2)	(0)	2 (1)	(0)	200	198
Total	**4083 (85)**	**641 (13)**	**310 (6)**	**65 (1)**	**53 (1)**	**22 (0)**	**22 (0)**	**5196**	**4809**

Reasons for choosing to visit Cannock Chase

3.39 Question 10 recorded information relating to why interviewees specifically chose to visit the location where interviewed. The questionnaire included a series of different tick boxes and multiple selections were possible. The different options are shown in which also shows the percentage of questionnaires where the given option was recorded.

Attractive scenery was the most commonly recorded option, with 63% of visitors citing this as a reason to in their choice of location.

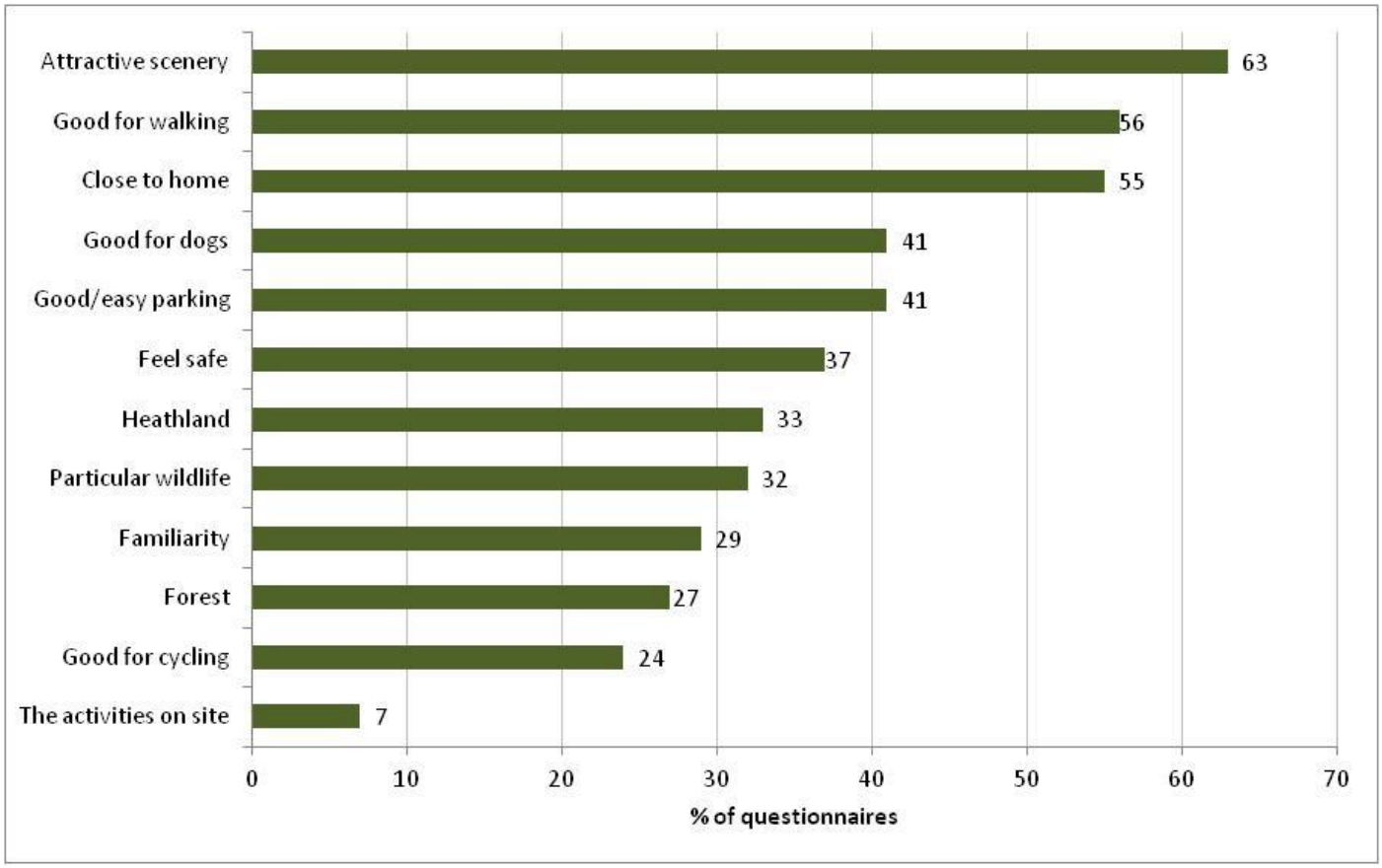

Figure 5: Summary of responses to question 10. Percentage of questionnaires and different reasons for visiting. Labels give percentages.

3.40 There were 666 free text entries relating to question 10. These entries were searched for a number of key words which were selected based on a visual check of the data and words which seemed frequently used. The following free words were used (numbers in brackets indicate number of different questionnaires the words or text string occurred in): ''1st visit'' (5), ''café'' (32), ''children'' (23), ''deer'' (4), ''exercise'' (10), ''family'' (8), ''fishing'' (13), ''Go Ape'' (11), ''histor[5]'' (24), ''kids'' (2), ''military'' (6), ''motorway'' (1), ''nature'' (2), ''peace'' (41), ''photo'' (8), ''quiet'' (72), ''RAF'' (1), ''sledging'' (4), ''toilet'' (6), ''track'' (3), ''trail'' (12), ''training'' (6), ''wildlife'' (3).

Other sites visited

3.41 Question 11 asked whether there were any other areas in and around Cannock Chase that the interviewee visited. The responses were free text. In order to summarise the different responses given, searches for particular words were undertaken. The following words or responses were included within the search (which was not case sensitive): “No” (i.e. no other sites); blank (i.e. no answer recorded); “Marquis”; “Brindley”, “Chase”; “Seven”; “Brocton”, “Stepping”, “Birches” and “Milford”. The selected words were ones

[5] i.e. this text string will identify those visitors who mentioned “historical interest” or “history”

which clearly indicated other sites visited within the general area. Data are summarised in, which compares the responses for sites within the SAC and outside the SAC. This allows us to check the extent to which those using other parts of the AONB (where interviews were conducted) do also visit the SAC. It can be seen that there is relatively little difference between the two groups. For example at the survey points outside the SAC, 42% of interviewees answered "No", indicating that they did not tend to visit any other sites. For those people interviewed at survey points inside the SAC, 42% indicated that they did not tend to visit other sites.

Table 15: Responses to the free text question 11 relating to other locations visited. Table gives number (%) of questionnaires where the interviewee stated "No" (i.e. no other sites visited); where the field was left blank or where the free text response contained specific words (which describe locations visited).

	All sites	Sites outside SPA	Sites inside/adjacent to SPA
Number of Questionnaires	4809	784	4025
"No"	2216 (46)	327 (42)	1889 (47)
blank	737 (15)	64 (8)	673 (17)
Specific words relating to sites			
Marquis	426 (9)	117 (15)	309 (8)
Brindley	105 (2)	24 (3)	81 (2)
Chase	1091 (23)	155 (20)	936 (23)
Seven	239 (5)	35 (4)	204 (5)
Brocton	229 (5)	32 (4)	197 (5)
Stepping	92 (2)	9 (1)	83 (2)
Birches	484 (10)	106 (14)	378 (9)
Milford	338 (7)	54 (7)	284 (7)

Visitor Origins: Home Postcodes

3.42 3206 of the postcodes were geocoded, enabling two-thirds (67%) of interviews to be georeferenced to a full home postcode. Of the remaining data there were 31 cases where the interviewee refused to give any information. In a further nine cases a town or other text was given, for example "local campsite", "Dublin" or "Manchester". At least three of these nine involved very local residents as they stated "Brocton". These nine text cases were treated as blanks and no attempt was made to manually assign a home location. The remainder of the interviews involved either a postcode that could not be geocoded or a part postcode, such as the stem.

3.43 Looking across all the data, including those interviews for which a full, valid postcode was given, there were 388 postcode stems, of which 220 occurred only once. There were 45 postcode stems that were given in at least ten interviews. These are listed in Table 16. The table gives the number of interviewees from each postcode stem and the number that gave their full home postcode. WS12 and ST17 were the two most commonly given stems, each being given in over 600 interviews (therefore each accounting for around 13% of the visitors interviewed). For each postcode stem given in Table 16 we summarise the

number of cases that the full postcode was given and the number that only the stem was given. For a few postcode stems (the first 9 rows in the table) a high proportion (at least 50%) involved only the stem, potentially indicating that residents of these postcodes were particularly reluctant to diverge their full home postcode.

Table 16: Postcode stems given in ten or more interviews

Postcode stem	Total number of times given	Whole Postcode Given	Only stem given	% where only stem given
WV7	11	0	11	100
WV1	13	1	12	92
DE14	11	3	8	73
ST1	10	3	7	70
WS1	19	7	12	63
WV9	16	6	10	63
ST10	10	4	6	60
ST21	10	4	6	60
ST16	223	104	119	53
WV11	47	25	22	47
B79	17	9	8	47
B74	22	12	10	45
B46	11	6	5	45
ST5	19	11	8	42
WV12	36	22	14	39
ST19	110	68	42	38
WS8	24	15	9	38
ST15	46	29	17	37
WS2	19	12	7	37
WV3	22	14	8	36
WV13	14	9	5	36
WS11	461	299	162	35
DE13	29	19	10	34
ST14	24	16	8	33
WS12	615	419	196	32
WS3	69	47	22	32
WV10	61	43	18	30
WS9	44	31	13	30
DE11	10	7	3	30
WS13	68	48	20	29
WS6	66	47	19	29
ST20	21	15	6	29
B77	17	12	5	29
WV8	17	12	5	29
ST3	14	10	4	29
WV6	41	30	11	27
WS14	54	40	14	26
ST17	618	465	153	25
WS15	459	346	113	25
ST18	231	176	55	24
WS4	33	25	8	24
ST4	15	12	3	20
TF2	10	8	2	20

Postcode stem	Total number of times given	Whole Postcode Given	Only stem given	% where only stem given
WS7	365	296	69	19
B75	17	14	3	18

3.44 The home postcodes of interviewees (the 3206 valid, full postcodes) are shown in Map 6 (whole country) and then a subset (focusing on the area around Cannock Chase) in Map 7. It can be seen that Cannock Chase draws people from all over the country, but the majority of home postcodes mapped fall broadly between Stoke-on-Trent in the north down to the north side of Birmingham and then between Telford in the west across to Tamworth in the east.

Visitor Origins: Distance from home postcode to Cannock Chase

3.45 For each valid postcode the distance to the nearest point on the SAC boundary was calculated and also the distance from the postcode to the point where the interview was conducted. These distances do not therefore reflect the actual distance travelled, but the straight-line distance (Euclidean distance) – "as the crow flies". The two measures – distance to survey point and distance to edge of SAC – were both strongly correlated (using only those survey points that relate to the SAC; Pearson Correlation Coefficient = 0.998, $p<0.001$). Taking the distance measures for all valid postcodes for people visiting the SAC survey points, the median value for the ratio of the two distance measurements (i.e. distance from postcode to survey point/distance from postcode to SAC boundary) was 1.33. In other words, the distance measurement generated using the distance to the survey point was typically 1.33 times that of the distance to the SAC boundary.

3.46 The distances are summarised in Table 17. It can be seen that half of all visitors live within 6.24km of the point where interviewed and that 75% (i.e. the third quartile) of interviews were with people who lived within a radius of 15.13km from the survey point.

Table 17: Summary statistics for the distance from the home postcode of interviewees to the location where interviewed and the edge of the SAC. In order to calculate the distance to the nearest part of the SAC, only those postcodes relating to SAC survey points are included, hence the lower sample size.

Distance measurement	Number of postcodes	Distance (km)					
		Mean (+SE)	Minimum	First quartile	Median	Third Quartile	Maximum
Postcode to survey location	3206	14.75 (0.51)	0.07	3.25	6.24	15.13	375.95
Postcode to nearest part of SAC boundary	2560	14.53 (0.61)	0.00	2.31	4.99	14.23	370.69

Visitor Origins by Sub Area and Distance

3.48 Home postcodes in relation to local authority sub-areas are shown in Map 8. Just under 90% of the home postcodes generated within the survey fell within the local authority subareas (with the remaining 10% of visitors coming from further afield). Using the GIS data provided by the stakeholder local authorities we have summarised the total number of postcodes within each local authority in Table 18 and Table 19. In Table 18 we summarise simply by local authority and in Table 19 by sub-area. The data in the two

tables is however the same. The highest number of postcodes fell within Cannock Chase District (Table 18). Looking at individual sub-areas, Stafford Borough (East), with nearly 23% of all postcodes, contained the most interviewee postcodes. Taking into account the volume of housing within each sub-area, it appears the Cannock Chase (Central) is the district where the highest proportion of residents were interviewed. Other sub areas with high proportions of people interviewed (in relation to the number of houses) were Lichfield District (Burntwood) and South Staffordshire (North).

Table 18: Total number of interviews with home postcodes within different local authority areas. The percentage is based on the total number of interviews (i.e. 3206), i.e. 374 (11.7%) of interviews were outside the local authority areas.

Local Authority	Number of interviewee postcodes	%
Cannock Chase	913	28.5
Stafford Borough	779	24.3
Lichfield District	460	14.3
South Staffordshire	276	8.6
Walsall	170	5.3
Wolverhampton	93	2.9
Birmingham	70	1.3
East Staffordshire	42	2.2
Dudley	15	0.5
Sandwell	14	0.4
Total	**2832**	**88.3**

Table 19: Number of postcodes by Local Authority sub-area. Percentages are calculated using the total number of valid postcodes generated by the survey. Total number of residential properties is extracted from postcode data. The Index is the number of postcodes divided by the number of residential properties (and then multiplied by 1000 for ease of interpretation). The higher the value of this column, the greater the proportion of households from that sub-area were interviewed. The table ranks subareas according to the number of postcodes in each

Authority	Area	Number of interviewee postcodes	%	Total Number Residential Properties	Index
Stafford Borough	East	735	22.9	54853	13.4
Cannock Chase	Central	706	22	27668	25.5
Lichfield District	Burntwood	296	9.2	12644	23.4
Cannock Chase	North	175	5.5	10399	16.8
South Staffordshire	North	149	4.6	6774	22
Walsall	Walsall North	121	3.8	57502	2.1
South Staffordshire	North East	86	2.7	11933	7.2
Lichfield District	Rural North	77	2.4	6877	11.2
Lichfield District	Lichfield City	65	2	14339	4.5
Wolverhampton	Wolverhampton N	50	1.6	37052	1.3
Stafford Borough	West	44	1.4	8964	4.9
Birmingham City	Birmingham	38	1.2	422105	0.1
Walsall	Walsall East	33	1	24302	1.4
Wolverhampton	Wolverhampton W	33	1	26260	1.3
Birmingham	Sutton Coldfield	32	1	39684	0.8
Cannock Chase	South	32	1	3217	9.9
East Staffordshire	Central	25	0.8	9120	2.7
South Staffordshire	Central	23	0.7	11110	2.1
Lichfield District	Rural South	22	0.7	6786	3.2
East Staffordshire	South	17	0.5	36598	0.5
Walsall	Walsall West	16	0.5	28040	0.6
South Staffordshire	North West	12	0.4	4762	2.5
Sandwell	North region	11	0.3	64598	0.2
Dudley	Dudley North	10	0.3	39273	0.3
Wolverhampton	Wolverhampton E	10	0.3	41586	0.2
South Staffordshire	South	6	0.2	12634	0.5
Dudley	Dudley South	5	0.2	94481	0.1
Sandwell	South region	3	0.1	62660	0
Cannock Chase	Extra	0	0	34	0
East Staffordshire	North	0	0	2467	0
Total		**2832**	**88.3**	**1,178,722**	2.4
Outside Sub Areas		374	11.7		
Combined Total		**3206**	**100**		

3.49 The volume of housing at different distance bands from the SAC boundary are shown in Figure 6. The bands are 500m wide and each successive band is larger in area, and therefore the volume of housing per band tends to increase with distance, with some marked fluctuations reflecting major settlements. In particular it can be seen that there are relatively few houses in the bands between 8 and 10km from the SAC. A similar plot but this time showing the number of interviewee postcodes per band is shown in Figure 7, and the same dip around 8-10km is apparent.

3.50 We calculated comparative rates of visit per house per band by dividing the number of interviewee postcodes generated in the survey within each distance band by the number of residential properties within each band. A plot of these rates (Figure 8) suggests that visit rates decline with distance away from the SAC boundary and that, per house, the number of visits appears to reach a low and consistent level somewhere between 10 and 15km from the SAC.

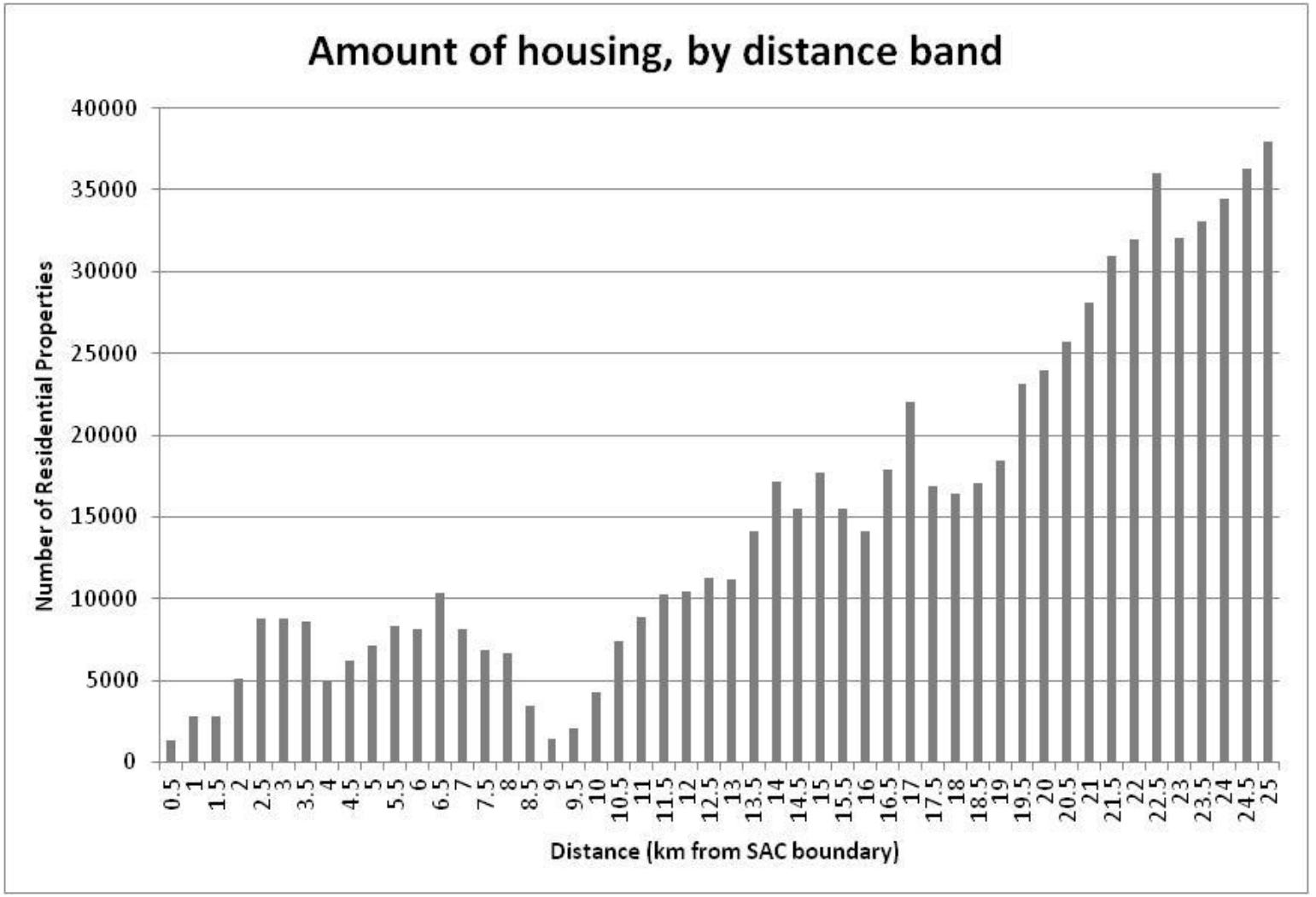

Figure 6: Number of houses at different distance bands from the SAC boundary

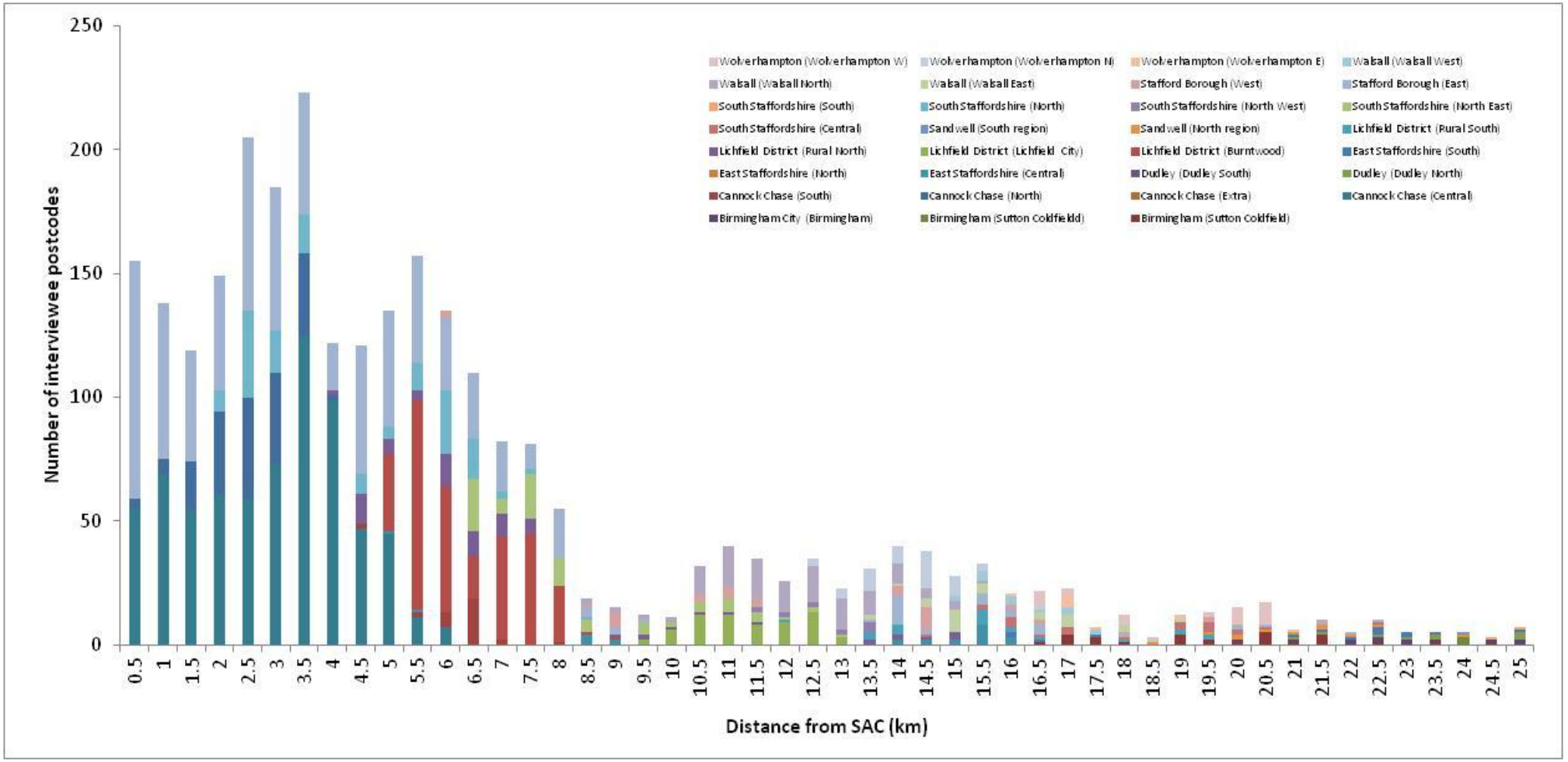

Figure 7: Number of interviewee postcodes by distance band, coloured to reflect sub-areas

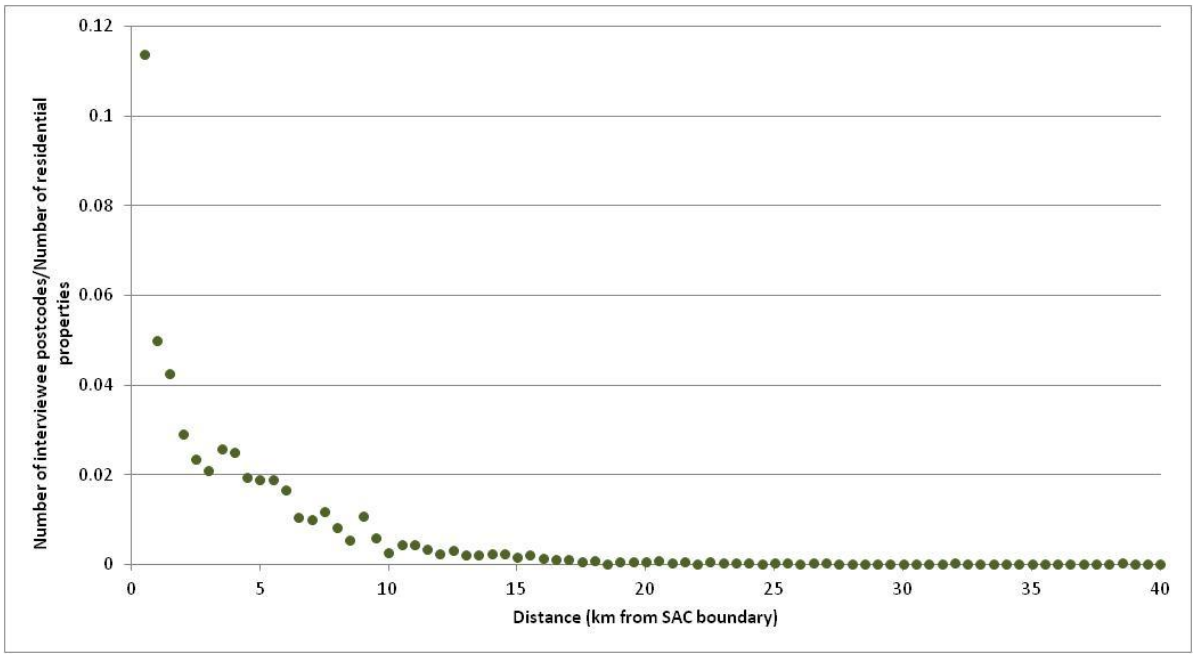

Figure 8: Comparative visit rates by distance. Rates are calculated by dividing the number of interviewee postcodes within each band by the total number of residential properties.

3.51 Map 9 shows the distribution of visitor postcodes (the scale and area shown is the same as Map 8), with the postcodes shaded to highlight the survey point at which the interview was conducted (access points are listed in the map legend by number, these numbers cross-reference to Appendix 2). It can be seen that there is considerable overlap in the colours, with little clear evidence that people tend to travel to their nearest survey point. However, Seven Springs (point 5, yellow dots on Map 9), appears to be a favoured destination for people living in Great and Little Haywood. Castle Ring (site 4, dark pink dots on Map 9) appears to be favoured by residents in Cannock Wood.

3.52 Looking more closely at the distances travelled by the people interviewed at each survey point (Figure 9), locations 4 (Castle Ring),13 (Hazel Slade Nature Reserve), 15 (Brook Lane Corner), 24 (West Cannock Farm),25 (Duffields), 29 (Gentleshaw Common) and 30 (Shoal Hill Cocksparrow Lane Car Park) particularly seem to draw people who live very close to the site, with the median distance from postcode to survey point for all these sites less than 5km. By contrast, locations 2 (Birches Valley) and location 28 (Moors Gorse) clearly draw people from a wide catchment (median distances 19.5km and 31.1km respectively).

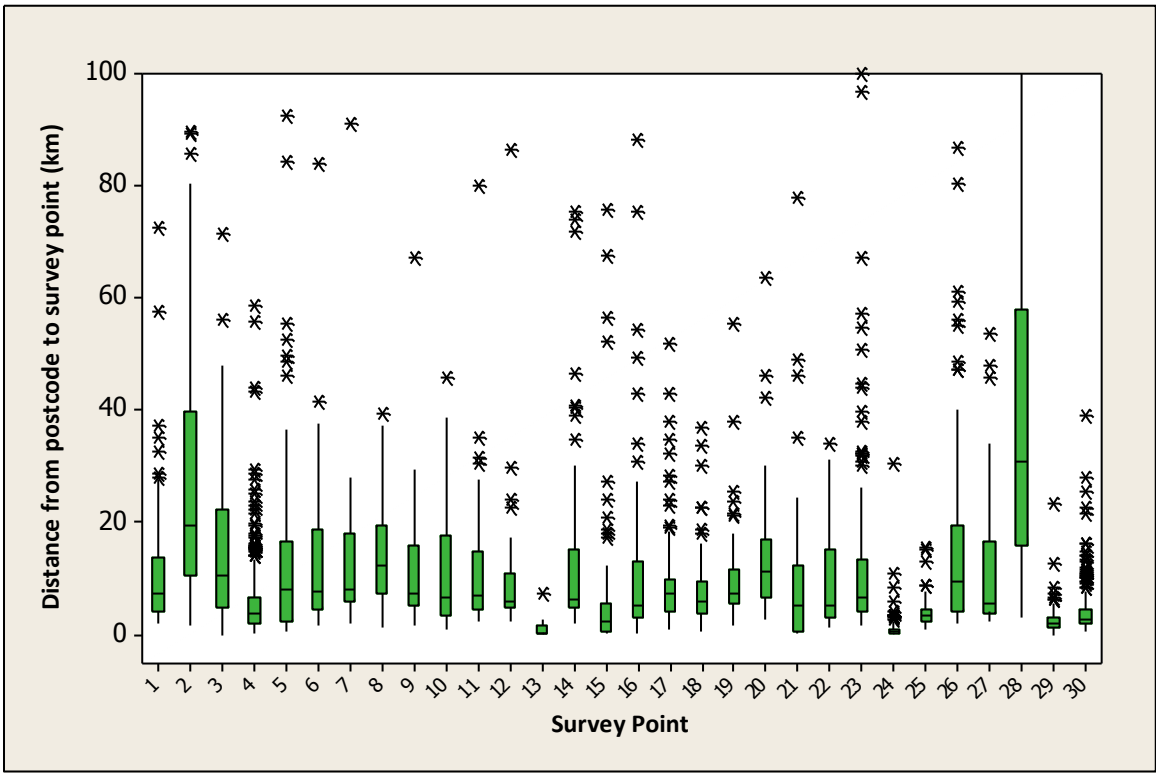

Figure 9: Boxplot showing distances from home postcode to survey point, by survey point

Visitor Origins and activities undertaken

3.53 Comparing the data from those people who gave valid postcodes and those who did not, there were significant differences in the proportions of people undertaking different activities ($\chi 29=108.35$, $p<0.001$). Particular activity types where the proportions appeared different were mountain biking and orienteering, for both these activities the proportion of users giving valid postcodes was low compared to the other activities in the survey.

3.54 The distances from home postcode to Cannock Chase are compared by activity in Figure 10 and Figure 11 and summarised in Table 5. Mountain bikers stand out in that they tend to live much further away than those people who stated they undertook other activities, even when simply comparing mountain bikers (median distance from postcode to survey point = 11.20km) to cyclists (median distance from postcode to survey point = 6.70km; Mann-Whitney W = 263532; $p<0.001$). Dog walkers (median distance from postcode to survey point = 4.29km) and those who said they came running (median distance from postcode to survey point = 4.62km) tended to live closest to Cannock Chase.

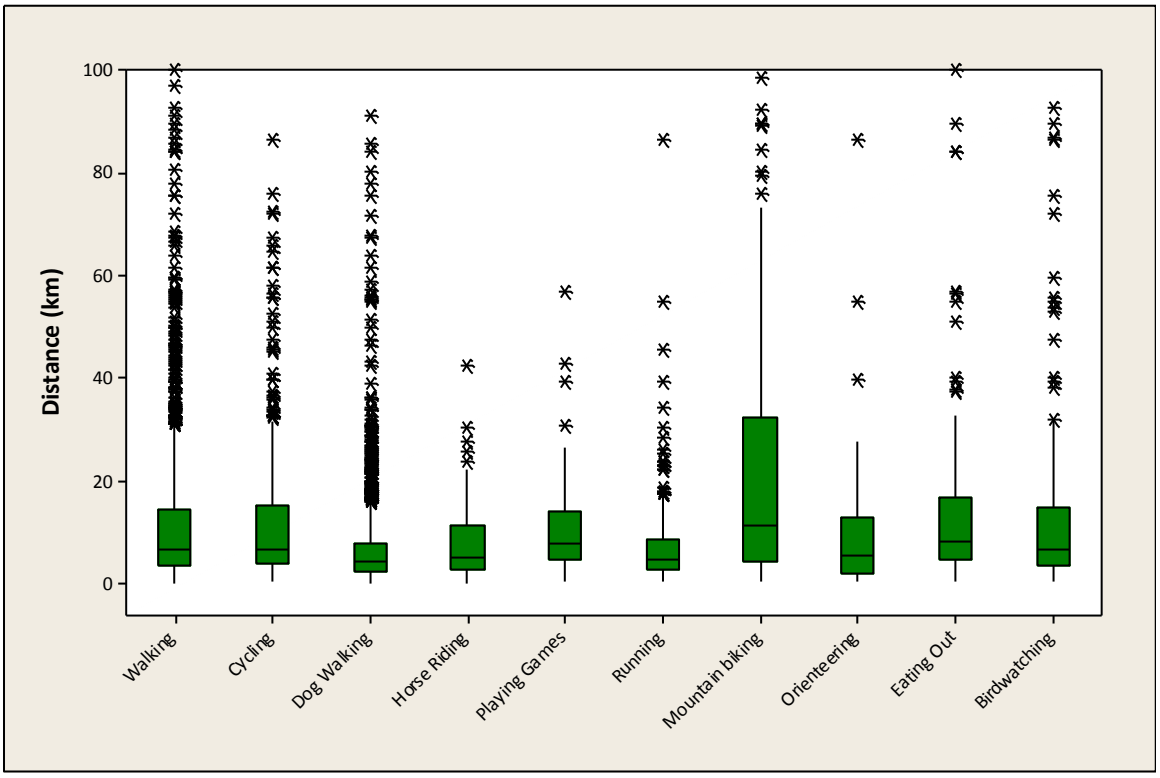

Figure 10: Distances from home to Cannock Chase for people who state that they undertake different activities (using response to question 3). Distances are from the home postcode to the survey point. Note that the y axis is truncated at 100km.

Table 20: Summary of distance data (home postcode to survey point) for each activity. Data as shown in Figure 10

Activity	N	Minimum	Q1	Median	Q3	Maximum
Walking	1945	0.06	3.371	6.572	14.414	359.573
Cycling	547	0.16	3.61	6.70	15.07	213.37
Dog Walking	1573	0.066	2.372	4.286	7.836	265.814
Horse Riding	128	0.07	2.80	5.11	11.12	205.56
Playing Games	185	0.16	4.48	7.79	13.89	238.28
Running	283	0.292	2.533	4.624	8.361	164.002
Mountain biking	517	0.20	4.23	11.20	32.28	375.95
Orienteering	32	0.46	1.97	5.40	12.62	86.51
Eating Out	240	0.20	4.51	7.98	16.72	287.16
Birdwatching	260	0.20	3.52	6.63	14.89	249.65

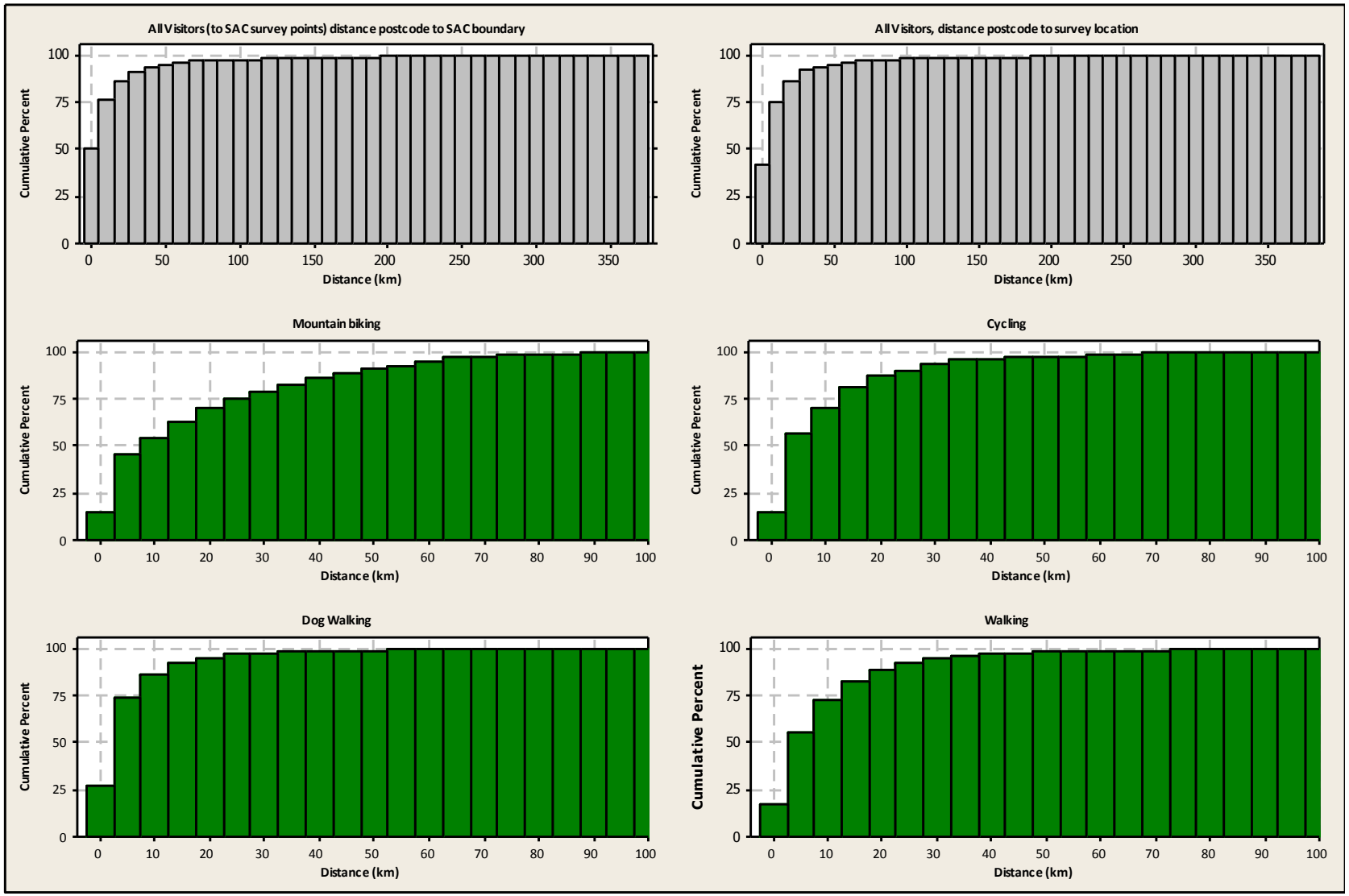

Figure 11: Cumulative frequency histograms showing percentage of visitors travelling from different distances. Top two plots (grey) show all visitors across all distances. Lower four (green) are truncated at 100km and show the four main activities only. The green graphs all use distance from postcode to survey location.

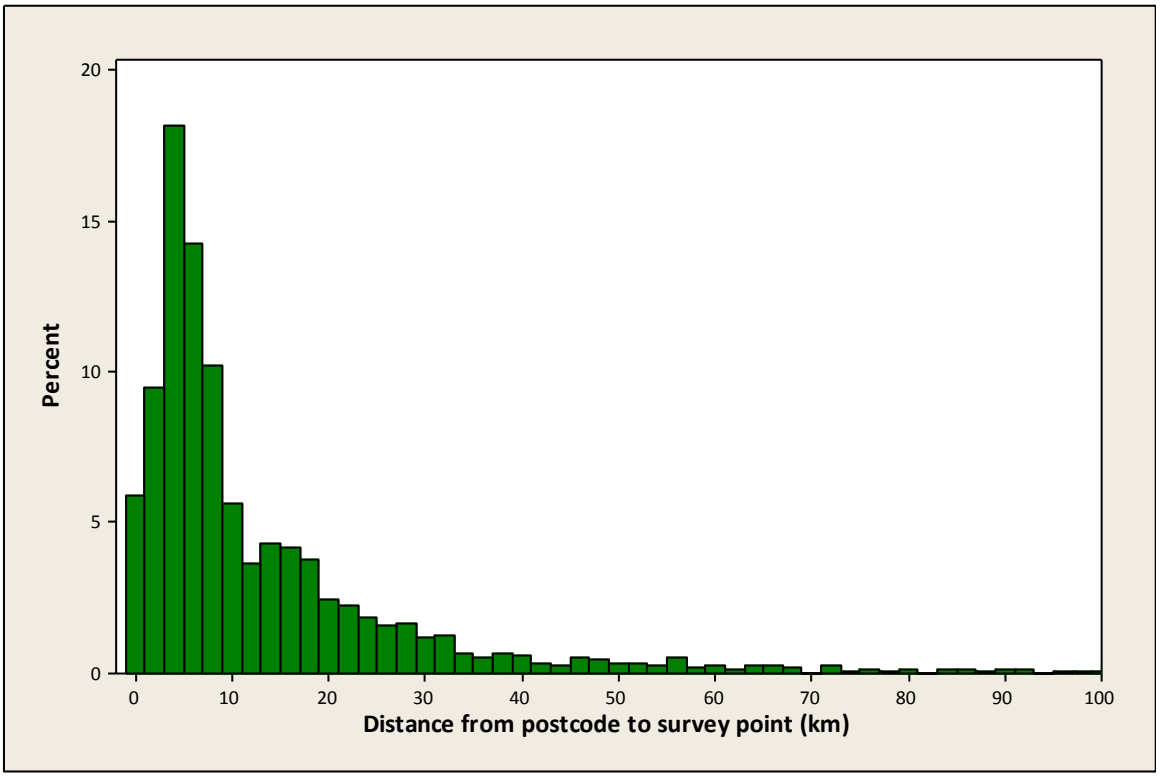

Figure 12: Percentage of visitors arriving from different distance bands (2km bands)

3.55 Data are summarised by subarea in Figure 13 and Figure 14. It should be recognised that where there are relatively few interviewee postcodes from a given subarea, then a single interview can have a marked effect on the percentages. In general it appears that the main activities account for roughly similar proportions of visitors from each subarea, for example looking at walking, it can be seen from Figure 13 that the dark green bars account for around 30% of the visitors from each subarea. Looking in more detail it can be seen that a high proportion of cyclists appear to originate from Dudley South (but note just five postcodes in total for this subarea) while relatively few cyclists appear to come from Sutton Coldfield (32 postcodes in total). Wolverhampton (Dudley North) is notable in that no dog walkers were interviewed among the ten interviewees who gave a postcode from this subarea. No-one was interviewed who said they came birdwatching and had travelled from Sandwell (north or south) and Wolverhampton (Dudley South and Walsall West). None of the people interviewed that came from East Staffordshire (Central), South Staffordshire (South) or Wolverhampton (Dudley South) gave eating out as an activity they undertook.

3.56 Maps 10-19 show the spatial distribution of home postcodes by activity. The maps are all on the same scale and allow visual comparison of the origin data by activity. Maps such as the ones for walkers (Map 11) and dog walkers (Map 12) clearly show a local distribution of users, with the dots clustered around the adjacent settlements. The map for mountain biking (Map 16) is striking compared to the other maps, with a wide scatter of dots including the south east of Birmingham.

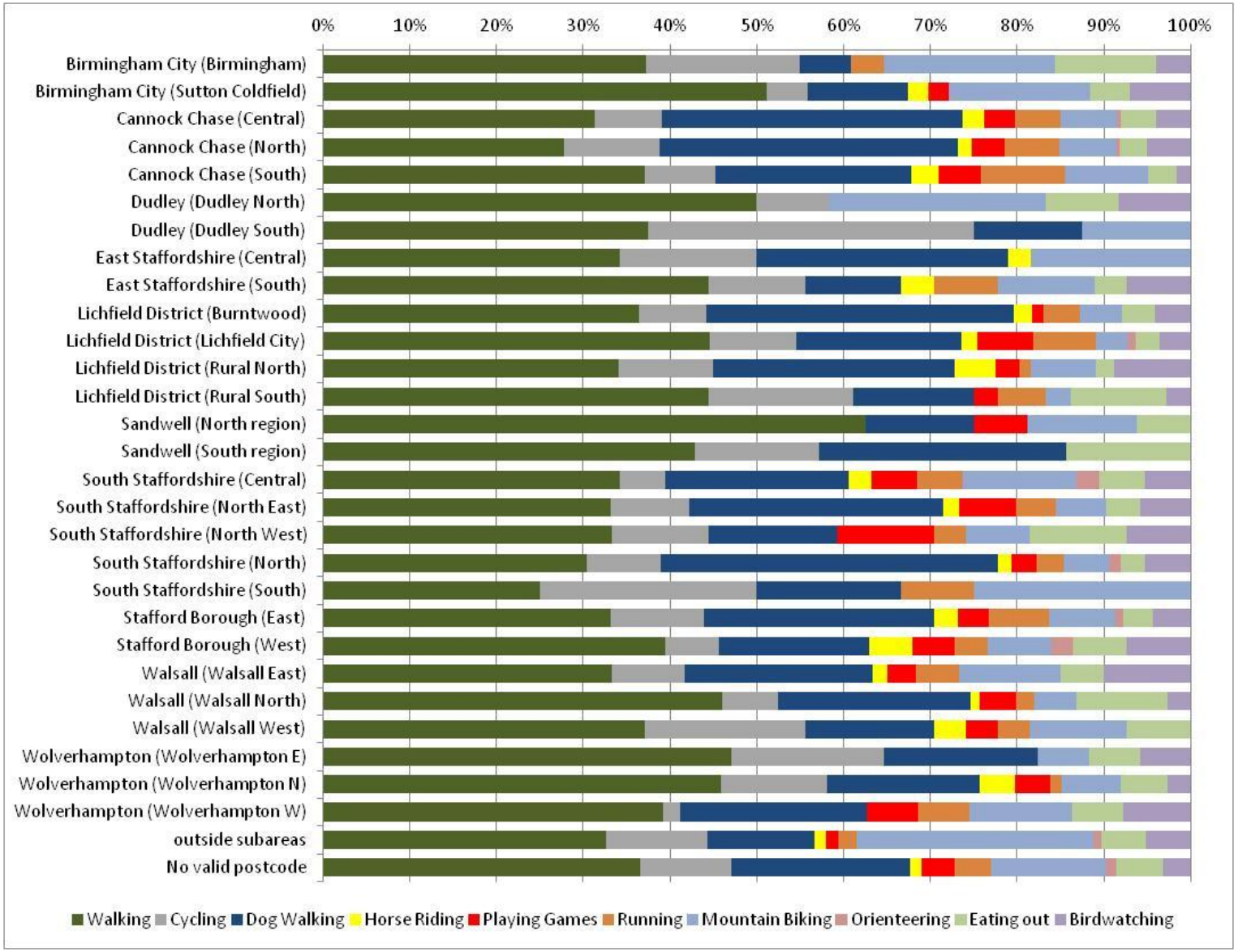

Figure 13: Percentage of visitors to different subareas by activity

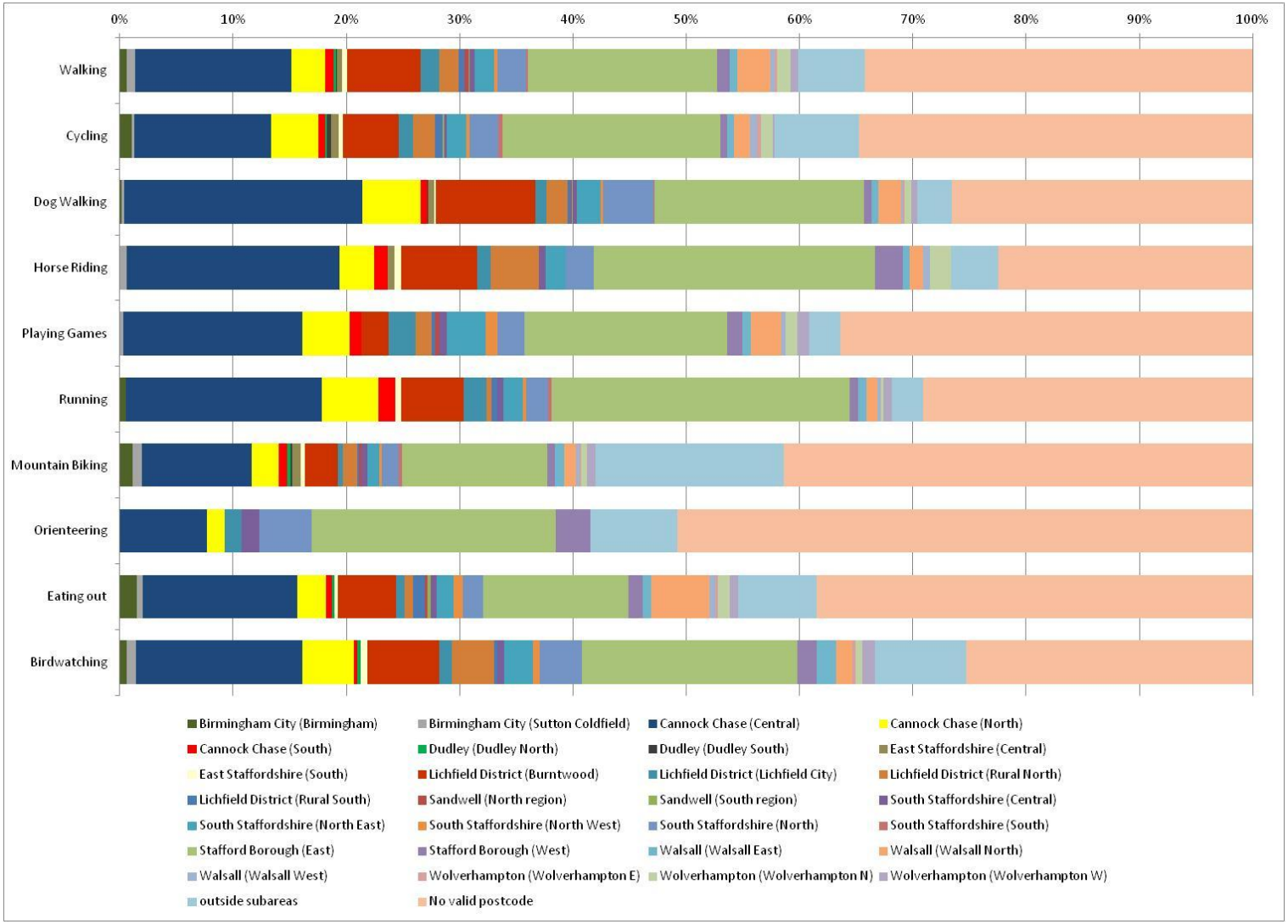

Figure 14: Percentage of visitors undertaking each activity by subarea

Visitor Origins: visit frequency and weekend/ weekday visitors

3.57 The median distance (from survey point to home postcode) for people interviewed at the weekend was significantly higher than for those interviewed on a weekday (median 6.52 compared to 5.94km; Mann Whitney U=8.43, 1df, p=0.004). Frequent visitors tended to live closer to the site, with those visiting every day being the most local (Figure 15). While those that visited every day typically lived around three km from the survey point (median value=3.15km), some people travel considerable distances to apparently visit every day, with the maximum distance for this category of visitors being 31km from the home postcode to the survey point.

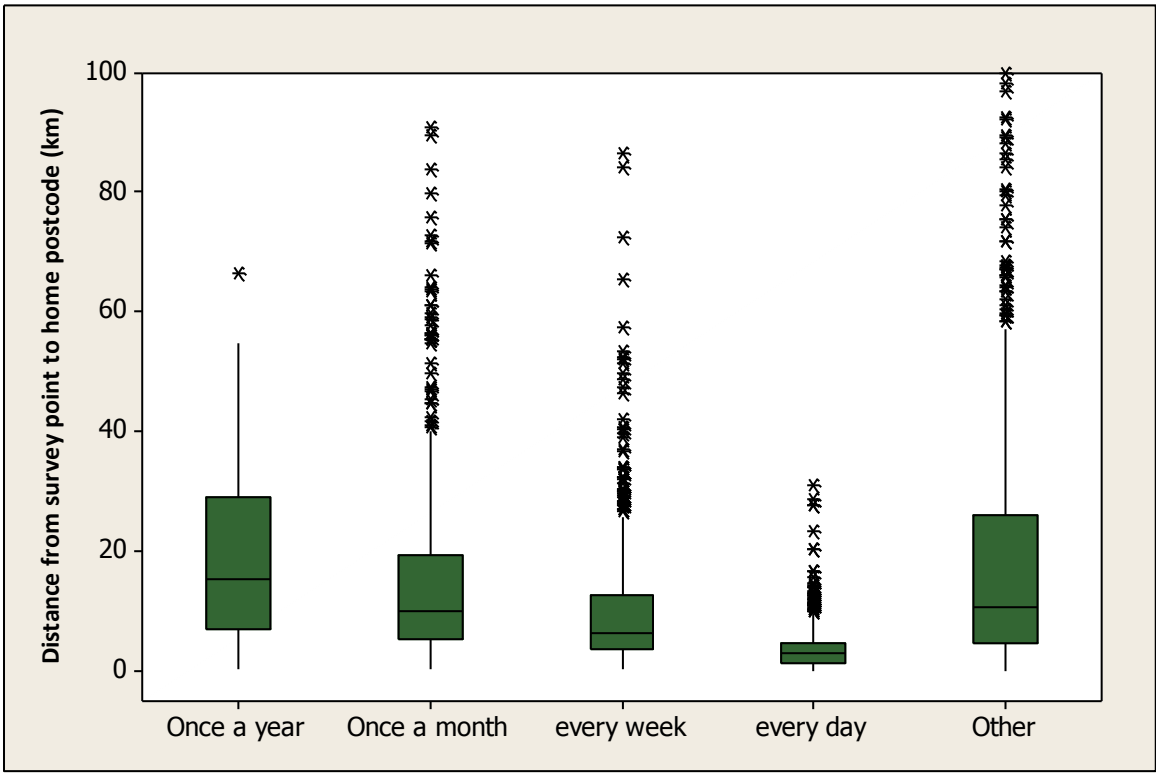

Figure 15: Boxplot showing distance from home postcode to survey point by frequency of visit. Note that the y axis is truncated at 100km.

3.58 In Map 20 we show the home postcodes of visitors by the frequency of visit, with the darker red dots indicating those that visit the most frequently (every day) and the postcodes shown in relation to local authority sub areas. The map reflects Figure 15 in that it clearly shows that the people who visit most frequently live close to the site. Grouping those that said they visited every day with those that visited every week – a group that could potentially be considered as frequent visitors - the median distance from home postcode to survey point was 4.47km and the third quartile (i.e. distance within which 75% of people lived) was 8.12km. Within the GIS it is possible to group points and plot a region ("convex hull") to indicate an area that these points contain. These convex hulls are generated by the software in such a way such that the resulting polygon can be thought of as a rubber band around all of the points. It will consist of the minimal set of points such that all other points lie on or inside the polygon.

3.59 In Map 21 we plot these convex hulls to show the area within which those people who visited every week and those that visited every day can be seen. Encompassing all points for those that visited every week results in a polygon covering a large part of England, stretching down to London and into North Wales. Encircling all the home postcodes of those people visited every day results in a polygon (dark green in Map 21) that stretches from Telford in the west to Swadlincote in the east and from Stoke-on-Trent in the north to Wolverhampton in the south. The two groups (Every day and every week) were combined and the closest 75% identified (i.e. the top 75% when the combined group was ranked according to distance from survey point to home postcode). The resulting polygon (yellow in Map 21) encompasses Stafford, Rugeley, Lichfield, Burntwood and Penkridge, runs a little to the west of the M6 but in the south does not quite reach to Wolverhampton, cutting across the M6 just at Hilton Park Services. The polygon is shown in more detail in Map 22.

Mode of transport and distance travelled

3.60 We summarise the distances (from home postcode to survey point) according to mode of transport in Table 21. People who stated that they walked to Cannock Chase form a notable group as they are a reasonably large proportion of visitors and are particularly local, with half of them living within 3.5km of the survey point where interviewed.

Table 21: Summary statistics for the distance from home postcode to survey location, by mode of transport. The different modes of transport are ranked using the median distance.

Mode of transport	Number of interviewee postcodes	Distance (km) from home postcode to survey point				
		Minimum	Q1	Median	Q3	Maximum
Walk	471	0.1	0.5	1.3	3.5	185.8
Run	29	0.5	1.3	3.2	4.2	11.4
Horse	44	0.1	1.8	4.3	6.0	20.9
Cycle	187	0.2	2.8	4.3	6.5	205.8
Motor Cycle	9	3.3	4.5	5.3	11.9	16.9
Car	2714	0.3	4.0	7.4	16.6	375.9
Other	13	1.1	4.8	12.4	29.6	50.9
Public Transport	15	4.1	5.7	14.3	32.4	185.8

3.62 We extracted the postcodes of visitors who stated that they (at least sometimes) travel to the interview location on foot and counted the number of interviewee postcodes within 500m distance bands around each survey location. By calculating the number of houses within the same distance bands we derived a plot similar to Figure 8, but for walkers only and calculated using buffers drawn around each survey point. The plot (Figure 16) supports the information above and highlights that people living very close to the site are likely to visit on foot and that visitor rates for those people travelling on foot drop-off markedly between 1 and 2km from the survey points.

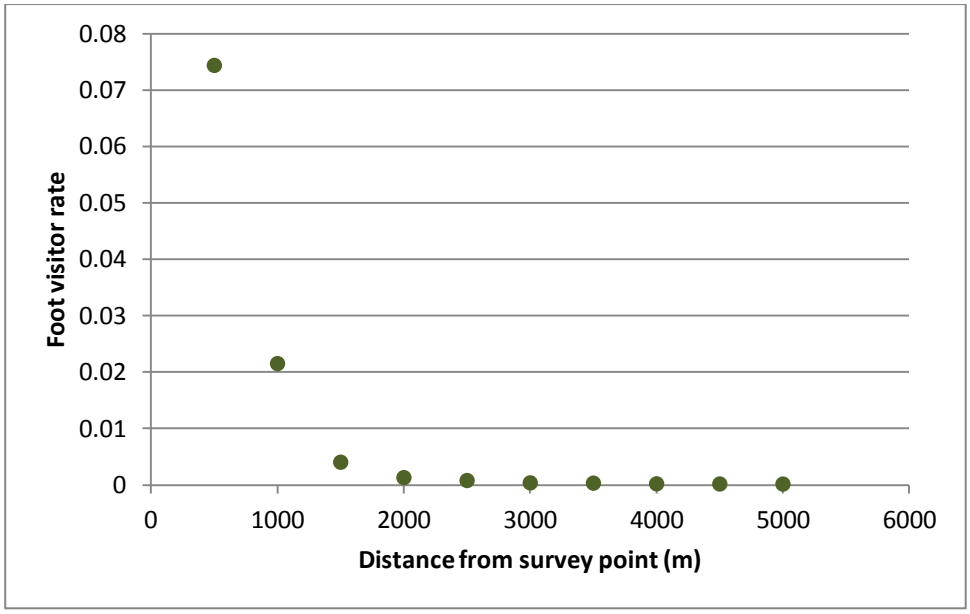

Figure 16: Foot visitor rate (calculated as the number of interviewee postcodes at given distance bands/number of houses in same band) and distance from survey point.

Visitor Numbers: Overall Estimates

Car-visits from car-park counts

3.63 The car-park counts should provide the best means to determine the number of car-visits made per year. Combining these counts with a knowledge of dwell time and the number of people per car, it should be possible to estimate total visitor numbers arriving by car. Unfortunately there is no information on group size, meaning it is impossible to convert the counts of the numbers of cars into estimates of the number of people. Given the limited temporal coverage in the car counts it is also difficult to scale up the car counts to give estimates for different times of year; however we do attempt to derive an estimate of total car visits and set out how we do this below.

3.64 Reviewing the data from the car-park counts it is possible to group the counts into four simple categories, namely non-holiday weekdays, summer weekdays, summer weekend days and holiday weekend days. These categories are summarised in Table 22. We grouped the data from 3rd July (outside the school holidays) in the summer weekend category as this approach seemed pragmatic. It can be seen that the holiday weekend category involves data from just two dates (in December and April) and there are no data for non-holiday weekends. For summer weekdays there is just one count. Using these groupings there do appear to be differences between the categories that are significant (Kruskal-Wallis comparing three categories where n>1: H=9.46, DF=2, p=0.009; note the very low sample sizes).

Table 22: Car-park count data, grouped by different types of day

Date	Total Vehicles	SAC	Non SAC
Weekdays, non-holiday (i.e. most of year)			
26 Nov 2010 (am) Tuesday	187	148	39
27 Nov 2010 (am) Wednesday	381	343	38

Date	Total Vehicles	SAC	Non SAC
27 Nov 2010 (pm) Wednesday	463	405	58
21 Jan 2011 (pm) Friday	306	250	56
9 May 2011 (am) Monday	196	158	38
9 May 2011 (c. noon) Monday	220	197	23
16 June 2011 (pm) Thursday	166	131	35
Median	**263**	**223.5**	**38**
Summer weekdays			
25 Aug 2011 (pm) Thursday	369	369	0
Summer weekends			
3 July 2011 (am) Sunday	569	499	70
3 July 2011 (c. noon) Sunday	1095	1037	58
6 Aug 2011 (am) Saturday	584	528	56
6 Aug 2011 (c. noon) Saturday	372	318	54
28 Aug 2011 (am) Sunday	600	521	79
28 Aug 2011 (c. noon) Sunday	865	801	64
Median	**592**	**524.5**	**61**
Holiday weekdays (Xmas, Easter)			
30 Dec 2010 (am) Thursday	291	249	42
30 Dec 2010 (c. noon) Thursday	505	456	49
11 Apr 2011 (am) Monday	205	170	35
11 Apr 2011 (c. noon) Monday	328	281	47
Median	**309.5**	**265**	**44.5**

3.65 It is clearly difficult to extrapolate the data from these results to give car-visits per year. In order to draw any kind of estimate we need to make a number of assumptions:

- We break the year into 5 categories of day: assuming a year is comprised of summer weekend days (18 days), summer weekdays (45 days), non-holiday weekdays (186 days), non-holiday weekend days (66 days) and other holiday periods (weekdays and weekends around Christmas, Easter, plus bank holidays, half term etc: 50 days).
- With no count data for weekends (non-holidays) we can only guess a figure based on the available data: we assume 300 (all car-parks) and 260 (SPA only) for weekends (non-holidays). For the other categories we use the medians from Table 22.
- We assume each visit is 2 hours (see Table 10) and assume 10 hours daylight per day. Therefore by multiplying the totals from the car-park counts by 5 we get a day rate.

3.66 This would give a total of around 557,270 (i.e. over half a million) car visits[6] per annum to all car-park locations surveyed, with 490,135 of these to the SAC car-parks.

3.67 There was no evidence that car-park capacity was linked to visitor numbers (Figure 17). Using the tally data there was no correlation between the visitor rate (i.e. adjusted for survey effort) for those who stated they travelled by car and the number of car-park spaces at each survey location (Pearson Correlation Coefficient=-0.048, n= 30, p=0.801).

[6] Note this is the number of cars per annum, not the number of people

Taking only those people who came from beyond 5km, there was a weak correlation (Pearson Correlation Coefficient=-0.463, n= 30, p=0.01), which disappeared if the outlier (Birches Valley, location 2) was removed (Pearson Correlation Coefficient=-0.041, n= 29, p=0.831). The potential to use of car-park capacity as a means to scale up to estimate of total visitor numbers is therefore limited.

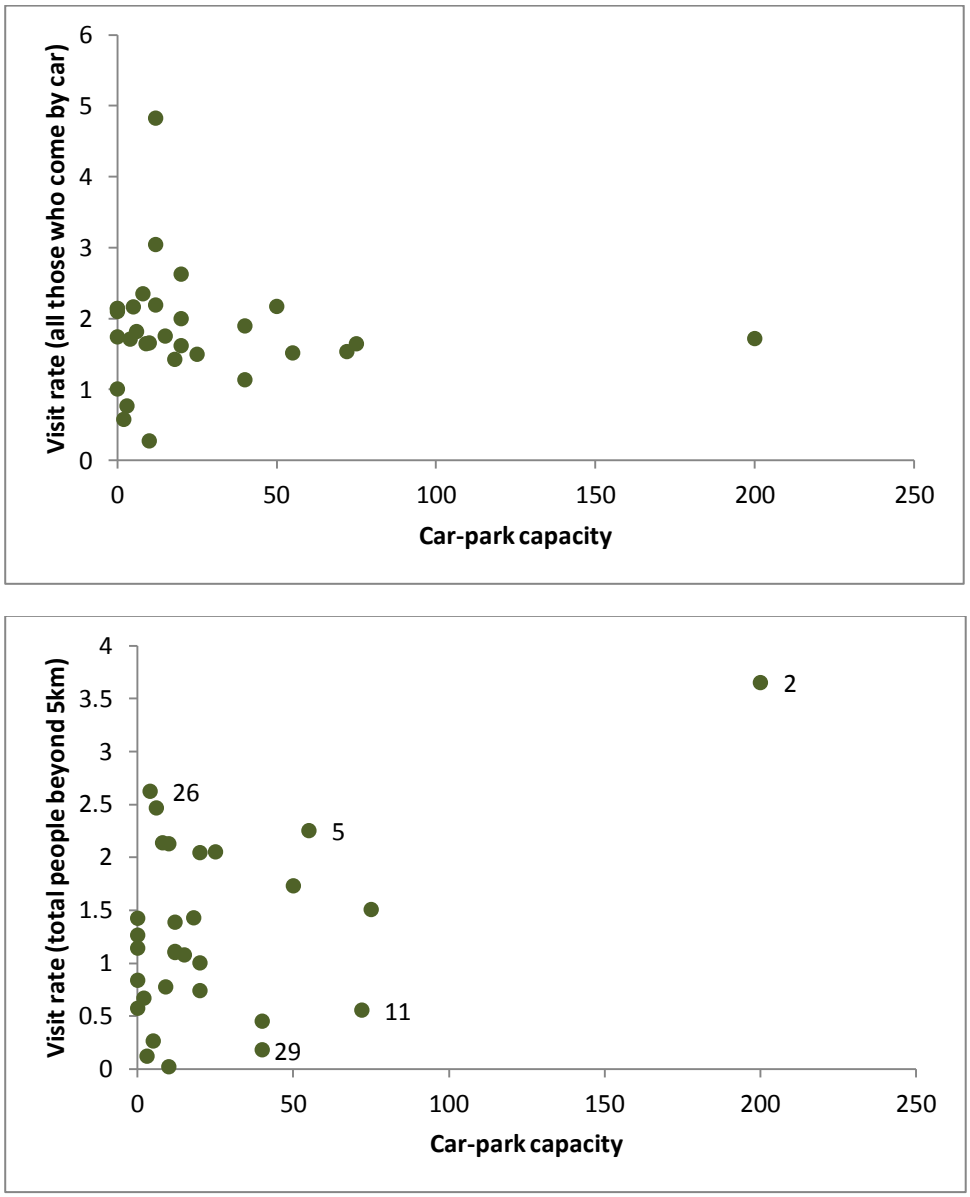

Figure 17: Visitor rates in relation to parking capacity. Top figure is all people who stated they arrived by car with the rate calculated as the number of interviewees divided by the survey effort (hours) at each location. The lower figure is the rate calculated using the figure for the total number of interviewees with postcodes greater than 5km distance from the survey location. Labels on the lower figure indicate survey location.

People arriving on foot

3.68 It was hoped that it would be possible to derive a relationship between visitor numbers arriving on foot and nearby housing numbers, and then use this relationship to predict foot visitor numbers for all access points across Cannock Chase.

3.69 We calculated the visit rate by using the total number of people who indicated they walked (at least sometimes) to each site (Table 14) and divided this by the survey effort at each survey point. We calculated the number of houses surrounding each survey point using 500m distance bands and separately tested bands of 0-500m; 0-1000m and 0-1500m to determine the extent of the relationship between people arriving on foot and housing numbers. The plot for 0-1500m is shown in Figure 18. While separate standard regressions for each of the three bands yielded significant relationships, there were outliers (in particular West Cannock Farm, location 24) which had a particularly large influence on the results and with this point removed there was no significant relationship. This may be because the number of people arriving on foot was not actually determined within the survey. Without that information it is impossible to separately estimate visitor numbers arriving on foot.

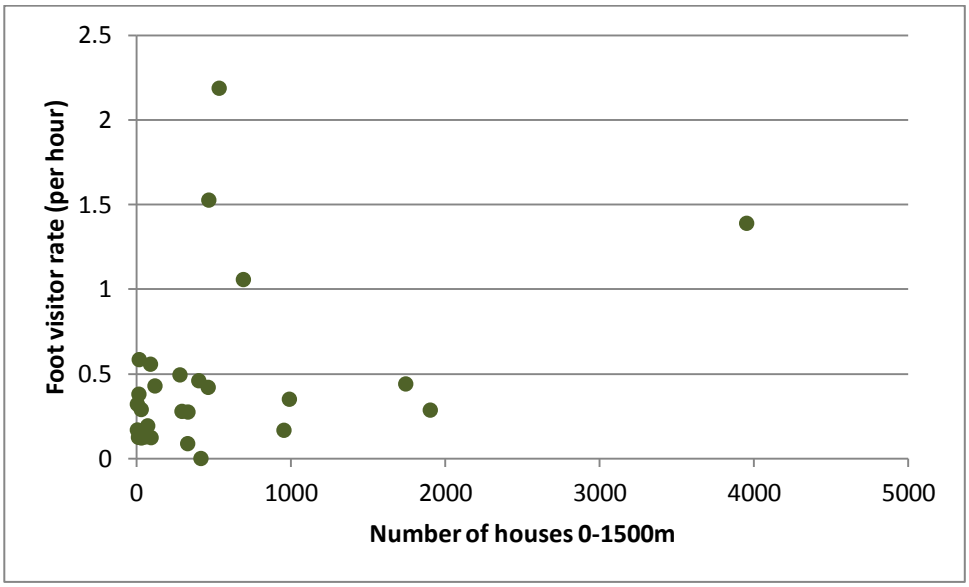

Figure 18: Visit rate (people who indicated they arrive on foot per hour) in relation to the number of houses within 1500m of the survey point.

Using count data from face-face surveys to scale up to annual figures

3.70 Values for visitor rates to the different locations used in the face-face survey are given in Table 1. These rates were generated using the tally kept by the surveyors during the survey. We scale these rates up to give annual totals to the survey locations and provide the estimates for annual visitor numbers in Table 23. Where there were blanks in the original table (Table 1) we converted these to rate based on the autumn/winter weekday figure, scaled up for the given location according to the overall ratio for the given season. We based the number of days for each time period (see top row in Table 23) on the

period used for the survey (described in paragraph 2.4), but included the early part of July in “spring/summer” and September in “autumn/winter”. It can be seen that the scaled up totals for the survey locations come to just under 2 million visitors, or around 1.7 million to the SAC locations only. Some caution is of necessary in using these figures as:

- Some survey locations (such as Sherbrook Valley) are not access points and the totals for these locations are therefore not people actually entering the site and there may be double counting (as for example people in Sherbrook Valley may have entered the site at the Glacial Boulder).
- The counts at some locations may not reflect total visitors, for example at large car-parks (Birches Valley, Marquis Drive) people may well be missed entering the site.
- We have no means of accurately assessing the proportion of visitors at each survey point that actually go onto the SAC.
- The figures give a guide to the number of people at the surveyed locations, but there is no easy means of extrapolating these figures to the non-surveyed points. The totals are therefore not total visitor numbers to the whole AONB or SAC.

Table 23: Visitor totals estimated using the rates in Table 1. WD and WE refer to week days and weekend days respectively. Grey rows are those survey locations well outside the SAC.

Site No	Location	Autumn/winter		Christmas	Easter	Spring/summer		Summer holidays		TOTAL
		WD	WE			WD	WE	WD	WE	
	TOTAL DAYS	154	62	14	14	55	22	32	12	
	HOURS PER DAY	9	9	8	10	12	12	12	12	
1	Marquis Drive	36,036	23,269	2,296	10,332	23,826	24,684	31,834	5,242	157,519
2	Birches Valley Car Park	165,904	48,825	12,510	11,298	14,322	17,398	26,803	24,132	321,192
3	Milford Common	34,927	31,639	3,548	4,606	15,563	8,923	13,171	5,080	117,457
4	Castle Ring	30,769	17,689	1,266	2,940	12,276	7,788	11,630	3,917	88,275
5	Seven Springs	21,483	17,298	3,304	3,612	13,464	8,791	9,869	4,838	82,659
6	Commonwealth Cemetery	10,672	5,189	1,120	700	4,755	3,891	4,034	1,552	31,913
7	Punchbowl Car Park	7,207	13,169	732	2,632	13,134	3,934	5,568	1,048	47,424
8	Stepping Stones	21,760	3,404	213	3,024	9,696	7,934	4,378	3,165	53,574
9	Sherbrook Valley	6,376	6,752	392	1,876	2,841	2,325	4,493	927	25,982
10	Fair Oak Pools	18,434	23,157	0	5,712	16,566	18,744	7,142	2,681	92,436
11	Whitehouse Car Park	9,148	23,045	3,954	7,028	6,798	8,078	3,458	6,178	67,687
12	Chase Road Corner	8,455	6,305	269	826	3,767	3,083	2,227	864	25,796
13	Hazel Slade Nature Reserve	8,732	3,515	1,456	602	3,366	1,584	1,920	1,270	22,445
14	Aspens Car Park	10,672	65,342	0	2,856	7,920	4,673	5,376	576	97,415
15	Brook Lane Corner	7,069	13,169	1,389	1,652	2,706	2,666	2,304	1,028	31,983
16	The Cutting	12,197	9,189	3,192	1,386	1,848	2,455	1,690	1,774	33,731
17	Brocton Coppice Car Park	17,048	29,128	2,005	8,106	9,636	3,960	5,146	5,702	80,731
18	Chase Vista Car Park	10,395	2,902	168	1,218	2,508	1,663	3,929	734	23,517
19	Glacial Boulder	9,841	4,910	280	1,008	4,385	3,588	3,149	1,431	28,592
20	Spring Slade Lodge	43,243	9,877	6,720	4,564	4,488	8,105	4,454	6,290	87,741
21	Oldacre Lane	7,207	1,953	1,165	1,820	1,782	1,954	2,381	778	19,040
22	Brindley Bottom Car Park	5,821	5,022	3,136	937	2,594	2,123	3,341	847	23,821

Site No	Location	Autumn/winter		Christmas	Easter	Spring/summer		Summer holidays		TOTAL
23	Toc H Trail Car Park	23,423	10,937	224	1,680	4,224	3,881	2,918	1,829	49,116
24	West Cannock Farm	8,732	8,816	1,232	1,624	5,280	3,184	11,136	1,270	41,274
25	Duffields	7,484	3,292	358	770	3,335	2,729	2,342	634	20,944
26	Kingsley Wood Road	10,395	5,971	2,061	1,834	8,184	4,356	5,107	1,094	39,002
27	Abrahams Valley	6,791	6,919	358	840	4,224	15,629	3,264	988	39,013
28	Moors Gorse	16,355	39,506	2,386	3,024	22,572	18,374	7,680	2,379	112,276
29	Gentleshaw Common	7,623	4,129	762	1,120	4,356	2,534	2,227	1,109	23,860
30	Shoal Hill Cocksparrow Lane Car Park	12,058	7,142	448	0	7,458	2,640	3,341	1,754	34,841
	ALL SITES	**596,257**	**451,460**	**56,944**	**89,627**	**237,874**	**201,671**	**196,312**	**91,111**	**1,921,256**
	SAC only	**537,075**	**418,985**	**53,012**	**84,965**	**210,418**	**187,125**	**177,194**	**83,061**	**1,751,835**

Changes in Visitor Numbers as Result of New Housing

3.71 In order to consider the potential impact of new housing on visitor levels it is necessary to understand how the spatial distribution of new housing will change in the future and to link these changes to access patterns. Given the issues with estimating current total visitor numbers (see previous section) it is clearly not possible to estimate visitor numbers in the future. What is possible is to determine how housing numbers will change surrounding the SAC and to relate these changes to the spatial distribution of visitor's home postcodes.

3.72 GIS data on new housing for the sub areas were provided by the relevant local authorities in the form of a combined dataset, containing different sources of housing sites such as sites with planning permission, strategic sites allocated in local plans or SHLAA sites (subareas are shown in Map 8). This combined layer described a projected increase in housing of 77,589 new homes. This represents an increase of around 10% (current housing stock in the same area is around 756,617). An information note (written by the relevant local authorities and giving further background can be found in Appendix 4).

3.73 In Maps 23 and 24 we summarise the current housing stock (Map 23) and future housing (Map 24). We focus on the area within 20km[7] of the SAC, within which an estimated 52,039 new homes are likely to be built. Map 24 uses the same colour scales and therefore the changes in colour provide an indication of where housing will change. We have derived the maps using the subarea boundaries, within which we have created a series of concentric rings, each of 1km width extending from the SAC boundary. The shading extends out to 20km from the SAC boundary.

3.74 The same data are summarised in Figure 19 and Table 24, which show the number of new houses planned at different distance bands from the SAC, up to 20km. The level of change (% increase in number of houses) range from 5-43%, and overall (within 20km of the SAC) is around a 12% increase. One kilometre bands which have a particularly marked change (above 15%) are 1km, 5km, 8km, 9km, 10km, 13km, 16km and 19km. The largest percentage change (43%) is within the 8km band, with the change largely driven by strategic development sites at Stafford Town, within Stafford Borough.

3.75 Map 25 shows the number of interviewee postcodes per 1km band within each subarea. We have excluded mountain bikers from this plot as these clearly form a different group and tend to travel from further afield. There is therefore no consideration of housing volume, simply the number of postcodes generated from the survey. It can be seen that the bands with the most visitor postcodes are those directly to the north (corresponding with Stafford) and south of the SAC, but that currently relatively few visitors appear to originate from the east or the west.

[7] 20km was a pragmatic choice. Visitor rates beyond 20km are very low (e.g. see Figure 8). We had to set an outer boundary within which we could map and extract data, and rather than including the total extent of each authority, the 20km radius provides a practical boundary that simplifies data extraction, presentation and aids interpretation.

3.76 In Map 26 we use the same bands as the previous maps, yet the information shown is the number of interviewee postcodes in relation to the number of houses within each section. The dark red colours therefore indicate those sections where a relatively high proportion of interviewee postcodes were generated in relation to the volume of housing, in other words areas where new housing might be expected to generate more additional visits per property. As would be expected the red shading predominates close to the SAC, and compared to the previous map, a pattern of concentric rings is essentially apparent.

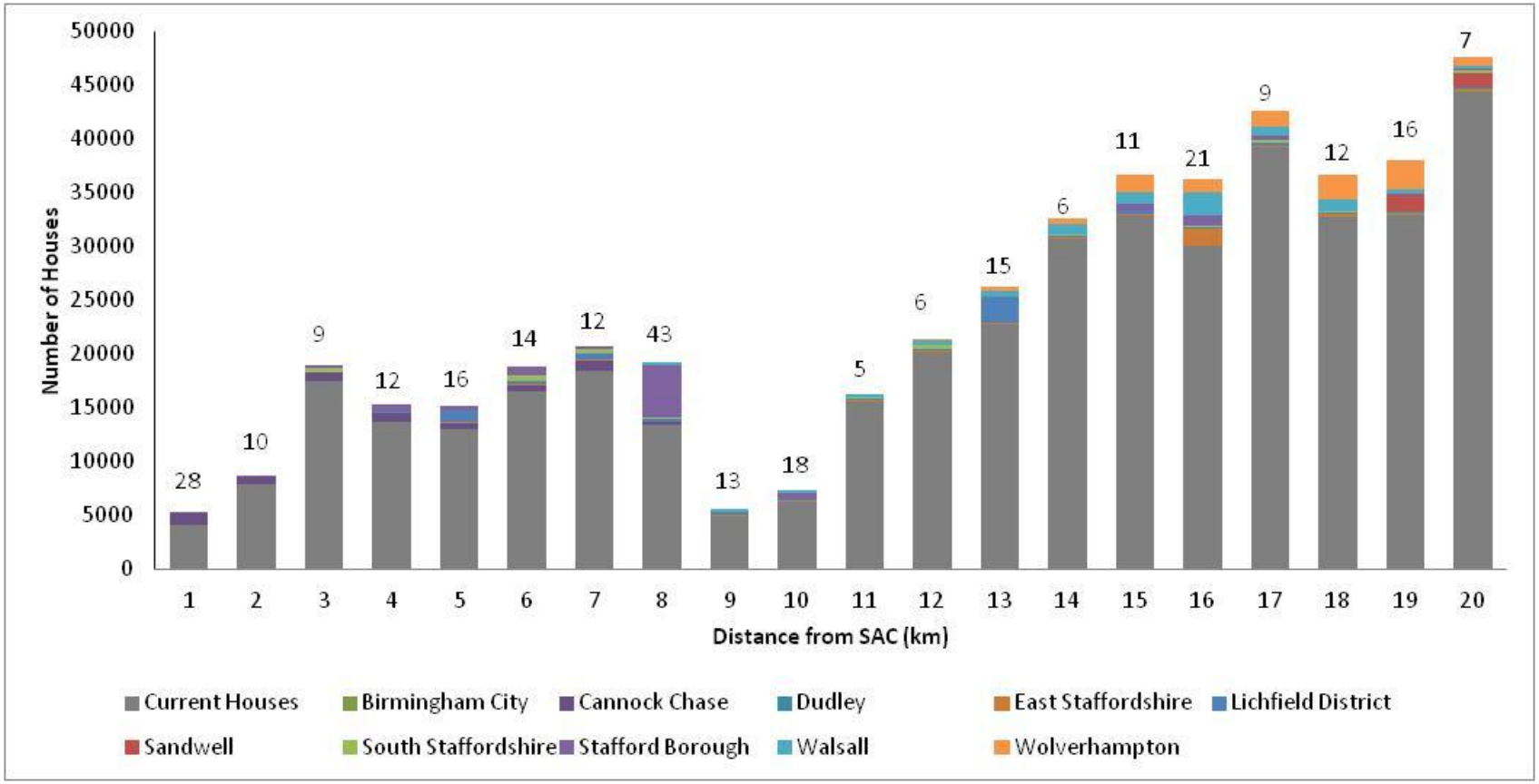

Figure 19: Current housing (grey) and new housing (other colours) by distance from SAC and local authority. 1km distance bands out to 20km only. Labels give the percentage change (i.e. number of new houses as a percentage of current properties within given distance band). Data also given in Table 24.

Table 24: Current and new housing by distance from SAC and local authority. Data as in Figure 19.

Distance from SAC	Current Houses	Birmingham City	Cannock Chase	Dudley	East Staffordshire	Lichfield District	Sandwell	South Staffordshire	Stafford Borough	Walsall	Wolverhampton	Overall % increase
1	4,085		1121					1	27			28
2	7,852		644					112	10			10
3	17,421		827			84		394	220			9
4	13,659		771		0	168		11	632			12
5	13,078		438		126	1184		7	317			16
6	16,534		578		126	168		643	740			14
7	18,456		913		126	543		351	271			12
8	13,455		166		126	168		139	4936	184		43
9	4,952		4		126	168		113	15	229		13
10	6,245		0		126	168		34	522	261		18
11	15,546				126	168		89	32	351		5
12	20,191				126	168		361	20	440	12	6
13	22,773				126	2368		22	26	492	487	15
14	30,690				124	168		75	45	932	559	6
15	32,916				124	168		17	660	1104	1706	11
16	30,081				1534	168		157	967	2116	1250	21
17	39,207	20			150	168		320	362	850	1509	9
18	32,716	31			209	168	23	79	25	1068	2297	12
19	32,844	158			84	168	1502	6	53	530	2646	16
20	44,278	178		1	84	168	1418	190	120	274	854	7
TOTAL	416,979	387	5462	1	3443	6531	2943	3121	10000	8831	11320	12

3.77 Using the data shown in Map 26 it is possible to consider how new housing may result in increased levels of access and what percentage change in visitor levels might be expected as a result of new development. For each 1km band within each subarea we have information on the number of interviewee postcodes, we also have the level of current housing and the level of future housing. By using the ratio of current to new housing it is possible to estimate the number of interviewee postcodes (for each 1km band within each subarea) that might be generated if the survey were repeated in the future.

3.78 We summarise the figures in Table 25. It can be seen that there were 2716 interviewee postcodes that fell within 20km of the site and within the local authority subareas. After adjusting these figures according to the likely change in housing we derive a figure of 3113 – in other words if the survey were to be repeated in the future, after the level of new development proposed had been completed, then the survey would generate 3113 postcodes from within the 20km radius, a 15% increase. The bottom row of the table summarises the data by local authority. It can be seen that over three-quarters of the increase (within 20km) is generated by three authorities: Cannock Chase, Litchfield and Stafford.

3.79 In Table 26 we repeat the above estimate, this time using data excluding mountain bikers. Excluding mountain bikers there were a total of 2373 interviewee postcodes from within 20km of the SAC. If these are adjusted (by 1km band and by local authority) to take account of the change in housing, the overall increase in visitors is 15%. There is relatively little difference between the percentage figures for each subarea in Table 25 and Table 26, in other words excluding mountain bikes from this analysis makes relatively little difference.

3.80 For completeness we provide the calculation (for all visitor postcodes including mountain bikers) by subarea in Appendix 5. The percentage changes are slightly different in the Appendix as we have broken the data down by subarea rather than local authority boundary. Using subareas (and distance bands of 1km within each subarea), the overall percentage change (with or without mountain bikes) is 13%.

3.81 We also produce a summary map showing the percentages for each subarea (Map 27). This map has been generated by calculating the total change (as a result of new housing) within a radius of 20km, and the colours in the map show the percentage of this total that will be generated from each subarea, in other words the map shows the percentage of postcodes (from 20km radius) that would be expected in a future visitor survey. The map highlights the marked change in visitor numbers as a result of development in Stafford Borough (East), Cannock Chase (Central), Litchfield District (Burntwood), Cannock Chase (north) and South Staffordshire (north). All other subareas contribute less than 5% of the total.

Table 25: Summary figures for the number of interview postcodes (all activities including mountain bikers) by distance band and local authority, and an extrapolation of change as a result of increase housing. Calculated using 1km distance bands within each subarea. Cumulative percentage based on the totals in the table (i.e. only postcodes within subareas and within 20km).

Distance (km)	Number interview postcodes												Number of postcodes adjusted for change in housing level										
	Birmingham City	Cannock Chase	Dudley	East Staffordshire	Lichfield District	Sandwell	South Staffordshire	Stafford Borough	Walsall	Wolverhampton	Total	Cumulative%	Birmingham City	Cannock Chase	Dudley	East Staffordshire	Lichfield District	Sandwell	South Staffordshire	Stafford Borough	Walsall	Wolverhampton	Total	Cumulative%
1		132					0	157			289	11		183					0	161			370	12
2		167					9	93			269	21		186					11	94			295	21
3		211			0		51	128			390	35		225			0		64	137			424	35
4		257		0	2		17	68			344	48		276		0	3		17	84			384	47
5		93		1	43		13	98			248	57		101		4	94		13	103			287	56
6		29		1	158		36	71			295	68		35		4	164		47	78			335	67
7		20		0	77		47	51			195	75		29		0	84		51	53			218	74
8		2		0	76		30	26	1		135	80		7		0	79		31	57	1		192	80
9		0		6	3		7	15	5		36	81		0		7	4		8	15	6		41	82
10		0		0	11		6	4	3		24	82		0		0	12		6	10	3		28	83
11				0	25		11	8	26		70	84				0	26		11	8	27		73	85
12				0	19		9	5	28	0	61	87				0	20		10	5	29	0	64	87
13				0	17		6	0	30	7	60	89				0	30		6	0	31	8	69	89
14				2	11		5	14	21	15	68	91				2	12		6	14	22	16	72	92
15				4	4		1	14	23	24	70	94				4	5		1	16	25	27	78	94
16				13	8		6	7	13	3	50	96				17	9		7	10	15	4	60	96

Distance (km)	Number interview postcodes													Number of postcodes adjusted for change in housing level										
	Birmingham City	Cannock Chase	Dudley	East Staffordshire	Lichfield District	Sandwell	South Staffordshire	Stafford Borough	Walsall	Wolverhampton	Total	Cumulative%		Birmingham City	Cannock Chase	Dudley	East Staffordshire	Lichfield District	Sandwell	South Staffordshire	Stafford Borough	Walsall	Wolverhampton	Total	Cumulative%
17	5			1	1		3	9	10	16	45	98		5			1	1		3	10	11	18	49	98
18	4			1	1	0	2	2	8	6	24	98		4			1	1	0	2	2	9	7	27	98
19	4			0	2	1	3	0	2	2	14	99		4			0	3	1	3	0	2	2	16	99
20	4		0	0	2	3	6	4	0	10	29	100		4		0	0	3	3	6	4	0	11	31	100
Total	**17**	**911**	**0**	**29**	**460**	**4**	**268**	**774**	**170**	**83**	**2716**			**17**	**1042**	**0**	**40**	**550**	**4**	**303**	**861**	**181**	**93**	**3113**	
% change														0	33	0	3	23	0	9	22	3	3	100	

Table 26: Summary figures for the number of interview postcodes (excluding mountain bikes) by distance band and local authority, and an extrapolation of change as a result of increase housing. Calculated using 1km distance bands within each subarea. Cumulative percentage based on the totals in the table (i.e. only postcodes within subareas and within 20km).

Distance (km)	Number interview postcodes												Number of postcodes adjusted for change in housing level										
	Birmingham City	Cannock Chase	Dudley	East Staffordshire	Lichfield District	Sandwell	South Staffordshire	Stafford Borough	Walsall	Wolverhampton	Total	Cumulative%	Birmingham City	Cannock Chase	Dudley	East Staffordshire	Lichfield District	Sandwell	South Staffordshire	Stafford Borough	Walsall	Wolverhampton	Total	Cumulative%
1		107					0	127			234	10		149					0	130			300	11
2		154					8	82			244	20		172					10	82			268	21
3		181			0		44	112			337	34		193			0		56	120			367	34
4		223		0	1		16	56			296	47		240		0	2		16	69			330	46
5		89		1	41		13	84			228	56		97		4	89		13	88			264	56
6		23		1	147		34	58			263	68		28		4	153		44	64			299	67
7		19		0	69		45	44			177	75		27		0	75		49	46			198	74
8		2		0	68		26	24	1		121	80		7		0	71		27	53	1		159	80
9		0		6	2		7	15	4		34	82		0		7	3		8	15	5		38	81
10		0		0	8		5	2	3		18	82		0		0	9		5	5	3		22	82
11				0	24		8	7	25		64	85				0	25		8	7	26		66	85
12				0	16		9	4	25	0	54	87				0	17		10	4	26	0	57	87
13				0	17		3	0	28	7	55	90				0	30		3	0	29	8	70	89
14				1	10		5	11	19	12	58	92				1	11		6	11	20	13	62	92
15				3	2		1	13	18	22	59	94				3	2		1	15	20	25	66	94

Distance (km)	Number interview postcodes													Number of postcodes adjusted for change in housing level										
	Birmingham City	Cannock Chase	Dudley	East Staffordshire	Lichfield District	Sandwell	South Staffordshire	Stafford Borough	Walsall	Wolverhampton	Total	Cumulative%		Birmingham City	Cannock Chase	Dudley	East Staffordshire	Lichfield District	Sandwell	South Staffordshire	Stafford Borough	Walsall	Wolverhampton	Total	Cumulative%
16				8	8		3	6	12	3	40	96					11	9		3	8	14	4	49	96
17	4			1	1		3	8	7	14	38	98		4			1	1		3	9	7	15	40	97
18	3			1	1	0	2	2	7	5	21	99		3			1	1	0	2	2	8	6	23	98
19	4			0	1	1	3	0	2	2	13	99		4			0	1	1	3	0	2	2	13	99
20	3		0	0	2	2	4	1	0	7	19	100		3		0	0	3	2	4	1	0	7	20	99
Total	**14**	**798**	**0**	**22**	**418**	**3**	**239**	**656**	**151**	**72**	**2373**	**100**		**14**	**913**	**0**	**32**	**502**	**3**	**271**	**729**	**161**	**80**	**2705**	
% change														0	33	0	3	24	0	9	21	3	2	100	

4. Discussion

Overview

4.1 The survey covered a full year and includes a very large sample of visitor questionnaires with visitors at a range of survey locations. The combination of interviews, counts of people and counts of cars provides a snapshot and picture of access patterns that will underpin management of access around the AONB and SAC for a number of years.

4.2 A high proportion of people interviewed indicated that they travelled by car. This could be (in part) a reflection of the chosen survey locations. However, given the relatively low levels of housing directly adjacent to Cannock Chase, and it's elevation above the surrounding countryside, it is perhaps to be expected that visitor use is so closely linked to car use.

4.3 Access is largely focused on three locations – Marquis Drive, Birches Valley and Moors Gorse, with these locations being the main destinations, particularly a draw for the 'non-local' users, infrequent visitors and mountain bikers. Away from these locations, car-parking seems to be widely scattered across lots of small car-parks.

4.4 Visitors travel from a wide geographic area. Dog walkers and people visiting to run are particularly local, whereas mountain biking at Cannock Chase appears to have more of a regional (even national) draw. Mountain bikers stand out in many other ways from other users; mountain bike use is more focused at weekends than other activities, appears to be a particularly social activity at Cannock Chase (with users more likely to bike with friends compared to other activities) and mountain bikers tend to stay for a greater length of time than other users (2-3 hours being the most commonly given duration of visit).

4.5 By contrast dog walkers and runners are much more local. Dog walkers tend to visit for a short period (less than an hour) and (together with horse riders) were the user group with the highest proportion of interviewees indicating they visited every day.

Implications for management of access and mitigation of impacts to the SAC

4.6 The visitor survey work was commissioned to fill a gap in our understanding of current levels of use and visitor patterns at Cannock Chase. This information is necessary in part to make links between housing development in the areas surrounding Cannock Chase and possible impacts on the European Protected site (Cannock Chase SAC). Impacts of recreation, observations of users and a report setting out potential mitigation measures have been produced separately and accompany this report. Here we highlight the several findings which have implications for the long term management of access at Cannock Chase.

4.7 A very high proportion of people visit by car. The implication is that provision/control/modification of vehicle access, for example through parking, may be an effective means of influencing the visitor patterns of the majority of visitors.

4.8 The existing focus on the main access points/centres (Birches Valley/Marquis Drive and to some extent Moors Gorse) means a relatively high proportion of visitors can be reached and influenced at these locations. By promoting access to these locations further (i.e. drawing visitors to fewer locations) access may be easier to influence.

4.9 There was no evidence of a correlation between visitor numbers and parking capacity at the surveyed locations. This is contrary to surveys at other heathland sites (e.g. Liley *et al.* 2006a; b) and may indicate that there is more than enough parking spaces. The large number of car-parks (some 105 parking locations were surveyed in the car counts) and survey results that indicate that they were virtually all regularly used, suggests that people travelling to the Cannock Chase spread out across the site.

4.10 Mountain biking and orienteering are undertaken by groups of friends, in contrast to other activities which are more family-orientated or undertaken alone. This suggests that suitable means of working with these users may include social networking sites, groups, clubs and other options where peer pressure can be brought to bear.

4.11 Cannock Chase has relatively low levels of housing directly surrounding it, but very high numbers of housing and urban development at moderate distances away. The site clearly draws people from a wide area, and this varies markedly according to activity. Mountain bikers clearly come from a much wider geographic area than other types of user. Looking within the 20km radius, the data would suggest that Wolverhampton is the authority that will contribute the largest amount of the development (22% of the new development within 20km), followed by Stafford (19%) and Walsall (17%).

4.12 At other heathland sites (such as Ashdown Forest, the Dorset Heaths and the Thames Basin Heaths) where concerns about impacts of recreation and increased development have led to mitigation measures being established, visitor data has been used in part to inform the selection of a 'zone of influence'. Within this zone new development is considered to have a likely significant effect on the European Site, and mitigation measures have been set up to resolve the problems. The need for, and establishment of any kind of mitigation relating to Cannock Chase SAC, is considered in a parallel report and beyond the scope of this document. It is however necessary here to consider the potential to use the visitor data to assess where people travel from and where development may result in increased levels of access. In other heathland areas the approach has been to identify the distance at which around 75% of visitors have travelled from, and this results in a 5km zone for Dorset and the Thames Basin Heaths. It is larger around Ashdown Forest (Clarke, Sharp, & Liley 2010).

4.13 Such an approach at Cannock Chase, using data on all visitors, will be skewed by the inclusion of mountain bikers. For example the 75% quartile for the distance from home postcode to survey point is 15.13km for all visitors (Table 17) and is 13.26km for all visitors except mountain bikers. The situation regarding Cannock Chase SAC is therefore complicated due to the range of activities that take place and the wide distances some users are prepared to travel for specific activities. Cannock Chase is also more complex in that the relative distribution of housing is focused further away from the SAC. This can clearly be seen in Table 27 and Figure 20.

Table 27: Comparison of housing numbers at Cannock Chase with some other European Sites. Data derived using buffers drawn around the site boundaries for Ashdown Forest SPA, Dorset Heathlands SPA, Thames Basin Heaths SPA and Cannock Chase SAC.

	Ashdown	Dorset Heaths	Thames Basin Heaths	Cannock Chase
Number of houses 500m	3,289	43,185	38,740	1,362
Number of houses 5000m	28,023	245,754	308,863	56,415
Number of houses 10000m	70,498	287,099	500,616	116,007
Number of houses 15000m	176,990	333,208	883,695	239,891
Area (ha)	3207	8169	8274	1240
% of visitors travelling from within 5km	50	81	76	42

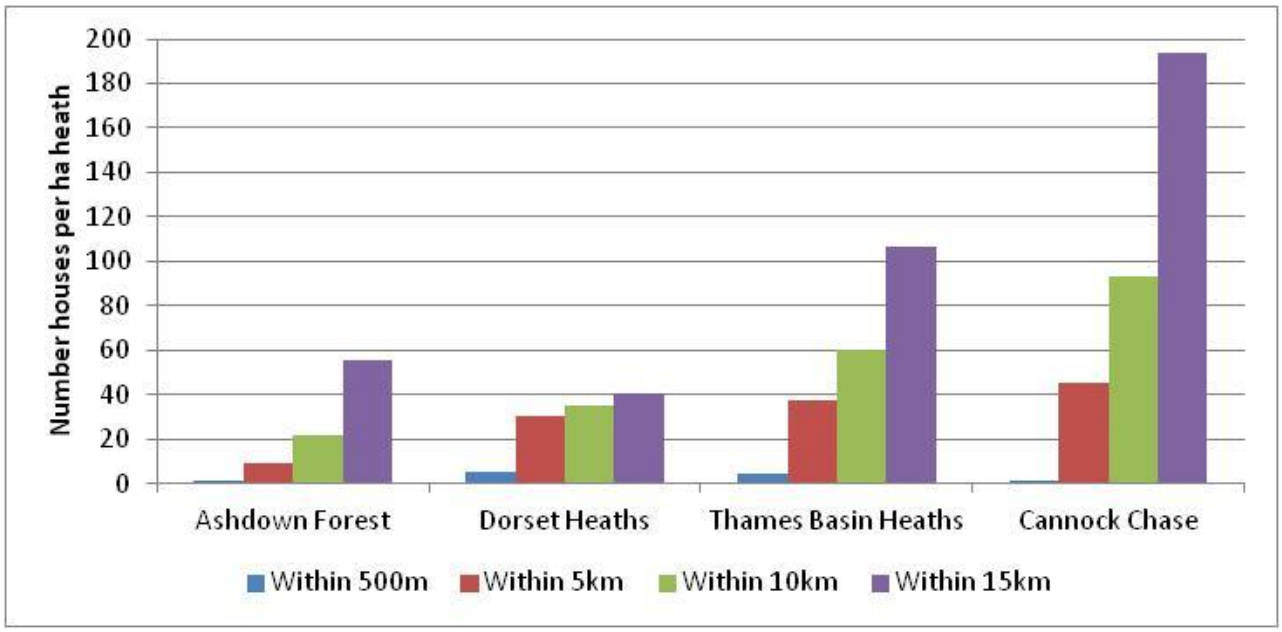

Figure 20: Relative numbers of houses (per ha of site) at different distance bands. Data from Table 27

4.14 Any strategic approach to mitigation relating to the SAC will therefore need to consider the relevant activities causing damage to the SAC and where new development will result in increased damage. There is potentially merit in not directly following the kind of approach used at Ashdown Forest, the Dorset Heaths or the Thames Basin Heaths.

4.15 One feature that is a key element of mitigation packages at other sites is the provision of alternative sites to absorb some of the increased recreation pressure associated with new development. The visitor survey results here indicate that attractive scenery is a draw for a high proportion (63%) of visitors (Figure 5). Given that visitors also seem prepared to travel some (often considerable distances) to reach Cannock Chase it will be difficult to find or create any kind of alternative green infrastructure that could 'compete'. The evidence would therefore suggest that, while alternative sites may have a role to play,

they should perhaps not be the focus of any mitigation package. Cannock Chase is an AONB, clearly well known and with long-established access for many user groups. There is perhaps potential for drawing visitors to locations outside the SAC but still within the AONB – i.e. elsewhere at Cannock Chase rather than alternative destinations.

Limitations in the Data

4.16 The visitor data involves a very high number of interviews and in particular the postcode data provides a powerful and very useful dataset. There were some problems encountered during the analysis, and to some extent it was not possible to undertake all the analysis that was originally envisaged. Limitations and some suggestions for further work are discussed here.

Group Size

4.17 No information was collected on group size within each party interviewed, nor was the number of groups recorded on the tally sheets.

4.18 A record of group size would have made it possible to scale up the questionnaire data to provide a more robust estimate of visitor numbers. It is also important in relation to comparing activities in terms of 'footfall'. As only one person per group was interviewed, activities that involve large groups (family outings, orienteering etc.) will be under-represented. If people travelling from further afield tend to travel in larger groups, then group size data may limit our understanding of the relative impacts of development at different distances from the SAC.

4.19 Group size data would also have been useful in calculating the typical number of people per group that arrived by car. This would allow us to use the car-park data to estimate total number of visitors (coming by car). Such an approach was ruled out as the group size data was missing.

Frequency of Visit

4.20 Inconsistencies with how information were recorded and the complexity of combining season and frequency within the questionnaire meant that data on visit frequency cannot be used with confidence. Visitors were not interviewed multiple times, so if someone had already been interviewed, their postcode was not collected a second time.

4.21 The implications of this will be that the postcode analysis will be slightly biased towards infrequent visitors, i.e. the relative proportion of visits made from postcodes further away will be over-estimated. If the survey had only taken place on a limited number of dates (for example many visitor surveys may only involve a few hours of survey effort at each location), then the number of people re-encountered would be limited.

Variation between survey points in the amount and timing of the surveys

4.22 Different amounts of survey time were conducted across the different survey points and variable time periods were used. This means it was difficult to compare data between survey locations and between different seasons. It also means that different access points contribute more 'weight' to the survey – i.e. those that were surveyed across all seasons and for longer periods will have generated more data. This is not necessarily a

major flaw, but should be recognised when using the data or referring to any of the results. It will be particularly relevant where the visitor profile at different survey points is markedly different.

4.23 Car-park counts were also limited in temporal coverage, which mean extrapolations for the rest of the year are difficult and unreliable.

4.24 The relative lack of survey effort in the summer compared to other times of year may have particular implications if the visitor pattern is markedly different in the summer. From Table 6 it would appear that during the summer there are differences between seasons – for example in the summer there is little difference between weekend and weekday visitors, whereas during the autumn/winter visit rates are higher at weekends (particularly noticeably so for dog walkers). We also know that weekend visitors tend to come from further afield. The lack of survey effort in the summer may mean that the postcode data are biased towards more local visitors.

Questionnaire design

4.25 The questionnaire design was such that some questions were slightly ambiguous, both in the way they could have been asked and the way interviewees may have interpreted them. In many questions multiple responses were recorded, which means it is not possible to accurately assign people to single categories. In the case of activity and mode of transport this is a particular issue. For example some interviewees indicated that they walked and came by car when they visited. This could represent someone who visits most days on foot and occasionally comes by car, or conversely it could be someone that mostly drives and occasionally walks to the site. Not knowing the relative balance – or the mode of transport used on the day interviewed – means that we cannot accurately break visitor numbers down according to mode of transport (or activity).

4.26 Without knowing the number of people who walked to survey points limits our ability to estimate the number of people who walk to the site as a whole and to accurately assess what proportion of visits are made on foot.

4.27 As a result of these limitations it is difficult to estimate total visitor numbers to the site per day or per year. While this is not necessarily a major issue (such figures are always difficult to generate and should usually be treated with caution), it does mean that the potential for the dataset to be used as a baseline for long-term monitoring is limited.

Recommendations

4.28 The visitor survey data provides a data set that shows where people travel from to visit Cannock Chase and provides some useful information on activities undertaken, mode of transport etc. There are some difficulties in using the data (set out above). In light of these difficulties, and in consideration of how the survey results will be used, we suggest consideration of the following:

- Additional car-counts, covering a wider range of dates, times of day and times of year. As a high proportion of visitors arrive by car this will provide a robust overview

of car-visitors and provide a robust baseline for recording how access changes in the future.

- A comprehensive assessment of all access points to the site including all formal car-parks, informal car-parks and foot access points. This will provide a basis for future sampling/survey work.
- At a stratified sample of access points (see bullet above) some accurate counts of visitors are made, through direct observation, automated counters or similar to give detailed numbers of visitors entering the site. Count data should be split according to mode of transport, and include the number of groups, number of people and number of dogs. Ideally it would also record visitors by activity, as possible (activities such as cycling, horse riding and dog walking can be recorded without interviewing people). These count data will allow scaling up of visitor numbers for the whole site and will allow a robust assessment of the relative levels of foot access and car-access.

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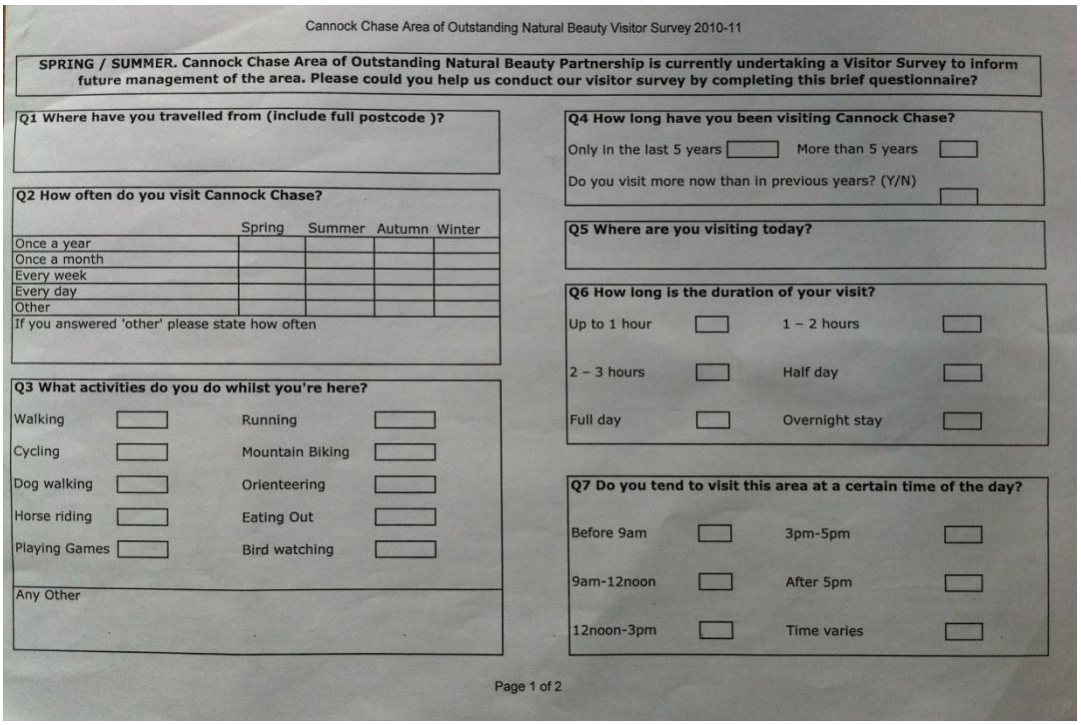
Appendix 1: Visitor Questionnaire



Cannock Chase Area of Outstanding Natural Beauty Visitor Survey 2010-11

SPRING / SUMMER. Cannock Chase Area of Outstanding Natural Beauty Partnership is currently undertaking a Visitor Survey to inform future management of the area. Please could you help us conduct our visitor survey by completing this brief questionnaire?

Q1 Where have you travelled from (include full postcode)?

Q2 How often do you visit Cannock Chase?

	Spring	Summer	Autumn	Winter
Once a year				
Once a month				
Every week				
Every day				
Other				

If you answered 'other' please state how often

Q3 What activities do you do whilst you're here?

Walking ☐ Running ☐
Cycling ☐ Mountain Biking ☐
Dog walking ☐ Orienteering ☐
Horse riding ☐ Eating Out ☐
Playing Games ☐ Bird watching ☐

Any Other

Q4 How long have you been visiting Cannock Chase?

Only in the last 5 years ☐ More than 5 years ☐

Do you visit more now than in previous years? (Y/N) ☐

Q5 Where are you visiting today?

Q6 How long is the duration of your visit?

Up to 1 hour ☐ 1 – 2 hours ☐
2 – 3 hours ☐ Half day ☐
Full day ☐ Overnight stay ☐

Q7 Do you tend to visit this area at a certain time of the day?

Before 9am ☐ 3pm-5pm ☐
9am-12noon ☐ After 5pm ☐
12noon-3pm ☐ Time varies ☐

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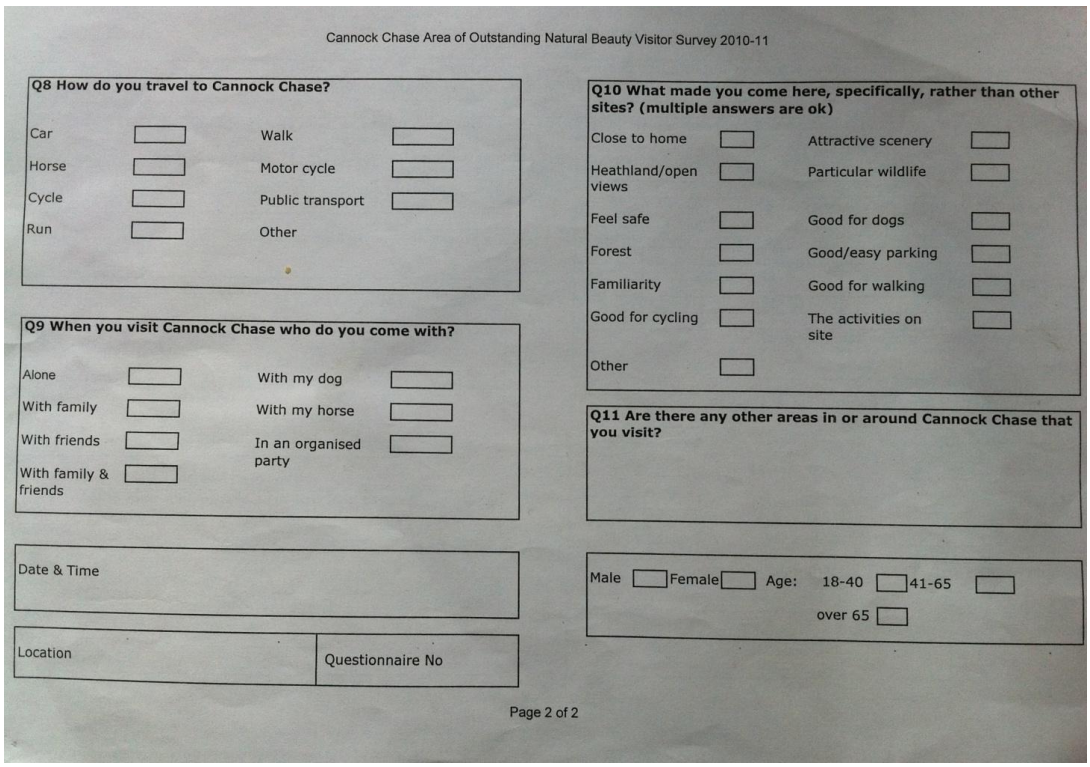

Cannock Chase Area of Outstanding Natural Beauty Visitor Survey 2010-11

Q8 How do you travel to Cannock Chase?

Car ☐ Walk ☐
Horse ☐ Motor cycle ☐
Cycle ☐ Public transport ☐
Run ☐ Other

Q9 When you visit Cannock Chase who do you come with?

Alone ☐ With my dog ☐
With family ☐ With my horse ☐
With friends ☐ In an organised party ☐
With family & friends ☐

Date & Time

Location | Questionnaire No

Q10 What made you come here, specifically, rather than other sites? (multiple answers are ok)

Close to home ☐ Attractive scenery ☐
Heathland/open views ☐ Particular wildlife ☐
Feel safe ☐ Good for dogs ☐
Forest ☐ Good/easy parking ☐
Familiarity ☐ Good for walking ☐
Good for cycling ☐ The activities on site ☐
Other ☐

Q11 Are there any other areas in or around Cannock Chase that you visit?

Male ☐ Female ☐ Age: 18-40 ☐ 41-65 ☐ over 65 ☐

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Appendix 2: Survey Effort by Season and Location

Survey effort (hours) by survey location and season. Hours are expressed as decimals (i.e. 7.25 is 7 hours and 15 minutes)

Site No	Location	Autumn/winter		Christmas		Easter		Spring/summer		Summer holidays		Total Survey effort
		weekday	weekend	weekday	weekend	weekday	weekend	weekday	weekend	weekday	weekend	all
1	Marquis Drive	6	6	6.5	0	9.5	0	11.5	6.5	10.5	0	56.5
2	Birches Valley Car Park	6	6	0	7.5	10	0	10	7.5	10	0	57
3	Milford Common	5	7	0	0	5	5	0	6.5	12	0	40.5
4	Castle Ring	6	5.83	3	0	9	0	8.17	9.75	0	9	50.75
5	Seven Springs	7.5	7	7.5	0	10	0	10	8	7.5	2.5	60
6	Commonwealth Cemetery	7.5	7.5	7.5	0	10	0	0	0	0	0	32.5
7	Punchbowl Car Park	6	8	0	0	9.5	0	8	7	8.5	0	49
8	Stepping Stones	6.5	7.5	7.5	0	10	0	0	0	10	0	41.5
9	Sherbrook Valley	7	7.5	7.5	0	10	0	0	0	10	0	42
10	Fair Oak Pools	6	6	0	0	9	0	8.5	3	7	0	39.5
11	Whitehouse Car Park	5	6	0	7	10	0	8	10	0	10	56
12	Chase Road Corner	7	7.5	7.5	0	10	0	0	0	5	5	42
13	Hazel Slade Nature Reserve	6	6	2	0	11.5	0	9.5	9.5	10	0	54.5
14	Aspens Car Park	7	6.5	0	0	6.5	2	8.5	9	6	2	47.5
15	Brook Lane Corner	7.5	7.5	5	2.5	10	0	7.5	7	10	0	57
16	The Cutting	6.5	0	2	0	8	0	6	6	8.5	0	37
17	Brocton Coppice Car Park	7.25	4.75	0	8	0	7	10.5	10	5	5	57.5
18	Chase Vista Car Park	6	6	7.5	0	10	0	10	10	0	10	59.5
19	Glacial Boulder	6.5	7.5	7.5	0	10	0	0	0	10	0	41.5
20	Spring Slade Lodge	6	6	2	2	8	0	9	11.5	8.5	0	53

Site No	Location	Autumn/winter		Christmas		Easter		Spring/summer		Summer holidays		Total Survey effort
21	Oldacre Lane	6	6	0	7.5	10	0	10	10	5	5	59.5
22	Brindley Bottom Car Park	4.5	6	2	0	0	0	0	0	5.72	0	18.22
23	Toc H Trail Car Park	7.5	7.5	2.5	0	10	0	8	10	2.5	7.5	55.5
24	West Cannock Farm	7	5.83	2	0	8.5	0	8.5	0	2	0	33.83
25	Duffields	7	7.5	7.5	0	10	0	0	0	7.5	2.5	42
26	Kingsley Wood Road	7.5	7.5	4.5	2.5	6.5	2	8	8	5.92	2.5	54.92
27	Abrahams Valley	5.67	7	7.5	0	7.5	0	8.58	2.5	6	0	44.75
28	Moors Gorse	6.5	6	4	0	10	0	4.5	10	8.5	0	49.5
29	Gentleshaw Common	6	8	5	2.5	7.5	2.5	10	10	10	0	61.5
30	Shoal Hill Cocksparrow Lane Car Park	6	6	5	0	0	0	6	6	6	0	35
Total		191.92	195.42	113	39.5	246	18.5	188.75	177.75	197.63	61	1429.47

Appendix 3: Car counts: summary of data

Table gives the total number of vehicles counted across all transects (range; median). Map ID allows cross reference with Map 2. Rows shaded in grey are those outside the SAC.

Map ID	Location	Cars	Cars & cycle racks	Coaches	Minibus	Horse Box	Motor bike	Total
1	Seven Springs Car Park	278 (4-36; 14.5)	5 (0-2; 0)	0 (0-0; 0)	0 (0-0; 0)	2 (0-1; 0)	0 (0-0; 0)	36 (4-37; 15)
2	Codman's Slade Car Park	7 (0-2; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	2 (0-2; 0)
3	Punchbowl Car Park	147 (0-32; 4.5)	6 (0-4; 0)	0 (0-0; 0)	0 (0-0; 0)	2 (0-2; 0)	1 (0-1; 0)	32 (0-33; 5)
4	Satnall Hills Car Park	24 (0-8; 1)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	8 (0-8; 1)
5	Pull in above main Shugborough entrance	8 (0-2; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	2 (0-2; 0)
6	Holdiford Road pull in	11 (0-3; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	3 (0-3; 0)
7	Lay-by 1 on A513 Milford Common	15 (0-3; 1)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	3 (0-3; 1)
8	Lay-by 2 on A513 Milford Common	15 (0-3; 0.5)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	3 (0-3; 0.5)
9	Milford Common	208 (0-58; 5)	2 (0-1; 0)	0 (0-0; 0)	1 (0-1; 0)	0 (0-0; 0)	4 (0-4; 0)	58 (0-63; 5)
10	The Cutting Car Park	71 (0-11; 3)	1 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	1 (0-1; 0)	0 (0-0; 0)	11 (0-11; 3)
11	The Cutting Car Park 2	18 (0-11; 0)	1 (0-1; 0)	0 (0-0; 0)	1 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	11 (0-12; 0)
12	Sister Dora Car Park	25 (0-3; 1)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	3 (0-3; 1)
13	Car park opposite Brocton Lodge	37 (0-10; 1)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	10 (0-10; 1)
14	Broc Hill Way Car Park	10 (0-2; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	2 (0-2; 0)
15	Brocton Nature Reserve Car Park	31 (0-7; 1)	1 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	7 (0-7; 1)
16	Pull in on Chase Road before the first speed hump	12 (0-3; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	3 (0-3; 0)
17	Pull in on Chase Road after the first speed hump	4 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	1 (0-1; 0)
18	Pull in on Chase Road after the first speed hump	11 (0-2; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	2 (0-2; 0)
19	Entrance to quarry	4 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	1 (0-1; 0)
20	Chase Vista Car Park	43 (0-6; 2)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	6 (0-6; 2)
21	Pull in after Chase Vista Car Park	4 (0-3; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	3 (0-3; 0)
22	Pull in just before Coppice Hill left turn	6 (0-4; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	4 (0-4; 0)

Map ID	Location	Cars	Cars & cycle racks	Coaches	Minibus	Horse Box	Motor bike	Total
23	Coppice Hill pull in	22 (0-6; 0.5)	1 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	6 (0-6; 1)
24	Freda's Grave pull in	60 (0-12; 3)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	12 (0-12; 3)
25	Pull in on route to Coppice Hill main Car Park	26 (0-5; 1)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	5 (0-5; 1)
26	Coppice Hill main Car Park at the end of the track	101 (0-15; 5)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	15 (0-15; 5)
27	Pull in Freda's Grave footpath, Chase Road	21 (0-9; 1)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	9 (0-9; 1)
28	Pull in after Freda's Grave, Chase Road	5 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	1 (0-1; 0)
29	Pull in after Freda's Grave, Chase Road	72 (1-9; 3)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	9 (1-9; 3)
30	Pull in after speed hump	17 (0-3; 1)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	3 (0-3; 1)
31	Glacial Boulder Car Park	73 (0-8; 4)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	8 (0-8; 4)
32	Pull in 20 yards after Glacial Boulder	2 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	1 (0-1; 0)
33	Pull in 50 yards after Glacial Boulder	2 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	1 (0-1; 0)
34	Chase Road Corner Car Park	94 (0-16; 4.5)	1 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	1 (0-1; 0)	0 (0-0; 0)	16 (0-18; 4.5)
35	Pull in after Chase Road Corner Car Park	5 (0-2; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	2 (0-2; 0)
36	2nd Pull in after Chase Road Corner Car Park	2 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	1 (0-1; 0)
37	3rd Pull in after Chase Road Corner Car Park	12 (0-2; 0.5)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	2 (0-2; 0.5)
38	Bednall Belt Car Park	14 (0-4; 0.5)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	4 (0-4; 0.5)
39	Pull in after Bednall Belt Car Park	11 (0-2; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	2 (0-2; 0)
40	Pull in after Bednall Belt Car Park	10 (0-2; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	2 (0-2; 0)
41	Pull in after Bednall Belt Car Park	3 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	1 (0-1; 0)
42	Pull in after Bednall Belt Car Park	1 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	1 (0-1; 0)
43	Pull in before Anson's Bank Car Park	19 (0-4; 1)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	4 (0-4; 1)
44	Anson's Bank Car Park	54 (0-11; 1.5)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	11 (0-11; 1.5)
45	First pull in past Anson's Bank Car Park	1 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	1 (0-1; 0)
46	2nd pull in past Anson's Bank Car Park	2 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	1 (0-1; 0)
47	Springslade Lodge Car Park	154 (0-24; 8.5)	5 (0-3; 0)	0 (0-0; 0)	1 (0-1; 0)	0 (0-0; 0)	1 (0-1; 0)	24 (1-24; 8.5)
48	Katyn Car Park Car Park	68 (0-8; 3.5)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	8 (0-8; 3.5)

Map ID	Location	Cars	Cars & cycle racks	Coaches	Minibus	Horse Box	Motor bike	Total
49	Katyn Pull in entering Car Park 1	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)
50	Katyn Pull in entering Car Park 2	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)
51	Pull in after Springslade Lodge	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)
52	Pull in 2 after Springslade Lodge	1 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	1 (0-1; 0)
53	Quarry back entrance Pottal Pool, Badger Slade Wood	6 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	1 (0-1; 0)
54	Aspens Car Park pull in as you enter	40 (0-6; 2)	1 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	6 (0-6; 2)
55	Aspens main Car Park	47 (0-8; 2)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	8 (0-8; 2)
56	Commonwealth Cemeteries Car Park	57 (0-8; 3)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	8 (0-8; 3)
57	German War Cemeteries	39 (0-11; 1)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	11 (0-11; 1)
58	1st pull in on Penkridge Bank Road	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)
59	2nd pull in on Penkridge Bank Road	3 (0-2; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	2 (0-2; 0)
60	3rd pull in on Penkridge Bank Road	1 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	1 (0-1; 0)
61	4th pull in on Penkridge Bank Road	3 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	1 (0-1; 0)
62	Whitehouse Car Park	175 (1-27; 7)	12 (0-3; 0)	0 (0-0; 0)	0 (0-0; 0)	2 (0-2; 0)	0 (0-0; 0)	27 (1-30; 9)
63	Rifle Range Corner and pull ins	31 (0-4; 1.5)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	4 (0-4; 1.5)
64	TA Centre Car Park	83 (0-8; 5)	5 (0-2; 0)	0 (0-0; 0)	0 (0-0; 0)	2 (0-2; 0)	0 (0-0; 0)	8 (0-10; 5.5)
65	Pull in opposite TA Centre Car Park	12 (0-4; 0)	1 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	4 (0-4; 0)
66	Penkridge Bank Road Car Park	146 (1-18; 7.5)	16 (0-4; 0)	0 (0-0; 0)	0 (0-0; 0)	1 (0-1; 0)	0 (0-0; 0)	18 (1-22; 9)
67	Pull in between Kingsley Wood Rd & Penkridge Bank Rd	19 (0-3; 1)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	3 (0-3; 1)
68	Pull in after Penkridge Bank Car Park	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)
69	Pull in after Penkridge Bank Car Park	0 (0-0; 0)	0 (0-0; 0)	1 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-1; 0)
70	Birches Valley Car Park	1890 (7-308; 104)	540 (4-83; 23.5)	10 (0-6; 0)	2 (0-1; 0)	0 (0-0; 0)	5 (0-5; 0)	308 (17-379; 129)
71	Pull in opposite Fairoak Lodge access	9 (0-3; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	3 (0-3; 0)
72	Pull in before Flints Corner	2 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	1 (0-1; 0)
73	Flints Field Car Park	23 (0-5; 1)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	5 (0-5; 1)
74	Brindley Bottom Car Park	37 (0-5; 2)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	1 (0-1; 0)	5 (0-5; 2)

Map ID	Location	Cars	Cars & cycle racks	Coaches	Minibus	Horse Box	Motor bike	Total
75	Brindley Village Car Park	58 (0-8; 2.5)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	8 (0-8; 2.5)
76	Pull in after Brindley Village Car Park	10 (0-2; 0.5)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	2 (0-2; 0.5)
77	Pull in before Tower Garage, opp water tower	4 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	1 (0-1; 0)
78	Pull in just after turn to Marquis Drive	3 (0-1; 0)	2 (0-2; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	1 (0-3; 0)
79	Pull in just after turn to Marquis Drive	2 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	1 (0-1; 0)
80	Parking on both sides on road networks around MD	707 (0-113; 32.5)	117 (0-19; 4.5)	3 (0-3; 0)	1 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	113 (0-131; 42)
81	Cannock Chase VC Car Park and overspill	436 (3-106; 13)	42 (0-22; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	106 (3-113; 13)
82	Campfield Car Park	54 (0-7; 3)	1 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	7 (0-8; 3)
83	Pull in after Campfield Car Park	1 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	1 (0-1; 0)
84	Nine Gate Car Park	93 (0-12; 5)	1 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	12 (0-12; 5)
85	Duffields Car Park	57 (0-9; 2)	2 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	9 (0-9; 2.5)
86	Fives Valley Car Park	21 (0-3; 1)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	3 (0-3; 1)
87	Pull in after AONB brown signs	30 (0-6; 1)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	6 (0-6; 1)
88	Pull in by fishing ponds before Brindley Village signs	7 (0-2; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	2 (0-2; 0)
89	Brindley Heath Car Park	35 (0-12; 1)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	12 (0-12; 1)
90	Museum of Cannock Chase Car Parks	80 (0-24; 3)	0 (0-0; 0)	6 (0-2; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	24 (0-24; 3.5)
91	Hednesford Hills Nature Reserve, Reservoir Road	16 (0-3; 0.5)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	3 (0-3; 0.5)
92	Hazelslade LNR Car Park	9 (0-2; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	2 (0-2; 0)
93	Nunswell Car Park	3 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	1 (0-1; 0)
94	Castle Ring Car Park	139 (0-17; 7.5)	2 (0-1; 0)	1 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	17 (0-17; 7.5)
95	Gentleshaw Common pull in opposite church	80 (0-20; 1)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	1 (0-1; 0)	0 (0-0; 0)	20 (0-20; 1)
96	Gentleshaw Common pull in opposite pub	39 (0-5; 2)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	5 (0-5; 2)
97	Gentleshaw Common Car Park	35 (0-6; 2)	1 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	6 (0-6; 2)
98	Beaudesert Old Park Car Park	80 (0-14; 5)	2 (0-2; 0)	0 (0-0; 0)	0 (0-0; 0)	1 (0-1; 0)	0 (0-0; 0)	14 (0-14; 5)
99	Pull in at FC Barrier Longdon	85 (0-11; 4)	2 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	11 (0-11; 4)
100	Stile Cop Car Park	65 (0-8; 3)	17 (0-4; 0)	0 (0-0; 0)	0 (0-0; 0)	1 (0-1; 0)	0 (0-0; 0)	8 (0-11; 4.5)

Map ID	Location	Cars	Cars & cycle racks	Coaches	Minibus	Horse Box	Motor bike	Total
101	Flaxley Green Car Park	33 (0-6; 1.5)	1 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	1 (0-1; 0)	6 (0-6; 1.5)
102	Moors Gorse Car Park	68 (0-14; 2.5)	3 (0-2; 0)	0 (0-0; 0)	2 (0-1; 0)	0 (0-0; 0)	0 (0-0; 0)	14 (0-14; 2.5)
103	Shoal Hill Car Park 1	39 (0-5; 2)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	5 (0-5; 2)
104	Shoal Hill Car Park 2	17 (0-3; 1)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	3 (0-3; 1)
105	Main Shoal Hill Car Park	85 (0-10; 5)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	0 (0-0; 0)	10 (0-10; 5)

Appendix 4: Housing data guidance note

The following has been prepared as background to the Visitor Impact Assessment report produced by Footprint Ecology, appointed by the following authorities:

STAFFORDSHIRE COUNTY COUNCIL

CANNOCK CHASE DISTRICT COUNCIL

LICHFIELD DISTRICT COUNCIL

STAFFORD BOROUGH COUNCIL

SOUTH STAFFORDSHIRE DISTRICT COUNCIL

THE BLACK COUNTRY AUTHORITIES

BIRMINGHAM CITY COUNCIL

EAST STAFFORDSHIRE BOROUGH COUNCIL

The following information has been provided to enable an analysis of future visitor impacts on Cannock Chase Special Area of Conservation (SAC)

South Staffordshire

Data provided:

Housing commitments (with planning permission) = 2608

Strategic settlement allocations = 1,610

Total = 10,100 which is the same as that in the Core Strategy

Sub area totals have not been segregated into 1km bands

Stafford Borough Council

Data provided:

Housing commitments (with planning permission) = 2,871

Strategic site allocations = 6,000

Total for the two sub areas = 492 houses + 737 houses

Total = 4218

Dudley

Data provided:

Housing commitments

SHLAA sites

Total = 1094 - only within northern wards, as requested by Footprint Ecology

East Staffs

Data provided:

Strategic sites = 5399

Existing permission = 2223

Windfall sites = 1316

Total = 8938. Of this total 2639 (416 of the windfall and 2223 existing permissions) were evenly distributed within the authority within 1km distance bands.

Walsall

Data provided:

Walsall North – 4,055

Walsall South-East – 1,001

Walsall South-West - 3,782

Total = Commitments + UDP allocations + SHLAA = 8,838

Cannock –

Data provided

SHLAA sites = 5462Total planned for = 5,800

Lichfield

Data provided

Strategic Development Locations = 3,591

SHLAA = 3,869

Sub Area data (SHMA data) = 83

Total = 7,543

SHLAA and sub area data segregated into 1km zones

Sandwell

Data provided

SHLAA data 17,616 – which is the remaining Core Strategy housing target up to 2026

Wolverhampton –

Data provided:

SHLAA data = 7996

Sub area data = 3360

Strategic development = 631

Total = 11,987 – remaining Core Strategy housing target up to 2026

Birmingham

Data provided:

Housing data for Sutton Coldfield sub-area has been derived as follows:

sites where planning permission for housing has been granted or where construction is currently taking place

potential housing sites - identified by local planning/regeneration officers, housing officers

Total = 1317

Local Authority	SHLAA sites provided	Housing commitments (sites with planning permission or existing allocations)	Sub area totals and new housing allocations	Total planned for in new local plan
South Staffordshire	0	2608	1,610	4218
Stafford		2,871	7,229	11,000
Cannock	5462			5800
Birmingham (data only provided for Sutton Coldfield area	1317			data only provided for Sutton Coldfield - the area within the original zone of influence
Wolverhampton	7996	3360	631	11,987 – remaining Core Strategy housing target up to 2026
Sandwell	17,616			17,616 – remaining Core Strategy housing target up to 2026
Lichfield	3,869		3,674	7543
Walsall	Walsall N – 1,573 Walsall SE – 524 Walsall SW - 987	5,754	Walsall N 4,055 Walsall SE 1,001 Walsall SW 3,782	8,838616 – remaining Core Strategy housing target up to 2026
Dudley	1094			12,400 (data only provided for northern part of the district – the area within the original zone of influence)
East Staffs	5399	2223	8938	1316 windfall (of which 416 evenly distributed across 1km bands; rest mapped at Burton (540) and Uttoxeter (360)
	21,644			11,000

Appendix 5: Summary of data by subarea, current and new housing

Table summarises data for 20km radius from SAC and is generated postcode data in GIS and the visitor postcodes. We summarise the totals by Authority and by sub-area, but it should be noted that these are summary figures based on calculations of the number of houses (new and current) and number of postcodes within 1km distance bands within each sub area. Where data has been split by distance bands within local authority sub areas then small differences in total (compared to Appendix 4) may result.

Local Authority & Sub areas	Number of houses			Number of visitor postcodes in survey		Number of interviewee postcodes adjusted to account for change in housing.	
	Current	Estimated new	% change in housing	All Interviewees	Non mountain mikes	All Interviewees	Non mountain mikes
Birmingham City	**13253**	**387**	**3**	**17**	**14**	17.5	14.4
Birmingham	1482	0	**0**	1	1	1	1
Sutton Coldfield	11771	387	**3**	16	13	16.5	13.4
Cannock Chase	**41314**	**5462**	**13**	**911**	**798**	1031.4	903.5
Central	27666	3165	**11**	705	619	785.7	689.8
Extra	34	4	**12**	0	0	0	0
North	10397	1059	**10**	174	153	191.7	168.6
South	3217	1234	**38**	32	26	44.3	36
Dudley	**745**	**1**	**0**	**0**	**0**	0	0
Dudley North	745	1	**0**	0	0	0	0
East Staffordshire	**12568**	**3443**	**27**	**29**	**22**	36.9	28
Central	9120	2761	**30**	25	18	32.6	23.4
North	387	168	**43**	0	0	0	0
South	3061	514	**17**	4	4	4.7	4.7
Lichfield District	**39853**	**6531**	**16**	**460**	**418**	535.4	486.5
Burntwood	12644	823	**7**	296	270	315.3	287.6
Lichfield City	14339	646	**5**	65	61	67.9	63.7
Rural North	6877	3262	**47**	77	66	113.5	97.3
Rural South	5993	1800	**30**	22	21	28.6	27.3
Sandwell	**18873**	**2943**	**16**	**4**	**3**	4.6	3.5
North region	18873	2943	**16**	4	3	4.6	3.5
South Staffordshire	**33361**	**3121**	**9**	**268**	**239**	293.1	261.4
Central	9892	672	**7**	21	16	22.4	17.1
North	6774	1086	**16**	149	136	172.9	157.8
North East	11933	968	**8**	86	77	93	83.2
North West	4762	395	**8**	12	10	13	10.8
Stafford Borough	**54188**	**10000**	**18**	**774**	**656**	916.8	777.1
East	46509	8660	**19**	731	619	867.1	734.3

Local Authority & Sub areas	Number of houses			Number of visitor postcodes in survey		Number of interviewee postcodes adjusted to account for change in housing.	
	Current	Estimated new	% change in housing	All Interviewees	Non mountain mikes	All Interviewees	Non mountain mikes
West	7679	1340	**17**	43	37	50.5	43.5
Walsall	**109728**	**8831**	**8**	**170**	**151**	183.7	163.2
Walsall East	24186	995	4	33	26	34.4	27.1
Walsall North	57502	4372	8	121	112	130.2	120.5
Walsall West	28040	3464	12	16	13	18	14.6
Wolverhampton	**93096**	**11320**	**12**	**83**	**72**	93.1	80.8
Wolverhampton E	38514	6174	**16**	9	8	10.4	9.3
Wolverhampton N	37052	4015	**11**	50	45	55.4	49.9
Wolverhampton W	17530	1131	**6**	24	19	25.5	20.2
Total	**416979**	**52039**	**12**	**2716**	**2373**	3055	2669.2