

## **4 REVIEW OF ECOLOGICAL EVIDENCE UNDERPINNING THE DRAFT DELIVERY PLAN**

### **4.1 Introduction**

4.1.1 This section of the report reviews the evidence upon which English Nature's assessment of the likely effects of recreational use of the SPA on the important bird species is based. It also considers other relevant research.

### **4.2 English Nature's evidence base**

#### *Method*

4.2.1 RPS has reviewed the publications and reports referenced in the draft Delivery Plan and its Appendix 6 that concerned the Annex I species. The objective of the review was to test how the information contained in each document is used in the draft Delivery Plan or Appendix 6. The review followed a systematic method, asking in turn a series of questions:

- Are the main conclusions of the document, relevant to the draft Delivery Plan, based on a robust scientific method, analysis and test of statistical significance?
- Is the information contained in the document quoted accurately in the draft Delivery Plan or Appendix 6?
- Does the draft Delivery Plan or Appendix 6 make full use of the information in the document or are there omissions that provide additional support for the draft Delivery Plan or contradictory evidence?
- Is there other, robust evidence available in the scientific literature that provides additional support for the draft Delivery Plan or contradictory evidence that would have been available to the authors of the draft Delivery Plan or Appendix 6?
- Has evidence come available more recently that provides additional support for the draft Delivery Plan or contradictory evidence?

4.2.2 The full details of the review are presented in Appendix D along with a list of the documents that were reviewed from the draft Delivery Plan and its Appendix 6. The remainder of this section presents the conclusions of the review.

### 4.3 The conclusions of the review

#### *Overview*

- 4.3.1 The most significant conclusion of this review is that the statistical robustness of the relationships between measures of access pressure and bird populations in the recent studies cited in the draft Delivery Plan is only weak. This in part arises inevitably from the difficulty of obtaining a good sample size in the short time periods over which the studies were conducted. However, there is not the contrary evidence from the weak statistical relationships or other studies (some of which provide contrary results, some supportive) to be able to dismiss the need to take a precautionary approach to the application of the evidence.

#### *Nightjar*

- 4.3.2 It is difficult to study Nightjar breeding success because of their cryptic nesting behaviour. This means that sample sizes in the key studies that investigated the relationship between access and nests location and success was small. This in turn makes the probability of deriving statistically significant results less likely.
- 4.3.3 A causal link between nest failure (through predation) and human use of footpaths remains unproven.
- 4.3.4 The relationship between access measures and bird population measures in Murison 2002 was not statistically significant.
- 4.3.5 No significant relationship between territory density and restricted versus open access sites was identified in a study that was not quoted in the draft Delivery Plan (Liley and Clarke 2002).
- 4.3.6 Nightjar nests were located significantly further away from houses than were random points in a study that was not quoted in the draft Delivery Plan (Liley and Clarke 2002).
- 4.3.7 The link between human disturbance and nightjar breeding success that is proposed in Murison (2002) and inferred in Liley and Clarke (2003) should be treated as being unproven.
- 4.3.8 The two nests that were proven to have had the adult flushed off by a dog (Woodfield & Langston, 2004b) both fledged young successfully.

#### *Woodlark*

- 4.3.9 It is difficult to study Woodlark breeding success because of their cryptic nesting behaviour. This means that the sample size in the key study (Mallord 2005) that investigated the relationship between access and nests location and success was

small. This in turn makes the probability of deriving statistically significant results less likely.

- 4.3.10 Mallord found that the proportion of sites occupied by Woodlarks declined with higher levels of urbanisation.
- 4.3.11 Mallord found that there was no significant effect of access on nest survival, the distance of the nest to the nearest footpath nor the interaction between them.
- 4.3.12 Mallord produced a model that related access patterns to Woodlark populations. This predicted, but it is not highlighted in the draft Delivery Plan or Appendix 6, that to create a significant effect on Woodlark population visitor numbers would have to double and be unmanaged such that they spread across the heathland. Managing that doubling of visitors such that it occurs along existing access routes and areas resulted in no significant predicted impact on the Woodlark population. A scenario in the model that redistributed current levels of disturbance resulted in a large increase in the Woodlark population.
- 4.3.13 A study by Liley and Clarke (2003), that was not referred to, reported that Woodlarks show lower territory density on open access heaths when compared to restricted access sites. This supports the work of Mallord. However, no significant relationship was found between woodlark territory density and the amount of developed land surrounding the heath, contradicting the results shown by Mallord.

*Dartford Warbler*

- 4.3.14 The main source of information on the effects of disturbance and urbanisation on Dartford Warblers was not available for review since it is ongoing research for a PhD that has not been written up. As the main evidence regarding disturbance effects is currently unpublished in any form it should be treated with due caution.
- 4.3.15 The preliminary research results suggest that birds are less likely to nest if the heathland patch was near land heavily used by humans. The study by Liley & Clarke (2002) goes some way to contradict this, as they found no significant correlation between the density of Dartford Warblers and the percentage of developed land within 500m of the heathland patch. The preliminary research is supported by a published study (Van den Berg *et al* 2001) that found a negative effect of proximity to urban areas on Dartford Warbler territory numbers.
- 4.3.16 There is little discussion of the effects of roads on this species, the potential for collision mortality and how this could rise as a result of increased residential population in the area.

## **5 REVIEW OF RECREATION EVIDENCE UNDERPINNING THE DRAFT DELIVERY PLAN**

### **5.1 Introduction**

5.1.1 A review of the evidence base upon which English Nature’s assessment of the likely patterns of recreational use of the Thames Basin Heaths SPA, as a consequence of new residential development in the surrounding area, has been undertaken. Details of the review and associated comments can be found within Appendix E of this report. The review includes an examination of the evidence used relating to catchment areas, the type of recreation undertaken by visitors and the relative attraction of the land or heath concerned. Consideration is also given to other evidence not referenced by the draft Delivery Plan. This review informs the consideration of English Nature’s proposed mitigation zones and standards that are the subject of the following two sections of this report.

### **5.2 The draft Delivery Plan evidence base**

5.2.1 Key factors identified within the review of the evidence base are set out below, categorised by issue.

5.2.2 In regard to standards:

- Only three were referenced in any detail – English Nature’s own ANGSt model, the NPFA’s Six Acre Standard and the GLA’s Guide to preparing Open Space Strategies – none have specific relevance to the Thames Basin Heaths SPA or its circumstances.
- PPG17 and its Companion Guide were not regarded as relevant.
- Travel time is key to the propensity to visit sites.
- Physical and social barriers can constrain accessibility.
- Small sites (under 2 hectares) can provide adequate space for informal natural recreational space (ANGSt).
- All three models examined were considered of limited relevance by the Plan.
- An effective catchment area is the distance travelled by 75 – 80% of users.

5.2.3 With respect to visitor surveys, the key factors identified from the review of evidence are:

- All surveys relate to specific sites and specific issues and therefore the results are not always useful or relevant.

- The majority of visitors to heathlands come from within 5 km of the site.
- There is no consistent approach to measurement of travel distances.
- Mean travel distances are influenced by the proximity of the heathland to urban areas.
- Dog walking was a popular activity (over 50%) at most sites.
- Visits rarely lasted over 2 hours at all heaths and penetration into the site was on average approximately 1 km.
- Key factors in attracting visitors are ease of access, allowing dogs off the lead and an attractive natural environment.
- Visitors to the heath visited other sites for the same purpose as the Thames Basin Heaths visit.

### **5.3 Conclusions**

5.3.1 The evidence base against which the draft Delivery Plan was prepared is relatively light. The preparation of standards for circumstances similar to those found at the Thames Basin Heaths SPA has not occurred in the UK previously, and there have been few relevant visitor surveys. Robust data upon which to propose new standards of provision and mitigation at the Thames Basin Heaths SPA has not therefore been available to English Nature. That is not their fault however, merely reflecting instead the relatively new circumstances (i.e. the Habitats Directive, the Habitats Regulations decision making requirements, and the classification of the SPA) and the therefore limited time available to all interested parties to secure a clearer evidence base upon which to assess both impact and potential mitigation from new developments. That other data identified by this report principally accompanied very recent planning applications is evidence of this fact. However, the data that does now exist, and the advice regarding standards, are of relevance albeit to varying degrees and must therefore be considered. Whether its interpretation and the recommendation drawn from it are correct however, is the focus of the following two sections.

## **6 THE DRAFT DELIVERY PLAN MITIGATION ZONES**

### **6.1 Introduction**

6.1.1 An analysis of the derivation of the draft Delivery Plan mitigation zones has been undertaken. Details of the analysis can be found within Appendix F of this report. Set out below are the key findings of that analysis.

### **6.2 Are the proposed draft Delivery Plan Mitigation Zones Appropriate?**

6.2.1 As stated in the review of the evidence base, limited data exists to inform the consideration of whether the proposed mitigation zones of 400 metres, 2 km and 5 km are appropriate. A clear conclusion at the outset is therefore that additional research is required to address this shortcoming.

6.2.2 The additional evidence reviewed in this report does not confirm the findings of the Thames Basin Heaths study by Liley *et al* (2005a) upon which the draft Delivery Plan places so much emphasis. However, this is neither surprising nor is it incorrect of English Nature to place greater weight on the Thames Basin Heaths visitor survey findings. As has been highlighted in the analysis, no heathland or other natural open space will exhibit the same characteristics as those found at the Thames Basin Heaths. Characteristics of the open space will differ as will its proximity to neighbouring urban areas from where likely visitors will come. Survey data that influence the mitigation zones must be relevant and related to the local circumstances. This is what is promoted by PPG 17 (ODPM 2002a) as essential to the creation of robust standards. The further research required therefore must be undertaken in respect of the Thames Basin Heaths SPA, and where appropriate, related to the specific circumstances that exist within this particular heathland. Indeed, this last aspect addresses the possible benefit of local studies that address such local circumstances and aspects. This is however no revelation – the mini plans that have now been drafted by some local planning authorities in the area are witness to that. Further comment on mini plans is given in a later section of this report.

6.2.3 The draft Delivery Plan sets out to be a guide, its mitigation zones providing direction to local planning authorities and developers alike. This evaluation must therefore consider the proposed zones against this background.

6.2.4 Zone A, that which contains the land within 400 metres of the SPA boundary, is considered to have been defined on a reasonable basis, given the evidence that informs the draft Delivery Plan. Additional evidence, albeit of limited specific relevance, provides no convincing argument for this zone to be altered. Analysis of the evidence, including that relating to standards and also travel distances by domestic cats suggests in fact that the zone is, if anything, conservative in its proposed threshold.

- 6.2.5 Evidence on how far a cat might range from its house is light and cats are, in any case, difficult to study in terms of their movement. Other evidence on human travel to heathlands is not wholly consistent either. However, against this background, English Nature has reached what is a pragmatic conclusion as to the likely significance of impact caused by development in close proximity. The likely significance can be judged to be at its greatest within 400 metres. Zone A is therefore considered appropriate for the purposes of guidance.
- 6.2.6 Zone B, defined as between 400 metres and 2 km from the SPA, is the zone with what is considered the greatest level of ambiguity. Assessing the data examined by the draft Delivery Plan, the outer boundary of Zone B appears to have been selected due to the noted maximum distance that people walked to the SPA in combination with a proportion of the visitors by car. The analysis of the visitor travel distances from the relevant heathland studies illustrates that the 2 km boundary is not consistently supported by the evidence, in terms of the proportion of visitors travelling from within the zone. However, neither does each survey location provide any consistency of context. For example, the vast majority of those who walked to Bourley and Long Valley heath travelled around a kilometre or less. This is likely to reflect however the proximity of this part of the SPA to Fleet and Aldershot.
- 6.2.7 Identifying the outer limits of Zone B by the likely walking distance of visitors is considered reasonable, based on the relevant evidence assessed. Unlike Zone A however, a more precautionary approach appears to have been taken to determining this zone. Most of the evidence reviewed indicates that 2 km is rarely a distance walked to visit the SPA or other heathlands. The approach that can be taken is to use the distance that the majority of the sampled population travel, as was done to define Zone C, with the percentage set at around 75% of people who travelled. The survey by Liley *et al* (2005) of the TBH shows that 79% of walkers came from within 1 km of the access point assessed. The survey by Clarke *et al* (2005) of visitors to the Dorset Heathlands found that three quarters of those who travelled on foot lived less than 500 metres away from the access point. Whilst the differences between the studies re-affirms the need to collate data to address the specific characteristics of the SPA, it nevertheless is evidence that the boundary proposed for Zone B is greater than the evidence supports. Liley *et al* (2005) found that when walkers were asked of alternative sites that they visited, it was found that 67% of respondents walked less than a mile to reach them as well. Whilst it is clear that further research is required, there is evidence to indicate that the boundary of Zone B could be reduced below 2 km if greater weight were given to travel on foot than to the proportion that travel by car.
- 6.2.8 The outer mitigation Zone C should represent the area from which the majority of visitors travel to the SPA. If travelling by car there will be more options to choose from to travel to. The zone should therefore reflect the likely travel distance of visitors to the SPA, but not necessarily any one specific access point. The evidence base again is insufficient to enable any robust identification of the outer boundary. English Nature has taken the results of the Thames Basin Heaths visitor survey and has had to assume that they provide a reasonable reflection of visitor behaviour. Whilst such an approach is not robustly evidenced, English Nature has had little

alternative, relevant data to consider. A study of the distances listed within Table E.1 of Appendix E however indicate that, Cannock Chase aside, 5 km appears to be the furthest that the majority (ie 75%) of visitors will travel for activities such as walking, dog walking, jogging etc.

### **6.3 Conclusions**

6.3.1 When considering the basis of the identification of the mitigation zones, it is essential to consider the following:

- The lack of evidence
- The precautionary principle
- The varying local circumstances that exist around the SPA as a whole (i.e. its proximity to the urban area etc).

6.3.2 With these in mind, it is not possible to prepare and propose secure and robust mitigation zones and English Nature has not, through no fault of its own, been able to do so. It is vital that further research is undertaken, and that such research also identifies the altering and varied circumstances and context that exist throughout the Thames Basin Heaths SPA.

6.3.3 However, the precautionary principle remains, as required by the Directive. Here the draft Delivery Plan has paid due regard to this principle, with mixed results. Its interpretation and conclusions drawn from the data examined in respect of Zones A and C are considered reasonable and not overly restrictive. The boundary for Zone B may be too far from the SPA, this being dependent on how a threshold for the proportion of visitors travelling by foot and by car is applied. Further work is considered necessary to strengthen the evidence base for the outer edge of Zone B.

## **7 THE DRAFT DELIVERY PLAN GREENSPACE STANDARDS**

### **7.1 Introduction**

7.1.1 In this section we consider whether the proposed 16 hectare and 8 hectare standards for the provision of greenspace are set at the correct levels, based on the evidence reviewed. Other evidence, where it exists, is referenced to assess whether the standards should be altered, as well as consideration of the likelihood of the alternative natural green space actually being suitable and diverting visitors away from the SPA.

### **7.2 The draft Delivery Plan's Mitigation Standards**

7.2.1 The draft Delivery Plan acknowledges that evidence to support the determination of the size of suitable alternative natural greenspace (SANGS) as mitigation is sparse. The foundation for the recommendations made in the draft Delivery Plan derive from just two proposals for development made recently near to the Thames Basin Heaths SPA. The draft Delivery Plan recognises therefore that these mitigations standards require monitoring and review as further evidence emerges.

7.2.2 The requirement for 16 hectares of SANGS per 1000 population if within Zone B of the Thames Basin Heaths appears to be based only on what was proposed at QEII Barracks, Fleet, Hampshire. The open space and green space proposed at that site to support the development of 1,132 dwelling units was considered sufficient to mitigate the new development and reduce visitor pressure on the SPA. However, there was no strong scientific evidence to support this. A judgement was made that its size, location next to the development site (and thereby more accessible than the SPA) and the management measures proposed led English Nature to believe the requirements had been met. On this basis, through the use of a local occupancy rate applied to the QEII site, a standard of 16 hectares per 1,000 people was concluded. The basis for the proposed Zone B standard is therefore weak, as seemingly acknowledged by English Nature.

7.2.3 The proposed mitigation standard for Zone C, 8 hectares per 1,000 population is predicted principally by the evidenced conclusion that beyond 2 km, the number of persons who will visit the SPA will fall, and other SPA sites will be available to them at the same or less distance.

7.2.4 The standards do recognise the importance of quantity and quality in respect of the relative attraction of the SPA and SANGS, and assume that natural greenspace that is closest to the potential visitor is most likely to attract them. It also places significant emphasis upon the survey results relative to walkers and in particular, dog walkers. The distance travelled by such users, and the factors that attract them to walk their dogs, led the draft Delivery Plan to suggest that sites under 2 hectares in size should not be considered for mitigation. However, evidence exists

which does not wholly support such a conclusion and it, along with other evidence and a re-assessment of the draft Delivery Plan's evidence here, is set out below.

### **7.3 Considering the Evidence**

7.3.1 The visitor surveys that have been undertaken at Thames Basin Heaths and at other heathland or natural space have not sought to address the question of how big other sites need to be to act or be considered as alternatives. No definitive study exists to inform the answer to this question. However, as stated above, the draft Delivery Plan considers that sites under 2 hectares cannot provide the requisite space needed to enable in particular dog walkers to visit the site. Whilst this aspect of the mitigation standard may appear of secondary importance to the issue of the actual standard itself, it is considered that in fact the minimum size of SANGS informs the standard, it does not follow from it.

7.3.2 The standards set in the draft Delivery Plan seek to draw potential users of the SPA away to SANGS. To do so it must meet the expectations and needs of its users. Key users are those walking dogs. Evidence presented in Tables E.3 and E.4 indicates that in most cases the majority of users of heathlands are dog walkers. It is with this evidence in mind that the draft Delivery Plan considers that sites under 2 km should not be considered as SANGS. This clearly fails to take account of other non dog walkers however, and English Nature's own guidance on ANGSt stipulates that sites below 2 hectares can provide visitors with enough space for them to consider it 'natural'. Whether the size allows dog walkers to consider it attractive as a venue may depend upon the nature of the space (location, restrictions) and also on the dog itself (size, age, health). That it is of a size to attract other non dog walking users however is not to be overlooked. In identifying SANGS therefore, and in particular their minimum size, it is considered that sites under 2 hectares should also be considered.

7.3.3 With that in mind the consideration of what is an appropriate mitigation standard can be better judged, particularly against the other evidence that exists. Dog walkers may be the predominant users of the heaths, but as a proportion of residents as a whole, it is small and is falling. Their influence and the weight that should be attached to their demand must therefore be placed in that context. However, notwithstanding that, they continue to be the predominant users of the Thames Basin Heaths SPA according to the available visitor survey data. The key point to be considered however is if the number of dog owners is falling and sites under 2 hectares can be considered appropriate for their and others use, are the proposed mitigation standards set too high?

7.3.4 The lack of data on this issue is a weakness of the draft Delivery Plan. The additional evidence examined as part of this report has provided no further clear direction. Further research is therefore essential, and until then it is not possible to suggest alternative robust standards. However, the rationale for the existing standards is questioned for the reasons discussed above and also because inherent in the draft Delivery Plan is the notion that distance to green space is a key influence on wider attraction. Indeed, the proximity of the heath to the visitor's

house was a key determinant in the choice of where to visit in most of the surveys where the question was asked. In no survey was the size of the open space being visited recognised as an influence on choice. Consequently, the benefit and potential for SANGS to act as alternative locations of users of the Thames Basin Heaths will be governed by the location, and may be less by the size.

7.3.5 The calculation of mitigation standards must also consider all available space. The LUC Study looked at space within 10 km of the SPA boundary to allow consideration of alternative space to visitors who live on the 5 km boundary. The assessment of the standards of provision for new development must therefore take account of the level of space that is already available and within 5km of any new development, as that will already potentially provide sufficient SANGS to act as mitigation to the SPA.

**7.4 The efficacy of SANGS provision in drawing existing and new users away from specific sites.**

7.4.1 The draft Delivery Plan makes it clear that the provision of SANGS is one of the three mitigation measures it considers will provide the necessary protection to the SPA. LUC have therefore produced the ‘Audit and Assessment of land to mitigate the effects of housing development’ (2006) to quantify the potential resource to meet that objective. The likelihood of visitors to the SPA being attracted by the SANGS instead of visiting the Thames Basin Heaths however has not been tested in the area. The principle of attracting visitors away from protected sites has apparently not been tested elsewhere. A survey of the local authorities in the area showed that no evidence was held by them that SANGS would do so. The surveys that have been assessed by this report, including of course those within the draft Delivery Plan, do not specifically address the question either. Some did ask respondents whether they visited other sites for the same purpose they were visiting on the day surveyed. The percentage of those who did, where asked, is presented in Table 7.1.

**Table 7.1: Proportion of visitors who visit another site for the same purpose**

| <b>Visit other sites</b> | <b>Study</b>                        | <b>Reference</b>   |
|--------------------------|-------------------------------------|--------------------|
| 43%                      | Bourley and Long Valley Heath       | MORI 2204          |
| 75%                      | Thames Basin Heathlands             | Liley et al 2005a  |
| 82%                      | Bracknell Town centre redevelopment | Bracknell FBC 2005 |

7.4.2 From this limited data it is clear that few users are faithful to only one specific area of the Thames Basin Heaths. Visitors do therefore have a propensity to travel to other sites, but the surveys did not investigate why those other sites were visited. The conclusion that can be drawn from this data is two fold therefore. Firstly, and suggesting that the principle of providing SANGS is appropriate, is the fact that people appear to visit alternative sites already, and that therefore persuading new residents to do so should not be problematic. Secondly however, the fact that people currently appear to visit a number of different sites could suggest that, even

with SANGS, visits to the SPA would still take place. Measures to increase the likelihood of visits to the SANGS are also necessary, and the draft Delivery Plan recognises this through its proposed access and site management proposals. This along with the appropriate siting and provision of the alternative green space should assist in the encouragement of users to visit new SANGS sites.

- 7.4.3 The provision of SANGS is therefore, in theory, based on reasonable assumptions and expectations. To that extent, there is reason to their proposition within the draft Delivery Plan. What is required is evidence to support or otherwise the assumptions made. Studies examining this are being prepared and their results will influence significantly the future of SANGS as mitigation for development near the SPA. It is not possible or right therefore to comment on their appropriateness until then. The theoretical basis for their inclusion in the draft Delivery Plan however is considered reasonable.

## **7.5 Conclusions**

- 7.5.1 The paucity of the evidence base in respect of the standards of mitigation that could or should be set for development affecting the SPA severely inhibits any strong analysis or proposed alternatives. It is not possible for instance to test robustly the proposed 16 hectares and 8 hectares standards proposals in the draft Delivery Plan. The effectiveness of alternative open space in drawing new residents or existing visitors away from protected sites appears untested. Testing the effectiveness of SANGS will be an important issue for the draft Delivery Plan pilot phase. Evidence to support these proposals will need further development. What can be concluded from the information available however is that SANGS do have theoretical support, with evidence showing that visitors to open space are not stringently faithful to any one area. The siting of the SANGS is critical, with distance clearly being a key influence in peoples' choice of open space to visit. To that extent, with the size of the open space never high on visitors list of attributes, it is possible that the amount of land/SANGS required as mitigation is too high in some circumstances. Further evidence is required to substantiate a revision to determine the most appropriate minimum size for particular circumstances.