

Urban impacts on Dorset Heathlands:
Analysis of the Urban Heath Life Project
heathland visitor questionnaire survey for 2004

English Nature Research Reports



working today
for nature tomorrow

English Nature Research Reports

Number 714

**Urban impacts on Dorset Heathlands:
Analysis of the Urban Heath Life Project
heathland visitor questionnaire survey for 2004**

R.J. Rose & R.T. Clarke



You may reproduce as many additional copies of this report as you like for non-commercial purposes, provided such copies stipulate that copyright remains with English Nature, Northminster House, Peterborough PE1 1UA. However, if you wish to use all or part of this report for commercial purposes, including publishing, you will need to apply for a licence by contacting the Enquiry Service at the above address. Please note this report may also contain third party copyright material.

ISSN 0967-876X
© Copyright English Nature 2006

Cover note

Project officer	Nick Squirrell, Dorset Team Nick.squirrell@english-nature.org.uk
Contractor(s)	R. J. Rose CEH Dorset Winfrith Technology Centre Winfrith Newburgh Dorchester Dorset DT2 8ZD Tel: (01305) 213500

The views in this report are those of the author(s) and do not necessarily represent those of English Nature

From October 2006, English Nature, the Landscape, Access and Recreation division of the Countryside Agency and the environmental land management functions of the Rural Development Service have been brought together to form a new independent body - Natural England. This research report was completed by English Nature, but has been published by Natural England to complete the *English Nature Research Reports* series.

This report should be cited as:

ROSE, R.J. & CLARKE, R.T. 2006. Urban impacts on Dorset Heathlands: Analysis of the Urban Heath Life Project heathland visitor questionnaire survey for 2004. *English Nature Research Reports*, No 714.

Contents

1	Introduction.....	7
2	Methods and data description.....	9
	2.1 Survey questionnaire methodology.....	9
3	Results	9
	3.1 Questionnaire results.....	9
4	Discussion.....	19
	4.1 The visitor survey questionnaire.....	19
5	Limitations of the data set.....	21
	Appendix 1 Survey questionnaire data description.....	23
	Appendix 2 Details of statistical tests and statistical significance.....	25

List of figures

Figure 1	Figure 1 Component sites covered by the Urban Heaths LIFE Project	8
Figure 2	The time of day visitor survey interviews were conducted.....	10
Figure 3	The size of groups interviewed in 2004	11
Figure 4	Length of time spent on the heath by visitors in 2004	15
Figure 5	The frequency of visits to the heath	18

List of tables

Table 1	Comparison of the modes of travel used by the groups interviewed in 2003 and 2004.....	13
Table 2	Comparison of distances travelled to sites by interviewees in 2003 and 2004.....	14
Table 3	Comparison of reasons given for visiting the heaths in 2003 and 2004.....	16
Table 4	Numbers of interviewees walking or travelling to heaths on weekdays or weekends in 2004 survey	25
Table 5	Age and composition of groups visiting the heath in 2004	25
Table 6	Age range of visitors travelling to heaths by car in 2004	26
Table 7	Comparison of visitors with dogs travelling by car or walking to heaths in 2004....	28
Table 8	Frequency of visits to the heaths by walkers and car users	28

Research Information Note

1 Introduction

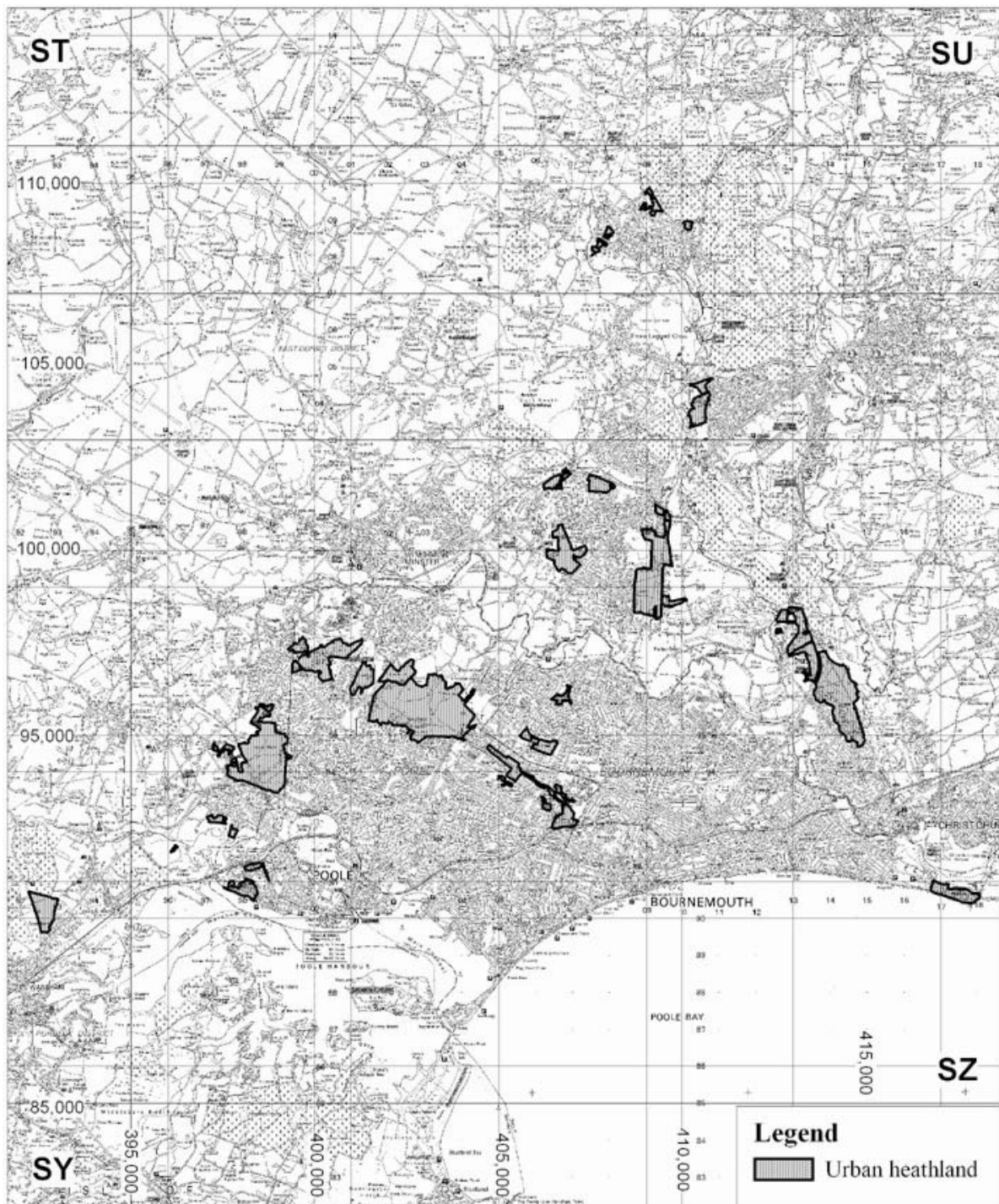
This report has been commissioned by English Nature on the impacts of urban developments that are adjacent to some of the heathlands of Dorset.

This project is a follow up to a previous analysis of data for 2003 (see Rose & Clarke 2004). The purpose of the work is to analyse and comment on the 2004 visitor survey data collected under the Urban Heaths Life Project (UHLP) and compare and combine it with the existing set of data collected in 2003. These data sets comprise of a database of the results of a visitor survey questionnaire carried out within the UHLP heathland sites on the same sites and in the same time period as in 2003, the sites are located on Figure 1.

The main aims of the report can be summarised as follows:

- a) Using the UHLP Heathland Visitor Survey Questionnaire for 2004 to:
 - To investigate the distances travelled by heathland visitors and the modes of transport used.
 - To understand the main recreational usages of the urban heaths.
 - To identify patterns in timing of visits and time spent on the heaths by different user groups.
 - To distinguish between different proportions of usage by user groups on different heaths.
- b) Compare the results obtained with those reported for 2003.
- c) Where possible combine the results of the two surveys to provide a more robust analysis.

In addition this report documents the methodology used for the processing of the visitor questionnaire survey information and discusses the limitations of both the methodology and the data that has been collected.



Scale 1:150000



This map is based upon Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. All Rights Reserved. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Licence Number 100017954, 2004

Map 1 of 1
 Drawn By: H Avery
 Date: 19/11/2004
 Ref: sz0514199737
 © English Nature 2004



**English Nature
 Dorset Team**
 Slepe Farm
 Arne
 Wareham
 Dorset
 BH20 5BN

Figure 1 Component sites covered by the Urban Heaths LIFE Project

2 Methods and data description

The general visitor survey and questionnaire methodology, data processing and description have been dealt with in detail in a previous report (Rose & Clarke 2004). Therefore this section will concentrate on those processes that are specific to the 2004 data set. The methods used for data manipulation and statistical analyses of the sets of data are also included within this section.

2.1 Survey questionnaire methodology

The survey was conducted over a total of 18 heathland sites in 2003. In 2004 further data for 13 of these sites were collected and data for an additional five sites was also recorded. In 2003 all the questionnaires were carried out during the school summer holiday period. However, in 2004 some questionnaires were carried out outside of this period. To maintain consistency between years only questionnaires completed within the school summer holiday period in 2004 were included in the analysis. The questionnaire consisted of 21 questions (1 to 7 and 9 to 22) to be answered by the visitors and additional data on group size, age profile, number of bikes, dogs and horses and information on the time, date and weather conditions to be completed by the wardens. Only questions 1 to 7 and the additional data collected by the wardens were used in the data analyses. Details of the data description and full explanation of the results of statistical analyses are given in Appendices 1 and 2.

2.1.1 Survey questionnaire analysis methods

The data was supplied by the Dorset Environmental Records Centre (DERC) in the format suggested for the 2003 survey (Rose & Clarke 2004) in a Microsoft ACCESS database. This was rationalized into a single data table in MINITAB release 14. Most of the analyses were done using the MINITAB statistical package. The analyses performed were nonparametric Chisquare tests for association of response variables (i.e. answers) and Kruskal-Wallis rank order tests for differences between groups or types of response. Where the number in one or more response categories were low the statistical tests were re-done using exact forms of the tests using the specialist statistical package STATXACT (Cytel, 1998).

3 Results

This section displays and describes the results of the analyses that were deemed to be relevant to urban impacts on heathland and for which valid tests could be done with the data provided. The reporting of the results and statistical significance are given here for the 2004 survey data and where appropriate the combined 2003 and 2004 data. Where statistical tests have been done the section is marked with an asterisk and full details of the statistical test results are given in Appendix 1.

3.1 Questionnaire results

In total 158 questionnaires were completed by visitors to Urban Heath Life Project (UHLP) sites in 2004. The survey was conducted between 22nd May and 14th September. The 2003 survey was done entirely during the school summer holiday period. The school holidays in 2004 started 22nd July and ended 6th September. Between these dates 115 questionnaires

were completed. By combining the 2003 and 2004 data sets for the school holiday period only 308 visitor survey questionnaires were available for statistical analysis.

3.1.1 The timing of visits by walkers and drivers

Interviews were conducted on both week days (85 records) and at weekends (30 records) during the survey period. Data was collected between 10:00 and 22:00 hrs rather than 11:00 to 20:00 hrs in 2003. The distribution of interview timings was similar between the two data sets with the exception of three interviews that were 1 hour earlier and three that were later than those taken in 2003.

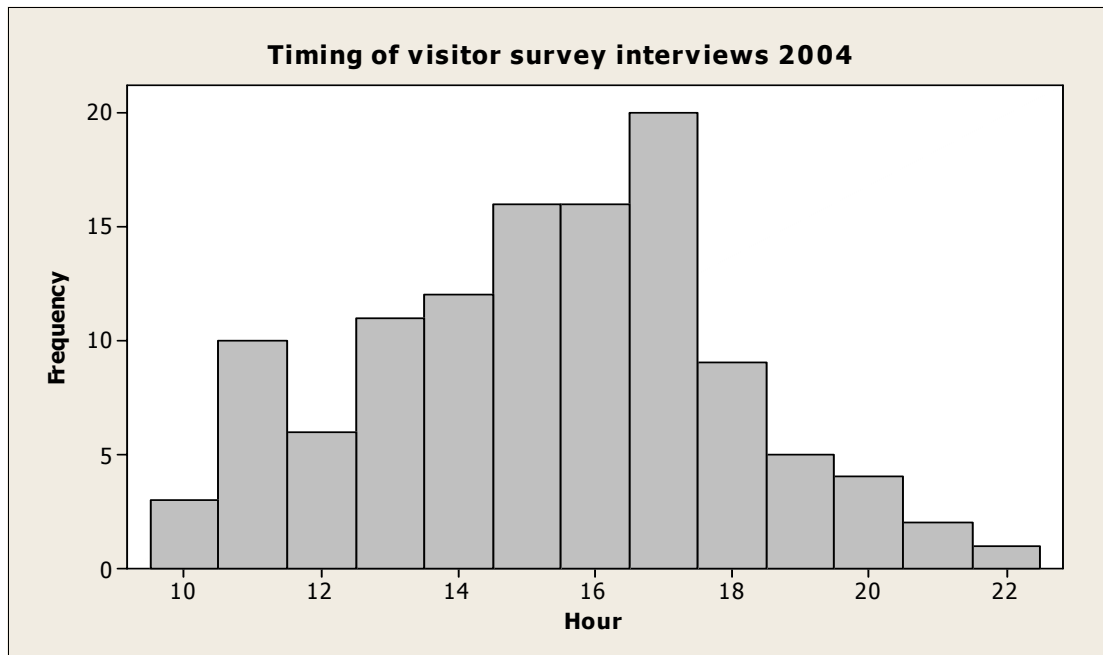


Figure 2 The time of day visitor survey interviews were conducted

3.1.1.1 *Are there differences between the proportions of weekend and weekday visitors walking or driving to the heath?

There is no statistically significant difference in the pattern of week day and weekend usage of the heaths by either those who walk to the heath or those who drive for the survey period in either the 2004 data set or the combined 2003 and 2004 data set.

3.1.1.2 *Are there differences in the time of day that visitors either walk or drive to the heath?

Data was collected between the hours of 10:00 and 22:00. There are no significant differences between the timing of visits of those who walk to the heath and those who drive during that part of the day for either the 2004 data set or the combined 2003 and 2004 data set.

Summary of results for the timing of visits:

- The data suggest that there is no difference in the relative numbers of visitors who walk or drive cars to the heath between week days and weekends.
- The time that visits are made is not related to the mode of transport to the heath.
- The 2003 suggestion that the peak time for visiting is mid-afternoon with a secondary peak at 18:00 hours is not borne out by this set of data. Note that the random method of data acquisition may have influenced this result.

3.1.2 The size and age composition of the groups that completed the questionnaire

3.1.2.1 How many people are in the groups?

Following the pattern of the data collected in 2003 the respondents to the questionnaire were on their own on the heath, in pairs or in groups of three or four. No larger groups were recorded in 2004.

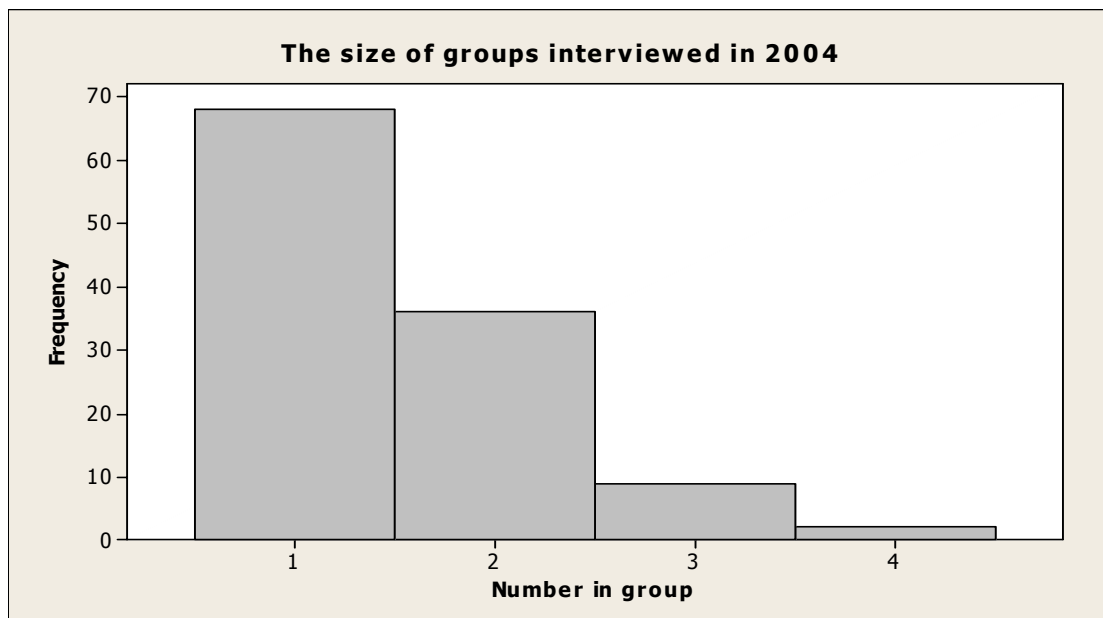


Figure 3 The size of groups interviewed in 2004

3.1.2.2 *Are there differences between the size of groups that walk to the heath and those who travel by car?

No, the group sizes were evenly distributed between walkers and car drivers. This result is the same as that for the 2003 data set.

3.1.2.3 What is the age range of the individuals on the heath?

There were no individuals or groups of children less than 10 years of age interviewed on the heath. In the under 20 age group there were four individuals (three male, one female). The remaining individual visitors that were interviewed were evenly spread between men and women and between the age groups.

3.1.2.4 What is the age range of the groups?

In the under 20 age group there were seven pairs (one mixed, two female and four male) and three groups of three people (two lots of three males and a group of two males and a female). The remaining groups were evenly spread between men and women and between the age groups.

3.1.2.5 *Are there differences in the age range of visitors who travel to the heath by car rather than walk?

No. Older individuals and groups that included an older member were statistically no more or less likely to have travelled to the site by car than younger people. This applies to both the 2004 data and the combined data.

Summary of results for group size, gender and age range of the visitors to the heaths:

- Results for 2004 are similar to those of 2003.
- Heathlands attract visitors of both sexes and all ages.
- Lone visitors were the most common respondents followed by couples and small family groups.
- There are no statistical differences between the size of the groups that visit the heaths by car and on foot.
- Older visitors are no more likely to have travelled by car than younger people.

3.1.3 Access to the heaths

This section deals with the distances travelled and the modes of transport used by visitors to the heath.

3.1.3.1 How far do people travel to get to the urban heaths?

Of the 115 responses, 107 gave local (BH) post codes or addresses and seven refused to give post codes or their address information was not sufficiently detailed to accurately measure the distance travelled. Only one visitor was from further afield (Essex).

3.1.3.2 *What distance do visitors travel to the local heaths?

Using data from 'local' (BH) postcodes only there was a statistically significant difference between the distances walked and the distances driven to the heath in 2004. The 59 responses from individual or groups of walkers gave a median walking distance of 510m (median 258m in 2003). The 13 responses from car drivers gave a median distance of 2,420m (median 2,220m in 2003). The combined (2003 and 2004) data sets give a median distance travelled for car drivers of 2,360m (66 responses) and 312m for walkers (151 responses).

3.1.3.3 How do visitors travel to the heath?

The majority of visitors walk to the heath and most of the other visitors travel by car (see table below). The ‘other’ category includes those who travel by bus, a motorcyclist and a horse rider. The difference in the proportions of the different modes of transport between years probably reflects changes in the relative sampling effort between sites (see Question 3.1.3.4 below).

Table 1 Comparison of the modes of travel used by the groups interviewed in 2003 and 2004

	2003 survey data				2004 survey data			
	Number of responses	%	Total number of individuals	%	Number of responses	%	Total number of individuals	%
Walk	104	53.9	222	56.1	75	64.6	113	62.4
Car	72	37.3	132	33.3	22	19.0	33	18.2
Cycle	12	6.2	32	8.0	17	14.7	33	18.2
Other	5	2.6	10	2.6	2	1.7	2	1.2

3.1.3.4 *Does the mode of transport of visitors to the heath differ on different heaths?

As in 2003 there were statistically significant differences in the relative proportions of walkers and car drivers between the sites for the 2004 survey data. The combined data was used to look at the 9 heaths with sample sizes of more than 10 visitors. This confirmed that there are differences between heaths with Ham Common being predominantly frequented by visitors travelling by car and Turbary Common almost exclusively visited by walkers. Each of these 9 heaths had both walkers and car drivers visiting them.

3.1.3.5 *Are there differences in the distances visitors walk to the individual heaths?

Unlike the results recorded in 2003 the 2004 results show that the distances walked to different heaths did differ significantly. This was partially because some visitors to Upton Heath, Canford Heath and Ham Common had walked relatively long distances to get to the heath (average 1213m, 818m and 712m respectively). Thus the data suggests that there is variability between heaths in the distances visitors walk to them.

3.1.3.6 *Are there differences in the distances visitors travel by car to the individual heaths?

The distances travelled by car to different heaths also showed a tendency for some heaths to be more attractive to visitors from further afield in 2003 but the differences in this set of data were not significant. The mean distance travelled by car to a heath in the 2004 survey was 3008m. Combining the data sets did not result in sufficient numbers of visitors at a range of sites to provide further information for individual heaths.

3.1.3.7 *Are there differences in the distances visitors cycle to the individual heaths?

In the 2004 data there is very little data on the distances travelled by cyclists to the heaths to enable the relative attraction of heaths to be statistically compared. The results for the five heaths that were compared show no significant differences in distance travelled.

3.1.3.8 How many visitors live within the 400m development control consultation zone of the heaths?

A large proportion of visitors who walk and almost all those who drive cars to the heaths live outside the 400m radius of the heath.

Table 2 Comparison of distances travelled to sites by interviewees in 2003 and 2004

Travel distances of the respondents with full postcodes								
	2003 survey data.				2004 survey data.			
	<400m		>400m		<400m		>400m	
	Responses	Individuals	Responses	Individuals	Responses	Individuals	Responses	Individuals
Car	3	5	47	86	1	1	12	17
Walk	58	124	28	60	22	31	27	41
Other	3	6	6	13	0	0	10	15
TOTAL	64	135	81	159	23	32	49	73

The table above shows that in 2003 54.1% of visitors to the heath travel more than 400m to visit the heath, in 2004 the figure was 69.5%.

Summary of results on access to the heaths:

- Almost all the visitors to the heaths live locally, that is they are resident in the Bournemouth postcode area. However, a large proportion of visitors to the heath (69.5% from the 2004 survey and 54.1% from the 2003 survey) live outside the accepted 400m development control consultation zone around the heath.
- The majority of visitors walk to the heath (68.6% in the 2004 survey, 56.1% from the 2003 survey) and most of the other visitors travel by car or cycle (31.4%).
- There is some evidence from the 2004 data that walkers walk further to some heaths than others. There was also an indication that car drivers may travel further to some heaths than others.
- The small data set used to assess travel distances of cyclists did not detect any evidence of cyclists travelling further to some heaths than others.

3.1.4 Time spent on the heath

In addition to the total number of visitors to the heaths another important factor is the amount of time that the visitors spend on each visit. The histogram Figure 4 shows a similar pattern for heath usage to that obtained in 2003.

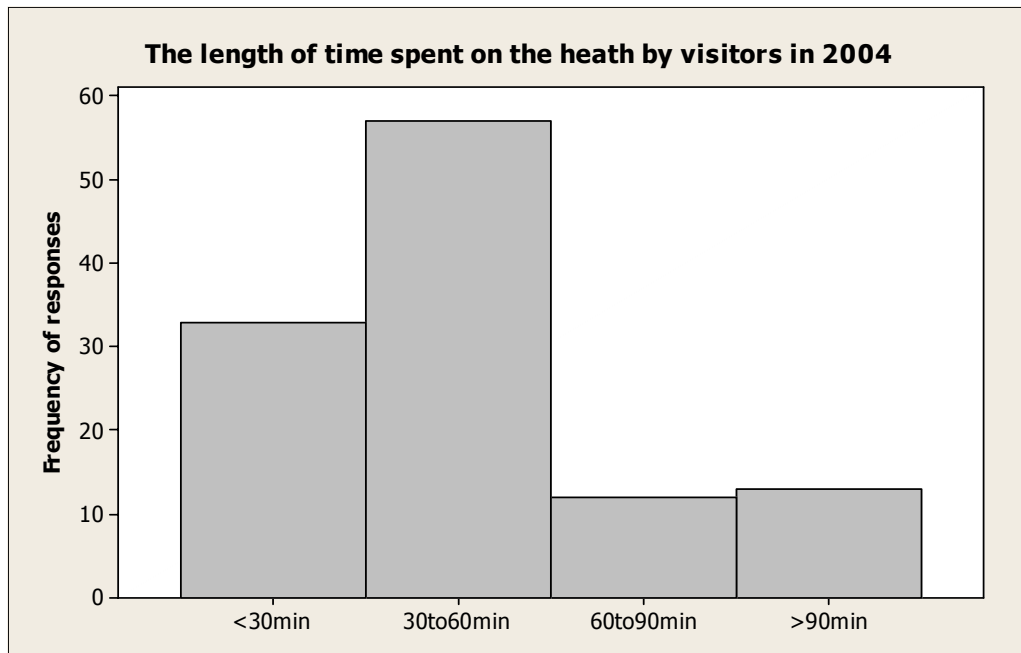


Figure 4 Length of time spent on the heath by visitors in 2004

3.1.4.1 *Are there differences in the time visitors spend on different heaths?

Unlike the 2003 data the 2004 data does not support the theory that overall visitors spend more time on some heaths than others. This is probably due to the smaller sample size. Combining the data sets a pattern of usage begins to show that small heaths such as Kinson Common have larger proportions of short visiting times. Also Ham Common (where the lakes and beach provide interests other than the heath) has a larger proportion of longer stay visitors.

3.1.4.2 *Are there differences in the time spent on the heath by car visitors and those who walk to the heath?

There are no statistically significant differences in the time spent on the heath by walkers and car drivers. This confirms the results obtained in 2003. Combining the two sets of data does not result in a significant difference in the proportions of shorter and longer term visitors.

3.1.4.3 *Are there differences in the time spent by those who walk to the heath on different heaths?

The results are similar to those obtained from the 2003 data. In 2004 there are no statistically significant differences in the time spent on the heath by visitors who walk to different heaths and none of the heaths with more than 10 observations indicates that the visitor patterns for some heaths may be different to others.

3.1.4.4 *Are there differences in the time spent on the heath by car visitors to different heaths?

Unlike the results for 2003 there are no statistically significant differences in the time spent on the heath by visitors who drive to different heaths. This result is probably associated with

the reduced number of data records for Ham Common which is associated with other site activities see 3.1.4.1 (above).

3.1.4.5 *Do the weather conditions affect the length of time spent on the heath?

There is no statistical evidence from either the 2004 or combined data sets that the length of time spent on the heath is weather dependent (i.e. sunny) during the study period.

Summary of results on time spent on the heaths by visitors for 2004:

- The average time spent on the heath was similar to that found in 2003 (less than one hour).
- There are no differences between the duration of visits of those who arrive at the heath by car or on foot.
- The duration of visits made by both walkers and car drivers to different heaths does not vary in the 2004 data but the combined data suggests that some site specific variation does occur.
- From this data set there is no evidence that the time spent on the heath is associated with the weather conditions.

3.1.5 Reasons for visiting the heath

This question prompted a total of 135 replies from the 115 questionnaires completed in 2004. No information on the primary reason for visiting was requested therefore responses cannot be ranked in order of priority.

Table 3 Comparison of reasons given for visiting the heaths in 2003 and 2004

Activity	2003 survey data		2004 survey data	
	Number of replies	% of replies	Number of replies	% of replies
Walking	33	13.7	15	11.1
Dog walking	109	45.3	75	55.6
Jogging	2	0.8	3	2.2
Mountain biking	14	5.8	7	5.2
BMX bike riding	2	0.8	3	2.2
Horse riding	3	1.2	1	0.7
Nature watching	28	11.7	9	6.7
Hanging about	16	6.6	8	5.9
Other	34	14.1	14	10.4

The majority of groups interviewed were walkers usually with one or more dogs. Leisure activities, walking, nature watching and cycling (mountain biking and BMX biking) were of minority interest. There were very few respondents who classified jogging and horse riding as one of their reasons for visiting the heath. The 'Other' category included a wide range of activities many not associated with the heath, in particular fishing and going to the beach at Ham Common and those who use the heaths at Ferndown and Canford heath as a short cut. The 'Hanging about' category (i.e. no specific reason to be on the heath) was recorded on eight heaths in 2003 and on four heaths in 2004.

Because dog walkers make up the largest group of heath users interviewed the following analyses are based on comparisons of this group with all other groups.

3.1.5.1 *Are there differences in the proportion of dog walkers on each heath?

Both the 2004 and combined data show statistically significant differences between the relative numbers of dog walkers and other users of the heaths on different heaths. However, the result is not significant if the data for Ham Common is removed from the analysis. A simpler test was performed to assess if dog walkers were generally more frequent on heaths than other walkers. This was true on 14 of the 22 heaths with 2 heaths having equal numbers. Thus, statistically, significantly more heaths had more dog walkers than walkers without dogs.

3.1.5.2 *Are there differences between the relative numbers of visitors with dogs who walk to the heath and those who drive cars?

Although it is not statistically significant at the 95% confidence level the data suggests that there is a tendency for a larger proportion of dog owners walk to the heath than drive to the heath. This result repeats the findings in 2003. The combined data set shows no significant differences or indications of trend.

3.1.5.3 *Do dog walkers walk further to the heath than other heath users?

There is no statistical evidence for this. The median distance walked by dog walkers to a heath is 400m compared with 570m for non-dog walkers. The results are similar but these figures are considerably higher than those recorded in 2003.

3.1.5.4 *Do dog walkers drive further to the heath than other heath users?

There is insufficient data to test this in 2004. Therefore no tests on this data set or the combined set have been done.

Summary of results for reasons for visiting the heath:

- The majority of groups interviewed were walkers with dogs but heaths are also used for a number of other leisure activities.
- Dog walkers walk similar distances to the heaths as other visitors.
- The distance that dog walkers drive to the heath could not be tested.

3.1.6 Frequency of visits to the heath

This section provides some information on how often different groups of visitors use the heaths.

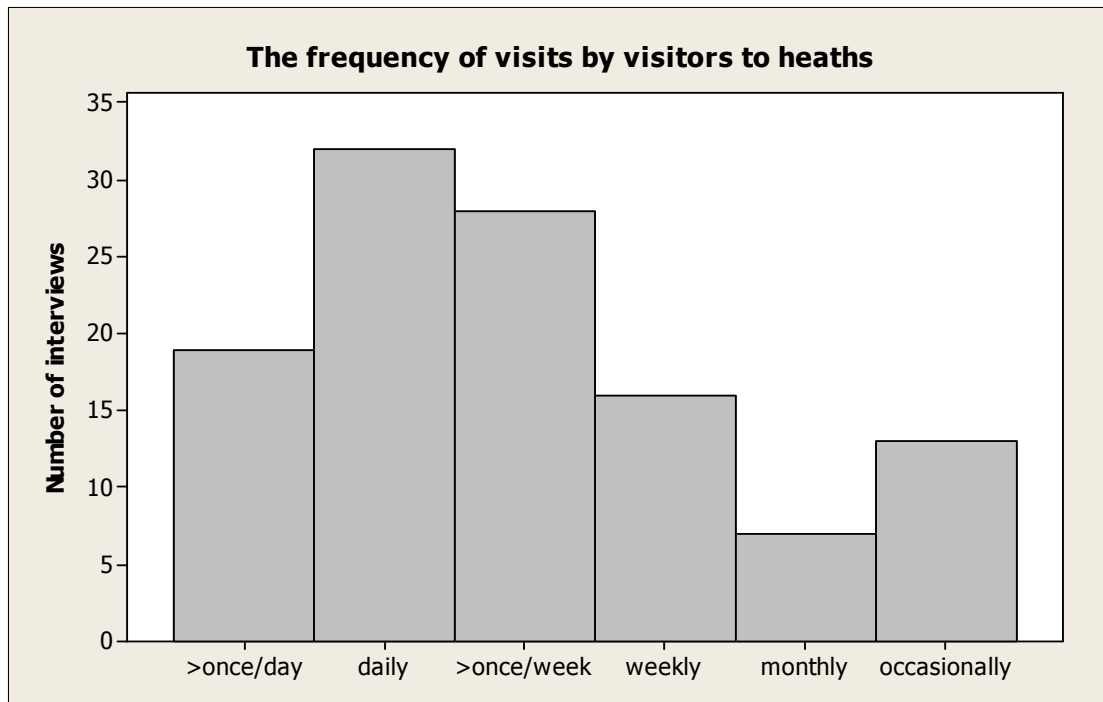


Figure 5 The frequency of visits to the heath

3.1.6.1 *Are there differences in the frequency of visits by visitors to the heath who travel by car visitors and those who walk to the heath?

No, unlike the data collected in 2003 the statistical analysis shows that those who walk to the heath are no more likely to visit daily or more frequently than those who visit by car.

3.1.6.2 *Are there differences in the frequency of visits by visitors on different heaths?

Due to the small numbers of data only heaths with 10 or more records were included in the analysis and the frequency categories into three groups ('daily', 'weekly' & 'occasional'). The heaths used were Canford, Ferndown, Upton and Talbot Heath with Ham Common and Parley Common. The data for Ferndown appears to be atypical of the other sites with 10 or more records in that it has fewer visitors that visit daily and more who visit occasionally. This pattern is apparent in both 2003 and 2004. The other sites show no statistical differences in visitor frequency.

3.1.6.3 *Are there differences in the frequency of visits by walkers who walk dogs and those who visit for other reasons?

There are significant differences between the frequency with which dog walkers and other visitors walk to the heaths. Dog walkers are far more likely to use the heaths on a daily basis, similar proportions use the heaths weekly, whereas other users are more likely to be occasional visitors.

3.1.6.4 *Are there differences in the frequency of visits by car drivers who walk dogs and those who visit for other reasons?

There were only three responses (out of 22) from non-dog walking visitors who drove their cars to the heaths. Therefore no comparisons can be made for the 2004 data or the combined data set.

3.1.6.5 *Is there a difference in the relative numbers of dog walkers and other users of the heath on sunny days?

There is no indication from the data that the relative proportions of dog walkers and other users of the heaths are different on sunny days to overcast or rainy days. This applies to both the 2003 and 2004 data sets.

Summary of results on the frequency of visits by visitors:

- Visitors who walk to the heath are more likely to visit the heath regularly than those who visit by car.
- Dog walkers are the most frequent visitors to the heath.
- The relative proportion of dog walkers to the other users of the heaths is not dependent on dry or sunny weather.

4 Discussion

4.1 The visitor survey questionnaire

Due to the survey methods used estimates of the total numbers of visitors to the heaths cannot be made. Therefore many of the analyses are based on comparing groups of visitors. Also, even when the two data sets are combined there is not enough data on some groups of heath users (such as cyclists, horse riders etc.) to be able to make valid comparisons. Therefore the findings presented are based on the analyses that can be done and they do not necessarily reflect their relative importance to nature conservation aims.

4.1.1 The timing of visits by walkers and drivers

To be able to understand the likely impacts of visitors to the heaths it is important to obtain information on what days and what time of day people make their visits. The patterns of time of usage of the heaths by visitors cannot be fully investigated by the data due to the following constraints:

- All interviews were carried out on both week days and at weekends during the period 23 July to 1 September 2003 and 22 July and 5 September 2004. These results cannot be extrapolated to other times of the year.
- The first recorded interviews were taken between 11:00 and 20:00 in 2003 and 10:00 and 22:00 in 2004. Other surveys show that early morning is also a popular visiting time. No inference as to the early morning usage of the heaths can be made.

The data for both 2003 and 2004 suggest that there is no difference in the relative proportions of visitors who walk or drive cars to the heath between week days and weekends. This result is valid for the summer holiday period, however, patterns may change outside of the main summer holiday season particularly during school term time. The finding that the time that visits are made is not related to the mode of transport to the heath further illustrates the similarities between walkers and car drivers in their uses of the urban heaths. Thus urban heaths are not seen as a venue for a full day out but are used for rather shorter visits.

4.1.2 Group size, gender and age range of the visitors to the heaths

The analysis of the size and composition of groups of visitors was done to characterise the types of people who visit the heaths. Heathlands attract visitors of both sexes and of all ages. A large number of visitors visit the heaths singly, with couples and small family groups also common. There were few data from larger groups. There were no differences between the size of the groups that visit the heaths by car and on foot. With the exception of those aged under 20 years old all age groups showed similar proportions of car drivers and walkers.

4.1.3 Access to the heaths

Almost all of the visitors to the heaths live within the Bournemouth post code area and most either walk or drive relatively short distances to their local heath. Information from both surveys show that more than half of the visitors to heathland live outside the 400m consultation zone. The majority of visitors walk to the heath and most of the other visitors travel by car. The median distance travelled is 312m for walkers and 2360m for those who drive to the heath. However, the relative numbers of visitors who either walk or travel by car varies between the different heathland sites. This is probably due to differences in the ease of access for walkers and parking areas for car drivers. It may also be linked to the perceived quality of the experience of the specific heaths because there is an indication that car drivers may be prepared to travel further to some heaths than others. These favoured heaths tend to have additional interests (fishing lakes or a beach) or better facilities (such as adequate parking).

4.1.4 Time spent on the heaths by visitors

An important factor in assessing the usage of the heaths is the amount time spent on the heath by visitors at each visit. This will also be reflected by the types of activity the heaths are used for. Both the 2003 and 2004 data sets show that the average time spent on the heath is less than one hour. In general there are no differences between the duration of visits of those who arrive at the heath by car or on foot although on some heaths the length of stay is longer than on others. These site specific differences may be associated with activities off the heath. The time spent on the heath is not associated with the weather conditions. However, as almost all visits to the heath are relatively short it is difficult to show a difference in time spent and these data sets do not provide information on the frequency of visits during different weather conditions.

4.1.5 Reasons for visiting the heath

The urban heaths are used for a number of other leisure activities by people with widely differing and possibly conflicting interests. However in both surveys the majority of groups interviewed were walkers with a dog. This figure may have been even higher if interviews had been carried out earlier in the morning.

Both the 2003 and the 2004 surveys show that dog walkers walk similar distances to the heaths as other visitors but the average driving distance is considerably less than for other heath users. There is also some evidence that some heaths have a higher proportion of dog walkers than others. These facts suggest that in areas where there are no alternative sites that are suitable for dog walking close at hand the heaths may have a greater intensity of use.

4.1.6 Frequency of visits by visitors

Visitors who visit the heath regularly are those that live close to the heath and walk to the heath rather than those who visit by car. The most regular visitors are dog walkers with 80% of those who walk their dogs to the heath visiting at least once a day. For the survey period the weather conditions at the time of visit appeared to have no significant effect on the composition of heath users. However, because the survey does not estimate the total numbers of visitors the attractiveness of visiting the heath under different weather conditions is not known.

5 Limitations of the data set

The points below highlight the uncertainties that are inherent in the methodology used and in questionnaire data in general.

- The data was not collected in a systematic way therefore no estimates of the total number of visitors can be made.
- The amount of recorder effort that was made on different sites was not recorded, thus site differences may bias some of the general conclusions.
- The number of refusals to answer the questionnaire was not recorded. This may bias results if certain groups of visitors are more likely to refuse than others.
- A number of different recorders collected the questionnaire data (10 in 2004) rather than few dedicated staff.
- When answering questions some interviewees will give the answer that they think the interviewer wants rather than their own opinion. This is likely to be most common when known contentious issues are concerned.

Appendix 1 Survey questionnaire data description

This section details the methods of data preparation for questions 1 to 7 and the additional information obtained by the interviewers during the interview. It explains how free format answers and multiple response answers have been categorized and recorded in the database. The methods used are directly comparable with those used to create the 2003 data set.

Question 1. What is your full postcode?

In all there were 116 responses, of these 73 had postcodes that could be traced, only one of which was from outside the BH region. For the 72 local postcode responses the straight line distance between the postcode centroid and the heath site access point was calculated to 1 metre accuracy.

Question 2. How did you travel here today?

The options given were: **Walk, Car, Bus, Motorcycle, Bicycle, Horse and Other**. There were 115 single answer responses to this question. It should be noted that there were no responses for bus or motorcycle or the 'Other' category.

Question 3. How long did it take you to travel here?

The options were: **less than 5 minutes, 5 to 15 minutes, 16 to 30 minutes, >30 minutes**. There were 115 single answer responses to this question.

Question 4. How long will you spend here today?

The options were: **A few minutes, less than 30 minutes, 30 minutes to 1 hour, 1 to 1.5 hours and over 1.5 hours**. There were 115 single answer responses to this question.

Question 5. What was your reason for visiting today?

The options were: **Walking, Dog walking, Jogging, Mountain biking, BMX bike riding, Horse riding, Nature watching, Hanging about and Other**. There were 115 responses some of which were multiple responses. However, walking and dog walking and mountain biking and BMX bike riding were deemed to be mutually exclusive activities (i.e. any response that included a dog in the group has been classified as dog walking as an activity rather than just walking). The 'Other' category includes 8 responses covering a range of activities.

Question 6. How often do you visit the site?

The options were: **More than once a day, Daily, More than once a week, weekly, monthly and occasionally**. There were 115 single answer responses to this question.

Question 7. Which entrance did you use today?

Where appropriate the interviewees were asked to identify the entrance used on a map. These entrances were coded A to Z depending on the site. These data were used in conjunction with the postcode information obtained in Question 1 to estimate the distance travelled to the site.

Additional data recorded by the interviewer during the interview were:

Number of people in the group including their gender and age, in the following age ranges: under 10, 10 to 20, 21 to 30, 31 to 40, 41 to 50, 51 to 60 and 60+.

Heath

Date

Time

Weather conditions: Sunny, overcast, raining or mixed.

Warden: Name.

There are 115 responses for each of the above.

Appendix 2 Details of statistical tests and statistical significance

This appendix gives the statistical test information that was used to answer the questions in the Results section.

3.1.1 The timing of visits by walkers and drivers

3.1.1.1 Are there differences between the proportions of weekend and weekday visitors walking or driving to the heath?

There is no statistically significant difference in the pattern of week day and weekend usage of the heaths by either those that walk to the heath or those that drive in 2004 (Chi-Square = 0.426, $df = 1$, $p = 0.514$).

Table 4 Numbers of interviewees walking or travelling to heaths on weekdays or weekends in 2004 survey

2004 Survey data					
Week day			Weekend		
Walk	Drive	% Walk	Walk	Drive	% Walk
69	15	82.1	23	7	77.7

The combined data similarly shows no statistically significant differences (Chi-Square = 0.003, $df = 1$, $p = 0.960$).

3.1.1.2 Are there differences in the time of day that visitors either walk or drive to the heath?

Data was collected between the hours of 10:00 and 22:00. There are no significant differences between the timing of visits of those who walk to the heath and those who drive during that period. For 2004, Chi-Square = 9.5, $df = 12$, $p = 0.66$ and for the combined data set, Chi-Square = 18.454, $df = 12$, $p = 0.102$. This corresponds with the 2003 findings. Further analysis grouping the hours into morning, lunchtime, afternoon and evening sessions produced similar non-significant results, Chi-Square = 4.981, $df = 4$, $p = 0.289$ for combined data.

3.1.2 The age and composition of the groups that completed the questionnaire

Table 5 Age and composition of groups visiting the heath in 2004

Number in the group	Age of oldest person in the group						
	< 10	10 to 20	21 to 30	31 to 40	41 to 50	51 to 60	60+
1	0	4	9	15	15	15	10
2	0	7	3	4	7	6	9
3	0	3	0	0	4	1	1
4	0	0	0	1	1	0	0
5+	0	0	0	0	0	0	0

3.1.2.2 *Are there differences between the size of groups that walk to the heath and those who travel by car?

No, the group sizes were evenly distributed between walkers and car drivers (note that for the combined data the group size was restricted to a maximum of 4 people). Chi-Square = 0.54, $df = 3$, $p = 0.91$ for 2004 data and Chi-Square = 1.602, $df = 3$, $p = 0.659$ for the combined data set.

3.1.2.5 *Are there differences in the age range of visitors who travel to the heath by car rather than walk?

No. Having removed groups of less than 20 years old from the analysis respondents that included an older member in the group were statistically no more likely to have travelled to the site by car than younger people. Chi-Square = 6.597, $df = 4$, $p = 0.2.52$ for 2004 data and Chi-Square = 2.644, $df = 4$, $p = 0.619$.

Table 6 Age range of visitors travelling to heaths by car in 2004

2004 survey data						
	Age of the oldest person in the group					All ages
	21 to 30	31 to 40	41 to 50	51 to 60	60+	
Walk	11	15	19	18	15	78
Car	1	4	8	4	5	22

3.1.3 Access to the heaths

3.1.3.2 What distance do visitors travel to the local heaths?

Using data from ‘local’ (BH) postcodes only there was a statistically significant difference between the distances walked and the distances driven to the heath ($H = 20.21$, $df = 1$, $p = 0.000$ (adjusted for ties)).

3.1.3.5 Does the mode of transport of visitors to the heath differ on different heaths?

The modes of transport statistically tested were walking and travelling by car. The results show similar trends to those found in 2003. There were significant differences in the relative proportions of walkers and car drivers between the sites (Chi-Square = 28.109, $df = 15$, $p < 0.0201$).

3.1.3.6 Are there differences in the distances visitors walk to the individual heaths?

The distances walked to different heaths for which data was collected in 2004 did differ significantly ($N = 49$, $H = 17.46$, $df = 9$, $p = 0.042$).

3.1.3.7 Are there differences in the distances visitors travel by car to the individual heaths?

There were few examples of distances travelled by car (13) to different heaths (6) in the 2004 data set. There were no significant differences in car travel distances between heaths in 2004 ($N = 13$, $H = 8.10$, $df = 5$, $p = 0.151$).

3.1.3.8 *Are there differences in the distance visitors cycle to the individual heaths?

There were few examples of distances cycled (13) to different heaths (5) in the 2004 data set. There were no significant differences in cycling distances between heaths in 2004 ($N = 13$, $H = 2.09$, $df = 4$, $p = 0.718$).

3.1.4 Time spent on the heath

3.1.4.1 Are there differences in the time visitors spend on different heaths?

Overall there are no differences in the time spent at the site between heaths (Chi-Square = 54.264, $df = 45$, $p = 0.162$).

3.1.4.2 Are there differences in the time spent on the heath by car visitors and those who walk to the heath?

There are no significant differences in the time spent on the heath by walkers and car drivers (Chi-Square = 3.658, $df = 3$, $p = 0.301$).

3.1.4.3 Are there differences in the time spent by those who walk to the heath on different heaths?

There are no significant differences in the time spent on the heath by visitors who walk to different heaths (Chi-Square = 38.977, $df = 39$, $p = 0.470$).

3.1.4.4 Are there differences in the time spent on the heath by car visitors to different heaths?

Unlike the findings in 2003 there are no significant differences in the time spent on the heath by visitors who drive to different heaths (Chi-Square = 30.128, $df = 27$, Exact $p = 0.308$).

3.1.4.5 Do the weather conditions affect the length of time spent on the heath?

There is no evidence that the length of time spent on the heath is weather dependent (i.e. sunny) in the 2004 survey (Chi-Square = 0.623, $df = 3$, $p = 0.891$).

3.1.5 Reasons for visiting the heath

3.1.5.1 Are there differences in the proportion of dog walkers on each heath?

The 2004 data show statistically significant differences between the relative numbers of dog walkers and other users of the heaths on different heaths (Chi-square = 25.069, $df = 15$, $p = 0.040$). For the combined data a significant result was also obtained for all heaths (Chi-square = 45.722, $df = 21$, $p = 0.001$). However, for the combined data with Ham Common removed Chi-square = 26.295, $df = 20$, $p = 0.156$ indicating the large influence of this site on the data.

3.1.5.2 Are there differences between the relative numbers of visitors with dogs who walk to the heath and those who drive cars?

Although it is not significant at the 95% confidence level (Chi-Square = 2.191, $df = 1$, $p = 0.131$) the data suggests that a larger proportion of dog owners walk to the heath than drive to the heath.

Table 7 Comparison of visitors with dogs travelling by car or walking to heaths in 2004

Mode of transport to the heath	Visitors with no dogs	Visitors with one or more dogs
Walk	22	53
Car	3	19

3.1.5.3 Do dog walkers walk further to the heath than other heath users?

There is no statistical evidence for this ($N = 49$, $H = 2.24$, $df = 1$, $p = 0.134$).

3.1.5.4 Do dog walkers drive further to the heath than other heath users?

There is not sufficient data to test this in the 2004 data set.

3.1.6 Frequency of visits to the heath

Table 8 Frequency of visits to the heaths by walkers and car users

	> Once a day	Daily	> Once a week	Weekly	Monthly	Occasionally	All
Walk	15	25	16	9	4	6	75
Car	4	5	9	0	1	3	22
All	19	30	25	9	5	9	97

3.1.6.1 Are there differences in the frequency of visits by visitors to the heath who travel by car visitors and those who walk to the heath?

No, those who walk to the heath are no more likely to visit more regularly than those who visit by car (Chi-Square = 6.419, $df = 5$, $p = 0.268$).

3.1.6.2 *Are there differences in the frequency of visits by visitors on different heaths?

Using here is an indication that there are differences in the frequency that visitors use different heaths (Chi-square = 17.886, $df = 10$, $p = 0.057$).

3.1.6.3 Are there differences in the frequency of visits by walkers who walk dogs and those who visit for other reasons?

There are significant differences between the frequency with which dog walkers and other visitors walk to the heaths (Chi-square = 38.769, $df = 5$, $p = 0.0000$).

3.1.6.4 Are there differences in the frequency of visits by car drivers who walk dogs and those who visit for other reasons?

There is insufficient data to perform the analysis in 2004.

3.1.6.5 Is there a difference in the relative numbers of dog walkers and other users of the heath on sunny days?

There were no significant differences between sunny days and other weather conditions (Chi-square = 0.200, $df = 1$, $p = 0.655$).

Urban impacts on Dorset Heathlands: Analysis of the Urban Heath Life Project
heathland visitor questionnaire survey for 2004

Report Authors: Rose, R. J. & Clarke, R.T. Date: 2006

Keywords: Conservation, access, heathland, heath, Dorset, Special Protection Area, Special Area of
Conservation, Ramsar

Introduction

The south east corner of the county of Dorset holds some 17% of the UK lowland heathland, of which over 90% has been designated Sites of Special Scientific Interest (Michael 1996). Over 7950ha of the Dorset heathland has been designated as Special Areas of Conservation and nearly 8170 ha classified as a Special Protection Area under the EC Birds and Habitats Directives. Within the same area of south east Dorset there is also one of the largest conurbations in the south west of England, Bournemouth and Poole, with a population of 400,000, as well as 4.5 million tourists visiting the Isle of Purbeck annually. This generates considerable pressures on the nearby heaths from both residents and visitors. This pressure varies between the more rural heaths and those located close to the residential areas.

Public access to lowland heathland has been found to lead to an increase in wild fires, the introduction of alien plants and animals, the deposition of nutrients, loss of vegetation and soil erosion and disturbance by humans and their pets, all of which can harm the flora and fauna.

What was done

This project is a follow up to a previous analysis of data for 2003 (see Rose & Clarke 2004). The purpose of the work is to analyse and comment on the 2004 visitor survey data collected under the Urban Heaths Life Project (UHLP) and compare and combine it with the existing set of data collected in 2003. These data sets comprise of a database of the results of a visitor survey questionnaire carried out within the UHLP heathland sites on the same sites and in the same time period as in 2003. The survey was conducted over a total of 18 heathland sites in 2003. In 2004 further data for 13 of these sites were collected and data for an additional five sites was also recorded. In total 158 questionnaires were completed by visitors to Urban Heath Life Project (UHLP) sites in 2004. The survey was conducted between 22 May and 14 September. Between these dates 115 questionnaires were completed. By combining the 2003 and 2004 data sets for the school holiday period only 308 visitor survey questionnaires were available for statistical analysis.

Results and conclusions

1. The data suggest that there is no difference in the relative numbers of visitors who walk or drive cars to the heath between week days and weekends.
2. Almost all the visitors to the heaths live locally, that is they are resident in the Bournemouth postcode area. However, a large proportion of visitors to the heath (69.5% from the 2004 survey and 54.1% from the 2003 survey) live outside the accepted 400m development control consultation zone around the heath.

3. The majority of visitors walk to the heath (68.6% in the 2004 survey, 56.1% from the 2003 survey) and most of the other visitors travel by car or cycle (31.4%).
4. The average time spent on the heath was similar to that found in 2003 (less than one hour).
5. There are no differences between the duration of visits of those who arrive at the heath by car or on foot.
6. Dog walkers are the most frequent visitors to the heath.
7. Visitors who walk to the heath are more likely to visit the heath regularly than those who visit by car.

English Nature's viewpoint

The effects of visitor pressure on heathland are of conservation concern. Previous research has focussed particularly on impacts due to arson as well as disturbance of nightjars, woodlark etc. This report builds upon previous research to improve the current understanding of how users of the urban heaths access and use the sites. The research supports the growing body of evidence demonstrating the link between local users and their adverse effects on heathland habitats and wildlife. The research links in well to conservation aims to reduce urban related impacts by providing important evidence about the types and behaviour of heath users which will facilitate the development of policy aimed at changing regular users' attitudes and behaviour and diverting pressures onto alternative sites to be refined and assessed.

Selected references

- DE MOLINAAR, H.J.G. 1998. *On-the-spot appraisal of the Dorset heathland, UK*. Report and recommendations to the standing committee on The Convention on the Conservation of European Wildlife and Natural Habitats. Strasbourg: Council of Europe.
- LILEY, D. & CLARKE, R.T. 2002. Urban development adjacent to heathland sites in Dorset the effect on the density and settlement patterns of Annex I bird species. *English Nature Research Reports*, No 463.
- LILEY, D. & CLARKE, R.T. 2003. The impact of urban development and human disturbance on the numbers of nightjar *Caprimulgus europaeus* on heathlands in Dorset, England. *Biological Conservation*, 114, 219-230.
- ROSE, R.J., CLARKE, R.T. 2005. Urban impacts on Dorset Heathlands: Analysis of the heathland visitor questionnaire survey and heathland fires incidence data sets. *English Nature Research Reports*, No 624.
- UNDERHILL-DAY, J.C. 2005. A literature review of urban effects on lowland heaths and their wildlife. *English Nature Research Reports*, No 623.

Further information

English Nature Research Reports and their *Research Information Notes* are available to download from our website: www.english-nature.org.uk

For a printed copy of the full report, or for information on other publications on this subject, please contact the Enquiry Service on 01733 455100/101/102 or e-mail enquiries@english-nature.org.uk



English Nature is the Government agency that champions the conservation of wildlife and geology throughout England.

This is one of a range of publications published by:
External Relations Team
English Nature
Northminster House
Peterborough PE1 1UA

www.english-nature.org.uk

© English Nature 2002/3

Cover printed on Character Express, post consumer waste paper, ECF.

ISSN 0967-876X

Cover designed and printed by Status Design & Advertising, 2M, 5M, 5M.

You may reproduce as many copies of this report as you like, provided such copies stipulate that copyright remains with English Nature, Northminster House, Peterborough PE1 1UA

If this report contains any Ordnance Survey material, then you are responsible for ensuring you have a license from Ordnance Survey to cover such reproduction.

Front cover photographs:
Top left: Using a home-made moth trap.
Peter Wakely/English Nature 17,396
Middle left: CO₂ experiment at Roudsea Wood and Mosses NNR, Lancashire.
Peter Wakely/English Nature 21,792
Bottom left: Radio tracking a hare on Pawlett Hams, Somerset.
Paul Glendell/English Nature 23,020
Main: Identifying moths caught in a moth trap at Ham Wall NNR, Somerset.
Paul Glendell/English Nature 24,888



Awarded for excellence