

Annex 2. Public participatory mapping of natural capital at Blenheim Park

1 Introduction

We carried out a public participatory mapping exercise at Blenheim Park in September 2019, as part of the first Natural Capital Assessment for the Estate. The aim of the exercise was to assess the 'cultural ecosystem services' that provide benefits for people who visit the Park (Table 1).

Table 1: The five cultural ecosystem services we assess at Blenheim

Recreation and leisure	Provision of green and blue spaces that can be used for any leisure activity, e.g. walking, cycling, running, picnicking, camping, boating, playing or just relaxing.
Aesthetic value (natural beauty)	Provision of attractive views and beautiful surroundings.
Education and knowledge	Opportunities for formal education (e.g. school trips), scientific research, local knowledge and informal learning (e.g. from information boards or experiences).
Interaction with nature	Provision of opportunities for formal or informal nature-related activities, e.g. bird watching, botany, random encounters with wildlife, or feeling 'connected to nature'.
Sense of place	The aspects of a place that make it special and distinctive – this could include locally characteristic species, habitats, landscapes or features; places related to historic and cultural events, or places important to people for spiritual or emotional reasons.

The survey took place over two weekdays between 9am and 5pm on Thursday 12 and Friday 13 September. Two pairs of researchers were positioned at various points in Blenheim Park: mainly outside the Palace and at the Woodstock entrance, with shorter spells at the Pleasure gardens. We asked people passing through the area to answer questions about the benefits they felt they received from experiencing nature at Blenheim, including asking them to indicate on a map any places that were particularly special to them. The questionnaire is in Appendix 1.

The survey was later also offered to all annual pass holders as an online survey which ran from the 3rd to the 24th of March 2020. Annual pass holders are people who have taken up the offer of converting their entry tickets to an annual pass that gives entry to the Park, Palace and Gardens for 12 months at no extra cost. The pass holders are not restricted to people who live locally to Blenheim.

2 Who took part?

2.1 Age and gender

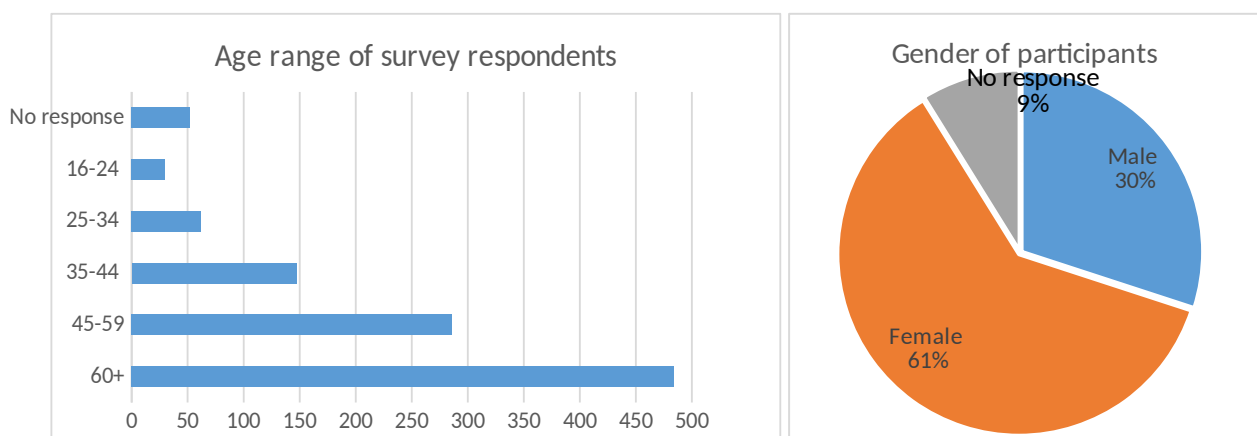
In total, 198 parties (groups or single visitors) participated in the face to face survey. Parties varied between 1 and 4 people, except for one coach party of 31 people (though only one member was interviewed). The average party size was 2.0, with a total of 386 people represented, including the coach party. A large proportion (39%) of visitors were over 60, with only 14% being under 35. The majority (59%) were female, with 10% being children (gender not recorded) and only 30% male. This probably reflected the fact that the survey took place during weekday working hours. Only 15% of respondents (30 groups) had children in the

party, and most of the children present were five years old or under, reflecting the fact that the survey was held during school hours.

736 people filled in the on-line pass holders survey, again dominated by over-60s (46%) and female respondents (62%), with 30% being male and 8% not recording their gender. We did not ask the passholders who completed the survey whether or not they were answering on behalf of a group or family, though one of the respondents indicated that he was completing the survey on behalf of himself and his wife. Hence we recorded responses from 735 individuals and one couple.

Where there was more than one person in a group we tried to record responses from all members, and all the charts below therefore weight the responses according to the number of people in the group. This may lead to slight inaccuracies if some people in a group had different opinions but did not state them during the survey. The exception was the coach party of 31 people, where everyone was included in the travel cost and trip number calculations but only the lady who was interviewed was included in the tallies of the other responses (benefits etc).

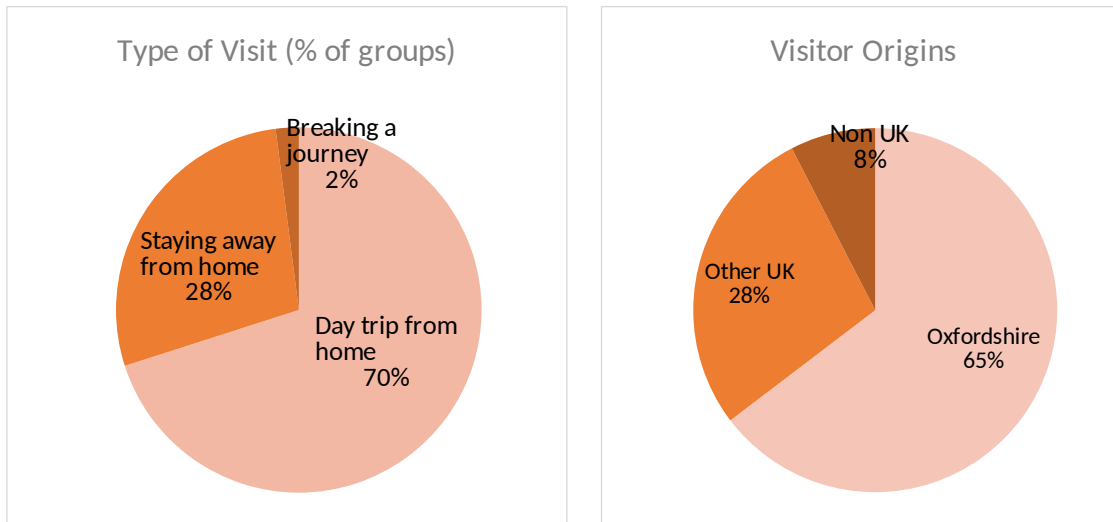
Figure 1. Age and gender of survey respondents (both surveys combined; all group members counted)



2.2 Where did the respondents come from?

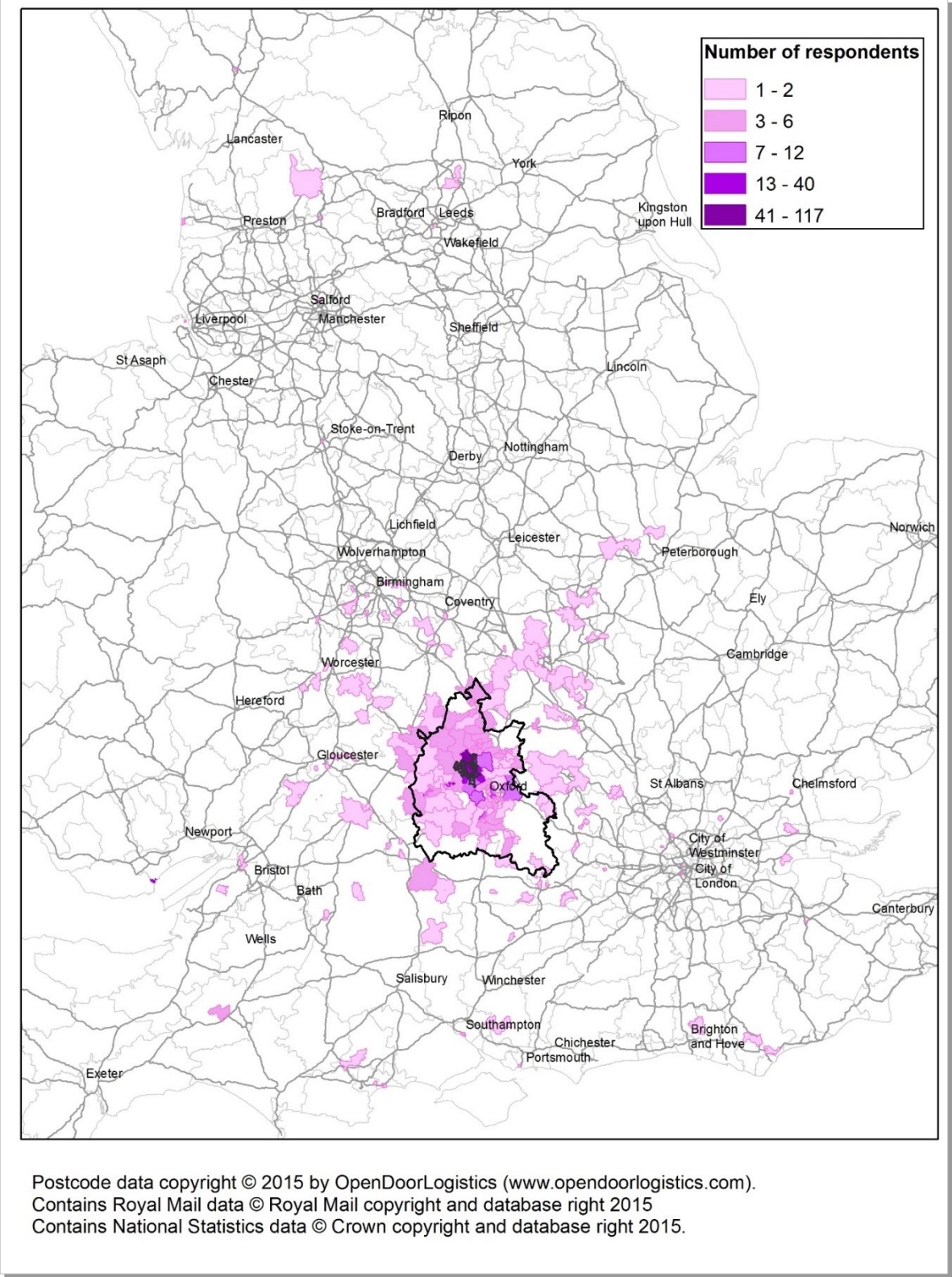
The face to face survey captured mainly the views of local visitors. 70% of parties were on a day trip from home, and 62% were from Oxfordshire, with 8% being international visitors. It proved difficult to interview members of coach parties (only five groups were interviewed), as they tended to spend most of their time on guided tours inside the Palace and shop, and then had very little time to spare before being recalled to the coach. Therefore people travelling from further afield may be under-represented.

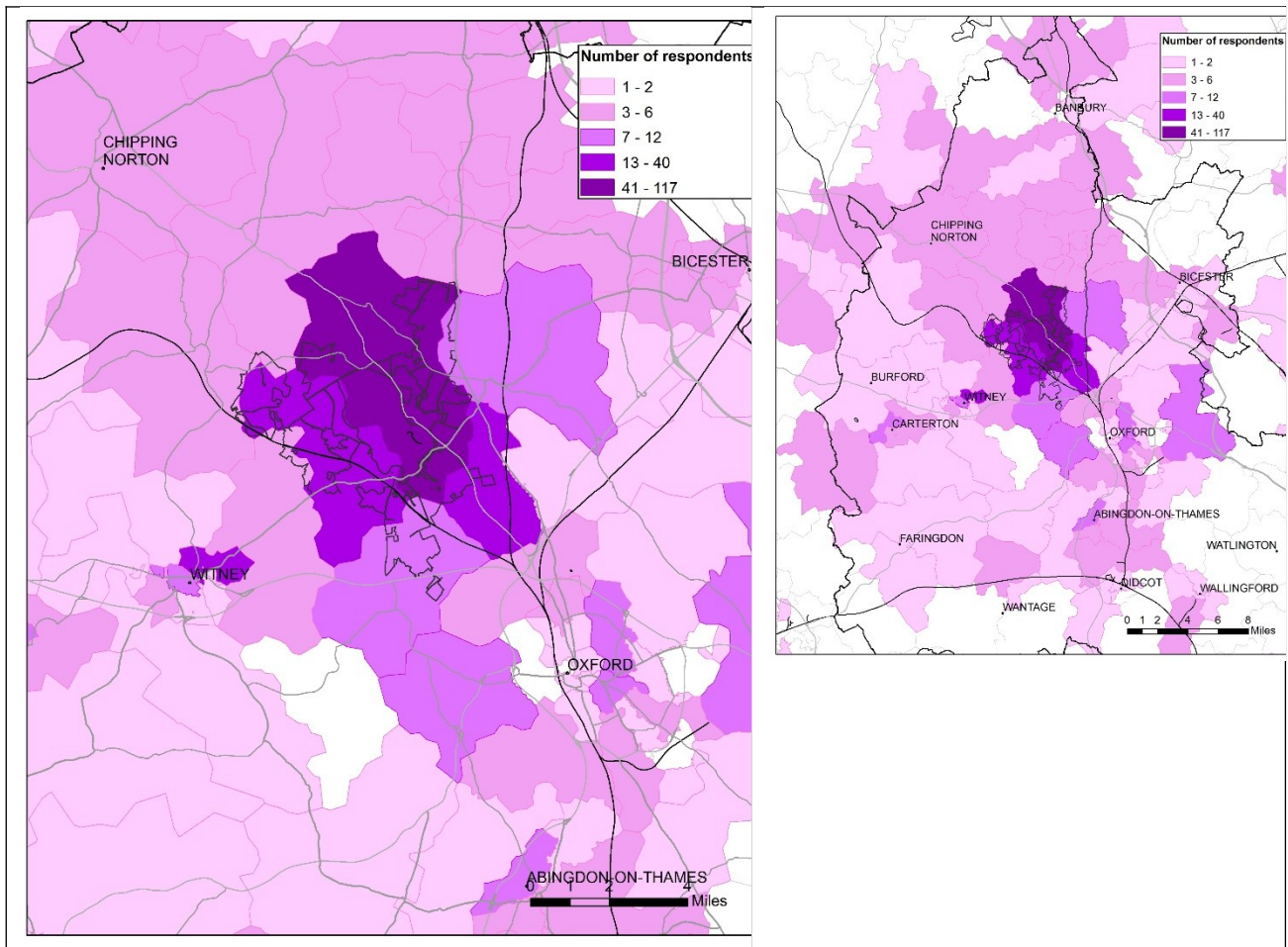
Figure 2. Face to face survey: type of visit (this was not asked of pass holders) and visitor origins



Of the passholder survey respondents, 53% were from Oxfordshire and 11% from elsewhere in the UK, with the rest not providing their post code. The origins of all respondents who provided a post code or location are shown in Figure 3. This shows some people coming from as far away as Manchester (on a day trip as a birthday treat), Cumbria and Kent, but with most people, as expected, coming from the Woodstock area. Note that when only the first part of the post code was given we assumed the sector (the number at the beginning of the second part) was '1'.

Figure 3. Origins of survey respondents (both surveys combined, all group members counted)

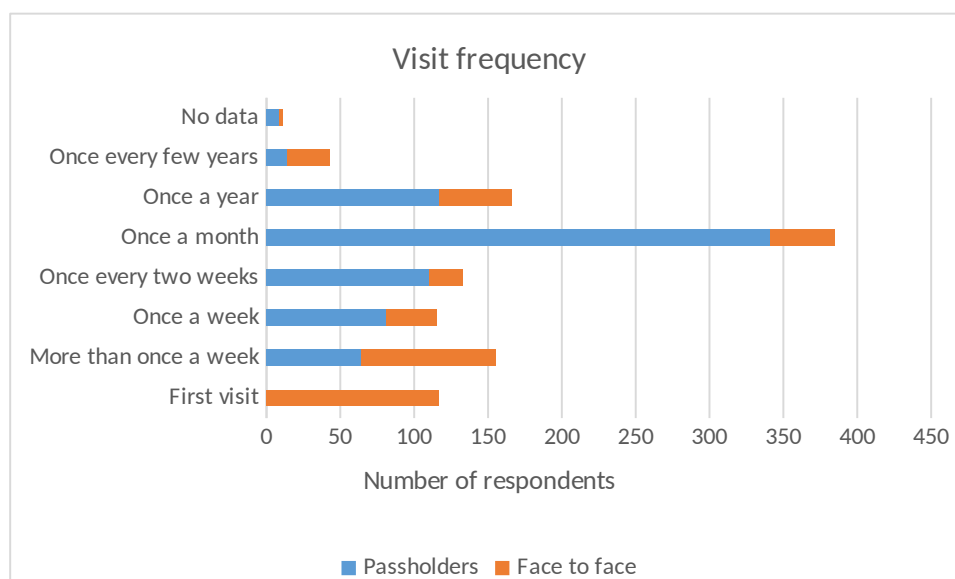




2.3 How often did people visit, how do they get to Blenheim and how long do they stay?

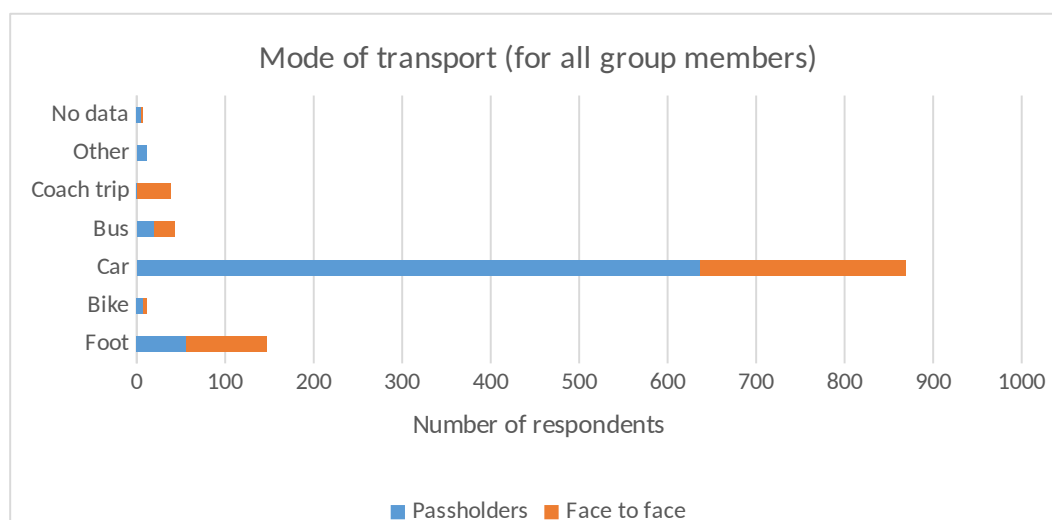
Almost half (46%) of the annual pass holders visited about once a month (Figure 4), while for the face-to-face respondents there was a large group of first time visitors (30%), mainly tourists visiting the Palace, and another large group (23%) of very regular visitors who came more than once a week (31%) mainly to walk around the grounds. Indeed, many of the local people we interviewed said they came almost every day.

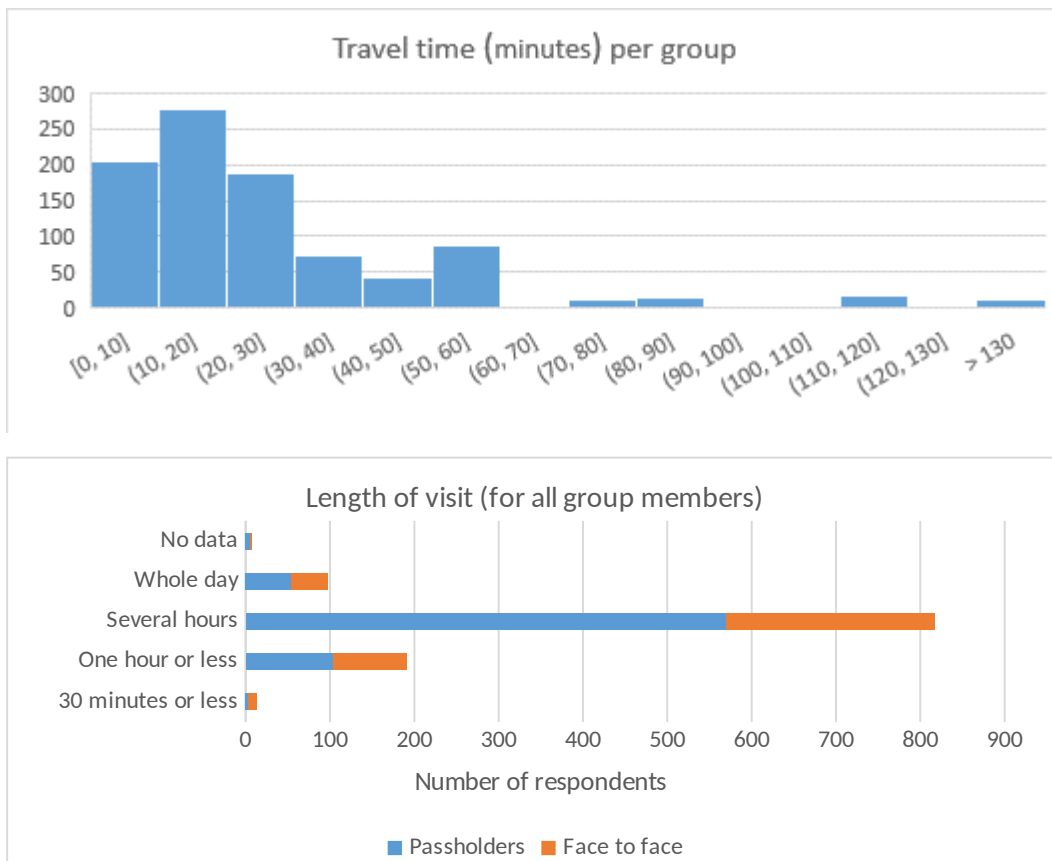
Figure 4. Visit frequency for both surveys combined (note: annual pass holders were not asked if they had only visited once, but this was a mistake as not all of them re-visit)



Almost all (87%) of the annual pass holders visit by car, while for the face to face respondents 59% came by car and 23% on foot, with a few coming by bus or on a coach. Most journeys were less than 30 minutes, but when weighted by the number of people in each party the average travel time was 30 minutes for pass holders and 41 minutes for the face to face survey (average 35 minutes overall). The higher time for the face to face survey was due mainly to a 31-person coach party from south Wales and a few other groups travelling longer distances. Both pass holders and face to face respondents tended to spend several hours at Blenheim, though we estimate that the average time spent by face to face respondents was a bit shorter (1.8 hours as opposed to 2.4 hours) as this category seemed to include more local people just going out for a quick walk of an hour or less. The data on travel time has been used to estimate the 'welfare value' of Blenheim for recreation, using the method described in Appendix 2.

Figure 5. Mode of transport (top), travel time (middle) and length of visit (bottom)





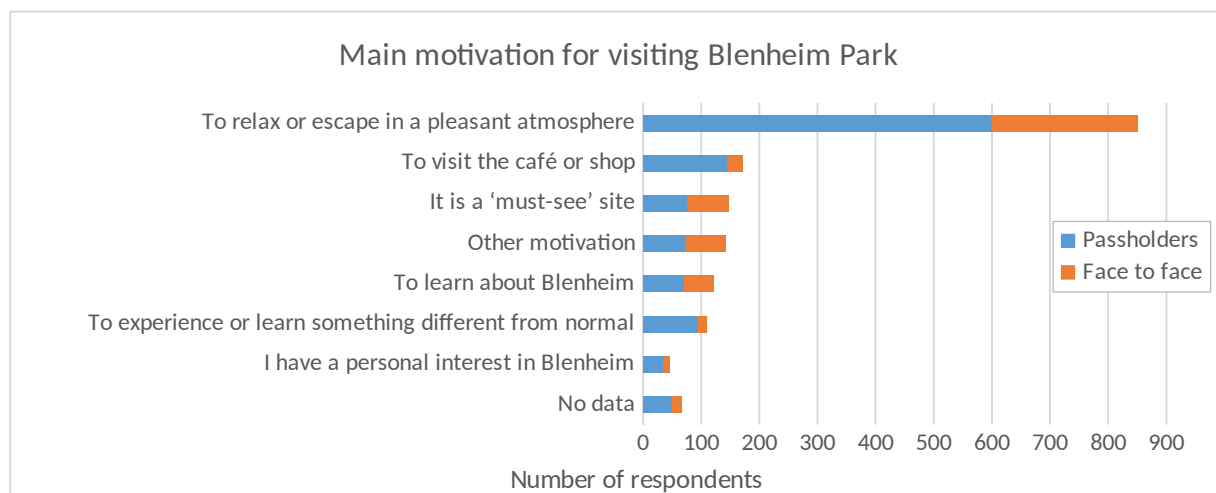
3 Experiences of nature at Blenheim

3.1 Visit motivations

Most (76%) of the visitors said that one of their main motivations for visiting Blenheim was ‘to relax or escape in a pleasant atmosphere’ (Figure 6). This is a much higher proportion than for the BDRC visitor survey, probably because the BDRC survey captured people exiting from the Palace while we were trying to capture the views of people visiting the grounds (and therefore experiencing nature). Only 13% of our respondents selected ‘it is a must-see site’, compared to between 19% and 35% for the BDRC survey, though for the face to face survey this was a bit higher at 18%. This probably reflected the fact that many of our respondents were repeat visitors, though 42 of the groups surveyed face to face (including 117 people) were first time visitors.

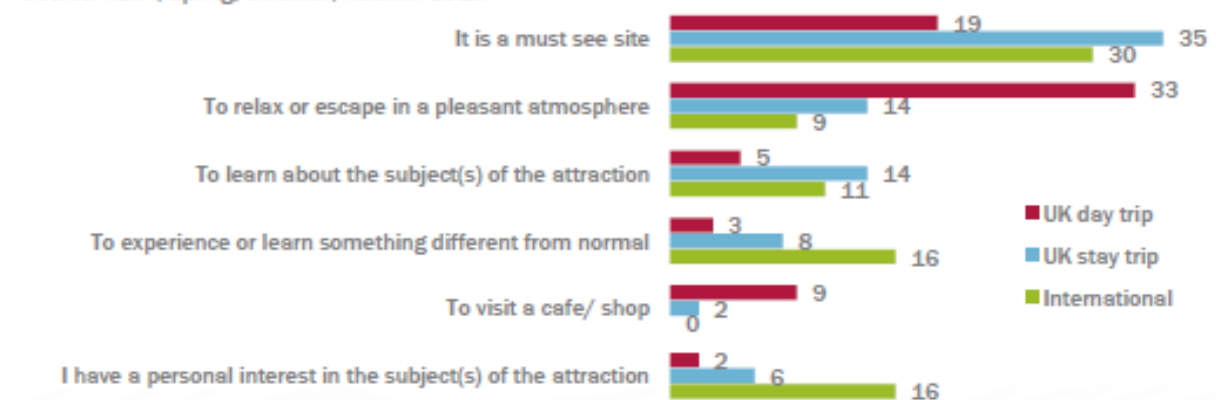
More of the pass holders (20%) said one of their main motivations was to visit the café or shop, compared to only 7% of the face to face respondents. This probably reflected the fact that the pass holders on average lived a bit further away than the local face to face respondents and were looking for a nice day out rather than a quick walk, while the ‘tourist’ face to face respondents would not have travelled a long distance simply to visit the café or shop.

Figure 6. Main motivation for visit, using the standard categories for the annual Blenheim visitor survey (we allowed respondents to select more than one category). This is compared to the BDRC survey below.¹



Top 10 Visit motivations (%)

Source: ALVA, Spring, Summer, Autumn 2018



There were 102 'Other' responses but these were all from people providing an additional reason, or further details on one they had selected already. These included visiting events such as Nocturne, the food festival and the art exhibition (16), dog walking (10), exercise and/or fresh air (24) and visiting with children or grandchildren (12) or other family and friends (10).

Walk the dog in beautiful, relaxing surroundings and always visit the shop and cafe as the Privilege Pass is a great asset. (Male, 60+, pass holder, visits once every couple of weeks for an hour or less, a 20 minute drive)

Had to come because it is a university assignment (four females from the USA, age 16-24, breaking a journey but arrived by bus, first time visitors spending the whole day, face to face survey)

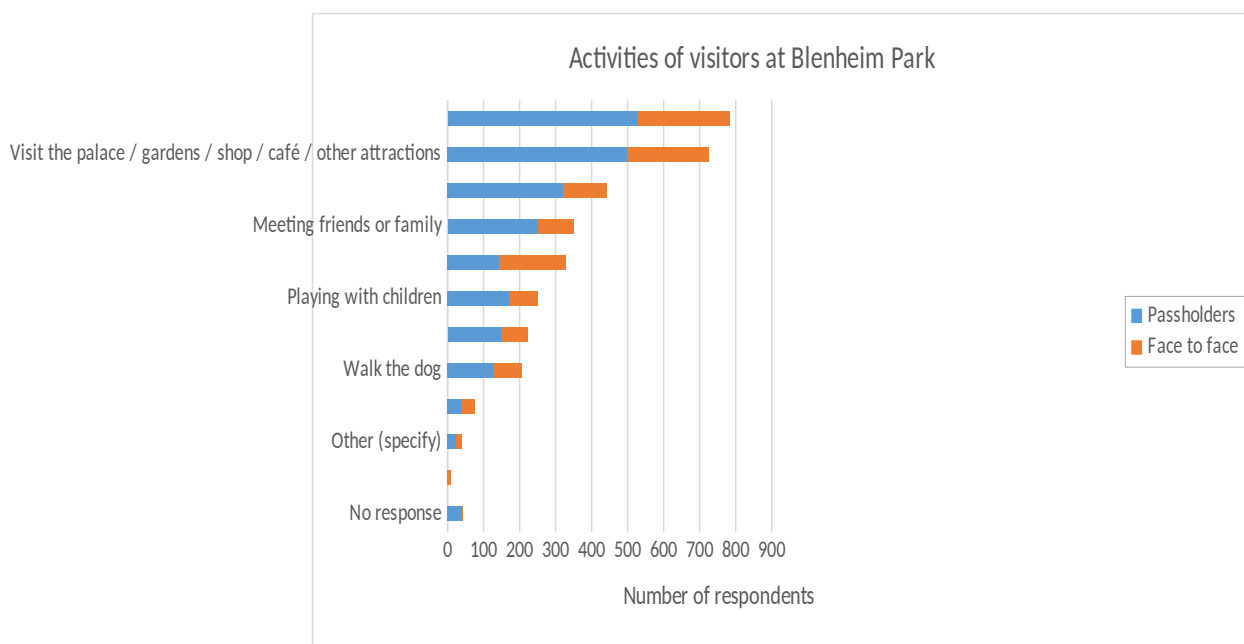
Take a quicker and safer route, avoiding traffic. (35-44 year old pass holder, takes a short cut on foot four or more times a week)

3.2 Favourite places and activities

The most common activity during trips to Blenheim was walking (70% of respondents), followed closely by visiting the Palace, shop and café (65%) (Figure 7). Visiting events (39%) and meeting with friends and family (31%) were also popular, and 29% of people liked nature-watching.

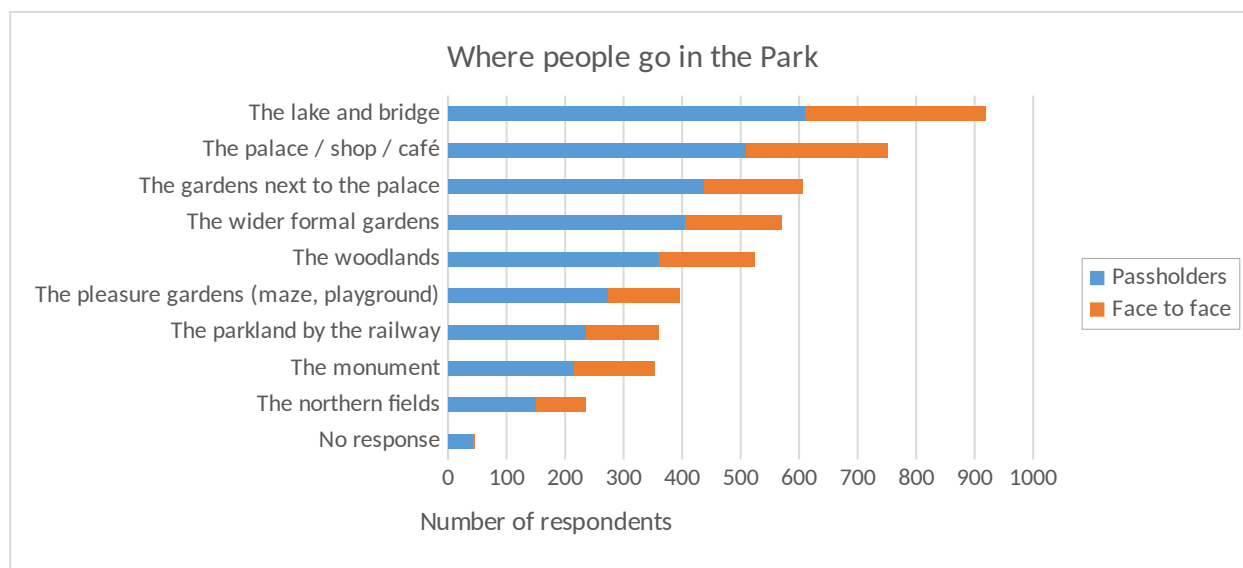
¹ BDRC Visitor Research Report, pdf of presentation provided by Blenheim Estate

Figure 7. Activities undertaken by survey respondents at Blenheim Park (out of a total 1096 respondents; 360 face to face and 736 pass holders)



People visited a wide range of areas, with 97% of all respondents using the wider park beyond the Palace, gardens, shop and café. Most (82%) visited the lake and bridge, and 67% visited the Palace, gardens, shop and café (People visited a wide range of areas, with 97% of all respondents using the wider park beyond the Palace, gardens, shop and café. Most (82%) visited the lake and bridge, and 67% visited the Palace, gardens, shop and café (People visited a wide range of areas, with 97% of all respondents using the wider park beyond the Palace, gardens, shop and café. Most (82%) visited the lake and bridge, and 67% visited the Palace, gardens, shop and café (Figure 8). The Pleasure Gardens and maze were visited by 35% of people, but by two thirds of all the groups with children. The least-visited areas were the Northern fields, but these still attracted 21% of respondents (236 people). Our face to face survey may have been biased as it was located outside the Palace and at the Woodstock Gate and Pleasure gardens, so we may have under-sampled visitors who use the Northern Fields and Woodlands.). The Pleasure Gardens and maze were visited by 35% of people, but by two thirds of all the groups with children. The least-visited areas were the Northern fields, but these still attracted 21% of respondents (236 people). Our face to face survey may have been biased as it was located outside the Palace and at the Woodstock Gate and Pleasure gardens, so we may have under-sampled visitors who use the Northern Fields and Woodlands.). The Pleasure Gardens and maze were visited by 35% of people, but by two thirds of all the groups with children. The least-visited areas were the Northern fields, but these still attracted 21% of respondents (236 people). Our face to face survey may have been biased as it was located outside the Palace and at the Woodstock Gate and Pleasure gardens, so we may have under-sampled visitors who use the Northern Fields and Woodlands.

Figure 8. Which parts of Blenheim Park are visited by the survey respondents?



We asked people to identify their favourite places. Some people (8% of respondents) could not choose a favourite place because they liked it all, and 4% said they liked walking around the park in general, e.g. doing the 'blue route' or the perimeter walk.

"No favourite, I like the diversity. Playground and butterfly house are amazing for children but you can spend a quieter time in other parts of the park too." (Female, 35-44, visits once a year, 40 minutes by car)

However many people mentioned the lakes (24%), the gardens (11%) and the bridge (10%), as well as the cascades (7%), the Pleasure Gardens (mentioning the play areas, maze and butterfly house) (5%), the area immediately around the Palace (4%), the views across the lake from Town Gate (3%), the Rose garden, Secret garden or Water Terrace (all 2%), the Harry Potter tree and a wide range of other 'special' places. Figure 9 is a word cloud derived from the free text responses.

By the lake, beyond the 'Harry Potter' tree. Its very tranquil, a beautiful view, I feel like I'm in a special place when there (Female pass holder, 45-59, visits two or three times a week, 15 minutes by foot).

Sitting on the roots of a fallen beech tree by the lake, watching the cormorants. It's a really special place – you can't hear any roads. (Mixed group, 45-59, visits more than once a week, 10 minutes by car).

I like the area right before the cascades; there are some gorgeous trees and flowers there, and it's nice watching the birds. (Female pass holder, 25-34, visits once a year).

Figure 9. Word cloud of people's favourite places at Blenheim Park



People whose favourite places were in the woodlands generally appreciated the peacefulness, the chance to get away from the crowds and the opportunity to connect with nature.

Woodlands - Like the open space, can generally get away from groups of people, exploring nature with grandchild, dog more relaxed in this area and gets good exercise. (Male, 60+, visits once a month, 25 minutes by car).

Walk through the woodlands and behind palace as have done this year on year And great to take pictures to show how our son is growing in the same place. *Female, 35-44, visits once a month, 20 minutes by car.*

The Woodland. The variety of species, glimpses of lake and sky. *Female, 60+, visits once a month, 75 minutes by bus*

The Woodlands. Seeing the older character trees and watching the wildlife that lives there. *Male, 60+, visits once every two weeks.*

Woodlands - a beautiful ancient landscape with abundant wildlife - quieter than the rest of the estate. (*Female pass holder, 45-59, visits two or three times a week, 15 minutes by car*).

The ancient trees in the parkland were also mentioned a number of responses.

Pleasure gardens. My small kids LOVE the train and they have names for all the big old trees en route. (Female, 35-44, visits once a month, 30 minutes by car).

Hollow tree near the pleasure gardens. Took part in a 'hide a book in a tree' activity once, played around the tree with the grandchildren, played with the acorns. *(Female, 60+, visits more than once a week, 10 minutes by foot).*

Only 11 respondents said the northern fields were their favourite place, but all of these said this was because it was quieter there. However one mentioned that they did not like it here because it was more like a commercial farm.

We prefer the quieter areas, especially walking near the lake leading to Rosamund's Well, and the land well north of the monument along the Oxfordshire Way towards Combe. *(Female, 45-59, visits four or more times a week, 10 minutes by foot.)*

The avenue of trees going from the monument up to the Roman road. Like the open views, great views back to the palace. Like seeing the birds. *(Male, 60+, visits once a month).*

A lot of people (66) also shared very specific special places. A few examples are given below.

Half-way bench, top of the Woodlands, next to the ponds and the turreted house. Solitude. *(Male, 60+, visits two or three times a week, 15 minutes by car).*

View across lake by Town Gate; bluebell woods by Coombe gate; special hill by Bladon Lodge, where there are lovely red trees (copper beeches), lovely views, the children go sledging in winter. *(Female, 35-44, visits more than once a week, 3 minutes by foot).*

The area by the lake immediately inside Bladon Gate, over the bridge & into the woodlands - I like the tranquillity of the water and birds on it, and being in all the trees, they are beautiful all year round. *(Female pass holder, 60+, visits two or three times a week, 5 minutes by foot).*

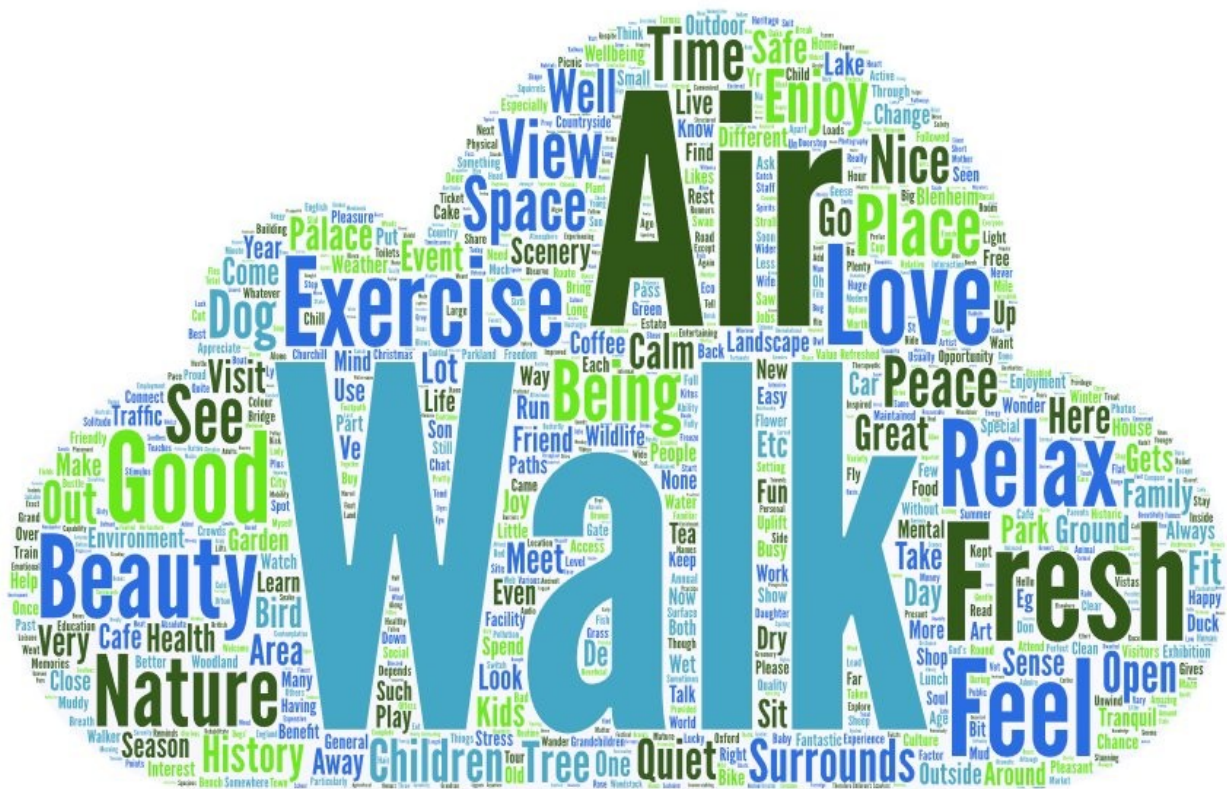
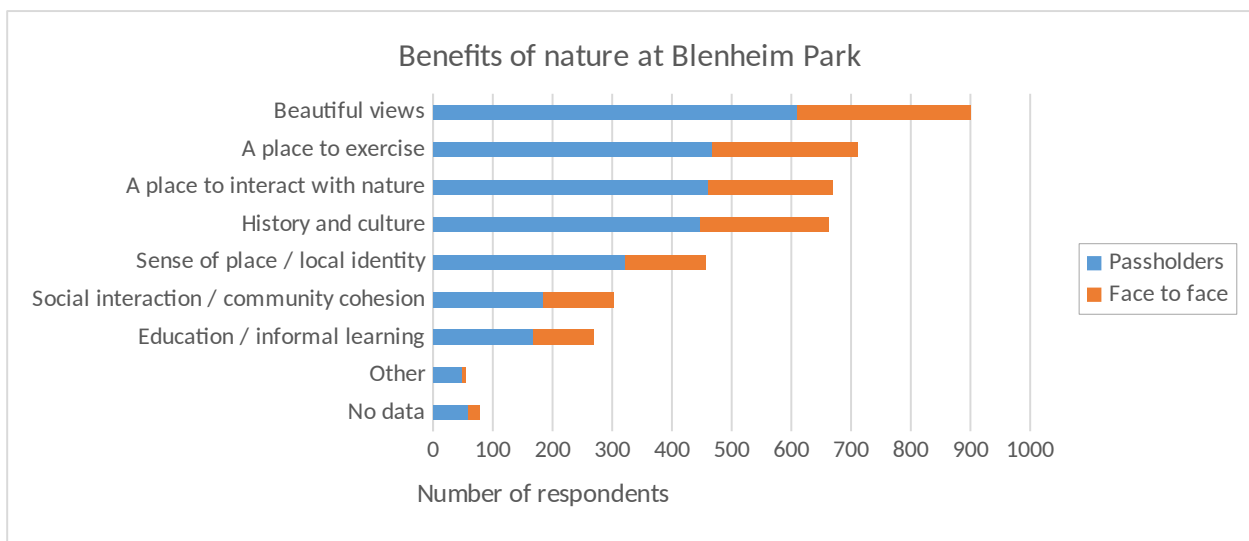
3.3 Benefits of nature

Almost all (93%) of respondents identified one or more benefits that they received from visiting the outdoor areas at Blenheim. We asked people to provide their own comments first about the benefits they received, and then followed this up with a check list to categorise the pre-determined list that we provided (see categories in Table 1 and Almost all (93%) of respondents identified one or more benefits that they received from visiting the outdoor areas at Blenheim. We asked people to provide their own comments first about the benefits they received, and then followed this up with a check list to categorise the pre-determined list that we provided (see categories in Table 1 and Almost all (93%) of respondents identified one or more benefits that they received from visiting the outdoor areas at Blenheim. We asked people to provide their own comments first about the benefits they received, and then followed this up with a check list to categorise the pre-determined list that we provided (see categories in Table 1 and Figure 9). This was done so that we did not influence the initial spontaneous responses by showing the check list.). This was done so that we did not influence the initial spontaneous responses by showing the check list.). This was done so that we did not influence the initial spontaneous responses by showing the check list.

Figure 11 shows a word cloud of the free responses, with walking, exercise, fresh air, nature, beauty and relaxation featuring highly. In general, the responses fell into our five pre-selected categories but 18% of respondents mentioned peace, quiet, calmness and tranquillity, which we did not include as a separate category in our checklist. We discuss this in the section on aesthetic value.

Using the checklist, the most commonly recorded benefit was the beautiful views (80% of respondents), followed by a place to exercise (63%), interact with nature (59%) and experience history and culture (59%) (Almost all (93%) of respondents identified one or more benefits that they received from visiting the outdoor areas at Blenheim. We asked people to provide their own comments first about the benefits they

received, and then followed this up with a check list to categorise the pre-determined list that we provided (see categories in Table 1 and Almost all (93%) of respondents identified one or more benefits that they received from visiting the outdoor areas at Blenheim. We asked people to provide their own comments first about the benefits they received, and then followed this up with a check list to categorise the pre-determined list that we provided (see categories in Table 1 and Figure 9). This was done so that we did not influence the initial spontaneous responses by showing the check list.). This was done so that we did not influence the initial spontaneous responses by showing the check list.). Many people also experienced a 'sense of place' (41%), felt that Blenheim contributed to social interactions and community cohesion (27%) and/or valued the opportunities for education and informal learning (24%). Responses for each of the five ecosystem service categories are discussed briefly below.



3.3.1 Recreation

We saw in Figure 7 that the survey respondents find Blenheim suitable for a range of recreational activities. 70% of all respondents walk in the park, 18% walk the dog, 7% run, 22% play with children, 20% have picnics and 31% meet friends and family. In this section we first describe the qualitative evidence from the survey, and then derive some monetary valuations of the benefits.

3.3.1.1 Qualitative evidence of recreation benefits

The survey provides strong qualitative evidence of the recreational benefits perceived by the respondents, including both physical and mental health. A few respondents said they only visited to get physical exercise, but most linked the benefits to the wider range of cultural services (aesthetic value, interaction with nature, education, sense of place / culture / history) or to other aspects not on our list (tranquillity, social interactions).

In the free responses, the most commonly mentioned benefit was physical health and fitness through opportunities to exercise by walking, running or (for children) cycling or using scooters. This was mentioned by 37% of respondents. However, benefits related to mental health were mentioned by 30% of respondents, using a very wide range of terms such as relaxation, calmness, well-being, mindfulness, uplifting, refreshing, revitalising, restoring and simply feeling better. Fresh air, being outdoors and avoiding air pollution were mentioned by 23% of respondents, and 76 respondents (7%) specifically mentioned a feeling of 'space' and freedom. Having seen the checklist, 63% of people said that 'a place to exercise' was a benefit.

We generally go in at Combe gate and do the circular walk. It's easy walking, and the inclines are good for power walking. *(Female pass holder, 60+, visits two or three times a week, 10 minutes by car).*

Fresh air, enjoying the beauty of the surroundings, a chance to meet with friends and family, a chance to relax and regroup, mental wellness. *(Female pass holder, 35-44, visits two or three times a week, 30 minutes by foot).*

Get out with nature, fresh air, good for mental health, spend time with family. Blows away the cobwebs. *(Female, 45-59, visits more than once a week, 5 minutes by foot).*

Its beautiful, good to be out in the fresh air, no pollution, feels lovely *(Female, 60+, visits once a year).*

Peaceful, good for health, helps you feel balanced. I feel very lucky to have this. I just love it! *(Female, 35-44, visits more than once a week, 3 minutes by foot).*

Clears head, peace of mind, "feel so much better" *(Female, 45-59, visits more than once a week, 1 minutes by foot).*

Space, room to breath and think, exercise, wonder at nature *(Male pass holder, 60+, visits once a month, 0 minutes by foot).*

'Rejoining the human race'. Inspiration. Look at the scenery, it soothes the soul. Good memories of coming on a frosty day. Like to come here impromptu. *(Mixed group, 60+, visits once a week, 10 minutes by car).*

Area is fresh - so clean and well maintained, cannot compare to anything I've seen so far. Squirrels, birds, swans. We have intensive jobs - this is the exact medicine we needed - sun, greenness. *(Mixed group, 35-44, first visit, 35 minutes by car).*

Some people with health issues specifically mentioned the health benefits of their visits, and one pass holder also mentioned the value of walking with an organised health group.

Tranquillity, calm. Good for health, as he needs to walk, this is perfect for his heart condition. *(Male, 45-59, visits more than once a week, 10 minutes by car).*

Walking with a health group. I am so glad that I discovered this group because I never would have walked on my own. *(Female, 60+, pass holder, visits once a week, 15 minutes on foot).*

The benefits are sometimes linked to the 24 hour accessibility and freedom to roam in large open spaces, contrasting with more restricted paths through the surrounding agricultural landscape.

It's a free space to roam in beautiful surroundings. It's peaceful and full of opportunity. *(Female pass holder, 25-34, visits once every two weeks).*

...It's good that there is 24 hour access – I can walk in here any time. *(Female, 45-59, visits more than once a week, 5 minutes by foot).*

I love walking through the Park from Hensington gate to get to the shops. I love my impromptu walks when I choose on impulse where to go -- round the lake; down to the Cascade etc. It is a joy to have the Park on our doorstep. It never fails to please me. *(Female pass holder, 60+, visits four or more times a week, 10 minutes by foot).*

Freedom to walk for miles in beautiful surroundings *(Female pass holder, 60+, visits once a month, 30 minutes by car).*

Fun and fresh air for kids Space to run around *(Male pass holder, 35-44, visits once a month, 25 minutes by car).*

Feel decompressed, from being in big spaces *(Female pass holder, 45-59, visits once a month, 30 minutes by car).*

There was some indication that the annual pass can also enable people without gardens or who can't afford to travel to improve their wellbeing.

It always feels like I've been somewhere special, I can't afford to go away but coming here feels like I've done something or been somewhere amazing. The water the trees the gardens are good for my mental health and well being. *(Female pass holder, 45-59, visits once a week, 10-15 minutes by car).*

I don't have a garden so it's lovely to be able to sit in yours on a summers day *(Female pass holder, 45-59, visits once every two weeks).*

We live in a flat so it's the satisfaction of being in the gardens. *(Male pass holder, 60+, visits once every two weeks).*

Many park users particularly appreciate the level, dry, paved roads which are relatively free of traffic and easy to use for people in wheelchairs, less mobile visitors and parents with buggies, even in wet weather. Safety, security and facilities (café and toilets) were also mentioned as making visiting easier.

Can walk for miles and not get muddy; Feels safe even with children; There are facilities - toilets, coffee. *(Female, 35-44, visits once a week, 3 minutes by foot).*

During the winter months it is a relatively un-muddy place to walk the dogs (*Male pass holder, 45-59, visits two or three times a week, 10 minutes by car*).

As a disabled person I value the freedom and exercise I get. (*Male, 60+, pass holder, visits once a month for several hours, a 30 minute drive*)

The palace provides a relatively quiet and safe space for my son to be in and enjoy the outdoors and sample cakes. It also provides a safe environment for him to practice his walking with his walker, because there is hardly any traffic on the road to the lake and bridge. (*Male pass holder, 45-59, visits once every two weeks*).

Relaxation in open space, good level walking (have valgus knee so damage if very uneven ground). Staff welcoming and assist elderly - taken 88 year old with need of a wheelchair some of the time - being welcomed and no fuss meant she was relaxed and enjoyed the visit - not anxious about visiting again - first time had been concerned whether she'd be able to get round. (*Female pass holder, 60+, visits once a month, 50 minutes by car*).

I'm disabled and following my cancer battle it's a nice tranquil and relaxing atmosphere to enjoy (*Male pass holder, 45-59, visits once every two weeks*).

However, although there was much praise for the helpfulness of the staff, several respondents to the pass holder survey were concerned about recent changes to parking arrangements (removal of disabled parking at the Palace) that are causing problems for people with disabilities.

Wheelchair accessible and helpful staff. (But) since Monday 10th new policy - access removed, very unfair for permanent wheelchair users who drive. Not certain the policy to park too far away has been thought through. No access to buggy, as can't leap out of chair, on to buggy, leave chair behind. Sadly refused access to park near the palace door, so had to leave Blenheim, did so in tears. My world is now smaller. (*Female pass holder, 45-59, visits once a week, 20 minutes travel*).

COVID-19 lockdown

As this report is being completed, from March to April 2020, the COVID-19 lockdown is restricting people from travelling away from their local area to take exercise. At the time of writing, Blenheim Palace and café is closed to visitors but the Park remains open for exercise. The evidence gathered in this review demonstrates the value of the Park during normal life, but it is likely that the Park with its wide open spaces is a truly invaluable resource for local people at this time, playing a vital role in maintaining health and wellbeing while enabling social distancing. However it will now be out of reach for some of those who need to travel further distances to get there.

3.3.1.2 Monetary valuation of recreation benefits

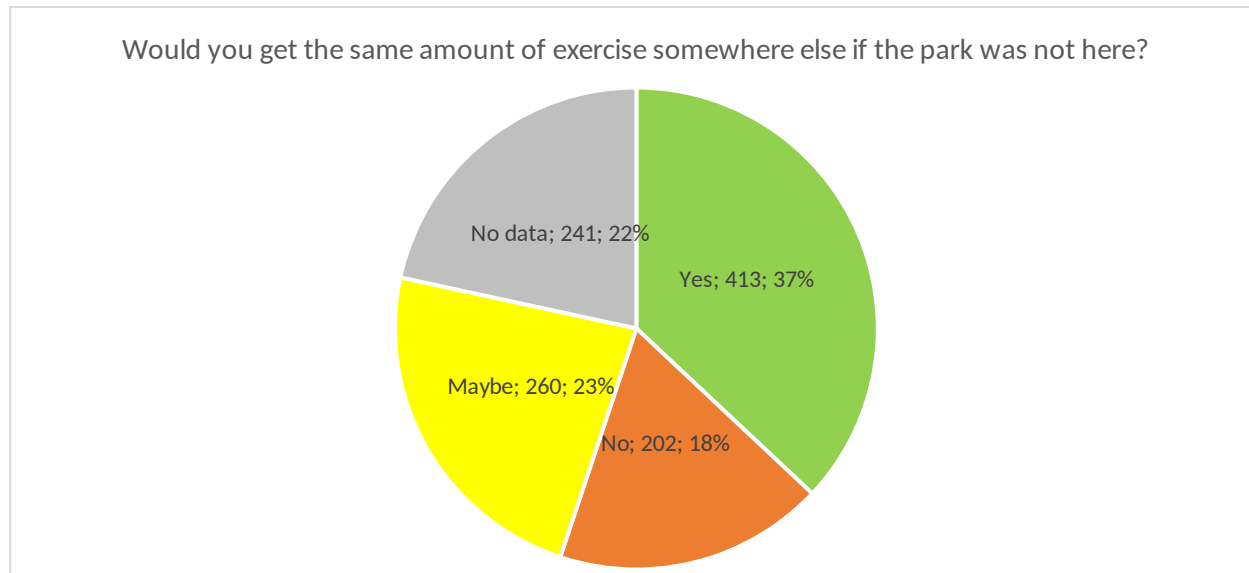
We have carried out an approximate valuation of the recreational benefits using the same approach as the ORVal model (see Appendix 2). This estimates the 'welfare value' of a specific green space on the cost incurred by people who choose to travel to use the park for recreation, in terms of the fuel cost for journeys by car and the travel time. This resulted in an estimated welfare value of **£179,193 per year** to the 1106 respondents who provided valid travel data: an average value of £196 per person and **£4.64 per trip**. If scaled up crudely to the 920,491 recorded visitors in 2018, this value per trip equates to a welfare value of **£4.3 million / year** for the recreational services provided by the park. However this method involves several crude assumptions which introduce considerable uncertainty into these estimates (see Appendix 2). For comparison, the value estimated using the ORVal tool is **£4.7 million per year**. This is a generic estimate based on the expected visitor numbers to a green space in that location given the land cover, designations, and points of interest, rather than being specific to Blenheim. However the two estimates are broadly similar.

Visiting the park for recreation is likely to bring considerable benefits for physical and mental health and wellbeing. The ORVal method estimates the value of the perceived benefits of visiting the park to the beneficiaries (the people choosing to visit), using the travel costs as a proxy for the amount that people are willing to invest in travelling to the park rather than going somewhere else. It is assumed that people factor in these health and wellbeing benefits when choosing whether to visit the park. However there will also be wider benefits to society from reduced healthcare costs and reduced absenteeism from work, which are not accounted for in the ORVal model.

We have used the method of White et al (2016) to estimate these health benefits as being approximately **£393,000 / year** for the 270 survey respondents who visited the park for moderate to vigorous exercise at least once a week (see Appendix 2). However, 37% of the survey respondents thought that they would get the same amount of exercise somewhere else, if the park was not here, while 23% were not sure (Figure 12). The agricultural fields, green spaces in Oxford, Stowe and Barton, and other countryside footpaths were identified as alternatives, but most respondents in the face to face survey felt that Blenheim Park was more attractive and offered better opportunities for exercise and recreation. The qualitative evidence (see section 3.3.1.1) linking the health benefits to the attributes of the Park also suggests that the benefits of exercising in other nearby locations might be lower. Nevertheless, filtering out those respondents who thought they would get the same amount of exercise somewhere else gives an estimate of **£257,000/year**, and also filtering out half of those who replied 'maybe' or did not reply gives an estimate of **£196,000/year**.

If the actual total number of regular visitors using the park at least once a week was known, this figure could be scaled up accordingly. However, it is likely that only a small proportion of the 900,000 annual recorded visitors visit the park at least once a week for exercise, and many of the most regular visitors probably responded to the online pass holder and face to face surveys.

Figure 12. Would people get the same amount of exercise without the Park?



Make us relax and walk further (Female pass holder, 60+, visits once every two weeks).

We definitely get more exercise from coming here – we've just been walking for an hour, which is more than we would usually do. (Mixed group, 60+, visits once every few years).

Beautiful area for walking, fantastic views, exercise made easier by the surroundings (Male pass holder, 45-59, visits once every two weeks).

3.3.2 Aesthetic value (natural beauty) and tranquillity

In the free text responses, 28% of respondents mentioned beauty, scenery, views, landscapes or pleasant surroundings as benefits, but in the checklist the proportion identifying 'beautiful views' as a benefit went up to 80%.

Some aspects that were often mentioned include the classical landscaping by Capability Brown, the views across the lake to the Palace and bridge, the old trees, the changing seasonal weather and colours and the variety of wildlife and habitats. These opinions were often expressed by repeat visitors, particularly local residents who were able to come multiple times a year.

Amazing views which change constantly (*Female pass holder, 60+, visits once a month, 15 minutes by car*).

Views, atmosphere, having so much nature and openness - in a different way from agricultural fields, calming - even when busy (*Female, 45-59, visits more than once a week, 1 minute by foot*).

Whatever the season, whatever the weather the landscape changes. The wind in your hair - the quiet - the joy of being alive! (*Female pass holder, 60+, visits once a month, 5 minutes by car*).

Fresh air, time away from humanity. View from Town gate said to be the finest view in England - and it is - except for the algae. You can see the changing seasons. It's away from the traffic. (*Mixed group, 60+, visits once a week, 40 minutes by car*).

Fresh air, really pretty and the colours and seasons. Scenery and being by water, all unspoilt landscapes (*Female, 45-59, visits once a year*).

Dramatic views - rain, sun, gloom, its all lovely; Cafe is very reasonable, food is lovely (*Female, 60+, first visit, 25 minutes by car*).

Some people explicitly linked the quality of the views with the benefits for mental health and well-being.

The beautiful scenery of lakes and trees is good for the soul and our health. (*Female pass holder, 60+, visits once a week, 20 minutes by car*).

Relax and calming as soon as we start walking, looking at the lake and bridge and Palace in the distance (*Female pass holder, 60+, visits once every two weeks*).

Childrens play area - great for kids but Blenheim is also good for the soul with beautiful views, ancient trees and greenery. Great for mindfulness and wellbeing. (*Female pass holder, 35-44, visits once a month, 30 minutes by car*).

Most people liked the balance between naturalness and maintenance at the Park, appreciating the manicured, well-tended and well-designed landscape, and the man-made elements especially the views of the Palace and bridge. Some of the first-time visitors who weren't able to visit the grounds said that it was still "good to know it's there", and see views from the Palace. However one or two visitors said that they prefer wilder, more natural areas.

Hadn't had time to visit the gardens or "nature," but would've loved to. Still great to see from the Palace, though, and know it's there. (*Mixed group, 60+, first visit, 10 minutes by car*).

Beautifully kept - no litter; cafe areas are nicely done; quietness, nature - absolute variety of trees; general sense of history (*Mixed group, 60+, visits once every few years*).

A peaceful, never overly-busy slice of the countryside in which to relax and enjoy the beautifully curated nature. *(Female pass holder, 25-34, visits once every two weeks).*

I want to be outside – I am not interested in the Palace, but like looking at the beauty of the building from outside. Like the views. Landscaped well, but not too structured – looks natural. *(Male, 45-59, visits once every few years).*

It's good that it is well maintained, but it's not 'real' nature. *(Female, 45-59, visits once every few years.)*

Closest you get to nature even though some parts are very manicured. *(Male, 45-59, visits more than once a week, 10 minutes by car).*

Tranquillity, peace, quiet, calmness and solitude were explicitly mentioned by 17% of respondents. This was linked to the absence of traffic, but also to the open landscape, the peace and quiet of the woodlands and a sense of 'timelessness'. The size of the Park makes it a good place for those who looking for peace and quiet, offering solitude and escape – though such people often seek out the less visited parts of the Park in the northern fields, the woodlands near Combe or the south end near Bladon.

Beautiful, away from traffic and cars. Contemplative, quiet, mental benefits. *(Female, 35-44, visits more than once a week, 5 minutes by foot).*

I have deeply loved visiting the park innumerable times over the past sixty years. I feel the sense of peace, beauty and timelessness as soon as I enter the park, invaluable in this day and age. *(Female pass holder, 60+, visits once a month, 30 minutes by car).*

Feel calmed and dwarfed by the grand landscape *(Female, 60+, visits once a year).*

Finally, a few people mentioned the role of nature at Blenheim in inspiring creative or artistic activities.

I love standing on the bridge, photographing the ducks and other birds and trying to capture effects of light and reflection. *(Female pass holder, 60+, visits once a month, 20 minutes by car).*

I'm an artist and love to pick up fallen leaves, bits of nature, feathers, and paint it all in my nature journal. Then I share and tag Blenheim on social media. *(Female pass holder, 45-59, visits four or more times a week, 15 minutes by car).*

3.3.3 Education

Only 2% of people (22 respondents) specifically mentioned education in a way that could have been connected to natural capital, though a higher proportion mentioned learning about the Palace and the history of the Estate. It was often hard to separate the two in the comments. After seeing the checklist, the proportion of people identifying education and learning about nature as a benefit went up to 22%.

Usually education about nature was mentioned in connection with children, and the Forest Schools at Blenheim were mentioned a few times. There is more detail on Forest Schools in the main report. However a few adults also mentioned opportunities for informal learning, including interest in the gardens and the management of the Estate.

Exercise Feeling of wellbeing. Opportunities to observe and learn more about nature *(Female pass holder, 60+, visits once a month, 90 minutes by bus).*

...The various art exhibitions, shows and seasonal changes to the grounds / gardens stimulate ones mind. Always engage in lively conversation with the Guides. Enlightening / educational challenges to the way others see the world...eg especially the conceptual art exhibitions!!!! (Male pass holder, 60+, visits once a month, 60 minutes by car).

...It is also a fabulous place to take children, the trees as well as the obvious attractions inspire their interest in the countryside. (Female pass holder, 60+, visits once a week, 30 minutes by car).

Interacting with nature. Children have seen dragonflies, geese, swans, ducks, pheasants, sheep, shield bug and a spider floating in the air by its web. Education is an important benefit for them. (Male, 35-44, with a school group, visits once a year).

Exercise, take in the countryside, seasons are ever changing - colour etc. When my daughter was younger we came to see migratory birds, geese, squirrels - it teaches children about history, nature (Female, 45-59, visits more than once a week, 15 minutes by car).

3.3.4 Interaction with nature

19% of respondents mentioned enjoyment of nature, wildlife, countryside or green space in their free responses, and this went up to 59% identifying 'a place to interact with nature' as a benefit in the checklist. Most people spoke in fairly general terms about feeling a connection to nature, but some listed some of the species they had seen – usually birds (often mentioning the ducks, swans, geese and herons on the Lake) but also often mentioning the trees and woodlands or other species.

Likes sheep because she's a vet, Nice to be out in nature, space for wildlife, can see different environments for wildlife. (Female, 16-24, visits first visit, 20 minutes by car).

Views, exercise. Like the birds – we've seen a swan with cygnets, geese. Oh look there's a red-legged partridge (appeared when we were speaking). (Mixed group, 60+, visits first visit, 120 minutes by car).

I enjoy the open space and the beauty of the flowers, trees and shrubs in the different seasons. I feel very close to nature. (Female pass holder, 45-59, visits once a year).

I love the area by the town gate and love watching herons ducks and the wildlife. I really love the red kites that swoop down in front of me on my walks and the view of the palace from anywhere is breathtaking. (Female pass holder, 45-59, visits four or more times a week, 5 minutes by foot).

The ancient trees in the Parkland, the views and walks around the principal lakes, and a chance of seeing wildlife we wouldn't ordinarily see at home. (Male pass holder, 60+, visits once a year, minutes by).

Interaction with deer - prefer deer to humans! (Male, 60+, visits more than once a week, 15 minutes by foot).

Keen walkers – have walked all over the grounds, also walk out of the grounds towards Coombe, on the surrounding footpaths. Like to see the different seasons. Nature important – seen Little Grebes, cormorants, little and great egrets, swifts, swallows, an owl. Pointed out a green woodpecker flying across the lake as we were talking. Walking here "puts life into perspective". Tranquil, lovely. (Mixed group, 45-59, visits more than once a week, 10 minutes by car).

These interactions are often connected to mental wellbeing, joy and happiness.

Beautiful landscape, bird spotting, getting amongst trees which is so therapeutic. Grandchildren love exploring the different areas, particularly down by the lake (*Female pass holder, 60+, visits once a month, 15 minutes by car*).

I relax when surrounded by nature - especially woodland (*Female pass holder, 45-59, visits once a month, 25 minutes by car*).

EXERCISE, JOY OF BEING CLOSE TO THE NATURAL WORLD, OBSERVATION OF WILDLIFE, RECALLING EARLIER TIMES WHEN FISHING IN THE LAKE, TRANQUILLITY AND THE SHEER MAGNIFICENCE OF THE SITE AND SETTING OF THE PALACE. (*Male pass holder, 60+, visits once every two weeks*).

Love nature. Want to see birds, swans, fish. Had just been round the formal gardens and was disappointed that there were no birds, surprised there were no bird boxes. Went down to the lake, then came back to tell me she was happy now because she had seen ducks and a grey heron. (*Mixed group, 60+, first visit, 30 minutes by car*).

Pure joy in the beauty of the views, in any season. Connection to nature, and to trees, birds and other wildlife. I love to come up to the palace and have tea, too. (*Female pass holder, 45-59, visits two or three times a week, 5 minutes by foot*).

"It's very peaceful in the woods, there are fewer people. I like being close to nature. I like the solitude. It's good that there is 24 hour access - I can walk in here any time." (*Female, 45-59, visits more than once a week, 5 minutes by foot*).

Makes me feel good. I enjoy the tree shapes in winter and changing in the spring and the lovely old trees. It's a good place to meet friends. Does me good to walk round and whatever the weather the paths are good to walk on. (*Female pass holder, 60+, visits once a month, 20 minutes by car*).

3.3.5 Sense of place

In the free responses, 90 people (8%) mentioned the history and culture of the Estate, with appreciation of Capability Brown's landscaping, the links with Churchill, or the ancient trees. This went up to 41% of people identifying sense of place as a benefit, and 59% identifying history and culture as a benefit, in the checklist.

Walking in a place with such a long history. (*Female pass holder, 60+, visits once a month, 40 minutes by car*).

Exercise - very uplifting in Capability Brown's fantastic landscape. (*Female pass holder, 60+, visits once a month, 25 minutes by bike*).

Uplifting state of being and the marvel of the ancient species. A wonderful sense of history and landscape (*Female pass holder, 60+, visits once a month, 75 minutes by bus*).

I like the feeling of space, the beautiful grounds and the trees that have been there for years, and the fresh air. It feels relaxing always, almost like being on holiday. (*Female pass holder, 60+, visits once a year*).

Makes them feel "proud to be British," reminds them of history, Churchill. (*Mixed group, 60+, visits once a year*).

However there were also many more personal stories showing attachment to Blenheim due to warm memories of previous visits, often as children or when their children were younger, but some more recent from events such as concerts or sporting events at Blenheim.

(Favourite place): The river near the old Woodstock gate. I used to sit there with my parents and grandparents as a child, now I take my grandchildren there. So many happy memories. *(Female pass holder, 60+, visits once a month, 10 minutes by car).*

Great feeling to walk around - God's country. Nostalgia - came with parents when he was small, now his son and grandchildren still continue coming *(Male, 60+, visits more than once a week, 15 minutes by foot).*

Fresh air, sense of calm but also exciting events. Creation of lots of memories, from seeing my hero Gary Barlow, to watching my husband finish the Blenheim Half Marathon a few years ago. I call it my second home! *(Female pass holder, 45-59, visits once a month, 25 minutes by car).*

I enjoyed the food festival last year and my niece loves to play in the playground. I love the butterfly house as it reminds me of being a child and going to play in the maze. *(Female pass holder, 25-34, visits once a year).*

Some people felt referred to a comforting familiarity with the trees and landscape, and several local residents felt a strong feeling of place, pride and local identity from the landscape.

Always love the familiarity of the grounds and feel a mindful experience *(Female pass holder, 60+, visits once a month, 10 minutes by car).*

Peaceful, Feeling of place "that we live here." *(Mixed group, 25-34, visits more than once a week, 10 minutes by bike).*

He walks here because he feels that it's special to him and a great place to be. *(Male, 35-44, visits once a week, 15 minutes by foot).*

It's a much valued local treasure which we are lucky to have *(Female 60+, pass holder, visits every couple of weeks, lives a ten minute drive away)*

It's on my doorstep and I make the most of this privilege *(Female, 60+, visits four or more times a week for an hour or less, lives a 10 minute walk away)*

We feel we have 'bragging rights', when people ask us where we live we say 'next to Blenheim Park'. *(Mixed group, 60+, visits more than once a week, 15 minutes by car).*

3.3.6 Social interaction and community cohesion

A number of respondents (49, 4%) mentioned the value of Blenheim as a place to meet friends and family or to interact with other park users. Often people meet regularly for a walk and then go to the café afterwards. Usually this is with friends and family, but a few people mentioned interacting with other park users or even the friendly staff.

Exercise, coffee. Somewhere to walk, talk, put the world to rights *(Female, 45-59, visits once a week, 10 minutes by car).*

Regular walk with friends, exercise and fresh air, surrounded by beautiful views, away from traffic and a social coffee afterwards, browse around the shop. *(Female pass holder, 60+, visits once a week, 20 minutes by car).*

Like seeing Muntjac deer, squirrels, saw a snake once. We do the small walk - the 5 mile - with friends. All dog walkers know each other, we don't know each others' names but we know our dogs' names. *(Female, 60+, visits more than once a week, 3 minutes by foot).*

The joy of the fresh air and the beauty of the surroundings, the fact I can keep fit by getting exercise in the park and I don't have to mow the grass. I like that there are people walking also with dogs, it's kind of sociable. And then meet friends for walks and finish with coffee or lunch. Heaven. *(Female pass holder, 60+, visits four or more times a week, 2 minutes by foot).*

Comes all year - you meet people who ask you why you've been away for a while. New benches are very good - nice to sit and chat with wife and daughter (who comes up in the weekends). Pleasure gardens - with young children; spends time in the tea shop too *(Male, 60+, visits more than once a week, 4 minutes by car).*

Lovely surroundings, fresh air, friendly fellow visitors! *(Female pass holder, 60+, visits once every two weeks).*

Come here for walking, good for our health. We buy a ticket once a year and come often. It was great at Christmas, our parents loved it. They like the café. We often see the same people walking around and say hello. *(Mixed group, 60+, visits more than once a week, 15 minutes by car).*

It's a vital part of my local community *(Male, 60+, pass holder, visits two or three times a week, five minutes by bike).*

4 Visitor segments (from the face to face survey)

The database of responses provides a very rich source of material for further analysis. Here we briefly highlight two visitor segments (Families and International visitors), but more analysis could be done. This section presents numerical results only from the face to face survey because the pass holder survey was addressed to individuals and did not gather information on family groups (this could be improved if the survey is repeated in future), and it also does not include any international visitors. However, some comments from the pass holder survey are included.

4.1 Families at Blenheim – both old and young

All but two of the family groups in the face to face survey came from Oxfordshire. Those with children were mostly female between the ages of 25-44, on a day trip from home, who mostly cited their wish to “*relax or escape in a pleasant atmosphere*” with exercise (walking), beautiful views, and interactions with nature. The most-visited places for families with children included the lake and bridge, the pleasure gardens, and the palace/shop/café. The majority of families spent several hours in Blenheim, with visit frequencies ranging from once a week to once a year. In contrast, the majority of those who spent one hour or less during their visits with young children were frequent local visitors, coming more than once a week mostly on foot.

Both the face to face respondents and the pass holders often described the benefits of the Park for children and families, as a safe, secure environment with good facilities and plenty for children to do.

While my daughter's quite little it's nice to be away from traffic/crowds but still be near to a cafe or loo in case she needs it. *(Female pass holder, 35-44, visits once a month, 60 minutes by bus).*

Can walk for miles and not get muddy; Feels safe even with children; There are facilities - toilets, coffee *(Female, 35-44, visits once a week, 3 minutes by foot).*

Space. Great for children. Good quality facilities (toilets clean etc). Good pizzas. Good walks for children on small bikes along with being able to walk pushchairs with ease *(Female pass holder, 25-34, visits once a month, 25 minutes by car).*

Something to do that is outside with family. It is a safe fun whizz around for the kids. The butterflies, followed by the train, followed by the maze, followed by the cafe, followed by....
(Female pass holder, 35-44, visits once a month, 30 minutes by car).

Blenheim is also valued as a place where older generations and those with mobility issues can easily visit, and a great place to bring grandchildren.

"We come here just for the railway. We go on it 4 times then we go back home!" (Lady with her grandson, 60+, visits more than once a week, 30 minutes by foot).

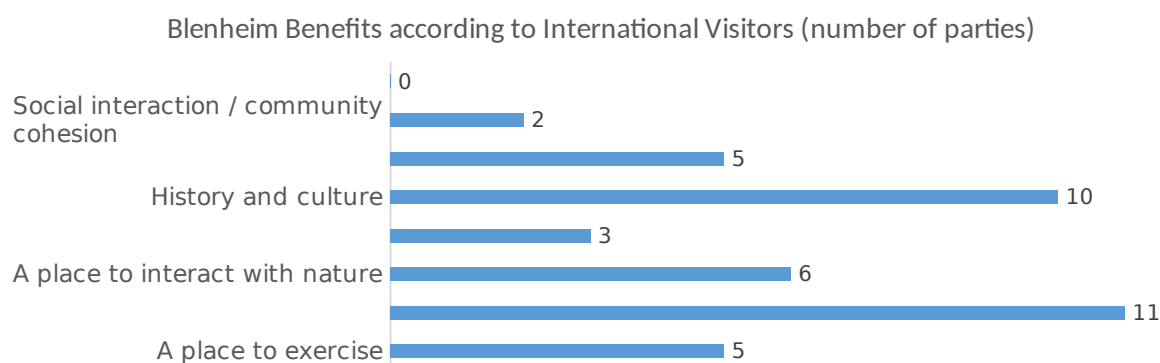
Wonderful place to take grandchildren (Female, 60+, pass holder, visits for a few hours once a month, a 15 minute drive away)

"Great facilities for people with disabilities – we can all come here together. My father is 90 and has dementia but he can walk here. My father-in-law has mobility issues so he can use the scooter and we can all go round together, because the roads are paved and easy to use. (Mixed group, 60+, visit more than once a week, 15 minutes by car).

A safe area to play with grandchildren who have a very small garden. (Female pass holder, 60+, visits once a month, 5 minutes by foot).

4.2 International visitors

Of the surveyed respondents, 15 parties were international coming on their first visit. Most came from North America (8 parties), followed by Australia (4), Europe (2), and Africa (1). The largest age group was 60+, followed by 45-59 years, with a nearly equal gender balance. None of the parties were visiting with children. The most-visited areas by international visitors were the palace/gardens/café, followed by the formal gardens, and the lake and bridge. The least-visited areas were the northern fields and the pleasure gardens. The dominant benefits emphasized were beautiful views and learning about history and culture during their trip. Overall, the leading motivation for visiting Blenheim was its status as a "must-see site."



5 Cycle paths

Currently, adults are not allowed to cycle in the Park although signs are not prominently displayed and we did meet some cyclists who were unaware that they were not allowed to be there. Children are allowed to cycle on the roads in the Park, and several survey respondents really appreciate this opportunity for their children to cycle on safe, quiet roads.

We love to bring children's bikes and scooters and having a walk. (Female pass holder, 35-44, visits once every two weeks).

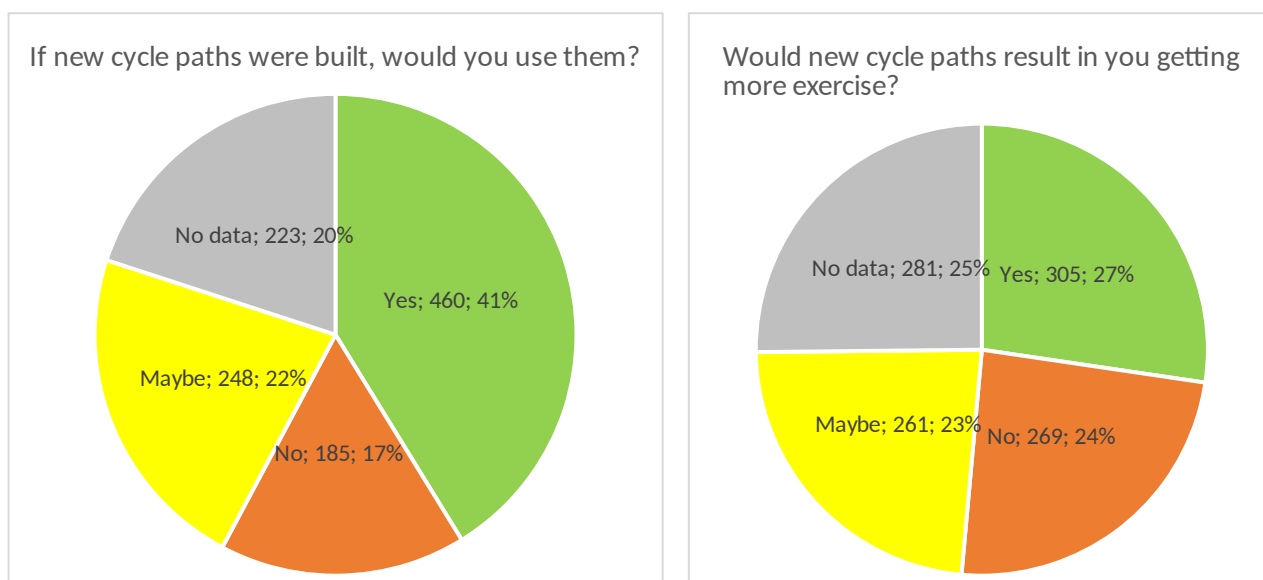
In addition several survey respondents already walk through the park as part of their regular shopping or commuting trips.

We walk through the park from Bladon to Woodstock to go shopping. (Mixed group, 60+, visits more than once a week, 5 minutes by foot).

Survey respondents who were residents of Oxfordshire were asked to give their opinion on the potential for a new network of cycle paths across the Park, connecting the surrounding towns and villages, helping residents to make journeys by bike or foot rather than driving. 41% of the respondents were positive about this initiative, saying that they would be happy to use these paths if they existed. Respondents living in Bladon and Woodstock were particularly keen about the increased connectivity it would offer, and the ability to avoid the congestion of the main road. 27% felt that the new cycle paths would result in them getting more exercise than previously. Respondents with families expressed a keen interest in the ability to cycle together with their children. However 17% of respondents were opposed to new cycle and footpaths, stating that cycle paths in particular would be dangerous and would disturb the peace within the estate. One had already been knocked down by a child on a cycle within the estate, resulting in high medical expenses.

Would think of moving closer if there were more connected paths! Would like cycle paths for kids. (Mixed group, 45-59, visits once every two weeks).

Figure 13. Responses to potential new cycle paths across the estate



Many of the respondents who responded positively stressed the importance of the separation and clear demarcation of the footpaths, cycle paths, and the regular road for vehicular traffic, to avoid accidents especially for children and elderly visitors. Some respondents were also concerned about the “look” of the paths, and noted that it would be good if the paths looked “rustic” (A38), and did not have “too much signage” (A7, A8).

It was suggested that parking for disabled visitors at the starting points of the cycling/footpaths, especially at the Bladon gate, would enable disabled visitors to park their cars and use the new paths across the estate.

If new cycle paths were opened, one respondent suggested the opening of a bike rental service for visitors to rent a bike and cycle on the new paths, together with a repair shop for mending punctures etc.

6 Potential improvements

We only explicitly asked for ideas for how the value of the Park could be improved in the face to face survey. Nevertheless, respondents to the pass holder survey also included a range of suggestions in their comments.

Overall, many said there was nothing to be improved, and were simply enjoying the natural and open space. Indeed, there were many compliments to the staff on the standard of maintenance.

"It's lovely here – very tidy, there is no litter, hardly any dog poo." (Female, 35-44, visits once every two weeks).

Nothing could be improved – we are very pleased with it. (Mixed group, 60+, visits more than once a week, 15 minutes by car).

Nothing to be improved. "A good job by Blenheim." (Mixed group, 60+, visits once a week, 15 minutes by car).

However, there were some strong comments about a recent change to disallow disabled parking outside the Palace. This seems to be creating problems that may undermine the strength of Blenheim as a very accessible destination for people with mobility issues.

The other major suggestion was for more benches and resting points where one could rest, especially around the lake. Benches with backs were particularly recommended for the elderly, who were not able to walk for long periods. For local dog walkers, many requested more dog waste bins, especially by the cottage, or off-leash places.

A good walk in fantastic surroundings... PLEASE PLEASE a few more rustic benches to rest these bones on my walks especially between the bridge and Palace and bridge and monument. PLEASE. (Female pass holder, 60+, visits once a month, 20 minutes by car).

House that burned down - they must sort it out, its older than the main house; for older people - proper benches with backs, its a big expanse and they get tired, good to sit and watch- especially between side gate and fisheries, just a few more resting points would be good. (Female, 45-59, visits more than once a week, 15 minutes by car).

More seating. Other people often let their dogs off leads which is annoying – maybe there should be more signs. There should be more dog bins, especially by the cottage. (Female, 35-44, visits more than once a week, 15 minutes by car).

Route signage was also recommended to help people see where to go and how long it would take. Some people also asked for signage giving more information about the grounds in general, as well as more information about the trees or the archaeological features, especially for children. However, some argued for having as few signs as possible, as they "ruin" the natural landscape.

Need more signage, for visitors who have no idea. Walking path maps, graded on easy to difficult, with distance and time to walk. (Male, 45-59, visits more than once a week, 2 minutes by foot).

A little more signage towards the woods, just to know you're still on the grounds (Female, 16-24, visits first visit, 120 minutes by bus).

Would be nice to be able to access the old oak copse- you can put a guide in to show people the oaks (*Female, 60+, visits once a month*).

For locals, many were wary of vehicular speeds in the Estate (cars speeding past the limit), as well as traffic inside the Estate from cars and buses. During events, there were complaints of traffic and entry queues. Local residents also worry about the increasing commercialization of Blenheim Estate. They spoke of a balance between adding more information about the Estate, while also not making the grounds too commercialized. Some local viewpoints argue that tourism and revenue are overemphasized at the sake of tranquillity, which "*doesn't lend itself to the park we used to know*" (S16). Many pointed to the beginnings of over-commercialisation, with the increasing number of events and increasing construction in its environs.

Concerned about the amount of housebuilding going on, thinks they might be taking land from within the park for this. Also too much congestion on the roads. (*Male, 60+, visits more than once a week, 5 minutes by foot*).

Other examples of improvements by locals were:

- Make it easier to get a walking pass
- Direct access for pedestrians from Bladon
- More concessions for locals, e.g. "48 hour period when local people can buy advance tickets for events, to compensate for all the disruption".

Bladon bridge - gets muddy and wheelchair cant get over, only when its dry you can get across cattle grid to the other areas. Enclosed area where you can let dogs off the lead
Disabled car park can get full, and the other car park is grassy and gets muddy. (*Female, 45-59, visits more than once a week, 5 minutes by car*).

Would like to be able to get directly from the formal garden into the pleasure garden area. Also, would like more toilets, e.g. at Coombe gate. And fewer tourists! (*Mixed group, 60+, visits once a week, 10 minutes by car*).

One of the more interesting suggestions was a request to open up the network of tunnels under the Palace.

They could open up the subterranean parts – there is a network of tunnels under the palace and escape routes going out to the villages, we would love to see them. (*Male, 45-59, visits more than once a week, 15 minutes by foot*).

Other suggestions mentioned some maintenance issues (e.g. fisheries' cottage, algae in pond, Monument stile). One participant commented that lake has become shallower and almost "dead ecologically," compared to the past when visitors could fish in the lake.

Finally one participant said he does not visit the northern fields because "there's sheep and it looks commercial, other areas look more inviting," suggesting that improving the grassland biodiversity or adding more natural features in this area could bring cultural benefits.

Appendix 1: Questionnaire

Information provided as a handout to participants

Mapping the value of nature at Blenheim

Environmental Change Institute



We are researchers from the Environmental Change Institute at the University of Oxford, and we are mapping the value of nature in Blenheim Park. We are asking visitors to tell us what parts of the Park they visit, how often they visit, how they get here, what they do here, and what they like or don't like about different places in the Park. No names or addresses will be collected, but we ask people to indicate their age range, gender and where they live, so we can see if this makes a difference to what people like about the Park. This is part of a wider study of Blenheim's 'Natural capital'. Natural capital is the elements of nature (soil, water, rock, air, plants and animals) that give people benefits such as food, timber, fresh water, flood protection, carbon storage and pollination of crops. This survey focuses on the cultural value of nature, e.g. for recreation, beauty, education, interaction with nature and 'sense of place'. Our report will complement a previous study by Oxford Brookes University on the social and economic impacts of the Estate on the surrounding communities. We will make recommendations on how the Estate can be improved, to provide greater benefits to visitors and local people. If you would like to know any more details about this study, or if you would like to withdraw the information you provided for any reason after the survey, please contact Alison Smith at alison.smith@eci.ox.ac.uk and quote your participant number which is **A1**.

Questionnaire

Your journey here

1. Are you:
 - a. On a day trip from home
 - b. Staying away from home
 - c. Breaking a journey
2. Where do you live?
 - a. Oxfordshire (whole post code or just first part if any concerns)
 - b. Other UK (whole post code or just first part if any concerns, or county)
 - c. Non UK (Eur, N Am, C/S Am, Australasia, Asia, Africa, RoW)
3. How often do you visit Blenheim Park?
 - a. This is my first visit
 - b. More than once a week
 - c. Once a week
 - d. Once every two weeks
 - e. Once a month
 - f. Once a year
 - g. Once every few years
4. How long do you typically spend here?
 - a. 30 minutes or less
 - b. One hour or less

- c. Several hours
 - d. Whole day
5. How did you get here?
- a. Foot
 - b. Bike
 - c. Car
 - d. Bus
 - e. Coach trip
 - f. Other (specify)
6. How long did it take for you to get here today?

Your experience of nature at Blenheim

7. What areas of the Blenheim Estate do you / did you visit? (tick all that apply)
- a. The palace / shop / café
 - b. The pleasure gardens (maze, playground)
 - c. The gardens next to the palace
 - d. The wider formal gardens
 - e. The lake and bridge
 - f. The monument
 - g. The woodlands
 - h. The parkland by the railway
 - i. The northern fields
8. What do you/ did you do here (tick all that apply)?
- a. Visit the palace / gardens / shop / café / other attractions
 - b. Visit a specific event
 - c. Walking
 - d. Walk the dog
 - e. Running
 - f. Cycling
 - g. Nature watching
 - h. Picnic
 - i. Playing with children
 - j. Meeting friends or family
 - k. Other (specify)
9. Do you have a favourite place or places? What do you specially like about these places? What benefits do you feel you get from visiting these places? (Opportunity to put sticky dots on the map to show their favourite places).
10. Are there any other benefits listed below that you haven't already mentioned, which you also feel you get from the estate?
- a. A place to exercise
 - b. Beautiful views
 - c. A place to interact with nature
 - d. Sense of place / local identity
 - e. History and culture
 - f. Education / informal learning
 - g. Social interaction / community cohesion
 - h. Other

11. Is there anything that could be improved to help you get more benefit out of the estate?
12. **For people doing exercise:** If the park was not here, would you do the same exercise somewhere else?
Y/N/Maybe
13. **For local people:** If new cycle paths and footpaths were built across the estate to link to the surrounding villages and station, would you use them?
Y/N/Maybe
14. **For local people answering yes or maybe to Q13:** Would this result in you doing more exercise than otherwise?
Y/N/Maybe

About you

15. Number of people in party (note separately if they give different answers)
16. Which age bracket do you fall into?
 - a. 60+
 - b. 45-59
 - c. 35-44
 - d. 25-34
 - e. 16-24
 - f. Under 16 [END – participant excluded]
 - g. No response [END – participant excluded]
17. Age of any children in the party? (number in each group)
 - a. 0-5 years
 - b. 6-11 years
 - c. 11-15 years
 - d. No children in the party
18. Which gender do you identify as?
 - a. Male
 - b. Female
 - c. Non-binary
 - d. No response
19. One last question about your main motivation for visiting the park today – does it fall into one or more of these categories?
 - a. It is a 'must-see' site
 - b. To relax or escape in a pleasant atmosphere
 - c. To learn about Blenheim
 - d. To experience or learn something different from normal
 - e. I have a personal interest in Blenheim
 - f. To visit the café or shop
 - g. Other (specify)

Appendix 2. Methodology for monetary valuation of recreation benefits and health benefits from exercise

Recreation benefits

Recreation benefits were valued based on the methodology of the ORVal (Outdoor recreation valuation) tool, developed by the University of Exeter in partnership with Defra. The ORVal tool estimates the recreational value of green spaces based on:

1. The value of the time taken to travel to a recreational site
2. The cost of travel to the site (i.e. fuel costs for car travel, or public transport costs)

The ORVal tool uses a very detailed methodology (see Box 1 below) that takes account of the variation in fuel consumption and the speed of travel (i.e. type of roads) on specific routes taken to travel to individual green spaces. For this project, we adopt a simpler method based on the cost of travel time in the 2019 Department for Transport TAG (Transport Appraisal Guidance) Data Book², using Table A1.3.2 in this reference to look up the forecast value of time per person in 2019. For a non-working journey that is not commuting (i.e. 'Other') in the tables, the perceived cost of travel time in 2019 (when the survey was conducted) is given as £5.03 per hour in 2010 prices, which is £5.98 in 2020 prices (using the GDP deflator from the TAG Data Book).

We then add the estimated fuel cost of journeys by car, using the fuel cost formula in the TAG Data Book that relates fuel consumption to travel speed:

$$\text{Fuel cost (p/km)} = a/v + b + c.v + d.v^2 \quad \text{where } a = 46.66, b = 8.19, c = -0.087, d = 0.00062$$

We made the following assumptions concerning typical travel speeds for local, regional (county) or long distance journeys, and calculated the typical fuel cost in p/minute. This was then used to calculate the total fuel cost for each journey by multiplying the p/minute by the travel time recorded in the survey. Where travel times were missing, we used post codes and Bing maps to estimate travel time.

	Local	Regional	Long distance / International
Average speed (mph)	15	30	50
Average speed (km/h)	24	48	80
Fuel cost p/km	8.41	6.43	5.80
km/min	0.40	0.80	1.33
Fuel cost p/minute	3.36	5.14	7.73

The recreational benefits for each respondent were then estimated as the sum of the travel time cost and the fuel cost for the journey to Blenheim and back, multiplied by the number of trips per year.

$$\text{Recreation benefit for each respondent} = (\text{travel time cost} + \text{fuel cost}) \times \text{trips/year}$$

This gave a total estimate of £179,193 in benefits for the people responding to the surveys, with an average travel cost per trip of £4.64. This is higher than the ORVal average cost per visit of £2.97 for visits to the Park, probably because ORVal has not picked up the attraction of Blenheim to people travelling from further afield.

² Department for Transport (2019) TAG Data Book May 2019 V1.12 <https://www.gov.uk/government/publications/tag-data-book>

The average cost per trip from our sample of 1106 survey respondents could be scaled up to estimate costs for the 920,491 recorded visitors in 2018-19. A simple multiplication (£4.64 x 920,491) gives an estimated value of £4.3 million per year for visits to the Park, a little lower than the OrVal estimate of £4.7 million which is based on higher visitor numbers and lower costs per trip. We need to check how representative our sample was, as travel times and modes vary between different types of visitors. This could be done in future work.

Our estimate may be conservative, because:

- i) The 920,491 recorded visits exclude local people entering the park for exercise along the public footpaths.
- ii) The BDRC survey of visitors in 2018 found an average expenditure of £18 on travel to the Palace, more than three times our estimate of £4.64. It is likely that the BDRC survey recorded more long distance visitors. However, many of these visitors may have been mainly attracted by the Palace rather than the natural features in the Park.

	Pass holder survey	Face to face survey	Total
Number of valid responses	720	386	1106
Average visits/year	30	43	35
Total visits/year	21937	16655	38592
Average travel time (mins / trip one way)	32	41	35
Total travel time (hours/year)	14594	6940	21534
Cost of travel time (£/year)	£87,291	£41,509	£128,800
Fuel cost (£/year)	£36,312	£14,081	£50,393
Total travel cost (£/year)	£123,603	£55,590	£179,193
Average cost/trip	£5.63	£3.34	£4.64

Scaling up for total number of recorded visits to the Park

Number of visits	920,491
Estimated welfare value per visits	£4.64
Estimated total welfare value	£4,274,090

Estimates using the OrVal tool

	Estate	Park
Total trips	1,985,468	1,586,198
Total cost	£5,518,210	£4,715,320

Cost/trip	£2.78	£2.97
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Box 1: More detailed travel costs method used in the ORVal tool (for comparison)

The ORVal team used formulae provided by the Department for Transport to calculate fuel consumption for an average family car on specific routes between places of residence and specific sites, depending on the type of roads being used for each trip, and converted this to a fuel cost using an average of diesel and unleaded prices from AA fuel price reports. They added this to the value of travel time using values in a 2015 Department for Transport report of:

- £2.30 per hour for trips under 8km
- £3.47 per hour for trips between 8km and 32km
- £6.14 per hour for trips between 32km and 160km
- £9.25 per hour for trips greater than 160km (see Table 7.18 of DfT report)

For walking, they used the DfT value of travel time of 7.6 p per min or £4.58 per hour. However to reflect the higher opportunity cost for longer walking trips they assumed an escalating value of time, similar to that identified for driving time costs:

$$\text{time cost} = (\exp(\text{hrs travel time}) - 1) * £4.58$$

That results in a marginal cost of £4.58 for an hour long trip (e.g. half an hour there and back) and increasing exponentially thereafter. This was capped at a value of £675, an amount which approximates five hours walking time.

Calculating avoided healthcare costs

The health and wellbeing benefits in terms of avoided healthcare costs can be estimated using the methodology of White et al (2016)³.

This methodology attempts to describe the value of health and wellbeing in terms of value saved to society. The paper by White et al. (2016) assesses the physical health benefit value of all natural environments in England, and uses a variety of assumptions extrapolated from national survey data. The methodology requires 1) an estimate of number of visitors who undertake at least weekly, repeated, active periods for more than 30 minutes, and 2) a factor called a QALY (Quality Adjusted Life Year)⁴, which is assigned to each active individual and scaled to the amount of exercise undertaken each week. Then the summed QALY value is scaled by 3) an associated monetary value of social benefit, created through estimated savings in health care costs. Thus, understanding how many people use a single park to meet activity guidelines can translate into a monetary value of its health benefits.

One visitor who meets minimum 'active visit' guidelines (one 30-minute session every week) is assigned a QALY score of 0.01077. This is scaled up by the frequency of visits (e.g., two 30-minute sessions every week has a QALY value of 0.021354).⁵ The aggregate of all QALY scores for the visitors to a single park is converted to its social monetary value. White et al. (2016) used a monetary conversion value of £20,000,

³ White, M.P. et al (2016) Recreational physical activity in natural environments and implications for health: A population based cross-sectional study in England. [Preventive Medicine 91 \(2016\) 383–388](#)

⁴ "QALYs are a metric used to compare the health benefits associated with different health-related interventions, where one QALY is equivalent to one year lived in full health. In the current analysis, we used QALY estimates... which aimed to estimate the potential health benefits of 'environmental interventions to promote physical activity'." (White et al. 2016)

⁵ Beale et al. (2007)

although recently the value has been proposed to be £60,000.⁶ In other words, “*enhancing health by a single QALY is saving up to £20,000 in health care costs*” (White et al. 2016).

The following equation demonstrates the components and assumptions behind the calculation:

$$\text{Annual Health Savings Value} \in \text{£} s = \sum_{i=1}^{n=5} N_i \times [QALY(f_i)] \times V$$

N = # of individuals meeting activity guidelines (*≥30 minutes of moderate to vigorous activity 52 weeks a year*)

QALY = Baseline Quality Adjusted Life Years Factor (0.010677 QALYs per individual)

f = Frequency of visits per week

V = Social value of one QALY (£20,000 or £60,000)

APPLICATION TO BLENHEIM PARK

This methodology is interested only in individuals with *≥30 min* a week of moderate-intense physical activity *undertaken 52 weeks a year*, therefore, analysis is limited to *repeat* visitors. We need the following parameters:

- Number of visitors who meet physical activity guidelines at Blenheim
- Number of visitors who meet physical activity guidelines in each visit frequency bracket
- Proportion of those visitors who would not get the same amount of exercise somewhere else if Blenheim was not available
- QALY score assignments to individuals
- Estimate total number of QALYs
- The associated monetary value (e.g. conservative: £20,000; updated: £60,000)

Based on the survey and estimated visitor data, the following assumptions can be made:

- Blenheim Estate classified as ‘open country’ or ‘town park’
- ‘Active visits’ are those lasting *≥30 minutes* with *moderate* or *vigorous* levels of activity⁷
- *Moderate* activity visits include walking, walking with dogs, and visiting attractions
- *Vigorous* activity visits include running and road cycling
- *All* visits to Blenheim Estate are categorically considered ‘active visits’, constituting of *at least* moderate activity (e.g. visiting attractions) lasting *≥30 minutes*

⁶ “Note, however, that the HM Treasury has recently (March 2018) published an update to the Green Book the Government’s key guidance document on appraisal and evaluation), in which the value associated with one QALY has been increased to £60,000 (HM Treasury 2018).” (Holt, A. (2018) Eycott Hill nature reserve natural capital accounts, Report by Natural Capital Solutions for the Cumbria Wildlife Trust)

⁷ These activity classifications stem from Ainsworth et al. (2011). Moderate levels of activity have 3-5.9METs, and vigorous levels of activity have *≥6*METs. METs, or Metabolic Equivalence of Task, is a ratio of the metabolic rate associated with an activity compared to a standard resting rate metabolic rate. Higher ratios means higher levels of oxygen consumption per kg of body weight per minute compared to the resting rate for a given activity. 30 minutes was selected as “a meaningful threshold in terms of meeting the recommended physical activity guidelines” by White et al. (2016).

We filtered out the 223 respondents who visited Blenheim at least once per week. Only 1% of respondents (13 people) were visiting for <30 minutes, all of whom were local residents mostly travelling to Blenheim by foot. In addition, some who were visiting for <30 minutes also came several times a day. Considering this additional active travel time and multiple same-day visits, shorter duration visits were also assumed to meet the 30 minute threshold of overall activity.

Survey results for visit frequency for the face to face survey only offered the options of once a week or more than once a week. For the passholder survey we replaced 'more than once a week' with two more detailed options, 'two or three times a week' or 'four or more times a week'. We have assumed that the actual average number of visits per week would be approximately the mid-point of the range of possible options for each category, as shown in the table below. This introduces uncertainty, and it would be better in future surveys to ask people to estimate the average number of times per week that they visit, rather than using these broad ranges.

Applying the methodology and using the value of £60,000 /QALY, we estimate that physical health services provided by Blenheim Park **for the visitors responding to our survey** save society approximately **£393,000** per annum.

If the actual total number of regular visitors was known, this figure could be scaled up accordingly. However, it is likely that only a small proportion of the 900,000 annual recorded visitors visit the park at least once a week for exercise, and many of the most regular visitors were probably captured by the pass holder survey.

For a more conservative estimate, we can filter out those visitors who replied 'yes' to the questions 'Would you get the same amount of exercise somewhere else if Blenheim Park was not available?' This gives a range of estimates between around **£196,000 and £257,000**, depending on whether we include none, all or half of the visitors who answered 'maybe' or left that question blank. However, the qualitative evidence on the attractions of Blenheim to the people who exercise there (e.g. the wide open spaces, the exceptionally beautiful landscape, the variety of things to do, the sense of culture and history, the all-weather paths suitable for buggies and the less mobile, the lack of traffic noise and pollution) seems to indicate that it might be unlikely that they would receive the same benefits from exercising in an alternative location nearby.

QALY	0.01077	per visit per week
£/QALY	£60,000	

Visits per week	Assumed visits per week	QALYs/person /year	Number of people	QALYs/year	£/year
Four or more	5.5	0.059235	20	1.18	£71,082.00
Two or three times a week	2.5	0.0269	44	1.18	£71,082.00
More than once a week	3	0.03231	91	2.94	£176,412.60
Once a week	1	0.01077	115	1.24	£74,313.00
Total			270	6.55	£392,889.60

	Would you get the same exercise somewhere else?					
	No, maybe or no reply			No, half of 'maybe' and half of 'no reply'		
Visits per week of at least 30 minutes	Number of people	QALYs/year	£/year	Number of people	QALYs/year	£/year

Four or more	15	0.89	£53,311.50	11	0.65	£39,095.10
Two or three times a week	36	0.97	£58,158.00	27.5	0.74	£44,426.25
More than once a week	51	1.65	£98,868.60	40	1.29	£77,544.00
Once a week	72	0.78	£46,526.40	53.5	0.58	£34,571.70
Total	174	4.28	£256,864.50	132	3.26	£195,637.05