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The Role of Suitable Alternative Natural Greenspace Strategy in Protecting High-Value Wildlife Sites

by

Elizabeth Allinson

Thesis for the degree of Doctor of Philosophy

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ABSTRACT

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THE ROLE OF SUITABLE ALTERNATIVE NATURAL GREENSPACE IN PROTECTING HIGH-VALUE WILDLIFE SITES

Elizabeth Allinson

The associated visitor disturbance from new housing developments surrounding the Thames Basin Heaths Special Protection Area (SPA) is a potential threat to the breeding success of three Annex 1 ground-nesting bird species: nightjar *Caprimulgus europeus,* woodlark *Lullula arborea* and Dartford warbler *Sylvia undata.* In response to this threat from development, a bespoke planning policy - Suitable Alternative Natural Greenspace Strategy (SANGS) was developed to mitigate against this increase in disturbance within the Thames Basin Heaths Zone of Influence. The strategy established greenspaces to divert people from visiting the SPA. A mix of social science methods was used to evaluate SANGS and the theories that underpin it, using a Leisure Constraints Theory Framework.

A postal survey with self-completed questionnaires provided quantitative data that identified the pattern of greenspace visited by residents living in new developments. Significantly more residents visited SANGs than the SPA, and significantly fewer respondents visited their nearest greenspace, and they also travelled further than expected. The strategy did not appear to be attracting dog walkers away from the SPA, which is a policy failure. A logistic regression model showed that not having prior knowledge of the area's greenspaces, distance from home, good infrastructure and having a companion all significantly influenced greenspace choice.

Focus groups were used to provide a deeper insight into the pattern of greenspace use revealed in the survey. Awareness was identified as an important additional factor that affected the choice of greenspace. Incorporating visiting greenspace into visits to other destinations explained the unexpected longer distances travelled by residents. Policy recommendations emerging from the survey and focus groups are: to raise awareness of and educate residents about SANGs, provide

more greenspace within an optimal walking distance of new developments and provide more substantial areas of greenspace suitable for visits by car.

The semi-structured interviews concluded that the minimum footpath length of 2.3km was impractical on small sites and that a minimum size should be included in the criteria for SANGS. SANGS was thought to provide potential opportunities for linking greenspace provision with wellbeing and biodiversity agendas as well as mitigation for visitor disturbance. Providing play areas in or nearby SANGs would enable families and children to reconnect with nature.

The breeding numbers of all three priority bird species have not decreased since the implementation of SANGS which suggests that it may be providing mitigation for the increased visitor disturbance, although not necessarily in a way that was predicted by the underlying assumptions.

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DECLARATION OF AUTHORSHIP

I, ... [please print name]

declare that this thesis and the work presented in it are my own and have been generated by me as the result of my own original research.

[title of thesis] .....

.....

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;
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‘A good decision is made on knowledge and not on numbers’

Plato

Acknowledgements

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Definitions and Abbreviations

SPA……Special Protection Area

SANGS.....Suitable Alternative Natural Greenspace Strategy

SANG……Suitable Alternative Natural Greenspace

SANGs……Suitable Alternative Natural Greenspaces

SSSI…….. Site of Special Scientific Interest

NPPF……. National Planning Policy Framework

SAMMS…. Strategic management and monitoring strategy

CIL…….. Community Infrastructure Levy

ANGSt……..Accessible Natural Greenspace Standard

GI……. Green infrastructure

NHS……National Health Service

TCPA……. Town and Country Planning Association

JSP……. Joint Strategic Partnership

TBH……Thames Basin Heaths

SEERA……. South East England Regional Assembly

EC……European Commission

NHPAU……National Housing and Planning Advice Unit

Chapter 1: Introduction

1.1 Introduction

Visitor disturbance resulting from new housing developments surrounding the Thames Basin Heaths (TBH) Special Protection Area (SPA) is a threat to the breeding success of three Annex 1 bird species: nightjar *Caprimulgus europeus,* woodlark *Lullula arborea* and Dartford warbler *Sylvia undata.* Annex 1 species include 194 species and sub-species that are particularly threatened, and the Member States must designate Special Protection Areas (SPAs) for their survival, including all migratory bird species according to the Birds Directive 2009/147/EC of 30 November 2009 on the conservation of wild birds. The Suitable Alternative Natural Greenspace Strategy (SANGS) has been implemented since 2006 to provide mitigation, by the provision of new greenspaces, against this potential disturbance when residential housing developments of more than ten houses are built in an area between 400m and 5Km from the SPA boundary known as the Zone of Influence (TBH Joint Strategic Partnership (JSP) Board, 2008).

1.2 Development pressure in the TBH SPA

The TBH SPA is a network of 13 heathland Sites of Special Scientific Interest (SSSI) which are protected under the Habitats Directive 92/43/EEC of 21 May 1992 on the conservation of wild fauna and flora. (Figure 1). The area is part of the Natura 2000 network of sites and was designated as a SPA in 2005 because of its nationally important breeding populations of Annex 1 birds: nightjar *Caprimulgus europeus,* woodlark *Lullula arborea and* Dartford warbler *Sylvia undata.* The SPA covers an area of 8275ha within the counties of Hampshire, Berkshire, and Surrey and is under the administration of 11 local authorities.

South East England has been under increasing pressure from urbanisation since the Second World War. This pressure has persisted and escalated; in 2009 there were plans for 654,000 more houses to be built in the South East Region over the following twenty-five years (South East Regional Assembly (SEERA), 2009), with pressure from the National Housing and Planning Advice Unit (NHPAU) and the then Department of Communities and Local Government to increase this to between 874,000 and 1.24 million additional homes (NHPAU, 2009). The regional strategy was replaced by the National Planning Policy Framework (NPPF) and is currently in draft consultation (NPPF, 2018).

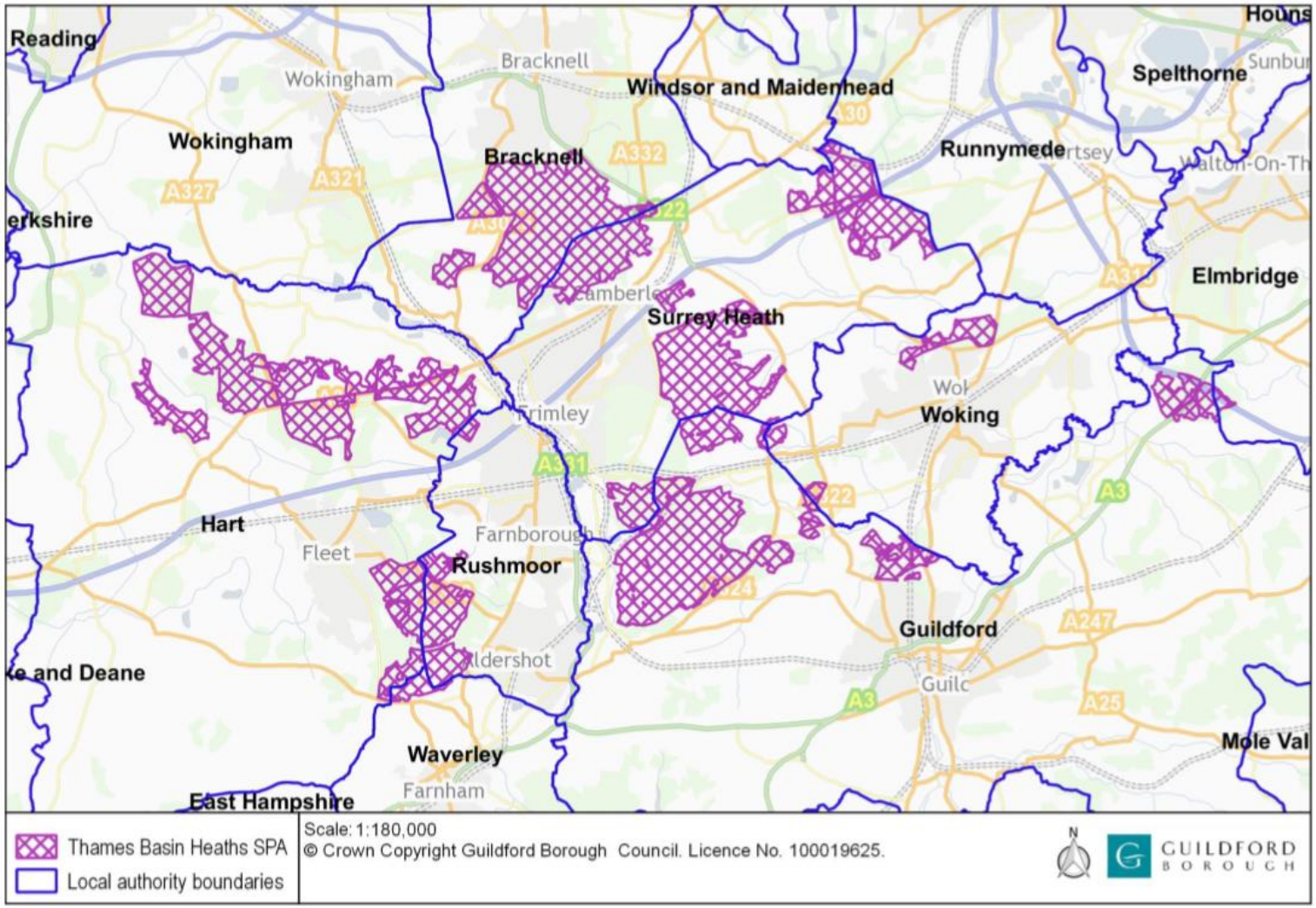

Figure 1 TBH SPA (Guildford Borough Council, 2017)

Growing urbanisation and house building around heathland sites have been linked to increasing numbers of visitors, and there has been a wide range of studies on the various effects of human disturbance on different habitats and species in the UK. The advent of the *Countryside and Rights of Way (CRoW) Act, 2000* enshrined the right to roam on uncultivated habitats such as mountain, moor, heath, down and commons in a United Kingdom Act of Parliament. This prompted Natural England to commission a report from Penny Anderson Associates (2001) which reviewed the literature on all the disturbance research about nature conservation to date. Footprint Ecology later updated a comprehensive review of the impacts of access on habitats and species in the English countryside (Lowen et al.,2008).

This body of work has contributed towards evidence of the impacts of visitor disturbance on the three Annex 1 bird species. A national scale study in Poland showed that domestic free-ranging dogs had a significant detrimental impact on bird numbers (Wierzbowska et al., 2016). Research in the last decade has shown the effect of visitor disturbance on breeding success (Murison, 2002), numbers (Liley and Clarke, 2003) and density and settlement patterns (Liley and Clarke, 2002b) of the European nightjar *Caprimulgus europeus* in heathland sites. If a nightjar was flushed off the nest, an event more likely to occur if dogs are not kept on leads, then eggs were unlikely to incubate, and the birds would have failed to breed, especially in inclement weather (Langston et al., 2007c). Flushing birds off the nest in the daytime leaves eggs and chicks vulnerable to predation by carrion crows *Corvus corone* (Langston et al., 2007a). Clarke et al. (2008a) assessed that nightjar numbers would have been 14% higher if there had been no housing and associated visitor disturbance present at both the Thames Basin Heaths SPA and the Dorset Heaths. Nightjar density was found to decrease in areas of high visitor use, for example, access points, areas near footpaths and site perimeters (Clarke et al., 2006, Underhill-Day and Liley, 2007).

Research on a breeding population of woodlark *Lullula arborea* led Mallord (2005) to predict that removing disturbance from a heathland site would increase the breeding population by 13-48%. Dartford warbler *Sylvia undata*, although not ground-nesting birds, nest near to the ground and are easily disturbed, in particular when building their nests; Murison (2007) found that nests near disturbed areas were often abandoned and first broods were always later than broods on less disturbed parts of the site.

All three of the species are vulnerable to disturbance, and the different species also have different vulnerabilities to different risk factors. Dartford warbler populations are vulnerable to cold, harsh winters because they overwinter in the UK; they are also vulnerable to the effect of uncontrolled fires on heathlands that destroy mature gorse bushes used for shelter, and this can have a catastrophic effect on their numbers. In contrast, woodlark benefit from the burning or removal

of dense vegetation cover as the species requires sparse vegetation, which can rapidly become scarce if a site is not actively cleared or burned in a controlled way. Nightjar is not affected by harsh winters as they are a migratory species and are also not so specific in their breeding habitat requirements as the other two species. The breeding success of the three Annex 1 species is monitored every year and numbers have been described as remaining stable since monitoring began in 2005 (Clark, 2015).

There is a legal requirement, under both the Birds and Habitat Directives, for a competent authority to consider the potential effects of development plans that may affect the integrity of the SPA. The pressure from development in the Thames Basin Heaths SPA area is such that due consideration for every development application would jeopardise the delivery of housing. Residential development within 400m of the SPA boundary, known as the Inner Exclusion Zone is not permitted, this distance was calculated from research on the predation range of cats and, as Loss et al.(2013) found, they have been proven to be prolific killers of birds especially in the breeding season (Woinarski et al., 2017). Any developments between 400m and 5km of the SPA boundary, known as the zone of influence (shown in Fig 2) are required to have avoidance measures. In a visitor survey of 2062 visitors, Liley et al. (2006) found that 70% of visitors travelled less than 5km to the SPA. In 2009, a partnership of key stakeholders, the TBH JSP, agreed to an avoidance and delivery strategy based on Suitable Alternative Natural Greenspace (SANGS) and Strategic Access Management and Monitoring Strategy (SAMMS) for the SPA (Hart District Council, 2010) to deliver no net loss of biodiversity and preferably Net Gain according to the European Union Biodiversity Strategy (2018).

The TBH Delivery Framework proposed a three-pronged solution for mitigating the effects of impacts associated with new developments: SANGS, access management, and on-site management (TBH JSP, 2008). This study is concerned with evaluating SANGS, a seminal high court judgement at Dilly Lane, Hants (2007) (*Hart District Council v. Secretary of State for Communities & Local Government, Luckmore Homes Ltd, Barrett Home Ltd and Natural England*) upheld the principle that avoidance measures such as the provision of SANGs are an effective method of deflecting recreational disturbance away from the Thames Basin Heaths SPA. There are currently over 40 SANGs that have been providing mitigation as alternative greenspaces to visit for the SPA, with more proposed on a rolling program. The provision of SANGs alone is not considered adequate mitigation for development and each local authority is required to make access enhancements to SANGs so they can attract visitors and divert potential visitor disturbance away from the SPA. Occupation of a development can only be permitted when access enhancements have been completed on its SANG. Figure 3 is a map showing the spatial arrangement of SANGs within the TBH Zone of Influence.

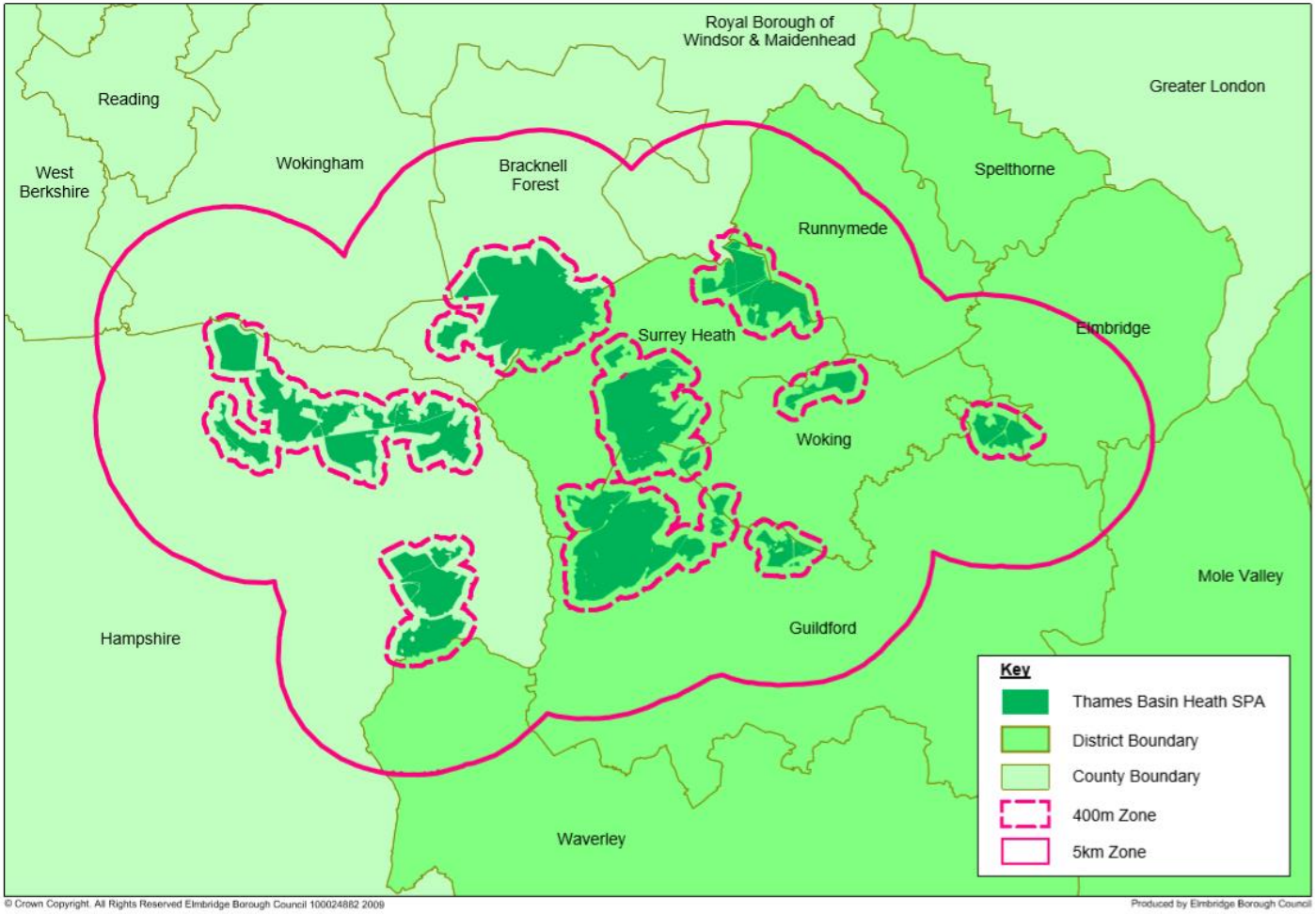

Figure 2 TBH Zone of Influence (Elmbridge Borough Council, 2009)

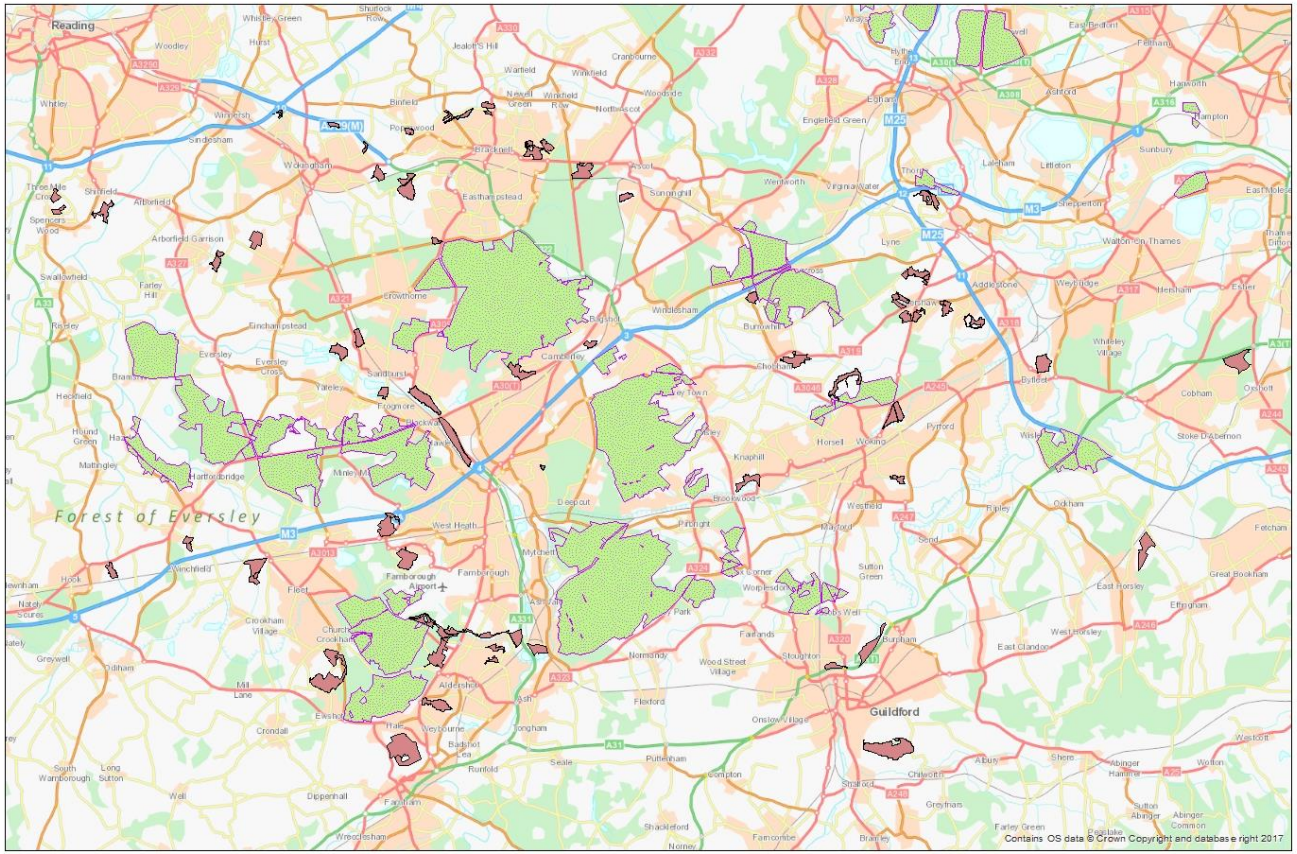

Figure 3 Spatial arrangement of SANGs coloured red around the TBH SPA coloured green (Natural England, 2017)

1.3 The delivery of SANGS in practice

The primary function of a SANG is to mitigate visitor impacts on the SPA, other functions of green space may be provided within SANGs, as long as they do not conflict with this primary function, for example, disabled access. SANGs can be created in different ways, either from existing greenspace of SANG quality with no existing or limited public access or from existing greenspace which is already accessible but needs to have enhancements to reach SANG quality. Land in other types of use can also be converted into a SANG. Access enhancements can include, for example, the installation of a new car park, on-site dog bins and improvements to paths. Sympathetic landscaping, tree planting and pond or lake creation can make the site more attractive to visitors. Neither Common Land nor land of wildlife conservation value should be made into a SANG, and SANGs do not have to be of a heathland habitat type. The approved Natural England methodology for calculating SANG capacity is calculated by dividing the number of visits to the site per annum, by the average number of visits made by users per year (Bracknell Forest Council, 2018).

1.4 Types of SANGs

1.4.1 Strategic SANGs

Strategic SANGs, are greenspace sites that are owned and usually managed by a local authority and to which developments pay the costs of their enhancement to SANG status and long-term management. These are usually provided for smaller developments which cannot provide their land for SANGs and, as they are Strategic SANGs, they must be located with 5km from the development. There are a few SANGs that are managed by a third party, for example, Langley Mead Nature Reserve; a SANG that is owned by the University of Reading and managed by Ecological Planning & Research (EPR) Ltd, an ecological consultancy that also designed the SANG (EPR Ltd, 2015).

Figure 4 is a photograph of a strategic SANG, Chobham Place Woods which is owned by Surrey Heath Borough Council, it is proximal to Chobham Common SPA which is an excellent location that enables it to intercept visitors from the SPA.

Figure 4 A Strategic SANG, Chobham Place Woods ©TBH Partnership

The following map (Fig 5) clearly shows the catchment area for Chobham Park Woods strategic SANG. Any development within the purple catchment area will have been allocated some of the capacity from Chobham Place Woods SANG or Chobham Meadows another strategic SANG. Chobham Place Woods is now at full capacity. However, Chobham Meadows has some remaining capacity within the catchment (Surrey Heath Borough Council,2018).

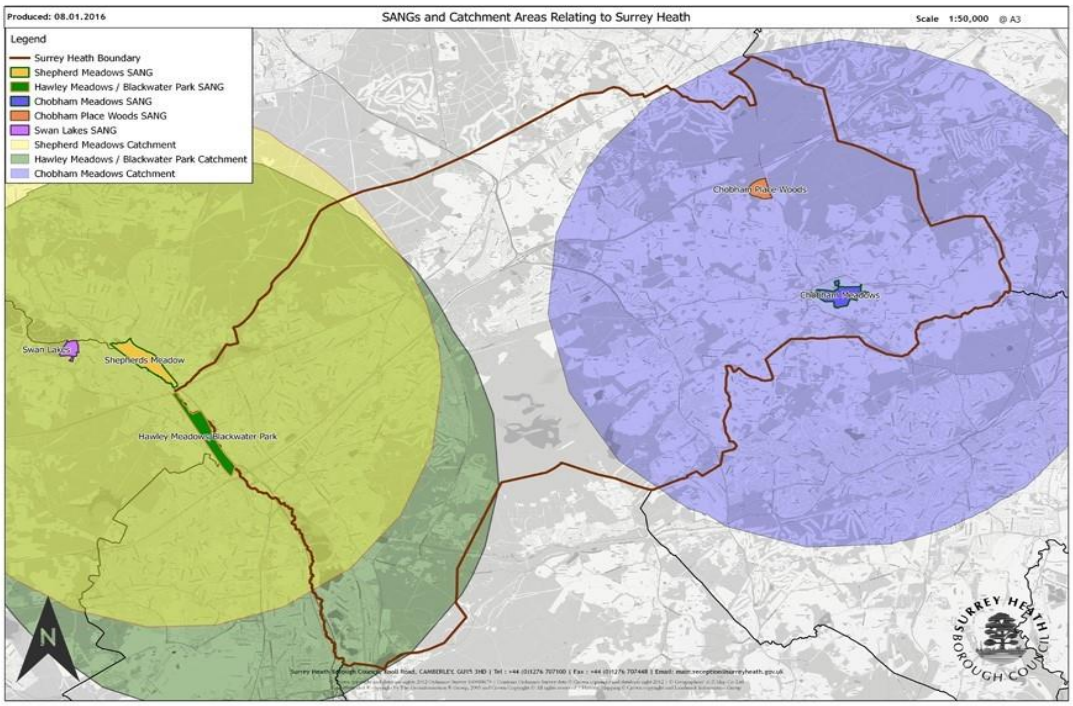

Figure 5 Catchment map showing strategic SANG Chobham Place Woods ©Surrey Heath Borough Council

Until recently, Section 106 (S106) of the *Town and Country Planning Act 1990* ensured that planning obligations were secured from developments. Following the *Planning Act 2008*, the Community Infrastructure Levy (CIL) can fund the costs attributed to the impact of development. In the case that CIL is adopted by a local authority, S106 obligations are scaled back to address site-specific or non-infrastructure issues, as laid down in Regulation 123 tests.

The Community Infrastructure Levy (Amendment) Regulations 2018 and Regulation 123 of the Community Infrastructure Levy Regulations 2010 (as amended) ensures that S106 developer contributions and CIL do not fund the same items. CIL funds the acquisition, enhancement and management of strategic SANGs and S106 agreements are used to secure the developer contribution to SAMMS.

A report by the CIL review team produced by Three dragons/University of Reading (2016) reported that nationally, on average, the CIL rate for residential development is £95 per square metre, with wide-ranging values between local authorities. This national variability is reflected within the Zone of influence. Wokingham Borough Council (2015), Bracknell Forest Council (2015), Elmbridge Borough Council (2017) and Woking Borough Council (2014) have all adopted CIL to collect developer contributions for SANGS. The Royal Borough of Windsor and Maidenhead (2016), Surrey Heath Borough Council (2016), Guildford Borough Council (2015), Waverley Borough Council (2017) and Hart District Council (2016) plan to adopt CIL in the near future. However, both Rushmoor Borough Council (2012) and Runnymede Borough Council (2014) have suspended their consultations and consequently their decisions on adopting CIL at present.

1.4.2 Bespoke SANGs

Bespoke SANGs, are greenspace sites provided mostly for large developments where the developer upgrades the land to SANG status and then usually transfers the land to a third party which may or may not be a Local Authority, along with maintenance sums to guarantee its long-term management. Bespoke SANGs are usually close to the associated development. Fig 6 shows the boardwalk at Edenbrook Country Park Bespoke SANG which maintains access to the SANG all year round.

Figure 6 Edenbrook Country Park SANG ©Natural England

The following aerial photograph (Fig 7), shows the location of the Edenbrook Country Park Bespoke SANG in relation to its associated development, which has the capacity for more housing to be delivered at present. It illustrates the proximity and accessibility to the SANG for residents in the development.

Figure 7 Aerial view of Edenbrook Bespoke SANG ©Natural England

Development of SANG design criteria

SANGS, in effect, has to provide greenspace sites that are a reasonable equivalent to the SPA, to attract visitors. Fig 8 below, is a photograph of the expansive heathland views and walks afforded the SPA, it illustrates that SANGs cannot easily replicate the SPA due to their size.

Figure 8 SPA heathland ©TBH Partnership

The following Fig 9 below, shows the well-drained public footpaths that crisscross the SPA and illustrates the need for SANGs to provide some of the characteristics of the SPA to make them an acceptable alternative to visitors.

Figure 9 Chobham Common SSSI part of the TBH SPA ©TBH Partnership

As previously mentioned earlier in this chapter, the spatial element of the strategy and the Zone of Influence was developed from quantitative visitor research data commissioned by English Nature (Liley et al.,2006) and an analysis of accessible natural greenspace provision (McKernan, 2007). Criteria relating to the design and quality of SANGs were developed by stated preference work and on-site questionnaires, both in and outside the SPA (Liley et al.,2005).

1.5 The development of SANG design criteria

Liley et al. (2005) interviewed 532 visitors using on-site questionnaires at ten SPA sites and ten sites outside the SPA. Visitors scored features that were important to them when they visited. The most important features were on-site safety and ability to let the dog off the lead, then a quick journey from home, next was parking and convenient access from home, followed by waterbodies, viewpoints and finally way-marked routes. The median length of walk by a visitor was 2.4km.

Visitors were then showed hypothetical 'ideal' sites and asked to select which type of site they would visit. Overall, semi-natural sites were chosen with the following features: gravelled and fairly narrow paths, wooded habitats, undulating topography and a water body such as a lake.

Visitors on the SPA sites chose similar features in the same order of priority as visitors to the non-SPA sites, and they were: good access for cars, car parking, dogs allowed off -lead, soft sandy paths with a variety of routes and undulating topography preferably with a lake. The only difference in design choice between the SPA and non - SPA visitors was the choice of sites that were similar to urban parks which were an indication that it was important not to design a SANG as an urban park or urban greenspace. This information was used by Natural England to develop detailed guidance and checklist for the design of SANGs which can be found in Appendix 1. The checklist for an individual SANG is outlined below (Guildford Borough Council, 2017):

1.5.1 Site Quality Checklist – for an individual SANG

The wording in the list below is precise and has the following meaning:

- Requirements referred to as "must" or "should haves" are essential
- The SANGs should have at least one of the "desirable" features.

1.5.2 Must/ Should haves

- For all sites larger than 4ha there must be adequate parking for visitors unless the site is intended for local use, i.e. within an easy walking distance (400m) of the developments linked

to it. The amount of car parking space should be determined by the anticipated use of the site and reflect the visitor catchment of both the SANGs and the SPA.

- It should be possible to complete a circular walk of 2.3-2.5km around the SANGs.
- Car parks must be easily and safely accessible by car and should be clearly signposted.
- The accessibility of the site must include access points appropriate for the particular visitor use for which the SANGs is intended to cater.
- The SANGs must have a safe route of access on foot from the nearest car park and/or footpath/s.
- All SANGs with car parks must have a circular walk which starts and finishes at the car park.
- SANGs must be designed so that they are perceived to be safe by users; they must not have tree and scrub covering parts of the walking routes.
- Paths must be easily used and well maintained, but most should remain unsurfaced to avoid the site becoming too urban in feel.
- SANGs must be perceived as semi-natural spaces with little intrusion of artificial structures, except near car parks. Visually-sensitive way-markers and some benches are acceptable.
- All SANGs larger than 12 ha must aim to provide a variety of habitats for users to experience.
- Access within the SANGs must be largely unrestricted with plenty of space provided where it is possible for dogs to exercise freely and safely off the lead.
- SANGs must be free from unpleasant intrusions (e.g. sewage treatment works-smells etc.).
- SANGs should be clearly sign-posted or advertised in some way.
- SANGs should have leaflets and/or websites advertising their location to potential users. It would be desirable for leaflets to be distributed to new homes in the area and be made available at entrance points and car parks.

1.5.3 Desirable

- It would be desirable for an owner to be able to take dogs from the car park to the SANGs safely off the lead.
- Where possible, it is desirable to choose sites with a gently undulating topography for SANGs
- It is desirable for access points to have signage outlining the layout of the SANGs and the routes available to visitors.
- It is desirable that SANGs provide a naturalistic space with areas of open (non-wooded) countryside and areas of dense and scattered trees and shrubs. The provision of open water on part, but not the majority of sites is desirable.
- Where possible it is desirable to have a focal point such as a viewpoint, monument etc within the SANGs.

Developers must provide designs for SANGs of adequate capacity to meet the must have/should have criteria along with a desirable feature, when applying for planning consent for residential development in the TBH Zone of Influence.

1.6 Integrated Policy-making

SANG strategy is the result of integrated policy-making, and spatial frameworks have been found to support good policy-integration (Stead and Meijers, 2009), SANGS being a prime example of this. Policy integration is more likely to be successful if there is an over-arching body and, in the case of SANGS, this role was assumed by the JSP, with the Habitats Directive 92/43/EEC of 21 May 1992 as the legal driver underpinning the strategy.

This is illustrated by Fig 10 which on the y-axis, shows the factors conducive to the co-operation and coordinated integration of policy-making to produce a new joint policy which, in the case of this study, was SANGS. The policy was compatible with all the local authorities because they were all subject to the Habitats Directive 92/43/EEC of 21 May 1992, and Natural England is the statutory body responsible for nature conservation in all areas of the Zone of Influence. Therefore, the policy had to be accessible and applicable to all local authorities. SANGS needed to be comprehensive so that the multiple aspects of visitor disturbance issues were addressed within one policy. Acting as a collective resulted in the loss of autonomy for the individual authorities but enabled the formal collection of resources for the enhancement, management and monitoring costs that are used collectively across the Zone. The local authorities were highly interdependent, and this was the driver to find a joint solution. They also needed to interact at a high level to form the JSP to govern and monitor the new integrated policy.

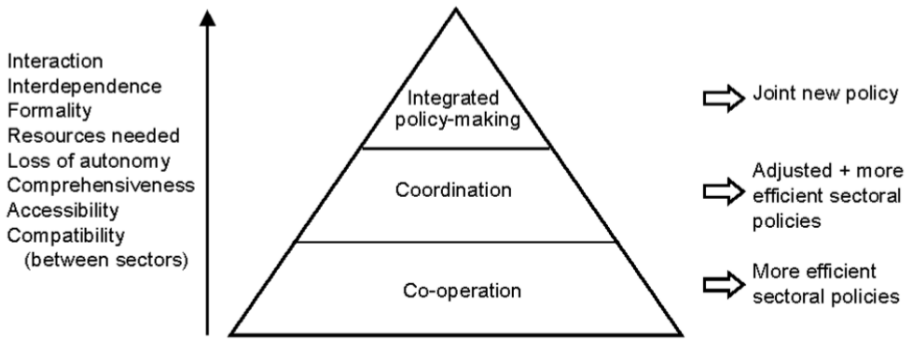

Figure 10 Integrated policy-making, policy coordination and cooperation from Stead and Meijers (2009)

Evidence on integrating research into policy is sparse (Geerlings and Stead, 2003) and often difficult to evaluate. One of the features of SANGS that had attracted criticism is that it was implemented on a large scale before evidence had shown if it was effective or not. Many policy impacts, such as the change in numbers of Annex 1 breeding birds, are on a different time-scale to outputs, especially if the outcomes involve behaviour change such as visitor habits in the case of SANGS. However, it is essential to measure the outcomes of a policy to see if the target is well served by the policy, and this is usually best achieved by a mixed methods approach (Boaz, 2008).

The Treasury Policy Cycle (2003) is a multi-stage mechanism that allows for new evidence to feedback into public policy after monitoring and evaluation so that the policy can be honed or adjusted to be more effective if necessary; it can also identify problems which can, in turn, initiate a new cycle of policymaking. The results of this study will contribute towards the evaluation of SANGS outputs when it is fed into the Policy Cycle. The Policy Cycle is discussed in Chapter 6.

1.7 Knowledge gap and statement of original contribution to knowledge

Before this study, much of the research regarding the SPA has been quantitative ecological work with visitor survey moving it into the epistemology of social science (Liley et al.,2005); this has been a one-dimensional way of trying to answer a complex multidisciplinary problem. Kothencz (2017) concluded that quantitative data and qualitative evaluation reveal different perspectives of a problem and that only considering one method cannot give the full picture. There have been several calls for the integration of different epistemologies and the triangulation of qualitative and quantitative methodologies to increase the understanding of such problems (Sanesi et al., 2006, Kumar and Kumar, 2008, Hunter, 2003). It is essential to look at both the environmental science and social science facets of a problem to produce a sustainable solution (Stobbelaar and Pedroli, 2011).

In the last decade, the focus has switched from the previously mentioned ornithological research to investigating visitor patterns on heathlands. The stated preference research mentioned earlier in this chapter revealed the features that visitors stated they wanted to experience or see when they visited the countryside. Survey results found that dog walking was the most prevalent reason for visiting the SPA, accounting for 59% of visitors. Most dog walkers were female, in part-time employment and tended to visit the SPA unaccompanied (Liley et al., 2005; Liley et al., 2006c).

Liley and Slater (2007) had previously identified both social and ornithological research priorities in relation to the *CRoW Act 2000* and the resultant increased access to the countryside.

Sunderland (2007) also stated that future disturbance research should focus on what determines patterns of visitor behaviour, this was also supported by Langston (2007a) who concluded that gaps in knowledge concerned people, not wildlife. Liley, having done the majority of ornithological and visitor research on the SPA stated, 'There is a lack of evidence before and after the creation of new sites and detailed visitor studies, and evidence linking visitors to recreational impacts are needed' (D. Liley, personal communication, 2011).

It is clear that the increase in visitor disturbance associated with an increase in residential development is one of the critical threats to the integrity of the SPA. There are also many other factors that can affect breeding bird numbers such as the trend of declining insect numbers (Hallmann, 2017). Other environmental factors also need to be examined regarding their association with breeding bird populations as was shown in the study on the impact of changes in cropping patterns on farmland birds (Butler et al., 2010).

This thesis makes a unique contribution to knowledge by identifying how the target of the strategy, residents in new housing living in the Zone of Influence, use all of the greenspace available to them. This is the first study to examine how new residents visit both the SPA and SANGs. It also uses qualitative data within a mixed methods methodology to confirm and complement the survey results and thus increases the understanding of the reasons why a SANG is chosen or not. There has been no previous attempt to use qualitative methods to evaluate the effectiveness of SANGS.

1.8 Aims of the Research

The overarching aim of this study is to evaluate the implementation of SANGS policy in the Thames Basin Heaths SPA Zone of Influence, identify factors which influence its effectiveness and make recommendations for best practice. This aim will be achieved by addressing objectives and research questions identified in the following chapter 2.

1.9 Thesis Outline

Chapter 1 reviews the state of existing knowledge of the ecology of the Annex 1 bird species, and it describes the legislation that protects the three species and their habitat. The research that informed the design criteria for SANGs is discussed, followed by a description of the development of SANG strategy and how SANGs work in practice. The original contribution to knowledge and the overarching aim of the research are stated here.

Chapter 2 reviews the literature about factors that influence the choice of greenspace. The theories of distance decay place attachment that underpin SANGS are discussed, and Leisure constraint theory is introduced as the theoretical framework within which SANGS is to be evaluated. The chapter rationalises the ontology, epistemology and methodology that underpins the different chosen methods in this thesis, and positionality and ethics are also discussed. There is a summary table linking methods to research objectives and questions.

Chapter 3 seeks to provide baseline information about residents in new developments to establish the patterns of use and to discover which variables are associated with choosing a SANG. Objective 1 of the overall study aim is delivered using a postal survey in this chapter.

Chapter 4 investigates residents' attitudes and awareness of SANGS and their motivation for visiting different types of greenspace to achieve objective 2, using focus groups. It investigates the intrapersonal and interpersonal constraints negotiated in that choice process and identifies barriers to visiting. It seeks to explain the policy-behaviour gap revealed by the survey.

Chapter 5 canvasses expert stakeholder opinion on the effectiveness of SANGS and their recommendations for improvements to deliver objective 3 of the study aim and uses the method of semi-structured telephone interviews followed by abductive analysis of the qualitative data.

Chapter 6 triangulates the results of both qualitative and quantitative methods to produce explanations for the choice of greenspace within a Leisure Constraint Theoretical Framework. It also relates the findings back to the literature, evaluates the outputs and makes recommendations to be fed back into the policy cycle. The chapter reflects on how the SANGS approach is gaining momentum nationally and is seen as an exemplar of avoidance in global terms. The policy is also discussed in how it relates to green infrastructure policies, the health agenda and the potential to improve children's connection to nature.

Chapter 2: Methodology

2.1 Methodology

This chapter introduces a review of the literature on factors affecting greenspace choice followed by the theoretical framework, through which the policy and its underpinning theories will be tested. It highlights the problems that SANGS attempts to address and states the research objectives and questions. The rationale and approach of the study are justified along with supporting literature. Researcher positionality and ethical considerations are discussed and presented at the end of the chapter.

2.2 Theoretical Framework

In the late eighties, Crawford and Godbey developed a theoretical framework, Leisure Constraints Theory, to understand why people choose to visit leisure settings such as parks and other greenspaces or recreational areas (Crawford and Godbey, 1987). The theory postulates that there are three types of barriers or constraints that an individual must negotiate before choosing to visit a recreational or leisure setting: intrapersonal, interpersonal and structural. Constraints are factors that affect participation in leisure, but there are also antecedent constraints that negatively affect leisure preferences (Jackson, 1990) such as lack of interest or desire to participate in an activity. Experiencing constraints is thought to trigger negotiation and participants who are motivated have a high capacity to negotiate barriers and are more likely to mitigate the constraints (White, 2008).

Intrapersonal constraints are psychological and pertinent to the individual such as nostalgia for a childhood landscape, fear of attack, desire for variety, personal schedule or disinterest. Interpersonal constraints can be the desire to interact with others, prevented by the lack of a companion or a mismatch of interests with partners or family. Finally, structural constraints are external and depend on environmental factors such as proximity, infrastructure, and transportation.

Further work on leisure constraints theory supported a hierarchical arrangement of the three constraints in order of importance: intrapersonal, interpersonal and then structural illustrated by Figure 11 (Crawford et al., 1991, Godbey, 2010). Choosing to visit a site, in general, involves the sequential negotiation of each barrier to come to a decision. Female visitors, for example, may

ameliorate one barrier, for example feeling unsafe, by having a dog to walk with which provides companionship and reduces the fear of attack.

The assumptions on which SANGS policy is based, acknowledge structural constraints such as distance and infrastructure but do not recognise intrapersonal or interpersonal constraints (Hart District Council, 2010). There is an assumption that residents will behave in an entirely rational way. However, in several studies, these other constraints have been shown to be important (Petersen et al., 1984, Jansson, 2010, Godbey, 2010). Consequently, the quantitative and qualitative methods of surveys and focus groups investigated and identified all three constraints: intrapersonal, interpersonal and structural, that participants negotiated when visiting a greenspace. It is sometimes difficult to distinguish which category a constraint should be assigned to; for example; time can be both an intrapersonal constraint and a structural one (García and Ruiz, 2015, Henderson, 1997, Samdahl and Jekubovich, 1997). This difficulty was acknowledged in a meta-analysis of constraints to park visitation in North America (Zanon et al., 2013).

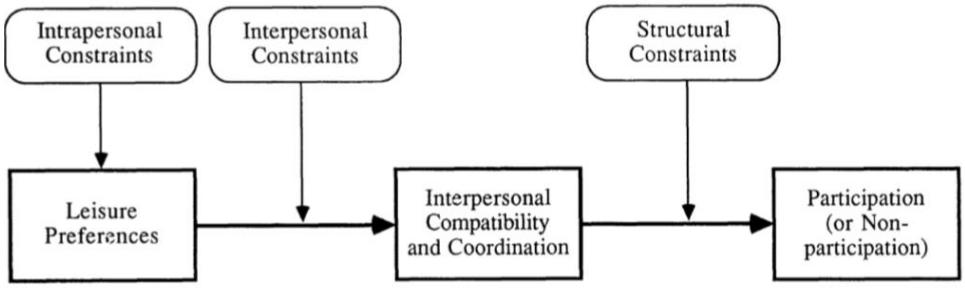

Figure 11 A hierarchical model of leisure constraints (Crawford et al., 1991)

In the process of unravelling the thought processes behind destination choice, Um and Crompton (1990) proposed the concept that there are three stages of decision-making: the awareness set, the evoked set and destination choice as illustrated in Figure 12. They suggested that destination choice is not driven by optimising attribute choice but by satisficing constraint driven behaviour until an acceptable threshold is met. Satisficing is being defined as the decision to pursue a course of action to satisfy the minimum requirements necessary to achieve a particular goal, i.e. just good enough.

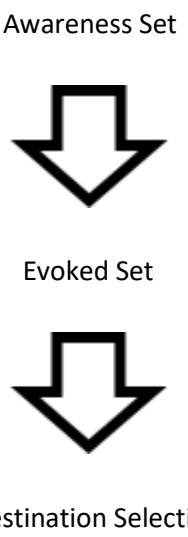

Figure 12 Simplified from a model of the pleasure travel destination choice process (Um and Crompton, 1990)

In the following diagram (Figure 13) the latter concept from Um and Crompton (Figure 12) is incorporated into the former theoretical framework from Crawford and Godbey to include the constraint of awareness and provide a clearer explanation of greenspace choice than the theory put forward by Crawford and Godbey alone.

When an individual decides which greenspace to visit, the choice depends on the greenspaces of which they are aware, the awareness set. The individual will negotiate a hierarchy of constraints firstly intrapersonal, secondly interpersonal and lastly structural to produce choices of greenspace that the individual wants and can visit, the evoked set, from where the ultimate greenspace choice is selected.

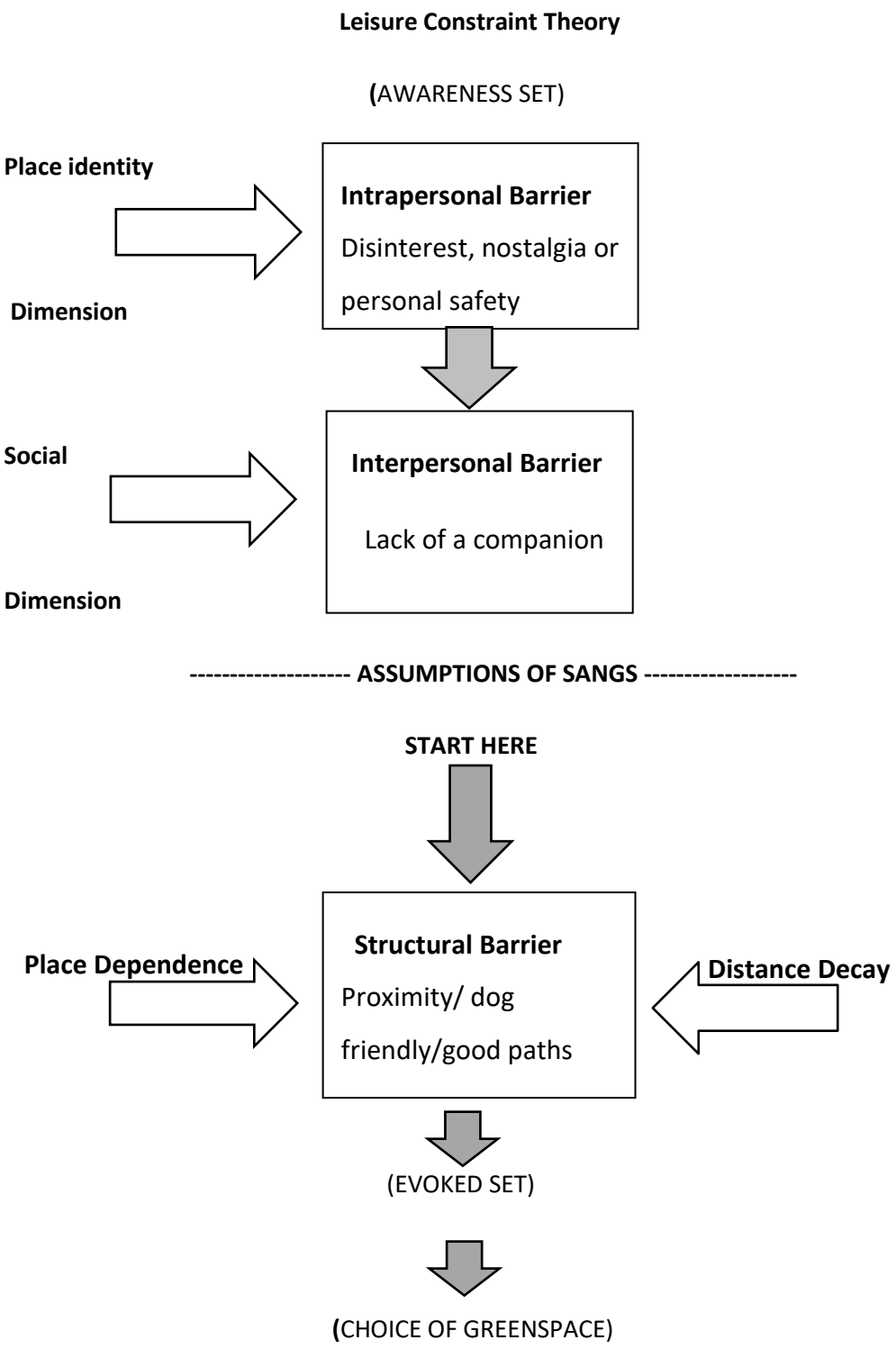

Figure 13 A leisure constraints theory framework for examining greenspace choice including the concept of awareness and evoked sets (Um and Crompton, 1990, Godbey, 2010)

2.3 Factors affecting greenspace choice

The following are important factors discussed in the literature and therefore have been included in the research. Knowledge and awareness about and of greenspace is not a factor that has been investigated in many studies and is under-researched in the literature; both these quantitative and qualitative studies contribute towards addressing this knowledge gap.

2.2.1 Awareness

A substitute site will not be chosen if potential visitors are not aware of it or if it is inaccessible even if it is, to all intents and purposes, a perfect replica (McCool et al., 1984). Clark (1985) introduced the concept of home range and how people' browse' the home range as they seek variety and novelty within a specific territory. This concept is an important one as it looks at decision-making or choice as a dynamic, not a static process. Awareness or knowledge is an intrapersonal constraint, fundamental to the decision to visit a greenspace and, if a greenspace is not part of an individual's awareness set, then it will not be chosen and not become part of the evoked set.

The crucial aspect of the value and effectiveness of any greenspace as an alternative to another is that potential visitors are aware of it and consider it when choosing a greenspace to visit. Bala and Goyal (1998) stated that information gained while considering a choice could affect selection, the most common source of information being family and friends. People often use the combination of their experience with that of their neighbours to make decisions. Awareness of an alternative is the lynchpin regarding whether new residents that have moved into new developments start a habit of visiting a SANG or the SPA.

2.2.2 Distance

Proximity is an important structural constraint that is subject to the law of distance-decay. Distance-decay theory states that the odds of interaction between two places reduce the distance between them increases; it is based on Tobler’s first law of Geography defined in 1970 by Waldo Tobler who stated: "Everything is related to everything else, but near things are more related than distant things" (Waters, 2017). It can be applied to many disciplines including recreational travel where it was still found to be robust many years after it was first postulated (Lee et al., 2012). For example, willingness to pay for access to greenspace has been found to decline when travelling distance increases (Inge et al., 2013). Distance-decay theory underpins the assumption behind SANGS that more residents should visit a SANG as it is nearer to home than the SPA.

During the last decade, there has been an increase in research into the proximity of greenspace available for physical activity in response to concerns about obesogenic environments associated with weight gain and, consequently, the need to plan and develop health-promoting salutogenic environments for the future. There is a plethora of literature on this subject from North America, Australia and increasingly China, in contrast to the relatively low numbers of studies from Europe and the UK. Much of the literature has resulted from the need to understand the link between greenspace and good mental health and not research into mitigation against disturbance, but it is, nevertheless, highly relevant. There is conflicting evidence on the role and importance that distance plays in the choice of greenspace

People are far more likely to use greenspace if it is near home (Degenhardt et al., 2011, Liley, 2007, Underhill-Day and Liley, 2007) and the likelihood that visits will be repeated is more determined by proximity to home than the need to escape (Graefe et al., 2000), number of facilities or availability of substitute sites (Hill and Courtney, 2006).

Living near a greenspace has been shown to increase physical activity by increasing the frequency of visits (Wang et al., 2015, Toftager et al., 2011, Giles-Corti et al., 2005a). Coombes (2010) found that physical activity in public open spaces increased with greater proximity as did King (2015) when he studied residents' responses to the creation of accessible greenspace. Akpinar et al. (2016) found that type and size of greenspace was associated with good mental health, however, not aggregated local greenspace area. Joggers and dog walkers have been shown to be sensitive to distance in discrete choice experiments (De Valck et al., 2017).

Similarly, Degenhardt et al. (2011) found that temporal distance could predict use of nearby outdoor recreation areas in Switzerland. Also, Adinolfi et al. (2014) found that living within a radius of 15 minutes of an urban greenspace in the city of Granada was associated with daily use. Having good quality greenspace close to housing was not associated with initiating recreational walking; however, proximity was associated with maintaining it (Sugiyama et al., 2013). Furthermore, another aspect of accessibility, good connecting routes and quality of vegetation increased visits to greenspaces (Sehatzadeh et al., 2011, Sugiyama et al., 2012, Zhang et al., 2015). A study in London by Sarker (2015) showed that the odds of walking were positively correlated with the number of street trees. Several studies have shown that frequency of dog walking was associated with good proximity to a park (McCormack et al., 2011, Cutt et al., 2008a, Lee et al., 2009). Cutt (2008b) discovered that presence of and ease of access to a nearby public open space strongly influenced whether owners walked their dogs or not.

Minter (2009) conceptualised the portfolio pyramid which stated that local places at the base of the pyramid are the most important for providing the cultural services that increase wellbeing.

Living near a greenspace has been shown to increase physical activity and improve physical health in all ages (de Vries et al., 2003, Mitchell and Popham, 2007, Hartig and Fransson, 2009); this can be both in terms of self-reported health or medically reported morbidity (Maas et al., 2009, van Dillen et al., 2012). In their study of walkable parks in Texas City, Walker and Crompton (2012) identified that the probability of use was higher in proximal households than non-proximal households and that perceiving a park as accessible by foot increased the likelihood of visiting by 9%.

Despite the substantial literature identifying proximity as an important factor when choosing to visit a greenspace, there are, however, studies that contradict this body of evidence. Schipperijn (2013), in a study of 1,305 Danish adults, found no association between the number of urban greenspaces within 1Km or distance to the nearest urban greenspace and outdoor physical activity. One Australian study found no association with the proximity of destination and walking for recreation (McCormack et al., 2008) and another that greenness and size of public open spaces were more important factors for visiting than proximity (Paquet et al., 2013). Koohsari (2013) found that several measures of proximity, such as distance to nearest Public Open Space (POS), quality of route to POS and perceived number and amount of POS available were not associated with walking to or within a POS. Hillsdon et al. (2006) also found no clear relationship between recreational activity and distance from greenspace in a population of middle-aged adults in Norwich. Lachowycz (2013) argued, that simple measures of distance to parks cannot sufficiently capture all the drivers and complexities that come into play when deciding to visit greenspace and that some individuals will have barriers, no matter how near the greenspace.

Although proximity is a factor that increases use of greenspace, distance thresholds vary with type and scale of amenity, use being greater for a larger amenity (Walker and Crompton, 2012). Dynamic factors such a personal time, size and type of amenity provided were found to impact on this choice as is supported by findings from other research modelling destination choice (Shu et al., 2014, Samdahl and Jekubovich, 1997). The literature, along with results from this survey, shows that there is evidence of several sometimes complex factors determining destination choices such as habit (Binder and Boldero, 2012), convenience (Yang, 2010) and priority of personal schedule (Hitchings, 2013). Innocenti et al. (2013) concluded that travel mode choice was subject to thought processes and preferences that resulted in travel behaviour that was contrary to that expected.

The acceptable threshold for walking is consistently reported at around one mile or 1.6 km (McCormack et al., 2011, Shu et al., 2014, Mackett, 2003). Mackett (2003) found that the car was the dominant mode of transport for trips over a mile (1.6km) in Great Britain and that there is

perceived effort in walking to a greenspace (Loukopoulos and Gärling, 2005). Villanueva (2014) found an association with walkability and increase in walking in Australian suburbs for buffers under 1.6km.

Gardener and Abraham (2007) examined what drives UK car use in a qualitative study; results showed an underpinning desire for control regarding journey times, personal space, the cost of travel and self-identity. Their meta-analysis of 23 datasets showed that attitudes towards not-driving displayed larger effects than for pro-driving (Gardner and Abraham, 2008).

There are contradictory findings from previous research which imply that there may be factors affecting distance decay which need to be explored. Firstly, the role of distance and the hypothesis that distance decay underpins SANG theory are tested using the variables created from the survey. If the results from the data do not support SANG theory, the qualitative focus group method should reveal why it is not supported.

2.2.3 Place attachment

The other theory underpinning SANGS is that of place attachment. The concept of place attachment developed in the 1970s and 80s, but it had long been acknowledged by human geographers (Tuan, 1977). Tuan described it as the psychological transformation of undifferentiated space to a place with endowed value. Along with the emergence of the environmental psychology paradigm, theories were developed to capture the complex meaning of place attachment. Place attachment has three dimensions: place dependence, which includes function, place identity encapsulating the emotional connection and, lastly, the social dimension which relates to the interaction with others.

i) Place dependence

Place dependence is a structural constraint and a dimension of place attachment; it is defined as the perceived dependence on the functions provided by a particular place (Stokols and Shumaker, 1981); SANGs provide site attributes that should encourage dog-walkers to visit. The whole of society places demands on greenspace that are varied and often conflicting, for example, bird conservation and dog walking, cycling and walking, the desire for solitude and encountering other park users; this necessitates that greenspace is multifunctional in nature in order for it to be sustainable (van Leeuwen et al., 2010, Gomez-Limon et al., 2012). Scott (2009) studied visitors to a park in Scotland and found that different visitors had completely different experiences of the same environment and highlighted the importance of this information for land use policies. In the

case of Hampshire, Chatters and Bignall (2012) stated that, since 1981, of the 521ha of land made available for new access, 68% has a wildlife designation.

In many studies, dog walking or walking are the most popular activities when visiting a greenspace. Most visitors to the Thames Basin Heaths SPA were both dog walkers and daily visitors (Liley et al., 2005). Dog ownership is often the factor that significantly increases the frequency of use of nearest greenspace as dog walkers can easily walk their dogs there without getting into the car (Schipperijn et al., 2010b, Westgarth et al., 2015). Cutt (2008b) found that presence of and ease of access to a nearby Public Open Space influenced if owners walked their dogs or not. Shehatzadeh (2011) found that dog ownership modified the frequency of recreational walking. Research into acquiring a dog showed a fourfold increase in recreational walking time 12 months after acquisition (Cutt et al., 2008a). Acquiring a dog was associated with the change from single to married status and having children at home. Dog ownership motivates walking, companionship, and can help maintain walking behaviour (Cutt et al., 2008a). However, dog walking on Nature Reserves have been shown to affect biodiversity by reducing bird diversity by 35% and abundance by 41% (Banks and Bryant, 2007).

The majority of visitors to the Thames Basin Heaths SPA were dog walkers (80%) and, of daily visitors, 96% were dog walkers (Liley et al., 2005). Dog ownership also determined daily participation in nature-based outdoor recreation in Finland (Vaara and Matero, 2011). Nearby Outdoor Recreation Areas (NORAs) in Switzerland are most visited by people who have sedentary jobs, live nearest to the area and, most importantly, own a dog (Degenhardt et al., 2011).

Sjogren (2011) investigated participation in outdoor recreation in Sweden and, as predicted, he discovered that owning a dog was the strongest indicator of participation in an outdoor activity. Rossbach and Wilson (1992) used photos in stated preference tests to ask people if they preferred a scene with or without dogs; most people preferred the scene with dogs surprisingly; dogs appeared to make people seem more approachable. The same effect was found in an investigation of pet dogs as catalysts for social interactions and the increased resultant wellbeing (McNicholas and Collis, 2000).

Features that attract dog owners to destinations are other dogs for socialisation, freedom to let dogs run off the lead, varied terrain, especially water bodies, and an open aspect for safety and convenience. Cutt (2008b) discovered that dog related infrastructure in a public open space determined whether owners walked their dogs or not. Dog walkers go where they know they will find other dog walkers for safety and reassurance. Frequently, a dog owner's choice of greenspace is determined by whether they perceive their dog to have enjoyed visiting the site (Edwards and Knight, 2006).

The variables 'Safety', 'dog-friendly', 'accessibility', 'infrastructure' and 'environment', were all derived from the criteria for designating a SANG and represent place dependence in Chapter 3.

ii) Place identity

Place identity is an intrapersonal factor that can be a constraint or a driver to visiting a greenspace. Proshansky et al. (1983) later defined the dimension of place identity as the resultant balance of positive and negative cognitive associations with a setting creating an emotional bond; it is a personal subconscious construction and part of self-identity. Petersen (1984) identified that the reasons underlying choice of setting were likely to be hidden deep in an individual's subconscious.

Shelby and Vaske (1991) looked at the perceived substitutability of salmon fishing streams in New Zealand and had results that supported the importance of place identity regarding a decision to substitute or not. Place identity and rootedness were all found to affect significantly willingness to substitute (Backlund, 2005, Graefe, 2010).

Place identity is also significantly associated with intentional trip behaviour (Smith et al., 2010). Place identity provides the reference against which a setting is judged, and loss or damage of identity can jeopardise the well-being of a person (Hauge, 2007). Intention to return to a site was found to be driven by both emotional and social bonds (Yoon and Kyle, 2009).

There is strong evidence that the concept of the rural idyll is still an aspiration in many countries as well as the UK (Bullock et al., 2011, Berry and Okulicz-Kozaryn, 2009), where life satisfaction is perceived to be higher than in urban environments. In a Dutch study, van Dam (2002) identified a preference for rural living amongst an urban population. Evidence of this phenomenon is reflected in house prices near greenspace (Yoon and Kyle, 2009, Jim and Chen, 2010, Conway et al., 2010). Blaauboer (2011) studied current residential environment compared to that of childhood residence in the Netherlands and found them to be strongly correlated.

Several studies have shown that place identity is positively associated with well-being and is an important factor in choosing a greenspace (Lokhorst et al., 2014, Cervinka et al., 2012, Atkinson, 2012). Madureira (2015) found that there was accord between four European cities regarding the contribution of greenspace to wellbeing and providing contact with nature. Coles et al. (2013) identified the formation of perception loops when people visited everyday landscapes. Re-affirming self-identity is an evolutionary psychological human requirement which is fulfilled by the creation of these perception loops and the consequent improvement in wellbeing. Pretty (2007) showed that green exercise compared to exercise in non-green environments led to increases in self-esteem and mood improvement in active, healthy participants. There is evidence of a

complex causal relationship with greenspace and mental health and a lack of knowledge of the way in which they have been linked (Su et al., 2016) The association of biodiversity with mental health is not so clear (Dean et al., 2011, Dallimer et al., 2012), one of the reasons being the poor Identification skills of the public, as found by Madureira (2015). In contrast, Carrus (2015) found a positive association between biodiversity in greenspace and self-reported wellbeing.

Spiritualism and introspection experienced in provincial parks in Ontario were found to increase the satisfaction of the visit and were positively related to the overall importance bestowed on parks facilities (Heintzman, 2012). Lee (2017) found that a preference for solitude in a green environment resulted in a desire for solitude; however, affinity for solitude did not predict a preference for solitude in a green environment. This suggests that solitary exposure to natural environments produced a benefit and predilection for future solitary and contemplative encounters.

Good mental health is also associated with nature; exercising outdoors in a natural environment as opposed to indoors showed shorter recovery times from work-related stress and connectedness to nature shows a strong correlation with good psychological health (Korpela and Kinnunen, 2011, Cervinka et al., 2012). Shu (2016) and Gidlow et al. (2016) both identified associations with greenspace and good mental health but acknowledged that the relationship was complex and not well understood.

The theory of planned behaviour (Ajzen, 1991) states that behavioural intention is a result of attitude, subjective norm and perceived behavioural control. Later research on attitudes found that self-identity emerged as an additional predictor of behavioural intention (Eagly and Chaiken, 1993) and that its importance had been underestimated (Terry et al., 1999, Armitage and Conner, 2001, Perugini and Bagozzi, 2001). The affirmation of self-identity through place identity is an important factor in the decision to visit a greenspace. There have been attempts to measure place attachment with mixed results (Williams et al., 1992, Williams and Roggenbuck, 1989).

Place identity underlies irrational choices and behaviour; families in Sweden initially chose play areas with particular play equipment, but the frequency of visit to a play area was determined by the presence of natural areas adjacent to the area. As the novelty of the equipment wore off families became attached to those areas with more natural settings and preferred to visit them (Jansson, 2010). It explains why people prefer landscapes similar to the ones they grew up in and the need for a range of places to satisfy different needs at different times of life (Tseng and Ditton, 2007, Swanwick, 2009, Kim et al., 2005).

The term solastalgia, coined by the philosopher Glenn Albrecht to name the distress to the psyche caused by environmental change, paradoxically, can be the source of the determination with which people defend the rights they associate with places (Sturzaker, 2010, Hopkins, 2011). It is associated with strong place identity and when threatened, can result in Nimbyism (abbreviation for 'not in my backyard', a reaction to a threat to one's home environment) (Devine-Wright, 2011). Place attachment moderated resistance to fee-charging on public land and agreement to use the fee for land management costs (Kyle et al., 2003). Adevi (2012) concluded that people preferred landscapes they grew up in, and the attributes that they chose were ones that were important in the context of human evolution. SANGS assumed that existing SPA visitors would be too attached to the SPA to start visiting SANGs, so the policy was targeted at visitors who had moved into new developments. Visitors are more likely to become attached to the SPA because of the greater size of the sites (Giles-Corti et al., 2005b) and the fact that they are much more natural. Evidence shows that place attachment is particularly strong for wilderness sites (Williams et al., 1992). Many studies have demonstrated that the aesthetic quality of greenspace is an important factor determining whether a greenspace is visited or not (Zhang et al., 2013, Sarkar et al., 2015). Lachowycz (2013) argued that attractiveness is an important factor in destination choice. In a study of 80 Dutch neighbourhoods, the quality of greenspace was found to have a predictive value for health indicators (van Dillen et al., 2012). If there is no greenspace perceived to be within walking distance, visitors will drive and consequently have an increased likelihood of choosing the SPA because of the attraction of their large size, and naturalness.

Despite many research studies on the theory of place attachment, most work has been directed towards the person-place element of the construct, and there is a dearth of studies into the process of attachment which is still not well understood (Lewicka, 2011).

iii) Social dimension

The social dimension within a leisure constraints framework is an interpersonal constraint or driver. Low and Altman (1992) postulated that social bonds were an equal dimension contributing towards place attachment as well as the functional dimension. This was also supported by Milligan (1998) who concluded that people valued settings in the context of past and potential social interactions. An ethnographic study by Dinnie (2013) found social wellbeing benefits from greenspace; however, Allen and Donnelly (1985) concluded it was not a primary factor affecting the evaluation of a setting. Interaction with other people can be seen in both a positive light (Graham and Glover, 2014, Home et al., 2012) and also contrastingly, in a negative one (Arnberger and Eder, 2015, Homans and Marshall, 2008, Snipes, 2009); it can be either a constraint or a driver for visiting greenspace. In the case of the elderly, social connections are the most highly

valued factor when visiting a greenspace (Esther et al., 2017). Age is one of the demographic factors that have a positive association with the use of greenspace and a factor influencing greenspace choice (Payne et al., 2002, Waters, 2017). Older people often gain and value the social benefits from greenspace as a study in a Hong Kong Park by Lo (2012) illustrated. Age was also found to determine daily outdoor participation in a study of Finnish greenspace use (Vaara and Matero, 2011).

Seaman et al. (2010) found that social cohesion was an important reason people chose to visit a park or not. McNicholas and Collis (2000) found a marked effect on increased wellbeing from the social interaction between dogs and park visitors. How visitors perceive the social environment of a greenspace to be as important a factor in predicting the likelihood of use as physical attributes such as proximity, safety, aesthetics, amenity and maintenance (McCormack et al., 2010).

2.2.4 Infrastructure

Infrastructure is a structural constraint that influences greenspace choice. A qualitative study of overweight Malaysian adolescents identified that the presence of facilities for physical activity was identified as a factor that influenced actual activity (Danis et al., 2014). In a study to examine anglers' willingness to substitute, place dependence, in this case, boat ownership and ranking of activity importance were the strongest predictors of willingness to substitute (Tseng and Ditton, 2007).

Studies show that visual evidence of active management of greenspace is an important positive factor for deciding to visit (Zhang et al., 2015, Verlič et al., 2015). Ward Thompson (2013) found that woodland improvements encouraged visits and were viewed positively in deprived areas. Interestingly, trail surface improvements were viewed positively in well-visited greenspace but, in contrast, negatively in wilderness type greenspaces (Cahill et al., 2008). Similarly, the presence of human intervention on a trail in a greenspace elicited negative preferences in a study by Qui (2013), especially from non-expert visitors. Arnberger (2012) found similar results in that less knowledgeable visitors had more negative attitudes towards visitor and environmental management in a national park in Austria. The evidence of human intervention can be seen as invasive and un-natural to the lay-visitor unfamiliar with habitat management practices.

2.2.5 Safety

Safety is an intrapersonal dynamic constraint in that a visitor may feel safe at certain times and under certain conditions in a greenspace but not at other times in other conditions. Maruthaveeran et al. (2015) identified several themes that evoked fear in residents regarding the

use of their urban parks which included: being alone, concealment in vegetation, social disorder and previous knowledge about crime. Furthermore, winding paths in a greenspace provided an air of mystery but also an element of fear for visitors (Herzog and Miller, 1998).

Graham and Glover (2014) described how visitors navigated a park through their pets and that positive experiences with other dogs increased their social capital and feelings of safety. Cutt (2008b) found that regularity of walking promoted recognition of fellow dog walkers and the formation of a trusted social group that influenced whether a public open space was visited or not. Contrastingly, negative encounters resulted in fear and sometimes social exclusion (Aspinell et al., 2007). Safety concerns are highly correlated with gender especially in places of low use with few people to be seen (Keane, 1998). Ambrey (2016) found that perception of both an uncivil atmosphere and an affable atmosphere moderated physical activity in a greenspace.

As mentioned before, Rossbach and Wilson (1992) found that the presence of dogs appeared to make people in greenspace seem less threatening. Greenspaces evoked both feelings of social safety and feelings of insecurity depending on the density of the surrounding urban area; in a Dutch study by Maas et al. (2009), it was evident that safety was of utmost concern in most urban green areas.

How visitors perceived the social environment of a greenspace for safety was as important a factor in predicting the likelihood of use as were structural attributes such as proximity, amenity and maintenance (Seaman et al., 2010, Samdahl and Jekubovich, Ward Thompson et al., 2013). Lee (2016) found that perception of safety within a greenspace was strongly associated with positive walking behaviour.

2.4 The assumptions and problems underlying SANGS

SANGS policy aims to address the problem of increased visitor disturbance associated with new housing developments in the Thames Basin Heaths SPA; this study aims to evaluate the policy's effectiveness as an avoidance strategy in diverting visitors, especially dog-walkers, away from the SPA. The following section provides the link from evidence in the literature to the research aims and objectives.

SANGS makes the first assumption that existing visitors to the SPA from the surrounding established housing settlements will not be likely to change their visiting habits because of their existing attachment to the SPA. SANGS is, in effect, targeting new residents, especially dog walkers by offering a substitute for the SPA. Ward Thompson (2005) found that experiencing woodland visits in childhood was a predictor for visiting woodland as an adult. Evidence shows

place attachment for the natural landscape is particularly strong and more restorative than the built or managed environment (Van den Berg et al., 2016, Steen, Jacobsen and Tømmervik, 2016). The literature points to an expectation that residents who have lived in the Zone of Influence before 2006 are more likely to visit the SPA more frequently than those who are new to the area and are more likely to visit a SANG more frequently. It is important to ask if there is a valid assumption that existing SPA visitors will not change their visiting habits.

The second assumption is that most residents will not travel more than 5km to greenspace on a frequent basis for short visits such as dog walking, jogging or a brief stroll, and the policy ensures that there will be a SANG provided within 5km of every eligible new development. Based on evidence from the literature (Liley, 2007, Degenhardt et al.,2011, De Valck et al.,2017) there is an expectation that residents will visit SANGs more frequently than the SPA as they are nearer for most residents.

The third assumption is that new residents will choose a SANG in preference to the SPA for any type of short-term visit, but, from a SANGS policy perspective, SANGs are designed in particular to be more attractive to dog-walkers than the SPA because dog walking has the greatest impact on the Annex 1 birds. Dog-walkers may be looking for dog-friendly attributes such as-off lead areas with no livestock grazing, along with attributes rated highly by visitors in general such as goods paths, woodland and a water body such as a lake. Regarding choice, SANGS assumes that people will make their decisions using an attribute-based process and that place dependence is stronger than place identity, but studies have shown that this is not the case (Petersen et al., 1984, Snipes, 2009, Jansson, 2010) and that it is reasonable to contest this assumption.

The fourth assumption, for SANGS to be effective, is that if a SANG is visited and it provides the required attributes and functions required by the visitor, then it will provide a permanent diversion from the SPA. Daniel's (2012) concept that people need a 'Portfolio of places' throughout a lifetime has been suggested by several pieces of work (Kim et al., 2005, Tseng and Ditton, 2007, Swanwick, 2009). Recreation site selection is a dynamic process which, when combined with the concept of 'browsing' a territory (Clark and Downing, 1985), implies that residents will visit several sites that are both SANGs and SPA, possibly at different times of the day or week (Bertram et al., 2017). There is, therefore an expectation that residents will visit several greenspaces as well as a favourite greenspace. It is, therefore, important to identify the pattern of greenspace use in residents living in housing developments post-2006.

The majority of dog walkers value the social aspect of dog walking (Low and Altman, 1992); it is highly likely that information about various local sites will be passed on during social interactions

(Edwards and Knight, 2006) and it is, therefore, important to discover if residents use greenspace socially.

In summary, it is essential to find out where residents of post-2006 housing developments visit; if SANGs are the preferred choice over the SPA, how far they travel, how they find sites and what activities they carry out on them. It is important to confirm if the site attributes that fulfil SANG criteria, influence that choice and also if there are other non-tangible reasons for visiting SANGs or the SPA. The opinions of Expert stakeholders, who have been involved in the implementation of SANGS should be sought regarding the perceived impact, effectiveness and potential improvement of the strategy.

Research objectives and questions

Objective 1 *To identify the development of patterns of greenspace use within the eligible population and establish if residents choose to visit SANGs in preference to the SPA.*

Research questions

RQ1a How often and when do residents visit different types of greenspace in the Thames Basin Heaths Zone of Influence?

RQ1b For what activity do you use a greenspace?

RQ1c What is the relationship between site attributes and greenspace choice?

Objective 2 *To identify factors that underpin the residents' decision-making processes when choosing to use a greenspace and assess if they are potential barriers to the effectiveness of SANG strategy.*

Research questions

RQ2a What are the reasons for residents visiting a greenspace?

RQ2b What is the level of awareness of and attitude to conservation issues affecting the Thames Basin Heaths SPA in the eligible population?

RQ2c What information source affects a resident's choice to use a greenspace?

RQ2d Does prior knowledge of greenspace in the TBH influence choice of greenspace?

Objective 3 *To evaluate expert stakeholder opinion on the effectiveness of SANG strategy.*

Research Questions

RQ3a What is the opinion of expert stakeholders on the impact of the strategy?

RQ3b What are the key concerns of expert stakeholders regarding the effectiveness of the strategy?
RQ3c What are the expert stakeholder recommendations for improvements to the strategy?

2.5 Rationale and Approach

To deliver the aims of the research identified in the previous section, it was essential to identify the underlying ontology, epistemology and methodology of the research subject and consequently provide a rationale for the chosen paradigm. It was clear that neither the wholly positivist approach that had been taken by all of the relevant research to date at the start of this study or a wholly constructivist approach would provide adequate answers to all the research questions. Although data establishing patterns of greenspace use were based on observable phenomena, to identify barriers to SANGS effectiveness and tap expert stakeholder evaluation, the interpretation of individual knowledge was required. The philosophical approach of Pragmatism (Tashakkori, 2003) enabled the combination of multiple ontologies epistemologies and methodologies (Ritchie et al., 2013) and was therefore considered justified and appropriate for the comprehensive evaluation of SANGS.

The approach of pragmatism underpinned the assumption that mixing qualitative and quantitative data produced the best understanding of a research problem. Mixed methods research has emerged as the third methodological movement over the last two decades. The arguments for mixed methods research are that mixed methods can answer some questions that other methodologies cannot, it provides stronger inferences and an opportunity to present a wide range of divergent views (Creswell, 2003). Mixed methods enable confirmatory and exploratory questions to be answered at the same time and, in the case of this research, it aims to examine what variables influence visiting a SANG and explores qualitatively why and how the choice of greenspace is made. These were substantial grounds for using mixed methods to answer the research questions. Site substitutability and the factors that affect it have proved to be challenging to research (Brunson and Shelby, 1993). The tangible and intangible threads of a decision are, in many ways, inextricably linked, so un-ravelling the decision-making process can increase complexity but is essential for providing a deeper understanding of the research questions. A top-down, bottom-up approach was used to assess the strategy after an optimal ten years' implementation (Sabatier, 1986).

Blondet et al. (2017) reviewed the role of participatory methods in the Natura 2000 implementation process and concluded that they were invaluable in providing contextual information and increasing acceptance of the policy. Both questionnaires and stakeholder focus

groups were also useful in the identification of the support needed to manage three Italian Natura 200 sites effectively (Pellegrino et al., 2017) and stakeholder perceptions have been shown to provide valuable evidence that contributes towards decision-making and policy evaluation (Bennett, 2016, Kothencz et al., 2017). Ferranti et al. (2017) found through stakeholder group interviews that discourse with stakeholders in the local community resulted in the requirements of Natura 2000 regulations of the Habitats Directive 92/43/EEC of 21 May 1992, being gradually absorbed into current conservation practices which are an efficient way of introducing change rather than forcing new regulations on existing practices which are likely to come up against resistance.

Both multidisciplinary and creative participatory methods have been deemed key to the process of sustainable place-making, agri-environment schemes or conservation project evaluation (Bonnes et al., 2004, Cilliers and Timmermans, 2014). However, Choudray et al. (2015), when evaluating the therapeutic value of greenspace, found no consensus about which was the best type of methodology. Nevertheless, conservation scientists must embrace high-quality qualitative methods with a strong rationale to comprehensively inform decision making (Sutherland et al., 2018).

Three ways of integrating the mixed methods data were considered: following a thread, which is based on following a common link between concurrent methods, a mixed methods matrix, which relies on a case by case data integration, and lastly triangulation. The results from the different methods identify meta-themes that lead to meta-inferences through convergence, complementarity, dissonance and silence (Fetters and Creswell, 2013). Firstly, since only one researcher was available at any time, the research stages could only be carried out sequentially and not concurrently. Consequently, the ‘following a thread’ method that relied on following a common link between concurrent methods was eliminated. Secondly, it was not possible to recruit the survey respondents to the focus groups despite attempts to do so, and this eliminated the use of case by case ‘mixed methods matrix' data integration. Finally, the decision was made to integrate data by triangulation at the interpretation stage, after separate analysis of both types of data. This resulted in a strategy of inquiry that was a sequential explanatory design as shown below in Figure 14, and all data were combined at the interpretation stage.

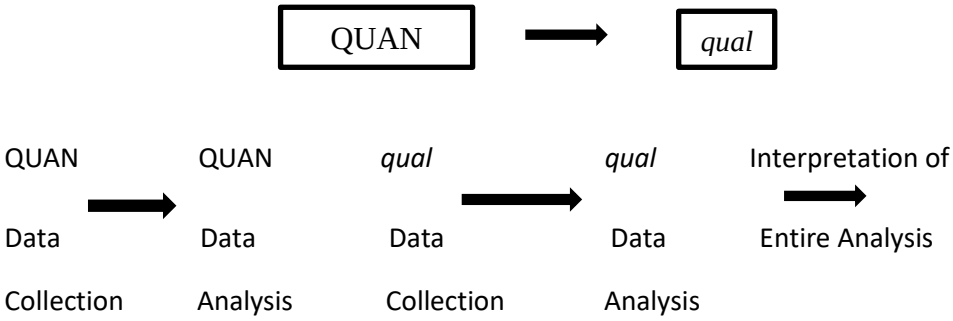

Figure 14 Sequential Explanatory Design (Tashakkori, 2003)

This design was used so that the qualitative results in this case from focus groups, were used to explain and interpret the results from the quantitative postal survey. Each method was given equal priority. Table 1 at the end of this chapter provides a summary of methods to answer the research questions.

2.6 The Influence of the Researcher on Qualitative Research

Researcher positionality is an important topic in qualitative research; it is based on the assumption that research cannot be completely neutral and that it is, therefore, necessary to reflect on possible influences of positionality. Several factors could have potentially influenced the relationship between the researcher, the focus group participants and interview participants: professional background, gender, age, the fact that the researcher was a dog owner and a parent. It was important to consider if this positionality affected the participants' responses to both the focus group questions and interview questions. It was immediately evident that the researcher incited curiosity amongst the focus group participants as, although a doctoral student, the researcher was much older than the average doctoral student and this elicited many questions about her background and why she was studying. The researcher had worked for a wildlife conservation NGO for over twenty years before deciding to study for a PhD part-time. The researcher was not known to any of the focus group or interview participants, but in some cases, they were known through the researcher's previous employment.

Despite this, the age, gender, and researcher's status as a parent helped many of the focus group participants to relax and fully participate because the researcher was not too dissimilar to themselves in one way or another. Information about the researcher's dog was volunteered to dog-walking groups; this consequently prevented the researcher from being seen as a judgemental anti-dog conservationist and participants were open and honest. In contrast, dog

ownership was not disclosed to non-dog walking groups who therefore identified the researcher as a conservationist, a role that made them feel comfortable and forthcoming with their opinions.

However, in the case of the phone interviews, the apparent age and associated confidence of the researcher helped many of the participants to relax and participate fully. The initial email emphasised that they were the experts and that is why the researcher wanted their perspective. An effort was made to emphasise that researcher expertise did not exceed theirs, which, in turn, could have made them uncomfortable or worried about losing face, and not be forthcoming with their opinions. In both the qualitative methods, prudent disclosure had an effect of neutralising the power and authority of the moderator (Mullings, 1999).

2.7 Research Ethics

Research ethics for all the methods involved in this three-part study were reviewed and approved using the University of Southampton Ethics and Research Governance Online (ERGO) system. For every method IRGA, ethics, risk assessment and participant information forms were submitted online along with consent forms and, for focus group and semi-structured interview participants, evidence of third-party permissions were also submitted online. The ethics form allows researchers to provide information on the aims and objectives of a study, background information and justification for the study, the key research questions, details of the study design and the sampling frame. It also elicits information on how consent is ensured, details of the research procedure and if any incentives are involved.

The use of incentives in research is a contentious issue, and there may be many reasons why people agree to participate in research: social obligation, subject interest and financial reward. There is evidence that increasing the incentive does not increase risk-taking in answering questions (Singer and Ye, 2013). The survey had the incentive of a completed entry being entered into a £50 prize draw. The original incentive of £10 failed to recruit enough participants for the focus group study; this could have been because the study area has a high socio-economic demographic. In many households, all the adults work full time resulting in the population being time-poor and money-rich and not likely to respond to a token incentive of £10 compared to, for example, a money-poor time-rich student population on campus. Attending the focus group when including travel could take up to two or three hours. The increased incentive of £50 improved participation in the focus group study.

The semi-structured interviews did not have a financial incentive attached to participation apart from the opportunity to participate and be heard. The issues of anonymity, linked anonymity, confidentiality and data storage and access are all addressed by completing this form. In the case

of the quantitative study (ERGO application no.5738), the questionnaire and map, accompanying letter and Natural England data licence documents were submitted along with the documents above. The focus group study (ERGO application no.15279) included an interview protocol in the submission and needed amended consent to approve an increased incentive as the original amount failed to recruit adequate numbers of participants.

Confidentiality was assured by the fact that returned questionnaires were kept in locked cupboards at the university and all electronic data sources were password protected on a computer. Contact details provided by respondents entering the prize draw were kept separate from the actual survey data in a different filing cabinet. Survey respondents had linked anonymity as there was an identifier on each questionnaire that could link them back to their address; this was required so the distance travelled by each respondent could be calculated for analysis.

Each focus group participant was given linked anonymity as they were given an identifier indicating which focus group they had participated in along with other relevant criteria. All of the interviews were anonymised before transcription, and the data was stored in a locked cupboard along with the survey data which ensured confidentiality.

In the expert-stakeholder interviews (ERGO application no. 20448), each interview participant was given an identifier indicating which category of employment they worked in, so the interviews could be anonymised immediately after recording. Anonymity can become an important ethical issue for interviews as, if someone disagrees with his or her employer's main position or policy, it can protect them from being penalised after the interview. As in the case of the other methods, the anonymity was linked and confidential.

2.8 Limitations

There are many elements of a mixed methods study that can affect its validity (Tashakkori, 2006). The term 'inference quality' instead of validity was suggested by Tashakkori (2008) when referring to mixed methods studies, as validity referred to quantitative data and was not considered appropriate for mixed or qualitative data; in turn, Onwuegbuzie and Johnson (2006) coined the term 'legitimation' as an appropriate term for the validity of mixed methods data. This dissatisfaction with the nomenclature was symptomatic of the issue of validity that was emerging along with the acceptance of and increased use of mixed methods methodology.

For qualitative research to be good quality, it is necessary that the design is justified, that there is rigour in the chosen methods and credibility in the claims (Spencer, 2003, Sutherland et al., 2018). Quantitative and qualitative methods can be integrated at different stages in the research process

from the study design level to the interpretation level. The quality of the meta-inference in mixed methods research is dependent on the level of integration at different stages of the study (Fetters, 2013).

Concurrent designs that integrate data at the design level have a different inference quality to that of a sequential design. Building Integration at the methods level in the case of this study meant that data from the initial quantitative study informed the data collection needed in the second phase. The decision to sequence the design as QUAN-QUAL was partially a political one and a practical one as a single researcher cannot run a concurrent design. All the past research on visitor disturbance on the Thames Basin Heaths was quantitative, and most of the staff at Natural England have a Natural Science background. To establish respect for and ensure acceptance of the research it started with the survey. Once these familiar data were produced, the researcher was able to establish a positive relationship with individuals within the Thames Basin Heaths Partnership, and it was easier to build a case for a mixed methods approach and future qualitative methods.

The sequential design meant that findings were integrated post analysis, at the interpretation stage. A triangulation protocol identified themes from both sets of findings which then enabled the Gestalt meta-inferences to be drawn. Evaluation of the themes as convergent, complementary, dissonant or silent allowed assessment of the data integration fit.

Table 1 Summary of methods to answer research questions

RESEARCH QUESTIONS	METHOD	DATA
Objective 1 To identify the development of patterns of greenspace use within the eligible population and establish if residents choose to visit SANGs in preference to the SPA.		
RQ1a How and when residents visit different types of greenspace in the Thames Basin Heaths Zone of Influence	Postal Survey	**Questionnaire (Appendix 3)** Question A1 most frequently visited site; Question A2 frequency of visit; Question A3 and A4 when visited; Question A5 mode of transport; Question A6 length of visit; Question A10 alternate sites visited **Focus Group Protocol (Appendix 3)** **Question 1** Which site do you visit? Is it the nearest? Did you actively seek it out? Do you visit other sites? Is how you get to a site (mode of transport) important to you and if so why?

RESEARCH QUESTIONS	METHOD	DATA
RQ1b For what activity do you use your chosen greenspace?	Postal Questionnaire	**Questionnaire (Appendix 3)** Question B1 on-site activity
RQ1c What is the relationship between site attributes and choice of greenspace?	Postal Questionnaire	**Questionnaire (Appendix 3)** Question B2 attribute preference
Objective 2 Identify factors that underpin the residents' decision-making processes when choosing to use a greenspace and assess if they are potential barriers to the effectiveness of SANGS		
RQ2a What is the reason for visiting the chosen greenspace?	Focus Groups	**Focus Group Protocol (Appendix 3)** **Question 2** What do you do on the site(s) you visit? **Question 3** What do you experience and what experience do you value most when visiting a greenspace? **Question 4** What is the most important reason that attracts you to the site you visit, compared to other sites within your reach? **Question 5** What other characteristics/factors attract you to visit a site?

RESEARCH QUESTIONS	METHOD	DATA
2 Identify factors that underpin the residents' decision-making processes when choosing to use a greenspace and assess if they are potential barriers to the effectiveness of SANGS		
		Question 6 Do you avoid a site? If so why?
RQ2b To assess the level of awareness of and attitudes to SANGS and associated nature conservation issues affecting the Thames Basin Heaths SPA in the eligible population.	Postal Survey Focus Groups	**Questionnaire (Appendix 3)** Question C3 awareness of SPA designation; Question C4 understanding of SPA; Question C1 importance of the countryside surrounding a respondent's home on five-point Likert Scale; Question C5 importance of their local wildlife on a five-point Likert scale **Focus Group Protocol (Appendix 7)** **Question 8** Do you have any views on how well or not wildlife or biodiversity is doing on the site you visit most? **Question 9** Had you heard of Suitable Alternative Natural Greenspace Strategy (SANGS)? What do you think of the policy? Are you in favour or against the policy? Why? **Question 10** Do you think visiting Suitable Alternative Natural Greenspace sites provides an equivalent experience to visiting the Thames Basin Heaths Special Protection Area sites? Why/Why not?

RESEARCH QUESTIONS	METHOD	DATA
2 Identify factors that underpin the residents' decision-making processes when choosing to use a greenspace and assess if they are potential barriers to the effectiveness of SANGS		
RQ2c What information source affects a resident's choice to use a greenspace?	Postal Survey Focus Groups	**Questionnaire (Appendix 3)** **Question A7** Sources of information **Focus Group Protocol (Appendix 7)** Question 1 How did you find the site you visit most frequently? Which site do you visit? Is it the nearest? Did you actively seek out the site or did you find it by chance? **Question 11** Can you suggest the type of information source about access/location of greenspace that would have been useful to you when you first moved into the area?
RQ2d Does prior knowledge of greenspace in the TBH influence choice of greenspace?	Postal Questionnaire Focus Groups	**Questionnaire (Appendix 3)** **Question A8** When did you move into the Zone of Influence? **Focus Group Protocol (Appendix 7)** **Question 1** How did you find the site you visit most frequently? Did you actively seek out the site or did you find it by chance?

RESEARCH QUESTIONS	METHOD	DATA
Objective 3 To evaluate expert stakeholder opinion on the effectiveness of SANG Strategy.		
RQ3a What is the opinion of expert stakeholders on the impact of the strategy?	Semi-structured Interviews	**Interview Protocol (Appendix 8)** **Question 2** Can you tell me about your experience or involvement in SANG strategy in the Thames Basin Heaths? **Question 3** In your opinion, what is the importance of SANG strategy for your organisation?
RQ3b What are the key concerns of expert stakeholders regarding the effectiveness of the strategy?	Semi-structured Interviews	**Interview Protocol (Appendix 8)** **Question 4** What do you think have been the most serious problems since the implementation of SANG strategy in the Thames Basin Heaths? **Question 5** Do you think that SANG strategy has been effective in protecting the SPA?
RQ3c What are the expert stakeholder recommendations for improvements to the strategy?	Semi-structured Interviews	**Interview Protocol (Appendix 8)** **Question 6** Can you suggest changes that would improve SANG strategy? **Question 7** Do you think that SANG strategy should be encouraged in other parts of the country, if so why? **Question 8** Who ought to be involved in the future development of SANG strategy? Why?

Chapter 3: Patterns of Greenspace Use in the Thames Basin Heaths SPA Zone of Influence

3.1 Introduction

This chapter aims to test theories on the choice of greenspace, specifically the role of distance and the three dimensions of place attachment: place dependence, place identity and the social dimension using the quantitative method of a postal survey. The survey provided data from 170 respondents that were statistically analysed to provide a base of facts that the qualitative work in future chapters was then able to build on. The survey answered the research questions to deliver Objective 1: Identify the development of patterns of greenspace use within the eligible population and establish if residents choose to visit SANGs in preference to the SPA, and Objective 2: Identify factors that underpin the decision-making process when choosing to use a greenspace and assess if they influence the effectiveness of SANGS. The eligible population was defined as residents who had moved into new housing developments in the TBH Zone of Influence since August 2006.

As detailed before, there has been extensive visitor survey work on the SPA which was used to develop the criteria for SANGs (Liley et al., 2006c, Liley et al., 2005). Footprint Ecology provided advice on developing the questionnaire for this survey based on the SPA visitor questionnaire and a postal survey of a coastal area which involved marking a map as part of the required response; however, their SPA survey was filled in by on-site interviewers. This work contributed to the development of the questionnaire which produced data to enable the effectiveness of SANGS and the underpinning theories to be tested.

3.2 Method

The Quantitative Postal Survey

The survey was cross-sectional in design; it contained a sample of the relevant population at one point in time and was chosen because it was feasible within the budget and time constraints of the PhD. A postal questionnaire was chosen as the most suitable type of survey for establishing the pattern of greenspace use and attitudes to wildlife conservation in the Thames Basin Heaths Zone of Influence, as it was a large geographical area with the target population distributed throughout (Chesson, 1993). Postal surveys removed interviewer bias, meaning that respondents were less inhibited when they responded and this, therefore, should have improved the quality of response (Oppenheim, 1992).

Overexposure to surveys of varying types is the main reason for the reduction in response rates over the last fifteen years (Presser and McCulloch, 2011). The UK has survey fatigue to an extent, and people can be reluctant to be involved; the plethora of surveys offered online and through the post has contributed to the increased resistance to participate. Survey response rates can be improved by measures such as emphasising the importance of the survey (Daigle, 2013), follow-up reminders, including prepaid envelopes and the provision of various financial incentives (Yammarino et al., 1991, Dillman, 1991, Wilson, 2013). Written reminders have been found to increase response rates by up to 13% (Asch et al., 1997).

Notwithstanding the drawbacks, postal surveys can provide a wealth of good quality information, and, in the case of this study, the respondents were representative of people who visited greenspaces (Asch et al., 1997). Mail surveys have been shown to have better results than online surveys (Shih and Fan, 2009), although in the case of this study an online survey could only be provided as a response option via the paper survey due to the difficulty of providing a map of legible scale online. Tiny URL™ shortening service was used to reduce the length of the online survey URL, which was highlighted in the covering letter and meant that the respondents were less likely to make an error by missing some of the URL when replying online.

Questionnaire design is as much an art as a science, and it was essential to consider the form of the questionnaire regarding length, layout and font ensuring the questions flowed naturally and were in a logical order. A concerted effort was made to make the questionnaire user-friendly, and as recommended by Oppenheim (1992) it was four sides long and took around ten minutes to complete.

The distance variables and categorical variables in Section A of the questionnaire all link to the factor of proximity and distance decay and if it affects greenspace choice. The variables computed from Section B of the questionnaire link to the theory of place attachment and two of its dimensions: place dependence and social dimension, by identifying preference of the attributes of the most frequently visited greenspace and the purpose of visiting. The variables from Section C link to the theme of awareness, in this instance of the SPA. Section D provided the demographic variables that were tested to see if they were associated with choosing a SANG.

To identify the most important dependent variable of interest, i.e. the most frequently visited greenspace, two answer boxes were provided, one for the site code and another for the site name. This provided a cross-checking mechanism to help the respondent avoid forgetting or confusing site codes in between reading them off the map and writing them down. An A3 map of the study area showed both the SPA and SANGs coloured in green to avoid alerting respondents to the different types of greenspaces and creating bias (Appendix 2). The covering letter included

the logos of both the Hampshire and Isle of Wight Wildlife Trust and the University of Southampton as the experience of both organisations was of good response rates to surveys that were higher than the average expected rate of 10-15% (Dillman, 1991). This is probably because both organisations were not associated with government or any perceived officialdom which could have deterred potential respondents from participating in the survey.

The Annex 1 bird species were not mentioned in any of the survey documentation as mention of charismatic species in surveys had been found to influence the response to environmental attitude questions (Pienaar et al., 2013). All documentation relating to the survey can be found in Appendices 2-4.

There was a section of the questionnaire which asked for details of the demographic profile of new residents who visit greenspaces. This was important, not only to see if the demographics influenced the choice of greenspace but how they compared with the demographics of pre - SANGS residents in the established housing. These questions in Section D were situated at the end of the questionnaire as respondents can often be put off from completing the questionnaire by request for personal details straight away. Leaving these questions until the questionnaire had been filled in endowed respondents with a sense of investment in the survey and they were consequently more likely to complete and return it (Oppenheim A.N., 1992).

The Post Office issued 8,934 postcodes to new dwellings in the Thames Basin Heaths Zone of Influence between the implementation of SANG strategy in August 2006 and August 2012. This time frame was used because it matched the timeframe between two comprehensive on-site visitor surveys for the SPA which is part of a Natural England monitoring programme. Before 2006 there were an estimated 288,000 houses within 5km of the SPA boundary (Liley et al., 2006c). SANG strategy was targeted at residents in new developments and, although existing residents were able to access many of the SANGs, this study looked at the patterns of use and attitudes of residents who had moved into new developments between 2006 and 2012. These new residents' choice of greenspace was of most interest and would have been too small a proportion of the 2000 sample size to allow for established and new residents to be included together. The eligible population was defined as residents who had moved into new housing developments in the TBH Zone of Influence since August 2006.

Royal Mail™ Postcode Address Files (PAF®) contain all the active postcodes in Britain and are updated by the post office on a quarterly rolling programme. At the time of the survey, access to the data from these files was prohibitively expensive due to its commercial value. Since the survey, these files have become available to charities for a small licence fee. However, archives of

these data between 2006 and 2012 were provided without charge from EDINA the JISC National Data Centre of the University of Edinburgh.

ArcGIS ArcMap 10.1 was used to 'cookie cutter' out the boundary of the Zone of Influence to provide the sampling frame. At the time of the survey, the local authority data to link postcodes with particular SANGs was not available, so the data was not able to be stratified by SANG catchment size. All postcodes generated by the Post Office between 2006 and 2012 were selected from the National dataset under licence by BPH Data Ltd. Due to budget constraints, a sample of 2000 postcodes was randomly selected from the total number of 8,934. BPH data Ltd used an online random number generator to select the samples which were also screened to check that no commercial properties were included. If found, they were removed from the list, and replacement samples were provided at random from the remaining postcodes in the sampling frame. This random sample of 2000 postcodes provided the addresses for survey respondents throughout the Zone of Influence, and this allowed SANG strategy to be evaluated strategically.

After piloting the survey and making the relevant improvements, the questionnaire and all documents accompanying it were approved via the University of Southampton Social Science Ethics Committee's ERGO online system before they were distributed (Ergo ID no.5738). The survey and reminder postcards were mailed out to the sample population using SEND distribution service.

3.3 Pilot Work

All questionnaires should be piloted before they are distributed to the target population. They can be adapted and further refined after reflection on the comments and responses that emerge from the pilot survey (Oppenheim, 1992). It is particularly important to pilot a self-completion questionnaire as no interviewer will be present to explain any confusing questions or misunderstandings (Bryman, 2012).

The survey was pre-piloted at a University of Southampton Conservation Club meeting of eight PhD students, a postdoctoral student and one lecturer from the Faculty of Life Sciences. The age range was from the 20-29 to 50-59 age groups, and all participants were White British in ethnicity. The level of education was high with a bachelor degree the minimum level of education and two at doctoral level. Only one of the participants was male. The questionnaire was deemed to be the right length as all participants finished it under 10 minutes and said that they found it clear and easy to use. The only changes recommended were to add 'somewhere to sit' as part of Question B2 which listed the attributes of the most frequently visited site.

The survey was then piloted with twenty members of the Joint Strategic Partnership board who live in the study area. It was important not to use a subsample of the population to be surveyed as that can affect the representativeness of the questionnaire (Bryman, 2012). Every local authority has a member on the board, so this ensured an excellent distribution of participants across the study area.

A pilot study participant was thought to be comparable to members of the population being surveyed regarding demographic profile. Natural England distributed the pilot survey using an e-mail attachment to the members who had volunteered for the pilot in a meeting earlier that year. The consultation resulted in no material changes with only one comment querying if the list of attributes in Question B2 was the same as those devised by Natural England as criteria for a SANG. It was confirmed that including the list was intentional as the data from the questionnaire could test the validity of the criteria.

3.4 Method of Analysis

All data from the paper questionnaires were entered into an IBM SPSS Statistics database (Version 21) by hand along with the online responses which were imported from an Excel spreadsheet that was automatically created by Google surveys. The data was cleaned, and various variables were collapsed into dummy variables to facilitate analysis.

3.4.1 Recoding new variables

Question A1 was used to determine the category of the location visited most frequently and is the main dependent variable of interest. The site code was categorised into either Special Protection Area SPA (coded 0) or Suitable Alternative Natural Greenspace SANG (coded 1) for the variable 'most frequently visited location'. The categorical variable 'most frequently visited location' was the key dependent variable used to answer the question about whether residents chose to visit a SANG in preference to the SPA. This was coded into a dummy variable for logistic regression with 1 'chose to visit SANG, ' and 0 'did not choose to visit a SANG'.

For Question A2, to avoid low expected frequencies in cells, categories were collapsed into a dummy variable. The variable for frequency visited was collapsed and recoded into a dummy variable 'visits more than 100 times a year' coded 0 and 'visits less than 100 times a year' coded 1.

Question A3 asked how often respondents visited. Dog walking and high levels of disturbance are associated with daily site visits so recoding this variable into daily visits was considered more

useful in terms of evaluating if SANGS policy is effective. The variable ‘when visited’ was collapsed into the dummy variable ‘visits daily’ coded 1 and ‘does not visit daily’ coded 0.

Question A4 asked if respondents visited in spring, summer, autumn or winter. For this study, the breeding season for all three Annex 1 bird species spanned from March through to the end of August. The variables ‘spring’ and ‘summer’ were combined to make the variable ‘visits in breeding season’ coded 1, and ‘autumn’ and ‘winter’ to make ‘does not visit in breeding season’ coded 0.

Question A5 identified the mode of transport to the most frequently visited greenspace. The variable ‘mode of transport’ was collapsed and recoded into two dummy variables ‘visits on foot’ coded 1 or ‘doesn’t visit on foot’ coded 0. It was not possible to code for 1 for car and 0 for foot as there were other forms of transport such as a bicycle, horse and public transport.

Question A6 asked how long the duration of the visit was. Categories of the variable ‘duration of the visit’ were collapsed down to two and recoded into the dummy variables ‘does not visit for more than 45 minutes’ coded 1 and ‘visits for more than 45 minutes’ coded 0.

For Question A7, the six answers to this question ‘map,' ‘print,' ‘word' ‘web, ‘sign' and ‘saw' were treated as dummy variables with yes being coded 1 and no 0.

For Question A8, the variable was coded as a dummy variable ‘since 2006’ coded 1 and ‘not since 2006’ coded 0. Although the target population was residents who had moved into the zone of influence after 2006, some residents may have moved within the zone so ‘since2006’ identified those residents who were completely new to the area and were not attached to any other greenspace in the zone.

For Question A10, the variable ‘visit other sites’ was recoded as a dummy variable ‘froth’ coded 1 for more than 100 visits and 0 for not more than 100 visits.

For Question B1, variables were combined to reduce the number of variables: watching wildlife, enjoying nature and de-stressing were recoded into ‘passive enjoyment'. Horse riding, cycling, and running were recoded into ‘active enjoyment'. Meeting a friend, taking children out, picnicking and informal games were recoded into ‘social activity’.

Question B2 provided a grid of twenty attributes with a five-point Likert scale rating the importance of each attribute. These attributes were the ones listed in the SANGs selection criteria plus an extra one added after the pilot survey.

The attributes ‘safety on site' and ‘lots of other visitors' were combined to produce a variable ‘safety'. The attributes ‘lots of other dogs', ‘ability to let the dog off lead', ‘no requirement to clean up after dog' and ‘absence of livestock' were combined to create the variable ‘dog-friendly'. The attributes ‘can walk from home', ‘short drive from home', ‘provision of car park' and ‘accessible by public transport' were combined to create the variable ‘good accessibility'. The attributes ‘way-marked routes', ‘surfaced paths' and ‘somewhere to sit down' were combined to create the variable ‘infrastructure'. The attributes ‘feels wild and natural', ‘size', ‘variety of habitats', ‘presence of viewpoints', ‘presence of water' and ‘topography' were combined to create the variable ‘environment'.

For Question C2, ‘What sort of environment did you grow up in?’ the dummy variable coded ‘heathland’ 1 and ‘non-heathland’ 0 was created by collapsing seven categories down to two.

For Question C3, respondents who had heard of the term SPA were then offered an option of four reasons for the designation or an ‘other’ box in the following Question C4. This was done to clarify if the respondent understood the term as well as having heard of it (Weisberg, 2005). Respondents who were not familiar with the term were asked to go straight to Question C5.

For Question C4, the variables stating the reason that the SPA has its designation: ‘scenic’, ‘open access’, ‘protected from development’, ‘rare wildlife’ and ‘other’ were combined to make the dummy variable ‘correct reason designated SPA’ coded 1 and ‘not the correct reason designated SPA’ coded 0.

For Question C5, the variable interested in wildlife was collapsed to a dummy variable ‘interested’ coded 1 and ‘not interested’ coded 0.

For Question C6, the dummy variable ‘member of organisation’ coded 1 and ‘not a member of organisation’ coded 0 was summarised from variables ‘County Wildlife Trust’, ‘National Trust', ‘Ramblers Society', ‘Local History Society’ and ‘RSPB'.

3.4.2 Calculation of new variables

Distance variables were calculated from the survey response. There is plenty of literature supporting the hypothesis that distance is an important predictor of destination choice (Giles-Corti et al., 2005a, Lee et al., 2012, Schipperijn et al., 2010a). SANGS is underpinned by both distance decay theory and place attachment theory. Previous studies for Natural England on the visitor patterns to the SPA have measured the Euclidian distance or ‘as the crow flies’ (Liley et al., 2006c) and this study uses the same method. Distance by road and distance as the crow flies were highly correlated, Pearson Correlation = 0.933*** sig at the 0.01 per cent level (two-tailed). The

online data could not be used for calculating distance and consequently reduced n from 170 to 156 for all computed distance variables.

Some questionable survey data was discovered when the results of a *t*-test for travel on foot and travel by car were insignificant and raised concerns about the possibility of error. It was found that 15 respondents had ticked the box 'travel by foot' to the most frequently visited location; however, my respondent postcode data showed that, if correct, one respondent had walked a range of between 14km and 42Km.

Four possible causes for this anomaly were identified. Either a datasheet was saved when sorted by post code or questionnaire code with the result that they were then mismatched in error. The original distribution list complete with the questionnaire's numeric codes were re-examined, and they were still linked in the same way with later saved SPSS datasheets, so this reason was eliminated. The second reason was that the distribution company might have mismatched some questionnaires with envelopes when they were sent out. Thirdly the respondent may have misunderstood the questions and mistakenly ticked the box for 'mode of transport to location' instead of 'transport at location'.

It was not possible to re-contact all the relevant respondents as any respondent who had left their e-mail address consenting to further involvement in the research had already been re-contacted to recruit them for a focus group, and no respondent replied. Further attempts to contact some of the relevant respondents via e-mail posed the risk of harassing respondents, so it was decided not to contact them.

The decision was made to remove these respondents and calculate *t*-tests with the new distance dataset which reduced it from the original 156 to 141. Removing these data did not render this dataset too small to use logistic regression analysis as a minimum sample size of 100 is necessary, as recommended by Peng (2002).

The removal of these data only changed the results of one crosstabulation; respondents who chose a SANG were more likely to have travelled less than those who chose to visit the SPA.

Additional variables were calculated and computed so they could be tested to see if they were predictors for choosing a SANG. Dependent variable 'distance' was calculated as follows: the respondent's postcode was geocoded using Code-Point® Open to provide Eastings and Northings which were then plotted as a point on a map in ArcGIS version10.1. The distance travelled to the nearest access point of the respondents most frequently visited location was measured in

kilometres using a combination of Free map tools, Easy street view, and Defra's Magic websites to get the most accurate measurements possible.

The distances to the nearest access point for the nearest SANG, SPA and greenspace to the respondent's postcode were measured in km as the crow flies and used to create three new variables: 'distance to nearest SPA', 'distance to nearest SANG' and 'distance to the nearest greenspace' of either category. No other types of greenspace were included, only SANG or SPA. New categorical variables were computed from distance measurements; the variable 'nearest greenspace' was the nearest SANG or SPA to the respondent's postcode.

There are some SANGs that are proximal or integral to housing developments and within walking distance. They are on the doorstep and, for this study, are known as bespoke SANGs. Living next to a bespoke SANG should increase the likelihood of visiting a SANG and the new variables 'has a bespoke SANG' and 'visits a bespoke SANG' were created.

3.5 Analysis

Firstly, all variables were described either using frequency tables if the variables were categorical or histograms if they were continuous. A pie diagram was used to describe the purpose of all respondents' visits by activity. The list of attributes was collapsed into dummy variables for five key types of attribute for ease of analysis. A Chi-Square Goodness of Fit test was performed on the demographic variables to evaluate how the sample population compared with the national or regional population.

Secondly, Chi-Square tests were performed as crosstabulations in a contingency table between pairs of categorical variables to test for associations between variables. T-tests were conducted on dummy variables as independent variables and continuous variables to test for significant differences between categories. All significant results are reported in the results section as well as any unexpected non-significant results of note.

Thirdly, all the significant variables and variables of theoretical interest were included in a logistic regression on choosing a SANG to identify any that could contribute to predicting the choice of a SANG in the model. All variables were checked and then recoded if necessary as 1 'has characteristic of interest', and 0 'does not have the characteristic of interest'. Many models were tested by entry method until the model with the best theoretical fit was found.

Logistic regression is a useful tool to examine the relationship between a dichotomous dependent variable and several independent variables. The effectiveness of the model was evaluated by

assessing the validity of the overall model; the data fit to the model, the contribution of each independent variable and the accuracy of prediction.

The Omnibus test of model coefficients gave an overall indication of whether the model with predictors performed better at predicting a SANG than one without the predictors. A Hosmer-Lemeshow test was used to assess the fit of a model and any outliers identified with a ZResid value of over 2.5 were removed from the model to see if the fit was improved. Nagelkerke R^2 values were used to show the amount of variation in the dependent variable explained by the model. The Classification table indicated how well each model predicted the correct category for each case as did the change in the -2 log likelihood value.

Negative or positive beta coefficient values indicated the direction of the relationship with the dependent variable. The exponential of the beta coefficient gave the odds ratio and is useful to help visualise the effect of a variable regarding how many times more a respondent having the characteristics of an independent variable was likely to choose a SANG than a respondent not having that characteristic.

The results are presented regarding the theories they test and how they answer the research objectives.

3.6 Results

Results from the survey show that respondents were similar regarding employment status, gender balance and age but significantly better educated and more likely to be white than the population representative of the established residential communities (O.N.S., 2011, O.N.S., 2013a, O.N.S., 2013b). Dog ownership was not significantly different from that of the South East in general (PFMA, 2010-11). More people were members of conservation organisations than found in the National Survey of Attitudes and Behaviour towards the Environment SABE 2009, (Buchs, 2014).

The survey response rate was 8.5%; a total of 170 correctly completed replies were returned within six weeks of the initial distribution. This was a lower number than anticipated but provided an adequate sample size to perform a logistic regression model on choosing a SANG (Peng et al., 2002). In the following section, the results are presented according to the research objectives. The theories that affect greenspace choice within the leisure constraints framework and the assumptions underpinning SANGS are also discussed in the following discussion section.

Firstly, the general pattern of use and greenspace choice is analysed followed by the role of distance and then two dimensions of place attachment: place dependence, social dimension.

Place identity as a dimension of place attachment is evaluated in the following chapter. The demographic variables and variables providing information on each respondent's childhood environment, attitudes to their home environment and local wildlife are also described and analysed. The results of a logistic regression model on choosing a SANG is presented at the end of the section. Variables in Table 2 below are previously defined in 3.4.1.

Table 2 Variables used to test theories

Variable	**Theory tested**	**Constraint**
'since 2006'	Place attachment	intrapersonal
'heathland'	Place attachment	intrapersonal
'safety'	Place dependence	intrapersonal
'social'	Place attachment/social dimension	interpersonal
'distance'	Distance decay	structural
'dog-friendly'	Place dependence	structural
'infrastructure'	Place dependence	structural
'environment'	Place dependence	structural

3.6.1 Patterns of greenspace use

RQ 1a Examine how often and when residents visit different types of greenspace in the Thames Basin Heaths Zone of Influence

Table 3 Distribution and mean distance of nearest greenspace

Nearest greenspace type	**Percent of nearest greenspace (n=156)**	**Mean distance km (Standard error)**
SANG	87.8	2.06 (0.11)
SPA	12.2	4.99 (0.14)

The results in Table 3 confirm that the implementation of SANGS has resulted in most of the new housing developments being situated on average nearer to a SANG than a SPA site. This was the desired spatial arrangement underlying the strategy which was to ensure that the location of a SANG would enable it to deflect or intercept residents away from visiting the SPA.

Table 4 Proportion of most frequently visited greenspace by type of greenspace

Most frequently visited greenspace	**Percent (n=170)**
SANG	61.2
SPA	38.8

Table 4 shows that significantly more respondents visited a SANG than the SPA; therefore, it could be argued that the strategy is successful in attracting people away from the SPA.

Results in Table 3 showed that for 87.8% of respondents their nearest greenspace was a SANG; however, results in Table 5 below show, unexpectedly, that only 14.7% of respondents who chose a SANG chose to visit their nearest SANG. This indicates that most residents are not visiting their nearest SANG but one further away. It could be argued that, although unexpected in terms of how the policy functions, this is of no consequence if most residents still choose a SANG.

Table 5 Proportion of residents who choose their nearest SANG

Respondents who chose their nearest SANG	**Percent (n=170)**
Yes	14.7
No	85.3

The following (Table 6) shows the results of Chi-squared tests which indicate that there is no clear relationship between having a SANG as their nearest type of greenspace and choosing a SANG as their preferred place to visit.

Table 6 Variables related to SANGs and greenspace choice

Variable	**Greenspace choice**	**Per cent**	**Test result (chi^2)**	**p-value**	**n**
SANG is the nearest greenspace	SANG SPA	62.0 38.0	$Chi^2 = 0.12$	0.728	156
'travelled under 5km'	SANG SPA	71.0 29.0	$Chi^2 = 3.15$	0.076	156
'dog-walking'	SANG SPA	63.3 36.7	$Chi^2 = 0.09$	0.768	169
'daily'	SANG SPA	75.0 25.0	$Chi^2 = 2.69$	0.101	170
'dog-friendly'	SANG SPA	68.3 32.7	$Chi^2= 1.71$	0.19	163
'breeding season'	SANG SPA	61.8 38.2	$Chi^2 = 0.97$	0.324	170
'since 2006'	SANG SPA	71.3 28.7	$Chi^2 = 15.71$	0.00***	149
'not visit other'	SANG SPA	88.3 11.7	$Chi^2= 5.71$	0.02*	134

Note: ***p < 0.001; **p < 0.01; *p < 0.05.

Table 6 above shows that there was not a significant association between the numbers of residents who chose a SANG and travelling less than 5km to their preferred greenspace. This indicates that having a SANG within 5km of new housing development is not effective.

The results showed that 56.5% of the respondents visited the site for walking without a dog and 17.8% for walking with a dog. SANG Policy was developed to mitigate for disturbance and particularly disturbance from dogs. The percentage of dog walkers if assumed to be dog owners (17.8%) is not significantly different to the percentage of dog owners in the population of the South East (20%) (PFMA, 2010-11). $\chi^2(1) = 0.465$, $p > 0.05$*. To be effective, SANGs should attract dog walkers, and this was not supported by the results as neither dog walking, daily visits nor rating dog-friendly attributes as important were significantly associated with choosing a SANG. This highlights a serious failure of the strategy which is targeted at dog walkers.

Results showed that 97.1% of visitors were found to visit in the bird-breeding season (Appendix 4). There was no association between choosing a SANG and visiting in the breeding season, and this was to be expected as the team of strategic access, management and monitoring (SAMM), wardens employed to increase awareness and manage access at the SPA had not been deployed at the time of the survey. There was also no association between dog walking and visiting in the breeding season.

The was a significant association at the 0.01% level between being new to living in the zone of influence since 2006 and preferring to visit a SANG. This means that the policy is effective at targeting residents who have no previous attachment to greenspace in the zone of influence.

Table 7 Proportion of respondents who visit other sites

Respondents also visit other sites	**Percent (n=170)**
Yes	87.3
No	12.7

Table 7 shows that 87.3% of respondents also visited other sites and in Table 6, the evidence indicates that residents who choose SANGs are significantly associated with not visiting any other sites at the 5% level. This means that SANGS is effective as residents are more likely to become attached to their preferred SANG and not visit other greenspaces.

3.6.2 The role of distance

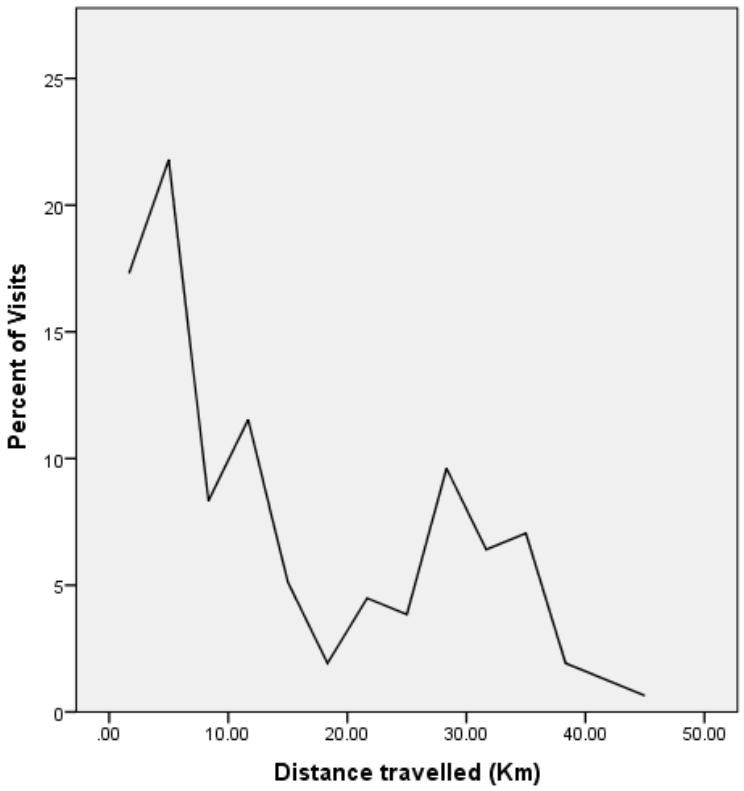

Figure 15 Percentage visits by distance travelled in km shows an exponential decay curve which supports the assumption of distance decay theory underlying the strategy

The line graph (Figure 15) was created using SPSS software and shows that the percentage number of visits decreases as the distance travelled from home increases. The number of visitors also decreases as the distance from home increases see Appendix 6. There are several secondary peaks in the distance decay, 22Km, 30Km and 35Km; these occur because there is not equity of opportunity to visit a greenspace at every point along the curve. The average distance travelled to the most frequently visited location was 14.6km with a range of .0km - 45.7km. This is over nine times further than the maximum catchment distance of 5 km for a SANG. This suggests that residents are travelling much further than expected according to the assumptions of SANGS.

Table 8 Mean distance travelled to preferred greenspace

Variable	**Greenspace choice**	**Means in km (Standard error)**	**Test Result (t-test)**	**p-value**	**n**
'Distance' to preferred location	SANG SPA	11.38 (1.32) 15.11 (1.26)	2.12	0.036*	141

Note: ***p < 0.001; **p < 0.01; *p < 0.05.

Table 8 shows that, on average, respondents travelled significantly less far to a SANG than the SPA at the 5% level which indicates that the policy is working based on distance decay theory.

Table 9 Mode of transport, proximity and duration of visit associated with choosing a SANG

Variable	**Greenspace choice**	**Per cent**	**Test Result (chi^2)**	**p-value**	**n**
Visits on foot	SANG SPA	81.5 18.5	19.56	0.000***	156
Has a SANG within walking distance (bespoke)	SANG SPA	77.5 22.5	5.86	0.015*	170
Duration of visit < 45 mins	SANG SPA	78.8 11.2	14.48	0.000***	169

Note: ***p < 0.001; **p < 0.01; *p < 0.05.

The mean distance to a bespoke SANG is 0.176km (S.E. 0.029) and defined as within walking distance from the housing for this study. Table 9 shows that having a SANG within walking distance of development was associated with preferring to visit a SANG at the 5% level. The results for visiting by foot still indicate that people do prefer SANGs for short nearby visits and that perhaps 5km is too far to catch this effect, also given that the mean distance to the nearest SANG is 2.06km

Results showed that 78.8% of respondents visited their most frequently visited location less than 100 times a year and that 16.5% of respondents visited daily and 56.5% visited only at the weekends and in holidays (Appendix 5)

Descriptive analysis of the mode of transport showed that 38.3% of respondents travelled on foot and, as shown in Table 9, travelling by foot was significantly associated with choosing a SANG at the 0.01% level. Results from frequency tables in Appendix 5 show that 39.1% of respondents visited for less than 45 minutes and, as shown in Table 9, visitors who did visit for less than 45 minutes were significantly associated with choosing a SANG at the .01% level. This indicates that SANGs are preferred for short visits that can be done on foot.

In summary, the spatial arrangement of SANGs was as expected as SANGs are the nearest greenspace option for the majority residents of new housing developments in the Zone of Influence. The significant majority of respondents preferred to visit a SANG over the SPA; however, only 14.7% of residents chose their nearest SANG (Table 5). Critically, SANGs do not appear to be effective at attracting dog walkers who are the main target of the policy. On average, residents travelled further to visit the SPA than a SANG and, overall, travelled much further than expected. There was no significant association between choosing a SANG and travelling under 5Km which was the assumption of the policy.

Moving into the Zone of Influence after 2006 for the first time is a significant factor affecting greenspace choice and residents were significantly less likely to visit other sites if they preferred to visit a SANG. Visiting for less than 45 minutes and travelling on foot was also significantly associated with preferring to choose a SANG.

3.6.3 On-site activity

RQ 1b For what activity do you use your chosen greenspace?

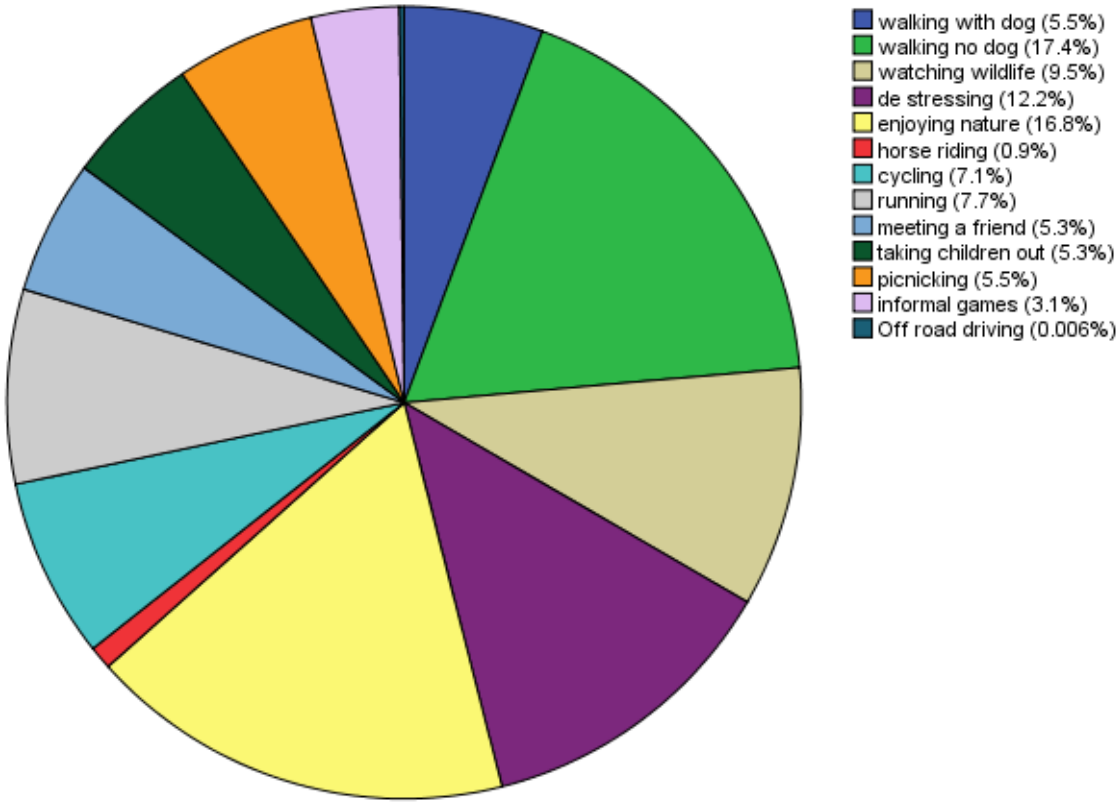

Figure 16 The purpose of visiting sites

(Proportions are calculated from a total number of answers as some people visit for more than one reason, n = 170.)

Activity on the most preferred greenspace was used to identify if the site performed a function for the respondents which made them dependent on that type of greenspace and was, therefore, used to test place dependence. Most activities can be carried out on both types of greenspace, but it is important to know if any type is associated with an activity see Appendix 7. The variable 'Passive enjoyment' was one of the reasons 66% of residents visited their most frequently visited greenspace. This included walking with a dog, walking without a dog, watching wildlife, enjoying nature and de-stressing. The variable 'Active enjoyment' was one of the reasons 42% of residents visited their most frequently visited greenspace such as horse riding, cycling and running. Also, the variable 'Social activity' was given as one of the reasons 44% of residents visited their most frequently visited greenspace. This included meeting a friend, taking children out, picnicking and

informal games. The variable 'Social activity' represented the Social dimension of Place attachment when tested in the model.

Neither active nor passive nor social activity variables were significantly associated with choosing a SANG.

RQ1c What is the relationship between site attributes and choice of greenspace?

The five variables describing the attributes of a SANG were previously described in Chapter 2. 'safety' was rated as important by 66.3% of respondents, 'dog-friendly' as important by 38.1%, 'infrastructure' as important by 69.3%, 'accessibility' as important by 91.3% and lastly 'environment' as important by 96.9% of respondents (see Appendix 7)

Table 10 Attributes significantly associated with preferred greenspace choice

Variable	**Greenspace choice**	**Per cent**	**Test Result (chi^2)**	**p-value**	**n**
'safety'	SANG SPA	65% 35%	3.87	0.049*	166
'infrastructure'	SANG SPA	68% 32%	7.37	0.007**	166

Note: ***p < 0.001; **p < 0.01; *p < 0.05.

Two variables, 'safety' and 'infrastructure' had a significant association with choosing a SANG as shown in Table 9. The variables 'safety' and 'good infrastructure' represent place dependency as they are related to the function that SANGs provide for visitors. Variables representing the environment were not significantly associated with choosing a SANG.

RQ 2b Assessing the level of awareness of and attitudes to nature conservation issues affecting the Thames Basin Heaths SPA in the eligible population

Frequency tables for these results can be found in Appendix 8. Awareness of an alternative site is fundamental to the decision to visit it, and one of the roles of the SAMM wardens is to increase awareness and understanding of the issues facing the SPA. A chi-square goodness of fit test on the number of respondents by the variable 'heard of SPA' was not found to be significant $\chi^2(1, n=168) = 1.16$, $p > .05$. Therefore, there was not a significant number of respondents who had

heard of the SPA compared to chance; 44.8% said no, they had not heard of the SPA, and 54.2% said yes, they had.

The variable 'gave correct reason designated SPA' coded 1 and 'not the correct reason designated SPA' coded 0 was answered by 54.2% of respondents, of which 75.3% answered correctly. A chi-square goodness of fit test on number of respondents by variable 'correct reason' was significant χ^2 (1, n = 93) = 3.097, p < .05*; however, knowledge of conservation issues affecting the area was not associated with choosing a SANG over the SPA which could be described as pro-environmental behaviour. Knowledge of conservation issues does not have a clear association with behaviour.

RQ 2c What information source affects a resident's choice of greenspace?

Table 11 Initial source of information used to find preferred greenspace

Variable	**Greenspace choice**	**Per cent**	**Test Result (chi^2)**	**p-value**	**n**
Finds site by the entrance sign	SANG	86.9			
	SPA	13.1	7.56	0.006**	169

Note: ***p < 0.001; **p < 0.01; *p < 0.05

The most frequent way of initially finding a greenspace was by word of mouth at 38.5% and by entrance sign at 13.6% (Appendix 5). However, finding a SANG for the first time after noticing an entrance sign was significantly associated with choosing a SANG at the 1% level. Although this is not important for repeat visits, it is worth noting as the purpose of SANGS is to enable residents in new housing to cultivate the habit of visiting a SANG in preference to the SPA and awareness of SANGs is fundamental for this process.

RQ 2d *Find out if the choice of greenspace is influenced by prior knowledge of the TBH Zone of Influence.*

The frequency table in Appendix 5 shows that 63.1% of respondents answered that they had not lived in the study area before 2006 and, therefore, it can be assumed that there was no previous place attachment or local knowledge of alternative sites when they moved in. Results previously shown in Table 6 indicate that there is a significant association between living in the Zone of

Influence since 2006 and choosing a SANG at the 0.01% level. The target population of new residents is more likely to prefer visiting a SANG.

3.6.4 Demographic and background information

Results from the survey show that respondents were similar regarding employment status, gender balance and age but significantly better educated and more likely to be white than the population representative of the established residential communities (O.N.S., 2011, O.N.S., 2013a, O.N.S., 2013b). Table 12 below, shows that more people were members of conservation organisations than found in the National Survey of Attitudes and Behaviour towards the Environment SABE 2009, (Buchs, 2014).

Frequency tables for these variables can be found in Appendix 8. Results show that 55.4% of respondents grew up in an urban environment and that 32.5% of respondents are members of environmental or conservation organisations. In answer to questions about the importance of home environment and wildlife, 98.8% of respondents stated that their home environment is at least important to them and 85.4% of respondents said they were interested in wildlife**.**

These variables, along with the five demographic variables (Appendix 9), were analysed to see if they influenced the choice of greenspace. Bi-variate analysis showed that none of these variables were significantly associated with preferring to visit a SANG over the SPA. There appears to be no relationship to pro-environmental attitudes and pro-environmental behaviour, for example for visiting a SANG instead of the SPA.

Table 12 Relationship between membership of a green organisation and age

Variable	**Age category**	**Per cent**	**Test result (Chi^2)**	**p-value**	**n**
Member of a green organisation	Under 60 years old Over 60 years old	25.5 61.3	14.81	0.000***	168

Note: ***p < 0.001; **p < 0.01; *p < 0.05.

Table 12 shows that residents over 60 years old are more likely to be a member of a green organisation than those under 60 years old; this may be related to income or more free time available.

Table 13 Relationship between membership of a green organisation and distance travelled to preferred greenspace

Variable	**Membership of the green organisation**	**Means in km (S.E.)**	**Test Result (t-test)**	**p-value**	**n**
'distance'	Member Non -member	18.9(1.83) 12.7(1.09)	3.08	0.005**	155

Note: ***p < 0.001; **p < 0.01; *p < 0.05.

Table 14 Relationship between age and distance travelled to preferred greenspace

Variable	**Age**	**Means in km (Standard error)**	**Test Result (t-test)**	**p-value**	**n**
'distance'	< 60yrs >60yrs	13.3(1.00) 20.2(2.6)	2.84	0.02*	155

Note: ***p < 0.001; **p < 0.01; *p < 0.05.

Tables 13 and 14 show that non-members travel significantly less than members who are more likely to be over 60 years old. This result is unexpected in that members of a green organisation might be expected to visit a SANG and travel less to reduce their impact on the environment. Travelling further could be linked to increased leisure time in retirement.

Table 15 Characteristics of residents who do not visit a SANG despite it being the nearest greenspace

Variable	**Does not choose to visit SANG when nearest greenspace**	**Per cent**	**Test Result (chi^2)**	**p-value**	**n**
Member of green organisation	Member Non-member	63.9 36.1	4.31	0.03*	155
Duration of visit	<45 mins >45 mins	37.1 62.9	4.57	0.032*	155
Visits daily	Daily Not daily	12.7 87.2	9.80	0.002**	156
'visits other sites'	Visits other sites Does not visit other sites	89.4 10.6	6.62	0.01**	122

Note: ***p < 0.001; **p < 0.01; *p < 0.05.

Table 15 shows the characteristics of residents for whom the policy fails, despite the fact that the nearest greenspace is a SANG, they choose to visit another greenspace. At the 5% level, they are significantly more likely to be a member of a green organisation, significantly more likely to visit for longer than 45 minutes abut are not likely to visit on a daily basis. At the 0 .01% level, they are significantly more likely to visit other sites as well as their preferred greenspace.

3.6.5 Logistic regression on choosing a SANG

The following table 16, is used to display three multivariate models of logistic regression with the dependent variable 'Chooses a SANG'. Firstly, comparing different models in this way is a way of checking whether certain variables of interest remain significant if other variables are added to the model (Buchs and Schnepf, 2013). If they do remain significant, they are independently linked to the dependent variable even controlling for additional factors. The second point of interest is if the coefficients change in the level of significance, strength and direction of the relationship if additional variables are added to the model. This also enables the theories underpinning SANGS

to be tested in the hierarchy of the theoretical framework and assesses the influence of variables representing theories on greenspace choice. The beta-coefficient represents the change in log odds if the independent variable changes by one unit, and its negative or positive value indicates the direction of the relationship. The Wald statistic has a Chi-squared distribution and the larger the Wald statistic, the more significant the variable in the model.

Table 16 Logistic regression on choosing a SANG

		Model 1		**Model 2**		**Model 3**	
Constraint	**Variables**	**β**	**Wald**	**β**	**Wald**	**β**	**Wald**
Intrapersonal	'since'	3.26***	20.48	3.88***	21.35	6.57***	15.14
Intrapersonal	'heathland'	-0.71	0.87	-1.12	1.71	-1.75	2.35
Intrapersonal	'safety'	1.58**	6.73	1.72*	6.30	0.05	0.00
Interpersonal	'social'	2.18*	4.91	2.25*	4.88	4.28**	6.88
Structural	'distance'			-0.08**	8.71	-0.18***	10.39
Structural	'dog-friendly'					-3.03	1.51
Structural	'infrastructure'					4.95**	9.28
Structural	'environment'					2.22	0.17
	Constant	3.09***	14.70	2.26*	0.10	6.78	1.42
	Hosmer and Lemeshow X^2	1.9 (5)		2.8 (8)		5.3 (8)	
	% correct predictions	79.5		81.8		86.4	
	Nagelkerke's R^2	0.538		0.628		0.765	
	-2 Log Likelihood	75.25		64.76		45.90	
	Sample size	141		141		141	

Note: The dependent variable is coded 1 if the participants choose a SANG and 0 if they did not choose a SANG. ***p < 0.01; **p < 0.05; *p < 0.1.

The variables representing the different theories underpinning SANGS and associated constraints in the Leisure Constraint framework were added to the model in the hierarchical order of the framework. Model 1 included the following variables and constraints that were intrapersonal: 'since', represented having no prior knowledge of any of the greenspaces in the zone of influence before 2006 pre-SANGS i.e. a non-attachment to any greenspace in the Zone of Influence compared to those with a previous attachment; 'heathland' represented an attachment to heathland associated with childhood environment as opposed to another landscape type, and 'safety' those to whom safety was important compared to those to whom it was not important. The variable 'social', represented those to whom social interaction was important compared to those to whom safety was not important, it is an interpersonal constraint that was also included to represent the social dimension of place attachment.

The second model included the variable 'distance' which is a structural constraint and represents distance-decay theory, an assumption of SANGS in the framework. The third model also includes three variables: 'dog-friendly', 'infrastructure' and 'environmental' that are attributes of the greenspace and structural constraints which represent place dependence theory, an assumption underpinning SANGS. The final model shows that no previous attachment to a greenspace 'since' was the most important variable, followed by distance travelled from home 'distance' then site infrastructure 'infrastructure' and finally social interaction 'social'. No previous attachment to a greenspace, valuing site infrastructure and social interaction highly, all positively significantly influenced choosing a SANG in the model. Distance from home was a negative influence one choosing a SANG.

There is a possible modifying effect between valuing infrastructure as important and travelling longer distances on the importance of safety and social interaction which are both significant in model 1 'safety' ($\beta = 1.58$, $p < .01$) and 'social' ($\beta = 2.18$, $p < .05$). However in model 2 people who travel longer distances find safety less important for choosing a site ($\beta = 1.72$, $p < .05$) and in model 3 valuing infrastructure as important takes away the effect of valuing safety ($\beta = .05$, $p > .05$) i.e. the concerns of safety are addressed by a site with good infrastructure possibly because it gives the impression that the site is looked after by countryside staff and they may be present on-site. People who value good infrastructure also value social interaction more ($\beta = 4.28$, $p < .01$). Good infrastructure such as seating enables social interaction which in turn might reduce safety concerns if people visit the site together with others.

Many models to predict choosing a SANG were tested by entry method which enabled the best theoretical fit to be found. The Chi-squared value 5.3 (*df* 8) of the Hosmer and Lemeshow test was not significant $p > .05$ which indicated that the final model was a good fit to the data. The

classification results supported the conclusion of an overall good fit as the percentage of correct predictions increased from 56.8% in the null model (not shown in table) to 86.4% in model 3 after all the predictors were added.

The Nagelkerke R^2 value of model 3 at 0.765 showed that 76.5% of the variance in the dependent variable was explained by the independent variables.

The -2Log Likelihood test was significant for model 1 = 75.25 (*df* 5) p*** < .001 which indicated that the model was more effective than the null model and therefore a good overall fit. The decrease in the -2Log likelihood to 64.76 (*df8*) in model 2 and to 45.90 (*df8*) in model 3 indicated that the accuracy of predicting outcomes increased as the other variables were added into the model.

Residents who chose a SANG were more likely to have no prior knowledge of the area before moving into a new development, have a SANG preferably walking distance from home, value good site infrastructure and visit with or meet people on-site.

3.7 Discussion

3.7.1 Patterns of greenspace use

RQ 1a Examine how often and when residents visit different types of greenspace in the Thames Basin Heaths Zone of Influence

The postal survey identified the pattern of greenspace use of residents in new housing developments within the zone of influence and established that significant numbers of residents chose to visit SANGs in preference to the SPA. However, most residents did not choose to visit their nearest SANG most frequently but travelled much further to visit other SANGs or the SPA. The policy is working to the degree that most residents visited a SANG, but some of the assumptions underpinning SANGS are not supported by the survey results. The evidence that SANGs are not attracting dog walkers could indicate a failure of the policy. However, the numbers of dogwalkers responding to the survey were low so cannot be considered representative.

Nevertheless, substantial numbers of residents from new developments were visiting the SPA despite the results of a longitudinal study concluding that there was no significant evidence that overall visitor numbers had changed between 2006 and 2012/13 (Liley et al., 2006c, Fearnley and Liley, 2013). If this is correct, the SANGs may have diverted some established visitors away from the SPA.

The majority of respondents also visited other sites, and this is in line with Clark (1985) who found that people pick and choose from a selection of sites within a certain travel distance from home. The results show that residents like to visit a variety of sites and that, as they age or have more available time, they travel further and spend longer on site. This again echoes the portfolio of places needed over a lifetime suggested by Swanwick (2009) and Daniel (2012).

It is evident that SANG strategy has provided closer greenspace as a SANG for most new residents. However, in the survey, fewer respondents visited their nearest greenspace than expected, this reflects results of research on commuter destinations (Yang M, 2010, Shu et al., 2014, Samdahl and Jekubovich, 1997). Nevertheless, despite a SANG usually being the nearest greenspace, residents chose to travel further and visit other SANGs or the SPA most frequently.

The optimal threshold for walking to a destination is consistently reported at approximately one mile or 1.6Km (McCormack et al., 2011, Shu et al., 2014, Mackett, 2003, McCarley, 2011). The results of this study support the existence of a threshold as there is a significant association between travelling by foot and choosing a SANG and that the 5km boundary is not effective because of distance decay. Mackett (2003) found that, in Great Britain, the car was the dominant mode of transport for trips over a mile (1.6Km) and Clark (1985) found that a greenspace needed to be next door to increase the likelihood of travel by foot.

There is perceived effort in walking to a greenspace (Loukopoulos and Gärling, 2005) but, in contrast, the results of this study suggest that there is also a psychological barrier to driving to a greenspace. Once this is overcome, residents probably drive to somewhere they like, and distance is not of concern. A study examined what drives UK car use in a meta-analysis of 23 datasets and results showed that anti-driving attitudes were more significant than pro-driving attitudes regarding car use (Gardner and Abraham, 2008). Respondents who do not travel by foot are more likely to visit large sites and stay for longer than 45 minutes. One other explanation of the long driving distances is that visits to greenspaces might have been combined with visits to other destinations, as in the case of a study by Yang et al. (2010) which looked at intermediate trips within commuter travel patterns.

In addition to an acceptable walking distance, Shu (2014) identified an optimal walking distance which was 40% of the accepted distance, and this may be explained by the existence of inertia towards both driving and walking that presents as a compromised distance in real life. Degenhardt et al. (2011) found that temporal distance could predict use of nearby outdoor recreation areas in Switzerland. Also, Adinolfi et al. (2014) found that living within a radius of 15 minutes of an urban greenspace in the city of Granada was associated with daily use as having greenspace close to housing both initiated and maintained an increase in recreational walking

(Sugiyama et al., 2013). This supports the results of this study that respondents who lived in a development with a SANG within walking distance were more likely to choose a SANG. Walker and Crompton (2012) identified that the probability of use was higher in proximal households than non-proximal households and that perceiving a park as accessible by foot increased the likelihood of visiting by 9%.

The results of the survey suggested that walking was the travel mode of preference and if there was a greenspace perceived to be within walking distance, i.e. a bespoke SANG, which was 'on the doorstep', it was most likely to be chosen especially on a frequent basis. If there was no greenspace perceived to be available within walking distance, then residents were more likely to get into their car. Once people decided to drive to a greenspace, they may have become more willing to travel to somewhere they preferred, regardless of the distance and were, therefore, less likely to choose a SANG and, in turn, more likely to have chosen the SPA. This was the case for weekend travel too.

RQ 1b For what activity do you use your chosen greenspace?

Walking with dogs especially off lead is a significant cause of disturbance to the Annex 1 bird species, and SANGS was developed to mitigate against the increased disturbance from visitors with dogs. This is an issue, as some people decide to move to rural locations or ones with greenspace to facilitate keeping animals (Milburn et al., 2010).

Place dependence is a structural constraint, and SANGS reduced or removed this constraint by providing dog-friendly attributes for walkers. Also, how dog walkers perceive the quality of their dog's experience on a site is paramount to the decision to repeat visits (Edwards and Knight, 2006). In many studies, dog walking or walking are the most popular activities when visiting a greenspace. Most visitors to the Thames Basin Heaths SPA were both dog walkers and daily visitors (Liley et al., 2005, Fearnley and Liley, 2013).

The survey found that many more residents from new developments walked in greenspace without dogs than with dogs and this was unexpected. The percentage of dog owners was not significantly different from the percentage of dog owners in the South East. However, it was surprising and is important to note that dog-walkers did not travel as far or were not more likely to have chosen a SANG than non-dog walkers. Contrary to the assumption that SANGs should have attracted dog walkers, the results of this study showed not to be the case. The results contradict evidence that providing dog-related infrastructure positively affected the decision to choose a public open space (Cutt et al., 2008b).

Despite the weight of evidence supporting the fact that dog ownership is often the factor that significantly increases the frequency of use of nearest greenspace (Sehatzadeh et al., 2011, Schipperijn et al., 2010b, Cutt et al., 2008a, Westgarth et al., 2015), the survey results indicate otherwise.

A high percentage of respondents work full-time which may explain the low number of residents from new developments visiting for dog walking compared to the SPA survey (Liley et al., 2006c).

More respondents visited a greenspace for cycling or running than dog walking. This is possibly a reflection of the different demographic of residents in new developments. It also suggests that people do not discern between the SPA and SANGs regarding one type providing a specific function that is not provided by the other type of greenspace. Social activity was the only activity significantly associated with choosing a SANG, and this may be because visitors are mitigating safety concerns by visiting with a companion and some of the larger SANGs have extensive infrastructure such as cafes which are conducive to social activities.

RQ1c What is the relationship between site attributes and choice of greenspace?

The attributes of a greenspace are a structural constraint and an aspect of place dependence in that they can be the reason for attachment. There is evidence from the literature that infrastructure is a factor affecting greenspace choice (Liley et al., 2005). In the survey, infrastructure was identified as one of the qualities of greenspace features that attracted people to greenspace valuing 'infrastructure' as important; i.e. way marked routes, surfaced paths and somewhere to sit down was significantly associated with choosing a SANG and was a predictor for choosing a SANG in the model.

Safety concerns are highly correlated with gender, especially in places of low use with few people to be seen (Arnberger et al., 2010). Several studies have cited safety as a factor in the choice of greenspace; it is a dynamic intrapersonal constraint that can vary with time of day or week. However, when it is of concern, it is fundamental to the decision to visit a greenspace. Valuing safety as important was significantly associated with choosing a SANG but was not significantly associated with choosing a SANG in the final model. Constraints regarding safety appear to be overcome when a companion is present.

Despite 97% of survey respondents rating environment as important, no significant association was found between choosing a SANG and rating environmental variables highly.

RQ 2b Assess the level of awareness of and attitudes to nature conservation issues affecting the Thames Basin Heaths SPA in the eligible population.

The level of awareness about the SPA was much higher than other studies on public understanding of designated areas (Booth et al., 2009) where only a third of visitors to Sites of Special Scientific Interest were aware that the site was designated and understood what the designation meant. The issue of bird disturbance has been well covered by the local press for the last ten years and could have explained the high levels of awareness of and knowledge about the SPA.

The high level of awareness may also reflect the significantly high numbers of graduates and members of conservation organisations in the study area. Results showed that a third of respondents are members of organisations and this is significantly more than the number found in the 2009 Defra survey of public attitudes and behaviours towards the environment SABE (Buchs, 2014).

A very large percentage of respondents thought that their home environment and local wildlife was important. It is not uncommon that there are many more respondents who say that they think wildlife is important compared to those that pay for membership of a wildlife conservation organisation. Increased levels of awareness and knowledge and valuing the environment and local wildlife highly are factors conducive to membership of conservation organisations. Members of conservation organisations are associated with travelling further distances to a greenspace; this is probably because they are highly motivated to visit and able to negotiate the barrier of distance (White, 2008).

Awareness of the conservation issues do not appear to be associated with choosing a SANG, and this is indicative of the environmental attitude and behaviour gap confirmed in other studies (Kollmuss and Agyeman, 2002).

RQ 2c What information source affects a resident's choice of greenspace?

The survey showed that the most frequent way of finding a site was by word of mouth at (37.9%); this is supported by the literature (Bala and Goyal, 1998). Information gained while considering a choice can affect selection, the most common source of information being family and friends. People use the combination of their own experience with that of their neighbours to make decisions.

Respondents who found a greenspace by the entrance sign were significantly associated with choosing a SANG, and this illustrates the importance of signage in the role of raising awareness of greenspaces to initiate a visit. 'The ideally endowed site cannot be considered a substitute if it is inaccessible or if recreationists are unaware of it' (Clark and Downing, 1985). Lack of awareness has also been identified as a prominent barrier (Koohsari, 2013). This is an important finding as

residents in new developments travel considerable distances to visit greenspaces and signage clearly helps them to initially locate individual sites.

Awareness or knowledge is fundamental to the decision to visit a greenspace; if a greenspace is not part of an individual's awareness set, then it will not be chosen. It would seem likely that the conclusion from the literature that alternative sites, however perfect, will not be chosen if potential visitors lack awareness is supported by these results (McCool et al., 1984).

RQ 2d Does prior knowledge of greenspace in the TBH influence choice of greenspace?

Almost two-thirds of the respondents answered that they had not lived in the study area before 2006 and so were unlikely to have any existing knowledge of the surrounding greenspaces. Moving into the zone of influence after 2006, when SANG strategy was implemented, significantly increased the likelihood of choosing a SANG compared to respondents who had lived in the Zone before 2006. This means that SANG strategy is influencing the residents in new developments especially those who have no prior knowledge of the area. This supports one of the assumptions of SANGS which was that established residents would be attached to the SPA and would probably not be interested in visiting SANGs in contrast to residents new to the area who would be open to forming new habits.

The model tested for place attachment of habitat and landscape type, and if residents who grew up around a heathland habitat were less likely to choose a SANG in preference to a heathland SPA site, however, people could like heathland without growing up in it. There was no significant evidence of place attachment in the model despite previous studies to the contrary that show a preference for childhood landscape in greenspace choice (Swanwick, 2009).

3.8 Chapter Summary

- Significant numbers of residents chose to visit SANGs in preference to the SPA.
- Nevertheless, substantial numbers of residents from new developments visited the SPA.
- Most residents were not visiting their nearest SANG, but they travelled further than expected to visit other SANGs or another SPA.
- The 5km zone of influence catchment does not appear to be effective in influencing greenspace choice; however, there is a strong preference to travel by foot.
- SANGs may have diverted some pre-policy visitors away from the SPA.
- SANGs did not appear to attract dog walkers, the main target of the policy. However, the sample size may have influenced this result.

- There was evidence that intrapersonal and interpersonal constraints influenced the choice of greenspace as well as structural constraints.
- The theories of place attachment, distance decay, place dependence, the social dimension of place attachment and place identity underpinned and influenced greenspace choice.
- No previous attachment to the SPA was the most significant factor to explain greenspace choice, followed by the distance from home, the infrastructure on a site and social interaction.

Chapter 4: Identifying Factors that influence the Choice of Greenspace and Barriers to Visiting

4.1 Introduction

In the previous chapter, the results of the survey highlighted the need for further qualitative work to shed light on questions raised by the survey such as, why the distance travelled was so far, whether residents have an aversion to driving and whether having a local greenspace encourages dog ownership? It was, therefore, necessary to investigate the motivations and perceptions of residents in new developments regarding their choice of greenspace. Focus group research methods provided a better understanding of the behaviour, which consequently enabled and improved the recommendations for policy improvement.

4.2 Aim of the Study

The objective of this follow-on qualitative study was to identify factors that underpinned the residents' decision-making processes when choosing to use a greenspace and assess if they were potential barriers to the effectiveness of SANG strategy. It provided a deeper understanding of the policy-behaviour gaps identified by the previous quantitative survey (Creswell, 2003). The focus groups allowed place identity and the social dimension of place attachment to be further explored. The focus group protocol (see Appendix 10) was designed to unravel the drivers and constraints of visiting a greenspace and, furthermore, answer the questions that were generated from the quantitative survey results to:

- Assess the knowledge, level of awareness of, and attitudes to SANG strategy and sites
- Investigate if prior knowledge of an area affects greenspace choice
- Consider why respondents, on average, travel further than expected and do not always choose their nearest greenspace
- Consider whether SANGs were perceived as providing an equivalent experience to the SPA
- Consider whether the increased greenspace provided by SANGs encouraged dog ownership

4.3 Methods

4.3.1 Mixed Methods

The qualitative results, in this case from focus groups, were used to explain and interpret the results of the quantitative survey. Each method had equal priority.

4.3.2 Focus Groups

Focus groups are often used as an exploratory method when there is little knowledge about a subject. In the case of this research, focus groups were used to provide deeper insight into the reasons why residents use a greenspace and, as such, were evaluative rather than exploratory (Stewart and Shamdasani, 2014). Focus groups and surveys can complement each other well in mixed methods studies (Wolff et al., 1993). Focus groups are dynamic group discussions (Harrell, 2009) with the interaction between participants producing invaluable insights into the topic that may not necessarily be revealed by a survey or individual interview alone (Morgan, 1993, Kitzinger, 1994).

There is a debate about whether it is better to use homogeneous groups rather than heterogeneous groups for focus group discussion. Arguably, homogeneous groups provide a safe place for discussion, reduce inhibitions and maximise disclosure especially for stigmatised or marginalised individuals and allow comparison of responses by group (Seamon, 2014). However, heterogeneous groups are likely to result in more debate and change of opinion as alternative opinions are disclosed and discussed. Homogenous groups were chosen for this study.

There is also disagreement over the ideal number of participants for a focus group (Tang and Davis, 1995, Toner, 2009, Morgan, 1996), between four and twelve being the most common range quoted. If too large, a wide range of issues will be covered but possibly not in enough depth, and if too small, the range of discussion may be limited. It is common practice to over-recruit as participants often fail to turn up to pre-agreed groups.

The moderator plays the crucial role in a focus group and requires good interpersonal and leadership skills (Gibbs, 1997). The moderator ensures the smooth flow of the protocol and manages the different participants to maximise their contributions to the group. Difficulties can occur if a participant is very dominant and a good moderator will be able to draw in other participants if this occurs.

In the case of this initial study, recruitment was through third-party environmental groups associated with different SANGs. This approach was not very successful in terms of the numbers

recruited, and so an alternative approach was taken by enlisting a professional recruiting company which was much more efficient at recruiting groups of an adequate size. Members of the general public were approached and screened for suitability by asking how long they had lived in their housing development and then if they had a dog or not. Two focus groups were recruited by snowball sampling when a member of the public offered to contact residents that were known to use the bespoke SANG in their development. Recruitment stopped when the last focus group produced no new information, and the data collection was considered to have reached saturation point.

4.3.3 Focus Group Method in this Study

Focus group participants were recruited through existing contact lists from various organisations: The Fleet Pond Society, Hants and Isle of Wight Wildlife Trust, Lookering Volunteers, Friends of Ancells Farm, Crookham Common Parish Council and Jennett's Park Community Association. These groups were approached and asked if they would be willing to send a recruitment letter to members. All confirmed that they would not only send e-mails but also support the research by encouraging members to attend. Sampling was purposive and snowball; participants for the Bassett's Mead focus groups were recruited through a participant of the Hart dog walking focus group.

The focus group protocol consisted of twelve questions that were open, and it was not possible to answer them with a simple yes or no. Some questions included probes that were provided in anticipation of participants not providing enough depth to their answers. The protocol was approved by the University of Southampton Social Science Ethics Committee via the online system ERGO (see Appendix 9)

The first focus group was held in October 2014, initially as a pilot with a professional moderator from John Grain Associates, which doubled up as a training session for the author. Four out of six participants who had confirmed that they would attend participated in the focus group. Two Olympus VN- 5500PC digital voice recorders recorded the session in case one failed to record. The participants all contributed extensively to each question, and the recording was of good quality. The question order was changed slightly to facilitate the flow of discussion.

4.3.4 Changes to the Protocol Following the Pilot Session

There was a debate about whether to change giving out the handouts introducing SANGS, from just before the section on questions asking if the participants had heard of SANGS, to the start of the protocol. It was decided that it would potentially be distracting for the participants to have handouts at the start when they were supposed to be discussing other points and that it served the discussion better to keep it as originally planned.

4.3.5 Changes to the Recruitment Process

Several attempts at recruiting focus groups failed, so a different tactic was employed to improve recruitment and attendance. The professional recruitment services of John Grain Associates and a larger participant incentive of £50 per participant achieved a much-improved attendance in the focus groups that followed. The University Ethics Committee approved the amended protocol and incentive, accepting that the multiple failed attempts to recruit were justification for the changes.

An issue occurred which resulted in a change of plan regarding the type of participant. During the pilot focus group, a dog owner questioned why someone would be walking on a nature reserve without a dog and stated that he or she would be suspicious of such a person. A non-dog owner became very quiet and reticent for the rest of the focus group after that exchange. Likewise, non-dog walkers criticised dog walkers for not controlling their dogs. Dog ownership and dog walking are divisive and sensitive issues that can make it difficult for a heterogeneous focus group of dog walkers and non-dog walkers to draw out all the reasons for visiting a greenspace (Berg et al., 2004). Recruiting for separate dog walking and non-dog walking focus groups was deemed essential so all the issues could be spoken about freely without intimidation or stigma.

The focus groups were run from October 2014 to September 2015; this was over a longer time than expected due to the initial recruitment problems. The average length of a focus group was 62.8 minutes with a range of 43.08 - 80.07minutes.

Table 17 Focus group participant numbers

Focus group number	Name	Number of participants
1	Hants Wildlife Trust volunteers	4
2	Crookham Park residents	2
3	Hart dog walkers	6

Focus group number	Name	Number of participants
4	Hart non-dog walkers	4
5	Jennett's Park residents	12
6	Bassett's Mead dog walkers	8
7	Bassett's Mead non-dog walkers	7

All recordings were transcribed verbatim, using Express Scribe Transcription Software and subsequently analysed using NVivo 10 qualitative analysis software. Formatting all the transcriptions under three different heading styles facilitated the auto-coding of the transcription for ease of analysis. Ten themes emerged from the coding using an abductive approach, initially, coding inductively from scratch and then subsequently deductively when assigning themes to one of the three different barriers in the leisure constraints theoretical framework. Theme percentages were calculated by dividing the number of references per theme by the total number of references and code percentages were calculated by dividing the number of references associated with a code by the total number of references in the theme. The average focus group percentages were calculated according to the number of focus groups the codes and themes emerged from divided by the total number of focus groups (7).

Each participant was given an identifier indicating which focus group they participated in (1-7) whether they were male (M) or female (F), a dog walker (D) or non-dog walker (ND), moved in pre-2006 (O) or post-2006 (N) and if they visited a SANG most frequently or the SPA.

4.3.6 Focus Group Questions

Research objective 1 To identify the development of patterns of greenspace use within the eligible population and establish if residents choose to visit SANGs in preference to the SPA.

The quantitative survey alone was not able to provide complete answers to explain the pattern of greenspace use and visitor behaviour, so they were explored in the focus groups to see if the inferences were valid by asking the following questions:

- Which site do you visit?
- Is it the nearest?
- Did you actively seek it out?

- Do you visit other sites?
- Is how you get to a site (mode of transport) important to you and if so why?

Research objective 2 Identify factors that underpin the residents' decision-making processes when choosing to use a greenspace and assess if they are potential barriers to the effectiveness of SANGS.

RQ2a The reason for visiting greenspace

The following focus group questions were designed to identify the most valued attributes provided by the most frequently valued greenspace. The focus group were asked questions to understand the more esoteric reasons for visiting a greenspace as well as the functional reasons for visiting. The qualitative work also investigated the constraints participants face when choosing a greenspace and why journeys are often multi-destination. The importance of the route to a greenspace was evaluated as was whether or not the availability of greenspace encouraged and initiated dog ownership.

- What other characteristics attract you to a site and what are you looking for in a site?
- What do you experience and what experience do you value most when visiting a greenspace?
- What do you do on the site(s) you visit?
- What is the most important reason that you visit that site, compared to other sites within your reach?
- What do you find the biggest constraint to visiting a greenspace?
- Do you avoid visiting certain sites and if so why?
- Did the availability of accessible greenspace sites in the study area encourage you to get a dog?
- Does it, if you do not own a dog at present?

RQ 2b The level of awareness of, and attitudes to, SANGS and associated nature conservation issues affecting the Thames Basin Heaths SPA

- Do you have any views on how well or not wildlife or biodiversity is doing on the site you visit most?

    Why do you think this?

- Is there anything that you think you could do to improve wildlife and biodiversity on the site?
- Had you heard of Suitable Alternative Natural Greenspace Strategy (SANGS)?

  What do you think of the policy?
  Are you in favour of or against the policy?
  Why?

- Do you think visiting Suitable Alternative Natural Greenspace sites provide an equivalent experience to visiting the Thames Basin Heaths Special Protection Area sites?

  Why/Why not?

RQ 2c What information source affects a resident's choice to use a greenspace?

It was important not only to find out if participants knew about the strategy and the protected species in the area but if they were aware of sites. The knowledge inferred from the survey results was further explored by asking the following questions in the focus groups:

- Can you suggest the type of information source about access/location of greenspace that would have been useful to you when you first moved into the area?

RQ 2d Does prior knowledge of greenspace in the TBH influence choice of greenspace?

- Which site do you visit?
- Is it the nearest?
- Did you actively seek it out yourself?

4.4 Results

Table 18 Codes and themes

Themes	**Codes**	**No in focus groups**	**No of refs**
Attribute	safety	4	29
	infrastructure	4	14
	water	4	25
Barrier	avoid	6	24
	nasty dogs	5	26
	feeling unsafe	4	35

Themes	Codes		No in focus groups	No of refs
	time		5	25
	horses and cattle		3	24
	mud		3	13
	carpark fee		5	27
	access		3	14
	dog poo or litter		2	16
Experience	air quality		3	9
	beauty		4	8
	de-stress		6	24
	freedom		2	3
	naturalness		3	21
	outdoors		6	15
	size		4	7
	social encounters	+	6	22
		-	7	43
	solitude	+	4	13
		-	3	4
	space		4	10
	tranquillity		6	23
	variety		7	25
	view		5	10
Finding sites	explored		6	19
	local knowledge		4	12
	OS map		5	16
	website		7	75
	social media		6	49
	word of mouth		3	4
Importance of wildlife	negative		1	2
	positive		3	18

Themes	Codes	No in focus groups	No of refs
Influence getting dog	negative	7	35
	positive	5	27
Man management	negative	6	31
	positive	7	29
Policy	aware	5	14
	equivalent	6	39
	negative	3	28
	not aware	6	27
	positive	8	64
Preferred mode of transport	bicycle	1	1
	car	5	12
	foot	6	38
Proximity	combined route	4	16
	far	4	10
	near	7	36

Table 18 summarises the number of participants in a focus group who discussed a theme and the number of times a theme was referred to during the session

This section aimed to identify factors that underpin the residents' decision-making processes when choosing to use a greenspace and assess if they are potential barriers to the effectiveness of SANGS. The focus groups were designed to answer some questions that were raised by the survey, so a summary of the relevant survey results relating to some factors that affected the choice of greenspace use are presented at the start of the discussion. This enabled the mixed methods approach.

4.4.1 Distance

Research Aim 1 To identify the development of patterns of greenspace use within the eligible population and establish if residents choose to visit SANGs in preference to the SPA

Preference to travel by foot was mentioned 38 times in the discussion on the mode of transport in 6 focus groups. Participants in a focus group of SPA visitors expressed regret when they drove to a greenspace because they did not have the option to walk.

"I go to the one nearest because it's just out of my door" (7 F-ND-N-SANG)

*****

"Unfortunately, I have to drive everywhere; there is nowhere within walking distance which I would say is a greenspace which I feel like I could use." (1 M-ND-O-SPA)

*****

"Unless I'm meeting someone where I go further afield, I prefer to do the one on my doorstep because then I don't have to drive." (3-F-D-N-SANG)

*****

"*I prefer to be walking but will drive somewhere if it's somewhere nice to get to.*" (7 F-ND-N-SANG)

According to the survey results most participants also visited other greenspaces but if there was a SANG proximal to the development it was more likely to be visited the most frequently. In the focus groups, within the discussion on distance and proximity, the code 'near' was referenced 36 times. This is illustrated by the following exchange with the moderator:

"The SANG land is just off the development. We also go and use Fleet Pond as well; you've got Caesar's Camp, Bourley Rd, Beacon Hill Rd. That's one I go to quite regularly. The main one where I visit is the SANG lands off the Crookham Park development." (2-M-D-O-SANG)

"*And that's the nearest to you?*" (2-Moderator)

"*It is yeah, but the immediate walk that I do round the SANG land, I just walk from my house do the loop and walk back*." (2-M-D-O-SANG)

Far from being the easy option, having to get into a car and drive, especially if it involved a family and dogs was seen as much more effort than walking straight from the house. Having a greenspace next to home was seen as an advantage.

"Yes, it's very true up there because if you've got a time constraint you've got three children and a window. I really don't want to have to drive somewhere so, you know, all the times that I need something really quick I'll go down there for a little bit longer. If the children are round with my ex, I don't have to sit around, but generally, they are the places I go, yes. I don't mind using the car, but I wouldn't want to have to use the car every time – that would be a pain."(7 F-ND-N-SANG*)*

*****

"*My sister lives in the New Forest, right in the heart of it, but she still has to get in the car to walk anywhere, which is really silly, so she comes here, and we just walk*

straight from the house which is a huge thing and we have New Forest ponies in the woods (laughs)." (6 F-D-N-SANG)

There was the occasional comment when a participant expressed a preference to walk but admitted that, in reality, they drove. Participants, on the whole, were apologetic for driving or mentioned a caveat which explained why they had to drive. Driving may have been perceived as 'bad', contrary to walking which was perceived as a 'good' thing to do. During the discussion on the mode of transport, 16 references about the car were made in 5 focus groups.

"I think I would, actually being a bit lazy and not into driving, would rather just walk somewhere but the reality is I jump in the car." (7-F-ND-N-SANG)

*****

"but the other site that I probably use second most frequently would be Swinley Forest, and, unfortunately, I have to drive there because the walk is not very pleasant." (5-M-ND-N-SANG)

Many participants had multi-destination routes which were a result of time constraints and possibly offer an explanation for some of the unexpected large distances travelled that were reported in the survey. Within discussion on proximity, 16 references to combining multiple destinations with journeys were made in 4 of the focus groups.

"Of course, we've got green areas as well, and you could do the whole walk round without having to get in the car; again, you can have (inaudible) there. The other bonus because they go to school this way is that you are bound to bump into other people, friends, so it's all everyone sort of comes out with you; its socialising as well as exercising and walking the dog at the same time. It's a bonus really." (3 F-D-N-SANG)

*****

"We do yes; they are all convenient to us as a family so my dad is in Aldershot so we do lots around Aldershot because he's a carer for my step mum so we visit him to give him breaks; my daughter does violin lessons down there in that area so we'll often walk the dog across heathlands and moorlands there, and we do a lot in the New Forest because that's where I grew up, and my sister has recently moved back in the last couple of years. We do a lot around there, that's really just weekends and holidays." (6 F-D-N-SANG)

In summary, the focus group results supported the quantitative results predicting that, if there were a SANG next to new development, residents would walk to it in preference to getting in the car. There was also evidence of an aversion to driving to greenspace on a frequent basis. Distance clearly played an important role in the choice of the most frequently chosen greenspace but less so for less frequent visits. Personal schedule and place attachment explain why, on average, people travelled longer distances than expected and why they sometimes did not visit the nearest greenspace.

Research Aim 2 Identify factors that underpin the residents' decision-making processes when choosing to use a greenspace and assess if they are potential barriers to the effectiveness of SANGS.

RQ2a Reasons for visiting greenspace

4.4.2 Time

In the focus groups consisting of visitors to bespoke SANGs, lack of time was the primary constraint that participants came up with when asked to identify constraints to visiting a greenspace. It was named as a barrier on 25 occasions in 5 out of the 7 focus groups. Many of the participants had several time commitments regarding work and young families, leaving little free leisure time especially during the week. It was evident that walking was their preferred mode of transport, again particularly in the working week.

4.4.3 Infrastructure

In the quantitative survey, infrastructure was identified as one of the qualities of greenspace features that attract people to greenspace (Liley et al., 2005). Placing importance on 'infrastructure', i.e. way-marked routes, surfaced paths and somewhere to sit down, was significantly associated with choosing a SANG, and was a predictor for choosing a SANG in the model.

In the focus groups, participants were asked what factors attracted them to the site they visited most frequently. There were certain physical attributes that attracted visitors to a greenspace; the presence of water in some form was very desirable as were all weather surfaced paths which mitigated the constraint of bad weather and muddy paths mentioned previously. In 4 focus groups, infrastructure was referenced 14 times and water 25 times when discussing attributes that could influence the choice of greenspace. Muddy paths and mud were referenced 13 times in 3 focus groups.

"*I like going places where there's water; I like to go into Southwood Park cos there's a big water fountain, and there's a little, I don't know what it i,s, a lake or something. Yeah, so that for me is quite important, even the balancing pond in the parks; there's two little ponds that are nice to go and, you know, sit next to.*" (5 F-ND-N-SANG)

*****

"Again, if there are decent paths where they can go on their bikes, and that's another guarantee of encouragement to get them out. I think it's just easy access all the time really if you've got a family cos you can't go off-road just go off and make your own path cos you've got a pram, you've got the kids, it's hard work it's, if everything's ready for you, and it's clean and then anywhere is a great attraction basically." (3 F-D-N-SANG)

*****

"And some times of year the quality of the path is awful if the weather's bad, you know" (7 F-ND-N-SANG)

They were also asked if the accessibility of local greenspace encouraged them to get a dog. In 7 focus groups, 35 references to the question about greenspace encouraging dog ownership were negative. There were 27 positive responses to the same question in 5 focus groups.

"Nah, I would have said it wasn't the reason for us; it was more the fact that they wanted a dog. I've had dogs all my life, so we got one. We were out anyway so it didn't inconvenience our lives at all. We just got it, and if anything, it's made me realise how many walks you can go on; it's broadened." (3-F-N-SANG)

*****

"That wouldn't be my motivation for getting a dog." (7-F-N-SANG)

*****

"We wouldn't have got a puppy if we didn't have a greenspace very close by just for convenience really because we are busy and we both work, and we've got children, and it was really important, yeah." (5-F-N-SANG)

In summary, the focus groups confirmed that the lack of infrastructure is a structural constraint that is dynamic; at certain times of year, lack of all-weather paths is a problem and visitors will avoid a site until the surface is dry.

4.4.4 Safety

In the quantitative survey, respondents rated the attributes of their most frequently visited sites on a scale of very unimportant to very important. Valuing safety as important significantly increased the likelihood of choosing a SANG. Choosing a SANG was also significantly associated with visiting smaller sites and being female. Being female was significantly associated with rating lots of other visitors present as important and more so with the safety on site. Valuing safety as important was significantly associated with choosing a SANG; however, it was not a predictor for choosing a SANG in the model.

In the focus groups, safety was of utmost concern to most participants and feeling unsafe was the main reason cited for avoiding a greenspace. In 4 focus groups, discussion on barriers to visiting a greenspace was covered by references to feeling unsafe, and the discussion on attributes of a site in 4 focus groups was covered by 29 references to safety. The small size of SANGs made visitors feel safer and able to get out of an unsafe situation more easily. Alternatively, SPA sites are large and were seen as less safe because of the myriad of paths, long distances from access points and profuse scrub and tree cover. Typically, evidence of antisocial behaviour made participants feel unsafe and put people off visiting a greenspace or forced them to change their visiting times.

> *"Safety is paramount no matter what you do."* (4 M-ND-O-SPA)
>
> *****
>
> *"I also like where, if I see someone, I can take a little detour, and I don't have to walk past if I'm on my own and obviously it's quite quick to get out of Bassett's Mead if you need to."* (6 F-D-O-SANG)
>
> *****
>
> *"There were big gangs there and so I kind of pick what time I was going to go there. I might have gone Saturday afternoon, but I might not go on a Wednesday night; I might think twice about there and go somewhere else. Not, you know, they've probably got nowhere else to go but you just don't, you know, sort of want to be there on your own."* (5 F-ND-N-SANG)

Visitors to greenspace often mitigate safety concerns with a dog or a companion. Female visitors, in particular, preferred the presence of other visitors as it made them feel safer compared to male visitors. There is a twist to this explanation in that men often felt that they could not simply walk in a greenspace on their own as opposed to participating in an activity because they could be perceived as looking suspicious or intimidating. Notwithstanding this, safety was the most likely reason not to visit. Feeling safe in a greenspace or not is a highly personal perception; one person

may have no safety concerns about the same greenspace as another person who would never visit because of fear for their personal safety.

> *"I would agree that when I go there, I always feel there's a bunch of people and if you're on your own and the dog, it's quite nice.*" (5 F-D-N-SANG)

*****

> "*I have to admit that I look with suspicion at people walking on their own, in the woods, with no dog, men especially. I'm a bit wary; it's one of those sort of - why? He's on his own, he hasn't got a dog, he hasn't got a bicycle, he doesn't look as if he's taking a shortcut through to the railway station. What's he up to?"* (1-F-D-O-SPA)

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> "*Do you feel more confident with a dog as when you walk on your own*?" (3-M-D-N-SPA)

"*Yeah I do, yes.*" (3-F-D-N-SANG)

*****

> *"For a while, my wife had the dogs and I found it very difficult to go and walk on my own.*" (3 M-D-O-SPA)

In summary, safety, although dynamic, is an important constraint affecting the choice of greenspace. It was highlighted in the quantitative survey, and focus groups re-enforced the ultimate importance of it in certain circumstances as an intrapersonal constraint.

4.4.5 Place identity

There are many studies to support the importance of place identity as a factor affecting greenspace choice. It can be more important than distance or the attributes of greenspace in choosing a greenspace.

Focus group participants who lived within walking distance of a SANG saw it as a place of convenience with merits regarding the capacity to reduce and promote recovery from stress and to provide somewhere easy to experience the outdoors. The focus groups had 239 references to these passive activities in total. In the postal survey, both types of greenspaces were used passively in some way by 65% of respondents, i.e. for enjoying nature and de-stressing.

Participants who did not perceive that they had a SANG within walking distance were prepared to make an effort to drive to somewhere that they liked. They perceived the SPA because it was further away, as somewhere a bit out of the ordinary and special and perhaps somewhere they would drive to at the weekend to spend more time outdoors.

"*No, no, no not the nearest but my choice I think, because I do like it there and I go there once or twice a week, yes*." (5 M-ND-N-SANG)

*****

"*If it is for pleasure, just a weekend, then no it's not a problem, and I don't mind driving. The most important thing for me is there it's all about the beauty of the walk rather than, you know, how difficult it is to get there, you know."* (6 F-D-N-SANG)

*****

"For me, I would say that's a bit of a treat if I think I'm going to get in the car." (6 F-D-N-SANG)

*****

For some residents driving was not a problem and it was just a means to an end.

"It's not really important how I get there. I do like to drive and, a bit like you, I like to go exploring." (1 M-ND-O-SPA)

The overall impression of the majority of residents in new developments is that they are time poor, often because they have young families and work, so they have to take every opportunity to visit a greenspace when they can. There is no doubt that living next to greenspace is highly prized and seen as a valuable resource for de-stressing and rejuvenation.

> "*Without a shadow of a doubt having that greenspace there enriches our lives and it makes life a lot easier, a lot more convenient. It gets me out more, it enriches life in a whole heap of ways, you know, physically, mentally, everything."* (6 F-D-N-SANG)
>
> *****
>
> *"Can I just say I commute to London most days, so it's a complete contrast, and most of the area is very beautiful."* (1 F-ND-O SPA)
>
> *****
>
> *"It's where I get a sense of proportion about things, you know, things that seem to matter at work, don't matter a damn when you are out there."* (1 M-D-O-SPA)

Finally, participants were asked if they thought that visiting Suitable Alternative Natural Greenspaces provided an equivalent experience to visiting the Thames Basin Heaths Special Protection Area sites and again why. In 6 of the focus groups, there were 39 references covering policy agreeing that SANGs were an acceptable alternative to the SPA. Most participants, both dog walkers and non-dog walkers, agreed with the policy and thought that it was a good idea in principle and, in the case of dog walkers, that they would be willing to avoid areas sensitive for ground-nesting birds. Most participants, except the participants who had lived in the area pre-SANGS, agreed that visiting a SANG was not an equivalent experience compared to visiting the SPA, but it was an acceptable one as shown by the following quotes:

> *"You can tell that the SANGs are managed, they are kind of like urban parks; it's still a pleasant experience but not the same, not natural."* (3 M-D-O-SPA)

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"I would still go more on the SPA purely for the size." (2 M- ND-N- SPA*)*

"Yeah, and the more variety of routes that you can take." (2 M-ND-O-SANG)

*****

"But that's not saying that it's not as good, then we're saying…." (6 F-D-N-SANG)

"But there's nothing wrong with that; this is a treat. We're saying that this isn't the same." (6 F-D-N-SANG)

"But if we didn't have this SANG then we would be at those other places more." (6 F-D-N-SANG)

"Yeah maybe" (6 F-D-N-SANG)

"It's too far to go on a regular basis." (6 F-D-N-SANG)

"But we'd have to go if Bassett's Mead wasn't here." (6 F-D-O-SANG)

*"Yeah "(*6 F-D-N-SANG)

"Yes, it's ok, it's different." (6 F-D-N-SANG)

*****

"Acceptable for today" (7 F-ND-N-SANG)

"And convenient" 7 F-ND-N-SANG*)*

“Yes, cos you have to, most of us do drive further to get to somewhere more special.” (7 F-ND-N-SANG)

“But they're not a replacement for them.” (7 F-ND-N-SANG*)*

“Definitely not!” (7 F-ND-N-SANG)

“No, I wouldn't say it’s equivalent.” (7 F-ND-N-SANG)

To summarise, place identity plays an important role in choosing a greenspace; the focus groups were able to reveal the thought processes of visitors and explain the results of the quantitative survey and why they sometimes travelled so far to visit a greenspace. The landscape of a site was highly valued by the participants. However, place identity is often overlooked or undervalued in policy making, being seen as too esoteric or intangible to be considered as an important factor.

4.4.6 Social factors

Social factors are an important interpersonal constraint when choosing a greenspace, though they can be negative or positive.

The quantitative survey results showed that social interaction such as meeting a friend, picnicking, and taking children out was enjoyed by 43.8% of participants. However, the focus groups revealed new information about the importance of the social dimension not identified in the quantitative survey. When the sub-theme social interaction was discussed in 7 of the focus groups, 43 of the references had a negative association and, when the sub-theme of solitude was discussed, 13 were positive in 4 focus groups. For many participants, visiting a greenspace was a precious time to be alone and to appreciate the peace and beauty of nature. In the light of this, the chance of meeting other people, dog walkers with unruly dogs, the presence of dog fouling and litter would put them off visiting a greenspace. This is illustrated below, by quotes from several different focus group participants.

"I'm opposite. I don't want anybody there; I don't want other people to use it. It's my resource, and I'm not interested in other people. If they're inspired to go there, that's well and good, but I wouldn't want it. You shouldn't be encouraging people to go to these places. It's just for the sake of it, in my opinion, if they're inspired to do it they will go anyway. So, I’d rather not be bumping into them while I’m there thank you.” (1 M-ND-O SPA)

*****

"My son doesn't really like dogs, and quite often we've been out there because it is a big open space; dogs do run free, but then they run up, and they all jump up at you as you're walking, and because the owner is either way ahead or way behind

they can't control the dog. So we had period where we were put off going back to the country park just because he had some bad experiences." (5 F-ND-N-SANG)

*****

For other participants, social interaction was seen as an attractive factor during a visit to a greenspace.

"Sounds a bit like me; I like the socialising as well as the exercise." (3-F-SANG)

*****

"On the other way there if you want the company you know you're going to bump into somebody there." (6-F-D-N-SANG)

In summary, the focus groups identified social interaction of both the negative and positive type to be an important factor in choosing to visit a greenspace and, again, a factor likely to be omitted from the policy.

RQ 2b The level of awareness of, and attitudes to, SANGS and associated nature conservation issues affecting the Thames Basin Heaths SPA in the eligible population

4.4.7 SPA and SANG awareness

Survey respondents were actively using a greenspace in the Zone of Influence, so they were aware of the greenspace. They also appeared to be knowledgeable about the SPA designation and interested in wildlife.

However, the focus groups highlighted the lack of awareness of the existence of SANG sites and their purpose. Participants living next to bespoke SANGs could not fail to be aware of their presence, and many participants were aware of the larger SANGs with good signage and amenities. There was a lack of awareness of strategic SANGs within the Zone of Influence.

"I think you need to inform the local area that they've got this there because I bet there are hundreds of people that don't know that it exists." (6 F-D-N-SANG)

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"Yes, they should say shouldn't they: 'We are building greenspaces to encourage you to go there'." (6 F-D-N-SANG)

*****

"I think the communication is poorly handled." (6 F-D-N-SANG)

*****

"Googled it, because on some of the gates it's actually got SANG on it, so I googled it to see what the abbreviation actually meant." (3 F-D-N-SANG)

*****

"It was the same for me as well; I had no idea what the heck it meant." (3-F-ND-N-SANG)

4.4.8 Strategy awareness

The participants were asked if they had heard of Suitable Alternative Natural Greenspace (SANGS) and what they thought of the strategy. They were asked if they were in favour of the policy or not and then why they had answered yes or no. In 6 focus groups, 27 commented that they were not aware of the strategy and 64 commented that they supported the strategy when they were given information about it. The focus group of established residents who visited the SPA was much more negative and cynical about the strategy compared to the participants in focus groups who were living in new developments and visited SANGs.

"I agree, I do approve in that it is good but unless people know that it is there, you know, they obviously, I'm going to let my dog run wild. Obviously, if I'm told about them then I can take them to different parts or go a different way; also obviously, you know, with new build that go up, if there is a greenspace put with those new builds, and obviously, it may deter them from going into Swinley Forest just using that and you know keeping away from Swinley Forest obviously, a little bit more so yes it's a good idea." (5-M-D-N-SANG)

*****

"In this particular area, if you get in your car and drive 10 or 15 minutes, you can be practically anywhere; you can be in a completely different landscape, anywhere you want to go, probably in any direction as well, unless you're in one of the really big towns. I can't see that if there is a lot of expense in providing these things, and a lot of administration, then it all seems a little bit pointless to me, because people will do what they will do naturally, which is if they have something on their doorstep, they will use it until they are prevented from using it, physically prevented from using it, or they will drive where they want to go, whether it be a SANG or another beautiful area." (1-M-ND-O-SPA)

Awareness and knowledge about wildlife and the strategy were poor. Many participants appreciated and enjoyed the familiar wildlife they often spotted day to day. In general, there was a lack of awareness and appreciation of the rare birds and habitats on the SPA. Nevertheless, participants obviously derived great pleasure from everyday encounters with common species.

> *"The SANG lands are pretty good from what I can see. I mean, I still I haven't actually seen them myself but I know several of my friends have seen deer through there, I've seen foxes and squirrels and all different types of birds, so they don't seem overly bothered by the fact that housing estate is nearby and houses are being built a stone's throw from there. Evidence of residence you know, there might even be a foxhole or something like that after that stone path at the moment."* (3 F-D-N SANG)

*****

> *"Yeah, the rabbits are nice."* (3-M-D-N-SANG)

In summary, the results from the focus groups revealed a lack of awareness of the existence of SANGs and the strategy, that was not revealed by the quantitative survey. Awareness of greenspace is fundamental to the decision to visit; it is also a crucial factor when presenting an alternative place to visit, so it becomes part of the awareness set and part of a resident's range of options to visit. There was a positive attitude to the strategy especially from residents in new developments, and this could be exploited to enable SANGS to be more effective throughout the Zone of Influence. There is a window of opportunity for residents to be made aware of SANGs and for new greenspace visiting habits to be formed when they move into new developments.

RQ 2c What information source affects a resident's choice to use a greenspace?

Participants were asked to suggest the type of information source about greenspace that would have been useful to them when they first moved into the area. All focus groups had discussions where 75 references were about websites and 49 referenced social media in 6 focus groups. There was a perception that there is a need for improvement in communication to raise awareness of SANGs when residents first move into new developments. Many of the participants were not aware of many SANGs, and in particular, if they lived next to one, it was often the only one they were aware of.

> *"As mine was a new development, there were two hundred homes approximately put up, I would have liked to have seen something in the developer's pack listing all the park spaces, all the local schools, all the local groups and how to access. It wasn't until I joined a bumps and baby group, I know (Laughter), and mums were talking about websites they were using so: Facebook, mums in the know,*

Rushmoor sites on the Surry Heath site. At least, that's information where to go for the parks and other people's recommendations. So, I've gone from what I know to kind of a growing circle that's getting wider and wider." (4 F-ND-N-SANG)

*****

"Maybe they should say something about it in the developer's pack when you move in; maybe they should put the information in there." (6 F-D-N-SANG)

*****

"So nowadays we use the internet to research places." (7 F-ND-N-SANG)

*****

RQ 2d Does prior knowledge of greenspace in the TBH influence choice of greenspace?

Residents who had moved within the Zone of Influence were already attached to certain greenspaces and continued to use them.

"My husband was from the area, and we walked there with the children before I had a dog, so I knew the park was there." (4-F-D-SANG)

4.5 Discussion

Research Objective 1 To identify the development of patterns of greenspace use within the eligible population and establish if residents choose to visit SANGs in preference to the SPA.

Loukopoulos (2005), identified that there is a perceived effort in walking to a greenspace, but in contrast, the findings of the focus groups suggest that there is also a stronger intrapersonal psychological barrier to physically getting into a car to drive to a greenspace. Once this barrier is overcome, residents probably choose to drive to somewhere they like, and distance is not of concern. Effort minimisation was one of the core motives for driving, identified in a qualitative study examining the reasons for car-use in England (Gardner and Abraham, 2008).

Research Objective 2 Identify factors that underpin the residents' decision-making processes when choosing to use a greenspace and assess if they are potential barriers to the effectiveness of SANGS.

RQ2a The reason for visiting greenspace

SANGS assumed that existing SPA visitors would be too attached to the SPA to start visiting SANGs, so the policy was targeted at visitors who had moved into new developments. Visitors are more likely to become attached to the SPA because of the greater size of the sites (Giles-Corti et al., 2005b) and the fact that they are much more natural and evidence shows particularly strong place attachment for wilderness sites (Williams et al., 1992). The focus group findings supported the results of a multitude of studies that have shown that the aesthetic quality of greenspace is an important factor determining whether a greenspace is visited or not (Zhang et al., 2013, Jim and Chen, 2010, Van der Jagt et al., 2014, Sarkar et al., 2015), in the same way that Lachowycz (2013) found that greenspace type moderated the relationship between greenspace and health.

It is reasonable to infer from the survey results that if there is no greenspace perceived to be within walking distance, visitors will drive and this, consequently, increases the likelihood of choosing the SPA because of the attractiveness of their large size, and naturalness. This is corroborated by the focus group findings which confirmed that this inference was sound and that participants tended to visit somewhere that they liked and considered special if they were going to drive. In which case, they were likely to have travelled further than expected and they would have a tendency to stay longer on the SPA than a SANG, which is congruent with its larger size.

The survey identified passive enjoyment of greenspace as one of the most important reasons for visiting which included de-stressing and enjoying nature. This aspect of visiting greenspace was highly prized in focus groups regardless of whether the greenspace was a SANG or a SPA and was recognised as contributing to a participant's mental wellbeing. This agrees with the many studies that link visiting greenspace to wellbeing and the crucial re-affirmation of self-identity when encountering nature (Madureira et al., 2015, Lokhorst et al., 2014). Although this link to wellbeing was confirmed, the focus groups did not elicit information about how it is manifested, or allude to the psychological processes that were involved, which supports the identification of a lack of knowledge in this area (Su et al., 2016, Gilbert, 2016) and a recommendation for further investigation.

The survey results showed that well over a third of respondents used the greenspace they most frequently visited for social interaction, such a visiting with a friend, taking children out, picnicking or informal games. This result supports several studies that claim social bonds are an important driver to visiting a greenspace as illustrated by a Swiss study by Degenhardt (2011) which found that available companionship was a factor that positively affected the frequency of workday use of nearby outdoor recreation areas (NORAs). Greenspace can be seen to function as a social hub as well as a place to de-stress (Home et al., 2012). This was also supported by Milligan (1998) who concluded that people valued settings in terms of past and future social interactions.

Interestingly, the focus groups were able to reveal the paradox that social interaction with other people in a greenspace can be perceived as positive (Dinnie et al., 2013, Graham and Glover, 2014) but also, contrastingly, as negative (Arnberger and Eder, 2015, Snipes, 2009). Homans, (2008) concluded that congestion at a park deterred visitors from revisiting and detracted from the perceived quality of the park and this is supported by the focus group findings. Allen and Donnelly (1985) concluded it was not a primary factor affecting the evaluation of a setting. This argument is not supported by the survey or focus groups results; it may affect the valuation of a setting in a negative or positive way as it can be either a constraint or a driver for visiting greenspace, but the body of evidence provides strong arguments to assert that it does have an effect (McCormack et al., 2010, Seaman et al., 2010).

RQ 2b The level of awareness of, and attitudes to, SANGS and associated nature conservation issues affecting the Thames Basin Heaths SPA in the eligible population

The evidence from the survey was contradicted by evidence from the focus groups, in regard to the level of awareness of SANGs or the SPA and the reason for its designation was almost non-existent. The focus groups revealed that awareness and social interaction are important factors affecting the choice of greenspace in addition to proximity and place attachment which were identified in the survey. Moving into the Zone of Influence after 2006 was identified as a predictor for choosing a SANG in the survey. This was also confirmed in the focus groups where participants who had moved to new developments but had lived within the area before often continued to visit a place they were already aware of and had become attached to.

Awareness or knowledge is an intrapersonal constraint, fundamental to the decision to visit a greenspace; if a greenspace is not part of an individual's awareness set, then it will not be chosen. The crucial aspect of the value and effectiveness of any greenspace as an alternative to another is that potential visitors are aware of it and consider it when choosing a greenspace to visit. It would seem likely that, in regard to the conclusion from the literature that alternative sites, however perfect, will not be chosen if potential visitors lack awareness, this is supported by my results (McCool et al., 1984).

The focus groups of SANG visitors were very supportive of the strategy once it was explained to them and this is encouraging in that visitors may be receptive to forthcoming information. To some extent, the lack of awareness of both site locations and the communication of disturbance issues are now starting to be addressed by the presence of SAMM wardens on site along with leaflet distribution and public engagement activities.

RQ 2c What information source affects a resident's choice to use a greenspace?

There is a golden opportunity to make residents aware of SANGs when they move into new developments and encourage them to visit with the eventual aim that they will become attached to a SANG as opposed to the SPA. Very few of the focus group participants had received any information about SANGs when they moved into their new homes despite the fact that there should have been information in a welcome pack from the developer.

RQ 2d Does prior knowledge of greenspace in the TBH influence choice of greenspace?

The results showed that a focus group of established SPA visitors were not interested in visiting SANGs as they were attached to the SPA and this supports one of the assumptions underpinning the strategy. Focus group participants did not rate visiting a SANG as an equivalent experience to visiting the SPA, but it was rated as an acceptable substitute, with the proviso that it was 'on the doorstep'.

In general, most participants from new developments were not aware of many SANGs or the strategy but were supportive of its aims. There is clearly an opportunity to influence greenspace choice by raising awareness of SANGs and providing new developments with a SANG within walking distance.

4.6 Chapter summary

- There was evidence of an aversion to driving to greenspace on a frequent basis, and residents would rather walk from home to a SANG within walking distance than drive.
- Participants travelled further than expected and because of personal schedules, visits were often part of a longer multi-destination trip.
- Participants travelled further than expected because they were emotionally attached to certain sites.
- Sites with muddy paths in wet weather are often avoided until the path surfaces are dry.
- The perceived safety of a site is an important factor affecting greenspace choice.
- Social interaction on a site can be perceived as negative and positive and can mitigate safety concerns.
- There was a lack of awareness of both sites and the strategy, amongst participants which could be improved by including information in developer's packs on moving into a new development.
- Most participants found greenspace sites on websites or on social media.

Chapter 5: Expert Stakeholder Evaluation of SANGS Implementation

5.1 Introduction

This study is a qualitative expert stakeholder evaluation of Strategic Alternative Natural Greenspace Strategy (SANGS) implementation. It has been over ten years since the formation of the TBH JSP, and the consequent adoption of its strategic avoidance measures: SANGs and Strategic Access, Management and Monitoring Strategy (SAMMS).

During the last decade, several political and economic events have slowed down the expected rate of house building in the UK and Thames Basin Heaths. Firstly, the global financial crisis of 2008 was followed by a credit crunch and subsequent economic recession. Secondly, following the dissolution of SEERA (2009), the NPPF (2018) required local planning authorities to assess and demonstrate that they have a five-year supply of sites for housing to help achieve sustainable development. Finally, Britain voted to leave the European Union in June 2016, raising questions about the continued use of European laws to protect the TBH SPA. However, the reduction in the projected rate of housing development (Holmans, 2013) has meant that monitoring and research work can, in effect, feedback earlier into the evaluation process than the actual timeframe which can recommend changes or rectify problems before they have had an impact.

A decade from the inception of SANGS is a suitable time to evaluate the expert stakeholder opinion of its implementation to date (Sabatier, 1986). There are currently over forty SANG sites active in the TBH SPA Zone of Influence, and there is now a full complement of staff delivering SAMMS; the mitigation strategy is now being fully implemented. It is, therefore, an appropriate time for its evaluation.

5.2 The Aim of the Study

The research aim of this project was to evaluate expert stakeholder opinion on the effectiveness of SANG strategy. The following objectives were achieved using the method of semi-structured interviews, and the instrument was an eight-question interview (see Appendix 11).

RQ3a What is the opinion of expert stakeholders on the impact of the strategy?

Interview questions relevant to this objective were:

1 Could you briefly describe your role and work within your organisation?

2 Can you tell me about your experience or involvement in SANG strategy in the Thames Basin Heaths

3 In your opinion, what is the importance of SANG strategy for your organisation?

RQ3b Key concerns affecting the effectiveness of the strategy

Interview questions relevant to this objective were:

4 What, in your opinion, are the most serious problems to date in the implementation of SANG strategy in the Thames Basin Heaths?

5 Do you think, to date, that SANG strategy has been effective in protecting the SPA? Why?

RQ3c Recommendations for improvement to the strategy

Interview questions relevant to this objective were:

6 Can you suggest changes that, in your opinion, would improve SANG strategy?

7 Do you think that SANG strategy should be encouraged in other parts of the country? Why?

8 Who ought to be involved in the future development of SANG strategy? Why?

The chapter is the concluding one of a series of mixed method studies that started with a quantitative postal survey followed by a series of qualitative focus groups.

The qualitative study provided a more rounded and a deeper understanding of the policy-behaviour gaps identified by the previous quantitative survey (Creswell, 2003). The focus group protocol was designed to unravel the drivers and constraints of visiting a greenspace and, furthermore, answer questions that were generated from the quantitative survey results:

This chapter is the final phase of the overall integrated evaluation where, following the evaluation of outcomes from the previous work, the implementation process is evaluated to complete the in-depth understanding of the role of SANGS in protecting high-value wildlife sites.

5.3 Methods

5.3.1 Semi-Structured Interviews

Semi-structured interviews were conducted with 32 individuals regarded as expert stakeholders on SANGS. Property developers, Ecological consultants, SANG managers, Strategic Access Management and Monitoring (SAMM) wardens, Planning Policy Officers and Development Control Officers were all interviewed to provide a complete range of opinions from all stakeholders involved in the strategy on a day to day basis. Semi-structured interviews are a method that enables the interviewer to control the direction of the interview more than an ethnographic or non-directional unstructured interview. The structure facilitates comparison between participants and improves reliability. The semi-structured nature means that the open questions can facilitate a free-flowing conversation.

There is a debate about whether it is better to use face to face, telephone, messaging or e-mail interviews. Arguably, face to face interviews has the main advantage of the interviewer being able to read cues such as tone of voice, facial expression and body language (Opdenakker, 2006). However, telephone interviews are likely to result in higher numbers of participants as it is a very convenient and cost-effective method with the disadvantage that it is more difficult to build trust due to the lack of face to face interaction. In the case of this research, the interview topic was not considered particularly sensitive, so social cues were not important, and the telephone afforded a good level of anonymity. Messaging and e-mail interviews do not need transcribing, but they are prohibitively time-consuming.

It is imperative that the interviewer establish rapport early in the interview to relax the participant and facilitate a good flow of conversation. When interviewing expert stakeholders, it is important that the participant is not intimidated by, or wary of, the interviewer's subject knowledge. The interviewer should give the impression of having a good general knowledge about the topic but not of being an expert. It is also helpful to remind the participant that the interview will be anonymised as this will encourage open dialogue (Leech, 2002).

Semi-structured interviews allow the flow of conversation to be natural yet controllable if it strays off topic. With a protocol, data collection and analysis that is systematic, semi-structured interviews can examine the policy, judge its effectiveness and produce a good quality evaluation (Knafl, 1991). Fundamentally, it is essential that the interview methodology is rigorous (Young et al., 2018). A good interviewer ensures the protocol be followed while maintaining the free flow of the interview as if in a natural conversation (Grace, 2013).

5.3.2 Semi-structured Interview Method in this Study

The interview protocol consisted of eight questions that were open in nature; it was not possible to answer them with a simple 'yes' or 'no'. Some questions included probes that were provided in anticipation of participants not providing enough depth to answers. The protocol was approved by the University of Southampton Social Science Ethics Committee via the online system ERGO (application no. 20448) and can be found in Appendix 11.

The interviews started in September 2016 and were all completed by December 2016. Two Olympus VN-5500PC digital voice recorders recorded the interviews, which were conducted on a Gigaset DX800A all-in-one speakerphone, in case one failed to record. The interviews took place at the participants' places of work in a quiet meeting room to avoid being disturbed and in the interviewer's home.

Participants were encouraged to be expansive in their answers and the first question, asking them about their role in their organisation, acted as a warm-up for the rest of the interview. The recordings were all of an adequate quality for transcription. All interviews were transcribed by dictate2us professional transcription service. Each transcription was checked through by the interviewer at least twice to spot and correct any mistakes or misunderstandings.

5.3.3 Method of Analysis

All recordings were transcribed verbatim and subsequently analysed using NVivo 11 qualitative analysis software. Formatting all the transcriptions under three different heading styles facilitated the auto-coding of the transcription which provided a hierarchy of text that aided analysis. Twelve themes emerged from the coding using an abductive approach, initially coding inductively from scratch and then subsequently coding deductively when assigning themes to an evaluation framework (Grace, 2013). Each participant was given an identifier indicating which category of employment they worked in so the interviews could have linked anonymity immediately after recording.

5.3.4 Changes to the protocol as a result of the pilot session

There was debate about whether the first question: "Could you briefly describe your role and work within your organisation?" should be changed as, in the pilot interview, the participant was eager to talk and started to answer the second question: "Can you tell me about your experience or involvement in SANG strategy in the Thames Basin Heaths?" This issue was eventually resolved by asking how long the participant had worked for their organisation and, then, immediately

explaining that they would be asked for examples of ways they were involved with SANGS implementation in the following question.

5.3.5 The Recruitment Process

Interview participants were recruited through a third-party contact at Natural England who e-mailed several expert stakeholders asking them if they were interested in being interviewed on their evaluation of SANGS. Natural England has managed the monitoring strategy since its formation and was, therefore, well placed to recommend various expert stakeholder groups for an interview. The stakeholders represented a variety of involvement in SANGS: developers who built houses and environmental consultants who designed the associated SANGs, strategic policy officers who decided the location of housing developments and SANGs within the Zone of Influence, and development control officers who input into sites on an individual basis. SANG and SPA managers and SAMMS wardens were interviewed to provide a grassroots perspective. The expert stakeholders are listed in Table 19 below. Stakeholders who had expressed an interest and had given permission to be contacted were contacted by e-mail to arrange a convenient time and date for the interview. Purposive and snowball sampling was used where necessary.

Participants were contacted, and an interview slot was agreed, usually to take place in the following two weeks. Five participants did not reply to the initial contact e-mail, despite having agreed to be interviewed via a third party. Further participants were recruited by snowball sampling from existing participants. A whole category of an organisation, that of ‘developers', was recruited from environmental consultancy in this way as the third party in Natural England was not able to provide contacts. Recruitment for all categories stopped once no new information was gained from an interview with a participant.

Rich descriptive data when used in this chapter; while not representative or generalisable in any way, it was helpful to illustrate the relative proportions of interviewees who referred to different themes. Interview lengths ranged from 14.45 minutes to 1 hour and 2.28 minutes, and the average interview length was 36.58 minutes.

Table 19 Interview participant numbers

Organisation type code	**Number of participants**
Developers (D)	5
Environmental consultancy (A)	5
Planning policy (B)	6

Organisation type code	Number of participants
Development control (F)	5
Site managers (C)	6
SAMMS wardens (E)	5

5.4 Results

Table 20 Codes and themes

Themes		No of interviewees	No of references
• Bureaucratic/legal powers		19	41
• Causal adequacy	• adequate	9	14
	• inadequate	15	91
• Commitment		9	20
• Constraints		13	197
• Size		27	49
• Evidence of collaboration		13	34
• Finance or resource implications		25	94
• Further uptake		7	9
• Holistic view		15	31
• Potential partnerships		20	51
• Socio-economic environment		6	7
• Unexpected benefits		22	57

Table 20 above summarises the number of interviewees who mentioned each theme and the number of references made by interviewees per theme.

This study aimed to evaluate expert stakeholder opinion on the effectiveness of SANG strategy.

RQ3a What is the opinion of expert stakeholders on the impact of the strategy?

5.4.1 Causal adequacy

There was a prevalent opinion among most groups that SANGs could be working in that they were attracting visitors. However, opinion was divided on which type of SANG is most effective, bespoke or strategic, within 5km of developments. There was a perceived a lack of information about the existing evidence and if it could prove a causal link between the bird and visitor numbers on the SPA and provision of SANGs. The theme of a causal link was discussed by 24 interview participants, and of this group, 9 thought there was evidence of an adequate link making 14 references and 15 thought there was inadequate evidence in 91 references. To some extent, this balance reflected SANGS being implemented before the provision of evidence. Long-term visitor surveys of the SPA (Liley et al.,2006, Fearnley, 2013) and long-term bird monitoring (Clark and Eyre,2016) along with the data from previous chapters, were used to assess the overall effectiveness and make recommendations for best practice. Where evidence exists, it was considered not to be disseminated or available to all stakeholders, especially in the case of the developer group.

"*Yeah, they just say the report by the JSPB, and it aims to establish whether or not the project is working. So, that would mainly base around survey particularly to the SPA. The results that the survey over the last ten years, there'd been apparently a small increase in the number of visitors to the SPA, but that's all within the levels that weren't significant*." (B-01)

*****

"*Unfortunately, I don't think the actual data are available yet, to as which is being effective or not. And I have spoken to Natural England over the last couple of weeks on this actually to find out whether we are in a position to gauge whether it actually has been effective or not. And it seems to me that that information is still isn't available yet. And I know Natural England, they want to gather that information*." (A-01)

"*The monitoring didn't go in place early enough to determine whether they're actually working or not*." (D-04)

"*Right. Do you feel that…because obviously, all developers contribute to monitoring on the SPA, don't they*?" (Interviewer)

"*Yes, we do, yeah. It's money well spent; I fully and wholeheartedly support that. The information doesn't get back to us, though.*" (D-04)

*****

5.4.2 Socio-economic environment

Only 7 references to this theme were discussed by 6 of the interview participants, and this possibly reflects the level of the strategy at which they work, in that the more senior and strategic

the role, the more likely they were to have this wider strategic outlook. The effect of the 2008 financial crisis was to slow down the projected rate of house building in the Thames Basin Heaths Zone of Influence for several years. House builders were adversely affected by the drop in general economic confidence compared to that in the previous boom years. However, a new planning policy (NPPF,2018) was intended to increase house building, and it did have that effect, albeit that it very slowly increased the rate of house building which has since plateaued.

"*The last time we did an SPA survey was about two to three years ago, but actually, only a fraction of the SANGs and development that we were expecting were in place*." (B-04)

*****

Brexit had created speculation about the future legal status of the Habitats Directive in the UK, and this was reflected in many of the interviews. Opinions ranged from 'Business as usual' to the speculation about the repeal of the European laws that underpin SANGS.

"*I mean, we're all worried about Brexit in the future, and obviously the Habitats Directive has been translated into our national law, but it…I could quite easily see that eventually our national law might be repealed*." (C-04)

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"*After the referendum, I have not been seeing the quantity of requests for people to try and challenge it, certainly not developers. I just assume the actual European legislation will just get embedded within the UK legislation and, as opposed to referring to the Habitats Regulations, we'll just refer to the Wildlife and Countryside Act or some evolution of that. We will continue to give exactly the same advice in five years' time as what we're giving now.*" (F-03)

Brexit has also created uncertainty about the future economic climate which may, in turn, affect house building. Britain is seen to be in a housing crisis, and there is an expectation of imminent government legislation to facilitate future house building.

"And, you've got into a situation now where the Department of Community and Local Government is actually threatening local authorities that, say, don't have a plan at what's called the Submission Stage, so ready to be examined by early 2017, so not far away. Then, the Department of Communities and Local Government will actually step in and prepare that plan in default of the local authority. So, it's a special measures sort of situation. So, you know, it's really gotten to that stage now where, you know, five years on from the introduction of the NPPF that, you know, local…many local authorities haven't got a local plan adopted." (D-01)

*****

5.4.3 Unexpected and intangible benefits

There was a consensus of 22 of the interview participants who believed the increase in greenspace, whether effective at diverting disturbance from the SPA or not, was a definite bonus and this was mentioned on 57 occasions. The long time and resource commitment to the sites enable extra biodiversity benefits to be planned for, on the assumption that they are likely to be realised.

"*Equally, because SANG has to be guaranteed in perpetuity, it has to be funded long-term. But those benefits into the public, the public education, and understanding of the environment are, you know, really are maximised, and projected a long distance into the future. But when one is writing a management plan for a SANG you can pack it for biodiversity benefits providing the features that you're targeting aren't themselves sensitive to recreational pressure. And because the SANG management plan is funded in perpetuity, you have a very high degree of confidence that those ecological enhancements actually are going to be delivered and will be maximised*." (A-05)

Developers perceived that houses that had a bespoke SANG next to them sold more easily than houses without SANGs or greenspace.

"You know, a lot of developers were very anti to start with, but they soon realised that actually it's easy to sell houses next to a SANG." (B-04)

*****

Expert stakeholders, especially ones with a strategic perspective had the opinion that SANGs provided for the health and wellbeing agenda. It was acknowledged that SANGs could improve the mental health of residents by providing a place to de-stress after work etc.

"*If you have the increased capacity of people living, you know, together, and it's just you have so many people around you, it can get stressful. If you have your greenspaces, it's somewhere where people can just go for a walk; they can clear their heads, relax. I think it's good for mental health as well as taking pressure off more sensitive areas.*" (E-02)

*****

There is evidence that some established residents living in older housing stock changed habits, as some were visiting SANGs instead of the SPA. Improved accessibility was a benefit for many user groups, some residents aged in-situ and welcomed greenspace that they were able to access by foot or through good facilities.

"*I feel that when I've been surveying SANGs, most people are existing residents. There are virtually no people that have a house that has been built after 2009 and a lot of people have lived there for sort of 20-plus years*." (E-05)

*****

In a society that is losing its connection to nature, SANGs can provide that connection both for adults and, more importantly, children.

"*There are other…I suppose you call them incidental benefits that are important to us. So, you know, we consider it from the distance that's growing between society and the natural environment and the…. the fact that people aren't so connected with their surrounding elsewhere is a major factor that's causing the sort of lack connection, a lack of stewardship and care for the natural environment. So, finding opportunities to really connect people with their natural environment so that they benefit from it, have access to it and care for it. Ideologically speaking, we think that's very important as an organisation, and we try to do what we can to make sure that people get access to the natural environment so that there's…you know, a prospect of stewardship being improved in the future….*

"So, it is much less tangible and much harder to get hold of the way in which the SANG agenda can be used as a device for improving the level of care and concern in society generally for the natural environment. I actually think that in a way that's more important." (A-05)

*****

The recent SANGs leaflet and website could be used to encourage the use of greenspace everywhere by showing footpaths that link to other sites in the area.

"*When we're setting up new SANGS, the advice, one of the pieces of advice we give to developers is that they should be looking at trying to link up with existing footpath networks and potentially other SANGs that are in the area as well. So, we're always on the lookout for that and linking up and providing, you know, good links, good footpath links*." (B-05)

*****

In summary, the lack of local plans and the availability of land for SANG is preventing strategic delivery of mitigation. There is a perception that there is no causal evidence to link bird numbers to SANGS, yet. However, in the opinion of many participants, there is some evidence that SANGs are attracting visitors. There have been several unexpected benefits from SANGS to date, the primary one being the increase in greenspace in the TBH Zone of Influence.

RQ3b Key concerns affecting the effectiveness of the strategy

5.4.4 Resource and finance implications

This theme was discussed by 25 interview participants on 94 occasions, who believed SANGS was making development more expensive because managing SANGs in perpetuity, '125 years', had a huge implication for resources. Local authority stakeholders emphasised that is it important to get accurate costings because of the long-term commitment that is involved.

"*As long as it's properly funded because, as you know, councils are being squeezed financially and there's a lot of nervousness amongst people…the councillors that, you know, we don't want to be taking on land and managing it if we haven't…if it's not properly funded because we can't afford to do that."* (B-05)

*****

"*And, because you need to be able to secure sufficient funding to ensure the maintenance of the SANG in perpetuity and that is another cost. So, I mean, strategically, you need to set up a system that enables you to at least plan to ensure the maintenance over that length of time."* (B-03)

*****

The concept that the endowment funds to manage a SANG could be held by a public body or charity that would be neutral and objective in its management of the funds was raised by participants as a potential solution to the existing situation where some SANGs are managed by developers and others by local authorities.

"I think there's a wide discrepancy in thinking that goes into funding it because generally, Natural England likes SANG to be invested somehow in an enduring public body." (A-05)

*****

The whole bureaucratic process of delivering SANGS was perceived as very time consuming for all the organisations involved.

"*I mean, generally, I'd say it's going very well in Bracknell. It's very, very time-consuming and it's difficult…I mean, the developers' contributions do help fund some of the costs here to help run the strategy because effectively we're doing that on their behalf, so they can get their planning permissions. But, it's extremely time-consuming. I mean, I'm full-time on the SPA issue, but lots and lots of my colleagues are involved in various aspects of it*." (B-05)

*****

There was a perceived danger that if developers paid for education/monitoring staff on the SPA, then local authorities or other organisations may cut funding for current staff.

"And, you know, with the cuts that we're all facing, if there are…if there's a team out there that is funded by developers and they are going to be there indefinitely for the next however many decades, local authorities and wildlife trusts and all these organisations will say, "Well, how can we justify funding an education officer if there's the development funded people doing the education?" (F-05)

*****

5.4.5 Constraints

The size was a constraint that was discussed on 49 occasions by 27 interview participants. The criteria for SANG recommended that a 2.3km circular walk must be available to visitors. This was seen by many interviewees as impractical, especially on the smaller 2ha SANGs where the walk had to be engineered into the site rather than following a natural route. Environmental consultants who designed SANGs wanted flexibility and for the criteria to be a guide, but the developers contradicted this as they frequently cited the need to have concrete criteria. The experience on small sites was seen to be very difficult to replicate with that experienced by visits to large ones.

"I'm going to be…to be honest with you, the most serious problem has been some of the early policy things that we haven't clarified, and they are…the one that…you know, still…the delivery framework still says that the minimum SANG site is 2 hectares, although the quality guidelines say that every SANG must have a 2.3-kilometre walk." (B-04)

"Yes." (Interviewer)

"And those two statements aren't compatible." (B-04)

*****

"*But, on purely common sense, you have to say that larger size is going to be a critical factor when you're trying to persuade people not to visit the SPA itself which is extremely large. And, I'm sure that the reason that people visit the SPA is that it's a very large open area where they feel they'll get away from everything."* (B-04)

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"You know, we, as a developer, we just need some basic rules that are set down and are applied by all authorities." (D-03)

Lack of suitable land was a major constraint affecting the implementation of SANGS. The delivery of SANGS was also piecemeal as SANGs were brought forward for consideration with individual developments and not provided in a strategic way.

"We're running out of SANG capacity in our Authority." (B01)

*****

"I mean, SANG requires land, at least we need to be able to identify sufficient land to be able to provide it. And in some areas, land can be like…be a constraint, and I know other areas where even with the money to acquire the land, they don't have the land to acquire mainly because the land is…or the area is constrained. So, the land is an issue." (B-03)

*****

The difference in residential land value and amenity land value was a big problem; the landowner takes the financial 'hit' of SANGS which was then usually passed on in the price of housing. This had the effect that landowners were reluctant to put forward land for SANG.

"And, it's actually not the developer taking the hit; it's the landowner. So, you know, effectively all the…if you had to use half your site for SANG and half for housing rather than, you know, three-quarters for housing and one-quarter for open space, then you know, effectively you reduce the value of the land." (B-04)

*****

In summary, the issue of managing SANGs in perpetuity, while on the one hand offering an advantage for biodiversity, was also a financial constraint that could make local authorities reluctant to take on the management. The difference in land value uplift was a problem contributing to the lack of land for SANGs along with a lack of local plans.

RQ3c Recommendations for improvement

5.4.6 Evidence of collaboration

The theme evidence of collaboration was discussed 34 times by 13 interview participants. There was evidence of collaboration between employees with different roles within the same organisation and also between different developers. Collaboration ensures 'joined-up thinking' within an organisation and can prevent a clash of objectives. It could also help organisations solve problems that they cannot solve alone.

"We have a monthly meeting internally between planning parks and countryside and finance just to keep on top of the strategy, and then that's time-consuming. So, anyway that we can make it sort of take up less time would be good." (B-05)

*****

"Now, on that allocation, we have our property requirement for a bespoke SANG on that site because we expect the developers to work together to bring that forward. So, how it's working up to now is one of the large landowners has brought forward bespoke SANG on that site, and the SANG opened this year and some of the smaller developments…developers are getting together and looking at off-site bespoke SANG. So, especially one of the developers has been proactive in sourcing land and bringing forward…that forward as SANG and then working with others to encourage them to pay into that SANG effectively." (B-05)

*****

5.4.7 Future partnerships

This theme was discussed 51 times by 20 interview participants. There was an aspiration for a SANG to have a quality benchmark to encourage visitors onto sites.

"I think, yeah, that's right, but you got to focus on quality as well. And you got to focus on that sense of space that those open space requirements, the basic sort of, you know, what you'd even call green flag criteria now, is it a welcoming place? You know, are you going to be attracted to go there?" (B-02)

*****

There was also a realisation that both the health and mental health agendas could be interlinked with SANGS if the whole Zone of Influence was managed more strategically, and that play and recreation areas within SANGs could also help deliver these multiple objectives.

"Well, there's always local charities and other organisations that are involved in health and wellbeing like local nature groups. There was…I'm trying to remember the name. There was another initiative I heard of recently in the local area. It'll come back to me, I'll remember. But, yes, health professionals in the local area, but I think it needs some more joining up probably at the national and regional level." (D-02)

"Ok" (Interviewer)

"But, I understand getting into the health agenda, Department of Health, is practically impossible; it's fairly impenetrable." D-02

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"Somebody was saying about as well, things like Park Run, Yeah. So, it's the recreational groups again; it would be good to have on our side." (E-05)

*****

"The existing residents. I mean, the new residents, the only…the only thing that I would say is missing is from this SANG, and I don't…to be honest, I don't know whether it's kind of a common theme or not, I would say is kind of like play areas." (C-04)

*****

In several interviews, participants suggested that the Land Trust was a potential suitable enduring public body to hold management endowments in perpetuity because it had no affiliations and could be seen as neutral.

"So, ideally, it would be, you know, gifted to them with the community itself. So, the second tier down would be charities protected under various legislation. Again, they aren't going to disappear like fuel allotments trusts, people like that, or wildlife trusts. You know, we have some faith in managing the SANG correctly. And then, the third tier which is the…keeping it within sort of private ownership or third-party ownership. And, we've seen all sorts of models of management put forward recently by developers because it tends to be cheaper, one of which is using the Land Trust. Another is taking "(F-03)

"What's the Land Trust?" (Interviewer)

"That's a very good question. I haven't actually had too many dealings with them, but I think they're a charity as well that have been set up to manage greenspaces across the country and I think they started off more looking at this traditional green infrastructure that comes forward as part of larger developments, but they have started taking on more of the sort of ecological management of SANGs and things like that. And, the feedback I'm receiving from my colleagues is that they seem to know what they're talking about." (F-03)

*****

5.4.8 Future take up in other areas

In the right circumstances, some aspects of SANGS was thought to be relevant and appropriate for implementation in other areas, and this theme was discussed 9 times by 7 interview participants.

"Now, you can envisage theoretical solutions in other circumstances which don't involve SANG or SAMM, as I said, fencing off entirely, closing down or closing down for the year, but in most cases, I would say that's pretty impractical to bring forward. So, in those circumstances, the SANG style approach makes a lot of sense." (F-04)

*****

5.4.9 Strategic view

There was a general desire from all types of participants from all organisations for the provision of SANGs to be allocated strategically as opposed to the current piecemeal application process. This holistic view was discussed by 15 interview participants 31 times.

"When we were first looking it through, we did look at going super strategic and saying we ought to be acquiring a very large site somewhere in the middle of the local authority which would be 400 or 500 hectares of farmland or whatever that we would convert to make a strategic SANG that would be a big draw. It would probably draw people away from the SPA. But, we didn't go down that route, probably because it was far too hard, you know, at the time." (B-04)

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"*You know, if a local authority, and I know local authorities have tried to acquire land themselves to be used as SANG, and I don't think they've been particularly successful in that, but you know, if they were to identify a large area of land as SANG which actually provided sufficient area to accommodate all the development required within that particular local planned period, you know, we're probably talking about large tracts of land you know, the local authority has to provide for, I don't know, 10,000 houses within the locally planned period, then that's a considerable amount of SANG. But, surely, from a purely practical point of view, if there was one large area, a country park, you know, that could consist of all the various elements, a formal open space, play space, ecological areas, wild areas, footpaths, and so on and so forth, if they could provide one facility like that, you know, in sort of relatively a central location within the district which all*

developments paid then that would be a lot better than each development providing its own little bit of SANG." (D-03)

*****

Many participants thought that larger SANGs would not only be more cost effective but more effective at attracting visitors as it would be more comparable with the SPA sites. Additionally, the problem of sourcing individual SANGs might be partially solved by the purchase of a large strategically located SANG.

"*Well, I've sort of already alluded to this just now, and I think, you know, different SANGs serve a different function. So, if you've got a bespoke SANG attached to a small development, then that will certainly give people the opportunity to go for a short walk, particularly if they want to take their dog for a short walk without having to travel anywhere. So, that in itself plays an important part. But, I think if you're trying to mitigate the sort of feeling…or mitigate impacts on a SPA which is a large open, expansive heathland as an example then your SANG has to be large, and it has to be strategically located so they'd almost like intercept people and it gives them that feeling of openness*." (F-02)

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In summary, there is evidence of collaboration between and within organisations and a desire to do so with the health, wellbeing and biodiversity agenda. Participants agree that there are elements of SANGS that could be used in other areas that aren't heathland. SANGs need to be bigger and more strategic to be effective.

Discussion

RQ3a What is the opinion of expert stakeholders on the impact of the strategy?

There was a perceived lack of causal evidence regarding SANGS, even though long-term monitoring of both the visitors and Annexe 1 bird species on the SPA, SANG visitor surveys and studies such as this had been produced since its inception (Liley et al., 2006c, Fearnley and Liley, 2013, Clark and Eyre, 2016). It may be timely to collate, present and disseminate the evidence gathered in the last decade at a suitable stakeholder event

RQ3b Key concerns affecting the effectiveness of the strategy

At a site-based level, there is a perception that the design criteria are limiting the potential effectiveness of SANGs. There is an abundance of literature reporting conflict between actual behaviour and the expected behaviour that informs site design (Goličnik Marušić, 2016, King et al., 2015). Beidler (2016) found that understanding place attachment helped designers to transform space with no identity into a place. The incompatibility of a two-hectare site and the

2.3km circular walk requirement was frequently cited as a constraint by interview participants and support the change to an increased minimum size for a SANG.

The management of SANG varies greatly; land managers need experience of open space management not only habitat management, to maximise the effectiveness of SANGs. Factors that affect quality such as size and space adequate for providing tranquillity, affect the site's attractiveness and consequently its effectiveness (Stubbs, 2008). It is the size and type of greenspace, contrary to aggregated greenspace area, which has been shown to be an important factor providing the tranquillity that benefits both physical and mental health (Akpinar et al., 2016)

RQ3c Recommendations for improvement to the strategy

The benefits of an increase in the total area of greenspace in the TBH Zone of Influence due to SANGS was acknowledged by participants. There is an effort to link existing green infrastructure with SANGs via footpaths if possible, which has been shown to increase the health and wellbeing benefits to residents in new developments (Zhang et al., 2015). This is because of the odds of walking increase with the increase of greenness in and between sites (Sarkar et al., 2015). The benefits that SANGS provide to physical health and mental wellbeing were recognised by stakeholders but were not perceived to be formally linked to the strategies or delivery of outcomes of other organisations, such as the National Health Service (NHS).

A SANG of a bespoke nature, that is located next to housing, provides an opportunity to improve residents' connectivity with the natural environment. In this respect, the addition of natural play areas into SANG design would provide children with a connection to nature.

So that implementation can be improved, there is a clear need for SANGS to be delivered in a more strategic and co-ordinated way as opposed to the piecemeal delivery at present. Given that strategic SANGs are not effective and difficult to source, the purchase of large sites to be used as Super SANGs would be more effective and more easily sourced.

5.5 Chapter summary

- There were mixed perceptions about the existence of causal evidence linking breeding bird numbers to visitor disturbance, and it was thought that existing evidence should be disseminated amongst all members of the JSP
- The lack of local plans and availability of land is preventing the strategic delivery of mitigation
- There is an expectation of changes in government legislation to facilitate housebuilding

- Bespoke SANGs help to sell houses more easily, and SANGS has provided extra greenspace in the TBH Zone of Influence

- SANGs need to be bigger to accommodate the 2.4km circular walk

- There was a desire to collaborate and integrate with other strategies such as the health and wellbeing agenda, green infrastructure and biodiversity agenda

- SANGS is an expensive strategy to implement because of the requirement to manage in perpetuity

- Expert stakeholders believe that SANGS could be used effectively in other parts of the country

Chapter 6: Overall Findings and Conclusions

The overall aim of this thesis was to evaluate the implementation of SANG Strategy in the Thames Basin Heaths SPA Zone of Influence, identify factors which influenced its effectiveness in diverting visitors away from the SPA and make recommendations for best practice.

The aim and associated objectives were addressed through mixed methods research using qualitative and quantitative research methods. This methodology produces a more rounded understanding of any policy-behaviour gap than individual approaches alone (Creswell, 2003). There is often a discrepancy between actual use of greenspace and designed use, as was shown in a study comparing the pattern of actual visitor use in parks, with use as perceived by landscape designers in two European cities (Goličnik Marušić, 2016). The long-term management of public space often fails due to a lack of understanding of the underlying complexity of place-making (Dempsey and Burton, 2012).

A quantitative postal survey was used to identify the development of patterns of greenspace use and establish if new residents choose to visit SANGs in preference to the SPA. The qualitative method of focus groups was used to assess the level of awareness of and attitudes to nature conservation issues affecting the Thames Basin Heaths SPA, as well as to identify factors that underpin the residents' decision-making processes when choosing to use a greenspace. Expert stakeholder opinion was explored in semi-structured interviews to assess the effectiveness of SANGS since its inception in 2006.

Prior to the start of this work, the underpinning policies of SANGS indicated that a distance of under 5km to a greenspace along with its physical attributes were the key factors affecting greenspace choice in the TBH Zone of Influence. However, this study investigated if this was also the case with residents now living in new housing developments, the target of SANGS. The evidence from the literature in which there are other barriers and drivers that influence visiting greenspace, strongly suggests that visiting a greenspace is more complex than implied by the assumptions underpinning SANGS.

6.1 Summary of key findings

The following are the key findings from the three previous chapters in the light of how they have contributed to delivering the aims of the study in terms of understanding and evaluating SANGS. The findings from the quantitative and qualitative chapters were triangulated, and the resultant key findings are presented below.

Objective 1 *To identify the development of patterns of greenspace use within the eligible population and establish if residents choose to visit SANGs in preference to the SPA (Chapter 3)*

RQ 1 Examine how and when residents visit different types of greenspace in the Thames Basin Heaths Zone of Influence

Significantly more residents visited a SANG than the SPA and travelled significantly further than the 5km threshold identified in previous studies. Significant numbers of participants were not visiting their nearest greenspace.

Residents who were completely new to living in the Zone of Influence were significantly more likely to visit SANGs because they were not attached to the SPA. Distance from home was a significant factor influencing the choice of greenspace and visiting by foot was the travel mode of preference. There was evidence of resistance to driving to greenspace in comparison to walking from home.

RQ1b For what activity do you use a greenspace?

Unexpectedly and contrary to previous studies, dog walking was not associated with choosing a SANG neither was rating dog-friendly attributes as important. This is a serious failure of the policy which is targeted at dog walkers. However, this may have been influenced by the small sample size compared with on-site studies. The social dimension of place attachment theory was significant in influencing the choice of greenspace and may be mitigating concerns about safety on a site.

RQ1c What is the relationship between site attributes and greenspace choice?

The presence of other people was often considered to enhance the safety of a site especially by females but was considered as a negative attribute by some other visitors. Rating good infrastructure on a site such as surfaced paths, way-marking and somewhere to sit down significantly influenced the choice of greenspace type. Environmental and dog-friendly attributes were criteria essential for a SANG but were not significantly associated with choosing a SANG.

Objective 2 *To identify factors that underpinned the residents' decision-making processes when choosing to use a greenspace and assess if they were potential barriers to the effectiveness of SANG strategy (Chapter 4)*

RQ 2a What are the other reasons for residents visiting a greenspace?

Passive enjoyment of greenspace was considered very important for well-being and facilitating de-stressing in both the survey respondents and focus group participants.

RQ 2b What is the level of awareness of and attitude to conservation issues affecting the Thames Basin Heaths SPA in the eligible population?

In the case of general awareness of the TBH Zone of Influence and its conservation issues, established residents and SPA visitors were aware of the issues but showed no interest in visiting any SANGs even if they were aware of their location. They were considered sub-standard and not authentic, even fake. However, there was evidence from the expert interviews that some older residents were starting to visit SANGs because they were accessible.

Residents living in post-SANGS housing developments were often aware of a bespoke SANG proximal to their housing or larger strategic SANGs such as country parks, but they were generally unaware of the smaller strategic SANGs within 5km of their development. Focus group participants were very supportive of the strategy when it was revealed and explained to them.

RQ 2c What information source affects a resident's choice to use a greenspace?

Word of mouth was the most common way of discovering the location of a greenspace in the survey and finding greenspace by entrance sign increased the likelihood of visiting a SANG. SANG visitors in focus groups used websites to access information and suggested that developer packs should be available to new residents when they move into the TBH Zone of Influence.

RQ 2d Does prior knowledge of greenspace in the TBH influence choice of greenspace?

There is evidence that residents who were familiar with the TBH Zone of Influence before moving into the area continued to visit greenspace that they had previously become attached to and to be new to the area made visiting a SANG significantly more likely.

Objective 3 *To evaluate expert stakeholder opinion on the effectiveness of SANG Strategy (Chapter 5)*

RQ 3a What is the opinion of expert stakeholders on the impact of the strategy?

There is a perceived lack of causal evidence regarding the impact of SANGS but a general acceptance that they are attracting visitors. The Credit Crunch in 2008 and the BREXIT vote on leaving the European Union in 2016 have had a significant effect on slowing down housebuilding in the area which has allowed more time for evidence to be gathered than if it had proceeded at the previous rate pre-2006.

There have been several unexpected benefits associated with the strategy: the area has received a large increase in greenspace which is advantageous, regardless of whether it is effective in displacing disturbance or not; and the long-term nature of the agreements facilitate planning for biodiversity. Other unexpected benefits are that developments with greenspace sell easily and SANGs are providing improved accessibility to greenspace for residents as they age in-situ, according to developer interviews.

There is enormous potential to enable people to connect with nature through living in a development with a SANG next-door. New housing is often purchased by young families which increase the potential to embed a connection with nature in childhood that will last a lifetime.

RQ 3b What are the key concerns of expert stakeholders regarding the effectiveness of the strategy?

There are concerns that the perpetuity factor of an agreement makes SANGS very expensive along with the resource input needed before it is open to visitors. The length of the walk, 2.3km specified in SANG criteria (Chapter1), is cited as impractical and too short and there is also a lack of suitable SANG land due to the speculative acquisition of land.

RQ 3c What are the expert stakeholder recommendations for improvements to the strategy?

There is evidence of collaboration within and between organisations that are involved in SANGS and evidence of a desire to link to the wellbeing agenda. There have been suggestions for a quality benchmarking scheme for SANGS to ensure that the experience of visiting is consistent and high quality throughout the Zone of Influence and adds value to the development as a whole. Support is growing for the strategic, rather than piecemeal, allocation of land for SANGS so it can be both more easily acquired and more effective at attracting visitors.

6.2 Limitations of the study

The sample size, although covering approximately a quarter of the eligible population, was limited by budgetary constraints. The response rate was disappointing and will have reduced the statistical power of the survey which according to calculations, had a target of 340 responses. Nevertheless, there was an adequate number of responses to allow the use of the statistical method of binary logistic regression to find predictors for choosing a SANG in the model. The results of this study indicate that SANGs did not attract dog walkers, an important policy target, however, this may have been influenced by the small sample size compared to on-site studies as mentioned earlier.

The qualitative data from the focus groups and semi-structured interviews contain important information that adds to the evidence base. The quantitative survey data alone was not adequate to answer such a complex question as: Does SANGS work?

On reflection, it would also have been interesting to see if the survey questions would have been different had the focus groups been organised first to inform the postal survey, rather than to provide clarification of some of the survey responses.

6.3 Findings in relation to the theoretical framework

The following section involves the discussion of key results about the theories and assumptions underlying SANGS and the literature on factors affecting greenspace choice, concluding whether they support SANGS or not. In light of these conclusions, the Leisure Constraint Model is modified into a new concept model, to explain greenspace choice in post-SANGS housing developments. Unexpected results are discussed, and also, how evidence is integrated into the policy cycle. Finally, the findings are evaluated in the context of not only how the policy contributes towards a wider solution for visitor-wildlife conflict, but also regarding how they contribute potential benefits to human wellbeing through the health agenda, green infrastructure policies and connection with nature. Recommendations for policy improvement conclude this study.

The literature, along with results from this study show habit as one of several sometimes complex factors determining destination choice (Binder and Boldero, 2012). The residents in the existing established housing in the TBH Zone of Influence were emotionally attached to the SPA and in the habit of visiting it. SANGS firstly assumes that these residents will not be easily persuaded to change their habits. The findings showed that this assumption was correct in that visitors who visited the SPA most frequently showed no interest in or desire to change their visiting habits, even in the knowledge of how SANGS mitigated against the visitor disturbance that affected the rare bird species. Place attachment theory significantly influenced greenspace choice and remained in the new concept model. Being completely new to the area was significantly associated with choosing a SANG.

The second assumption is that SANGS is effective at mitigating structural barriers to visits, such as minimising distance. The survey results demonstrated that distance significantly influences choosing a SANG. Previous studies on the TBH SPA, prior to the implementation of SANGS, showed that significantly more residents travelled under 5km than above 5km (Liley et al., 2006c); however, this was not the case for residents in new developments post-SANGS implementation, which indicates that the distance decay effect doesn't influence that far when choosing a SANG. In the focus groups, one reason for the increased travel distance was confirmed as the result of

combining several destinations into one journey, which was also found by Yang (2010). Another reason that travel distance was further than expected was that survey respondents if driving to a greenspace, chose somewhere that they preferred which tended to be larger sites, often the SPA, and they stayed for longer visits.

However, although distance was an important factor influencing greenspace choice, the strength of preference to travel by foot was a behavioural factor that had much more influence than expected, and this is well supported in the literature as the concept of an optimal walking distance (Shu et al., 2014, Sugiyama et al., 2013). A greenspace proximal to housing, i.e. a bespoke SANG, is a predictor of use and this is supported by several studies (McCormack et al., 2010, Neuvonen et al., 2007, Wang et al., 2015). Significantly fewer people than average visited their nearest greenspace when they visited a SANG; this is contrary to distance decay theory and SANG theory but supported by findings from other research modelling destination choice of commuters (Yang M, 2010, Shu et al., 2014, Samdahl and Jekubovich, 1997).

Place identity, as a dimension of place attachment theory, appeared to support the results of the survey in that, once a resident has overcome the effort of driving to visit greenspace, they are more likely to visit somewhere they preferred rather than to choose the nearest greenspace. This idea of a threshold, where the dominance of distance decay theory switched over to that of place identity, was further corroborated by the focus groups that followed the survey. The new model is modified at the point of the structural barrier where, if the SANG is within perceived walking distance then distance decay theory prevails, and if residents have to drive to a site, place identity is more important. The assumption of SANGS that most visitors will travel within a 5km radius was not supported by the results of this study.

Some of the most important criteria for SANGs, those relating to dog-friendliness, were not associated with choosing a SANG. That was an unexpected result and contradicts several studies that associate dog-walking and proximity to greenspace (McCormack et al., 2011, Cutt et al., 2008a, Cutt et al., 2008b). It would be reasonable to infer that the demographic of established residents dog-walkers, i.e. the majority being in part-time employment and female, had a higher proportion of dog-walkers than the residents of new developments where dog-walking was not associated with gender or part-time employment. However, there is an argument that the sample of dog-walkers was not representative, compared to the SPA survey (Liley, 2005). It is also important to note that many of the SPA sites are very dog-friendly by nature, albeit unintentionally, so SANGS is not exclusively providing sites that are attractive to dog-walkers. The theory of place dependence remains in the model as certain infrastructure; such as surfaced paths can make SANGs more attractive to walkers in wet weather.

The fourth assumption of SANGS is that the SANGs will provide a permanent diversion from the SPA, as residents develop a habit of visiting them. This contradicts existing evidence suggesting people have a portfolio of places that they visit within an area around their home throughout a lifetime (Daniel et al., 2012, Clark and Downing, 1985, Swanwick, 2009). The results showed that for residents, who chose not to visit their nearest SANG when it was the nearest greenspace, visit other sites as well. SANGS may reduce the number of visitors to the SPA, but only to some extent.

In summary, the assumptions of SANGS are not completely supported by the results of this study or the literature. SANGS is effective to a degree, in that more residents are visiting SANGs than the SPA and residents new to the Zone of Influence also prefer SANGs. However, it may not be influencing dog walkers and, although residents who choose their nearest SANGs are less likely to visit other greenspaces, most residents do visit other sites. The 5km boundary of the Zone of Influence does not appear to be effective, especially in the case of longer leisure related visits.

There is a need to raise awareness and educate residents about SANGs throughout the zone. SANGs are almost always the nearest type of greenspace which is what the strategy aimed to provide, but more within perceived walking distance are needed to improve effectiveness.

Leisure Constraint Theory is not completely supported by the results of this thesis or the literature (Samdahl and Jekubovich, 1997). There is supporting evidence of constraints being intrapersonal, interpersonal and structural; however, there is conflicting evidence to support a defined sequential hierarchical process when choosing a greenspace (Godbey, 2010). There is also difficulty in categorising factors into types of constraint or drivers; for example, temporal distance to greenspace is a structural constraint but time available to an individual is a dynamic and intrapersonal one (Zanon et al., 2013).

Preference for the mode of transport is an intrapersonal driver but also inextricably linked to distance. Regarding the effectiveness of SANGS, the demographic of the target population is time-poor which can explain the apparent effectiveness of bespoke SANGs. Lachowycz (2013) argued that simple measures of distance to parks cannot sufficiently capture all the drivers and complexities that come into play when deciding to visit greenspaces, such as convenience (Yang, 2010) and priority of personal schedule (Hitchings, 2013) and that some individuals will have constraints no matter how near the greenspace.

Um and Crompton's (1990) theoretical framework of travel destination choice is supported by my results and help to explain greenspace choice in the Zone of Influence more clearly when included in the theoretical model. The evidence suggests that satisficing constraints drive the decision to visit greenspace and not optimising attributes. Constraints such as proximity are applied to

greenspace choices of which residents are aware, producing the evoked set which is then used to select a greenspace by attribute-based choice, in the case of SANGS, within walking distance from home. The constraint of optimal walking distance threshold appears to be the satisficing constraint that applies to choose a greenspace in the Zone of Influence and if it is not met then optimising attributes drive the decision when it is more likely that the SPA will be visited.

Figure 17 is a new improved framework which was developed through this research; it describes the process of greenspace choice amongst residents of post-SANG developments, who are new to living in the TBH Zone of Influence. It is based on both Um and Crompton's choice processes (shown in red) and Godbey and Crawford's leisure constraints theory (shown in green) and was formulated in the light of the findings from this study and the supporting literature and provides an improved explanation compared to the original leisure constraints framework of greenspace choice, put forward in Figure 3 (Chapter 1).

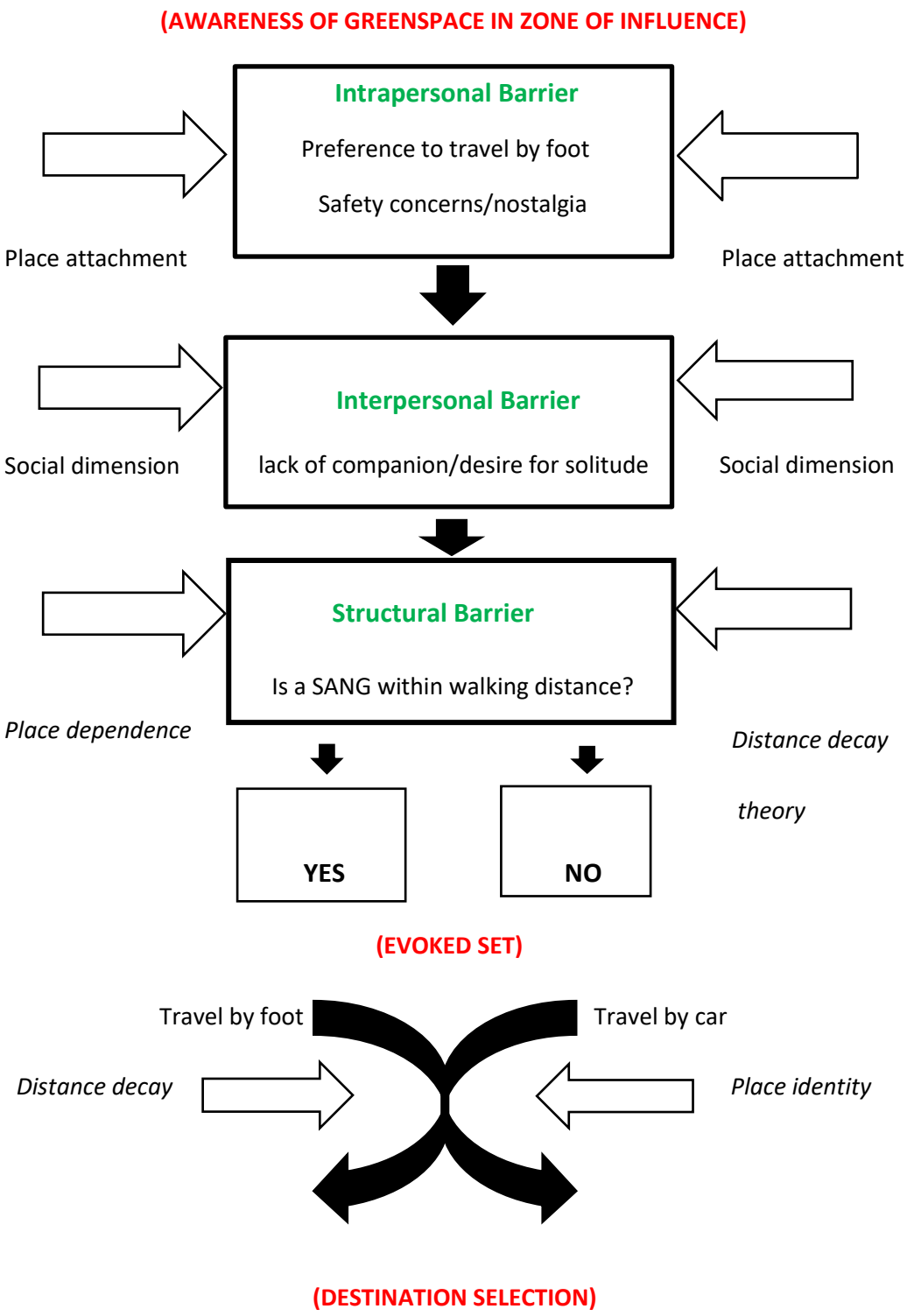


Figure 17 The process of choosing greenspace amongst residents of post-SANG developments new to living in the TBH Zone of Influence (Godbey, 2010, Um and Crompton, 1990)

Starting at the top of the figure, awareness and the intrapersonal barrier are still included in the framework as the results identified them both as important factors affecting greenspace choice. However, preference to travel by foot was found to be important so is added as a new

intrapersonal factor. Safety concerns and nostalgia remain, as place attachment theory was found to be very influential at the intrapersonal level.

The interpersonal barrier remains in the figure, as findings supported the existence of a social dimension affecting greenspace choice. Companionship was used to mitigate intrapersonal concerns about safety or improve the enjoyment of a visit. However, the absence of a companion or fellow visitors was seen as desirable by some.

The structural barrier remains in the figure, as does place dependence theory and distance decay theory which have both been shown to influence greenspace choice in the findings. The main difference between the leisure constraints model in Chapter 2 and the new concept model Figure 10, is that the box representing structural barriers illustrates the threshold at which the dominance of distance decay theory can switch to that of place identity if a SANG is perceived to be further than the optimal walking distance from home. If a SANG is perceived as being located further away than optimal walking distance and it is necessary to drive to a greenspace, the SPA is more likely to be visited than a SANG. In contrast, if a SANG is perceived to be within optimal walking distance, it is more likely to be visited than the SPA.

6.4 Policy Implications

Political support for SANGS is mixed in the TBH Zone of Influence. There is a conflict between some local councillors who perceive that SANGS is preventing house-building, which, in turn, threatens the prosperity and economy of the area, and others who support SANGS, not necessarily from the view of protecting the environment but as a mechanism to prevent building. SANGS is also considered expensive by both local authorities and developers, and the cost-effectiveness of the policy is a factor considered as part of the evaluation.

The UK is perceived to be in a housing crisis, and there is considerable political pressure for the government to initiate house building on a scale not seen since post-war construction (Ministry of Housing, Communities and Local Government, 2018). On reflection, the *Land Compensation Act 1961* has unintentionally been the cause of a housing crisis in the UK; it has encouraged land-banking, where land, is valued as if it had residential planning permission and cannot be sold for less. This has resulted in the speculative land purchase and land-hoarding by developers.

In response to this political pressure and given the difficulties local authorities experience in bringing forward land suitable for SANGs, it is feasible that land purchasing law could be reformed in the future. Such reform could provide an opportunity to integrate the compulsory purchase of SANG land together with the corresponding amount of land released for housing, to produce less

dense housing developments with bespoke SANGs. Given the problem of sourcing the strategic SANGs, compulsory purchase of large tracts of land to create much larger SANGs which provide a more credible alternative to the SPA could also be more cost-effective and logistically practical.

The issue of the difference in land value uplift between land for development and land for its associated SANG provision could be resolved by dividing the value of the whole uplift for development equally between landowners as one is inextricably linked to the other. However, market forces have meant that the value of SANG land has nearly reached parity with development land which has, in turn, pushed up the cost of sustainable development in the Zone of Influence. Natural England stated, 'land for SANGs has become more expensive as landowners have become aware that housing cannot be delivered without associated SANGs; in some cases, this has been close to the development land value' (S. Thompson, Natural England, personal communication, 2017).

Even though this does not facilitate conditions for increasing available land for housing for the whole of society and, indeed, tends to favour large executive housing, it may help increase the amount of land to come forward as SANG. Similar solutions that suggested sharing land value uplift for the benefit of the community have been proposed by the Town and Country Planning Association (TCPA) in their nine principles of Garden City Development (Roman et al., 2015). In reality, for this to happen new planning legislation and regulation would need to be introduced.

In the South East of England, 80% of households do not have access to a site of at least 2ha within walking distance (300m) of home, 34% do not have access to a site of 20ha or more within 2km of home, 23% do not have access to a site of 100ha or more within 5km of home and 54% do not have access to an accessible greenspace of 500ha or more within 10km of their home (McKernan, 2007). The underlying principles of Accessible Natural Greenspace Standard (ANGSt) are: improving access to greenspaces, improving the naturalness of greenspaces and improving connectivity with greenspaces; SANGS can contribute to all of these (Natural England, 2006a).

In the light of the survey results and the call for larger strategic SANGs evidenced in the stakeholder interviews, taking up ANGSt recommendations would mean SANGs would be either bespoke and proximal to developments or large and strategically located. SANGs can provide the connection to nature that can stay with children for a lifetime. Given that the scenario for future SANGS delivery continues to be via local authorities, the integration of all local authorities' local plans to put forward large strategic SANGs and bespoke SANGs next to developments, both with natural play areas and biodiversity improvements, will help deliver both the ANGSt agenda, green infrastructure (GI) strategies and SANG strategy. This type of provision would also target the gaps in the two accessible natural greenspace categories (McKernan, 2007) that are inadequately

provided for in the South East, those of at least 2ha within 300m of home and those of 500ha or more within 10km of home.

SANGS is gaining popularity as an avoidance strategy both in the South East of England (New Forest District Council,2018; Borough of Poole, Bournemouth Borough Council, Christchurch Borough Council, Dorset County Council, East Dorset District Council, Purbeck District Council, 2015 and Wealden District Council, 2015) and further North (Mansfield District Council, 2017).

The results of an EU fitness check on the EU Birds and Habitat Directives (European Commission (EC), 2016) showed that they are fit for purpose but to fully achieve the objectives, co-ordinated implementation between local authorities and stakeholder partners should be improved. There is evidence from the interviews that co-operation does occur between local authorities, but it could be enhanced. The TBH SANGS is cited as an exemplar policy for avoidance mitigation against housing development, in an international review of mitigation hierarchy. The legislation was cited the most effective driver for an avoidance strategy to be successfully developed and implemented. Problems also stem from the fact that there is no standard framework for avoidance strategies and they vary from country to country (University of Cambridge Conservation Research Institute, 2015).

Sustainable development is a 'wicked' problem that is complex and does not have a simple solution (Pryshlakivsky and Searcy, 2012)**.** SANGS is an attempt to provide one solution to this problem; it is however only one strand in the strategic delivery of GI, biodiversity strategy and joint health and wellbeing strategies.

Natura 2000 sites, such as the TBH SPA, form the backbone of the European Biodiversity Strategy (EC, 2011) and its GI Strategy (EC, 2013) through which it is delivered. The NPPF (2018) encourages a network of local GI plans to deliver GI, and a quality benchmark has been designed to support quality GI through the planning process (Jerome et al.,2017). However, on reviewing a selection of local authorities' GI policies, Scott et al., (2017) found uptake to be variable and that as both GI and Biodiversity strategies were not statutory and not widely embedded in local plans or integrated with other policies. Another barrier to integration is that local authorities and organisations rarely define GI in the same way. Stubbs (2008) predicted that natural greenspace, if it were not integrated into spatial planning strategies would be sporadic and badly planned.

The Marmot Review (Marmot, Allen and Goldblatt, 2010) suggested that health inequalities could be minimised through GI. The review was influential in forming the *Health and Social Care Act 2012* (Department of Health and Social Care, 2012), which made local authorities responsible for public health. Local plans must have planned GI to meet health and wellbeing needs and if not,

the plan will not be considered as 'sound' by the government (NPPF, 2018). However, the reality is that local authorities face problems with delivery and funding (Scott et al.,2017).

SANGS is a welcome addition to GI strategy and a welcome opportunity for not only No Net Loss but Net Positive Impact for biodiversity. SANGs have the advantage over GI sites in that they are a statutory designation with appropriate funding in perpetuity and with the opportunity to maximise on-site biodiversity and landscape appeal.

6.5 Integrating research into policy

Integrating research evidence into policy-making is an aspiration frequently acknowledged by both policy-makers and researchers, but it can be difficult to achieve in practice (Geerlings and Stead, 2003). Feedback into policy or producing a research output is much more straightforward to achieve and measure than policy impact. There is a problem in that scientific researchers and policy-makers often fail to understand each other's environment, and they each use very different language that needs translation before evidence can successfully be incorporated into policy. The Treasury Green Book (2003) specifies the ROAMEF Policy Cycle as shown in Figure 18 and ensures that public policies are appraised, monitored from the point of implementation and evaluated so that feedback can be incorporated into the cycle. This enables the policy to be reflected on and refined so that problems are removed, or the policy is improved and becomes more effective as time progresses.

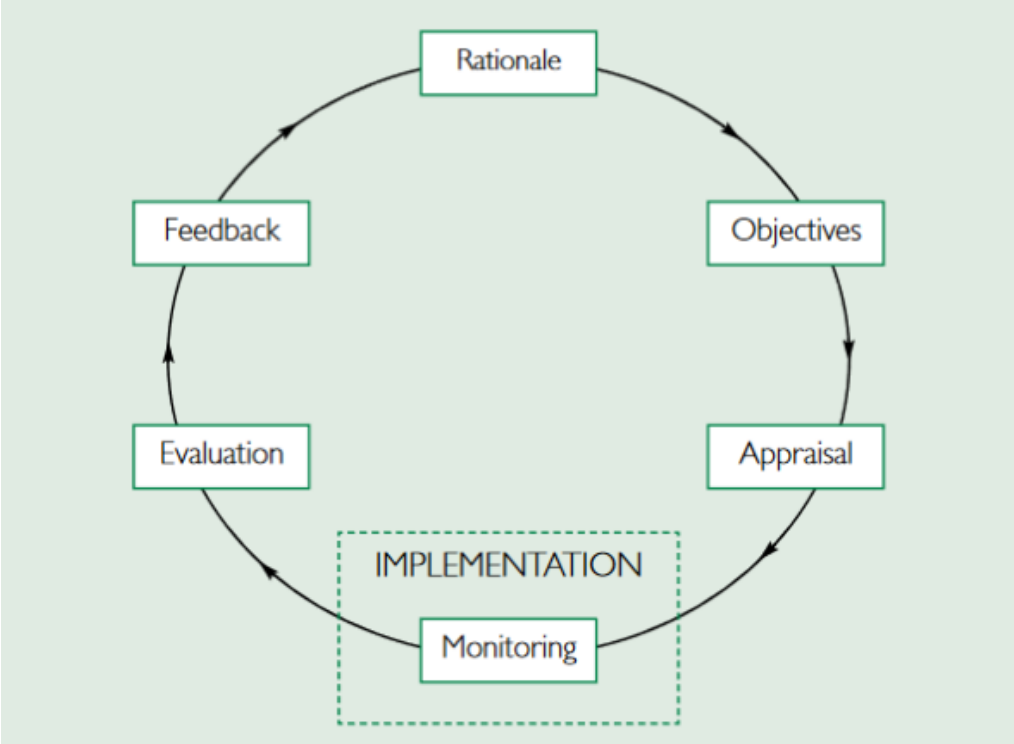


Figure 18 The ROAMEF Policy Cycle from The Treasury Green Book (2003)

In the case of SANGS, the rationale for the policy was the legal requirement of the EU Birds Directive 2009/147/EC of 30 November 2009 on the conservation of wild birds, to protect the Annex 1 species in the SPA. The objectives are to deflect the increase in visitor and dog disturbance associated with new housing developments so that the bird populations are not adversely affected. The visitor surveys on the SPA were used to appraise and develop the policy which was then implemented in 2006 along with a monitoring programme that now has twelve years of breeding bird monitoring data on the Annex 1 bird species. Although it is also important to evaluate perceived outcomes as well as outcomes in general (Boaz, 2008), the next step will be to evaluate the impacts using the monitoring data to see if SANGS is making a difference.

6.6 Future work

This study has evaluated the effectiveness of SANGS outputs on the target population of residents in new housing developments. However, to evaluate the longer-term impact of SANGS on Annex 1 bird populations, the next logical step is to explore the causal relationships of other environmental variables. This will enable the impact of the strategy to be evaluated in comparison to the impact of other external factors, for example the long-term decline in insect populations in protected areas (Hallmann, 2017) and the work by Butler (2010) who showed that the key driver for the long-term decline in farmland birds was the change in resource availability in arable areas which was linked to changes in cropping patterns.

There is potential to use generalised linear mixed models (GLMM) to quantify the effects of environmental variables, for example, house building, visitor pressure, distance from footpaths, the occurrence of uncontrolled burning and condition of habitat on breeding bird counts. The breeding bird data is repeated measures on the same units, and therefore a mixed effects model with fixed and random effects would be applicable in this situation.

Evidence from the repeat SPA survey results indicates that the presence of SANGs may be influencing the visiting behaviour of established residents (Fearnley and Liley, 2013). The numbers of new residents who visit the SPA may be counteracted by the numbers of established residents who have started to use SANGs most frequently instead of the SPA, and this has resulted in no net gain to visitor disturbance on the SPA. Some local authorities are currently commissioning SANG visitor surveys on-site, to find out their home postcode; it will be interesting to see how many are from the pre-SANGS residential population.

It would be useful to repeat the postal survey, using a stratified sample of both new and established residents in equal numbers, to find out if this compensatory visitor flow has occurred and to see if the predictors in the model are the same for both groups.

Analysis of more data from dog walkers is needed before the results and conclusions from this study, that SANGs failed to attract dogwalkers, can be generalisable.

The SPA and its associated SANGs provide excellent natural comparators for study especially regarding the influence of biodiversity on the different ecosystem services provided by both greenspace types.

6.7 Recommendations

The following recommendations are listed by research recommendation first then best practice recommendations and finally recommended policy adaptations which may be more challenging to implement.

6.7.1 Research Recommendations

- TBH JSP to commission research to identify if there is a causal relationship between environmental factors and the Annex 1 species breeding populations

6.7.2 Best Practice Recommendations

- SANG owners and managers continue to improve awareness of SANGs by ensuring developer packs have the relevant information, increase on-site public engagement and increase signage to SANGs and within SANGs for visitor management where appropriate
- The TBH JSP to hold a stakeholder event to disseminate the research results to date amongst interested stakeholder groups
- SANG owners and managers to provide Infrastructure to encourage visitor social interaction such as suitable outdoor seating
- SANG owners and managers to maximise the opportunity to create a more biodiverse SANG environment where possible

6.7.3 Policy Recommendations

- Local authority planners, developers and Natural England aim to support developments with adequate integral greenspace as bespoke SANGs where possible on the ground

- Planners and design consultants to integrate play areas into greenspace to potentially embed a connection to nature in children that can enable the next generation to access therapeutic benefits from visiting a greenspace
- Natural England to modify the criteria for SANGs to increase the minimum size of a SANG so the 2.4km can be easily accommodated
- Replace the requirement for strategic SANGs with larger 'Super SANGs' on a par with the size of some of the SPA sites of at least 100ha and preferably 500ha according to the ANGSt agenda.
- SANG ownership, management, and monitoring should be the responsibility of an enduring public body with the associated inalienable rights
- Strategic plans to encourage the integration of SANGS into other strategies relating to health, wellbeing, green infrastructure and biodiversity

Appendix 1 Sangs guidelines and criteria

Guidelines for the creation of Suitable Accessible Natural Green Space (SANGS)

Introduction

'Suitable Accessible Natural Green Space' (SANGS) is the name given to green space that is of a quality and type suitable to be used as mitigation within the Thames Basin Heaths Planning Zone.

Its role is to provide alternative green space to divert visitors from visiting the Thames Basin Heaths Special Protection Area (SPA). SANGS are intended to provide mitigation for the potential impact of residential development on the SPA by preventing an increase in visitor pressure on the SPA. The effectiveness of SANGS as mitigation will depend upon the location and design . These must be such that the SANGS is more attractive than the SPA to users of the kind that currently visit the SPA.

This document describes the features which have been found to draw visitors to the SPA, which should be replicated in SANGS. It provides guidelines on

- the type of site which should be identified as SANGS
- measures which can be taken to enhance sites so that they may be used as SANGS

These guidelines relate specifically to the means to provide mitigation for housing within the Thames Basin Heaths Planning Zone. They do not address nor preclude the other functions of green space (e.g. provision of disabled access). Other functions may be provided within SANGS, as long as this does not conflict with the specific function of mitigating visitor impacts on the SPA.

SANGS may be created from:

• existing open space of SANGS quality with no existing public access or limited public access, which for the purposes of mitigation could be made fully accessible to the public

• existing open space which is already accessible, but which could be changed in character so that it is more attractive to the specific group of visitors who might otherwise visit the SPA

• land in other uses which could be converted into SANGS

The identification of SANGS should seek to avoid sites of high nature conservation value which are likely to be damaged by increased visitor numbers. Such damage may arise, for example, from increased disturbance, erosion, input of nutrients from dog faeces, and increased incidence of fires. Where sites of high nature conservation value are considered as SANGS, the impact on their nature conservation value should be assessed and considered alongside relevant policy in the development plan.

The Character of the SPA and its Visitors

The Thames Basin Heaths SPA is made up of 13 Sites of Special Scientific Interest, and consists of a mixture of heathland, mire, and woodland habitats. They are essentially 'heathy' in character. The topography is varied, and most sites have a large component of trees and some contain streams, ponds and small lakes. Some are freely accessible to the public and most have a degree of public access, though in some areas this is restricted by army, forestry or other operations.

A recent survey showed that more than 83% of visitors to the SPA arrive by car, though access points adjacent to housing estates showed a greater proportion arriving on foot (up to 100% in one case). 70% of those who visited by car had come from within 5km of the access point onto the SPA. A very large proportion of the SPA visitors are dog walkers, many of whom visit the particular site on a regular (more or less daily) basis and spend less than an hour there, walking on average about 2.5km. Almost

50% are retired or part-time workers and the majority are women. Further detailed information on visitors can be found in the reports referenced at the end of this document.

Guidelines for the Quality of SANGS

The quality guidelines have been sub-divided into different aspects of site fabric and structure. They have been compiled from a variety of sources but principally from visitor surveys carried out at heathland sites within the Thames Basin Heaths area or within the Dorset heathlands. These are listed as references at the end of this document.

Accessibility

Most visitors come by car and want the site to be fairly close to home. Unless SANGS are provided for the sole use of a local population living within a 400-metre catchment around the site, then the availability of adequate car parking at sites larger than 10 ha is essential. The amount and nature of parking provision should reflect the anticipated use of the site by visitors and the catchment size of the SANGS. It should provide an attractive alternative to parking by the part of SPA for which it is mitigation. Car parks should be clearly signposted and easily accessed.

New parking provision for SANGS should be advertised as necessary to ensure that it is known of by potential visitors.

Target groups of Visitors

This should be viewed from two perspectives, the local use of a site where it is accessed on foot from the visitor's place of residence, and a wider catchment use where it is accessed by car. Most of the visitors to the SPA come by car and therefore should be considered as a pool of users from beyond the immediate vicinity of the site. All but the smallest SANGS should therefore target this type of visitor.

It is apparent from access surveys that a significant proportion of those people who visit the sites on foot, also visit alternative sites on foot and so this smaller but significant group look for local sites. Where large populations are close to the SPA, the provision of SANGS should be attractive to visitors on foot.

Networks of sites

The provision of longer routes within larger SANGS is important in determining the effectiveness of the authorities' network of SANGS as mitigation, because a large proportion of visitors to the SPA have long walks or run or bicycle rides. The design of routes within sites at the smaller than about 40 ha will be critical to providing routes of sufficient length and attractiveness for mitigation purposes.

Where long routes cannot be accommodated within individual SANGS it may be possible to provide them through a network of sites. However, networks are inherently likely to be less attractive to users of the type that visit the SPA, and the more fragmented they are, the less attractive they will be, though this is dependent on the land use which separates each component. For example, visitors are likely to be less put off by green areas between SANGS than by urban areas, even if they restrict access to rights of way and require dogs to be kept on leads.

Though networks of SANGS may accommodate long visitor routes and this is desirable, they should not be solely relied upon to provide long routes.

Paths, Roads and Tracks

The findings suggest that SANGS should aim to supply a choice of routes of around 2.5km in length with both shorter and longer routes of at least 5km as part of the choice, where space permits. The fact that a considerable proportion of visitors were walking up to 5km and beyond suggests the provision of longer routes should be regarded as a standard, either on-site or through the connection of sites along green corridors.

Paths do not have to be of any particular width, and both vehicular-sized tracks and narrow PRoW type paths are acceptable to visitors.

The majority of visitors are female, and safety is one of the primary concerns of site visitors. Paths should be routed so that they are perceived as safe by the users, with some routes being through relatively open (visible) terrain (with no trees or scrub, or well- spaced mature trees, or wide rides with vegetation back from the path), especially those routes which are 1-3 km long.

The routing of tracks along hill tops and ridges where there are views is valued by the majority of visitors.

A substantial number of visitors like to have surfaced but not tarmac paths, particularly where these blend in well with the landscape. This is not necessary for all paths but there should be some more visitor-friendly routes built into the structure of a SANGS, particularly those routes which are 1-3 km long.

Artificial Infrastructure

Little or no artificial infrastructure is found within the SPA at present apart from the provision of some surfaced tracks and car parks. Generally, an urban influence is not what people are looking for when they visit the SPA and some people undoubtedly visit the SPA because it has a naturalness about it that would be marred by such features.

However, SANGS would be expected to have adequate car parking with good information about the site and the routes available. Some subtle waymarking would also be expected for those visitors not acquainted with the layout of the site.

Other infrastructure would not be expected and should generally be restricted to the vicinity of car parking areas where good information and signs of welcome should be the norm, though discretely placed benches or information boards along some routes would be acceptable.

Landscape and Vegetation

SANGS do not have to contain heathland or heathy vegetation to provide an effective alternative to the SPA.

Surveys clearly show that woodland or a semi-wooded landscape is a key feature that people appreciate in the sites they visit, particularly those who use the SPA. This is considered to be more attractive than open landscapes or parkland with scattered trees.

A semi-natural looking landscape with plenty of variation was regarded as most desirable by visitors and some paths through quite enclosed woodland scored highly. There is clearly a balance to be struck between what is regarded as an exciting landscape and a safe one and so some element of choice between the two would be highly desirable. The semi-wooded and undulating nature of most of the SPA sites gives them an air of relative wildness, even when there are significant numbers of visitors on site. SANGS should aim to reproduce this quality.

Hills do not put people off visiting a site, particularly where these are associated with good views, but steep hills are not appreciated. An undulating landscape is preferred to a flat one.

Water features, particularly ponds and lakes, act as a focus for visitors for their visit, but are not essential.

Restrictions on usage

The majority of the people using most of the SPA sites come to walk, with or without dogs. At two or three sites there were also a significant number of cyclists and joggers. A small amount of horse riding also occurs at some sites.

The bulk of visitors to the SPA came to exercise their dogs and so it is imperative that SANGS allow for pet owners to let dogs run freely over a significant part of the walk. Access on SANGS should be largely unrestricted, with both people and their pets being able to freely roam along the majority of routes. This means that sites where freely roaming dogs will cause a nuisance or where they might be in danger (from traffic or such like) should not be considered for SANGS.

It may be that in some areas where dog ownership is low or where the cultural mix includes significant numbers of people sensitive to pets, then the provision of areas where dogs are unrestricted can be reduced. It should also be possible to vary restriction over time according to the specific needs of a community, providing effective

mitigation is maintained. SANGS proposals which incorporate restrictions on dogs should be in the minority of SANGS and would need to be considered on a case by case basis in relation to the need for restrictions.

Assessment of site enhancement as mitigation

SANGS may be provided by the enhancement of existing sites, including those already accessible to the public that have a low level of use and could be enhanced to attract more visitors. The extent of enhancement and the number of extra visitors to be attracted would vary from site to site. Those sites which are enhanced only slightly would be expected to provide less of a mitigation effect than those enhanced greatly, in terms of the number of people they would divert away from the SPA. In order to assess the contribution of enhancement sites in relation to the hectare standards of the Delivery Plan, it is necessary to distinguish between slight and great enhancement.

Methods of enhancement for the purposes of this guidance could include enhanced access through guaranteed long-term availability of the land, creation of a car park or a network of paths.

SANGS which have not previously been open to the public count in full to the standard of providing 8ha of SANGS per 1000 people in new development in zone B. SANGS which have an appreciable but clearly low level of public use and can be substantially enhanced to greatly increase the number of visitors also count in full. The identification of these sites should arise from evidence of low current use. This could be in a variety of forms, for example:

• Experience of managing the site, which gives a clear qualitative picture that few visitors are present • Quantitative surveys of visitor numbers • Identified constraints on access, such as lack of gateways at convenient points and lack of parking • Lack of easily usable routes through the site • Evidence that the available routes through the site are little used (paths may show little wear, be narrow and encroached on by vegetation)

SANGS with no evidence of a low level of use should not count in full towards the Delivery Plan standards. Information should be collected by the local planning authority to enable assessment of the level of increased use which can be made of the SANGS. The area of the site which is counted towards the Delivery Plan standards

should be proportional to the increase in use of the site. For example, a site already used to half of its expected capacity should count as half of its area towards the standards.

Staging of enhancement works

Where it is proposed to separate the enhancement works on a site into separate stages, to deliver incremental increases in visitor use, the proportion of the increase in visitor use arising from each stage should be estimated. This would enable the granting of planning permission for residential development to be staged in parallel to ensure that the amount of housing permitted does not exceed the capacity of SANGS to mitigate its effects on the SPA.

Practicality of enhancement works

The selection of sites for enhancement to be SANGS should take into account the variety of stakeholder interests in each site. Consideration should be given to whether any existing use of the site which may continue is compatible with the function of SANGS in attracting recreational use that would otherwise take place on the SPA. The enhancement should not result in moving current users off the SANGS and onto the SPA. The specific enhancement works proposed should also be considered in relation not only to their effects on the SANGS mitigation function but also in relation to their effects on other user groups.

References

CLARKE, R.T., LILEY, D., UNDERHILL-DAY, J.C., & ROSE, R.J. (2005). Visitor access patterns on the Dorset Heaths. English Nature Research Report.

LILEY, D., JACKSON, D., & UNDERHILL-DAY, J. C. (2006) Visitor access patterns on the Thames Basin Heaths. English Nature Research Report.

LILEY, D., MALLORD, J., & LOBLEY, M. (2006) The “Quality” of Green Space: features that attract people to open spaces in the Thames Basin Heaths area. English Nature Research Report. Site Quality Checklist – for a suite of SANGS

This guidance is designed as an Appendix to the full guidance on Suitable Accessible Natural Greenspaces (SANGS) to be used as mitigation (or avoidance) land to reduce recreational use of the Thames Basin Heaths SPA.

The wording in the list below is precise and has the following meaning: • Requirements referred to as “must” are essential in all SANGS • Those requirements referred to as “should haves” should all be represented within the suite of SANGS, but do not all have to be represented in every site. • All SANGS should have at least one of the “desirable” features.

Must haves

• For all sites larger than 4ha there must be adequate parking for visitors, unless the site is intended for local use, i.e. within easy walking distance (400m) of the developments linked to it. The amount of car parking space should be determined by the anticipated use of the site and reflect the visitor catchment of both the SANGS and the SPA.

• It should be possible to complete a circular walk of 2.3-2.5km around the SANGS.

• Car parks must be easily and safely accessible by car and should be clearly sign posted.

• The accessibility of the site must include access points appropriate for the particular visitor use the SANGS is intended to cater for.

• The SANGS must have a safe route of access on foot from the nearest car park and/or footpath/s

• All SANGS with car parks must have a circular walk which starts and finishes at the car park.

• SANGS must be designed so that they are perceived to be safe by users; they must not have tree and scrub cover along parts of the walking routes

• Paths must be easily used and well maintained but most should remain unsurfaced to avoid the site becoming too urban in feel.

• SANGS must be perceived as semi-natural spaces with little intrusion of artificial structures, except in the immediate vicinity of car parks. Visually-sensitive way-markers and some benches are acceptable.

• All SANGS larger than 12 ha must aim to provide a variety of habitats for users to experience.

• Access within the SANGS must be largely unrestricted with plenty of space provided where it is possible for dogs to exercise freely and safely off lead.

• SANGS must be free from unpleasant intrusions (e.g. sewage treatment works smells etc).

Should haves

• SANGS should be clearly sign-posted or advertised in some way.

• SANGS should have leaflets and/or websites advertising their location to potential users. It would be desirable for leaflets to be distributed to new homes in the area and be made available at entrance points and car parks.

Desirable

• It would be desirable for an owner to be able to take dogs from the car park to the SANGS safely off the lead.

• Where possible it is desirable to choose sites with a gently undulating topography for SANGS

• It is desirable for access points to have signage outlining the layout of the SANGS and the routes available to visitors.

• It is desirable that SANGS provide a naturalistic space with areas of open (non-wooded) countryside and areas of dense and scattered trees and shrubs. The provision of open water on part, but not the majority of sites is desirable.

• Where possible it is desirable to have a focal point such as a view point, monument etc within the SANGS.

Site Quality Checklist – for an individual SANGS

The wording in the list below is precise and has the following meaning: • Requirements referred to as “must” or “should haves” are essential • The SANGS should have at least one of the “desirable” features.

Must/ Should haves

• For all sites larger than 4ha there must be adequate parking for visitors, unless the site is intended for local use, i.e. within easy walking distance (400m) of the developments linked to it. The amount of car parking space should be determined by the anticipated use of the site and reflect the visitor catchment of both the SANGS and the SPA.

• It should be possible to complete a circular walk of 2.3-2.5km around the SANGS.

• Car parks must be easily and safely accessible by car and should be clearly sign posted.

• The accessibility of the site must include access points appropriate for the particular visitor use the SANGS is intended to cater for.

• The SANGS must have a safe route of access on foot from the nearest car park and/or footpath/s.

• All SANGS with car parks must have a circular walk which starts and finishes at the car park.

• SANGS must be designed so that they are perceived to be safe by users; they must not have tree and scrub covering parts of the walking routes.

• Paths must be easily used and well maintained but most should remain unsurfaced to avoid the site becoming too urban in feel.

• SANGS must be perceived as semi-natural spaces with little intrusion of artificial structures, except in the immediate vicinity of car parks. Visually-sensitive way-markers and some benches are acceptable.

• All SANGS larger than 12 ha must aim to provide a variety of habitats for users to experience.

• Access within the SANGS must be largely unrestricted with plenty of space provided where it is possible for dogs to exercise freely and safely off lead.

• SANGS must be free from unpleasant intrusions (e.g. sewage treatment works smells etc).

• SANGS should be clearly sign-posted or advertised in some way.

• SANGS should have leaflets and/or websites advertising their location to potential users. It would be desirable for leaflets to be distributed to new homes in the area and be made available at entrance points and car parks.

Desirable

• It would be desirable for an owner to be able to take dogs from the car park to the SANGS safely off the lead.

• Where possible it is desirable to choose sites with a gently undulating topography for SANGS

• It is desirable for access points to have signage outlining the layout of the SANGS and the routes available to visitors.

• It is desirable that SANGS provide a naturalistic space with areas of open (non-wooded) countryside and areas of dense and scattered trees and shrubs. The provision of open water on part, but not the majority of sites is desirable.

• Where possible it is desirable to have a focal point such as a view point, monument etc within the SANGS.

Background

The Thames Basin Heaths SPA was designated in 2005 under the Habitats Regulations 1994 to protect the populations of three internationally-threatened bird species that use the heathlands: woodlark, nightjar and Dartford warbler. One of the principle threats to these species is disturbance during their breeding period which collectively extends from February to August. Freely roaming dogs hugely exacerbate the disturbance caused by people visiting the sites.

The Thames Basin Heaths area is much urbanised with little green space available to people apart from the designated areas of heathland. The whole area is also under pressure for more housing.

The Habitats Regulations require an 'appropriate assessment' to be carried out for any plan or project (including housing developments) which may affect the designated interest, either alone or in combination with other plans or projects. The result is that each new planning application within the Thames Basin Heaths Planning Zone would have to be assessed in combination with all the other extant applications. A solution to this situation (which would cause a log jam in the planning system) is the Thames Basin Heaths Delivery Plan.

The Thames Basin Heaths Delivery Framework, which is monitored by the TBH Joint Strategic Partnership Board, provides the framework for addressing new residential development in the Thames Basin Heaths Planning Zone.

The need to provide green space for the community was incorporated into planning policy through PPG 17, originally published in 1991 and revised in 2003. It requires local authorities to set green space standards locally but that these should include aspects of quantity, quality and accessibility. PPG17 illustrates the breath of type and use of public open spaces that are encompassed by the guidelines. SANGS fit into a small proportion of these. Local authorities may look at provision of SANGS in relation to other public open space provision within their area and identify potential SANGS as part of their audit of green space.

Appendix 4: SANGS Information Form

This form is designed to help you gather information about any potential SANGS. For more guidance on the creation of SANGS, please also refer to the relevant Borough Council's Thames Basin Heaths SPA Interim Avoidance Plan.

Natural England, Local Planning Authorities, and other organisations will then be able to consider the potential suitability of the proposed SANGS based on this initial information.

Background information

Name and location of proposed SANGS	**Name:** **Address:** **Grid reference:** **(Please attach a map of the site with the boundaries clearly marked)**
Size of the proposed SANGS (hectares), excluding water features	
Any current designations on land - e.g. LNR / SNCI	
Current owners name and address. (If there is more than one owner then please attach a map)	
Who manages the land?	
Legal arrangements for the land – e.g. how long is the lease?	
Is there a management plan for the site? (if so, please attach)	

Current visitor arrangements

Is the site currently accessible to the public?	
Does the site have open access?	
Has there been a visitor survey of the site? (If so, please attach)	
If there has been no visitor survey, please give and indication of the current visitor levels on site	High / Medium / Low
Does the site have existing car parking?	Yes / No **How many car parks?** **How may car parking spaces?** **(Please mark car parks and numbers of car parking spaces on the site map)**
Are there any existing routes or paths on the site?	Yes / No **(Please mark these on the map)**
Are there signs to direct people to the site? (Please indicate where and what type of sign)	

Site quality checklist

This checklist is intended to help identify what is already present on the site and what needs to be developed for the SANGS to be suitable. This information is taken from Appendix 2 – please refer to Appendix 2 for more details.

Must/should haves – these criteria are essential for all SANGS			
	Criteria	**Current**	**Future**
1	Parking on all sites larger than 4ha (unless the site is intended for use within 400m only)		
2	Circular walk of 2.3-2.5km		
3	Car parks easily and safely accessible by car and clearly sign posted		
4	Access points appropriate for particular visitor use the SANGS is intended to cater for		
5	Safe access route on foot from nearest car park and/or footpath		
6	Circular walk which starts and finishes at the car park		
7	Perceived as safe – no tree and scrub cover along part of walking routes		
8	Paths easily used and well maintained but mostly unsurfaced		
9	Perceived as semi-natural with little intrusion of artificial structures		
10	If larger than 12 ha then a range of habitats should be present		
11	Access unrestricted – plenty of space for dogs to exercise freely and safely off the lead		
12	No unpleasant intrusions (e.g. sewage treatment smells etc)		
13	Clearly sign posted or advertised in some way		

14	Leaflets or website advertising their location to potential users (distributed to homes and made available at entrance points and car parks)		
Desirable features			
	Criteria	**Current**	**Future**
15	Can dog owners take dogs from the car park to the SANGS safely off the lead		
16	Gently undulating topography		
17	Access points with signage outlining the layout of the SANGS and routes available to visitors		
18	Naturalistic space with areas of open (non-wooded) countryside and areas of dense and scattered trees and shrubs. Provision of open water is desirable		
19	Focal point such as a view point or monument within the SANGS		

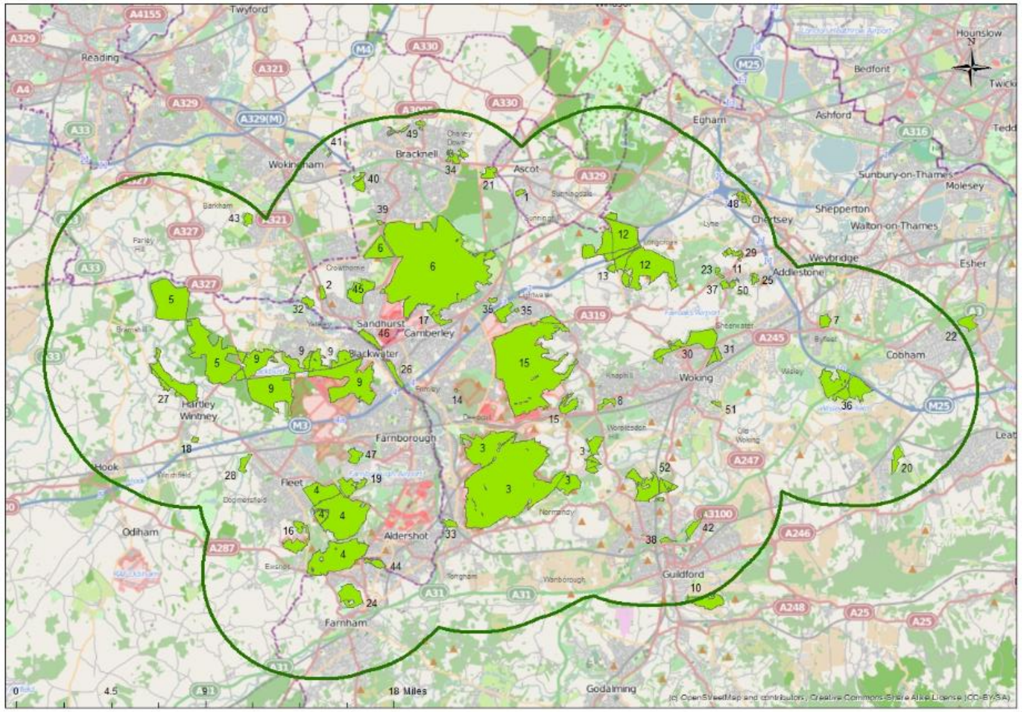
Appendix 2 Questionnaire Map

THE wildlife TRUSTS
Hampshire & Isle of Wight Wildlife Trust

UNIVERSITY OF Southampton

Select the site you visit most and then write the code number and name in the questionnaire answerbox A1.

Add the code numbers and names of up to three other sites you regularly visit in answer box A10.



Number	Site Name
1	Allen's Field
2	Ambarrow Court/ Ambarrow Hill
3	Ash to Brookwood Heaths
4	Bourley & Long Valley
5	Bramshill
6	Broadmoor to Bagshot Woods & Heaths
7	Brooklands Community Park
8	Brookwood Country Park
9	Castle Bottom to Yateley and Hawley Commons
10	Chantry Wood
11	Chaworth Copse
12	Chobham Common
13	Chobham Place Woods
14	Clewborough House School
15	Colony Bog & Bagshot Heath
16	Crookham Park
17	Diamond Ridge Woods
18	Dilly Lane - Queen Elizabeth II Field
19	Edmoor Marsh
20	Effingham Common
21	Englemere Pond
22	Esher Commons
23	Ether Hill & Queenwood
24	Farnham Park
25	Hare Hill
26	Hawley Meadows & Blackwater Park
27	Hazeley Heath
28	Hitches Lane - Edenbrook Country Park
29	Homewood Park
30	Horsell Common
31	Horsell Common (Woodham Common)
32	Horseshoe Lake
33	Lakeside Park
34	Longhill Park Group
35	Notcutts - Harlswood Park
36	Ockham & Wisley Commons
37	Ottershaw Chase
38	Parsonage Watermeadows
39	Part of Great Hollands Recreation Ground
40	Peacock Meadows - Jennett's Park
41	Plough Lane (Keephatch Woods Extension)
42	Riverside
43	Rooks Nest Wood
44	Rowhill
45	Sandhurst to Owlsmoor Bogs & Heaths
46	Shepherd Meadows
47	Southwood Woodland
48	St Ann's Hill
49	The Cut Cluster
50	Timber Hill
51	White Rose Lane
52	Whitmoor Common

Appendix 3 Survey letter

Hampshire & Isle of Wight Wildlife Trust

Faculty of Natural and Environmental Sciences,

Centre of Biological Sciences,

Building 85,

Highfield Campus,

University of Southampton,

Southampton,

SO17 1BJ

e-mail: ea1r11@soton.ac.uk

November 1st 2013

Dear Sir/Madam

My name is Liz Allinson, and I am a research student at the University of Southampton. In collaboration with a local charity, the Hampshire and Isle of Wight Wildlife Trust, I am researching how people make use of the countryside. You have been randomly selected to be included in this survey as you live in the study area. I would greatly appreciate it if you would participate in my survey. Please note participants need to be over 18 years old.

The questionnaire should be completed by the person in your household who visits the countryside the most. It should take ten minutes to complete. For this study, the "countryside" is a country park, natural or amenity area, and the "study area'' is within the dark green boundary on the map provided. The questions should be straightforward, but please do contact me if you are unclear how to answer a question. Please name and code the places you visit by using the map and code list provided.

Even if you only visit one site, you can still fill in the questionnaire. Every reply is valuable to the project. The personal details at the end of the questionnaire are essential to help analyse the answers you give in the first section. All replies will be anonymous and confidential. The data will be held at the University of Southampton under the principles of its data protection policy.

If you are willing to be involved in this project in future, please add your contact details such as your e-mail address or telephone number. Participants can also be entered into a draw for a £50

cash prize. These contact details will be kept separate from the survey to protect your identity, and will never be passed on to third parties. Please return the questionnaire in the FREEPOST envelope provided by December 1st 2013.

Thank you for your support,

Liz Allinson

Postgraduate researcher

Appendix 4 Postal Questionnaire

Section A. Identifying specific locations that you visit

	Please tick here if you are over 18 yrs. old, have read the information sheet and agree to take part in this survey voluntarily.

A1 Please use the location code numbers and names from the supplied map to identify the location in the study area that you visit most frequently. Write your answer in the box below.
For example: Code number: 29 Site name: Homewood Park

Code number:		Site name:	

A2 Which of the following best describes how frequently you visit? (Tick ONE only)	
	300 + visits a year
	200 + visits a year
	100 + visits a year
	50 + visits a year
	10 + visits a year
	1-10 visits a year

A3 When do you visit? (Tick main one)	
	Weekdays (not in school holidays)
	Weekends
	School holidays
	Every day

A4 In which season do you visit? (Tick ALL that apply)	
	March, April and May (Spring)
	June, July and August (Summer)
	September, October and November (Autumn)
	December, January and February (Winter)

A5 Mode of transport to location (Tick main one)	
	Car/Motorbike/Van
	On foot
	Bicycle
	Public transport
	Horse

A6 How long do you spend on the site? (Tick ONE only)			
	Under 15 minutes		16-30 minutes
	31-45 minutes		46 minutes +

A7 How did you find out about this location? (Tick ALL that apply)	
	Map
	Printed matter e.g. leaflet
	Word of mouth
	Website
	Entrance sign
	Saw visitors using informal entrance
	Other

A8 Since when have you lived in the study area? (Tick ONE)			
	Before 2006		Since 2006

A9 Have you moved within the study area? Tick one			
	Yes		No

A10 Use the map to identify a maximum of three other sites you most frequently visit.

Code number	Site Name	Frequency of visit(Use categories as in A2)
e.g. 12	Chobham Common	100 + visits per year

Section B. Features that attract you to the location given in answer A1

B1 What is the purpose of visiting your most frequently visited location? (Tick ALL that apply)

	Dog walking. (If so, how many dogs?) Please write number in box here ☐		Taking children out
	Walking (without dog)		Picnicking
	Watching wildlife		Off road driving
	Horse riding		Informal games (e.g. Frisbee)
	De - stressing		Running
	Meeting a friend		Other (please add details)
	Enjoying nature		
	Cycling		

I am interested in identifying what features and characteristics of the study area are important to you when deciding to visit a location. I want to understand why you make your choice.
B2 Tick ONE box for each feature.

	Very Important	Important	Neither Important or Unimportant	Unimportant	Very unimportant
	^	^	^	^	^
1 Safety on site					
2 Lots of other visitors present					
3 Lots of other dog walkers present					
4 Ability to let dog off the lead					
5 No requirement to clean up after dogs					
6 Absence of livestock					
7 Can walk from home					
8 A short drive from home					
9 Provision of car parking					
10 Accessible by public transport					
11 Way marked routes					
12 Surfaced paths					
13 Somewhere to sit down					
14 Feels wild /natural					
15 Large site with long routes					
16 Variety of habitat and landscape					
17 Presence of viewpoints					
18 Presence of water					
19 Variety of topography e.g. hills and slopes					
20 Other (Add details)					

Section C. What you think about the countryside in which you live.

C1 Is the countryside/environment surrounding your home important to you?
(Tick ONE only)

	Very important
	Important
	Neither important or unimportant
	Unimportant
	Very unimportant

C2 What sort of countryside/environment did you grow up in?
(Tick the most prevalent type)

	Woodland /forest
	Coast
	Agricultural with grazing animals (pastoral)
	Agricultural mainly cropped (arable)
	Heath or moorland
	Lake or riverside
	Urban
	Other (please add details)

C3 Have you heard of the term Special Protection Area (SPA) before?
(Tick ONE only)

	Yes
	If yes go to question C4
	No
	If no go to question C5

C4 Which of the following do you think are the most important reasons why much of the study area is designated as a Special Protection Area (SPA)?
(Tick ALL that apply)

	The scenic landscape
	Open Access
	It is protected from being built on
	Rare wildlife
	Other (add details)

C5 How interested are you in local wildlife?
(Tick ONE only)

	Very interested
	Interested
	Neither interested or uninterested
	Uninterested
	Very uninterested

C6 Are you a member of any of the following organisations?
(Tick ALL that apply)

	A County Wildlife Trust
	The National Trust
	The Rambler's Association
	A Local History Society
	RSPB
	None
	Other (add details)

Section D. Information needed for analysis of response.

The information you provide in this section is anonymous and confidential and will be stored under the principles of the University of Southampton's data protection policy.

	D1 Age in years (Tick ONE)
	18-19
	20-29
	30-39
	40-49
	50-59
	60-69
	70+
	Prefer not to say

	D2 Gender (Tick ONE)
	Male
	Female
	Prefer not to say

	D3 Highest level of qualification or training (Tick ONE only)
	No qualifications
	School (GCSE)
	School (A level)
	University (Bachelor's degree)
	Postgraduate degree
	Apprenticeship
	Professional (PGCE, nursing)
	Prefer not to say
	Other (please add details)

	D4 Please tick ONE which best describes your circumstances
	Full time employed
	Part time employed
	Full time self employed
	Part time self employed
	Unemployed seeking work
	Retired
	Looking after home and family
	Full time education
	Part time education
	Prefer not to say

	D5 What is your ethnic group? (Tick ONE)
	Mixed race
	Black African
	Black Caribbean
	White
	Indian
	Bangladeshi
	Pakistani
	Chinese
	Asian (non- Chinese)
	Prefer not to say
	Other (please add details)

If you are would like to be entered into the £50 prize draw please enter your details here. They will be kept separate from the survey and not passed on to third parties.

Email ……..

Tel no ……..

If you are willing to be involved in follow up research, please provide your contact details below. They will be kept separate from the survey and not passed on to third parties.

E mail ……..

Tel no ……..

THANK YOU FOR COMPLETING THE QUESTIONNAIRE

Please return in the FREEPOST envelope provided.

Appendix 5 Frequency outputs for Questionnaire Section A

Most frequently visited location

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SPA	66	38.8	38.8	38.8
	SANGS	104	61.2	61.2	100.0
	Total	170	100.0	100.0	

Frequency of visits

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-10 visits a year	48	28.2	28.2	28.2
	10 or more visits a year	44	25.9	25.9	54.1
	50 or more visits a year	42	24.7	24.7	78.8
	100 or more visits a year	14	8.2	8.2	87.1
	200 or more visits ay ear	6	3.5	3.5	90.6
	300 or more visits a year	16	9.4	9.4	100.0
	Total	170	100.0	100.0	

Visits daily

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Do not visit everyday	142	83.5	83.5	83.5
	Visit everyday	28	16.5	16.5	100.0
	Total	170	100.0	100.0	

Visits weekends and holidays

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Does not visit weekend and hols	74	43.5	43.5	43.5
	Visits weekend and hols	96	56.5	56.5	100.0
	Total	170	100.0	100.0	

Visits in breeding season

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Does not visit	5	2.9	2.9	2.9
	Visits	165	97.1	97.1	100.0
	Total	170	100.0	100.0	

On foot

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	'Not foot'	118	69.4	69.4	69.4
	Foot	52	30.6	30.6	100.0
	Total	170	100.0	100.0	

By car

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not car	70	41.2	41.2	41.2
	Car	100	58.8	58.8	100.0
	Total	170	100.0	100.0	

Mode of transport to location

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Car /motorbike/van	100	58.8	58.8	58.8
	On foot	52	30.6	30.6	89.4
	Bicycle	15	8.8	8.8	98.2
	Public transport	1	.6	.6	98.8
	Horse	2	1.2	1.2	100.0
	Total	170	100.0	100.0	

Final duration

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 45 mins	66	38.8	39.1	39.1
	More than 45 mins	103	60.6	60.9	100.0
	Total	169	99.4	100.0	
Missing	System	1	.6		
Total		170	100.0		

Visits other sites in zone

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No other sites	17	10.0	12.7	12.7
	Other sites	117	68.8	87.3	100.0
	Total	134	78.8	100.0	
Missing	99.00	36	21.2		
Total		170	100.0		

Frequency of visiting other sites

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-10 visits a year	54	31.8	48.6	48.6
	10 or more visits a year	37	21.8	33.3	82.0
	50 or more visits a year	14	8.2	12.6	94.6
	100 or more visits a year	5	2.9	4.5	99.1
	200 or more visits a year	1	.6	.9	100.0
	Total	111	65.3	100.0	
Missing	99.00	57	33.5		
	System	2	1.2		
	Total	59	34.7		
Total		170	100.0		

Found location by entrance sign

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	146	85.9	86.4	86.4
	Yes	23	13.5	13.6	100.0
	Total	169	99.4	100.0	
Missing	99.00	1	.6		
Total		170	100.0		

found location by word of mouth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	99	61.1	61.5	61.5
	yes	62	38.3	38.5	100.0
	Total	161	99.4	100.0	
Missing	99.00	1	.6		
Total		162	100.0		

Since

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Before 2006	55	32.4	36.9	36.9
	After 2006	94	55.3	63.1	100.0
	Total	149	87.6	100.0	
Missing	99.00	21	12.4		
Total		170	100.0		

Appendix 6 Distribution of distance travelled by respondents

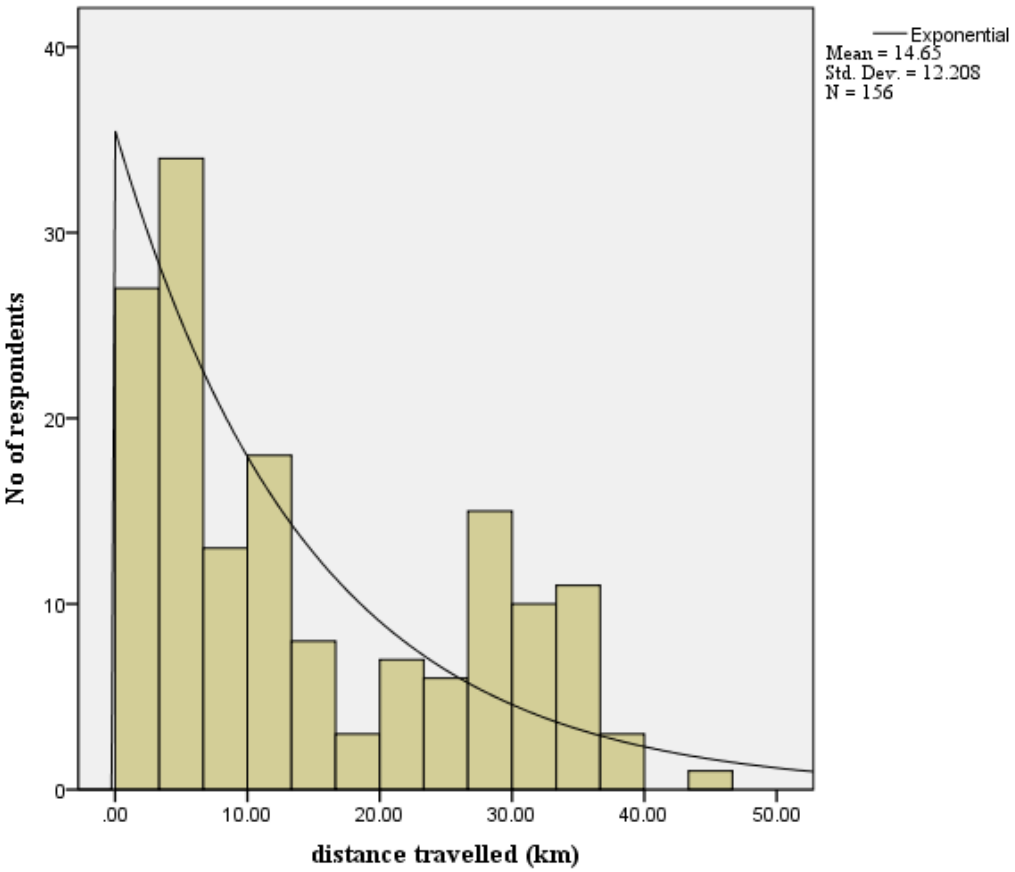


Figure 19 Distribution of distance travelled by respondents

Appendix 7 Frequency tables for Section B

Passive enjoyment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	58	34.1	34.3	34.3
	Yes	111	65.3	65.7	100.0
	Total	169	99.4	100.0	
Missing	99.00	1	.6		
Total		170	100.0		

Active use

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	98	57.6	58.0	58.0
	Yes	71	41.8	42.0	100.0
	Total	169	99.4	100.0	
Missing	99.00	1	.6		
Total		170	100.0		

Social activity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	95	55.9	56.2	56.2
	Yes	74	43.5	43.8	100.0
	Total	169	99.4	100.0	
Missing	99.00	1	.6		
Total		170	100.0		

Walking with dog

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	139	81.8	82.2	82.2
	Yes	30	17.6	17.8	100.0
	Total	169	99.4	100.0	
Missing	99.00	1	.6		
Total		170	100.0		

Walking

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	73	42.9	43.5	43.5
	Yes	95	55.9	56.5	100.0
	Total	168	98.8	100.0	
Missing	99.00	1	.6		
	System	1	.6		
	Total	2	1.2		
Total		170	100.0		

Infrastructure

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Infrastructure not important	56	32.9	33.7	33.7
	Infrastructure important	110	64.7	66.3	100.0
	Total	166	97.6	100.0	
Missing	99.00	4	2.4		
Total		170	100.0		

Safety

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Safety not important	51	30.0	30.7	30.7
	Safety important	115	67.6	69.3	100.0
	Total	166	97.6	100.0	
Missing	99.00	4	2.4		
Total		170	100.0		

dog friendly

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	not important	96	59.3	61.9	61.9
	important	59	36.4	38.1	100.0
	Total	155	95.7	100.0	
Missing	99.00	7	4.3		
Total		162	100.0		

good accessibility

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	accessibility not important	14	8.6	8.7	8.7
	accessibility important	147	90.7	91.3	100.0
	Total	161	99.4	100.0	
Missing	99.00	1	.6		
Total		162	100.0		

environmental attributes

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	not important	5	3.1	3.1	3.1
	important	156	96.3	96.9	100.0
	Total	161	99.4	100.0	
Missing	99.00	1	.6		
Total		162	100.0		

Appendix 8 Frequency tables for Section C

Importance of home environment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not important	2	1.2	1.2	1.2
	Important	167	98.2	98.8	100.0
	Total	169	99.4	100.0	
Missing	System	1	.6		
Total		170	100.0		

What sort of countryside did you grow up in?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Woodland/forest	16	9.4	9.5	9.5
	Coast	15	8.8	8.9	18.5
	Pastoral	19	11.2	11.3	29.8
	Arable	12	7.1	7.1	36.9
	Heath or moor	8	4.7	4.8	41.7
	Lake or river	5	2.9	3.0	44.6
	Urban	93	54.7	55.4	100.0
	Total	168	98.8	100.0	
Missing	99.00	2	1.2		
Total		170	100.0		

Heard of SPA

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	77	45.3	45.8	45.8
	Yes	91	53.5	54.2	100.0
	Total	168	98.8	100.0	
Missing	99.00	2	1.2		
Total		170	100.0		

Reason designated as SPA

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Incorrect reason	23	13.5	24.7	24.7
	Correct reason	70	41.2	75.3	100.0
	Total	93	54.7	100.0	
Missing	System	77	45.3		
Total		170	100.0		

Interest in wildlife

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not interested or neutral	24	14.1	14.6	14.6
	Interested	140	82.4	85.4	100.0
	Total	164	96.5	100.0	
Missing	System	6	3.5		
Total		170	100.0		

Member of organisation?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	114	67.1	67.5	67.5
	Yes	55	32.4	32.5	100.0
	Total	169	99.4	100.0	
Missing	99.00	1	.6		
Total		170	100.0		

Appendix 9 Frequency tables for Section D

Age - (Question D1)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20-29	26	15.3	15.4	15.4
	30-39	54	31.8	32.0	47.3
	40-49	38	22.4	22.5	69.8
	50-59	20	11.8	11.8	81.7
	60-69	16	9.4	9.5	91.1
	Over 70	15	8.8	8.9	100.0
	Total	169	99.4	100.0	
Missing	99.00	1	.6		
Total		170	100.0		

The variable ‘age’ was collapsed into a dummy variable and recoded ‘under sixty'. The variable ‘under sixty’ was coded as 1 and ‘not under sixty’ was coded as 0. Not under sixty was chosen as a cut-off as it was indicative of being retired.

Dummy Variable ‘Under Sixty’

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not under sixty	31	18.2	18.3	18.3
	Under sixty	138	81.2	81.7	100.0
	Total	169	99.4	100.0	
Missing	System	1	.6		
Total		170	100.0		

A Chi-square goodness of fit test showed that the percentage of respondents that were sixty and over (18.3%) was not significantly different from the percentage of people of retirement age in England and Wales (17.4%). X^2 (1) = 0.105, p > 0.05 (O.N.S., 2011).

Question D2 Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	84	49.4	50.0	50.0
	Female	83	48.8	49.4	99.4
	Prefer not to say	1	.6	.6	100.0
	Total	168	98.8	100.0	
Missing	99.00	1	.6		
	System	1	.6		
	Total	2	1.2		
Total		170	100.0		

The variable ‘gender’ was recoded into a dummy variable of ‘female’. The variable ‘female' was coded 1 and male as ‘not female' was coded 0.

Recoded variable for ‘Gender'

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	84	49.4	50.3	50.3
	Female	83	48.8	49.7	100.0
	Total	167	98.2	100.0	
Missing	99.00	1	.6		
	System	2	1.2		
	Total	3	1.8		
Total		170	100.0		

A Chi-Squared goodness of fit test showed that the respondent gender ratio was not significantly different to the National gender ratio of 49.2% male and 50.8% female.X^2 (1) = 0.113, p > 0.05 (O.N.S., 2013b).

Question D3 'Highest level of Qualification'

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No qualifications	5	2.9	3.0	3.0
	GCSE/O level	16	9.4	9.6	12.6
	A level	32	18.8	19.2	31.7
	University bachelor's degree	54	31.8	32.3	64.1
	Postgraduate degree	23	13.5	13.8	77.8
	Apprenticeship	1	.6	.6	78.4
	Professional PGCE Nursing	24	14.1	14.4	92.8
	Prefer not to say	5	2.9	3.0	95.8
	Other	7	4.1	4.2	100.0
	Total	167	98.2	100.0	
Missing	99.00	3	1.8		
Total		170	100.0		

The variable 'qual' representing the highest level of qualification was recoded into the dummy variable 'grad plus'. The variable was coded 'not grad plus' as 0 and 'grad plus' as 1.

Gradplus

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not graduate plus	66	38.8	39.5	39.5
	Graduate plus	101	59.4	60.5	100.0
	Total	167	98.2	100.0	
Missing	System	3	1.8		
Total		170	100.0		

A chi-squared goodness of fit test showed that there was a significant difference in the percentage of respondents educated to graduate level and above (60.5%) and the percentage of graduates in the National population (27%). X^2 (1) =73.87, p <0.001 (O.N.S., 2013a).

Employment Status – (Question D4)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Full-time employed	102	60.0	61.1	61.1
	Part-time employed	16	9.4	9.6	70.7
	Full-time self-employed	7	4.1	4.2	74.9
	Part-time self-employed	4	2.4	2.4	77.2
	Unemployed seeking work	3	1.8	1.8	79.0
	Retired	24	14.1	14.4	93.4
	Looking after home and family	9	5.3	5.4	98.8
	Full-time education	1	.6	.6	99.4
	Prefer not to say	1	.6	.6	100.0
	Total	167	98.2	100.0	
Missing	99.00	3	1.8		
Total		170	100.0		

The variable ‘employ’ representing employment status was recoded into the dummy variable ‘full-time'. The variable ‘full-time’ was coded 1 and ‘not full-time’ was coded as 0.

Recoded variable ‘full-time’

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not full-time employed	57	33.5	34.3	34.3
	Full-time employed	109	64.1	65.7	100.0
	Total	166	97.6	100.0	
Missing	System	4	2.4		
Total		170	100.0		

A Chi-Squared goodness of fit test showed that the percentage of respondents in full-time employment was not significantly different from the percentage of full-time workers in the nation as a whole which is 70%. X^2 (1) = 1.48, p >0.05 (O.N.S., 2011).

Ethnic Group – (Question D5)

Ethnicity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Mixed race	1	.6	.6	.6
	Black African	3	1.8	1.8	2.4
	White	162	95.3	97.0	99.4
	Asian (non-Chinese)	1	.6	.6	100.0
	Total	167	98.2	100.0	
Missing	99.00	3	1.8		
Total		170	100.0		

The variable ‘ethnic’ was collapsed and recoded into the dummy variable ‘white'. The variable ‘white’ was coded 1, and ‘non-white’ was coded 0.

Recoded variable 'White'

White

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Non-white	5	2.9	3.0	3.0
	White	162	95.3	97.0	100.0
	Total	167	98.2	100.0	
Missing	System	3	1.8		
Total		170	100.0		

The percentage of white respondents (97%) is significantly different from the SE Regional percentage of 86% (O.N.S., 2013b). X^2 (1) = 16.801, $p < 0.001$.

Appendix 10 Focus Group Protocol

I will introduce myself to the participants, explain the purpose of my research and clarify the definition of greenspace. This will be the same definition that was defined in the covering letter attached to the postal questionnaire.

1. How did you find the site you visit most frequently?
    - Which site do you visit?
    - Is it the nearest?
    - Did you actively seek out the site or did you find it by chance?
2. What do you do on the site(s) you visit?
3. What do you experience and what experience do you value most when visiting a greenspace?
4. What is the most important reason that attracts you to the site you visit, compared to other sites within your reach?
5. What other characteristics/factors attract you to visit a site?
6. Do you avoid visiting certain sites?
    - Why?
7. Did the availability of accessible greenspace sites in the study area encourage you to get a dog?
    - Does it if you do not own a dog at present?
8. Do you have any views on how well or not wildlife or biodiversity is doing on the site you visit most?
    - Why do you think this?

I WILL PROVIDE AN EXPLANATION OF 'SANGS' POLICY AT THIS POINT IN THE PROCEEDINGS.

9. Had you heard of Suitable Alternative Natural Greenspace Strategy (SANGS)?
    - What do you think of the policy?
    - Are you in favour or against the policy?
    - Why?

10. Do you think visiting Suitable Alternative Natural Greenspace sites provide an equivalent experience to visiting the Thames Basin Heaths Special Protection Area sites?
    - Why/Why not?

11. Can you suggest the type of information source about access/location of greenspace that would have been useful to you when you first moved into the area?

12. Is there anything that you think you could do to improve wildlife and biodiversity on the site?

I will thank participants for their time and ask them to sign for receipt of the cash incentive.

Appendix 11 Interview Protocol

UNIVERSITY OF Southampton

PROTOCOL FOR EXPERT STAKEHOLDER INTERVIEWS

Before beginning the interview, please ensure that you have read the accompanying participant information sheet and signed the consent form.
Semi-structured interview with key informant Aim: To assess the implementation of SANG strategy in the Thames Basin Heaths SPA Zone of Influence, identify factors which influence its effectiveness and make recommendations for best practice. Objective: To investigate expert stakeholder opinion on the effectiveness of SANG strategy
1 Can you briefly describe your role and work within your organisation?
2 Can you tell me about your experience or involvement in SANG strategy in the Thames Basin Heaths?
3 In your opinion, what is the importance of SANG strategy for your organisation?
4 What do you think have been the most serious problems since the implementation of SANG strategy in the Thames Basin Heaths?
5 Do you think that SANG strategy has been effective in protecting the SPA?
6 Can you suggest changes that would improve SANG strategy?
7 Do you think that SANG strategy should be encouraged in other parts of the country? Why?
8 Who ought to be involved in the future development of SANG strategy? Why?
Thank you very much for participating in this study. **Do you have any remaining questions?**

List of References

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