Monitor of Engagement with the Natural Environment

The national survey on people and the natural environment

Technical Report to the 2009 - 2019 surveys

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Natural England Joint Report NECR277
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Foreword

Natural England produces a range of reports providing evidence and advice to assist us in delivering our duties.

Background

In 2009 Natural England commissioned Kantar TNS to undertake the Monitor of Engagement with the Natural Environment (MENE).

The data enables Natural England, its partners and data users to:

- Understand how people use, enjoy and are motivated to protect the natural environment.
- Monitor changes in use of the natural environment over time, at a range of different spatial scales and for key groups within the population.
- Inform on-the-ground initiatives to help them link more closely to people's needs.
- Evaluate the impact and effectiveness of related policy and initiatives.
- Measure the impact of and inform policy relating to the natural environment.

The MENE technical report

This report provides full details of the survey methodology, sampling, weighting and estimates of confidence intervals for the full ten years of MENE (i.e. fieldwork from March 2009 to February 2019). It also includes:

- The full questionnaire
- Guidance on the overall strengths and limitations of the data
- Details of changes to the survey questions implemented in 2016 and a related data calibration exercise

Published alongside this report are:

- A headline report presenting the headline results from year ten (March 2017 February 2019) data and analysis of ten years of MENE fieldwork.
- A Weighting and Variable Guidance note.
- Data tables in Excel providing more detailed survey results (note links to this file in related report sections).
- A Thematic Report providing a summary of some of the key insights and learnings obtained from MENE over its 10 years.
- A GIS Local Authority Data Viewer.
- SPSS, .CSV and Excel data files that allow detailed analysis of the MENE dataset.

Please see GOV.UK for further outputs from the survey: https://www.gov.uk/government/collections/monitor-of-engagement-with-the-natural-environment-survey-purpose-and-results

National Statistics

The UK Statistics Authority has designated these statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Statistics and its key principles of:

- **value**- statistics that support society's needs for information.
- **quality** - data and methods that produce assured statistics.
- **trust** – users of statistics and citizens have confidence in the people and organisations that produce statistics and data.

Once statistics have been designated as National Statistics it is a statutory requirement that the Code of Practice shall continue to be observed.

National Statistics Designation Statement

The statistics derived from MENE have been designated as National Statistics. This status means that statistics meet the highest standards of trustworthiness, quality and public value, and it is Natural England's responsibility to maintain compliance with these standards.

These statistics last underwent a full assessment against the Code of Practice for Statisticsin 2014. See Assessment Report 269 Statistics on Engagement with the Natural Environment.Since that assessment by the Office for Statistics Regulation, we have continued to comply with the Code of Practice for Statistics and have made the following improvements:

•Implemented a thorough quality checking process and in partnership with suppliers to ensure the quality assurance procedure is robust.

•Changed elements of our reports and data releases so that statistics are more accessible for users. We have developed a dashboard that will provide local level data analysis, as well as making improvements so that data is easier to download and use.

For information on improvements we have made to the MENE data series please see the MENE Technical Report.

Once designated as National Statistics it is a statutory requirement that the Code of Practice shall continue to be observed. For further details see https://www.statisticsauthority.gov.uk/Code-of-Practice/

The responsible research officer for this publication is Rose O'Neill: Rose.O'Neill@naturalengland.org.uk

Keywords: engagement, natural environment, participation, motivations, barriers, activities and expenditure

This report can be downloaded from the Natural England website:

www.gov.uk/government/statistics/monitor-of-engagement-with-the-natural-environment-headline-report-and-technical-reports-2018-to-2019

For information on Natural England publications contact the Natural England Enquiry Service on 0845 600 3078 or e-mail **MENE@naturalengland.org.uk.**

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1 Introduction

1.1 This report outlines the methods and technical details of the Monitor of Engagement with the Natural Environment (MENE) survey. The survey collected detailed information on people's use and enjoyment of the natural environment, focusing on visits to the natural environment. This report relates to the full ten years of surveying from March 2009 to February 2019.

1.2 The survey was undertaken by Kantar on behalf of Natural England and the Department for Environment, Food and Rural Affairs (Defra).

Background

1.3 Natural England commissioned Kantar TNS to undertake the MENE survey. This survey provides the most comprehensive dataset yet available on people's use and enjoyment of the natural environment. It includes information on visits to the natural environment (including short, close to home visits) as well as other ways of using and enjoying the natural environment. In addition, MENE is the first time a survey of this type has been conducted over consecutive years, allowing for greater confidence when tracking trends over time.

Survey aims and objectives

1.4 This survey aims to provide information about the relationship between people and the natural environment. Whilst the main focus of the survey is on visits, it also seeks to capture other ways of using or enjoying the natural environment such as time spent in the garden and watching nature programmes on television.

1.5 The objectives of the survey are to:

- provide estimates of the number of visits to the natural environment by the English adult population (16 years and over);
- measure the extent of participation in visits to the natural environment and find out the barriers and drivers that shape participation;
- provide robust information on the characteristics of visitors and visits to the natural environment;
- measure other ways of using and enjoying the natural environment; and
- identify patterns in use and participation for key groups within the population and at a range of spatial scales.

Survey scope

1.6 The survey relates to engagement with *the natural environment*. By natural environment we mean all green open spaces in and around towns and cities as well as the wider countryside and coastline.

1.7 The main focus of the survey is on *visits to the natural environment*. By visits to the natural environment we mean time spent outdoors in the natural environment, *away from home and private gardens*.

1.8 The survey also includes a smaller section of questions regarding engagement with the natural environment other than that experienced during visits. This includes activities such as time spent in private gardens, watching nature programmes on television and undertaking pro-environmental activities such as recycling.

1.9 Questions asked about children's visits to the outdoors (asked of their parent/ guardian) were introduced from March 2013. An additional quarterly module of questions asked of children directly about their connection to nature was included in year nine of the survey. See table 2-3 and the full year one to ten questionnaire appended to this report for more details on frequency and wording for these modules.

Structure of the report

1.10 This technical report provides details of the methods used for MENE and the levels of accuracy of the survey outputs. These appear under the following section headings:

Section 2: Data collection – covering the rationale for the survey approach, a description of the Kantar in-home omnibus, sampling, questionnaire (including changes made over the ten years) and interviewer training.

Section 3: Data analysis – covering data checking and coding, geocoding and the weighting and grossing of survey data.

Section 4: Levels of accuracy – the results of an analysis of the Complex Standard Errors associated with the MENE data.

Appendices:

Appendix 1: MENE Questionnaire – including details of base, timing and additional notes

Appendix 2: Weighting targets

Appendix 3: Review of demographics used in weighting of results

Appendix 4: Year 8, 9 and 10 data calibration approach

Appendix 5: Missing children's data for December 2018

2 Data collection

2.1 This section of the report describes the approach to data collection. Areas covered include survey scoping and piloting, sampling approach, achieved sample size, questionnaire design (including changes made over the ten years of surveying) and interviewer briefing.

Scoping stages and piloting

2.2 The methods used in MENE were developed through a scoping study undertaken in 2007. The aim of the study was to identify the most appropriate survey methods to measure participation in visits to the natural environment amongst the English adult population.

2.3 It involved:

- Consultations with the organisations likely to be end users of a study of this type, to ensure that their information needs were taken into account.
- Qualitative research with members of the public to test their understanding of potential questionnaire wording options.
- Pilot surveys using online, telephone and face-to-face survey approaches, allowing a direct comparison of the results obtained using each method.

2.4 The scoping study concluded that an in-home interview method was the most appropriate and that the inclusion of a series of questions on a weekly basis in a consumer omnibus survey would represent the most cost effective approach for a future study.

2.5 Undertaking interviewing using a face to face approach was recommended for a study of this type, as it would provide the best quality of data, with interviewers able to clarify points to respondents. This approach also facilitated the use of show prompts, such as lists of answer options.

2.6 Including the questions on every wave of a weekly omnibus survey meant that respondents could be asked about any visit they had taken during the last seven days. Also, the nationally representative sample obtained in every week of the survey allowed for the questionnaire to be split into modules with certain questions asked every week, some asked once a month and others asked less often or on a one off, 'ad hoc' basis.

2.7 Following the recommendations of the scoping study, data collection for the first year of MENE commenced with a pilot wave of fieldwork in February 2009, prior to the launch of the main survey period.

2.8 This pilot survey involved 1,763 interviews undertaken between 13th February 2009 and 17th February 2009 and allowed for final testing of the questionnaire. The purpose of this phase was to verify certain key elements of the survey approach including:

- Refining the definitions used in the survey including 'a visit', 'the outdoors' and 'the natural environment'. This included agreeing the best ways to communicate these definitions to survey respondents and finalising the relevant introductory wording in the questionnaire.

- Refining other parts of the questionnaire including decisions on which questions should be asked on a weekly, monthly or quarterly basis.

Summary of approach

2.9 The main survey data collection commenced on 6th March 2009. The survey involved weekly waves of interviewing on the Kantar in-home Omnibus Survey with respondents asked about visits taken in the seven days preceding the interview. In each wave, interviews were undertaken with a representative sample of the English adult population (aged 16 and over) with a sample of at least 800 achieved across at least 100 sample points.

2.10 While the majority of survey questions were included in every weekly wave of the survey, some were asked on a monthly basis while a series of questions regarding other forms of engagement with the natural environment, such as watching nature programmes on television and engagement in pro-environmental activities such as recycling, were asked on a quarterly basis. A set of questions relating to health and wellbeing were also added to the survey by University of Exeter on a monthly basis from October 2014 to September 2018.

2.11 Questions asked about children's visits to the outdoors (asked of their parent/ guardian) were introduced from March 2013. An additional quarterly module of questions asked of children directly about their connection to nature was included in year nine of the survey. See table 2-3 and the full year one to ten questionnaire appended to this report for more details on frequency and wording for these modules

2.12 Each wave of fieldwork was conducted over five days of the week (Friday to Tuesday inclusive). Using a seven day recall period also necessitated undertaking interviewing in every week of the year. The Kantar TNS Omnibus survey operated over 51 weeks of the year, with no fieldwork for one week during the Christmas period. However, recognising that visits taken during the holiday week could vary somewhat from other times of year, an additional module of questions was included in the survey wave undertaken in the following week to collect data on this 'gap' period (see later for further details on the Christmas Gap).

Kantar in-home omnibus survey

2.13 The MENE questions were included in every week of the Kantar in-home omnibus which operates from Friday to Tuesday inclusive. Questions were asked of respondents in England only (at least 80 per cent of the total sample) and of around half the sample in each sampling point. Therefore, at least 800 respondents were asked the MENE questions each week.

2.14 The MENE question set was consistently included in the first position of the omnibus questionnaire and always within the first minute of the interview.

GDPR, information security and quality compliance

2.15 The new General Data Protection Regulation (GDPR) came into force in May 2018. MENE is conducted in full compliance to GDPR and all of the standards and regulations set out below.

2.16 In advance of May 2018, the Kantar group launched a GDPR readiness programme, which included:

- The launch of a WPP GDPR Toolkit,
- Appointment of the Kantar GDPR Steering Committee and Accountability Leads within each Kantar brand and internal function
- Kantar GDPR implementation plan and milestones for compliance
- Kantar GDPR Policy and Guidance documents
- Kantar internal GDPR intranet site dedicated to GDPR
- Reporting and audit measures
- Face-to-face training and workshops
- Online training and discussion

2.17 This programme provided advice and assistance to all Kantar companies in respect of GDPR, so that a risk based approach to privacy could be adopted to ensure compliance with the legislation. Kantar TNS also reviewed its data flows and data usage, and its consent mechanisms and worked with Natural England to ensure compliance for MENE.

2.18 Related, Kantar TNS also adhere with the following information security, legal and quality requirements:

- MRS and ESOMAR professional codes of conduct
- ISO 20252: international market research quality standard
- ISO 9001: international standard for quality management systems
- ISO 27001: international standard for data security (within the scope of our accreditation)
- The UK Data Protection Act 1998

Sampling approach

2.19 The Kantar in-home Omnibus Survey uses a computerised sampling system which integrates the Post Office Address (PAF) file with the 2001 Census small area data at output area level. This enables replicated waves of multi-stage stratified samples to be drawn with accurate and up to date address selection using PPS methods (probability proportional to size). This is explained in greater detail below.

2.20 The Kantar TNS in-home Omnibus Survey has Random Location Sampling as its sampling basis and a unique sampling system has been developed for this purpose. Utilising 2001 UK Census small area statistics and the Post Office Address File (PAF), Great Britain - south of the Caledonian Canal has been divided into 600 areas of equal population. From these 600 areas, a master sampling frame of 300 sample points has been selected to reflect the country's geographical and socio-economic profile. The areas within each Standard Region are stratified into population density

bands and within band, in descending order by percentage of the population in socio-economic Grade I and II.

2.21 To maximise the statistical accuracy of the sampling, sequential waves of fieldwork are allocated systematically across the sampling frame to ensure maximum geographical dispersion. The 300 primary sampling units are allocated to 12 sub-samples of 25 points each, with each sub-sample in itself being a representative drawing from the frame. For each wave of fieldwork, a set of sub-samples is selected in order to provide the number of sample points required (typically c.139 for 2,000 interviews). Across sequential waves of fieldwork all sub-samples are systematically worked, thereby reducing the clustering effects on questionnaires asked for two or more consecutive weeks.

2.22 Each primary sampling unit is divided into two geographically distinct segments, both containing, as far as possible, equal populations. The segments comprise aggregations of complete postcode sectors. Within each half (known as the A and B halves) postcode sectors have been sorted by the percentage of the population in socio-economic groups I and II. One postcode sector from each primary sampling unit is selected for each survey wave, alternating on successive selections between the A and B halves of the primary sampling unit, again to reduce clustering effects. For each wave of interviewing, each interviewer is supplied with two blocks of 70 addresses, drawn from different parts of the sector.

2.23 To ensure a balanced sample of adults within the effective contacted addresses, a quota is set by sex (male, female housewife, female non-housewife); within the female housewife quota, presence of children and working status and within the male quota, working status. In each weekly wave of the survey, a target of 2,000 interviews is set and the survey data is weighted to ensure that the sample is representative of the UK population in terms of the standard demographic characteristics (see Section 3 for details of the bespoke weighting procedures used in MENE).

2.24 In each weekly wave, at least 1,600 interviews are undertaken in England. The MENE survey was included within a half sample of the English element of the survey, generating at least 800 interviews per week across at least 100 sample points. The half sample was obtained by automatically asking the questions of every other respondent included in an interviewing shift.

2.25 Within each sample point, only one interview is undertaken per household and a minimum of three households is left between each successful interview. As the MENE questions were asked in every other interview, this interval increased to at least six households. This procedure ensures that interviewing in each sample point is not restricted to a small geographic area containing individuals with similar demographic and lifestyle characteristics thereby further minimising the effects of clustering within the sample.

Sample sizes achieved

2.26 The total samples of respondents and visits asked about in each of the ten years of surveying and in total are shown in Table 2-1 below and overleaf.

Table 2-1 Total samples achieved – respondents and visits

	Total respondents	Visit takers (last 7 days)
Weekly questions included in every weekly survey wave		
March 2009 – February 2010	48,514	20,374
March 2010 – February 2011	46,099	17,383
March 2011 – February 2012	47,418	19,014
March 2012 – February 2013	46,749	18,185
March 2013 – February 2014	46,785	18,808
March 2014 – February 2015	45,225	18,658
March 2015 – February 2016	45,965	18,429
March 2016 – February 2017	46,558	20,600
March 2017 – February 2018	47,477	23,006
March 2018 – February 2019	47,580	23,712
Total	**468,370**	**198,169**

Table 2-1 (continued) Total samples achieved – respondents and visits

	Total respondents	Visit takers (last 7 days)
Monthly questions included in last survey wave each month		
March 2009 – February 2010	11,107	4,755
March 2010 – February 2011	10,630	3,967
March 2011 – February 2012	10,587	4,421
March 2012 – February 2013	10,544	4,034
March 2013 – February 2014	10,552	4,309
March 2014 – February 2015	10,471	4,392
March 2015 – February 2016	10,676	4,310
March 2016 – February 2017	10,715	4,733
March 2017 – February 2018	10,846	5,070
March 2018 – February 2019	10,591	5,135
Total	**106,719**	**45,126**
Quarterly questions included in 4 survey waves per year		
March 2009 – February 2010	3,549	1,452
March 2010 – February 2011	3,568	1,297
March 2011 – February 2012	3,544	1,506
March 2012 – February 2013	3,528	1,328
March 2013 – February 2014	3,535	1,472
March 2014 – February 2015	3,419	1,385
March 2015 – February 2016	3,488	1,387
March 2016 – February 2017	3,588	1,598
March 2016 – February 2017	3,666	1,776
March 2018 – February 2019	3,498	1,773
Total	**35,383**	**14,974**

2.27 Over the ten years of surveying, a total of 468,370 interviews were undertaken and of this total, 198,169 respondents had taken a visit to the natural environment in the seven days prior to the interview (42 per cent of the total).

2.28 During the first seven years of the survey, key details (general type of place visited and activities) were asked for up to ten of the visits taken by each respondent. As such over this period these details were recorded for 381,151 visits.

2.29 However, from April 2016, (i.e. the second month of year eight of the survey), a change in survey method meant that these visit details were only asked for a single randomly selected visit.

2.30 Throughout the ten years all other visit details were asked only of this single randomly selected visit. As such over the ten years of surveying, when questions were asked weekly, these details were collected for a total of 198,169 visits.

Sample sizes by region and groups of interest

2.31 Table 2-2 below illustrates the respondent and visit sample sizes achieved in year ten and overall across all ten years of fieldwork by region and for certain key demographic groups previously highlighted to be of interest by MENE users.

Table 2-2 Total samples achieved by region and groups of interest year 10 (March 2018 to February 2019) and full year 1 to 10 period (March 2009 to February 2019)

	Total respondents		Randomly selected visits asked about	
	Year 10	Total years 1 to 10	Year 10	Total years 1 to 10
By region				
North East	2,290	23,609	1,055	9,595
North West	5,657	61,899	2,560	22,526
Yorkshire and the Humber	4,106	45,132	2,106	16,844
East Midlands	3,350	38,305	1,608	14,207
West Midlands	4,530	48,528	2,122	17,506
South West	4,034	43,380	2,107	20,631
East England	4,468	47,975	2,113	19,654
London	6,499	71,878	2,984	22,918
South East	6,644	71,191	3,799	30,744
By group				
Black, Asian and minority ethnic	5,877	57,090	2,279	16,192
Aged 16 to 24	5,564	61,596	2,818	25,537

Questionnaire design

2.32 The MENE questionnaire was divided into a series of modules with certain questions included in every weekly survey wave while others were included in one survey wave per month or once every three months.

2.33 Table 2-3 details the question areas included at each level of frequency and the base of respondents asked each question. It also outlines the changes that were made to the question inclusion from April 2016 (applying to years eight to ten) where appropriate. A copy of the full year one to ten questionnaire is provided in Appendix 1.

Table 2-3 Questionnaire topics and frequency of inclusion – years 1 to 10

	Frequency – March 2009 – February 2016 (years 1 to 7)	**Frequency from April 2016 – February 2019 (second month of year 8 onward)**
Q1 - Visits taken in last 7 days	Weekly	No change
Q2 – Type of place visited (general)	Weekly, up to 10 visits	Weekly
Q3 – Visit duration	Weekly To March 2012, up to 10 visits From April 2012, single randomly selected visit	Weekly
Q4 – Activities undertaken	Weekly, up to 10 visits	Weekly
Q5 – Type of place visited (specific)	Weekly	Monthly
Q6 – Village/ town/ city visited	Weekly	Monthly
Q7 – Name of actual place visited or details of location if no name	Weekly	Monthly
Q8 – Distance travelled to place visited	Weekly	Monthly
Q9/10 – Where journey started from	Weekly	Monthly
Q11 – Mode of transport used	Weekly	Monthly
Q12 – Reasons for visit	Monthly until March 2012 Weekly April 2013 to February 2016	Monthly from April 2016 to February 2017 Weekly from March 2017
Q13 – Party composition	Monthly	Quarterly
Q14 – Whether a dog/ dogs taken on visit	Monthly	Quarterly
Q15/16 – Expenditure during visit	Monthly	Quarterly
E1 – Outcomes of visit	Quarterly	Quarterly
Q17 – Frequency of visits during the last 12 months	Monthly	Monthly
Q18 – Barriers to visits during last 12 months	Monthly, all who visited once every 2-3 months or less often in last 12 months	Monthly, all who visited once every 2-3 months or less often in last 12 months
E2 – Attitudes to environment	Quarterly	Removed April 2016 to October 2016 Quarterly from November 2016 All respondents

	Frequency – March 2009 – February 2016 (years 1 to 7)	Frequency from April 2016 – February 2019 (second month of year 8 onward)
E2b – Nature Connection Index questions	N/A	Quarterly, March 2017 – February 2018 All respondents
E3 – Activities in the natural environment	Quarterly	Removed April 2016 to October 2016 Quarterly from November 2016
E4 – Pro-environmental activities	Quarterly	Quarterly
E5 – Changes in lifestyle	Quarterly	Removed April 2016 to October 2016 Quarterly from November 2016 All respondents
E6 – Attitudes to local greenspaces	Quarterly (introduced May 2014)	Quarterly
E7/8 – Access to private gardens	Quarterly (introduced May 2014)	Quarterly
Q1A/B/C NEW – Awareness of biodiversity decline	Quarterly (introduced May 2014)	Quarterly
Q2NEW – Concern for biodiversity decline	Quarterly (introduced May 2014)	Quarterly
CHILDREN'S QUESTIONS*		
NE1 – Visits taken in last 12 months	Monthly (from March 2014) Respondents with one or more children in household	Monthly (except February to August 2016, December 2018) Respondents with one or more children in household
NE2 – Visits taken in last month with adult living in household	Monthly (from March 2014) Respondents with one or more children in household	Monthly (except February to August 2016, December 2018) Respondents with one or more children in household
NE3 – Places visited in last month with adult living in household	Monthly (from March 2014) Respondents with one or more children in household who have taken a qualifying visit	Monthly (except February to August 2016, December 2018) Respondents with one or more children in household who have taken a qualifying visit
NE4 – Reasons for visits in last month with adult living in household	Monthly (from March 2014) Respondents with one or more children in household who have taken a qualifying visit	Monthly (except February to August 2016, December 2018) Respondents with one or more children in household who have taken a qualifying visit
NE5 - Visits taken in last month with adult not living in household	Monthly (from March 2014) Respondents with one or more children in household	Monthly (except February to August 2016, December 2018) Respondents with one or more children in household
NE6 – Adults who accompanied child on visit	Monthly (from March 2014) Respondents with one or more children in household who have taken a qualifying visit	Monthly (except February to August 2016, December 2018) Respondents with one or more children in household who have taken a qualifying visit
NE7 – Places visited in last month with adult not living in household	Monthly (from March 2014) Respondents with one or more children in household who have taken a qualifying visit	Monthly (except February to August 2016, December 2018) Respondents with one or more children in household who have taken a qualifying visit

	Frequency – March 2009 – February 2016 (years 1 to 7)	Frequency from April 2016 – February 2019 (second month of year 8 onward)
NE8 - Reasons for visits in last month with adult not living in household	Monthly (from March 2014) Respondents with one or more children in household who have taken a qualifying visit	Monthly (except February to August 2016, December 2018) Respondents with one or more children in household who have taken a qualifying visit
NE9 - Visits taken in last month who no adults present	Monthly (from March 2014) Respondents with one or more children in household	Monthly (except February to August 2016, December 2018) Respondents with one or more children in household
NE10 – Party composition on visits with no adults present	Monthly (from March 2014) Respondents with one or more children in household who have taken a qualifying visit	Monthly (except February to August 2016, December 2018) Respondents with one or more children in household
NE11 - Places visited on visits with no adults present	Monthly (from March 2014) Respondents with one or more children in household who have taken a qualifying visit	Monthly (except February to August 2016, December 2018) Respondents with one or more children in household
NE12 - Reasons for visits with no adults present	Monthly (from March 2014) Respondents with one or more children in household who have taken a qualifying visit	Monthly (except February to August 2016, December 2018) Respondents with one or more children in household
E2b – Nature Connection Index questions	N/A	Quarterly, March 2016 – February 2017
CLASSIFICATION QUESTIONS		
Q19 – Access to a car	Weekly	Removed
Q20 – Dog ownership	Weekly	Removed
Q21 – Frequency of undertaking exercise	Weekly	Removed
Q22 – Disability and long-term illness	Weekly	Removed
Q23 – ONS wellbeing – life satisfaction	Monthly (included Year 5 and Year 6 to 10 only)	Monthly
Q24 – Rating of general health	Monthly (Year 6 to 10 only)	Monthly
Age	Weekly	Weekly
Sex	Weekly	Weekly
Ethnicity	Weekly	Weekly
Marital status	Weekly	Weekly
Working status	Weekly	Weekly
Socio-economic group	Weekly	Weekly
Household size	Weekly	Weekly
Children in household	Weekly	Weekly
Adults in household	Weekly	Weekly
Tenure	Weekly	Weekly
Internet access	Weekly	Weekly
Email access	Weekly	Weekly

*See Appendix 5 regarding omission of children's questions in December 2018.

2.34 Note that many of the frequency changes took place during the course of year eight when the survey year was underway (the survey year starts on 1st March and the changes were made in April). This resulted in some impact on the base sizes and weighted totals when analysis of results for this year were undertaken, affecting those questions where frequency changed. Specifically, this impacted on a number of the 'E questions' where weighted totals of results will not always match those obtained in analyses of other question which were moved to a quarterly basis (e.g. Question 13). Recommendations on how to use this data are provided in the Weighing and Variable Guidance note[1].

2.35 The following classification questions included as standard in the Kantar in-home Omnibus Survey have been asked of all respondents throughout the ten years (also see Appendix 1):

- Age
- Sex
- Socio-economic status (A, B, C1, C2, D and E groups)
- Working status
- Marital status
- Children in home/ life stage (for example, Young Independents, Family, Empty Nester)
- Region of residence
- Ethnicity
- Internet access and usage
- Housing tenure.

Collecting data on children's visits and attitudes

2.36 Data on children's and young people's attitudes and experiences of nature has been collected as part of MENE via three different approaches (see Table 2-3 earlier in this section for more detail on the questions asked).

2.37 Since 2009, young people (aged 16-24) have been asked directly about time spent outdoors and environmental attitudes. Questions have been included in MENE on a weekly basis generating a sample size of 5,564 young people aged 16 to 24 in the 12 months from March 2018 to February 2019 and 61,596 since the survey began in 2009.

2.38 In the five years from 2013/14, adults with children (under 16) living in their household have been asked about their children's leisure time outdoors. This included frequency of visits, party composition, places visited and motivations. In designing this element, it was recognised that parents/carers would not have full knowledge of all visits taken by their children (in particular, older children). However, it is likely that any bias resulting from this has been relatively constant so any measure of change over time remain valid. Questions have been included in MENE on a monthly basis generating a sample size of 4,266 in the final year of surveying from March 2018 to February 2019 and 26,670 since the survey began in 2009.

2.39 In 2017/18, children aged 7-15 were asked to directly respond to 6 attitude statements to measure their connection to nature. Questions were asked on a

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

quarterly basis generating a sample size of 356 in the 12 months from March 2017 to February 2018.

2.40 For most of the 5 year period questions regarding children's leisure time have been asked on a monthly basis, providing measurements which take account of seasonal variations. However, during year eight of MENE (2016/17) these questions were only included for 4 months. As such annual results for this period should be treated with some caution and have been omitted from the analysis of trends in any reporting of these findings. Also, during the final year of fieldwork (March 2018 to February 2019) a survey scripting error meant that these questions were not fielded as scheduled during December 2018, see further details in Known data issues section and Appendix 4.

A seven day recall period

2.41 Ensuring the accurate collection of data on all of the visits taken on every day in the recall period was a priority at the questionnaire design stage and an area covered extensively in the interviewer briefings. It was thus decided that a seven day recall period provided the best approach for MENE, collecting accurate data for a large base of visits.

Communicating the survey scope

2.42 Reflecting the survey aims, the main focus of MENE was on time spent in the natural environment for leisure purposes. However, unlike previous surveys, MENE collected details of both visits to the natural environment such as on days out to the coast and countryside and more routine trips taken close to home for purposes such as dog walking or exercise - including those taken in urban green spaces. Whilst previous studies including the 2005 England Leisure Visits Survey are likely to have under-represented close to home visits to the natural environment, significant efforts have been made to ensure that MENE recorded the full spectrum of recreation in the natural environment undertaken by adults in England.

2.43 The outcomes of the aforementioned scoping study informed the wording of the introductory text used in MENE, as shown in Figure 2-1 below. The wording used aims to ensure that survey respondents are clear that participation in activities in both urban and rural locations are of interest and that there is no upper or lower time limit on the duration of the visit. Respondents are informed that routine shopping trips and time spent in the garden are not included in the definition of a visit. Interviewers are also provided with further guidance to provide to respondents who may be uncertain of what was and was not included within the definition of a visit.

Now I am going to ask you about occasions in the last week when you spent your time out of doors.

By out of doors we mean open spaces in and around towns and cities, including parks, canals and nature areas; the coast and beaches; and the countryside including farmland, woodland, hills and rivers.

This could be anything from a few minutes to all day. It may include time spent close to your home or workplace, further afield or while on holiday in England.

*However this **does not include**:*

- routine shopping trips or;

- time spent in your own garden.

Figure 2-1 Introduction to MENE interview

Interviewer briefings

2.44 It was particularly important that interviewers who undertook the MENE fieldwork were clear regarding key areas such as the definition of a visit and the level of detail to be recorded in questions regarding destinations visited, visit start points and visit expenditure.

2.45 Therefore, interviewer briefings were undertaken by means of the following channels:

- Written instructions displayed to interviewers via their CAPI machine. These had be read prior to commencing every interviewing shift and could be referred to at any time during the interview.
- A video 'podcast' was provided to all interviewers who worked on the survey. This short training video communicated key points regarding the survey scope and the importance of collecting the correct data regarding visit destinations and start points and expenditure.
- Presentations to regional fieldwork supervisors outlining the survey objectives and the importance of their interviewing teams following the instructions with a focus on the key areas mentioned above. Also, articles in the newsletter which was distributed to interviewers updated them on the survey progress, reinforcing the key areas to focus on in the interview.

2.46 Also, interviewers were periodically sent feedback forms inviting them to comment on the questionnaire design and any issues from both the interviewer and respondent's perspectives.

Christmas gap

2.47 Fieldwork for the Kantar in-home omnibus takes place from Friday to Tuesday every week with the exception of the Christmas period when no interviewing is undertaken. As MENE recorded details of visits taken during the seven days prior to interview, this gap in fieldwork coverage meant that full data could not be collected through the normal survey process for the preceding periods.

2.48 To address this gap, additional interviewing was undertaken during the omnibus waves immediately following Christmas. During these survey waves, the half of the English sample not asked the normal MENE questions were asked a similar series of

questions regarding the visits they had taken in the period between 14 days and eight days prior to the interview date.

2.49 Questions identical to those normally asked regarding the previous seven days were asked of this sample, the only difference being the period asked about and the addition of extra prompts to ensure that respondents were clear about the days being asked about.

3 Data Issues

3.1 Over the ten years of MENE a number of issues have arisen potentially impacting upon the data quality and/or the comparability of results between years. These issues include planned changes to the survey such as questionnaire changes and some unplanned issues including survey scripting errors which have resulted in some gaps in data collection.

3.2 A list of these issues and their implications for data users is provided in the paragraphs below.

Destination geocode scripting error

3.3 In the production of maps for the year six thematic report, an issue was identified that impacted some of the data recorded at Question 7 (actual place visited) from January 2014 to March 2016. This issued affected visits where the in-built survey Gazetteer had been used to code visits. However the issue did not affect the majority of visits where the information was recorded and geocoded manually.

3.4 This issue was discovered after the publication of the year five and six survey data and occurred due to a questionnaire script change implemented at the beginning of January 2014.

3.5 During this period, the questionnaire script had incorrectly presented the Town and City Gazetteer at Question 6 instead of the Place Name Gazetteer. As such, for 8,291 visits recorded during this period (around 21% of the total recorded during this period), this less precise town level destination information had been recorded by the interviewer rather than the more specific exact place visited available in the Place Name Gazetteer.

3.6 In the remaining 79% of visits, the interviewer had typed in an open text description of the destination allowing the normal post-fieldwork geocoding process to be undertaken.

3.7 Following consultation with Natural England, it was agreed that the Town and City information collected in error at Question 6 could be used to identify a geocode for a central point in each town and city (based on postcodes which fall into the town).

3.8 It was recognised that this ‘nearest town centre’ approach would result in a less precise record of the visit destination than would have been possible if the correct, specific destination information had been collected at Question 7. As such where this less precise data has been used in the published data, a flag has been included to indicate that this is the case.

3.9 To prevent a repeat of an issue of this nature script, the correct Question 7 Gazetteer was reinserted into the survey script. Checking processes were enhanced – covering both the survey script checks and the checking of data from Question 6 and Question 7, which then took place on a more frequent basis.

Planned changes – questionnaire frequency changes

3.10 As detailed in Table 2-3 above, from the start of year eight of MENE to simplify and reduce the overall cost of the survey, a number of changes were made to the content of the questionnaire. These changes meant that the frequency of some questions were reduced (e.g. from weekly to monthly or from monthly to quarterly) while other

questions were removed altogether. Most of these changes came into effect from April 2016 (the second month of year eight data collection).

3.11 Subsequent to these questionnaire modifications being implemented a number of the changes were reversed with questions 12, E2, E3 and E5 and the children's question set returned to original frequencies at different points in time during year eight and nine of the survey (see table 2-3 for details on timings).

3.12 Related to these changes, following the decision to remove the 'biodiversity questions' (Q1 a/b/c and Q2NEW) from year 8, sign off was provided to reverse this decision but at a time which resulted in the first quarterly wave of these questions being asked one week out of sync with the other quarterly questions (e.g. E4). As a result of this difference in phasing, any cross tabulation of the biodiversity questions with the other quarterly questions asked in year eight can only be based on the 3 survey waves with coinciding survey periods.

3.13 Given these various questionnaire changes over the course of MENE extra care and attention should be taken when running weighted analysis of findings to ensure that the correct weights are used (see Weighting & Variable Guidance Note) and users are clear on the seasonal pattern of the data being used. Particular care should be taken when using year 8 results given the number of changes made during this period.

Planned changes – addition of 'gardening questions' E7 and E8

3.14 Questions E7 and E8 which relate to gardening were added to MENE to be asked on a quarterly basis from year 6 (2014-15).

3.15 These questions had previously been included during the MENE year five period within a separate longer set of questions included by the University of Brighton in the same omnibus survey used for MENE. However, given this client's requirements the questions were asked in a different seasonal pattern to the MENE quarterly approach meaning that results would not be comparable. As such none of the data from the year five data collection included in the published MENE data set.

Planned changes – simplification of Q1, Q2 and Q4

3.16 From the start of year eight of the survey (March 2016), in addition to the above changes a changes was made to simplify the approach taken in first three survey questions.

3.17 In the first seven years of the survey, respondents were asked to, in turn, record the volume of visits taken in each of the previous 7 days (Q1) and then details of the type of place visited (Q2) and activities undertaken (Q4) for every one of these visits.

3.18 From April 2016 (applying to years eight, nine and ten of the survey), respondents were asked to instead only record the total number of visits for the full 7 day period and then details regarding just one of these visits (randomly selected using the CAPI software).

3.19 In the processing of the year eight data, it was found that this simplification of the questionnaire had resulted in an overall increase in the volume of visits recorded by respondents. This was likely to be due to a proportion of respondents previously under reporting the true volume of visits they had taken, when faced with a fairly lengthy set of questions to answer. It is likely that the shorter questionnaire from April 2016 resulted in a more honest, complete response.

3.20 To take account of this change, an exercise was undertaken to produce a calibration factor to apply to allowing for the weighted results from MENE eight, nine and ten to

be converted to make them comparable to those collected prior to this questionnaire change. This was to enable users to continue to look at trends over time. This 'calibration factor' was incorporated into a set of converted weights included in the published data file. It is recommended that they are used in analysis of any visit level based year eight, nine and ten data and respondent level based analysis of question 1. Note that other data such as respondent level data regarding general frequency of visit taking, attitudinal measures and pro-environmental activities were unaffected and should still be analysed using normal weights. Further details are provided in Appendix 4 and guidance on using the weights is provided in the Weighting and Variable Guidance Note[2].

3.21 Undertaking quality checks across the dataset when applying the calibration factor mentioned in (3.20) uncovered an unforeseen effect on Q4 – activities undertaken during visits - for years 8, 9 and 10. Activities that were generally undertaken more frequently dropped significantly compared to previous years and vice versa. Natural England are currently working on developing additional calibration factors to correct these changes. For the time being it is recommended that users do not run analysis on Q4 for years 8, 9 and 10 of the survey. If analysis must be undertaken then the results need to be caveated. Further information is detailed in Appendix 4.

3.22 The Year 1- 10 datasets now only contain data on Q1, Q2 and Q4 for the selected visit, compared to previous datasets which contained all responses to Q1, Q2 and Q3. This has primarily been done to substantially reduce file size.

3.23 As such, the base number of visits has slightly changed to previous datasets (i.e. just selected visits rather than all visits) and as a consequence the profile of results for individual answer categories (e.g. visits to town, visits to countryside) could change slightly. When shown as a percentage profile, this difference will never be more than 1 percentage point.

Planned changes – Updated geographies

3.10 The geographies used in the RESIDENCE and DESTINATION variables were completely updated for years 1 – 10 with the latest spatial data, due to some geographies not existing anymore (e.g. Local Authorities). As such, these values will now differ to existing datasets and user should be aware of this if adding Year 10 analysis to previous work.

Planned changes – Reduction of children's data in 2016/17

3.11 Since 2013 adults have been asked questions regarding children's leisure time on a monthly basis in order to take account of seasonal variations. However, during the 2016/17 survey year, these questions were only included for 6 months. As such annual results for this period should be treated with some caution.

Omission of children's question module December 2018

3.12 During year ten (March 2018 to February 2019) a survey scripting error meant that the children's questions module which is normally included in the survey in one survey wave per month was not fielded as scheduled during December 2018.

3.13 This resulted in a reduction in the final annual sample size and some impacts on the comparability of data with previous years. Further details on this issue, its impact and the corrective weighting approach designed to address the comparability issues are described in Appendix 5.

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

4 Data analysis

4.1 This section of the report describes the approaches followed to check, code and analyse the data. Areas covered include the coding of standard survey responses, geocoding, weighting and grossing procedures.

Data checking and coding of 'other' responses

4.2 The CAPI (Computer Assisted Personal Interviewing) approach allows for checks on the validity of the data to be incorporated into the script programming and conducted 'live' in the course of the interview. For MENE, this included a check at Question 1 where the interviewer was prompted to 'double check' the total if a respondent claimed to have taken five or more natural environment visits in a single day.

4.3 While the MENE questionnaire did not include any fully open-ended questions, a number of questions provided an 'other' option which, if selected, required the interviewer to record a response by handwriting this on their CAPI machine screen so that it can be digitally recorded. Following the interview, these responses were then reviewed and either 'back coded' to one of the existing answer options, if any were appropriate, or allocated a new code so that they could be included within the subsequent data analysis. This coding was undertaken for the 'other' responses to the following questions:

- Question 4 – Activities undertaken
- Question 5 – Type of place visited (specific)
- Question 11 – Mode of transport used
- Question 12 – Reasons for visit
- Question 18 – Barriers to visits during last 12 months.

Destination geocoding

4.4 Respondents were asked the following two questions about the location of the main destination of their visit. These questions were asked only of the single, randomly selected visit (asked in every weekly wave from years one to seven and on a monthly basis from year eight onwards):

- Question 6 - "What is the name of the city, town or village or nearest city, town or village to the place you visited?"
- Question 7 - "Now please provide the name of the actual place you visited, for example the park, wood or canal."

4.5 At Question 6, a Gazetteer which contains the names of all of England's cities, towns and villages was used. Around 21,000 places were included in this Gazetteer. The interviewer selected the place named by the respondent from this list and it was then possible to analyse responses at a range of geographical levels including region, County or Local Authority. Following this approach, over the ten years of fieldwork, nearly all visits (99%) were coded to a city, town or village.

4.6 At Question 7, a place name Gazetteer containing details of places which could be the main destination of visits to the natural environment was used. This Gazetteer was compiled on the basis of a number of existing sources provided to Kantar by Natural England including the Ordnance Survey 1:50,000 Scale Gazetteer, and listings of designated areas and other potential outdoor recreation sites including Open Access Land, woodland and allotments. As well as place names, the Gazetteer

contained location details in terms of six figure Eastings and Northings (using the Universal Transverse Mercator (UTM) coordinate system).

4.7 A total of 42,993 places were included in this Gazetteer, including over 7,000 woodland areas, around 6,000 water features (rivers, lakes, canals and other inland water), around 2,500 hills and mountains, over 2,000 Commons and over 250 Country Parks.

4.8 During the interview, the interviewers aimed to initially find the name of the place visited from the Gazetteer. However, where the visit destination could not be found or was not included in the Gazetteer, the interviewer recorded as many details as possible on the place visited (name, address and places close to destination such as shops, pubs, etc.) to facilitate the subsequent identification of the location after the interview, as discussed in the next section.

4.9 Where necessary, interviewers provided respondents with the following guidance to ensure that they were clear of how to respond and that the appropriate details were recorded:

- *If the place does not have a name, provide a nearby street name or landmarks which would help us to find it on a map.*
- *If you were on a walk with no particular 'destination', tell us the location of the furthest away place reached.*
- *If you visited more than one place, provide the name of the place that was your final destination, for example, furthest away.*

4.10 Following each wave of interviewing, the responses provided were reviewed and locations identified and verified using a variety of sources including Internet search engines, online mapping websites and the place name gazetteer mentioned above. Once the location was verified using these sources, Eastings and Nothings were added to the survey data file.

4.11 By pursuing this detailed approach, over the ten years of surveying, it has been possible to geocode 82 per cent of the 145,789 visits asked about to provide a data base of 119,555 geocoded visits.

4.12 In the remaining cases it has not been possible to obtain a destination geocode. This is usually due to a lack of sufficient information being provided by the respondent to allow the place to be identified with sufficient accuracy to allocate a geocode. As described in Section Two, continuous efforts were made to ensure that the level of detail collected from respondents and recorded by interviewers was sufficient to identify the visit destination for the purposes of geocoding. The overall 82 per cent of visits allocated a grid reference over the ten years of surveying exceeds the targets agreed when MENE commenced.

Error checking

4.13 To ensure the accuracy of the destination geocodes, the outputs of the above processes were profiled by Natural England to identify types of potential error:

- Grid references which are outside of England.
- Grid references which are offshore and so are unlikely to be the main visit destination.
- Grid references which have an identical Easting and Northing.
- Grid references in positions which have a markedly different distance from the start point than recorded as the distance travelled in the main survey (at question 8).

4.14 These checks were undertaken annually with potential errors flagged and checked. Where necessary data was then been corrected and further checks added at the data collection and coding stages to reduce the incidence of these types of error.

Removal of non-selected visits from data set

4.15 During the first seven years of MENE, until March 2016, Q2 (general type of place visited) and Q4 (activities undertaken) were asked for all visits taken in the previous 7 days (capped at 10 visits) while all of the subsequent questions regarding visits were asked about a single, randomly selected visit.

4.16 Corrective weighting ensured that the analysis of results for both of these data bases (i.e. all visits taken and randomly selected visits only) could be considered as representative of the 'universe' of visits taken by the English adult population.

4.17 While an advantage of asking Q2 and Q4 of all visits taken in the last 7 days was a larger visit sample size for analyses relating to places visited and activities undertaken, inclusion of this data had a negative impact on the complexity of using the data set and on the file size for final data sets.

4.18 As such it was agreed with the client group that, as with other visit related questions, the final year 1 to 10 visit data set would include Q2 and Q4 data for randomly selected visits only.

4.19 While weighting ensures that analysis of these data for all years of the survey can be considered as representative, users should be aware that a comparison of the Q2 and Q4 weighted results obtained using the previous full set of visits and weights and the revised selected visits only approach has shown some minor differences in profile results (never greater than 1 percentage point).

Weighting and grossing up of the survey data

4.20 This section provides details of the approaches taken to weight and gross up the MENE data. The outputs of this process are estimates of the total volume of visits taken to the natural environment by the English adult population and results representative of the adult population and the visits they have taken over the study period.

4.21 Reviews of these procedures were undertaken following the first six months of data collection and again after 12 months. The results of this review are provided in Appendix 3.

4.22 The change in questionnaire structure relating to how the data was collected at Question 1 (from March 2016) resulted in a loss of comparability in results relating to the volume of visits taken. As such a calibration exercise was undertaken to produce

a set of factors which could be applied to the survey weights to increase the comparability of year eight, 9 and 10 results with those collected in years one to seven.

4.23 These factors have been applied as final stage of the weighting processes described in the sections below. These new weights are labelled in published datasets as 'converted' – see the accompanying Weighting and Variable Guidance note[3] for details on how these should be used. Details of the calibration approach is described in Appendix 4.

Weighting and grossing procedures

A) Questions asked every week

4.24 Monthly data is based on the results of survey weeks which fell entirely or mainly within the reporting month. As such, monthly outputs for the ten years of surveying were based on the following periods (week numbers shown are weeks of the year).

Table 3-1 Weeks included in each MENE month

	Calendar weeks									
Month	**Year One**	**Year Two**	**Year Three**	**Year Four**	**Year Five**	**Year Six**	**Year Seven**	**Year Eight**	**Year Nine**	**Year Ten**
March	10-13	9-12	9-13	9-13	10-13	10-13	10-13	9-13	9-13	9-13
April	14-18	13-17	14-17	14-17	14-17	14-17	14-17	14-17	14-17	14-17
May	19-22	18-21	18-21	18-22	18-22	18-21	18-21	18-21	18-21	18-22
June	23-26	22-25	22-26	23-26	23-26	22-26	22-26	22-26	22-26	23-26
July	27-31	26-30	27-30	27-30	27-30	27-30	27-30	27-30	27-30	27-30
August	32-35	31-34	31-34	31-35	31-35	31-34	31-34	31-34	31-35	31-35
September	36-39	35-39	35-39	36-39	36-39	35-39	35-39	35-39	36-39	36-39
October	40-44	40-43	40-43	40-43	40-44	40-44	40-43	40-43	40-43	40-43
November	45-48	44-47	44-47	44-48	45-48	45-47	44-47	44-47	44-48	44-47
December	49-53	48-52	48-52	49-52	49-52	48-52	48-53	48-52	49-52	48-52
January	1-4	1-4	1-4	1-5	1-5	1-4	1-4	1-4	1-4	1-5
February	5-8	5-8	5-8	6-9	6-9	5-9	5-8	5-8	5-8	6-9

In December, no interviewing is undertaken on and around Christmas day so data collection for the last week of the year took place in the following week. See Section 2 for specific details.

4.25 The steps followed to weight the results of questions included in every week of fieldwork were as follows:

1) Each month's data has been weighted on the basis of age and sex (for example, males 16-24, females 85+), region of residence, social grade, presence of children in the household, sex and working status (for example, male full time) and urban/rural residence.

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

2) The weighting targets used are representative of the English adult population and used the latest data available, updated each year (see Appendix 3 for details). The resultant Demographic Weight (DW) is used to weight respondent based data from questions asked every week (question 1 and classification questions).
3) The total claimed number of trips has been calculated for each respondent (TCT). That is the sum of the claimed trips in the seven days preceding the interview as recorded at question 1.
4) The total number of trips with details given has been calculated for each respondent (TDT). In years one to seven this was the sum of the trips taken in the seven days preceding the interview where details were recorded at question 2 and 4 when each respondent could provide details of up to ten visits taken during the previous seven days. From year eight this value was always one as details were only ever collected for a single trip.
5) The Trip Correction Factor (TCF) for each respondent was calculated as follows: TCF=TCT/TDT.
6) A Calendar Month Factor (CMF) was calculated as the total days in the reporting month divided by seven (i.e. the number of days for which visits have been collected for each respondent).
7) The Overall Trip Weight (OTW) was calculated for each respondent as the product of their Demographic Weight (DW), Trip Correction Factor (TCF) and Calendar Month Factor (CMF).
8) The estimate of the total number of visits taken in the month by the English adult population is the sum of each respondent's Overall Trip Weight. This weight is applied to visit based results which are collected for up to ten visits taken in the last seven days.
9) A Randomly Selected Trip Weight has been calculated for each respondent as the product of their Demographic Weight (DW), Total Claimed Trips (TCT) and the Calendar Month Factor (CMF). This weight is applied to visit based results which are collected for a single randomly selected visit.
10) For years eight, nine and ten the Overall Trip Weight and Randomly Selected Trip Weight have been multiplied by a calibration factor which takes account of the questionnaire change from March 2016 (see Appendix 4). This provides a set of 'converted' weights which provide weighted results for years eight, nine and ten which are comparable with those from previous years.

B) Questions asked once a month and once a quarter

4.26 The steps followed to weight the results of questions which are included in one wave of fieldwork per month or one wave of fieldwork every three months are as follows:

1) Questions asked once a month and once a quarter were only included in quarterly tables with results based on the March to May, June to August, September to November and December to February periods.
2) For each of the quarterly periods, the combined three months' sample (for example, March, April and May) has been weighted to the same demographic targets as the monthly data. This Quarterly Demographic Weight (QDW) is used to weight respondent based data from questions asked once a month or once a quarter.
3) A Quarter Factor (QF) has been calculated as the number of days in the quarter divided by seven.
4) The Initial Quarterly Weight (IQW) to be applied to the monthly questions was then calculated for each respondent as the product of their Quarterly Demographic Weight (QDW), the Quarter Factor (QF) and their Total Claimed Trips (TCT).
5) An estimate of the total trips made in the quarter was calculated as a sum of the Initial Quarterly Weights. This sum will differ from the sum of the total trips in the quarter produced from the analysis of data collected every week (i.e. as described in bullet 8 above).

6) It was therefore necessary to calculate a Processing Correction (PC) as the estimate of trips taken in the quarter as estimated in the analysis of data collected every week divided by the estimate obtained in bullet 5 above.
7) The Final Quarterly Weight (FQW) for each individual is calculated as their IQW x PC. This weight is applied to visit based results which are collected on a monthly basis for a single randomly selected visit. See Table 2-3 and the full year one to ten questionnaire appended to this report for details on question frequencies.
8) For years eight, nine and ten the Final Quarterly Weights have been multiplied by a calibration factor which takes account of the questionnaire change from March 2016 (see Appendix 4). This provides a set of 'converted' weights which provide weighted results for years eight, nine and ten which are comparable with those from previous years.

4.27 In summary the following outputs are produced by undertaking the above weighting processes:

- **Estimates of the total volume of visits taken by the English adult population during each month** – this is the sum of every respondent's Overall Trip Weight which takes account of the volume of adults resident in England (through the Demographic Weight), the number of visits taken by each respondent in the previous seven days (Total Claimed Trips) and the number of days in the month (through the Calendar Month Factor). The monthly estimates of visits have been added together to obtain estimates of visits for longer periods.

- **Results which relate to the English adult population such as percentages of the population taking visits at a certain level of frequency**. These 'respondent based' results are produced for question 1 (number of visits in last 7 days), question 17 (normal frequency of visits in last 12 months), question 18 (reasons for not taking visits) and all of the demographic classification questions. These results are obtained by applying the Demographic Weight.

- **Results which relate to visits taken by English adult population such as the percentages of all visits involving a certain activity or taken to a particular type of place**. These 'visit based' results are produced for questions 2 to 16. These results are obtained by applying the Overall Trip Weight when questions have been asked for all visits taken by the respondent and Randomly Selected Trip Weight (or quarterly and monthly versions of this weight) when questions are asked only of a single randomly selected visit. See Table 2-3 for details on the frequency of questions and bases.

5 Levels of accuracy

5.1 This section of the report provides details of the outputs of an analysis of Complex Standard Errors associated with the MENE data.

5.2 This analysis was undertaken annually following the first four years of data collection, most recently in relation to March 2012 to February 2013 period.

5.3 As the sampling methodology has remained the same since MENE commenced, this annual analysis of Complex Standard Errors has provided very similar results each year, showing consistency in the levels of accuracy of results. It was therefore agreed with Natural England that it was not necessary to continue to repeat this analysis on an annual basis. Instead, levels of accuracy for data collected in years five to ten could be estimated by using the outcomes of the complex error analysis conducted for the previous years.

5.4 Normal confidence intervals and standard errors assume that the data has come from a Simple Random Sample (SRS). In such a sample, every individual in the population (for MENE, the English adult population) has an equal chance of being included in the survey sample.

5.5 In most surveys, however - including MENE - the sampling approach followed means that the survey sample is not a SRS. Complex Standard Errors (CSE) therefore take into account the extra information from the sampling design. Two sources of sample design are taken into account:

- Strata – showing homogenous groups, for example, gender, region.
- Clusters – points where the data was sampled from.

5.6 The following estimates have been produced using a resampling method which resamples the original sample 1,000 times and then takes an average of all the estimates calculated in order to provide a more robust estimate of variance, taking account of the complex survey design.

Analysis of respondent-based data

5.7 Some of the MENE results are analysed and presented as proportions of the adult population in England, for example, the percentages taking visits in the last seven days or last 12 months. At an overall level these results are based on the full sample (see Table 2-1).

5.8 Table 4-1 overleaf illustrates the design effect associated with the overall sample and the sub-samples obtained in each of the English regions during each of the first four years of surveying and for the total, cumulative sample over this period. The design effect is an indication of how much larger the sample variance is with the complex survey design used in MENE than it would be if the survey was based on the same sample size but selected randomly (i.e. a Simple Random Sample (SRS).

5.9 The table also includes a design factor which is an inflation factor for the standard errors obtained using a complex survey design. Over the first four years of MENE as a whole, the design factor at the all respondent level of 1.37 indicates that standard errors for these data are 1.37 times as large as they would have been had the design been an SRS.

5.10 The design factor is used to obtain the effective sample size which gives, for a complex survey design, an estimate of the sample size that would have been required to obtain the same level of precision in an SRS. The estimated effective sample size for respondent based results over the first four years of interviewing is 104,164 - 55 per cent of the actual achieved sample.

5.11 As the sampling approach for MENE has not changed over the ten years of surveying and total sample sizes achieved have been at a very similar level, it is valid to apply the levels of accuracy estimated for years one to four to other years. Applying the design factor of 1.37 to the 47,580 interviews conducted in year ten of the survey suggests an effective sample size for this period of around 26,000.

Table 4-1 Levels of accuracy – respondent based results year 1 to year 4 and cumulative total

	Sample size (visits)					Design effect					Design factor					Effective sample size				
	Yr.1	Yr.2	Yr.3	Yr.4	Total	Yr.1	Yr.2	Yr.3	Yr.4	Total	Yr.1	Yr.2	Yr.3	Yr.4	Total	Yr.1	Yr.2	Yr.3	Yr.4	Total
All respondents	48,514	46,099	47,418	46,749	188,780	1.79	1.62	1.84	2.05	1.87	1.34	1.27	1.35	1.43	1.37	27,100	28,458	25,769	22,837	104,164
By region																				
East Midlands	4,148	3,917	4,085	3,900	16,050	1.51	1.48	1.84	1.75	1.67	1.23	1.22	1.36	1.32	1.29	2,755	2,649	2,219	2,229	9,852
East of England	5,407	5,011	5,143	5,072	20,633	1.32	1.43	1.57	1.79	1.54	1.15	1.20	1.25	1.34	1.24	4,105	3,495	3,272	2,832	13,704
London	7,020	6,588	6,865	6,949	27,422	1.93	1.77	1.67	1.61	1.78	1.39	1.33	1.29	1.27	1.34	3,629	3,728	4,111	4,312	15,780
North East	2,452	2,374	2,472	2,421	9,719	1.38	1.30	1.29	1.49	1.38	1.18	1.14	1.14	1.22	1.18	1,771	1,820	1,909	1,620	7,120
North West	6,563	6,283	6,511	6,373	25,730	1.42	1.49	1.47	1.72	1.57	1.19	1.22	1.21	1.31	1.25	4,630	4,206	4,432	3,705	16,973
South East	8,036	7,606	7,764	7,751	31,157	1.43	1.53	1.75	1.80	1.66	1.20	1.24	1.32	1.34	1.29	5,612	4,983	4,446	4,299	19,340
South West	4,765	4,671	4,751	4,605	18,792	1.49	1.32	1.68	1.95	1.64	1.22	1.15	1.30	1.40	1.28	3,198	3,550	2,820	2,365	11,933
West Midlands	5,206	4,926	5,022	4,952	20,106	1.38	1.54	1.67	1.87	1.65	1.17	1.24	1.29	1.37	1.29	3,775	3,205	3,006	2,642	12,628
Yorkshire & the Humber	4,917	4,723	4,805	4,726	19,171	1.41	1.30	1.23	1.40	1.35	1.19	1.14	1.11	1.18	1.16	3,499	3,638	3,891	3,383	14,411

5.12 This design factor of 1.37 may be used to obtain an indication of the levels of accuracy of results obtained at a total sample level and for certain sub sets of the data. For example, it can be estimated that with an SRS, a result of 50 per cent with the total year ten sample of 47,580 would have a margin of error of +/-0.4 percentage points at the 95 per cent levels of confidence. Multiplying this value by 1.37 provides us with the margin of error when taking account of the MENE sample design i.e. +/-0.61 percentage points. This is equal to the margin of error that would be obtained for this result with a simple random sample of around 26,000. The design factors may be applied in a similar way to the results obtained for the sub samples obtained in each region.

5.13 It should be borne in mind that those questions which were included in the survey once a month or once a quarter have smaller sample sizes (see Table 2-3). A similar design factor is applicable to these sub-samples.

5.14 On the basis of the overall respondent based data design factor of 1.37, the following provides an indication of the general levels of accuracy of respondent based MENE results:

- Where the sample size is in excess of 40,000 respondents, the data will generally be accurate to around +/-0.7 per cent at the 95 per cent confidence level.
- When the sample size is around 10,000 respondents, the data will generally be accurate to around +/-1.3 per cent at the 95 per cent confidence level.
- Where the sample size is around 5,000 respondents, the data will generally be accurate to around +/-1.9 per cent at the 95 per cent confidence level.
- Where the sample size is around 1,000 respondents, the data will generally be accurate to around +/-4.3 per cent at the 95 per cent confidence level.

Analysis of visit-based data

5.15 Some of the MENE results are analysed and presented as proportions of the visits taken by the adult population in England, for example the percentages of the visits taken in the last week which involved time spent in the countryside.

5.16 Table 4-2 illustrates the design effects and design factors associated with the sample of selected visits and the sub-samples of visits taken to different specific types of place (as recorded at question five). The total column relates to the averages across the first four years of data collection.

5.17 This exercise has not been repeated for the data collected in subsequent years but as sampling approaches have not changed over the survey period, can be taken as a good guide to the accuracy of data collected in subsequent years (note that while the specific place question (Q5) reduced in frequency to a monthly question from year eight, resulting in a smaller annual sample size, the estimated design effects are still valid due to the consistent sampling methods so can be applied to obtain estimates of the effective sample size).

Table 4-2 Levels of accuracy – selected visit based results year 1 to year 4 and cumulative total

	Sample size (visits)					Design effect					Design factor					Effective sample size				
	Yr.1	Yr.2	Yr.3	Yr.4	Total	Yr.1	Yr.2	Yr.3	Yr.4	Total	Yr.1	Yr.2	Yr.3	Yr.4	Total	Yr.1	Yr.2	Yr.3	Yr.4	Total
All selected visits	20,374	17,389	19,014	18,185	74,962	1.79	1.62	1.84	2.05	1.87	1.34	1.27	1.35	1.43	1.37	11,347	10,781	10,433	8,893	39,939
By specific place visited																				
A playing field or other recreation area	1,206	1,066	1,267	1,115	4,654	1.11	1.16	1.14	1.23	1.16	1.05	1.08	1.07	1.11	1.08	1,108	911	1,112	905	4,025
Another open space in a town or city	1,362	1,099	1,347	1,499	5,307	1.17	1.20	1.29	1.24	1.23	1.08	1.10	1.14	1.11	1.11	1,110	802	1,039	1,217	4,307
Another open space in the countryside	1,830	1,609	1,769	1,557	6,765	1.48	1.38	1.82	1.54	1.56	1.22	1.17	1.35	1.24	1.25	1,540	1,331	973	1,013	4,349
Beach	1,541	1,341	1,371	1,348	5,601	1.44	1.33	1.37	1.38	1.39	1.20	1.15	1.17	1,17	1.18	916	1,013	1,003	985	4,023
Children's Playground	786	698	778	837	3,099	1.22	1.25	1.10	1.07	1.17	1.10	1.12	1.05	1.03	1.08	611	556	705	789	2,657
Country Park	1,710	1,473	1,578	1,503	4,654	1.21	1.21	1.27	1.21	1.23	1.10	1.10	1.13	1.10	1.11	1,302	1,195	1,239	1,242	3,777
Farmland	1,051	1,078	1,161	989	4,279	1.44	1.38	1.57	1.36	1.44	1.20	1.18	1.25	1.17	1.20	600	775	739	722	2,972
Mountain, hill or moorland	464	422	474	435	1,795	1.16	1.15	1.27	1.24	1.22	1.08	1.07	1.13	1.11	1.10	395	368	369	353	1,483
Park in town or city	5,532	4,827	5,376	5,251	20,986	1.50	1.36	1.38	1.45	1.44	1.22	1.17	1.18	1.21	1.20	3,184	3,585	3,892	3,587	1,4574
Path, cycleway or bridleways	1,981	1,784	2,196	2,109	8,070	1.40	1.56	1.52	1.55	1.53	1.18	1.25	1.23	1.25	1.23	1,306	1,140	1,444	1,350	5,334
River, lake or canal	1,718	1,483	1,743	1,518	6,492	1.35	1.42	1.37	,1.40	1.38	1.16	1.19	1.17	1.18	1.18	1,199	1,048	1,274	1,090	4,662
Village	1,202	1,023	1,171	955	4,351	1.38	1.63	1.69	1.48	1.54	1.18	1.28	1.30	1.22	1.24	817	625	693	642	2,830
Woodland or forest	1,747	1,777	1,875	1,695	7,094	1.28	1.29	1.40	1.42	1.36	1.13	1.14	1.18	1.19	1.16	1,308	1,365	1,342	1,197	5,272

Accuracy of visit estimates

5.18 An output of the weighting and grossing procedures used in MENE (see Section 3) is a series of estimates of the total number of visits taken by adults in England during each year surveying. Estimates are produced at various different levels including visits taken by residents of particular regions and visits taken to general and specific types of place.

5.19 Table 4-3 to Table 4-4 illustrates the upper and lower confidence limits associated with these estimates during the first four years of MENE. These estimates take account of two sources of variation: the uncertainty associated with respondent based results and the sample variation in terms of the number of visits respondents report to have taken in the seven days prior to interview.

5.20 As sampling approaches have remained consistent and the level of variation in numbers of visits taken have remained fairly consistent over the ten years of MENE, the confidence intervals associated with the results collected in years one to four provide a good indication of the accuracy of data in subsequent years.

Table 4-3 Visit estimates – total, and by region of residence

	Year 1 March 2009 to February 2010			Year 2 March 2010 to February 2011			Year 3 March 2011 to February 2012			Year 4 March 2012 to February 2013		
	12 month visit estimate '000s visits	Lower confidence limit '000s visits	Upper confidence limit '000s visits	12 month visit estimate '000s visits	Lower confidence limit '000s visits	Upper confidence limit '000s visits	12 month visit estimate '000s visits	Lower confidence limit '000s visits	Upper confidence limit '000s visits	12 month visit estimate '000s visits	Lower confidence limit '000s visits	Upper confidence limit '000s visits
All visits	**2,857,759**	**2,785,840**	**2,929,678**	**2,493,837**	**2,431,187**	**2,556,448**	**2,726,476**	**2,655,216**	**2,797,749**	**2,849,081**	**2,791,653**	**2,906,509**
By GOR of residence												
East Midlands	265,514	242,682	288,346	243,148	221,300	264,996	279,114	252,469	305,547	255,377	229,006	281,748
East of England	371,514	346,355	396,673	283,137	262,296	303,978	338,679	314,216	363,144	293,445	268,962	317,928
London	275,195	253,442	296,948	167,338	152,589	182,087	202,371	186,187	218,457	273,214	252,093	294,335
North East	157,498	138,605	176,391	170,322	150,707	189,937	195,278	174,608	215,751	188,035	166,762	209,308
North West	310,530	288,863	332,197	273,159	252,811	293,507	317,386	293,936	340,619	363,386	335,347	391,425
South East	530,961	502,335	559,587	425,203	398,298	452,114	413,969	385,580	442,093	432,617	401,699	463,535
South West	417,131	388,555	445,707	418,379	390,952	445,806	413,221	381,862	443,739	404,891	369,703	440,079
West Midlands	242,041	220,375	263,707	222,491	201,262	243,720	284,459	260,771	308,149	283,302	256,298	310,306
Yorkshire & the Humber	287,375	262,147	312,603	290,661	266,488	314,834	282,000	261,796	302,206	284,279	261,129	307,429

Table 4-4 Visit estimates – by general place visited

	Year 1 March 2009 to February 2010			Year 2 March 2010 to February 2011			Year 3 March 2011 to February 2012			Year 4 March 2012 to February 2013		
	12 month visit estimate '000s visits	Lower confidence limit '000s visits	Upper confidence limit '000s visits	12 month visit estimate '000s visits	Lower confidence limit '000s visits	Upper confidence limit '000s visits	12 month visit estimate '000s visits	Lower confidence limit '000s visits	Upper confidence limit '000s visits	12 month visit estimate '000s visits	Lower confidence limit '000s visits	Upper confidence limit '000s visits
Town or city	1,157,932	1,113,597	1,200,945	923,060	887,798	958,322	1,048,624	1,009,654	1,087,598	1,218,141	1,182,142	1,254,140
Seaside resort or town	207,101	190,725	223,237	172,573	156,109	189,037	162,241	148,367	176,115	185,341	173,844	196,838
Seaside coastline	112,820	97,830	127,684	88,267	78,391	98,142	101,002	89,252	112,752	98,967	89,750	108,184
Countryside	1,379,905	1,325,345	1,432,896	1,309,938	1,257,351	1,362,525	1,414,610	1,357,302	1,471,925	1,346,632	1,303,947	1,389,317

Table 4-5 Visit estimates – by specific place visited

	Year 1 March 2009 to February 2010			Year 2 March 2010 to February 2011			Year 3 March 2011 to February 2012			Year 4 March 2012 to February 2013		
	12 month visit estimate '000s visits	Lower confidence limit '000s visits	Upper confidence limit '000s visits	12 month visit estimate '000s visits	Lower confidence limit '000s visits	Upper confidence limit '000s visits	12 month visit estimate '000s visits	Lower confidence limit '000s visits	Upper confidence limit '000s visits	12 month visit estimate '000s visits	Lower confidence limit '000s visits	Upper confidence limit '000s visits
Playing field or other recreation area	195,411	168,693	222,129	190,962	173,106	208,818	228,865	209,810	247,921	206,731	186,869	226,593
Allotment or Community Garden	17,205	11,923	22,487	15,637	11,507	19,767	20,600	14,962	26,239	22,420	16,638	28,203
Another open space in a town or city	226,280	198,148	254,412	188,684	171,178	206,190	221,587	202,061	241,113	247,703	227,374	268,033
Another open space in the countryside	319,011	288,213	349,809	307,211	281,996	332,426	328,169	299,141	357,198	323,155	294,967	351,344
Beach	174,137	159,038	189,236	159,083	143,993	174,173	151,792	138,448	165,137	170,437	154,715	186,160
Children's Playground	82,157	73,116	91,198	75,804	65,791	85,818	80,171	71,052	89,291	85,516	77,084	93,948
Country Park	198,630	182,662	214,598	176,258	161,847	190,669	196,595	180,542	212,649	204,311	187,647	22,0946
Farmland	208,953	187,641	230,265	232,977	209,686	256,267	241,213	216,984	265,443	244,610	220,124	26,9097
Mountain, hill or moorland	61,126	53,172	69,080	63,938	54,689	73,188	76,343	64,823	87,864	73,009	62,170	83,844
Park in town or city	677,631	647,689	707,573	557,838	532,798	582,883	628,383	600,050	656,719	709,861	675,438	744,287
Path, cycleway or bridleways	369,187	341,782	396,592	359,534	330,312	388,755	430,117	399,777	460,458	448,256	414,988	481,525
River, lake or canal	253,373	230,815	275,931	231,907	210,907	252,908	261,436	241,053	281,821	251,803	230,389	273,217
Village	175,968	157,276	194,660	157,450	139,966	174,934	194,448	173,998	214,899	166,294	147,243	185,346
Woodland or forest	316,825	292,431	341,219	325,554	300,792	350,316	358,314	331,431	385,198	356,575	328,194	384,956

Appendix 1 MENE year 1 to 10 questionnaire

	Asked of	**Frequency Year 1 to 7 (March 2009 to February 2016) - *unless noted otherwise***	**Frequency Year 8 to 10 (March 2016 to February 2019)**
READ THE FOLLOWING TEXT IN FULL TO RESPONDENTS AND ENSURE THAT THEY UNDERSTAND. **SEE INSTRUCTIONS FOR FURTHER CLARIFICATION.** Now I am going to ask you about occasions in the last week when you spent your time out of doors. By out of doors we mean open spaces in and around towns and cities, including parks, canals and nature areas; the coast and beaches; and the countryside including farmland, woodland, hills and rivers. This could be anything from a few minutes to all day. It may include time spent close to your home or workplace, further afield or while on holiday in England. However this **does not include**: - routine shopping trips or; - time spent in your own garden.	ALL RESPONDENTS	Weekly	Weekly
1) Firstly I would like to record details of occasions when you made out of door visits during each of the last 7 days. How many times, if at all, did you make this type of visit yesterday/on <DAY>?) _____	ALL RESPONDENTS	Weekly	Weekly
IF NO VISITS TAKEN IN ANY OF LAST 7 DAYS SKIP TO Q17			
AUTOMATED SELECTION OF RANDOM VISIT: I would now like to ask you some further questions about the [first/second/third] visit to the out of doors you took Yesterday/ on <DAY>. This visit was to [location from Q2]	ALL VISIT TAKERS		
INSERT TEXT IF MORE THAN ONE VISIT IN DAY BEING ASKED ABOUT: So, thinking of the [first/second/third] of the visits you took on that day. 2) Which of the following best describes where you spent most of your time on this visit? **SHOW SCREEN. RANDOM ORDER. SINGLE CODE.** • In a town or city • In a seaside resort or town • Other seaside coastline (including beaches and cliffs) In the countryside (including areas around towns and cities)	ALL VISIT TAKERS	Weekly Up to 10 visits	Weekly, randomly selected visit (March 2016 data in file for randomly selected visits only)

	Asked of	Frequency Year 1 to 7 (March 2009 to February 2016) - *unless noted otherwise*	Frequency Year 8 to 10 (March 2016 to February 2019)
3) How long did this visit last altogether – that is from the time you left to when you returned? **RECORD IN HOURS AND MINUTES** Hours _____ Minutes _____	ALL VISIT TAKERS	Weekly To March 2012 - up to 10 visits From April 2012, randomly selected visit only	Weekly Randomly selected visit only
4) Which of these activities, if any, did you undertake? **SHOW SCREEN. RANDOM ORDER. CODE ALL MENTIONED.** • Eating or drinking out • Fieldsports (for example, shooting and hunting) • Fishing • Horse riding • Off-road cycling or mountain biking • Off-road driving or motorcycling • Picnicking • Playing with children • Road cycling • Running • Appreciating scenery from your car (for example, at a viewpoint) • Swimming outdoors • Visits to a beach, sunbathing or paddling in the sea • Visiting an attraction • Walking, not with a dog (including short walks, rambling and hill walking)? • Walking, with a dog (including short walks, rambling and hill walking)? • Watersports • Wildlife watching OPTIONS BELOW NOT RANDOMISED – ALWAYS AT END OF LIST: • Informal games and sport (for example, Frisbee or golf) (SPECIFY) • Any other outdoor activities (for example, climbing) (SPECIFY)	ALL VISIT TAKERS	Weekly Up to 10 visits	Weekly, randomly selected visit

	Asked of	Frequency Year 1 to 7 (March 2009 to February 2016) - *unless noted otherwise*	Frequency Year 8 to 10 (March 2016 to February 2019)
5) Which of the following list of types of place best describe where you spent your time during this visit? Select more than one if necessary. **SHOW SCREEN. RANDOM ORDER. CODE ALL MENTIONED.** • A woodland or forest (including community woodland) • Farmland • A mountain, hill or moorland • A river, lake or canal • A village • A path, cycleway or bridleway • Country park • Another open space in the countryside --- KEEP TOGETHER IN THIS ORDER: • A park in a town or city • An allotment or community garden • A children's playground • A playing field or other recreation area • Another open space in a town or city --- KEEP TOGETHER IN THIS ORDER: • A beach • Other coastline --- ALWAYS AT END: • Other (specify)	ALL VISIT TAKERS	Weekly Randomly selected visit only	Monthly Randomly selected visit only
6) What is the name of the city, town or village or nearest city, town or village to the place you visited? **FOLLOW UP IF NECESSARY:** This may be the place you live in. If you visited more than one city, town or village provide the name of the place nearest your final destination. NAME OF (NEAREST) TOWN OR VILLAGE: (USES LIST OF TOWNS AND VILLAGES AS IN UKTS SURVEY – INCLUDES SCOTTISH AND WELSH PLACES TO ALLOW FOR CROSS BORDER TRIPS)	ALL VISIT TAKERS	Weekly Randomly selected visit only	Monthly Randomly selected visit only

	Asked of	Frequency Year 1 to 7 (March 2009 to February 2016) - *unless noted otherwise*	Frequency Year 8 to 10 (March 2016 to February 2019)
7) Now please provide the name of the actual place you visited, for example the park, wood or canal. **ADD AS NECESSARY, IMPORTANT!:** • If the place does not have a name, provide a nearby street name or landmarks which would help us to find it on a map. • If you were on a walk with no particular 'destination', tell us the location of the furthest away place reached. • If you visited more than one place, provide the name of the place that was you final destination, for example, furthest away. PLACE VISITED (IF JUST TOWN OR VILLAGE NAME GIVEN PROBE FOR MORE DETAIL). **INTERVIER NOTE: IF RESPONDENT DOES NOT KNOW NAME OF PLACE VISITED PROBE FOR AS MUCH DETAIL AS POSSIBLE TO ALLOW US TO IDENTIFY THE LOCATION AFTER INTERVIEW, FOR EXAMPLE, ADDRESS, STREET NAME, NEARBY LANDMARKS, ETC. – THE MORE DETAIL THE BETTER!**	ALL VISIT TAKERS	Weekly Randomly selected visit only	Monthly Randomly selected visit only
8) Approximately how far, in miles, did you travel to reach this place? By that I mean the one way distance from where you set off to the place visited. **SHOW SCREEN. DO NOT RANDOMISE. SINGLE CODE.** Less than 1 mile 1 or 2 miles 3 to 5 miles 6 to 10 miles 11 to 20 miles 21to 40 miles 41to 60 miles 51to 80 miles 81to100 miles More than 100 miles	ALL VISIT TAKERS	Weekly Randomly selected visit only	Monthly Randomly selected visit only
9) And did this journey start from… **SHOW SCREEN. DO NOT RANDOMISE. SINGLE CODE.** • Your home • Someone else's home • Work • Holiday accommodation • Somewhere else	ALL VISIT TAKERS	Weekly Randomly selected visit only	Monthly Randomly selected visit only
IF JOURNEY DID NOT START FROM RESPONDENT'S HOME: 10) Please provide the address of where your journey started from? INTERVIER NOTE: IDEALLY COLLECT POSTCODE (FOR EXAMPLE, FOR WORKPLACES). IF THIS IS NOT POSSIBLE ASK FOR AS MUCH DETAIL AS POSSIBLE ON ADDRESS FOR EXAMPLE, NAME OF HOTEL AND TOWN.	ALL VISIT TAKERS	Weekly Randomly selected visit only	Monthly Randomly selected visit only

	Asked of	Frequency Year 1 to 7 (March 2009 to February 2016) - *unless noted otherwise*	Frequency Year 8 to 10 (March 2016 to February 2019)
11) What form of transport did you use on this journey? INTERVIEWER NOTE: IF MORE THAN ONE FORM OF TRANSPORT USED RECORD THAT USED FOR LONGEST DISTANCE. **SHOW SCREEN. RANDOM ORDER. SINGLE CODE.** • Car or van • Train (includes tube/underground) • Public bus or coach (scheduled service) • Coach trip/ private coach • Motorcycle/ scooter • Bicycle/ mountain bike • On foot/ walking • Wheelchair/mobility scooter • On horseback • Boat (sail or motor) • Taxi ALWAYS AT END: • Other	ALL VISIT TAKERS	Weekly Randomly selected visit only	Monthly Randomly selected visit only
12) Which of the following, if any, best describe your reasons for this visit? Select all of those which apply to you. **SHOW SCREEN. RANDOM ORDER. CODE ALL MENTIONED.** • To spend time with family • To spend time with friends • To learn something about the outdoors • For fresh air or to enjoy pleasant weather • For health or exercise • For peace and quiet • To relax and unwind • To exercise your dog • To enjoy scenery • To enjoy wildlife • To entertain children • To challenge yourself or achieve something • To be somewhere you like • For other reasons (SPECIFY)	ALL VISIT TAKERS	Monthly until March 2012 Weekly April 2013 to February 2016 Randomly selected visit only	Monthly from April 2016 to February 2017 Weekly from March 2017 Randomly selected visit only
13) On this visit… a) how many adults aged 16 or over, including yourself, were on this visit? _____ ZERO NOT ALLOWED AS INCLUDES RESPONDENT b) how many children aged under 16 were on this visit? ____ MAY BE ZERO	ALL VISIT TAKERS	Monthly Randomly selected visit only	Quarterly Randomly selected visit only

	Asked of	Frequency Year 1 to 7 (March 2009 to February 2016) - *unless noted otherwise*	Frequency Year 8 to 10 (March 2016 to February 2019)
14) Were you accompanied by a dog on this visit? • Yes • No	ALL VISIT TAKERS	Monthly Randomly selected visit only	Quarterly Randomly selected visit only
15) During this visit , did you personally spend any money on any of the items listed on the screen? PROBE Any others? **SHOW SCREEN. RANDOM ORDER. CODE ALL MENTIONED.** • Food and drink • Petrol\diesel\LPG • Car parking • Bus\train\ferry fares • Hire of equipment • Purchase of equipment • Maps\guidebooks\leaflets • Gifts\souvenirs • Admission fees • Other items • Didn't spend any money	ALL VISIT TAKERS	Monthly Randomly selected visit only	Quarterly Randomly selected visit only
16) How much did you spend on… ASKED FOR THOSE SELECTED AT Q17 Food and drink ____ Petrol\diesel\LPG____ Car parking____ Bus\train\ferry fares____ Hire of equipment____ Purchase of equipment____ Maps\guidebooks\leaflets____ Gifts\souvenirs____ Admission fees____ Other items____	ALL VISIT TAKERS	Monthly Randomly selected visit only	Quarterly Randomly selected visit only
E1) Thinking of this visit, how much do you agree or disagree with the following statements? **SHOW SCREEN. SINGLE CODE** …I enjoyed it …It made me feel calm and relaxed …It made me feel refreshed and revitalised …I took time to appreciate my surroundings …I learned something new about the natural world …I felt close to nature • Strongly agree • Agree • Neither agree nor disagree • Disagree • Strongly disagree	ALL VISIT TAKERS	Quarterly Randomly selected visit only	Quarterly Randomly selected visit only

	Asked of	Frequency Year 1 to 7 (March 2009 to February 2016) - *unless noted otherwise*	Frequency Year 8 to 10 (March 2016 to February 2019)
17) Now thinking about the last 12 months, how often, on average, have you spent your leisure time out of doors, away from your home? Again, by out of doors we mean open spaces in and around towns and cities, the coast and the countryside. This could be anything from a few minutes to all day. It may include time spent close to your home, further afield or while on holiday in England. However this **does not include** routine shopping trips or time spent in your own garden. **SHOW SCREEN. SINGLE CODE.** • More than once per day • Every day • Several times a week • Once a week • Once or twice a month ---------- • Once every 2-3 months • Once or twice • Never	ALL RESPONDENTS	Monthly	Monthly

	Asked of	Frequency Year 1 to 7 (March 2009 to February 2016) - *unless noted otherwise*	Frequency Year 8 to 10 (March 2016 to February 2019)
18) IF ONCE EVERY 2-3 OR ONCE OR TWICE AT Q17: Why have you not spent more of your time out of doors? IF NEVER AT Q17: Why have you not spent any of your time out of doors? **DO NOT PROMPT - PROBE FULLY. SELECT ALL THAT APPLY. DO NOT RANDOMISE – KEEP IN GROUPINGS SHOWN BELOW.** Bad\poor weather Old age Poor health A physical disability Pregnant Have young children Have other caring responsibilities Too busy at home Too busy at work Not interested This isn't something for me/people like me Don't like going on my own No access to a car Lack of public transport Too expensive Prefer to do other leisure activities Worried about safety/ doesn't feel safe Concerns about where allowed to go/restrictions I don't feel welcome/feel out of place Lack of suitable places to go/suitable paths Don't know where to go/lack of information Other (SPECIFY) No particular reason	THOSE WHO HAVE TAKEN VISITS ONCE EVERY 2-3 MONTHS, ONCE OR TWICE OR NEVER IN LAST 12 MONTHS	Monthly	Monthly
The following questions are about you and nature. By nature we mean all types of natural environment and all the plants and animals living in them. Nature can be close to where you live in towns; the countryside or wilderness areas further away.	ALL RESPONDENTS	Quarterly	Quarterly
E2) How much do you agree or disagree with the following statements? **SHOW SCREEN. SINGLE CODE** …Spending time out of doors (including my own garden) is an important part of my life …I am concerned about damage to the natural environment …There are many natural places I may never visit but I am glad they exist …Having open green spaces close to where I live is important • Strongly agree • Agree • Neither agree nor disagree • Disagree • Strongly disagree	ALL RESPONDENTS	Quarterly	Removed April 2016 to October 2016 Quarterly from November 2016

	Asked of	Frequency Year 1 to 7 (March 2009 to February 2016) - *unless noted otherwise*	Frequency Year 8 to 10 (March 2016 to February 2019)
E2b) Thinking further about nature, how much to you agree or disagree with the following? **SHOW SCREEN. SINGLE CODE** …I always find beauty in nature …I always treat nature with respect …Being in nature makes me very happy …Spending time in nature is very important to me … I find being in nature is really amazing … I feel part of nature 7 Strongly agree 6 5 4 3 2 1 Strongly disagree	ALL RESPONDENTS	N/A	Quarterly, March 2017 – February 2018

	Asked of	Frequency Year 1 to 7 (March 2009 to February 2016) - *unless noted otherwise*	Frequency Year 8 to 10 (March 2016 to February 2019)
E3) Which of the following activities involving the natural environment do you take part in? Please choose everything you do, both regularly and occasionally. **SHOW SCREEN. RANDOM ORDER. CODE ALL MENTIONED** • Watching or listening to nature programmes on the TV or radio • Looking at books, photos or websites about the natural world • Looking at natural scenery from indoors or whilst on journeys • Sitting or relaxing in a garden • Gardening • Watching wildlife (including bird watching) • Choosing to walk through local parks or green spaces on my way to other places • Doing unpaid voluntary work out of doors • None of these (fix at bottom)	ALL RESPONDENTS	Quarterly	Removed April 2016 to October 2016 Quarterly from November 2016
E4) Thinking about the last 12 months, which of the following environment-related activities did you do? Please choose all that apply. **SHOW SCREEN. RANDOM ORDER. CODE ALL MENTIONED** • I usually recycle items rather than throw them away • I usually buy eco-friendly products and brands • I usually buy seasonal or locally grown food • I choose to walk or cycle instead of using my car when I can • I encourage other people to protect the environment • I am a member of an environmental or conservation organisation • I volunteer to help care for the environment • I donate money at least once every three months to support an environmental or conservation organisation • I donate my time at least once every three months to an environmental or conservation organisation • I have signed a conservation petition or participated in an online\other conservation campaign • None of these (fix at bottom)	ALL RESPONDENTS	Quarterly	Quarterly

	Asked of	Frequency Year 1 to 7 (March 2009 to February 2016) - *unless noted otherwise*	Frequency Year 8 to 10 (March 2016 to February 2019)
E5) Please think about whether or not you are likely to make changes to your lifestyle to protect the environment, for example by recycling rather than throwing things away, using your car less and buying local food. Which of these statements best describes your intentions? **SHOW SCREEN. SINGLE CODE** • I like my lifestyle the way it is and am not likely to change it • I'd like to make changes to my lifestyle but I don't know what to do • I'd like to make changes to my lifestyle but it's too difficult • I'd make changes to my lifestyle if I knew other people were willing to make changes • I intend to make changes to my lifestyle • I already do a lot to protect the environment so it would be difficult to do more • Don't know (fix at bottom)	ALL RESPONDENTS	Quarterly	Removed April 2016 to October 2016 Quarterly from November 2016
E6) How much do you agree or disagree with the following statements relating to your nearest greenspace areas? …My local greenspaces are within easy walking distance …My local greenspaces are of a high enough standard to want to spend time there …My local greenspaces are easy to get into and around • Strongly agree • Agree • Neither agree nor disagree • Disagree • Strongly disagree	ALL RESPONDENTS	Quarterly from May 2014	Quarterly
E7) Which of the following best applies to you …? **SHOW SCREEN. SINGLE CODE** • I have access to a private garden • I have access to a private communal garden • I have access to a private outdoor space but not a garden (balcony, yard, patio area) • I don't have access to a garden	ALL RESPONDENTS	Quarterly from May 2014	Quarterly

	Asked of	Frequency Year 1 to 7 (March 2009 to February 2016) - *unless noted otherwise*	Frequency Year 8 to 10 (March 2016 to February 2019)
E8) Thinking about your garden or communal garden, which of the following statements, if any, do you agree with? **SELECT ALL THOSE THAT APPLY TO YOU** **SHOW SCREEN. MULTI CHOICE** • My garden is an important place to me • I like spending time in my garden • I don't like my garden • I enjoy gardening • I like to grow fruit, vegetables or herbs in my garden • My garden is too small • My garden is too large • My garden is a place where children can play • I enjoy my garden because it is private • I enjoy the trees in my garden, plants in my garden, water features in my garden • I enjoy the grass • I enjoy the pond • I enjoy feeding birds in my garden • I encourage wildlife in my garden • I enjoy the wildlife in my garden • I enjoy my garden because of its views (e.g. of land, sky, water)	ALL WITH ACCESS TO A PRIVATE GARDEN/ OUTDOOR SPACE	Quarterly from May 2014	Quarterly

	Asked of	Frequency Year 1 to 7 (March 2009 to February 2016) - *unless noted otherwise*	Frequency Year 8 to 10 (March 2016 to February 2019)
We would like you to think about the variety of all species of animals and plants that are alive on our planet.	ALL RESPONDENTS	Quarterly from May 2014	Quarterly
Q1A/B/C NEW) Thinking about the variety of life in the next 50 years, which of the following statements do you most agree with? **SHOW SCREEN. SINGLE CODE** • There will be less variety of life • There will be no change to the variety of life • There will be more variety of life	ALL RESPONDENTS	Quarterly from May 2014	Quarterly

	Asked of	Frequency Year 1 to 7 (March 2009 to February 2016) - *unless noted otherwise*	Frequency Year 8 to 10 (March 2016 to February 2019)
Q2NEW) How concerned are you about the consequences of a loss of variety of life in England? **SHOW SCREEN. SINGLE CODE** • Not at all concerned • Not concerned • Neither concerned or unconcerned • Concerned • Extremely concerned	ALL RESPONDENTS	Quarterly from May 2014	Quarterly from May 2012
NE1) Now thinking about the last 12 months, how often, on average, has this child spent some of their leisure time outdoors? By outside we are focusing on natural environments or agree spaces. These can be in green spaces very close to your home, in and around towns and cities, as well as in the wider countryside. This time could involve anything from a few minutes outside, to 30 minutes in the local park, to a day trip made from home or on holiday. However this **does not include** routine trips taken for non-leisure purposes such as shopping or getting somewhere; time spent in your own garden. **SHOW SCREEN. SINGLE CODE.** • More than once per day • Every day • Several times a week • Once a week • Two or three times • Once • No visits	ALL RESPONDENTS WHO HAVE 1 OR MORE CHILDREN LIVING IN HOUSEHOLD	Monthly from March 2013	Monthly (except April to October 2016)

	Asked of	Frequency Year 1 to 7 (March 2009 to February 2016) - *unless noted otherwise*	Frequency Year 8 to 10 (March 2016 to February 2019)
NE2) More specifically, during last month (i.e. during INSERT CURRENT MONTH) how often if at all has this child spent some of their leisure time outside in green spaces accompanied by you or another adult who lives in your home? This could include a parent, guardian, other children aged 16 or over or other adults who live with you. Again, note that this **does not include** routine trips taken for non-leisure purposes such as shopping or getting somewhere; time spent in your own garden. **SHOW SCREEN. SINGLE CODE.** **INTERVIEWER NOTE: ENSURE THAT RESPONSES TO QUESTIONS NE2 TO NE4 RELATE TO THE VISITS TAKEN BY THE CHILD WHICH WERE TAKEN WITH AN ADULT (AGED 16 OR OVER) WHO LIVES WITH THEM** • More than once per day • Every day • Several times a week • Once a week • Two or three times • Once • No visits	ALL RESPONDENTS WHO HAVE 1 OR MORE CHILDREN LIVING IN HOUSEHOLD	Monthly from March 2013	Monthly (except April to October 2016)

NE3) Please indicate which of the following type(s) of places were visited by this child while with you or another adult who lives in your home? Please select from both the list of local places and those farther afield. By local we mean within walking distance or a short drive. **SHOW SCREEN. MULTI CODE.** **HEADING – LOCAL PLACES** • Woodland or forest (including woodland adventure spaces) • Farmland or another open space in the countryside • Beach or coastline • Mountain, hill or moorland • River, lake, canal • Country park • Park in a town or city • Children's playgrounds and adventure playgrounds • Playing field or other recreational area • An allotment or community garden • A shared/community green space • Visitor attraction (such as wildlife park, city or open farm, zoo) • Historic/heritage site (including archaeological sites and historic estates and gardens) • Nature reserve or other space for nature • A village • A path, cycleway or bridleway • Other open space in a town or city • Other open spaces in the countryside **HEADING – PLACES NOT IN YOUR LOCAL AREA** • Woodland or forest (including woodland adventure spaces) • Farmland or another open space in the countryside • Beach or coastline • Mountain, hill or moorland • River, lake, canal • Country park • Park in a town or city • Children's playgrounds and adventure playgrounds • Playing field or other recreational area • An allotment or community garden • A shared/community green space • Visitor attraction (such as wildlife park, city or open farm, zoo) • Historic/heritage site (including archaeological sites and historic estates and gardens) • Nature reserve or other space for nature	ALL RESPONDENTS WHO HAVE 1 OR MORE CHILDREN LIVING IN HOUSEHOLD WHO HAVE TAKEN A QUALIFYING VISIT AT NE2	Monthly from March 2013	Monthly (except April to October 2016)

	Asked of	Frequency Year 1 to 7 (March 2009 to February 2016) - *unless noted otherwise*	Frequency Year 8 to 10 (March 2016 to February 2019)
• A village • A path, cycleway or bridleway • Other open space in a town or city • Other open spaces in the countryside			
NE4) And which of the following best describe the reasons for taking these visits? Please provide your answers in relation to the purpose for the visit/motivations of the adult/s who took the visits with the child. Select all of the reasons which relate to the visits taken during the last month with you or other adults who live in your home. **SHOW SCREEN. MULTI CHOICE.** • To spend time with family • To spend time with friends • To exercise a dog • To relax and unwind • To enjoy wildlife or scenery • To be somewhere they/you like • To get fresh air • To make the most of the weather • To do something physically active outdoors • To encourage an interest in nature or the environment • To garden or grow food • To have a picnic or BBQ • To let the children play • To play with children • To explore somewhere new • To do something creative like photography or painting • Other	ALL RESPONDENTS WHO HAVE 1 OR MORE CHILDREN LIVING IN HOUSEHOLD WHO HAVE TAKEN A QUALIFYING VISIT AT NE2	Monthly from March 2013	Monthly (except April to October 2016)

	Asked of	Frequency Year 1 to 7 (March 2009 to February 2016) - *unless noted otherwise*	Frequency Year 8 to 10 (March 2016 to February 2019)
NE5) Next, please indicate how often during the last month (i.e. during INSERT CURRENT MONTH) has this child spent some of their leisure time outside in natural and other green open spaces accompanied by adults who don't live in this household? This could include visits taken with other relations, school trips or trips with a youth group. Again, note that this **does not include** routine trips taken for non-leisure purposes such as shopping or getting somewhere; time spent in your own garden. **SHOW SCREEN. SINGLE CODE.** **INTERVIEWER NOTE: ENSURE THAT RESPONSES TO QUESTIONS NE5 TO NE8 RELATE ONLY TO THE VISITS TAKEN BY THE CHILD WHICH WERE TAKEN WITH ADULTS (AGED 16 OR OVER) WHO DO NOT LIVE IN THE RESPONDENT'S HOUSEHOLD** • More than once per day • Every day • Several times a week • Once a week • Two or three times • Once • No visits	ALL RESPONDENTS WHO HAVE 1 OR MORE CHILDREN LIVING IN HOUSEHOLD	Monthly from March 2013	Monthly (except April to October 2016)
NE6) Which of the following best describes who took part in these visits? Select all of the answers which apply. **SHOW SCREEN. MULTI CHOICE.** • Taken with grandparents • Taken with other adults in your family (including extended family and grown up brothers/sisters, aunts/uncles etc) • Taken with schools and/or teaching staff • Taken with adult friends (including your children's friend's families) • Taken with Scouting or Guiding groups (includes junior groups such as Brownies or Cubs) • Taken with another type of youth group, special interest group or community group (e.g. WATCH group, DoE awards or faith group) • Taken with other individual adults such as community organisers, enthusiasts, specialists • Other	ALL RESPONDENTS WHO HAVE 1 OR MORE CHILDREN LIVING IN HOUSEHOLD WHO HAVE TAKEN A QUALIFYING VISIT AT NE5	Monthly from March 2013	Monthly (except April to October 2016)

NE7) Please indicate which of the following type(s) of places were visited by this child while with adults who don't live in your household? Please select from both the list of local places and those farther afield. By local we mean within walking distance or a short drive. **SHOW SCREEN. MULTI CODE.** **HEADING – LOCAL PLACES** • Woodland or forest (including woodland adventure spaces) • Farmland or another open space in the countryside • Beach or coastline • Mountain, hill or moorland • River, lake, canal • Country park • Park in a town or city • Children's playgrounds and adventure playgrounds • Playing field or other recreational area • An allotment or community garden • A shared/community green space • Visitor attraction (such as wildlife park, city or open farm, zoo) • Historic/heritage site (including archaeological sites and historic estates and gardens) • Nature reserve or other space for nature • A village • A path, cycleway or bridleway • Other open space in a town or city • Other open spaces in the countryside **HEADING – PLACES NOT IN YOUR LOCAL AREA** • Woodland or forest (including woodland adventure spaces) • Farmland or another open space in the countryside • Beach or coastline • Mountain, hill or moorland • River, lake, canal • Country park • Park in a town or city • Children's playgrounds and adventure playgrounds • Playing field or other recreational area • An allotment or community garden • A shared/community green space • Visitor attraction (such as wildlife park, city or open farm, zoo) • Historic/heritage site (including archaeological sites and historic estates and gardens) • Nature reserve or other space for nature	ALL RESPONDENTS WHO HAVE 1 OR MORE CHILDREN LIVING IN HOUSEHOLD WHO HAVE TAKEN A QUALIFYING VISIT AT NE5	Monthly from March 2013	Monthly (except April to October 2016)

	Asked of	Frequency Year 1 to 7 (March 2009 to February 2016) - *unless noted otherwise*	Frequency Year 8 to 10 (March 2016 to February 2019)
• A village • A path, cycleway or bridleway • Other open space in a town or city • Other open spaces in the countryside			
NE8) And which of the following best describe the reasons for taking these visits? Please provide your answers in relation to the purpose for the visit/motivations of the adult(s) who took your child on the visits. Select all of the reasons which relate to the visits taken during the last month with adults who don't live in your home. **SHOW SCREEN. MULTI CHOICE.** • To spend time with family who don't live in your household • To spend time with friends • To exercise a dog • To relax and unwind • To enjoy wildlife or scenery • To be somewhere they like • To get fresh air • To make the most of the weather • To do something physically active outdoors • To encourage an interest in nature or the environment • To garden or grow food • To have a picnic or BBQ • To let the children play • To play with children • To explore somewhere new • To do something creative like photography or painting • To achieve a specific aim such as a school's education outcome • Other	ALL RESPONDENTS WHO HAVE 1 OR MORE CHILDREN LIVING IN HOUSEHOLD WHO HAVE TAKEN A QUALIFYING VISIT AT NE5	Monthly from March 2013	Monthly (except April to October 2016)

	Asked of	Frequency Year 1 to 7 (March 2009 to February 2016) - *unless noted otherwise*	Frequency Year 8 to 10 (March 2016 to February 2019)
NE9) Next, please indicate how often during the last month (i.e. during INSERT CURRENT MONTH) has this child spent some of their leisure time outside in natural and other green open spaces where no adults were present? This could include visits taken alone or with other children but no adults Again, note that this **does not include** routine trips taken for non-leisure purposes such as shopping or getting somewhere; time spent in your own garden. **SHOW SCREEN. SINGLE CODE.** **INTERVIEWER NOTE: ENSURE THAT RESPONSES TO QUESTIONS NE9 TO END RELATE TO THE VISITS TAKEN BY THE CHILD WHERE NO ADULTS (AGED 16+) WERE PRESENT** • More than once per day • Every day • Several times a week • Once a week • Two or three times • Once • No visits	ALL RESPONDENTS WHO HAVE 1 OR MORE CHILDREN LIVING IN HOUSEHOLD	Monthly from March 2013	Monthly (except April to October 2016)
NE10) Which of the following best describes who took part in these visits? Select all of the answer which apply **SHOW SCREEN. MULTI CHOICE.** • Taken by the child on their own • Taken with their friends (under 16) • Take with children in the immediate family (also under 16 and who live in the household) • Taken with children from the wider family (who are under 16) • Taken with other children but as part of an organised group activity • Other	ALL RESPONDENTS WHO HAVE 1 OR MORE CHILDREN LIVING IN HOUSEHOLD WHO HAVE TAKEN A QUALIFYING VISIT AT NE9	Monthly from March 2013	Monthly (except April to October 2016)

NE11) Please indicate which of the following type(s) of places were included in these visits where no adults were present? Please select from both the list of local places and those farther afield. By local we mean within walking distance or a short drive. **SHOW SCREEN. MULTI CODE.** **HEADING – LOCAL PLACES** • Woodland or forest (including woodland adventure spaces) • Farmland or another open space in the countryside • Beach or coastline • Mountain, hill or moorland • River, lake, canal • Country park • Park in a town or city • Children's playgrounds and adventure playgrounds • Playing field or other recreational area • An allotment or community garden • A shared/community green space • Visitor attraction (such as wildlife park, city or open farm, zoo) • Historic/heritage site (including archaeological sites and historic estates and gardens) • Nature reserve or other space for nature • A village • A path, cycleway or bridleway • Other open space in a town or city • Other open spaces in the countryside **HEADING – PLACES NOT IN YOUR LOCAL AREA** • Woodland or forest (including woodland adventure spaces) • Farmland or another open space in the countryside • Beach or coastline • Mountain, hill or moorland • River, lake, canal • Country park • Park in a town or city • Children's playgrounds and adventure playgrounds • Playing field or other recreational area • An allotment or community garden • A shared/community green space • Visitor attraction (such as wildlife park, city or open farm, zoo) • Historic/heritage site (including archaeological sites and historic estates and gardens) • Nature reserve or other space for nature	ALL RESPONDENTS WHO HAVE 1 OR MORE CHILDREN LIVING IN HOUSEHOLD WHO HAVE TAKEN A QUALIFYING VISIT AT NE9	Monthly from March 2013	Monthly (except April to October 2016)

	Asked of	Frequency Year 1 to 7 (March 2009 to February 2016) - *unless noted otherwise*	Frequency Year 8 to 10 (March 2016 to February 2019)
• A village • A path, cycleway or bridleway • Other open space in a town or city • Other open spaces in the countryside			
NE12) And which of the following best describe the reasons for taking these visits? Please provide your answers in relation to the child's own reasons for taking these visits. Select all of the reasons which relate to the visits taken during the last month by this child when no adults were present. **SHOW SCREEN. MULTI CHOICE.** • To play • To exercise a dog • To relax and unwind • To let off steam • To get some space • To enjoy nature or the environment • To be somewhere they like • To get fresh air • To make the most of the weather • To do something physically active outdoors • To garden or grow food • To have a picnic or BBQ • To explore somewhere new • To do something creative like photography or painting • To achieve a specific purpose such as homework for school or Scout challenge etc • Other	ALL RESPONDENTS WHO HAVE 1 OR MORE CHILDREN LIVING IN HOUSEHOLD WHO HAVE TAKEN A QUALIFYING VISIT AT NE9	Monthly from March 2013	Monthly (except April to October 2016)
We would now like to ask your child who was … and aged … some questions about how they feel about nature. QB. We are interested in asking your people a few questions about how they feel about nature. Is this child in the home at the moment? **READ OUT.** • Yes • No OBTAIN CONSENT FROM PARENT/ GUARDIAN AND THEN CHILD BEFORE ASKING QE2B (WITH PARENT/ GUARDIAN PRESENT WHILE CHILD ANSWERS)	ALL RESPONDENTS WHO HAVE 1 OR MORE CHILDREN LIVING IN HOUSEHOLD	Not asked	Quarterly (2016/17 survey year)

	Asked of	Frequency Year 1 to 7 (March 2009 to February 2016) - *unless noted otherwise*	Frequency Year 8 to 10 (March 2016 to February 2019)
INTERVIEWER READ OUT: The following questions are about you and nature. By nature we mean all types of natural environment and all the plants and animals living in them. Nature can be close to where you live in towns, the countryside or wilderness areas further away. GENDER OF CHILD WHO ANSWERED E2B	ALL RESPONDENTS WHO HAVE 1 OR MORE CHILDREN LIVING IN HOUSEHOLD – ASKED OF CHILD THEMSELVES	Not asked	Quarterly (2016/17 survey year)
E2B Using the words on the screen please tell me how much you agree or disagree with the following … …. I always find beauty in nature …. I always treat nature with respect …. Being in nature makes me very happy …. Spending time in nature is very important to me …. I find being in nature is really amazing …. I feel part of nature 7 Strongly agree 6 5 4 3 2 1 Strongly disagree	ALL RESPONDENTS WHO HAVE 1 OR MORE CHILDREN LIVING IN HOUSEHOLD – ASKED OF CHILD THEMSELVES	Not asked	Quarterly (2016/17 survey year)
INTERVIEWER READ OUT TO CHILD This is the end of these questions, thank you for answering.	ALL RESPONDENTS WHO HAVE 1 OR MORE CHILDREN LIVING IN HOUSEHOLD – ASKED OF CHILD THEMSELVES	Quarterly	Quarterly
INTERVIEWER READ OUT TO ADULT We will now continue with the remainder of your interview.	ALL RESPONDENTS	Quarterly	Quarterly
Q19) Do you own or have access to a car? **SHOW SCREEN. SINGLE CODE** • Yes • No	ALL RESPONDENTS	Weekly	Removed
Q20) Do you have a dog? **SHOW SCREEN. SINGLE CODE** • Yes • No	ALL RESPONDENTS	Weekly	Removed

	Asked of	Frequency Year 1 to 7 (March 2009 to February 2016) - *unless noted otherwise*	Frequency Year 8 to 10 (March 2016 to February 2019)
Q21) In the past week, on how many days have you done a total of 30 minutes or more of physical activity, which was enough to raise your breathing rate? This may include sport, exercise, and brisk walking or cycling for recreation or to get to and from places, but should not include housework or physical activity that may be part of your job. **TYPE IN NUMBER BETWEEN 0 AND 7**	ALL RESPONDENTS	Weekly	Removed
Q22) Do you have any long standing illness, health problem or disability that limits your daily activities or the kind of work you can do? **SHOW SCREEN. SINGLE CODE** • Yes • No	ALL RESPONDENTS	Weekly	Removed
23) Overall, how satisfied are you with your life nowadays? 0 – 10 scale Interviewer instruction: where nought is 'not at all satisfied' and 10 is 'completely satisfied'	ALL RESPONDENTS	Monthly	Monthly
Q24) How is your health in general? Would you say it was: **READ OUT** Very good Good Fair Bad Very bad	ALL RESPONDENTS	Monthly	Monthly
CLASSIFICATION QUESTIONS			
Sex of respondent **SHOW SCREEN. SINGLE CODE** • Male • Female • Other (from October 2016) • Prefer not to say (from October 2016)	ALL RESPONDENTS	Weekly	Weekly
What was your age last birthday? **TYPE IN NUMBER OR IF REFUSED, USE GROUPS** • 16-17 • 18-24 • 25-34 • 35-44 • 45-54 • 55-64 • 65-74 • 75+	ALL RESPONDENTS	Weekly	Weekly

	Asked of	Frequency Year 1 to 7 (March 2009 to February 2016) - *unless noted otherwise*	Frequency Year 8 to 10 (March 2016 to February 2019)
Do you have any children under 16? **SHOW SCREEN. SINGLE CODE** • Yes • No	ALL RESPONDENTS	Weekly	Weekly
Working status **SHOW SCREEN. SINGLE CODE** • Full-time paid work (30+ hours per week) • Part-time paid work (8-29 hours per week) • Part-time paid work (under 8 hours per week) • Retired • Still at school • In full-time higher education • Unemployed (seeking work) • Not in paid employment (not seeking work)	ALL RESPONDENTS	Weekly	Weekly
Internet access Through which of the following ways, if any, do you receive television in your household? Please think about all the TV sets in your household **SHOW SCREEN. SINGLE CODE** • Digital Satellite TV through Sky for a monthly subscription (i.e. satellite dish) • Free-Sat TV through any satellite dish WITHOUT a monthly subscription • Cable through Virgin Media (previously ntl\Telewest) • Freeview TV through TV aerial and set-top box without a monthly subscription • Top-Up TV through TV aerial and set-top box for a monthly subscription • TV which has Freeview channels built in (IDTV using TV aerial, without a separate set-top box) • TV from Tiscali\Homechoice • TV from BT Vision • TV through a normal aerial but receiving the main 4 or 5 channels only • Other	ALL RESPONDENTS	Weekly	Weekly

	Asked of	Frequency Year 1 to 7 (March 2009 to February 2016) - *unless noted otherwise*	Frequency Year 8 to 10 (March 2016 to February 2019)
Email access Do you have any of the following? **SHOW SCREEN. SINGLE CODE** Access to the Internet at home on a computer\laptop Access to the Internet at work on a computer\laptop An e-mail address at home An e-mail address at work Access to the Internet via a mobile phone Other Internet access Other e-mail address Access to the Internet at school\college\university on a computer Access to the Internet at home on a games console Internet at home through your TV screen via a computer Internet access from a library on a computer Internet access in a café\bar on a computer Access to the Internet on a Palmtop or Personal Digital Assistant (PDA)\Pocket PC Internet access at a friends or relatives house on a computer	ALL RESPONDENTS	Weekly	Weekly
Marital status **SHOW SCREEN. SINGLE CODE** • Married/ living as married • Single • Widowed/ divorced/ separated	ALL RESPONDENTS	Weekly	Weekly
Number of people in household How many people are there in your household altogether, including any children and yourself? And how many children under the age of 16 are there in the household? **ENTER YOUR RESPONSE USING THE PAD ON SCREEN** **COLLECT SEX AND AGE OF CHILDREN STARTING WITH THE ELDEST**	ALL RESPONDENTS	Weekly	Weekly
Tenure **SHOW SCREEN. SINGLE CODE** • Own outright • Own with a mortgage • Rent from council • Rent privately • Other	ALL RESPONDENTS	Weekly	Weekly

	Asked of	Frequency Year 1 to 7 (March 2009 to February 2016) - *unless noted otherwise*	Frequency Year 8 to 10 (March 2016 to February 2019)
Ethnicity Which of these best describes your ethnic group? (IF NECESSARY: By this I mean your cultural background) **SHOW SCREEN. SINGLE CODE** • White British • White Irish • Any other white background • White & Black Caribbean • White & Black African • White & Asian • Any other mixed background • Indian • Pakistani • Bangladeshi • Any other Asian background • Caribbean • African • Any other Black background • Chinese • Any other	ALL RESPONDENTS	Weekly	Weekly
Social grade (based on series of questions regarding occupation status of chief income earner) • A • B • C1 • C2 • D • E	CODED FOR ALL RESPONDENTS	Weekly	Weekly

Appendix 2 Weighting targets

Table A Weighting targets

Weighting target	Year One Mar 2009 - Feb 2010 '000s	Year Two Mar 2010 – Feb 2011 '000s	Year Three Mar 2011 - Feb 2012 '000s	Year Four Mar 2012 - Feb 2013 '000s	Year Five Mar 2013 - Feb 2014 '000s	Year Six Mar 2014- Feb 2015 '000s	Year Seven Mar 2015- Feb 2016 '000s	Year Eight Mar 2016- Feb 2017 '000s	Year Nine Mar 2017- Feb 2018 '000s	Year Ten Mar 2018 – Feb 2019 '000s
Age x Sex										
Male 16-24	2,941	3,041	3,066	3,130	3,116	3,105	3,076	3,067	3,036	3,000
Male 25-34	3,324	3,393	3,421	3,634	3,631	3,655	3,690	3,744	3,789	3,780
Male 35-44	3,954	3,849	3,881	3,524	3,508	3,456	3,448	3,456	3,449	3,469
Male 45-54	3,345	3,437	3,465	3,599	3,607	3,697	3,718	3,750	3,747	3,741
Male 55-64	3,025	3,008	3,033	2,885	2,902	2,940	2,975	3,043	3,116	3,199
Male 65-74	2,044	2,006	2,022	2,207	2,259	2,437	2,495	2,559	2,599	2,625
Male 75-84	1,191	1,258	1,268	1,384	1,293	1,355	1,381	1,390	1,418	1,456
Male 85+	308	350	353	385	422	433	455	465	486	491
Female 16-24	2,853	2,932	2,956	2,942	2,959	2,971	2,942	2,917	2,877	2,838
Female 25-34	3,357	3,420	3,449	3,586	3,477	3,653	3,662	3,710	3,735	3,711
Female 35-44	4,025	3,903	3,934	3,543	3,528	3,494	3,484	3,490	3,487	3,509
Female 45-54	3,413	3,509	3,538	3,668	3,685	3,780	3,806	3,847	3,845	3,831
Female 55-64	3,138	3,128	3,154	3,004	3,019	3,032	3,067	3,138	3,213	3,300
Female 65-74	2,233	2,179	2,197	2,385	2,462	2,621	2,682	2,752	2,795	2,825
Female 75-84	1,652	1,673	1,686	1,830	1,654	1,684	1,700	1,699	1,721	1,760
Female 85+	570	633	638	692	819	824	845	844	859	852
Total	**41,373**	**41,719**	**42,061**	**42,400**	**42,341**	**43,137**	**43,426**	**43,870**	**44,173**	**44,386**

Weighting target	Year One Mar 2009 - Feb 2010 '000s	Year Two Mar 2010 – Feb 2011 '000s	Year Three Mar 2011 - Feb 2012 '000s	Year Four Mar 2012 - Feb 2013 '000s	Year Five Mar 2013 - Feb 2014 '000s	Year Six Mar 2014- Feb 2015 '000s	Year Seven Mar 2015- Feb 2016 '000s	Year Eight Mar 2016- Feb 2017 '000s	Year Nine Mar 2017- Feb 2018 '000s	Year Ten Mar 2018 – Feb 2019 '000s
Region										
East Midlands	3,551	3,612	3,641	3,726	3,672	3,698	3,720	3,712	3,683	3,819
East of England	4,528	4,620	4,658	4,748	4,684	4,777	4,814	4,593	4,655	4,931
London	6,183	6,192	6,243	6,250	6,505	6,724	6,806	7,013	7,045	7,027
North East	2,098	2,095	2,113	2,102	2,106	2,112	2,118	2,097	2,137	2,136
North West	5,602	5,613	5,659	5,630	5,604	5,685	5,703	5,680	5,648	5,780
South East	6,690	6,724	6,779	6,830	6,820	6,992	7,044	6,888	7,159	7,213
South West	4,220	4,255	4,290	4,372	4,281	4,352	4,380	4,036	4,090	4,489
West Midlands	4,358	4,368	4,404	4,394	4,416	4,517	4,541	4,569	4,643	4,646
Yorkshire and the Humber	4,143	4,240	4,274	4,348	4,253	4,280	4,300	4,135	4,179	4,346
Social Grade										
AB	9,162	9,959	10,041	10,765	10,750	10,952	11,026	11,139	11,216	11,269
C1	11,716	11,998	12,097	12,171	12,154	12,382	12,465	12,593	12,680	12,741
C2	8,460	8,603	8,673	8,961	8,949	9,117	9,178	9,271	9,335	9,381
D	6,796	6,260	6,311	6,381	6,379	6,500	6,543	6,610	6,655	6,688
E	5,239	4,899	4,939	4,115	4,109	4,186	4,214	4,257	4,287	4,307
Total	**41,373**	**41,719**	**42,061**	**42,400**	**42,341**	**43,137**	**43,426**	**43,870**	**44,173**	**44,386**

Weighting target	Year One Mar 2009 - Feb 2010 '000s	Year Two Mar 2010 - Feb 2011 '000s	Year Three Mar 2011 - Feb 2012 '000s	Year Four Mar 2012 - Feb 2013 '000s	Year Five Mar 2013 - Feb 2014 '000s	Year Six Mar 2014- Feb 2015 '000s	Year Seven Mar 2015- Feb 2016 '000s	Year Eight Mar 2016- Feb 2017 '000s	Year Nine Mar 2017- Feb 2018 '000s	Year Ten Mar 2018 – Feb 2019 '000s
Children in Household										
Yes	11,960	11,893	11,990	12,078	12,070	12,297	12,379	12,251	12,594	12,653
No	29,413	29,826	30,071	30,313	30,271	30,840	31,047	31,620	31,578	31,733
Working										
Male Full Time	12,214	12,379	12,481	11,890	11,884	12,078	12,170	12,295	12,379	12,469
Male Part Time	688	721	727	1,023	965	981	988	998	1,005	1,013
Male Not Working	7,230	7,242	7,301	7,836	7,890	8,019	8,080	8,163	8,220	8,279
Female Full Time	6,747	7,168	7,227	6,972	6,956	7,104	7,145	7,218	7,268	7,286
Female Part Time	3,690	3,463	3,491	4,110	3,903	3,985	4,008	4,049	4,077	4,087
Female Not Working	10,804	10,746	10,834	10,569	10,743	10,970	11,035	11,148	11,224	11,252
Dog										
Yes	9,607	9,687	9,766	9,845	9,831	10,016	10,083	n/a	n/a	n/a
No	31,766	32,032	32,295	32,555	32,510	33,121	33,343	n/a	n/a	n/a
Urban/Rural										
Urban	33,415	33,695	33,971	34,602	34,197	34,840	35,073	35,419	36,914	35,849
Rural	7,958	8,024	8,090	7,798	8,144	8,297	8,353	8,451	7,259	8,537
Total	**41,373**	**41,719**	**42,061**	**42,400**	**42,341**	**43,137**	**43,426**	**43,870**	**44,173**	**44,386**

Appendix 3 Review of demographics used in weighting

5.21 The table below provides details of the unweighted number of visits reported by respondents during the first 12 months of interviewing and estimates of total visits following the application of weights. A review of the weighting was undertaken following the first year of surveying using the data collected over this period and has not been repeated since. The review previously undertaken compared the unweighted and weighted profiles of visits and illustrated the following:

- The application of weighting inflated the visit estimates for men aged 16 to 64 (from 36 per cent of unweighted visits to 40 per cent with weighting), members of the ABC1 socio-economic group (from 51 per cent to 56 per cent) and men who work full time (from 23 per cent to 29 per cent).
- Conversely, the application of weighting deflated the visit estimates for women aged 65 and over (from 11 per cent to 8 per cent), those in the E socio-economic group (from 16 per cent to 10 per cent) and women who work part time or are not working (from 40 per cent to 35 per cent).

5.22 The above variations reflected varying response rates amongst these population groups, with those listed in the second bullet above more likely to be available for interview and therefore, included in the survey. The demographic weighting used in MENE corrects for these variations.

5.23 The next stage of the review involved an analysis of the average number of visits per adult amongst the groups which weighting is based upon. Across the population as a whole an estimated 68.7 visits were taken per adult during the first 12 months of interviewing.

5.24 As the table below 4 illustrates (see column furthest to right), there were significant differences in average levels of visit-taking across all of the categories used in the weighting except for children in household.

5.25 These large differences in visit taking levels indicated that these characteristics were relevant variables to use in the MENE weighting. Therefore, the recommendation for these characteristics to continue to be used in the weighting of future years' outputs was implemented.

Table B Review of demographics used in weighting – March 2009 to February 2010 targets

	Population	Visits				
	'000s	Unweighted	Weighted '000s	Unweighted %	Weighted %	Visits per adult
TOTAL						
Age x Gender						
Male 16-24	2,941	146,61	161,953	5%	6%	**55.1**
Male 25-34	3,324	159,05	186,053	6%	7%	**56.0**
Male 35-44	3,954	213,40	276,660	8%	10%	**70.0**
Male 45-54	3,345	234,50	261,273	9%	9%	**78.1**
Male 55-64	3,025	223,03	243,057	8%	9%	**80.3**
Male 65-74	2,044	197,90	170,354	7%	6%	**83.3**
Male 75-84	1,191	8,263	62,290	3%	2%	**52.3**
Male 85+	308	812	7,895	0%	0%	**25.6**
Female 16-24	2,853	13,410	151,338	5%	5%	**53.0**
Female 25-34	3,357	217,28	219,767	8%	8%	**65.5**
Female 35-44	4,025	30,676	332,841	11%	12%	**82.7**
Female 45-54	3,413	25,732	277,627	9%	10%	**81.3**
Female 55-64	3,138	26,147	258,491	10%	9%	**82.4**
Female 65-74	2,233	19,979	155,803	7%	5%	**69.8**
Female 75-84	1,652	8,420	69,257	3%	2%	**41.9**
Female 85+	570	836	8,510	0%	0%	**14.9**
GOR						
East Midlands	3,551	25,232	263,162	9%	9%	**74.1**
East of England	4,528	36,801	369,851	13%	13%	**81.7**
London	6,183	25,771	273,246	9%	10%	**44.2**
North East	2,098	14,979	158,680	5%	6%	**75.6**
North West	5,602	29,091	312,709	11%	11%	**55.8**
South East	6,690	52,742	512,479	19%	18%	**76.6**
South West	4,220	38,388	412,582	14%	15%	**97.8**
West Midlands	4,358	23,063	240,311	8%	8%	**55.1**
Yorkshire and the Humber	4,143	27,391	285,734	10%	10%	**69.0**

Table continued...

	Population	Visits				
	'000s	Unweighted	Weighted '000s	Unweighted %	Weighted %	Visits per adult
Social Grade						
AB	9,162	61,847	766,085	23%	27%	**83.6**
C1	11,716	767,32	823,489	28%	29%	**70.3**
C2	8,460	56,279	567,323	21%	20%	**67.1**
D	6,796	35,271	408,904	13%	14%	**60.2**
E	5,239	43,332	277,391	16%	10%	**52.9**
Children in Household						
Yes	11,960	83,105	836,777	30%	29%	**70.0**
No	29,413	190,354	2,006,419	70%	71%	**68.2**
Working Status						
Male Full Time	12,214	62,149	811,255	23%	29%	**66.4**
Male Part Time	688	6,222	44,998	2%	2%	**65.4**
Male Non Working	7,230	58,157	513,314	21%	18%	**71.0**
Female Full Time	6,747	37,599	490,768	14%	17%	**72.7**
Female Part Time	3,690	31,036	304,328	11%	11%	**82.5**
Female Not Working	10,804	78,323	678,536	29%	24%	**62.8**
Dog in Household						
Yes	9,607	143,762	1,511,580	53%	53%	**157.3**
No	31,766	129,697	1,331,617	47%	47%	**41.9**
Urban/Rural						
Urban	33,415	202,774	2,123,517	74%	75%	**63.5**
Rural	7,958	70,686	719,683	26%	25%	**90.4**
Access to a Car						
Yes	30,957	221,386	2,364,810	81%	83%	**76.4**
No	10,416	52,072	478,388	19%	17%	**45.9**
Long Standing Illness						
Yes	7,626	49,288	446,844	18%	16%	**58.6**
No	33,747	224,173	2,396,352	82%	84%	**71.0**

Appendix 4 2016/17 and 2017/18 (years 8 to 10) data calibration approach

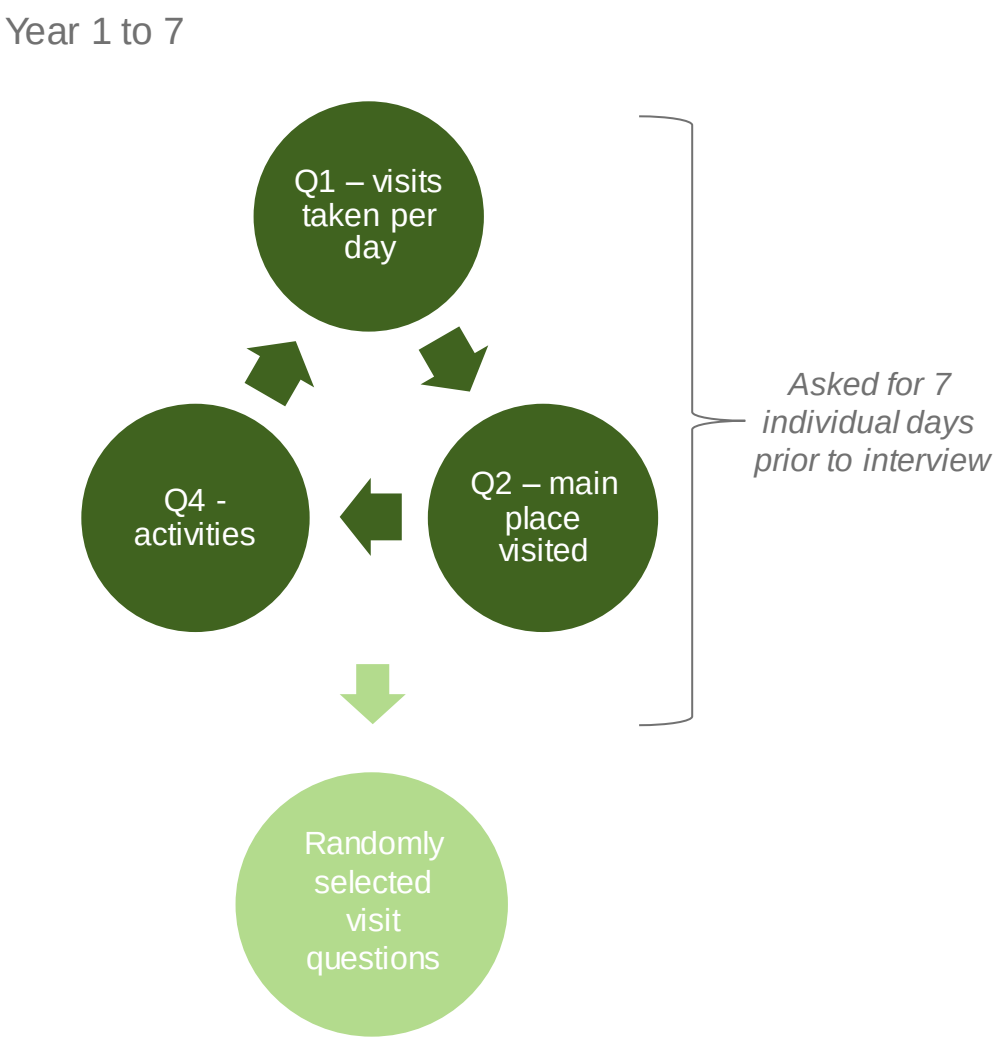
Background

Between March 2009 and February 2016 (the first seven years of MENE), the way that respondents were asked about visits remained consistent. To record visits taken in the seven days prior to being interviewed, respondents were asked how many visits they had taken and then a small amount of detail about each visit (up to a maximum of 10 visits per day).

This was done by asking how many visits were taken on the day before the interview and then asking details for those visits before moving on to the day before that and so on (as illustrated below).

Once all of those details were collected, a single visit was chosen at random and a series of more detailed questions asked about that visit.

FIGURE A MENE Q1 to Q4 questionnaire design in years 1 to 7 (March 2009 to February 2016)



For example, if a respondent took two visits on the day before being interviewed, they would be asked the following:

Day 1

Number of visits taken

Visit 1:

Main place visited

Activities undertaken

Visit 2

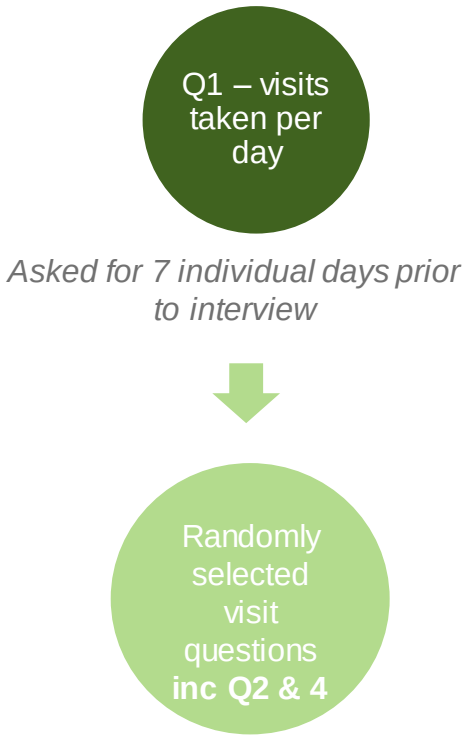
Main place visited

Activities undertaken

They would then move on to answer the same loop of questions for visits taken on each of the previous 7 days.

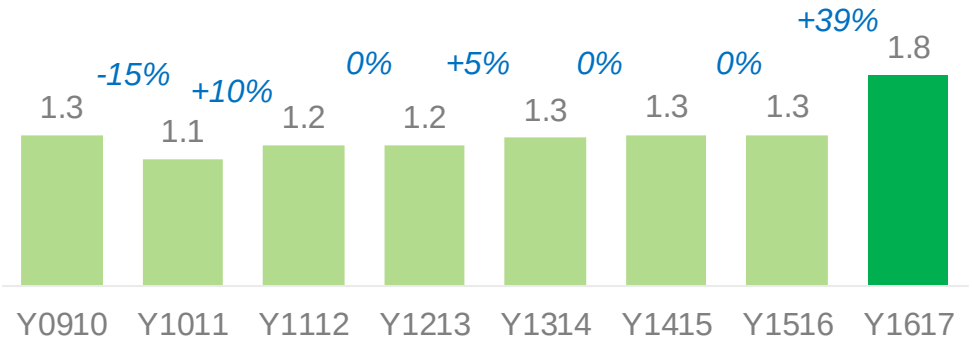
A number of changes were made to MENE from March 2016 (the start of year eight of survey). This included an amendment to the format of questions 1, 2 and 4 at the start of the survey to the simpler approach illustrated below. Following this new approach question 1 was asked for the full 7 day period then the main place visited (question 2) and activities undertaken (question 4), which had previously asked of up to 10 separate visits, were only asked about a single randomly selected visit.

FIGURE B MENE Q1 to Q4 questionnaire design in Year 8 onward (from March 2016)



As shown in the chart below, this change in the questions resulted in an increase in the average number of visits recorded, which when grossed up by the overall number of visits taken by the adult population suggested a significant increase in total volumes of visits on previous years.

FIGURE C Average number of visits recorded at Question 1 by year



To test the belief that increase was a respondent effect, a parallel run was undertaken in July 2017.

The MENE survey sample consists of half of the adults aged 16+ in England who are interviewed as part of the Kantar TNS Omnibus Survey (c.800 per week). For the parallel run, these respondents were asked the year eight questionnaire as usual, while the other half were asked the questions in the format used during the previous years (i.e. years one to seven).

This parallel run found that a higher average number of visits per week was recorded by those asked the questions in the new (year eight) format, confirming that the increase in visits reported was a result of the changes made to the questionnaire.

It was surmised that the observed change in the volume of visits reported between the old and new question formats was a respondent effect. The greater length and repetitiveness of questions 1 to 4 during years one to seven creating respondent fatigue and under reporting of visits by some respondents.

Through discussions with Natural England, it was felt that publishing estimates with the level of increase showing between year seven and year eight would lead users to believe that there had been a more significant change in visit-taking behaviour than there was really likely to have been.

Therefore, Kantar TNS looked into ways in which the survey data from years eight to ten could be modified (calibrated) to take account of the change in responses as a result of the questionnaire amendments. Following this exercise, to ensure comparability with historical trend levels and survey methods, it was decided that year eight to ten data would be calibrated down.

It should be noted that checks undertaken on subsequent visit characteristic questions (e.g. party composition, mode of transport etc.) have not shown the same level of variation and therefore, the main impact of the change has been on visit propensity measures.

Also, please note that the calibration approach was designed on the basis of an analysis of MENE data collected during years one to eight but the resulting factors have been applied to years eight to ten data.

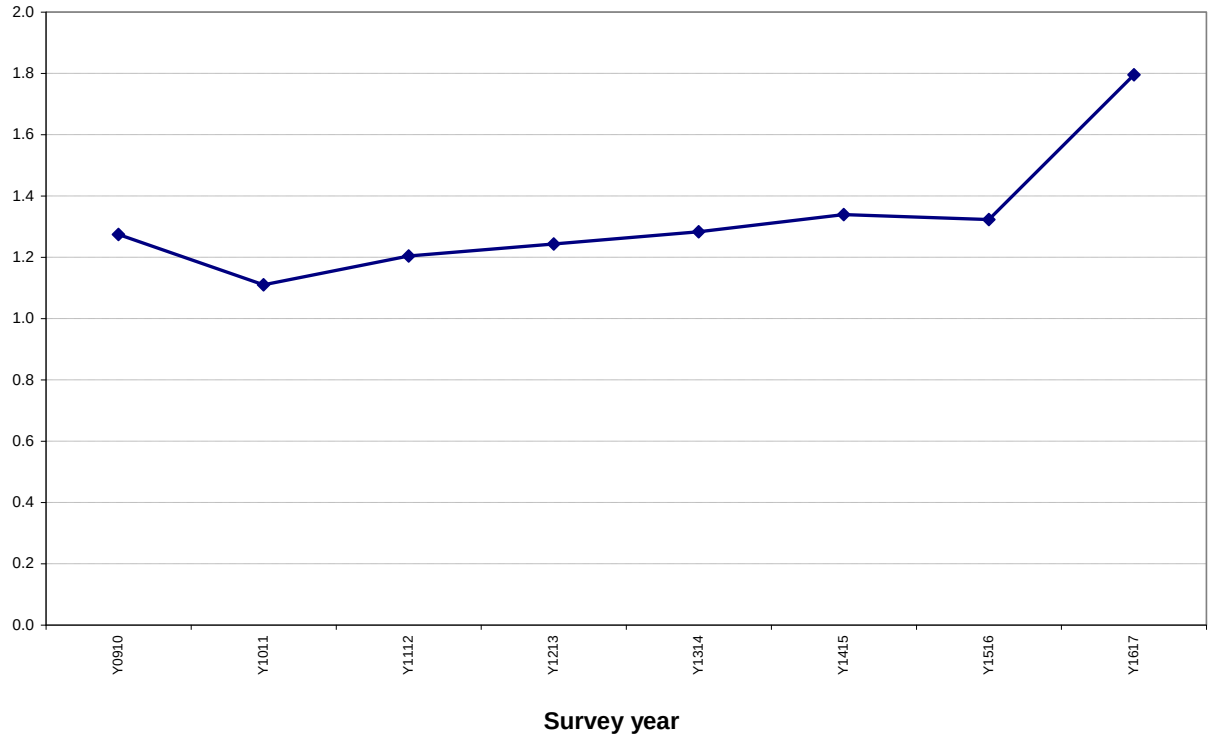
Calibration approach

The following sections describe the calibration exercise in more detail.

Initial exploration

An initial assessment was made of the mean visit frequency reported (Question 1 – visits taken in last 7 days). This was based on quarterly results from year one (2009/10) to year eight (2016/17). As can be seen below, there was a sizeable increase in score in year eight from a mean trend around 1.2 - 1.3 to 1.8 visits per person per week:

FIGURE D Question 1 (visits taken in last 7 days) responses by year – mean score (numbers include zeros)



When comparing the proportion of respondents in each of the 7 day frequency bands from year seven to year eight, a decrease in the amount of people stating “0” and “1”, and an increase in all visits of “4” or more was observed, as shown below:

Visits in last 7 days:	0	1	2	3	4	5	6	7	8+
Year 7	58%	17%	8%	4%	2%	2%	1%	5%	2%
Year 8	54%	15%	7%	4%	3%	2%	2%	9%	4%

The calibration exercise set out to find a way to adjust the response pattern in year eight (and ongoing years) to better reflect the distribution recorded in previous years.

Two alternative methods were initially considered for the calibration - rescaling the numeric values or using weighting factors. However, after some exploratory analyses, the first of these approaches, rescaling the numeric values was discounted as being unsuitable for the following key reasons:

- It gave very different answers per reporting period, suggesting that it was somewhat unstable.
- If applied, this approach would have created some major complications if the data was to be cross-analysed, for example by creating unusual numerical values at Question 1 (e.g. 1.75).

Given these complications, it was recommended that this approach should not be used. Instead, the weighting factor calibration approach was found to be suitable, as described overleaf.

Weighting factor calibration approach

In many respects this approach was implemented in a similar manner to normal survey weighting. However, it differed from normal target based (RIM / Cell) weighting because, rather than prescribing targets, a conversion ratio for each respondent was determined contingent upon their answer to Question 1 (Visit frequency in last 7 days). This ratio was then applied to the existing demographic weight variable to create a final (composite) weight value for the respondent.

Estimating Visit Frequency trends

The table below shows a summary of the weighted sample proportions for each of the visit frequency bands from years two to seven:

Q1 Visits 7 days	0	1	2	3	4	5	6	7	8	9	10+
Year 2	60.6%	18.3%	7.4%	3.7%	1.9%	1.4%	1.2%	4.0%	0.3%	0.1%	1.1%
Year 3	58.3%	18.8%	7.9%	4.0%	2.2%	1.4%	1.3%	4.2%	0.3%	0.2%	1.4%
Year 4	59.1%	17.3%	7.8%	4.3%	2.3%	1.5%	1.1%	4.7%	0.3%	0.2%	1.6%
Year 5	57.8%	18.1%	8.0%	4.0%	2.3%	1.4%	1.2%	4.9%	0.4%	0.2%	1.6%
Year 6	56.4%	18.3%	8.3%	4.2%	2.4%	1.6%	1.3%	5.3%	0.4%	0.2%	1.6%
Year 7	57.9%	17.3%	7.7%	4.3%	2.5%	1.7%	1.3%	5.2%	0.4%	0.2%	1.6%

To determine a likely projection of the proportions for each frequency band (0 to 10+), a simple linear projection with conducted. This required the determination of an intercept and slope for each of the columns of proportions, using the following formula:

$y = \alpha + \beta x$ (where x represents each successive year)[4]

The formula results are shown below:

Q1 Freq	0	1	2	3	4	5	6	7	8	9	10+
Intercept (α)	61%	19%	7%	4%	2%	1%	1%	3%	0%	0%	1%
Slope (β)	-0.59%	-0.16%	0.08%	0.10%	0.09%	0.06%	0.03%	0.27%	0.02%	0.02%	0.08%

Applying this to project year eight proportions yielded the following results:

Q1 Visits 7 days	0	1	2	3	4	5	6	7	8	9	10+
Year 7	57.9%	17.3%	7.7%	4.3%	2.5%	1.7%	1.3%	5.2%	0.4%	0.2%	1.6%
Year 8 - projected	56.3%	17.5%	8.1%	4.4%	2.6%	1.7%	1.3%	5.7%	0.4%	0.2%	1.8%

The result is similar to year seven but subtly different. As can be seen, the year eight projected row has a slightly lower proportion of sample with no visits made in the last 7 days and slightly higher proportions in some of the higher bands (e.g. 7 & 10) than previous years. If this method had not been implemented then the calibration would not have accounted for the very slight upward trend in visit frequency witnessed over the survey lifetime.

[4] For more details on linear trend estimation, see this short article: https://en.wikipedia.org/wiki/Linear_trend_estimation

Deriving the frequency calibration factor

The sample proportions used to develop the calibration factors were based on comparing the year eight projected proportions with the actual year eight proportions, as shown below:

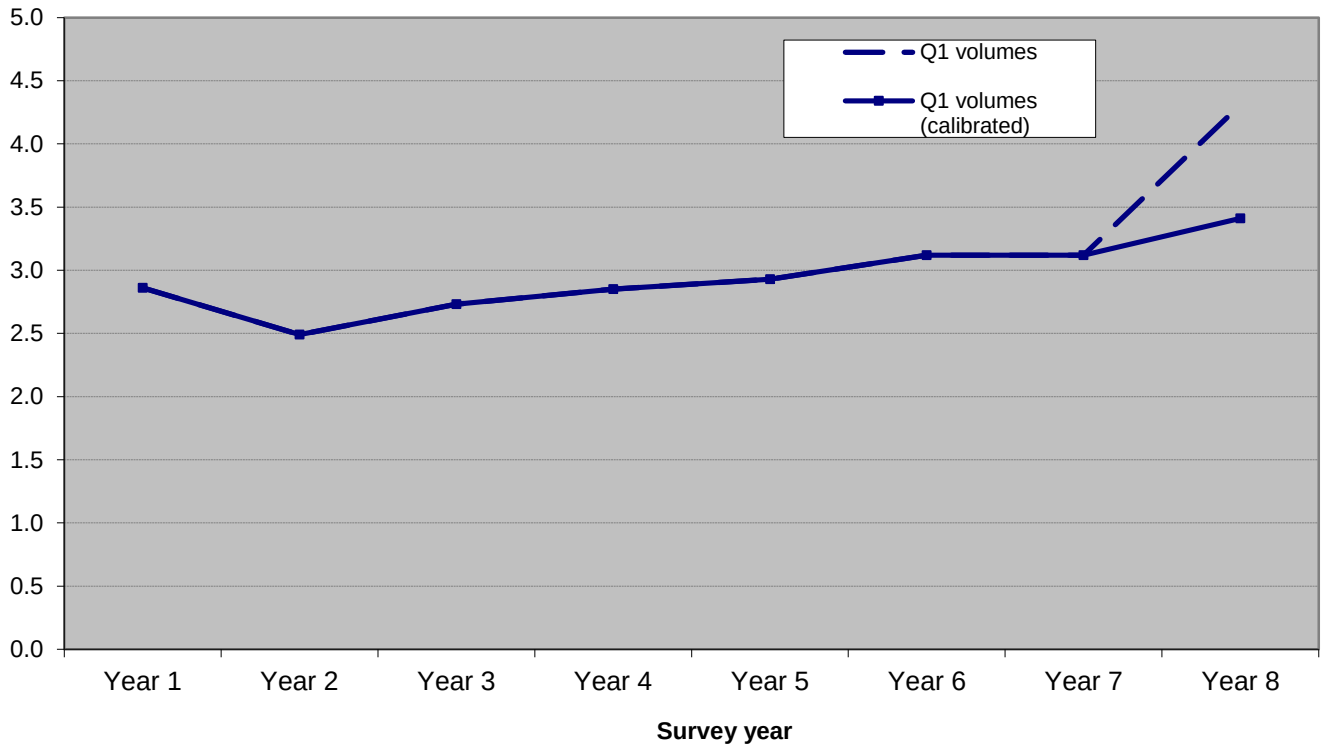
Q1 Visits 7 days	0	1	2	3	4	5	6	7	8	9	10+
Year 8 - actual	53.9%	15.3%	7.1%	4.2%	2.9%	2.0%	1.7%	9.3%	0.4%	0.4%	2.8%
Year 8 - projected	56.3%	17.5%	8.1%	4.4%	2.6%	1.7%	1.3%	5.7%	0.4%	0.2%	1.8%
Weighting factor to convert current to Old:	1.0453	1.1438	1.1450	1.0440	0.8930	0.8293	0.7612	0.6088	0.9470	0.6819	0.6388

The calibration factor was derived by dividing the proportion of people in each visit banding from the prior (projected) figures, by the current (actual) proportion (i.e. 56.3% / 53.9% = 1.0453).

So for visit values 0,1,2 and 3, the calibration factor was a slight upweight value (greater than 1.00), whereas 4+ frequencies were slight down weights (less than 1.00).

This had the effect of reducing the proportion of higher visit frequency respondents, and increasing the lower visit frequency respondents, therefore bringing the new mean visit volumes closer to historical levels, as illustrated below:

FIGURE E Question 1 volumes reported and year 8 calibrated– mean score



This simulation of calibrated scores has been developed by applying the calibration factor to the existing respondent weight values. The existing weights are necessary to ensure a stable breakdown of demographic sample characteristics and so need to be accounted for. This is achieved by multiplying each respondent's demographic weight by a specific factor depending upon their answer to the 7 day frequency question (Q1). The resultant weight value is then used as the respondent's main survey weight.

To be clear, this method cannot prescribe the absolute levels of respondent proportions but instead rescales them in a relative manner. Therefore, any real upward or downward trends in the underlying data will be reflected in the calibrated results, as witnessed by the fluctuations in the chart above.

Enhancing and checking the calibration factors

Following an initial consultation and review of the above approach by Natural England, further work was undertaken by Kantar TNS to develop and test the method as follows.

- *Accounting for any genuine trend changes in score*

As can be seen from the chart on the previous page, aside from a slight drop between the first two years of the survey, from years two to seven, there has been a slight upward trend in the average level of visit frequency (estimated as an annualised increase of: Q1 (Last 7 days): 0.043).

This means that we cannot strictly compare the visit levels from year seven with year eight given that, based on prior trends, the year eight scores would probably have increased slightly. Therefore, a projection of the likely sample proportions for year 8 was developed, using historical trend levels.

qQ1 Visits 7 days	0	1	2	3	4	5	6	7	8	9	10+
Weighting factor to convert current to old:	1.0453	1.1438	1.1450	1.0440	0.8930	0.8293	0.7612	0.6088	0.9470	0.6819	0.6388

Initial testing of this approach showed that it was a viable method for addressing the trend change issues, therefore, it was implemented to the final proposed calibration approach.

- *Testing and validation*

As part of the testing of the approach, a data file containing the final proposed calibration weight factors was produced and various weighted data tables of results were produced and checked. These checks ensured that the visit volumes scores were applied correctly and that there were no unforeseen consequences on other survey characteristics (especially demographics and key trended measures as published in the annual reports).

Questions checked included the following key measures:

- Q1 volume of visits in the last 7 days
- Q2 general type of place visited
- Q4 activities undertaken
- Q5 specific types of place visited
- Q12 visit motivations
- Q17 frequency of visit in last 12 months
- E4 environmental attitudes
- E5 environmental behaviours
- Demographics

Implementing the calibration factor only had a small impact on all questions, apart from Q4 (discussed below), resulting in a maximum change of +/- 2 percentage points (comparing year eight results calibrated vs non-calibrated) on most statements tested.

Additional calibration to Q4

The calibration, while successful in correcting overall volumes of visits, had unforeseen effects on Q4 (activities undertaken during visits). Because the calibration weighted down those who took more visits, and weighted up those who took less, activities that are generally undertaken more often – such as dog walking – dropped significantly compared to previous years, whereas activities generally undertaken less often – such as playing with children – increased significantly compared to previous years.

Given this discrepancy, and the absence of other logical explanation, it has been decided that further work is required to understand this change in the profile of activities which would allow for comparable analyses of the data collected on activities before and after the questionnaire change. As a result, a calibration for Q4 is in development to compensate for the impact of methodological changes on visit activity data. This new calibration would apply only to years 8, 9 and 10 of survey fieldwork – with previous years unchanged. For the time being it is recommended that users do not run analysis on Q4 for years 8, 9 and 10 of the survey. If analysis must be undertaken then the results need to be caveated.

Application of calibration to published data

All published reports, including years eight, nine and ten, use results produced using the agreed calibrated weights. In the published datasets, these weights are clearly labelled as 'converted' and a description of how and when they should be used is given in the accompanying 'Weighting Guidance' document.

Conclusions

The calibration approach was developed by projecting what year eight would have looked like assuming a linear trend from years one to seven, then comparing to actual year eight data. This has yielded calibration factors which account for the questionnaire change. These factors can now be applied to all years going forward.

The key advantage of the calibration approach is that it can help to ensure comparability of data collected for year eight and beyond with historical trends. Without implementing this approach, there would be a sudden increase in absolute visit volumes, which is considered likely to be unrealistic in terms of any actual change in visit taking behaviours.

As the source of the change is likely to be a consequence of minor methodology differences, there are grounds to undertake the calibration. A fundamental assumption of the approach taken is in how the methodology effect was isolated. This was based on presuming a linear trend for estimating what the distribution for year eight would have looked like under the original survey structure. In reality, the trend may not have been purely linear, so there might be a hidden bias in the calibration, however this is likely to be minor.

There is also a minor consequence of making adjustments to the respondent weight values, in that the weights could be made more extreme. If so, this could lower the weighting efficiency of the data, thereby reducing precision of the estimates. However, an assessment of the year eight data suggests that the weighting efficiency is not negatively impacted.

Appendix 5 Missing children's data for December 2018

Introduction and Background

In December 2018, a set of questions regarding outdoor activities by children which is normally asked one week in each month, was omitted in error.

The purpose of this report is to determine the likely impact of this omission on the annual data and whether it is possible to create trustworthy annual data from the remaining eleven months.

The report falls into two main parts:

a) Whether or not the December data is statistically significantly different from other months on key measures
b) Whether any such differences are meaningful, and possible ways of correcting for the omission.

The primary author of this appendix is Ian Brace, a Fellow of the Market Research Society, former Head of Marketing Sciences at Kantar TNS UK, and currently an external consultant. It has been peer reviewed by Russell Bradshaw, a director in Kantar's Analytics Practice, and a Fellow of the Royal Statistical Society.

2. Scope of the analysis

This analysis has looked at the following key measures:

- NE1: Frequency taken visits in last 12 months
- NE2: Frequency taken visits in last month - with adults from household
- NE5: Frequency taken visits in last month - with adults NOT from household
- NE9: Frequency taken visits in last month - with no adults
- Net visits to countryside/coasts/urban
- Net visits to individual destinations.

Not all of these specific measures were assessed in all analyses. However, those that have been chosen have the highest claimed usage amongst the sample and also the greatest variation by month within the sample, and hence those most likely to affect the annual figures if omitted.

3. Statistical considerations

When conducting statistical tests, a design factor of 1.3 has been used. Standard statistical tests assume that the sample is selected at random from the survey population with no biases. In practice this is rarely the case with surveys involving the general public, and therefore a design factor is included in calculations to allow for this. The '*Monitor of Engagement with the Natural Environment. Technical Report to the 2009-2016 surveys*' published May 2017, established that a design factor of 1.37 is appropriate for MENE. Here a design factor of 1.3 has been used. This will flag some differences as significant which would not be so with the higher design factor, but in this investigation that errs on the side of caution.

4. Initial exploration - Is December different?

If the measured level of outdoor activities is constant across the year, then the omission of any one month would have no impact on the annual data. The first part of the analysis therefore looks at the variation on key measures between months, in particular December, and whether that variation is statistically significant.

Two approaches have been used. The first approach consisted of:

- Analysis of variance to determine whether the variation between months is significant

- A Tukey test, to determine whether or not pairs of individual months are significantly different from each other. This would then allow us to see how often December is significantly different from other months and which other months.
- This was conducted for NE1, NE2, NE5, NE9 and main destinations for each of 2017/18 and 2015/16.

4.1 Analysis of variance

For all measures tested, for both years, the analysis of variance showed that variation by month is statistically significant at the 95% level of confidence. All cases therefore proceeded to the next stage. See Appendix A1 for more details on this test.

4.2 Tukey test

In this test, pairs of months within a year are examined to see whether the difference between them is statistically significant. In all, 66 pairs of months were tested for each measure for each year.

Table 1. Number of months for which measure is significantly different by year.

	NE1		NE2		NE5		NE9	
	2015/16	2017/18	2015/16	2017/18	2015/16	2017/18	2015/16	2017/18
Mar	4	2	3	2	3	1	1	1
Apr	3	1	3	3	1	0	1	0
May	2	3	3	6	2	1	2	0
June	4	1	3	1	3	1	1	4
July	4	1	2	2	2	2	2	0
Aug	7	4	6	7	7	3	1	0
Sept	3	2	3	3	2	0	2	1
Oct	3	1	3	3	2	0	2	1
Nov	3	1	3	2	2	0	0	0
Dec	10 *	2	10	3	8	2	4	1
Jan	9	10	10	9	7	4	8	3
Feb	3	1	3	4	1	0	0	1

* i.e. December 2015/16 for NE1 is significantly different to 10 other months in that year (and consequently not significantly different to one other month, in this case January).

Table 2. Number of months for which 'Never/None' response is significantly different by year.

	NE1		NE2	
	2015/16	2017/18	2015/16	2017/18
Mar	1	1	2	1
Apr	1	1	2	3
May	1	1	2	5
June	1	1	3	1
July	2	1	2	3
Aug	1	1	4	3
Sept	1	1	2	2
Oct	1	1	2	2
Nov	1	1	2	1
Dec	11	1	9	5
Jan	2	11	10	11
Feb	1	1	2	5

What emerges from these tables is that there is no consistent pattern. For the full distribution of responses for NE1 and NE2, January is significantly different from most other months in both years tested, but this is only the case for December in 2015/16, not 2017/18. NE5 and NE9 show similar patterns but not quite so extreme.

The 'None' response in NE1 and 'Never' response in NE2, show December as being significantly different from most other months in 2015/16, but not in 2017/18.

Table 3. Number of months for which measure is significantly different by year.

	Any Park		Any Playground		Any Playing Field		Any Woodland	
	2015/16	2017/18	2015/16	2017/18	2015/16	2017/18	2015/16	2017/18
Mar	3	7	1	4	1	6	1	0
Apr	2	3	1	5	0	1	3	0
May	1	6	2	5	2	6	4	2
June	2	2	1	2	2	2	1	1
July	2	7	1	4	1	3	3	0
Aug	9	6	3	8	1	8	8	0
Sept	1	4	1	4	0	3	2	0
Oct	1	4	2	2	0	2	1	0
Nov	2	3	3	5	2	5	1	0
Dec	4	4	9	4	3	3	3	0
Jan	9	7	5	7	6	3	4	1
Feb	2	3	2	2	0	2	1	0

For individual destinations, December is not significantly different from the majority of other months, with the exception of 'Playground' in 2015/16. This again shows that it is difficult to discern a pattern as whether and where December displays significantly different data from most other months. Note, August is often the key month, when activities are at their highest.

An explanation of the Tukey test, along with a full breakdown of results for NE1 is detailed in Appendix A2.

Weather data such as hours of sunshine, amount of rain, average temperature for a month and average hours of daylight in a month, all show a level of correlation with most measurements, but generally not sufficiently high to be considered on their own as predictors. Further detail on this investigation is covered in Appendix A3.

5. Seasonal Variation

A second approach was used to look at this issue using seasonal variation corrections. The advantage of this is that it uses all of the data available from 2013/14 to 2017/18 (excluding the incomplete year of 2016/17). This approach is based on the use of seasonal adjustments that are made to remove the observed natural variation between months in order to show trends in the data. It is used in measures such as employment statistics and consumer confidence measures. Here we can see the correction that would be applied to each month based on past data to evaluate the importance of December in determining any variation in the annual figure.

Table 4: Seasonal correction factors by month

	NE1	NE2	NE5	NE9
Mar	-0.1	-0.1	0.0	0.0
Apr	-0.1	-0.1	-0.1	0.0
May	0.4	0.3	0.0	0.1
Jun	0.0	0.0	0.0	0.1
Jul	0.1	0.1	0.2	0.1

Aug	0.5	0.6	0.2	0.1
Sep	0.1	0.1	0.0	0.1
Oct	-0.1	-0.1	0.0	0.0
Nov	0.1	0.0	0.0	0.0
Dec	-0.5	-0.6	-0.3	-0.2
Jan	-0.4	-0.4	-0.1	-0.2
Feb	0.0	-0.2	-0.1	-0.1

The specific calculation used to arrive at this correction factor is known as the X12 seasonal adjustment. See Appendix A4 for more details on this method.

For the purpose of this test, these four measures were converted to an estimated average number of occasions per week. Seasonal correction factors are subtracted from the measured data. Blue shading indicates that the correction is significantly different from zero.

For NE1 and NE2, four and five months respectively have high seasonal correction factors, one of which is December. For NE5 and NE9 the factors are generally smaller, although December is again amongst the highest. December is the only month to show a correction that is significantly different from zero for all four measures.

Table 5: Seasonal correction factors by month for net activities

	Net countryside	Net coast	Net urban
Mar	-1%	-4%	1%
Apr	0%	2%	2%
May	3%	3%	3%
Jun	-2%	-2%	1%
Jul	2%	0%	3%
Aug	8%	14%	5%
Sep	1%	0%	1%
Oct	-5%	-4%	0%
Nov	3%	-1%	1%
Dec	-8%	-3%	-12%
Jan	-6%	-7%	-10%
Feb	1%	-2%	0%

Adjustments of 3 percentage points or more are significant at the 95% level of confidence.

For the net of activities the three adjustments for December are all significant, with two of them in the highest five adjustments.

Table 6: Seasonal correction factors by month for top activities

	Playing field/ recreation area	Country Park	Woodland or forest	Beach or coastline	River, lake or canal
Mar	1%	2%	-1%	4%	3%
Apr	0%	-1%	-1%	-2%	0%
May	-5%	-2%	-3%	-3%	-2%
Jun	-1%	1%	1%	2%	-1%
Jul	0%	-1%	1%	0%	0%
Aug	-2%	-6%	-4%	-14%	-8%
Sep	-1%	-1%	2%	-1%	2%
Oct	1%	3%	1%	3%	2%
Nov	-4%	-2%	-2%	1%	-2%
Dec	6%	4%	2%	3%	3%
Jan	5%	5%	4%	6%	4%
Feb	-1%	-1%	-1%	2%	0%

Adjustments of 3 percentage points or more are significant at the 95% level of confidence. Adjustments of 5% or more are highlighted.

Of the five top individual activities, December has a significant correction factor for four of them.

5.1 Is December significant?

From both approaches it is clear that December data does differ significantly from most other months. However, there is no simple pattern and it varies not only between measures but between years.

Nevertheless there is sufficient evidence to show that the impact of omitting December requires further investigation. See Appendix A5 for details on how this was determined.

5.2 Is it meaningful?

The evidence so far demonstrates that the December data differs significantly in a number of places from other months in the same year. What this tells us that the differences that we see between December and these other months is unlikely to have occurred by chance, due to sampling error, and are therefore likely to be real seasonal differences.

However, that does not mean that the differences are meaningful in the application for which we are examining them (i.e. their influence on the annual data) merely that they demand further investigation. (*See: The Cult of Statistical Significance: How the Standard Error Costs Us Jobs, Justice, and Lives* by Ziliak and McCloskey, 2008)

To assess that, we have explored whether significant differences are created in the annual data:

a) By omitting December data
b) By creating a proxy for the December data.

5.3 Omitting December data

Table 7: Impact of removing December from past data

NE1	Average weekly number of occasions (estimated)			
	2013/14	2014/15	2015/16	2017/18
Annual figure	2.34	2.43	2.33	2.41
Annual without December	2.38	2.45	2.40	2.43

NE2	Average weekly number of occasions (estimated)			
	2013/14	2014/15	2015/16	2017/18
Annual figure	1.72	1.79	1.77	1.86
Annual without December	1.77	1.83	1.83	1.88

For the purposes of this analysis a weekly average number of occasions has been estimated for each of NE1 and NE2

For both measures, omitting December increases the average number of activities per week for each year. The differences are small but systematic.

Table 8: Impact of removing December from past data

Net countryside				
	2013/14	2014/15	2015/16	2017/18
Annual figure	36.8%	37.7%	34.7%	35.5%
Annual without December	37.6%	38.1%	35.5%	36.1%

Net coast				
	2013/14	2014/15	2015/16	2017/18
Annual figure	16.9%	16.7%	15.6%	16.6%
Annual without December	17.2%	17.0%	15.7%	17.2%

Net urban				
	2013/14	2014/15	2015/16	2017/18
Annual figure	74.1%	73.3%	73.2%	71.3%
Annual without December	75.1%	74.4%	74.4%	71.7%

Again, although the differences are small, they are all systematically in the same direction, December typically being a month of lower activity.

The omission of December is therefore meaningful in that it creates a systemic bias in the data.

We must therefore look at ways at estimating the December data that removes or reduces this tendency and brings the estimated figure closer to the actual.

6. Correcting the omission.

Two approaches have been tested as methods of correcting for omitted December data:

a) Using a month that is similar to December to act as proxy by double-weighting that month
b) Estimating the December figure using the data from the rest of the year together with the seasonal correction for December.

6.1 Using a proxy month

The method for implementing this detailed in Appendix A6. From the analysis of differences between months previously undertaken, it is clear that the closest proxy to December is the adjacent January. The figures for January and December were rarely statistically significantly different to each other (see Appendix A2), and the seasonal correction factors tended to be similar to each other (see Tables 4,5, and 6).

Section 8 of this report provides more detail on the justification for why January is the most similar month to December.

Table 9 Annual estimates using January as proxy in place of December

NE1				
	2013/14	2014/15	2015/16	2017/18
Annual figure	2.34	2.43	2.33	2.41
Annual with January proxy	2.35	2.45	2.34	2.39

NE2				
	2013/14	2014/15	2015/16	2017/18
Annual figure	1.72	1.79	1.77	1.86
Annual with January proxy	1.74	1.82	1.83	1.83

For the purposes of this analysis a weekly average number of occasions has been estimated for each of NE1 and NE2.

The differences between the actual annual figure and the estimated figure is much reduced (at most deviating by 0.06), and the tendency for the difference to always be in the same direction is removed.

Table 10 Annual estimates using January as proxy in place of December – Net activities

Net countryside				
	2013/14	2014/15	2015/16	2017/18
Annual figure	36.8%	37.7%	34.7%	35.5%
Annual with January proxy	36.9%	37.8%	34.8%	35.1%

Net coast				
	2013/14	2014/15	2015/16	2017/18
Annual figure	16.9%	16.7%	15.6%	16.6%
Annual with January proxy	16.6%	16.4%	15.2%	16.4%

Net urban				
	2013/14	2014/15	2015/16	2017/18
Annual figure	74.1%	73.3%	73.2%	71.3%
Annual with January proxy	74.0%	73.7%	73.3%	70.4%

Generally the differences between the actual annual figure and the figure calculated using a January double - weight are small, and certainly smaller than omitting December. There is an exception in the Net urban figure for 2017/18 where a very low January figure has reduced the calculated annual figure resulting in a slightly larger figure than if December had simply been omitted.

6.2 Using seasonal corrections

With this approach, December data is omitted and replaced by the average for the remaining 11 months less the seasonal adjustment for December. See Appendix A7.

Table 11 Annual estimates using seasonally corrected data in place of December

NE1				
	2013/14	2014/15	2015/16	2017/18
Annual figure	2.34	2.43	2.33	2.41
Annual with seasonal correction	2.34	2.41	2.36	2.39

NE2				
	2013/14	2014/15	2015/16	2017/18
Annual figure	1.72	1.79	1.77	1.86
Annual with seasonal correction	1.73	1.79	1.78	1.84

For the purposes of this analysis a weekly average number of occasions has been estimated for each of NE1 and NE2.

The estimates are at most 0.03 different from the actual measure figure with no systematic tendency to be higher or lower.

Table 12 Annual estimates using seasonally corrected data in place of December – Net activities

Net countryside				
	2013/14	2014/15	2015/16	2017/18
Annual figure	36.8%	37.7%	34.7%	35.5%
Annual with seasonal correction	36.9%	37.5%	34.8%	35.4%

Net coast				
	2013/14	2014/15	2015/16	2017/18
Annual figure	16.9%	16.7%	15.6%	16.6%
Annual with seasonal correction	16.9%	16.8%	15.4%	16.9%

Net urban				
	2013/14	2014/15	2015/16	2017/18
Annual figure	74.1%	73.3%	73.2%	71.3%
Annual with seasonal correction	74.0%	73.3%	73.3%	70.7%

Most of these estimates are within 0.2 percentage points of the actual, with one at 0.1 percentage point and one at 0.6 percentage point. This last is the net urban figure for 2017/18, which is the same figure that had a large difference in the previous method. This time, however, this is due to an unusually high December figure, resulting in an underestimate being produced by the calculation, that is the cause.

7. Summary and Recommendation

It is clear from the analysis that the omission of December results might introduce a small bias to the data. December is one of the months that has a tendency to be significantly different from other months, although August and January tend to be the two key months on most measures. There is very little pattern to when December is a key month, either by key measure or by year, so it is difficult to predict whether December 2018 would have been significantly different from most other months, and so likely to affect significantly the overall annual figure.

However, whilst the differences are statistically significant the impact on published data may not be dramatic. Percentages calculated using annual data without any December data and presented to no decimal places are unlikely to be more than one percentage point different from the actual figure, albeit biased in a particular direction.

However, there are ways of reducing this bias by introducing a proxy measure for the missing December data. Double-weighting January, effectively substituting January for December as the closest month, reduces the number of occasions when the whole percentages differ between actual annual and estimated annual figures. Using a seasonally corrected estimation performs the same function with possibly a marginal increase in accuracy. However, double weighting January can be incorporated into the data analysis allowing for sub-analyses to be carried out, whereas the seasonal adjustment approach can only be used at a macro level which would not allow this.

8. Validation

This section looks at the recommendation that January should be used as a proxy for December by double-weighting it in the 2018-2019 data set.

For each of the four years for which there is children's data, the December data has been compared with the five prior months (July to November) and the six following months (January to June) to test for statistical significance at the 95% level of confidence. This has been carried out for ten reported measures, giving a total of 376 data points.

8.1 Overall finding

Table 13: Number of data points at which at which December is significantly different from other months across four years.

	Total
July	42
August	108
September	28
October	19
November	37
January	3
February	26
March	29
April	35
May	48
June	35
Total measures	376

Of the 376 data points, January was significantly different from December on three. The month with the next lowest number of significant differences is October with 19. See Appendix A8 for further detailed results.

With 95% level of confidence the expected number of significant differences arising by chance from 376 measures is 18.8. Observing that the figure for January is so much lower indicates a strong similarity between the two months that is unlikely to have arisen by chance.

No other month presents itself as such a suitable candidate for use as a proxy for December than the adjacent January.

Technical Appendix

A1. ANOVA

One-way analysis of variance was conducted with all the key variables with month as the dependent variable. All tests returned a significant F-value indicating that month is a statistically significant contributor to variation in annual figures.

This was conducted both for the last full four years of data, for which results for NE1 are shown here, and for each individual year to ensure that it is a significant contributor for all years. The results for NE1 for 2015/16 are shown here.

ANOVA Last four years

NE1: Frequency taken visits in last 12 months

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1241.193	11	112.836	30.379	.000
Within Groups	190424.804	51268	3.714		
Total	191665.998	51279			

ANOVA 2015/16

NE1: Frequency taken visits in last 12 months

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1009.420	11	91.765	25.555	.000
Within Groups	36954.484	10291	3.591		
Total	37963.904	10302			

A2. Tukey test

'The Tukey Test, also called Tukey's Honest Significant Difference test, is a post-hoc test based on the studentized range distribution. An ANOVA test can tell you if your results are significant overall, but it won't tell you exactly where those differences lie. After you have run an ANOVA and found significant results, then you can run Tukey's HSD to find out which specific groups' means (compared with each other) are different. The test compares all possible pairs of means.'
www.statisticshowto.datasciencecentral.com/tukey-test-honest-significant-difference/

Having established that there is significant variation between months, the Tukey test was applied to establish which pairs of months are significantly different.

This was applied to each of variables NE1, NE2, NE5, NE9, Any park, Any playground, Any playing field, Any woodland, as well as the 'Never' code for NE1 and 'None' code for NE2, separately for the two years 2015/16 and 2017/18.

The tables below show the outcome for NE1 for 2017/18 and for 2015/16. Figures highlighted in blue are statistically significant at the 95% level of confidence allowing for a design factor of 1.3.

Multiple Comparisons 2017/18 Tukey with design effect factor 1.3

Dependent Variable: NE1: Frequency taken visits in last 12 months

Tukey HSD

	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
Mar		-0.213	-0.357	-0.256	-0.062	-0.413	0.098	-0.134	-0.265	0.076	0.48	-0.041
Apr	0.213		-0.143	-0.043	0.152	-0.2	0.311	0.079	-0.052	0.289	0.693	0.172

May	0.357	0.143		0.100	0.295	-0.057	0.455	0.223	0.092	0.433	0.837	0.316
Jun	0.256	0.043	-0.100		0.195	-0.157	0.354	0.122	-0.009	0.332	0.736	0.215
Jul	0.062	-0.152	-0.295	-0.195		-0.352	0.16	-0.072	-0.203	0.138	0.542	0.021
Aug	0.413	0.200	0.057	0.157	0.352		0.511	0.279	0.148	0.489	0.893	0.372
Sep	-0.098	-0.311	-0.455	-0.354	-0.16	-0.511		-0.232	-0.363	-0.022	0.382	-0.139
Oct	0.134	-0.079	-0.223	-0.122	0.072	-0.279	0.232		-0.131	0.21	0.614	0.093
Nov	0.265	0.052	-0.092	0.009	0.203	-0.148	0.363	0.131		0.341	0.745	0.224
Dec	-0.076	-0.289	-0.433	-0.332	-0.138	-0.489	0.022	-0.21	-0.341		0.404	-0.117
Jan	-0.48	-0.693	-0.837	-0.736	-0.542	-0.893	-0.382	-0.614	-0.745	-0.404		-0.521
Feb	0.041	-0.172	-0.316	-0.215	-0.021	-0.372	0.139	-0.093	-0.224	0.117	0.521	
Number	2	1	3	1	1	4	2	1	1	2	10	1

Multiple Comparisons 2015/16

Dependent Variable: NE1: Frequency taken visits in last 12 months

Tukey HSD

	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
Mar		-0.083	-0.237	-0.057	-0.441	-0.554	-0.156	-0.39	-0.173	0.689	0.341	-0.101
Apr	0.083		-0.154	0.025	-.358	-0.471	-0.073	-0.307	-0.09	0.772	0.424	-0.018
May	0.237	0.154		0.18	-0.204	-0.317	0.081	-0.153	0.064	0.926	0.578	0.136
Jun	0.057	-0.025	-0.18		-0.384	-0.497	-0.098	-0.333	-0.116	0.746	0.398	-0.043
Jul	0.441	0.358	0.204	0.384		-0.113	0.285	0.051	0.268	1.13	0.782	0.34
Aug	0.554	0.471	.317	0.497	0.113		0.398	0.164	0.381	1.243	0.895	0.453
Sep	0.156	0.073	-0.081	0.098	-0.285	-0.398		-0.234	-0.017	0.845	0.497	0.055
Oct	0.39	0.307	0.153	0.333	-0.051	-0.164	0.234		0.217	1.079	0.731	0.289
Nov	0.173	0.09	-0.064	0.116	-0.268	-0.381	0.017	-0.217		0.862	0.514	0.073
Dec	-0.689	-0.772	-0.926	-0.746	-1.13	-1.243	-0.845	-1.079	-0.862		-0.348	-0.79
Jan	-0.341	-0.424	-0.578	-0.398	-0.782	-0.895	-0.497	-0.731	-0.514	0.348		-0.442
Feb	0.101	0.018	-0.136	0.043	-0.34	-0.453	-0.055	-0.289	-0.073	0.79	0.442	
Number	4	3	2	4	4	7	3	3	3	10	9	3

In the main report, these tables are summarised using the number of other months that each month differs significantly from. These tables show better the pattern of differences and the extent of the differences between the two years on the same measure.

A3. Correlations with weather data

In an attempt to explain the differing patterns between years, some exploration of correlations between key MENE data and monthly weather averages was carried out. In order to create a single figure to test NE1, NE2, NE5 and NE9, weighted averages were created for each of these variables to provide an estimate of the average number of occasions per week. These were created using the following weights:

Responses allocated to produce estimate of average number of visits per week.

NE1 response	Weight	NE2, NE5, NE9 responses	Weight
More than once per day	10.5	More than once per day	10.5
Every day	7	Every day	7
Several times a week	3	Several times a week	3

Once a week	1	Once a week	1
Once or twice a month	0.33	Two or three times	0.4
Once every 2-3 months	0.1	Once	0.25
Once or twice	0.03	No visits	0
Never	0		

These estimates have not been verified against any estimates used in MENE reporting, but are consistent throughout this analysis and therefore can confidently be used to highlight differences.

Correlation matrix of weather conditions and key measures.

	Temp	Rain	Sunshine	Daylight hours
NE1	0.504	-0.395	0.505	0.600
NE2	0.643	-0.438	0.647	0.740
NE5	0.485	-0.307	0.482	0.589
NE9	0.604	-0.512	0.583	0.700
Net countryside	0.392	-0.351	0.497	0.547
Net coast	0.563	-0.244	0.526	0.620
Net urban	0.520	-0.493	0.671	0.688
Parks	0.581	-0.324	0.616	0.687
Playfield	0.356	-0.339	0.468	0.484
Nature reserves	0.106	-0.031	0.106	0.177
Beaches	0.563	-0.244	0.526	0.620
Country park	0.436	-0.334	0.509	0.565

All correlations are significantly greater than zero. However, temperature and hours of sunshine are also strongly correlated with average hours of daylight. This co-correlation means that these are not measures that are helpful in this exploration as more work would be required to take out the effect of this. If a January proxy approach is carried forward this could justify more work to establish the relationship of December and January, which may allow some adjustment of the proxy data to allow for different weather conditions between the months.

Weather statistics were sourced from: https://www.metoffice.gov.uk/pub/data/weather/uk/climate/datasets/

A4. X-12 seasonal adjustment

A second approach was used to evaluate the differences between months. This was to create seasonal adjustments for each month based on the four complete years of data available for each of the key measures.

For NE1, NE2, NE5 and NE9, weighted averages were created for each of these variables to provide an estimate of the average number of occasions per week. These were created as described above.

The well-established X-12 method of seasonal adjustment was used. This adopts the following procedure:

1. For each month the average of the 12 months surrounding that month is determined. This uses the month in question and five and a half months either side.
2. The difference between the month and this average is determined.
3. The average of all the same months across all available years is calculated to provide a score for each month of the year.
4. These scores are adjusted so as to sum to zero.
5. The appropriate adjusted figure is then subtracted from the recorded figure for each month to provide a seasonally adjusted figure.

The size of the seasonal adjustment is an indicator of how much each month of the year varies from the annual figure, and is therefore also a good indicator for our purposes here of the importance of December in determining the annual figure.

The figures obtained are included in the main report.

A5. Partial eta squared

Variables were tested for how meaningful they are using a partial eta squared test. The partial eta squared statistic reports the "practical" significance of each term, based upon the ratio of the variation (sum of squares) accounted for by the term, to the sum of the variation accounted for by the term and the variation left to error. Larger values of partial eta squared indicate a greater amount of variation accounted for by the model term, to a maximum of 1. The individual terms may be statistically significant, but may not necessarily have a great effect on the value of the dependent variable.

Month was tested against age of child, gender of child, socio-economic group and number of adults in household for a number of key measures.

A typical output is shown below, here comparing month with age of child.

Tests of Between-Subjects Effects

Dependent Variable: Net coastal visits

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	167.585a	103	1.627	12.613	0	0.025
Intercept	175.83	1	175.83	1363.1	0	0.026
month	26.568	11	2.415	18.724	0	**0.004**
childage	14.879	15	0.992	7.69	0	**0.002**
month * childage	37.02	77	0.481	3.727	0	0.006
Error	6610.9	51250	0.129			
Total	8036	51354				
Corrected Total	6778.5	51353				

a R Squared = .025 (Adjusted R Squared = .023)

The partial eta square in the final column shows month as being twice as important as child age, but also suggests that neither is substantive. This pattern was repeated for all combinations of variables examined. Because it was felt that this added little to our understanding and because of the difficulties of reporting a number of different comparisons across a number of variables this analysis was not included in the main report.

A6. Estimates using January as proxy.
To arrive at an annual estimate using January as a proxy for December, annual figures were re-calculated excluding December and giving a double-weight to the adjacent January. January was chosen as the proxy month as having the fewest significant differences from December.

A7. Estimates using seasonal adjustments
To arrive at an annual estimate using seasonally adjusted data, the December figure was excluded, and replaced by a figure calculated from the twelve month period either side of it from which the seasonal adjustment factor was subtracted.

A8. Detailed findings

Number of significant differences within questions across four years

	Key measures	Destinations Net NE	Motivations	Motivations	Motivation	Other adults	Who trip with	Total
	NE1, 2, 5, 9	3,7,11	NE4	NE8	NE12	NE6	NE10	
July	10	8	4	8	3	7	2	42
August	13	44	4	32	2	11	2	108
September	9	4	3	1	5	2	4	28
October	8	2	2	2	1	4	0	19
November	7	11	3	8	1	5	2	37
January	0	0	1	1	0	1	0	3
February	5	8	1	7	0	5	0	26
March	7	5	3	5	4	4	1	29
April	8	9	3	7	1	6	1	35
May	8	18	3	7	7	2	3	48
June	9	11	2	4	3	5	1	35
Total sig. measures	16	72	72	80	72	36	28	376

In the above table the findings are grouped by:

- Key measures: NE1, NE2, NE5 and NE9
- Net results for each of 18 destinations taken from NE3, NE7 and NE11
- Motivations for visit with adult from household (NE4)
- Motivations for visit with other adult (NE8)
- Motivations for visit with no adult (NE12)
- Who trip made with if adult other than family (NE6)
- Who trip made with if no adult (NE10)

The motivations data was not netted in the way that destinations data were because of differences in the response codes between the three questions.

All analysis was undertaken using all participants.

In the four key measures, NE1, NE2, NE5 and NE9 there are no significant differences between the data in December and January in any year. No other month approaches this. Nor are there any significant differences for any of the 18 individual destinations. This strongly points to January being not just the only month to use as a proxy for December, but also that it is a good proxy.

The base sizes for analysis of all questions are:

	December in year:			
	2013	2014	2015	2017
July	388	350	412	448
August	421	396	430	407
September	415	413	433	426
October	417	484	469	386
November	401	397	461	425
December	442	491	385	418
January	438	419	438	334
February	412	383	396	374
March	381	483	380	381
April	419	479	814	418
May	482	415	423	442
June	441	484	388	325

Significance tests were undertaken between each pair of months using the Tukey test at 95% level of confidence. As with other tests in this report, a design factor of 1.3 was used, based on previous knowledge of MENE data.