# Hindhead Concept Statement

## Report on the Conservation Regulations Assessment

**Dr Roger SK Buisson** C Env

**December 2010**

For:
Waverley Borough Council
Council Offices
The Burys
Godalming
GU7 1HR



Willow Mere House
Compass Point Business Park
Stocks Bridge Way
St Ives
Cambridgeshire
PE27 5JL

**Telephone:** +44 (0) 1480 466335
**Fax:** +44 (0) 1480 466911
**E-mail: rpscm@rpsgroup.com**
www.rpsgroup.com

**Notice to Interested Parties**

To achieve the study objectives stated in this report, we were required to base our conclusions on the best information available during the period of the investigation and within the limits prescribed by our client in the agreement.

No investigative method can completely eliminate the possibility of obtaining partially imprecise or incomplete information. Thus, we cannot guarantee that the investigations completely defined the degree or extent of e.g. species abundances or habitat management efficacy described in the report.

**Document Information**

| | |
|---|---|
| **Report title:** | Hindhead Concept Statement: Report on the Conservation Regulations Assessment |
| **Client:** | Waverley Borough Council |
| **Document ref:** | JPP2098-R-002c |
| **Author:** | Roger Buisson |
| **Report date:** | December 2010 |

## CONTENTS

## TABLES



## FIGURES

# 0 SUMMARY


0.1 RPS has been contracted by Waverley Borough Council to carry out a Conservation Regulations Assessment (incorporating an Appropriate Assessment) on the Hindhead Concept Statement (HCS).

0.2 The Hindhead Concept Statement contains the principles for the re-development of the crossroads area of Hindhead and it is proposed in response to the A3 Hindhead road scheme that will take through traffic away from Hindhead.

0.3 The assessment is made in relation to the Wealden Heaths Phase 2 SPA that is classified under Article 4.1 of the Birds Directive for its breeding populations of Nightjar, Woodlark and Dartford Warbler.

0.4 The assessment method followed the Government and European guidance and used a source - pathway – receptor analysis, applying the precautionary approach.

0.5 The potential effects identified were disturbance to the breeding birds through access to heathland (with or without dogs), uncontrolled fires (accidental and arson), damage to habitat and predation of the birds by pets, particularly cats.

0.6 Of these potential effects, the assessment of phase 1 of the HCS alone is that, without consideration of additional avoidance or mitigation measures, it has the potential to lead to the following adverse impacts on the SPA:

- An increase in recreational access by people and people with dogs on to the SPA affecting the breeding populations of the Annex 1 birds.
- An increase in the incidence of uncontrolled fires affecting the habitat on which the Annex 1 birds depend.

0.7 It is concluded that phase 2 of the HCS (the Baron's site) has, if developed for residential dwellings, the potential to lead to adverse impacts on the SPA through:

- Garden waste tipping.

0.8 The conclusion of the assessment of the HCS in-combination with the A3 Hindhead improvement scheme (the plan or project identified as most likely to give rise to in-combination effects) is that:

- The A3 Hindhead scheme, through attracting increased numbers of visitors would act in-combination with the predicted increase in recreational access to the SPA as a result of the increased number of residents produced by the HCS. The A3 Hindhead scheme includes significant improvements in the environment for the Annex 1 heathland bird species resulting from improvements to the condition of the habitats, habitat creation and reduction in road noise. These improvements in the environment act to offset the predicted in-combination adverse impact from recreational access resulting from the increased attractiveness of the Hindhead area and the HCS.

- The HCS creates a particular source of effect that is distinct from the recreational effects arising from the A3 improvement scheme. This is that the HCS will create a demand for somewhere very close to the new dwellings and businesses for residents and employees to walk their dog(s) several times a day. It is not considered that this potential impact that occurs close to Hindhead (within the 'daily dog walk' range) is 'offset' through an in-combination benefit with the environmental improvements resulting from the A3 scheme. Thus there is a residual adverse impact when the HCS 'dog walker effect' is considered in-combination with the environmental improvements resulting from the A3 scheme.

- The HCS and the A3 improvement scheme both produce a potential increase in the risk of uncontrolled fires. This arises partly from visitors (HCS and A3) and partly from an increase in the number of children living close to the SPA (the HCS alone).

0.9 The residual effects of phase 1 of the HCS requiring avoidance and mitigation actions are:

- An increase in recreational access with dogs on to the SPA on a daily basis by residents of the new dwellings and any employees of the businesses that bring their dog(s) to work.

- An increase in the incidence of uncontrolled fires affecting the habitat on which the Annex 1 birds depend.

0.10 The residual effects of phase 2 of the HCS, if residential development were to take place immediately adjacent to the SPA, requiring avoidance and mitigation actions is:

- Garden waste tipping.

0.11 The programme of avoidance actions is:

- A combination of measures to encourage dog walking by future local residents and employees from the proposed HCS regeneration area to take place away from the heathland areas of the SPA.

- A programme of education targeted at the new residents (adults and children) of the HCS regeneration area, visitors to the heathlands (particularly at times of high fire risk) and children attending local schools about the risk of heathland fires and their effects.

- Commercial use of the land that has the common boundary with the SPA or, if it is residential development, conditions requiring green waste collection and/or composting facilities and a property boundary to the SPA that precludes garden waste tipping.

0.12 It is recognised that successful delivery of the avoidance measure requiring encouragement of dog walking by future local residents and employees from the proposed HCS regeneration area to take place away from the heathland areas of the SPA is dependent on participation by the National Trust. This is a risk to the delivery of the proposed avoidance measure. It is a risk that is not considered great and does not prevent the inclusion of the avoidance measure in this assessment.

**0.13 The overall finding of the assessment was that the proposals in the HCS assessed alone and in-combination and accompanied by a programme of avoidance measures will not have an adverse impact on the interest features of the Wealden Heaths Phase 2 SPA.**

0.14 A programme of next steps is identified, including seeking confirmation from Natural England that this revised assessment of the HCS satisfies their requirements, that a detailed programme of measures in the form of an Avoidance Strategy should be produced by the National Trust and that, as the competent authority for the appropriate assessment, Waverley Borough Council should be involved in the process of producing the Avoidance Strategy, agreeing the approach and making the final decision.

# 1 INTRODUCTION

## Overall background to the study

1.1 RPS has been contracted by Waverley Borough Council (Waverley BC) to undertake a Conservation Regulations Assessment (incorporating an Appropriate Assessment) of the Hindhead Concept Statement (the HCS) under The Conservation of Habitats and Species Regulations 2010 (these regulations have replaced The Conservation (Natural Habitats &c) Regulations 1994). The specification for the work to be undertaken was set out in the documents accompanying a letter titled "*Waverley Borough Council – Appropriate Assessment of the Hindhead Concept Plan*", dated 15th January 2009.

1.2 Article 6(3) of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive) requires that:

> "Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives."

1.3 It then requires with respect to agreeing to that plan:

> "In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."

1.4 In October 2005 the European Court of Justice ruled that this requirement did extend to land use plans and that the UK Government had been at fault in the implementation of the Directive in UK law. As a result the Conservation (Natural Habitats, &c) (Amendment) (England and Wales) Regulations 2007 which inserts a new Part IVA into the 1994 Habitats Regulations was passed by Parliament and came into force on 21 August 2007. This amendment has now been consolidated into the Conservation of Habitats and Species Regulations 2010. They require that an assessment is carried out of plans that determine the framework for decisions on the type and nature of developments.

1.5 A Conservation Regulations Assessment is normally carried out in three stages, following Government guidance (DCLG, 2006):

1. Screening to identify whether a plan is likely to have a significant effect on a European site;

2. Where likely significant effects have been found, appropriate assessment of the plan to ascertain whether it has an adverse effect on the integrity of the European site;

3. Consideration of mitigation measures and alternative solutions where adverse effects on the integrity of a European site have been identified.

1.6 The Stage 1 assessment of the HCS, the screening process, has already been undertaken by Waverley BC and the decision made that the HCS is likely to have a significant effect on the Wealden Heaths Phase 2 Special Protection Area (SPA). As a result the HCS is being carried forward to the Stage 2 of the assessment.

1.7 A preliminary draft Appropriate Assessment was prepared by Waverley BC in May 2008 (Waverley BC, 2008). This concluded that the HCS proposes new housing which will have a significant effect on the SPA unless there is mitigation. It also concluded that if alternative greenspace for recreation and management enhancements could be provided then the pressures on the habitat may be avoided. If it could not be provided then only a very limited amount of housing should be built.

### Aims and objectives of the study

1.8 The objective of the contract is to undertake a Conservation Regulations Assessment of the HCS, a policy document describing the redevelopment of London Road, Hindhead.

1.9 The assessment of the potential effects of the implementation of the HCS on the Wealden Heaths Phase 2 Special Protection Area ('the SPA') will determine:

- whether or not the HCS is likely to have a significant effect on the SPA (screening stage); and if it will
- whether or not the HCS will have an adverse effect on the integrity of the SPA (main assessment stage); and if it will
- whether or not mitigation measures can be applied to the HCS to remove, or reduce to below significance, those adverse effects on the integrity of the SPA.

### The Hindhead Concept Statement

1.10 The Hindhead Concept Statement (Hindhead Together, 2008) contains the principles for the re-development of the crossroads area of Hindhead. This re-development has been catalysed by the A3 Hindhead road scheme. The new dualled A3 and tunnel will take through traffic away from Hindhead and that section of the A3 which enters Hindhead from the northeast, having come through the Devil's Punch Bowl, will be closed.

1.11 The HCS was adopted by Waverley BC as the policy of the Council on 22nd July 2008 and it constitutes a material consideration to be taken into account in any planning decisions for the area.

# 2 THE METHOD FOR ASSESSING THE HCS

## The overall approach

2.1 The overall approach taken in the assessment is based on the methodological guidance from English Nature (1997), the European Commission (2000, 2002) and DCLG (2006). That guidance can be summarised as consisting of three key stages:

1. Screening to identify whether a plan is likely to have a significant effect on a European site;
2. Where likely significant effects have been found, appropriate assessment of the plan to ascertain whether it has an adverse effect on the integrity of the European site;
3. Consideration of mitigation measures and alternative solutions where adverse effects on the integrity of a European site have been identified.

2.2 This assessment of proposals in a plan has to be considered at a more strategic level than the assessment of a specific project about which there would be more detail of the development.

2.3 The focus of the assessment is on those impacts likely to have an effect on the qualifying features of the Wealden Heaths SPA taking account of its conservation objectives. Features that only relate to the SSSI that are notified across the same area as the SPA are not included in the assessment.

2.4 The assessment process applies the precautionary principle, that is where it cannot be demonstrated that there are no adverse effects on the SPA, likely adverse effects would be assumed and consideration given to how the unknowns or uncertainties could be eliminated.

2.5 In the first phase of this analysis the assessment is undertaken without considering how avoidance or mitigation measures might be applied unless it is already an inherent part of the plan. If the outcome of this phase of the assessment is that there might be potential significant adverse effects then consideration is given to the application of straightforward, proven and enforceable actions to avoid or reduce the effects of the plan. Such measures can be proposed as part of the plan and then taken into account in the assessment.

2.6 The definitions applied to these measures are:

- 'Avoidance measures' eliminate the likelihood of any effects on the SPA by taking action at the source or along the pathway and before the cause of any likely significant effect reaches the SPA.
- 'Mitigation measures' are applied within the SPA and reduce likely significant effects to a level that is insignificant or in a way that makes them unlikely to occur.

2.7 In assessing such measures, a number of tests are applied:

- Is the measure enforceable?
- Is the measure proven?
- Does it provide certainty of the avoidance or removal of the significant adverse effect on the SPA?

2.8 In applying these tests there is also the application of the precautionary principle.

2.9 The necessary 'in-combination' assessment is carried out by consideration of plans that act across the same area, site proposals of a similar type in the area, and sources that are from plans and projects promoted by other organisations. A list of plans, programmes and projects that have the potential to act in combination with the HCS is provided in Appendix 1.

### The analysis method

2.10 The method used in the assessment of the HCS is to apply the source - pathway – receptor analysis framework. In this method:

- The **source** is the direct or indirect changes brought about by the implementation of the proposals in the HCS.
- The **pathway** is the route or mechanism by which any likely significant effect would be manifest in the environment and would reach the receptor.
- The **receptor** is the Wealden Heaths SPA and more specifically the qualifying features and conservation objectives.

### Consultation on the assessment

2.11 The draft of this assessment was sent to Natural England in July 2009. A response to the consultation on that draft was received in the form of a letter from Nigel Jennings of Natural England dated 24th September 2009. The concluding paragraph of that letter summarised Natural England's request for additional information/clarification in order that they could properly assess the proposed development within the HCS. Those requests were:

- Further analysis of the current health of the SPA bird populations against national trends as a means of gauging current disturbance levels and thus the capacity of the SPA to accommodate additional recreational pressure;
- More certainty that the buffer of trees between the development and the open heath habitats will remain in place undisturbed;
- The plans to show the buffer around the whole development site;

- Further comment on the heathland habitat that bisects the tree buffer and its capacity to provide SPA bird territories;
- Further comment on the impacts of cat predation on the 2 bird territories bisected by the 400m buffer on Hindhead Common;
- Acknowledgement that the proposed fencing and cattle movements are dependent upon a successful planning application and thus may not be deliverable;
- Acknowledgement that the delivery of any access management avoidance strategy lies with the National Trust and that this poses a risk that needs to be highlighted;
- Inclusion of East Hampshire DC's Local Plan/LDF and the proposed eco-town at Whitehill-Bordon within the plans that may have an in-combination effect with appropriate screening.

2.12 A meeting was held with Nigel Jennings on 19th November 2009 to discuss those requests.

2.13 A revised draft of the assessment was prepared to addresses those requests (document reference JPP2098-R-002b). That revised draft was sent to Natural England in February 2010. An initial response to the consultation on that revised draft was received in the form of a letter from Nigel Jennings of Natural England dated 25th March 2010. That letter identified a number of areas of concern that formed the basis of the discussions at a meeting was held with Nigel Jennings on 15th June 2010.

2.14 A final response to the consultation on that revised draft was received in the form of a letter from Nigel Jennings of Natural England dated 15th October 2010 to Paul Falconer of Waverley BC. That letter concluded:

*"We have considered the evidence and can now advise that we accept the conclusion of the appropriate assessment that there will be no adverse impacts on the integrity of the SPA. This is provided that the mitigation measures included within the report and discussed at our meeting at Waverley Council's office on 15 June are incorporated, namely:*

- *Delivery of a visitor management strategy by the National Trust to offset the effect of additional local users on the SPA. To include monitoring for effectiveness and provision for revisions as necessary;*
- *Delivery of a targeted education programme for visitors and residents on the effects of recreational disturbance and other urbanising effects on the SPA.*

*It is our view that there should not be an adverse impact on the integrity of the SPA because the risks of urbanisation effects are low (providing the aforementioned mitigation measures are secured)."*

2.15 The reasoning behind this conclusion was given in the letter as:

- *The bird populations on the Hindhead section of the Wealden Heaths Phase II SPA are stable and habitat improvements are proposed following the closure of the existing A3 next year will result in the re-connection of the two heathland patches;*

- *The visitor survey commissioned by the National Trust indicates that the distribution of SPA Annex I bird species (woodlark, nightjar and Dartford warbler) are not currently being impacted by existing visitor numbers;*

- *The habitat within 400m of the concept plan area is currently unsuitable for breeding Annex I birds due to the level of tree cover and to the impact of visitors to the National Trust cafe and car park. It is likely to remain as such for the following reasons:*

    - *The woodland to the north of the A3 is a feature of the SSSI unit and is likely to remain woodland, and thus unsuitable as breeding territory;*

    - *The woodland to the south of the A3 while not a SSSI feature is long standing and provides foraging habitat for nightjar (it should be managed for such into the future);*

- *Apart from the eco-town proposals at Whitehill-Bordon (where mitigation proposals are being discussed) we are not aware of any major development proposals that will have direct impacts on the Wealden Heaths Phase II, as much of the SPA is located away from population centres. This is in contrast to other SPA's where the heathland patches are in close proximity to towns and cities. We are therefore satisfied that there will be no adverse effects on integrity in-combination with other plans or projects.*

2.16 The letter of 15th October 2010 also confirmed that the comments should be addressed from the earlier letter of 25th March 2010 relating to inclusion of the Barons' site, Annex 1 bird territory counts from the whole of the Thames Basin Heaths SPA and incorporation of the results of the National Trust visitor survey.

2.17 Those requests for amendments have been fulfilled in the production of this final version of the assessment (document reference JPP2098-R-002c).

# 3 THE SPA AND ITS ANNEX 1 BIRD POPULATIONS

## The Wealden Heaths Phase 2 SPA

*Site classification and underlying designations*

3.1 The Wealden Heaths Phase 2 SPA was classified in March 1998 and covers around 2,054ha of predominately lowland heathland and woodland in Hampshire, Surrey and West Sussex. The main habitats within the SPA are wet and dry heathland, valley bogs, broad-leaved and coniferous woodland, permanent grassland and open water. Some of these habitats are themselves of European significance and there are overlaps with the Woolmer Forest SAC.

3.2 The component SSSIs of the SPA are:

- Devil's Punch Bowl
- Woolmer Forest
- Bramshott and Ludshott Commons
- Broxhead and Kingsley Commons

3.3 The SPA is classified under Article 4.1 of the Birds Directive for its breeding populations of the Annex 1 birds Nightjar *Caprimulgus europaeus*, Woodlark *Lullula arborea* and Dartford Warbler *Sylvia undata*. The breeding populations of these three bird species constitute the 'interest features' of the SPA. Table 1 presents the data on the populations of these species that was used in the process of the classification of the SPA.

**Table 1: Population of Annex 1 birds used in the process of the classification of the SPA**

| Species | SPA population (pairs) | Relative to GB population (pairs) |
|---|---|---|
| Nightjar | 43 | 1.3%, based on 5 year mean, 1989-1993 |
| Woodlark | 36 | 2.5%, based on a count in 1997 |
| Dartford Warbler | 16 | 1%, based on a count in 1994 |
| Dartford Warbler | 51 | 1%, based on 5 year mean, 1989-1993 |

*Conservation objectives of the SPA*

3.4 The conservation objectives for the Devil's Punch Bowl SSSI component of the SPA (English Nature, 2005) are:

To, subject to natural change, maintain the following habitats:

(a) broad-leaved, mixed and yew woodland;

(b) dwarf shrub heath; and

(c) acid grassland,

in favourable condition (or restore to favourable condition if features are judged to be unfavourable) with particular reference to the special interest features for which the land is designated - Nightjar, Woodlark and Dartford Warbler.

*Condition assessment of SSSI underlying the SPA at Hindhead*

3.5 The condition assessment of the Devil's Punch Bowl SSSI, reported on the Natural England website, is listed as compiled in 1st June 2009 but based on assessment visits made in 2004 and 2005. This recorded that approximately half (48%) of the site is in favourable condition and half (52%) in unfavourable recovering condition. Concerns were expressed in the assessment about the extent of Bracken *Pteridium aquilinum* in the heathland areas.

## The SPA at Hindhead

3.6 That part of the SPA at Hindhead has its designation underpinned by the Devil's Punch Bowl SSSI. This SSSI extends across Hindhead Common, the Devil's Punch Bowl and the Highcombe Valley and is 279.9ha in area. It is notified for its heathland, woodland, pasture, flora, invertebrates and breeding birds, including the Annex I birds.

## Annex I bird populations around Hindhead

*Surveys of Annex I birds*

3.7 Targeted surveys for the three Annex I bird species were carried out in the Hindhead area in 2003 and 2004 to provide baseline survey information for the A3 Hindhead Improvement Scheme Environmental Statement and Public Inquiry. Further surveys were carried out from 2005 to date to add to a baseline of monitoring data against which the effect of the A3 Hindhead Improvement Scheme on breeding birds can be assessed. These surveys were carried out using recommended territory mapping methods for the three SPA species as set out in Gilbert *et al.* (1998). The area covered by the survey was consistent between years. The survey included The Devil's Punch Bowl SSSI that incorporates both the Punch Bowl and Hindhead Common. Highcombe Edge was also included in the survey area. This is an area of land adjacent to the SPA and the habitat on it and the birds that it supports are intimately linked to the Devil's Punchbowl SSSI and the SPA.

*The number of territories*

3.8 The results of the surveys for the five year period 2004-08, expressed as territory counts, are summarised in Table 2.

**Table 2: Number of territories of SPA species recorded between 2004 and 2008.**

| Species | 2004 | 2005 | 2006 | 2007 | 2008 | Mean |
|---|---|---|---|---|---|---|
| Nightjar | 7 | 6 | 7 | 5 | 6 | 6.2 |
| Woodlark | 16 | 12 | 10 | 10 | 8 | 11.2 |
| Dartford Warbler | 10 | 8 | 7 | 7 | 13 | 9.0 |

3.9 It can be seen that over this period there has been variation in the number of territories recorded. This might be due to apparent variations caused by the survey and territory analysis method or by real changes on the ground. Variation due to the survey and territory analysis method was minimised by using:

- The same method each year
- The same team of observers to carry out the field work
- The same team to carry out the territory analysis

3.10 Changes in population of the Annex 1 species can be caused by a number of factors, some of which are site based while others are driven by external factors. The site based factors include:

- Habitat succession, particularly the growth and ageing of scrub and trees.
- Habitat management, particularly the removal of scrub and trees.
- Changes in potentially disturbing activities, including the type (e.g. recreational access), intensity and area within which such activity occurs.

3.11 The external factors include:

- Emigration from the site to other heathland areas that have become preferred habitat due to management actions.
- Immigration onto site from other heathland sites that are producing an excess of young.
- Changes in survival over the winter driven by adverse or favourable weather.

3.12 The external factors, such as weather, operate across a wider area than the SPA and a wider perspective on these changes in territory numbers can be gained from looking at changes at the national level, county level and at similar sites in south east England.

3.13 Population changes at the national and county level are identified by the regular cycle of surveys under the Statutory Conservation Agency/RSPB Annual Breeding Bird Scheme (SCARABBS). This includes Nightjar, Woodlark and Dartford Warbler, with the most recent surveys undertaken in 1992 and 2004; 1997 and 2006; and 1994 and 2006 respectively. The results of these surveys, that identify

population changes at the national and county level over the last two decades, are presented in Tables 3, 4 and 5 respectively.

**Table 3: Changes in the Nightjar population between 1992 and 2004.**

| Nightjar | UK population | Surrey population | Source |
|---|---|---|---|
| **National survey in 1992** | 3,400 | 133 | Morris *et al.*, 1994 |
| **National survey in 2004** | 4,606 | 302 | Conway *et al.*, 2007 |

**Table 4: Changes in the Woodlark population between 1997 and 2006.**

| Woodlark | UK population | Surrey population | Source |
|---|---|---|---|
| **National survey in 1997** | 1,426-1,552 | 160-171 | Wotton and Gillings, 2000 |
| **National survey in 2006** | 3,064 | 300 | Conway *et al.*, 2009 |

**Table 5: Changes in the Dartford Warbler population between 1994 and 2006.**

| Dartford Warbler | UK population | Surrey population | Source |
|---|---|---|---|
| **National survey in 1994** | 1,890 | 155-173 | Gibbons and Wotton, 1996 |
| **National survey in 2006** | 3,208 | 471 | Wotton *et al.*, 2009 |

3.14 There are few heathland SPAs or SSSIs in south east England that are surveyed with the regularity that the Devil's Punch Bowl, Hindhead Common and Highcombe Edge have been surveyed for the purposes of monitoring the A3 Hindhead Improvement Scheme. The exception is the Thames Basin Heaths SPA that has been surveyed each year through a co-ordinated programme managed for Natural England by 2Js Ecology (John Clark and John Eyre). Table 6 presents the population estimates for each of the Annex 1 birds of the Thames Basin Heaths SPA over the period 2004-08 from data supplied by Natural England (Nigel Jennings *in litt*).

**Table 6: Annex 1 bird territories in the Thames Basin Heaths SPA.**

| Species | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|
| Nightjar | 243 | 319 | 120 | 152 | 289 | 248 |
| Woodlark | 123 | 123 | 153 | 204 | 224 | 150 |
| Dartford Warbler | 592 | 435 | 534 | 389 | 511 | 464 |

*Changes in the numbers of territories*

3.15 It is considered that the population of Nightjar within the Hindhead survey area over the period 2004-08 has remained stable with between 5 and 7 territories recorded annually, with a mean of 6.2 territories.

3.16 At the Thames Basin Heaths SPA the population has, over the same period, been stable or declining. Over the longer term a significant rise has been recorded in the population of Nightjar both nationally and in Surrey.

3.17 The population of Woodlark in the Hindhead survey area appears to have declined steadily over the years 2004-08, from a peak of 16 territories in 2004 to a low of 8 territories in 2008, with a mean of 11.2 territories. This might be due to the initial benefits of habitat management that were undertaken, for instance at Highcombe Edge in 2003-04 (tree and scrub clearance) gradually being lost as the ground vegetation regrew. A cycle of around 7 years has been identified in studies of plantation forests (Conway *et al.,* 2009) for the newly cleared areas that are attractive to Woodlark to lose that value, providing minimal value as breeding habitat after more than 7 years.

3.18 At the Thames Basin Heaths SPA the population has, over the same period, been stable or increasing. Over the longer term a significant rise has been recorded in the population of Woodlark both nationally and in Surrey.

3.19 The population of Dartford Warblers in the Hindhead survey area has fluctuated over the period 2004-08 between 7 and 13 territories, with a mean of 9.0 territories. The increase in Dartford Warbler territories recorded in 2008 could be a response to the increasing maturity of Gorse *Ulex spp.* within the heathland.

3.20 At the Thames Basin Heaths SPA the population has, over the same period, been stable or increasing. Over the longer term a significant rise has been recorded in the population of Dartford Warbler both nationally and in Surrey.

3.21 There were particularly cold winters in 2008-09 and 2009-10 with heavy snowfall and prolonged sub-zero temperatures. These conditions lead to mortality of the non-migratory Dartford Warbler and significant population declines occurred across south east England. Significant reductions in the population of Dartford Warbler were recorded in the Hindhead survey area and at the Thames Basin Heaths SPA in the breeding seasons of 2009 and 2010.

*The distribution of territories*

3.22 The distribution of territories across the survey area for the years 2004-08 is illustrated for Nightjar in Figure 1, Woodlark in Figure 2 and Dartford Warbler in Figure 3.

3.23 The territories have been overlain on a map of habitat distribution derived from a survey of habitats conducted in 2003. The territories are, not surprisingly, concentrated on areas dominated by heathland vegetation, mapped as both 'Heath' and 'Wooded heath'. There have been some habitat changes since 2003, both due to natural succession (e.g. the growth of scrub and trees leading to a change in the habitat from open heathland to wooded heath or wooded heath to woodland) and due to habitat management (e.g. the clearance of scrub to restore open heathland). Particularly relevant to the assessment of the HCS is a thin wedge of heath that is mapped leading from Hindhead Common to the edge of Hindhead. This thin wedge became scrubbed over early in the period under examination and does not

provide suitable habitat for breeding territories of the three Annex I birds. Further information on bird-habitat associations and the effects of management on the distribution of birds are given below.

3.24 Nightjar territories are largely concentrated within the northern end of the Devil's Punch Bowl and across Hindhead Common, with 1-2 birds on Highcombe Edge. These areas are predominantly lowland heathland with a mixture of Gorse and sparsely scattered Birch *Betula* spp saplings. The northern two thirds of the mapped 'Wooded heath' on Highcombe Edge underwent management to remove trees and scrub in 2003-04 and this area is occupied by Nightjar. The southern third of the mapped 'Wooded heath' on Highcombe Edge did not undergo this management and remained unsuitable as Nightjar territory throughout, the tree cover being too dense and tall for them.

3.25 Woodlark territories are spread out over the entire site where there is 'Heath' or suitable sparse 'Wooded heath' vegetation, with territories occurring in the same areas year after year. Some territories may be mapped over unsuitable habitat but this could be because of song-flighting individuals recorded singing at the edge of their home range. The northern two thirds of the mapped 'Wooded heath' on Highcombe Edge underwent management to remove trees and scrub in 2003-04 and this area is occupied by Woodlark. The southern third of the mapped 'Wooded heath' on Highcombe Edge did not undergo this management and remained unsuitable as Woodlark territory throughout, the tree and ground cover being too dense and tall for them.

3.26 Dartford Warbler territories are largely concentrated within the northern end of the Devil's Punch Bowl and across Hindhead Common. There is a distinct relationship between the abundance and distribution of Gorse and the occurrence of Dartford Warbler territories. Dartford Warbler did not occur on Highcombe Edge as it lacks the Gorse-Heather mix that this species prefers. The management undertaken across the northern two thirds of the mapped 'Wooded heath' on Highcombe Edge has not yet resulted in suitable habitat developing.

### Habitat associations and requirements of the three SPA species

3.27 The main habitats that are associated with the three Annex I species in England are summarised below. Information on their specific use of heathland habitat and the key quantitative descriptors of the features within heathland are summarised in Table 7.

3.28 Nightjars breed principally on lowland heathland and within young conifer plantations where suitable habitat is generated as a consequence of the rotational clear-felling of the trees. The woodland-heathland interface and adjacent areas rich in flying insects are important for foraging (Alexander and Cresswell, 1990; Cresswell, 1996).

3.29 The habitats most frequently occupied by Woodlark include heathland with short vegetation and bare areas due to grazing, fires or vehicle erosion; clear-felled conifer plantation; and low intensity agricultural land (south-west England only) (Bowden, 1990; Bowden and Hoblyn, 1990; Sitter *et al.,* 1996; Wotton and Gillings,

2000). Tree nurseries have also been used. Short vegetation and bare ground are important for foraging.

3.30 The main habitat type frequented by Dartford Warblers is dry lowland heathland with dense, mature Heather *Calluna vulgaris* and scattered thickets or bushes of mature Gorse (Bibby, 1979a and b; Catchpole and Phillips, 1992). The taller Heather and Gorse is important during harsh winter weather when it can intercept snow, resulting in snow free areas below it for foraging.

**Table 7: Heathland habitat of the three SPA species**

| Species | Heathland habitat use | Quantitative descriptors of habitat |
|---|---|---|
| Nightjar | Mature heath with gaps and pine scrub, wet heath and scrub for foraging | Vegetation mainly 200 to 600mm high for foraging with <50% tree and scrub cover for foraging and roosting and 10-20% bare ground patches of >2m$^2$ for nesting. |
| Woodlark | Pioneer and building heath, mature heath with gaps, bare or burnt areas | A mosaic of well-drained bare ground patches <0.5ha within a mosaic of short (<50mm) to medium (100-200mm) vegetation for feeding and tussocks of vegetation or a sparse cover of bushes and trees with disturbed ground for nest sites. Occasional trees provide song posts. |
| Dartford Warbler | Mature heath with scattered gorse | Dry, mature lowland heathland, preferably consisting of >50% heather, with <25 trees/ha and 5-25% gorse (0.5-3m) for foraging and nesting. |

# 4 ACCESS AND RECREATION IN THE HINDHEAD AREA

## The attractions of the area and the activity of visitors

4.1 The hills, woodland and heathland of the Hindhead area with their attractive landscape and historical associations attract visitors from both the local area and wider afield. Particular assets and features of the Hindhead area (Surrey Hills AONB Board, 2009) that attract visitors are:

- The Devil's Punch Bowl with its strong historical and cultural associations
- Extensive tracts of open heathland and commons e.g. Hindhead Common
- Dramatic landscape of twisting wooded valleys and steep hills e.g. Gibbet Hill at 272m, the second highest point in Surrey
- Spectacular scenery with stunning localised views, particularly northwards e.g. Devil's Punch Bowl and Gibbet Hill
- The farmed landscape of small fields, valley meadows and pastures with thick hedges e.g. Highcombe Bottom

4.2 In addition, the significant area of land owned by the National Trust, historical rights of open access to the common lands and the extensive rights of way network provide an additional draw to those seeking open air recreation. The boundary of National Trust ownership, as detailed on a map available to the public (National Trust, 2005) is presented on Figure 4. This figure also indicates where Public Rights of Way cross National Trust land and the presence of other paths and tracks that the National Trust brings to the attention of the public but that are not rights of way.

4.3 There are two recent studies that have quantified the number of visitors to the heathland around Hindhead, why they visit the area and where they have come from. These are the studies conducted in 2002 and 2003 as part of the assessment of the effects of the proposed dualling of the A3 (Highways Agency, 2004a) and the study in 2009 on visitor numbers and behaviour to the Hindhead area (Sharp and Liley, 2010).

4.4 The study of recreational use of the area conducted in 2002 and 2003 was part of the assessment of the effects of the proposed dualling of the A3, the construction of the tunnel and closure of part of the old A3. This work was published in the Environmental Statement for the A3 scheme (Highways Agency, 2004a). As this study considered the area of the proposed highways improvements its extent was greater than just Hindhead and its immediate area, extending from Bramshott Chase at the southern end of the road scheme to the Greensand Way where it is bisected by the existing A3 near Thursley to the north. The key findings are presented below.

4.5 The main reason for visiting the area:

- Walking - In 2002 nearly half (48%) of all respondents were there for a walk. In 2003, 39% were there for a walk. Around a quarter of the respondents stated that their walk was of less than 3km.
- Dog walking - In 2002 19% of all respondents were there to walk their dog. In 2003 27% were there to walk their dog.
- Cycling – In 2002 5% visited to have a cycle ride. In 2003 just over 9% gave this as the main purpose of the visit.
- Horse riding – In 2002 the survey did not record and interview any horse riders. In 2003 3% had visited the area for this purpose.

4.6 The results of an analysis by age group in 2002 identified the following:

- Younger respondents in the 16-34 age group were more likely than any other age group to be there for a cycle ride (12%, compared to an average of 5%).
- Respondents aged between 35 and 54 were the most likely to be there to walk their dogs (22%) and to keep fit (7%).
- Those aged 55 and over were the most likely to have gone to the area for a walk (55%, compared to an average of 48%).

4.7 Those interviewed were asked where they had visited or were intending to visit on the day of interview. The most common response was the Devil's Punch Bowl, which 53% were visiting, followed by Hindhead Common (52%) and Gibbet Hill (46%). The least visited site was Bramshott Chase, though this was expected given that most interviews were conducted some way from Bramshott Chase.

4.8 They were also asked what had attracted them to the A3 Hindhead area. Over a third of respondents stated it was for the 'scenery' (38.8%) and approximately a quarter stated for 'peace and quiet' (22.6%). Access to the area was also a significant reason at 16.7% followed by ecological reasons at 7.0%.

4.9 With respect to what effect that the improvements to the A3 would make to their use and enjoyment of the area, 14% of respondents specifically said that the improvements would encourage them to make greater use of the area's recreational potential, with 10% stating that such changes would create a more enjoyable visit overall.

4.10 The reasons given for the A3 tunnel scheme making a difference to their visit included:

- Improved safety - 23% stated they had difficulties crossing the existing A3.
- Quietness - 23% stated that noise detracted from their enjoyment of their visit.
- Visual improvement - 10.9% of respondents stated removal of the traffic as a positive gain to the area.

4.11 The ES concluded that the A3 improvement scheme would have a beneficial impact upon public open space and rights of way. The overall effect would be to greatly improve access facilities for pedestrians, horse riders and cyclists and other recreational groups, to enhance their amenity, and to make their movement safer through physical separation from motor vehicles.

4.12 The study of visitors to the Devil's Punch Bowl SSSI area undertaken in June to October 2009 (Sharp and Liley, 2010) provides information that updates that gathered for the A3 Hindhead scheme assessment on the number of visitors on the area, the type of use made of the area (walking, dog walking, horse riding etc) and what it is about the area that attracts visitors. The survey provides additional information on where visitors have come from, what route they took when on site and whether or not they allow their dog(s) off the lead. This latter information was not provided by the studies for the A3 Hindhead scheme assessment. The key findings on visitor numbers and behaviour are presented below. The findings on the relationship between visitor numbers and the distribution of Annex I birds are presented in a later section.

4.13 On the numbers of visitors and how frequently they visited:

- Around 1,830 – 1,930 people visit the site per week, excluding those only visiting the café.
- Many visitors were regular, with 23% stating that they visited daily or nearly daily.
- 26% of visitors had never visited before.

4.14 On where the visitors came from:

- Most visitors are local - 17% with home postcodes within 1km, 45% within 2km and 54% from within 5km.
- Dog walkers were one user group that were particularly 'local', with 75% of dog walkers living at postcodes within 5km of the site.
- There was a strong influence of the A3, with visitors also coming from Guildford and a range of locations along the A3 route from the M25 to Portsmouth.

4.15 On how they travelled:

- Most (80%) of visitors travelled by car.
- Walking was the second most popular method to get to the site (14%).

4.16 On why they visited the site:

- For the scenery (50%).
- A nice place to visit (44%).

- It was a good place to walk a dog (43%).
- It was close to home (32%).
- To break the journey (9%).

4.17 On the activities undertaken:

- Short walks (79%).
- Dog walking (45%).
- Visiting the café (23%).
- Enjoying the scenery/nature (19%).

4.18 Of those who had a dog, the reasons given for why it was a good place to visit with a dog were:

- Able to let the dog run off the lead (67%).
- They feel their dog enjoys it there (58%).
- There are no restrictions (38 %).
- Nothing in particular / I like the walk / convenient (24%).
- There were not many other dogs or people (both 14 %).
- They did not need to pick up dog waste (6%).

4.19 On where they went:

- The busiest areas of the site were around the car-parks (with the café car park by far the busiest) and the Gibbet Hill area.
- Most people travelled at least 200m within the site, with 82% going at least 1km on their walk / ride and 70% at least 2 km.
- There is then a large drop with only 37% travelling over 3 km and 11% travelling over 5 km on site.

### Visitor patterns to the heathlands of southern England

4.20 The visitor patterns to heathlands across southern England have been reviewed as part of developing an understanding of the potential impacts of access to heathland on SPAs and the Annex 1 bird species that they support (Underhill-Day and Liley, 2007). This review identified the following common patterns in relation to urban and suburban heathlands, that is those close or adjacent to residential development:

- The majority of visitors use the heathland regularly and live nearby (within 5 km).

- A large proportion of visitors drive to the heathland and dog walking is the usual purpose for a visit.

- Visits are typically short, with the average dog walker travelling less than 2.5km on the heathland.

- Dog walkers typically stay on the paths, but most let their dog off the lead and consider it important to be able to do so.

4.21 On large regionally or nationally known rural sites such as the New Forest, the review concluded:

- More visitors are day trippers and tourists and fewer are dog walkers.

- Visitors stayed for longer and their reasons for visiting differ from those of local residents.

4.22 The heathland around Hindhead was not one of the sites considered in the review by Underhill-Day and Liley (2007). In terms of characterising the heathland around Hindhead against the findings of the review, it appears to represent a combination of the two types. It is regionally and nationally known and promoted for its landscape and cultural connections and it is well used by local residents. Almost half the visitors to the Hindhead area came to walk their dog(s).

**Understanding visitors with dogs**

4.23 The use of the heathland at Hindhead for dog walking is an important aspect of the use of this site and, based on the local study (Sharp and Liley, 2010) and the national review (Underhill-Day and Liley, 2007) is potentially likely to be a use that increases with the inclusion of residential development within the HCS. For this reason it is considered important to understand the behaviour of dog walkers in general and why they visit heathlands. There have been several reviews that have included this issue because of the concern over the particular potential for this type of recreational access to affect the nesting birds of heathland SPAs (Edwards and Knight, 2006; Liley *et al.,* 2006a; Liley *et al.,* 2006b).

4.24 The review by Edwards and Knight (2006) examined the social and psychological aspects of dog-walking. It concluded:

- Dog walkers will visit a variety of different sites and that they will have a selection of preferred walks.

- Dog walkers favour sites where they perceive that their dogs would be most happy. The characteristics of these sites were that the dog could be run off the lead, it could socialise with other dogs and there was little danger of road traffic.

- Dog walkers chose to walk where they anticipated meeting other dog walkers because they believed that their dog enjoyed socialising with other dogs and that it gave the dog walkers an opportunity to socialise with each other.

- There was some reciprocal ill feeling between dog walkers and other countryside users. As a consequence dog walkers often avoided locations where they were likely to meet people without dogs and avoided also particular sites at particular times when they are most likely to be visited by other users.

4.25 The review by Liley *et al.* (2006a) examined what attracted people, including dog walkers, to open spaces in the Thames Basin Heaths SPA area. It concluded that when compared to other sites, dog walkers gave high regard to:

- The ability to let their dogs off the lead.

- Not having to clear up after their dog.

- The absence of livestock on sites,

4.26 The review by Liley *et al.* (2006b) reported on a questionnaire survey of dog walkers on urban heathlands in Dorset. This identified the following characteristics of the dog walkers sampled:

- The majority lived locally to the heath (70% within 1km).

- The majority (63%) walked to the heath.

- The majority (67%) visited at least daily.

- Daily dog walkers tended to live closest to the heath, to walk there and were more likely to visit in the early morning.

- Most visits were typically fairly short - 56% of visits lasting between 30 minutes and 1 hour with no-one visited for more than 1.5 hours.

- The size of dog did not influence the amount of time spent walking the dog.

- The majority (62%) said they visited a particular site because it was the nearest open space where they could exercise the dog freely.

# 5 IMPACTS OF DEVELOPMENT ON HEATHLAND SPAS

5.1 Development adjacent or close to heathland SPAs, such as the Wealden Heaths SPA, has the potential to give rise to a number of adverse impacts. The potential impacts have been reviewed in relation to SPAs (Liley, 2005; Liley *et al.,* 2006c; Underhill-Day, 2005) and in relation to access on foot to habitats of conservation importance in general (Woodfield and Langston, 2004a). The potential adverse impacts identified include:

- Disturbance through access to heathland (with or without dogs)
- Uncontrolled fires (accidental and arson)
- Damage to habitat (erosion, trampling, fly-tipping)
- Predation by pets

5.2 Each of these impacts and their sources are considered further below.

**Disturbance through access to heathland**

*Types and consequences of disturbance*

5.3 There is the potential for access on to heathland to cause disturbance of nesting birds and for this, through a number of routes, to cause a decline in the breeding population. If this occurred to a species of bird that was the interest feature of an SPA then it would have to be concluded that such a result was an adverse impact on the integrity of the SPA.

5.4 When studying the effects of disturbance it is relatively straightforward to record an effect such as a bird responding to the approach of a person but it is harder to turn such observations into a study that proves an effect at the population level. Gill (2007) reviewed the effects of disturbance and how it is measured. This review categorised the effects of disturbance and how it is measured as follows:

- Change in distribution, measured as:
  Long-term avoidance of areas with high levels of human activity
  Short-term movement in response to human presence
- Change in behaviour, measured as:
  Flight response
  Increased vigilance
  Altered incubation pattern
- Change in demography, measured as:
  Reduced fecundity in disturbed areas
  Reduced survival in disturbed areas

- Change in population size, measured as:
  Severe demographic changes causing population decline
  Population decline as a result of density dependent changes to mortality or fecundity following redistribution in response to disturbance

5.5 Specifically in relation to breeding heathland birds the response to a disturbing influence can include:

- Stopping feeding – either themselves or young that are in the nest or recently fledged but still dependent.
- Leaving the nest - resulting in eggs or chicks becoming chilled or exposed to predators.
- Flying away - to a site providing an alternative source of a need such as food or a roost or to site that does not provide such needs.
- Mobbing the cause of the disturbance.

5.6 In addition to these responses by the bird, there are also the possibilities that a nest on the ground could be trodden on and/or the eggs/chicks predated by a dog accompanying a person.

5.7 These responses to disturbance can:

- Reduce productivity with fewer chicks raised at each breeding attempt and/or fewer nesting attempts made in the breeding season
- Increase energy expenditure, reducing the fitness of the breeding birds, the provisioning of the young and survival at times of adverse conditions.
- Expose adult and young birds to a greater probability of predation.

5.8 The likely impact of disturbance on birds and its severity is dependent on a number of factors. In a review, these factors were set out by Hill *et al.* (1997) as follows:

- Intensity of disturbance
- Duration and frequency
- Proximity of source
- Number of birds affected
- Whether rare, scarce or especially shy species are affected
- Seasonal variation in sensitivity of affected species
- Presence of people associated with the source
- Whether birds move away, but return after disturbance ceases

- Whether there are alternative habitats available nearby

*The evidence for effects of disturbance on heathland birds - Nightjar*

5.9 Studies of Nightjar in Dorset (Liley and Clarke, 2003) found that the density of Nightjar on heathland sites was directly related to the amount of surrounding development. Those heathlands that were surrounded by a high amount of development supported fewer Nightjars. This study looked at the number of Nightjars on 33 different heaths, ranging from rural heaths, with very little housing and few people living nearby, to the more urban heaths located close or within the conurbations of Poole and Bournemouth.

5.10 More detailed studies across some of the same sites in Dorset (Murison, 2002) found that Nightjar breeding success differed between heavily visited sites and those with little public access. Breeding success and nest density was lower on sites with higher levels of public access. The proximity of paths to the nest also correlated strongly with nest failure, this effect occurring up to 225m from the path edge. The study appeared to show a strong link between increased site disturbance, higher predator numbers such as corvids on disturbed sites, and subsequent high predation rates of Nightjar nests. Camouflage of Nightjar eggs is provided by the sitting bird. When flushed, the almost white eggs are easily visible to an aerial predator. Murison suggested that disturbance from people and especially their accompanying dogs may flush the adult birds exposing the eggs to predators such as corvids. This work was taken forward using video cameras on nests to determine how often adults were flushed from their nest and what caused them to fly (Langston *et al.*, 2007; Woodfield and Langston, 2004b). The study recorded 12 flushing events of sitting Nightjar. Two records of flushing by a dog were made. They calculated that on average, birds had a 12.2% chance of being flushed per day. The cameras recorded one predation event, by a crow.

5.11 These studies taken together (and summarised in Langston *et al.*, 2007) indicate that high levels of recreational access, in particular when dogs accompany people, can reduce Nightjar breeding success.

*The evidence for effects of disturbance on heathland birds - Woodlark*

5.12 A study of the number of Woodlarks on heathland sites in Dorset (Mallord, 2005) in relation to the amount of urban development around each site found that the number of Woodlarks on a site was determined by the amount of suitable habitat within the site and the extent of adjacent urban development. The proportion of occupied sites decreased with the increasing amount of urban development around the site. Mallord suggested that urban development could be operating in three distinct ways:

- Increasing site isolation and thus reducing the probability of colonisation.
- Reducing the amount of foraging habitat available to birds off-site.
- Acting as a surrogate measure for recreational disturbance.

5.13 Mallord also reported on detailed studies of nesting success in relation to access. No effect of disturbance was found on nest survival and the number of chicks raised per pair increased at higher levels of disturbance. This latter effect was attributed to the lower nest densities in areas of high disturbance permitting the birds to be more efficient at feeding their young. At high nest density it was found that chicks were of lower weight, there were higher rates of nestling mortality attributed to starvation and lower post-fledging survival (Mallord *et al.*, 2007a).

5.14 The work described above formed the basis for a model that predicts the consequences for the Woodlark population of a range of access scenarios (Mallord *et al.*, 2007b). The impact on the Woodlark population depends on both the numbers of people and their distribution across heathland sites. Under current access arrangements the model predicted that a doubling of visitor numbers (but with the same relative distribution) had little effect. In contrast the same number of people distributed evenly across all the heathland sites modelled led to an adverse impact on the Woodlark population. The effect of Woodlark density on breeding success described above partially balanced the negative effects of disturbance through recreational access but there was still a prediction of a 17% reduction in productivity compared with that predicted in the absence of disturbance.

*The evidence for effects of disturbance on heathland birds - Dartford Warbler*

5.15 Dartford Warblers are not ground nesting, unlike Nightjar and Woodlark. They nest and forage in mature Heather and Gorse (Bibby, 1979a). Dartford Warblers have been intensively studied in Dorset investigating the effects of human disturbance and urban development on the species (Murison *et al.*, 2007). The study identified that Dartford Warbler held territories in three types of habitat and that their response to disturbance differed between the habitat types. The three habitat types were:

1. Heather-dominated territories.

2. Heather territories with significant areas of European Gorse *Ulex europaeus*.

3. Territories containing Western gorse *U. gallii*.

5.16 The productivity of a pair was found to be significantly affected by the timing of breeding in all habitats – pairs that started nesting later had fewer broods, fewer successful broods and overall fewer chicks fledged per pair in a breeding season. Recreational disturbance only appeared to have a significant impact on the productivity of birds in Heather territories. Disturbance events in Heather territories delayed the start of breeding for up to six weeks. This significantly decreased both the number of successful broods raised and the average number of chicks fledged per pair in a breeding season.

5.17 It was determined that an average of between 13 and 16 people passing through a Heather territory each hour would delay breeding pairs sufficiently to prevent them having multiple broods. Since the average number of disturbance events in Heather territories across sites fell below this threshold, it was postulated that an

increase in recreational disturbance would lead to further pairs failing to have multiple broods in Heather territories. It was also suggested that Gorse spp provided a greater impediment to access off the paths by both people and dogs off the lead than did Heather.

*Dogs as an additional factor in recreational access*

5.18 The use and popularity of heathlands as sites for walking dogs, including the perception that they can be let off the lead because of the absence of livestock on many sites, means that this aspect of potential impacts through public access has been the focus of particular study. The summary of studies on disturbance and heathland birds above has identified concern about the flushing of Nightjar from the nest and the vulnerable nature of their exposed eggs.

5.19 A review of the impacts of dogs on wildlife and nature conservation sites (Taylor *et al.*, 2005) identified that in relation to birds:

- A walker with a dog may provoke a bird disturbance response at greater distances (a greater sphere of influence) and for longer periods than stimuli from other recreational activities, including people without dogs.
- Birds may react to the presence of a dog as if to a predator and there is evidence that dogs will kill the chicks of ground nesting birds although not always eat them.
- Responses to disturbance by dogs are greater in the early stages of the breeding season.
- Disturbance of ground nesting birds can expose the eggs or young to a greater risk of loss to opportunistic predators, especially corvids.

5.20 There were also potential indirect effects on birds identified relevant to heathlands including the fertilising effect of urine and faeces (restricted in extent to paths and around car parks) and the difficulties that access with dogs posed to a site manager seeking to introduce a livestock grazing scheme in order to manage the heathland vegetation.

5.21 Subsequent to the review by Taylor *et al.* (2005), observational studies of Stone Curlew *Burhinus oedicnemus* (Taylor *et al.*, 2007) have also shown an enhanced effect of disturbance by people with dogs, the effect being greater than by walkers alone. The study found that for the same probability of a Stone Curlew making an active response to a potentially disturbing activity (running or flying away) the Stone Curlew reacted at twice the distance when a person was accompanied by a dog than when a person was alone.

*The evidence for effects of disturbance in the Hindhead area*

5.22 The results of the study of visitors to the Hindhead area undertaken in 2009 were combined with the results of the surveys of the distribution of territories of the Annex 1 birds in 2008 and 2009 to evaluate the extent to which existing access intensity and patterns affects the number and distribution of those birds (Sharp and

Liley, 2010). The result of this assessment was that visitor numbers do not currently seem to be affecting the distribution of Annex I birds. The overall conclusion was that there was no evidence, from the years 2008 and 2009, that the distribution of the three Annex I bird species is related to the spatial distribution of visitors.

### Uncontrolled fires

5.23 Fire has been used as a management tool on heathlands for many years but 'wild' or uncontrolled fires are unlikely to be beneficial as they will not be targeted at the correct stage in Heather growth, not be of appropriate size and unlikely to be in the winter, the season for management by fire.

5.24 The effect of an individual fire on ecological interests depends on the date of occurrence, fire temperature, fire duration and the type of habitat burnt. An area that has been burnt can take up to 20 years to re-establish and there is the risk that rather than develop as heathland after an early grassland phase, it may scrub over and become woodland. Fires remove both nesting cover and foraging habitat for Nightjar and Dartford Warbler but are used as a tool to create the bare ground and sparse vegetation preferred by Woodlark. Frequent fires, as can occur adjacent to urban areas, would prevent the vegetation developing the state that it would be good habitat for Dartford Warbler and the result would be a permanent reduction in their population.

5.25 Primarily, fires appear to be started by children, either accidentally or deliberately and in a Dorset study (Kirkby and Tantrum, 1999) 'wild' fires were more likely at weekends, during school holidays and in the afternoon and evening. This study also identified:

- A peak in occurrence of wild fires during April-August.
- High wild fire frequency was associated with urban areas.
- Wild fires were more likely to be reported from SSSIs which had densely developed areas within 500m of their boundaries.
- The identified causes of fires were arson (59%), camp fires (17%), management fires getting out of control (8%) and spreading from bonfires (7%).

5.26 It is reasonable to assume that an increase in population near to a heathland will result in an increase in the number of children and, potentially, an increase in the number of uncontrolled fires.

### Damage to habitat (erosion, trampling, fly-tipping)

5.27 Trampling and erosion of heathlands may be by horses, cycles, vehicles (four-wheel drives or motorcycles) or feet. The severity and extent of damage depends on the initial vegetation, the soil type, the slope and the frequency, severity and seasonality of the type of access. On sloping ground damage by wheeled vehicles (including cycles) can be more destructive than horses or feet as the tracks channel water downslope, increasing erosion through faster water flow.

5.28 Trampling by foot can lead to soil compaction, changes to hydrology or soil chemistry, changes in plant communities and at its most extreme soil erosion and creation of bare ground. It should be noted though that bare areas, sand cliffs and erosion, including along paths, can create and maintain habitats for invertebrates and reptiles.

5.29 Fly-tipping of household and garden rubbish is most likely to occur alongside public roads, in car parks and 'over the garden fence' from houses adjoining heathlands. Such tipping may lead to localised nutrient enrichment and the introduction of invasive plants.

### Predation by pets

*Predation by cats*

5.30 The UK population of cats has been estimated at 8 million with 5.2 million households (20%) owning a cat (PFMA, 2009). Cats are widely recognised as predators of wildlife with an estimate of the rates of predation in the order of 90 million prey items over a five month period with the majority of prey items consisting of mammals (69%) and birds (24%) (Woods *et al.*, 2003). Studies on heathlands have identified Dartford Warbler as being placed at particular risk of cat predation. Dartford Warblers on a number of Dorset heaths were individually marked with colour rings and their survival followed. 16% had been predated by cats within 2-4 weeks of leaving the nest (Murison, 2007). Studies of Nightjar (Murison, 2002) and Woodlark (Taylor, 2002) nests, both of which are ground nesting, identified corvids as the main reason for nest failure. Cats were not recorded at the nest in the video camera study of Nightjars (Langston *et al.*, 2007; Woodfield and Langston, 2004b). Information is lacking on the potential for cats to predate Nightjar or Woodlark post fledging.

5.31 Cats are permitted by most owners to range freely and often allowed out at night and early in the morning. Measures of the ranging of domestic cats vary but there is some consistency in the identification of the mean range or range of the majority of cats. Barratt (1997) found that although the nocturnal ranges of cats varied, 60% travelled no further than 400m and that those movements greater than 200m beyond the suburban edge were always made at night. Turner and Meister (1988) found that the mean distance that cats travelled in a single hunting excursion from home was 371m and identified a maximum range of 1,578m.

*Predation by dogs accompanying walkers*

5.32 The UK population of dogs has been estimated at 8 million with 6 million households (23%) owning a dog (PFMA, 2009). Dogs have been recorded predating the eggs or chicks of ground nesting birds, as reported in Taylor *et al.* (2005) and also in Nol and Brooks (1982). Feral dogs have been identified as a predator of larks in Spain (Yanes and Suarez, 1996). The main concern in relation to dogs is about flushing ground nesting birds from eggs and exposing them to predators as described above. Taylor *et al.* (2005) does not provide an overview of the range over which a dog may move when off the lead but recognises that this will be very variable.

# 6 THE ASSESSMENT

## Introduction

6.1 This assessment of the potential for the HCS to produce an adverse impact on the integrity of the SPA is structured as follows:

- Information about the HCS
- Potential impact of the HCS on the SPA
- Potential in-combination impacts on the SPA
- Avoidance and mitigation measures

## Information about the HCS

6.2 The HCS is intended to provide the framework for the re-development of the crossroads area of Hindhead. This re-development has been catalysed by the A3 Hindhead road scheme. The new dualled A3 and tunnel will take through traffic away from Hindhead and that section of the A3 which enters Hindhead from the northeast, having come through the Devil's Punch Bowl, will be closed.

6.3 The HCS framework applies to the crossroads area of Hindhead with a potential phase 2 at the Barons' site that is sited between the cross roads area and the National Trust's Devil's Punch Bowl Café and car park. Part of the Baron's site lies adjacent to the SPA boundary. The extent of these two areas is illustrated on Figures 1 to 3. At present the Baron's site is planned to be kept in commercial use but as its proximity to the SPA presents particular issues it is considered in this assessment.

6.4 The planning principles of the HCS are:

1. Mixed use throughout the area with commercial uses in balance with new housing.
2. An attractive development with a clear and coherent identity that avoids piecemeal development and creates a quality place reflecting the exceptional setting: very high design standards throughout, with new spaces, planting and minimal and distinctive signing.
3. London Road reshaped as a pleasant tree lined boulevard linked into a busy open square to the north. Spacious and inviting with minimal clutter and with active frontages on ground floors it creates a village high street atmosphere that was previously lost to traffic.
4. Pedestrian dominance throughout these areas with vehicles unobtrusive to restore a traditional rural character, making the most of the countryside setting. Framed outward views and attractive pedestrian access to encourage awareness and use of the surrounding countryside.

5. Small commercial development focuses on specialist retailing including local food, creative industries, high tech offices and services with café/restaurants/wine bar etc. Developed as a single multi purpose permeable space providing a high quality public realm reflecting the closeness of the countryside and the opportunities it presents for outdoor activity consistent with its landscape and biodiversity status.
6. Improvements to public transport, cycle and pedestrian links together with appropriate additional parking to serve the needs of the proposed development.
7. Protection and enhancement of the specially designated areas.

### Potential impact of the HCS on the SPA

6.5 This section describes and assesses the potential impacts using the source – pathway – receptor analysis method.

*Sources - the types of effects arising from the redevelopment of Hindhead*

6.6 The following forms of development, based on the planning principles of the HCS, can reasonably be expected to be proposed, approved and constructed:

- Mixed use forms of development throughout the regeneration area.
- The ground floor level of buildings with specialist retailing including local food, café/restaurants/wine bar etc.
- Apartments above the ground floor retailing.
- Small commercial premises e.g. creative industries, high tech offices and services.

6.7 The scale of the development has been assumed to be in the range of:

- Residential – in the order of 100 dwellings providing ~150-300 bedroom spaces.
- Commercial – the retail element to be of local value and to complement the existing attraction of the countryside, landscape, wildlife, literary and historical associations.

6.8 Regeneration through refurbishment and modernisation of existing buildings that are retained can also be expected to occur as part of the HCS proposals. If the refurbishment does not create new or additional bedroom space then there is no net addition to the number of residents in the area. This means that this form of regeneration is not a source of potential adverse impact on the SPA.

6.9 The developments above might be expected to give rise to the following types of activities (underlined) that have the potential to have an adverse impact on the SPA:

- Residential developments:
  Access to heathland for open air recreation including walking and dog walking by individuals and families in residence – these are activities that are permitted

or encouraged in the area and occur on the SPA under current visitor management arrangements.

Garden waste tipping by individuals and families in residence – these are activities that are not permitted in the area but could occur on the SPA. The proposals in the HCS will only be a very limited source of garden waste as the new developments will be apartments with limited grassed areas and hedges or shrubbery in private residential ownership. Only the phase 2 Baron's site has a common boundary with the SPA and only this can be a source of garden waste from 'over the fence'.

Uncontrolled fires started by individuals and families in residence – this is an activity that is not permitted in the area but could occur on the SPA.

Predation by cats owned by individuals and families in residence – there are no restrictions on cat ownership and existing cats in the area can access the SPA.

- Commercial developments:
  Access to heathland for open air recreation including walking and dog walking by employees before and after work and during lunch breaks and by retail customers as part of a leisure trip combining shopping and open air recreation – these are activities that are permitted or encouraged in the area and occur on the SPA under current visitor management arrangements.

6.10 It is considered that the type of commercial development would influence the extent to which their customers would seek to make part of the Hindhead experience a combination of retail purchases and access to the countryside. The HCS identifies links between regeneration and the presence of attractive and accessible countryside. It might be expected that retail developers would seek to benefit from the visitor draw that is provided by the location Hindhead adjacent to such attractive countryside. It is implicit that the retail customers would also be visitors to that countryside, including potentially the SPA. The consequence of this is that 'shopping' visitors are also a potential source of adverse impact in addition to any new residents.

*Pathways – how the effects might reach the SPA*

6.11 Each of the type of activities identified above is examined below to identify what are the pathways by which their effect might reach the SPA. Based on the length of that pathway and the presence of barriers, there is an assessment of whether or not the effect is likely to reach the SPA to produce an adverse impact on its interest features and integrity.

Access to heathland

6.12 There is existing public access to the SPA and this is enabled and encouraged by the National Trust through their 'gateway' presence at the Devil's Punch Bowl Café and car park. The closest part of the area for regeneration identified in the HCS is around 100m from this access point. The HCS also seeks to make views out on to the Devil's Punch Bowl part of the design of the new public streetscape. This makes the National Trust 'gateway' the most likely route for access on to the SPA for the residents of the new dwellings, staff of businesses based in the HCS area and visitors who are also customers of the new retail developments. All of

these visitors could potentially be accompanied by dogs. It can be predicted that as a result of an increase in the number of dwellings, people employed and retail visitors there will be an increase in the number of people accessing the SPA. There will also be an increase in the number of dogs taken on to the SPA. It can be expected that a high proportion of those dogs will be let off their lead to run freely despite the general requirement for dogs to be kept under close control during the bird breeding season.

6.13 The conclusion of the study into the relationship between current visitors, including a high proportion with dogs, and the distribution of the Annex I birds (Sharp and Liley, 2010) was that there was no evidence, from the years 2008 and 2009, that the distribution of the three Annex I bird species is related to the spatial distribution of visitors.

6.14 It is concluded that there is a short and direct 'pathway' for the residents of the new dwellings, staff of businesses based in the HCS area and visitors who are also customers of the new retail developments to access the SPA. As a result there is a risk of an adverse impact on the SPA through increased recreational access by people and people with dogs.

Garden waste tipping

6.15 Garden waste can be illegally tipped onto land through two main routes or pathways:

1. Waste tipped over the garden fence onto the adjoining land.

2. Waste collected up, put in a vehicle and then driven to a suitable point to be tipped, usually a quiet location off a public road such as a gateway, lay-by or car park.

6.16 In this specific case of the HCS and the proposed regeneration with additional residential dwellings, the residential development does not directly adjoin the SPA with the exception of the Baron's site that is proposed as phase 2 of the HCS. As a result there is no pathway for 'over the garden fence' tipping other than if the Baron's site were to be redeveloped as residential dwellings. With regard to garden waste loaded into a vehicle, fly-tipping could occur at any convenient location adjacent to the public road network and there is no reason to suggest that the SPA would be targeted other than perhaps adjacent to the National Trust car park. There are very limited points at which the public road network adjoins the SPA and the most significant length is that section of the A3 currently crossing the SPA that is to be closed and removed. Additional factors reducing the likelihood of garden waste tipping on the SPA are the promotion of green waste composting (subsidised compost bins are available) and the availability of a green waste collection service (currently offered as a paid for by subscription service) in Waverley BC area.

6.17 It is concluded that as the HCS area, except for the phase 2 Baron's site, does not directly adjoin the SPA then a 'pathway' for garden waste tipping 'over the fence' does not exist other than the common boundary between part of the Baron's site

and the SPA. The potential pathways for fly tipping of garden waste from public roads are limited and the major one – the existing A3 crossing the SPA – is to be closed. As a result the HCS will not give rise to adverse impacts on the SPA through garden waste tipping other than the risk of this occurring at the common boundary between part of the Baron's site and the SPA.

Uncontrolled fires

6.18 Uncontrolled and unauthorised fires on heathland can occur through three main routes or pathways:

1. Bonfires within, or illegally located adjacent to, gardens that become out of control and spread on to the heathland.

2. Barbecues or campfires sited within the heathland that become out of control.

3. Deliberately lit fires (arson) within the heathland.

6.19 In this specific case of the HCS and the proposed regeneration with additional residential dwellings, the residential development does not directly adjoin the SPA with the exception of the Baron's site that is proposed as phase 2 of the HCS. As a result there is no pathway for bonfires to spread to the SPA other than if the Baron's site were to be redeveloped as residential dwellings. With regard to fires started within the SPA deliberately (either arson or become out of control from barbecues or camp fires) such a pathway exists as a result of the public access that occurs. It can be predicted that as a result of an increase in access to the SPA through the increase in numbers of residents close by (arising from the implementation of the HCS) there is a risk of an increase in the number of barbecues or camp fires becoming out of control. It can be predicted that as a result of an increase in the number of children living close by (arising from the implementation of the HCS) there is a risk of an increase in the number of incidents of arson.

6.20 It is concluded that as the HCS area, except for the phase 2 Baron's site, does not directly adjoin the SPA then a 'pathway' for heathland fires from garden bonfires does not exist other than the common boundary between part of the Baron's site and the SPA. The risk of out of control barbecues or camp fires and incidents of arson could increase as a result of increases in public access and numbers of children living nearby. As a result there is a risk that the HCS will give rise to an adverse impact on the SPA through the increased probability of out of control barbecues or camp fires and arson.

Predation by cats

6.21 Predation by cats is of concern where interest features of the SPA (the heathland breeding birds) occur within the hunting range of cats. This pathway has been estimated to be in the order of 400m although greater ranging by cats has been noted (see the evidence base for impacts in Section 5 above).

6.22 To examine if such a pathway exists – that is new residential dwellings that might house cats are planned within 400m of breeding heathland birds – a 400m buffer has been projected from phase 1 of the HCS regeneration area within which new residential dwellings are planned and a separate buffer from the phase 2 Baron's site which is currently expected to remain in commercial use. For comparison a 400m buffer has also been projected from the existing urban areas and across the SPA. These three 400m buffers are illustrated on each of the three figures that show the distribution of the breeding territories of the three Annex 1 bird species over the period 2004-08 (Figure 1: Nightjar, Figure 2: Woodlark and Figure 3: Dartford Warbler).

6.23 The open, heathland areas of the Devil's Punch Bowl and those parts of Highcombe Edge that have recently been managed to create open heathland are considerably further than 400m from the HCS area. None of the Annex 1 species breeding in the Devil's Punch Bowl part of the SPA or Highcombe Edge that is on the boundary of the SPA have territories within this 400m pathway length.

6.24 Some of the open, heathland areas of Hindhead Common are close to the HCS area, as is the area at the northern end Hindhead Common where the National Trust plans to carry out selective tree clearance to restore open heathland. This work will take place after the closure of the old A3. Also proposed after the road closure is the felling of trees along a strip either side of the old A3 to create an open area of heathland habitat linking Hindhead Common and the Devil's Punch Bowl. This area of tree felling extends westwards to around the National Trust car park and café. The result will be the restoration of around 7ha of heathland within the 400m buffer projected from phase 1 of the HCS. At present the 400m buffer from the phase 1 area of the HCS just overlaps the edge of the territories of two of the three SPA species. Specifically, a territory of Woodlark in 2004 and 2008 and a territory of Dartford Warbler in 2004, 2005, 2006 and 2008. The 400m buffer also comes very close to a territory of Nightjar in 2005 and a territory of Woodlark in 2006. There is also overlap of the 400m buffer projected from the existing urban areas.

6.25 The evidence base described above has identified that it is Dartford Warbler for which there is evidence of a risk to the population through cat predation and in particular predation of newly fledged chicks. The point of overlap with the 400m buffer projected from phase 1 of the HCS is on the edge of each of the Dartford Warbler territories. It might be expected that the nest location is not on the outer edge of the area that is defended by the male Dartford Warbler (the territory boundary being defined as the outermost locations at which a male bird was observed singing) and that newly fledged chicks do not move far from the nest site. The area where the point of overlap occurs is also not used as a territory every year. It is considered that these factors combined mean that there is not a sufficient effect from the HCS to give rise to an adverse impact on the integrity of the SPA through cat predation presenting a risk of reducing the breeding population of Nightjar, Woodlark or Dartford Warbler.

6.26 It is recognised in carrying out this analysis of the potential impact pathway that the SPA boundary is less than 100m from the nearest part of phase 1 of the HCS area within which regeneration, including residential dwelling, is planned. The test of

Article 6(3) of the Habitats Directive is that the plan or project "*will not adversely affect the integrity of the site concerned*" where 'integrity' relates to the conservation objectives of that site and whether they can be realised (European Commission 2000). In the particular case of this SPA there is not the intention to fell the trees immediately adjacent to Hindhead in order to create an additional heathland area for the Annex I birds. The felling proposed is limited to a strip running either side of the old A3 starting from the National Trust car park. To the east, beyond the 400m buffer, this strip creates a link of open heathland between Hindhead Common and the Devil's Punch Bowl, with this area being extensive enough to support Annex I breeding birds.

6.27 Tree felling adjacent to Hindhead is not extensive because the SPA has an overlapping designation of the Devil's Punchbowl SSSI and woodland is part of the interest feature of the SSSI. The woodland on the lower parts of the Devil's Punch Bowl are also identified as 'ancient and semi-natural' and 'ancient replanted' in the Ancient Woodland Inventory (accessed via www.magic.co.uk) For both these reasons there is a policy and legislative imperative to retain woodland cover adjacent to Hindhead and particularly to retain and manage for deciduous woodland cover.

6.28 Whilst there is potential for cats to range across that part of the SPA closest to Hindhead that is wooded or grades into heathland, this does not risk the achievement of the SPA conservation objectives, and hence site integrity. This is because conversion of woodland to heathland close to Hindhead to increase the opportunities for Annex I birds to breed is not integral to the achievement of the SPA conservation objectives. The woodland is largely to be retained on site for other national conservation interests. The extensive open heathland areas, suitable as habitat for territories of the Annex I birds, that are created by the felling of trees to link existing heathland blocks occur more than 400m from the HCS. As a result it is not the case of an opportunity foregone as a result of the proposed HCS.

6.29 It is concluded that the HCS area is sufficiently distant from the breeding territories of Nightjar, Woodlark and Dartford Warbler that it will not give rise to an adverse impact on the integrity of the SPA through cat predation.

*Receptors – the interest features of the SPA*

6.30 The receptors are the interest features of the SPA – the breeding populations of Nightjar, Woodlark and Dartford Warbler and the habitats that support these populations. These have been described in detail in section 3 of this report.

*Potential impact on the SPA without additional avoidance or mitigation measures*

6.31 It is concluded based on the source – pathway – receptor analysis above that the phase I of the HCS alone, as expressed at present and without consideration of additional avoidance or mitigation measures, has the potential to lead to the following adverse impacts on the SPA:

- An increase in recreational access by people and people with dogs on to the SPA affecting the breeding populations of the Annex I birds. In particular increased access is likely to lead to increased predation of Nightjar nests as incubating birds are flushed from the nest, to a reduction on the number of Woodlark pairs establishing territories and a reduction in the number of young Dartford Warbler raised.

- An increase in the incidence of uncontrolled fires affecting the habitat on which the Annex I birds depend.

6.32 It is concluded that the phase 1 of the HCS will not give rise to adverse impacts on the SPA through:

- Garden waste tipping.

- Predation by cats.

6.33 It is concluded that phase 2 of the HCS (the Baron's site) has, if developed for residential dwellings, the potential to lead to adverse impacts on the SPA through:

- Garden waste tipping.

**Potential in-combination impacts on the SPA**

6.34 The assessment above has considered the HCS proposal alone. It is a requirement of the Habitats Directive and the Conservation Regulations that there is also an assessment of the HCS proposal in combination with other plans or projects that are being proposed, agreed and not yet fully implemented. The plans or projects that have been identified that apply across the area within which the SPA is located or are proposals of a similar type in the area and should be considered for possible in-combination effects are:

- The South East Plan (final May 2009) (subject to legal challenge and appeal)

- East Hampshire District Council Second Review Local Plan (adopted March 2006) (saved policies)

- East Hampshire District Council LDF (Core Strategy Preferred Policies consultation November 2009)

- Waverley Borough Local Plan 2002 (saved policies)

- Waverley Borough LDF (Core Strategy consultation February 2009)

- Waverley Borough Planning Infrastructure Contributions SPD (adopted 2008)

- The Interim Planning Statement for Hindhead (2007)

- Whitehill-Bordon Ecotown proposal

- The Surrey Hills AONB Management Plan (2004-2009)

- The Surrey Hills AONB Management Plan (2009-2014 draft January 2009)
- A3 Hindhead dualling and tunnel, including associated habitat and public access works
- The National Trust land management plan for their Hindhead estate including their response to the closure of the old A3 and the associated visitor facility improvements

6.35 Of these proposed plans and projects it is the improvement of the A3 by dualling and the construction of a tunnel beneath the Hindhead area and the National Trust response to that project that have the greatest potential to act in combination with the HCS. It is considered that most of the other plans listed, all of a more strategic nature and covering a wider area are not likely to have a significant effect other than insofar as they make reference to the regeneration of Hindhead, providing a strategic context for the HCS. The exception to this is the Whitehill-Bordon Ecotown proposal.

6.36 The A3 Hindhead improvement scheme contains a number of elements (Highways Agency, 2004a) that have a direct effect on the SPA, the heathland habitat and public access infrastructure. These elements are:

- Closure of the existing A3 passing through the Devil's Punch Bowl.
- Habitat creation along the route of the closed A3.
- Replacement and improvement of severed or lost rights of way.

6.37 The effect of the A3 Hindhead improvement scheme on the interest features of the SPA are addressed below.

*Closure of the existing A3 passing through the Devil's Punch Bowl*

6.38 The A3 that currently passes through the Devil's Punch Bowl and into Hindhead will be closed and traffic taken through a tunnel. With respect to the SPA interest features this removes a source of noise that potentially could be having an effect on communication by song between territorial male birds. In some species of birds, but not the three Annex I heathland species, it has been shown that road noise causes effective habitat loss with a reduction in the number of bird territories in a corridor alongside the road. The closure of the A3 would remove this effect and would lead to an increase in the capacity of the SPA to support the three Annex I heathland species. The closure of the A3 would also remove two sources of pollution - nitrogen pollution from vehicle exhausts and road runoff containing pollutants including salt. These could both have an effect on the heathland habitat along the road corridor. Increasing the amount of nitrogen in heathland soils can favour grass growth over the growth of Heather species, so reducing habitat quality for the three Annex I heathland species. Salt in the road runoff can affect the balance of plant species in the vegetation immediately alongside the road and where runoff is taken untreated in gulleys onto the SPA. The closure of the A3 would remove these effects and would reduce the risk of a decline in habitat quality along the road corridor.

6.39 The A3 that currently passes through the Devil's Punch Bowl produces an intrusive, man-made element in the natural landscape. The closure of the A3 would remove this effect, removing both noise and visual intrusion in the landscape. The result would be an improvement in the visitor experience. The interview surveys conducted as part of the A3 scheme assessment by the Highways Agency (2004a) found that 10% of respondents stated that such changes would create a more enjoyable visit overall. This increased attractiveness may lead to an increase in the number or duration of visits, especially if specifically promoted by the National Trust or other organisations. The interview surveys conducted as part of scheme assessment found that 14% of respondents said that the improvements would encourage them to make greater use of the area's recreational potential. An increase in recreational access to the SPA by people and people with dogs has been predicted to have an adverse impact on the breeding populations of the Annex I birds of the SPA.

*Habitat creation along the route of the closed A3*

6.40 That part of the A3 that is closed as it passes through the Devil's Punch Bowl and reaches Hindhead will have heathland habitat created along the route. This will directly create additional habitat of benefit to the three heathland Annex I species and will also increase the ecological connection between parts of the SPA. This latter effect will not benefit the highly mobile birds directly but could have indirect benefits that occur through the food chain. It will also have indirect benefits through facilitating grazing of the heathland, permitting the ready movement of livestock between Hindhead Common and the Devil's Punch Bowl. This could lead to better management of the invasive Bracken and provide benefits to the three Annex I heathland birds through better habitat condition. Improved grazing management is not guaranteed if it is conditional on being able to erect new fencing on common land. This is because such new fencing requires a specific application and approval of the Secretary of State. This uncertainty affects an element of the delivery of heathland habitat after the A3 closure but it does not affect the measures identified later in this assessment for the avoidance of potential adverse impacts from the HCS.

*Replacement and improvement of severed or lost rights of way*

6.41 The improvement of the A3 has both positive and negative effects on the existing Public Rights of Way network and on open access land. There are a series of actions required of the Highways Agency to replace and improve severed or lost rights of way and common land with rights of access. Immediately around Hindhead and on the SPA the actions are, in summary (Highways Agency, 2004a):

- To create unhindered access between Hindhead Common and the Devil's Punch Bowl where the old A3 is closed.
- To create new areas for recreational activity on the 'Exchange Land' that is provided.
- To provide improved access across the A3 for use by pedestrians, cyclists and equestrians at Miss James' Walk in Tyndall's Wood.

- To provide a link path at Undershaw, connecting to the centre of Hindhead village and a controlled crossing at Chase House Link that will connect Tyndall's Wood directly with Hindhead Common.

6.42 The new layout of the access routes after the construction of the new A3 and tunnel is illustrated in Figure 5 for Hindhead and the Tyndall's Wood area. This figure is reproduced from Chapter 15 of the Environmental Statement (Highways Agency, 2004a).

6.43 These improvements to the access network are likely to lead to an increase in recreational access to the SPA by people and people with dogs. This has been predicted, through applying the evidence base set out in section 5 above, to have an adverse impact on the breeding populations of the Annex 1 birds of the SPA. The appropriate assessment of the A3 Hindhead scheme (Highways Agency, 2004b) concluded that the enhanced recreational access would be a minor negative effect and that it would not have an adverse impact on the integrity of the SPA when taken together with the other elements of the scheme relating to the A3 closure and habitat creation that provided major benefits to the SPA.

*The Whitehill-Bordon Ecotown proposal*

6.44 The Whitehill-Bordon Ecotown proposal is for a new settlement of up to 5,300 homes and based on the redevelopment of the existing settlement at Whitehill and Bordon following the relocation of the garrison by the MoD. The proposed Ecotown is around 9km from Hindhead and the components of the Wealden Heaths Phase 2 SPA that are the subject of this assessment. There are European sites or components of those sites closer to the proposed Ecotown than the components of the SPA being considered here. The closest are the Woolmer Forest SSSI component of the Wealden Heaths Phase 2 SPA and Woolmer Forest SAC. These are sited less than a kilometre from the areas for development identified in the proposed Ecotown masterplan (www.whitehillbordon.com)

6.45 The Ecotown proposals have undergone an Appropriate Assessment as part of the development of the supplement to PPS1 (Scott Wilson and DCLG, 2009a) and this included an assessment of the proposed Whitehill-Bordon site (Scott Wilson and DCLG, 2009b). This came to the conclusion that it was not possible to conclude that the proposed Ecotown would not lead to adverse effects on the Wealden Heaths Phase 2 SPA as a result of general 'urbanisation' impacts. It recommended that a set-back distance of the Ecotown from the Wealden Heaths Phase 2 SPA be explored and clarified at the project-level HRA for the Ecotown and that the greenspace that is already required under the Ecotown policy be assessed as to how it would function to draw recreational pressure away from the European sites. If that greenspace was unable to divert recreational pressure then it recommended that an additional greenspace element be required. The greenspace would need to be of a quality and location that it would act as an attractive alternative to the European sites. Finally, if adverse impacts could not be avoided then the proposed population size of the Ecotown would have to be reconsidered.

6.46 Whilst this is a potential in-combination effect on the Wealden Heaths Phase 2 SPA, the combination is created by the disjunct nature of the SPA, with separate

components of the SPA being affected. It is not the case that recreational pressure arising from the proposed Ecotown is likely to result in additional recreational pressure on those components of the SPA adjacent to Hindhead. This is because of the distances involved, the presence of other accessible natural greenspace between the proposed Ecotown and Hindhead and the proposals under discussion for greenspace around the Ecotown that people are likely to visit in preference.

6.47 An in-combination effect cannot arise if the proposed Ecotown addresses those pressures on the Woolmer Forest SSSI component of the Wealden Heaths Phase 2 SPA through avoidance measures such as the creation or improved management of accessible natural greenspace. Further progress with the development of the proposed Ecotown will be conditional on agreement to those avoidance measures, initially in principle and then as binding conditions on the development. Although those measures are not in place, the legal and policy framework means that they are required and will be implemented. The policy measures include the need to comply with paragraph ET16.2 of the Ecotown supplement to PPS1 (DCLG, 2009) that states:

"*If after completing an appropriate assessment of a plan or project local planning authorities are unable to conclude that there will be no adverse effects on the integrity of any European sites, the plan or project will not be approved, irrespective of conformity with other policies.*"

*The result of the consideration of the in-combination effects*

6.48 The assessment of the HCS alone concluded that there was potential for adverse impacts from an increase in recreational access by people and people with dogs on to the SPA, an increase in the incidence of uncontrolled fires on the SPA and, for the Baron's site, garden waste tipping.

6.49 The A3 Hindhead scheme, through attracting increased numbers of visitors would act in-combination with the predicted increase in recreational access to the SPA as a result of the increase in residential dwelling numbers, employees and retail customers derived from the HCS. In the appropriate assessment of the A3 Hindhead scheme (Highways Agency, 2004b) the potential minor effects from the increase in recreational access was considered to be more than offset by the improvements in the environment for the Annex 1 heathland bird species resulting from improvements to the condition of the habitats, habitat creation and reduction in road noise. These improvements in the environment would also act to offset the predicted adverse impact from recreational access resulting from the HCS and it is considered that there would be a resulting in-combination overall beneficial effect.

6.50 The appropriate assessment of the A3 Hindhead scheme did not specifically consider the enhanced effect caused by visitors with dogs over visitors without dogs and it or the ES (Highways Agency, 2004a) did not provide figures for the proportion of dogs that were on and off a lead. The HCS creates a particular source of effect that is distinct from the recreational effects arising from the A3 improvement scheme. This is that the residential component of the HCS will result in a proportion of residents owning dogs (the national proportion being 23%

of households – PFMA, 2009) and this will create a demand for somewhere very close by to walk their dog(s) several times a day. Any employees of the businesses established in the HCS area that bring their dog(s) to work will also add to this demand at lunchtime. It is not considered that this potential impact is 'offset' through an in-combination benefit with the environmental improvements resulting from the A3 scheme. This is a residual adverse impact from the in-combination assessment.

6.51 The predicted risk of an increase in uncontrolled fires arises partly from visitors (e.g. barbecues going out of control) and partly from an increase in the number of children living close to the SPA (increased risk of arson) through the residential element of the HCS. Visitor numbers could increase through both the A3 scheme improvements and the HCS and this is an in-combination effect.

6.52 No other in-combination effects have been identified.

**Residual impacts requiring avoidance or mitigation measures**

6.53 The residual adverse impacts that are predicted, taking account of the in-combination assessment, are:

- An increase in recreational access with dogs on to the SPA on a daily basis by residents of the new dwellings and any employees of the businesses that bring their dog(s) to work. This would affect the breeding populations of the Annex I birds. In particular increased access with dogs is likely to lead to an increased predation of Nightjar nests as incubating birds are flushed from the nest by dogs not kept under close control.

- An increase in the incidence of uncontrolled fires affecting the habitat on which the Annex I birds depend.

6.54 With respect to phase 2 of the HCS (the Baron's site), if developed for residential dwellings, the residual adverse impact that is predicted, taking account of the in-combination assessment, is:

- Garden waste tipping.

**Avoidance and Mitigation measures**

6.55 The residual adverse impacts identified above require specific avoidance or mitigation measures if the proposals in the HCS are to pass the appropriate assessment without conclusion of an adverse impact on the integrity of the SPA.

*Avoiding the increase in recreational access with dogs*

6.56 The specific element of recreational access with dogs that needs to be addressed by avoidance measures is the demand for somewhere to undertake the 'daily dog walk'. It is known from studies of dog owners (Edwards and Knight, 2006; Liley *et al.*, 2006a, Liley *et al.*, 2006b) that they are looking for somewhere that is extremely convenient, that is as close as possible to their home or workplace and

where they will be welcomed, as well as providing for their perceived needs of their dog(s).

6.57 It is proposed that a combination of measures is put in place based on encouraging dog walking by future local residents and employees from the proposed HCS regeneration area away from the heathland areas of the SPA. The focus would be on promoting specific dog walking routes, with appropriate infrastructure such as signs, dog bins and modified stiles. The promoted routes would be on those parts of the Devil's Punch Bowl close to Hindhead that are substantially covered by trees and not used by nesting Annex 1 heathland birds and in Tyndall's Wood. Connecting routes between these areas (e.g. through those part of Hindhead Common that are substantially covered by trees and not used by nesting Annex 1 heathland birds) would also have to be promoted so that dog walkers may select a combination of routes to achieve the length of walk that they considered suited their dog(s) and the time that they had available.

6.58 Improvements to access infrastructure were planned as part of the improvement and mitigation works related to the A3 scheme (e.g. within Tyndall's Wood and the Chase House link), as illustrated on Figure 5. Much of this planned work has been implemented and in some cases it is already in use although other components are sited too close to the current tunnel construction area to have been opened to the public to date. These planned and implemented improvements to public access need to be reviewed in relation to the adequacy of their nature and facilities to encourage their use by dog walkers. If inadequacies or shortfalls are identified then those additional elements need to be identified for delivery prior to the developments planned in the HCS. Use of the existing and improved routes that would take dog walkers away from areas used by Annex 1 birds should be encouraged by the supply of leaflets to the new residents and employees within the HCS regeneration area.

6.59 Promoted routes on the Devil's Punch Bowl adjacent to Hindhead would pass through the National Trust car park and as a result they would be available for use by visitors from outside the immediate area arriving by car. The routes would also be available to existing residents. Taken together this would help reduce existing pressure on the SPA.

6.60 The total area over which these access improvement measures would be implemented, given that the objective is to provide routes of about 30-60 minutes duration (Liley *et al.*, 2006b) (equivalent to a route of 3-6km) is in the order of 35ha. This is based on calculating the area of wooded land close to the National Trust café and car park and Tyndalls Wood that is within a 1km radius. This area for improvement would provide for the probable maximum of 300 new residents of the HCS, a quarter of which it is predicted are likely to own one or more dogs. This ratio of around 10 people per hectare (and predicted to be 2-3 dog walkers per hectare) is in excess of that required for the creation of a new SANGs had the site been in the 400m – 5km buffer of the Thames Basin Heaths SPA.

6.61 Waverley BC have adopted the standard of 8ha of SANGs per 1,000 new residents in relation to avoiding adverse impacts from new residential development close to the Thames Basin Heaths SPA (Waverley BC, 2009). Had the HCS development

been in the 400m – 5km buffer of the Thames Basin Heaths SPA its requirement for SANGs would be 2.4ha. The proposed avoidance measure is for the upgrading of existing green space and as a result consideration has to be given to the effect that upgrading would have in providing additional capacity. In the absence of a detailed visitor survey to assess capacity, a quantitative calculation cannot be made. Confidence as to the likely adequacy of the avoidance measure can be gained from the fact that in the circumstances of creating new SANGs the HCS would require 2.4ha of SANGs and the proposed avoidance measure is planned to provide additional benefit over an area of around 35ha.

6.62 Implementing this avoidance measure would require:

- Identification of any inadequacies or shortfalls in the existing and planned access routes and infrastructure to provide for the needs of dog owners that become new residents of the HCS area or visit it as part of a combined shopping and countryside experience.

- Participation by the National Trust as the principal landowner along the promoted routes.

- Funding through contributions from those developers of the HCS regeneration area that would result in the increase in dwellings and employees.

6.63 These requirements have no fundamental legal or practical obstacle to their delivery. The principle of funded access improvements has already been accepted in the local area and by the National Trust through the A3 scheme. The measures proposed above are practical and deliverable within the timescale sought – to coincide with the regeneration of the HCS area that takes place alongside the closure of the old A3.

6.64 It is recognised that successful delivery of this avoidance measure is dependent on participation by the National Trust. This is a risk to the delivery of the proposed avoidance measure. It is a risk that is not considered great and does not prevent the inclusion of the avoidance measure in this assessment.

6.65 As a result this proposed avoidance measure is considered suitable for inclusion within the appropriate assessment process and its implementation will avoid the adverse impact predicted to result from the increased access with dogs if no action is taken.

*Avoiding the increase in uncontrolled fires*

6.66 To avoid the increase in uncontrolled fires that it is predicted would arise from the increase in recreational visits to the SPA from residents of the HCS regeneration area (e.g. barbecues going out of control) and the increase in the number of children who are residents of the HCS regeneration area (increased risk of arson) it is proposed that a number of measures are put in place. These focus on education and information aimed at:

- The new residents (adults and children) of the HCS regeneration area.

- Visitors to the heathlands, particularly at times of high fire risk.
- Children attending local schools.

6.67 The programme would follow the practices of projects such as the Dorset Urban Heaths Partnership and Operation Heathland promoted by the Dorset Police, Dorset Fire and Rescue Service and conservation bodies.

6.68 This programme provides education and information to groups that include the new residents (adults and children) but it is not exclusive to them and as a result it would provide benefits in reducing the existing fire risk to the SPA. It also addresses an issue (uncontrolled fires) that was not included in the assessment of the effects of increasing visitor numbers arising from the increased attractiveness of the Devil's Punch Bowl following the closure of part of the A3 (Highways Agency, 2004a and 2004b).

6.69 Implementing this avoidance measure would require:

- Participation by the National Trust as the principal landowner of the heathland.
- Funding through contributions from those developers of the HCS regeneration area that would result in the increase in dwellings.

6.70 Neither of these requirements has any fundamental legal or practical obstacle to their delivery. The principle of education campaigns to reduce fire risk has already been accepted by the National Trust through their participation in the programme of the Urban Heaths Partnership in Dorset. The measures proposed above are practical and deliverable within the timescale sought – to coincide with the regeneration of the HCS area that takes place alongside the closure of the old A3.

6.71 Since wider benefits are predicted through the messages reaching heathland users as a whole and children within the catchments of schools targeted, partnership funding or contributions in kind would be appropriate from other organisations with an interest in the conservation and enjoyment of the heathlands.

6.72 As there are no fundamental legal or practical obstacles to the delivery of this proposed avoidance measure it is considered suitable for inclusion within the appropriate assessment process and its implementation will avoid the adverse impact predicted to result from the increased fire risk if no action is taken.

*Avoiding garden waste tipping*

6.73 To avoid garden waste being tipped 'over the fence' on to the SPA that is predicted would arise from phase 2 of the HCS if residential development were to take place immediately adjacent to the SPA, it is proposed that the use of the land that has the common boundary with the SPA be a commercial use.

6.74 If development proposals include residential use then the following measures should be put in place:

- For all residential dwellings to have a green waste collection service, sufficient space for facilities for storing green waste and/or sufficient space for composting facilities.

- A property boundary to the SPA of a nature through its height and strength that precludes garden waste being placed over the fence rather than taken to a composting facility or composted on site.

6.75 Implementing these avoidance measures would require:

- Conditions placed on the nature of the development.

- Conditions placed on the design and use of the development, if residential.

6.76 Neither of these requirements has any fundamental legal or practical obstacle to their delivery.

6.77 As there are no fundamental legal or practical obstacles to the delivery of this proposed avoidance measure it is considered suitable for inclusion within the appropriate assessment process and its implementation will avoid the adverse impact predicted to result from garden waste tipping if no action is taken.

**Other avoidance or mitigation actions considered but not proposed**

6.78 Three alternative avoidance or mitigation actions were considered in the assessment process but these have not been proposed for inclusion in the programme of action but remain as alternatives. These were:

1. All residential development in the HCS regeneration area to be institutional or rented housing providing managed accommodation for the less mobile. This condition on the development would largely avoid the increase in the number of people accessing the SPA and as a result would avoid increasing the risk of disturbance of the Annex I heathland birds. It would be expected that such accommodation would have a resident staff component and they might seek to access the SPA in their leisure time.

2. All residential development in the HCS regeneration area to be small apartments unsuited to family accommodation and dog ownership. This condition on the development would avoid the increase in the number of children in the area and as a result avoid increasing the risk of uncontrolled fires through arson. Such small apartments might also act as a discouragement to the ownership of dogs. The RSPCA guidelines for dog ownership recommend access to a garden (RSPCA web site – "Pet Care – Dogs") but there is no legal requirement for such access. It is conceivable though that anyone owning a dog living in an apartment will have greater need to access the SPA than a dog owner with a garden.

3. All residential development in the HCS regeneration area to have pet prohibition covenants applied. This condition on the development would avoid the increase in the number of people accessing the SPA with a dog and as a result would avoid increasing the risk of disturbance of the Annex I heathland

birds, particularly nesting Nightjar. The enforceability of such covenants is questionable unless the development is of closely managed apartments through a management company with resident staff or very regular visits. The management company would have to be responsible for ensuring, and have the power to enforce, compliance with the covenant. Enforceability of covenants would be expected to be very hard for cats where ownership can be very uncertain.

6.79 The alternative of having no residential development in the HCS regeneration area was not considered as it was not in accordance with the objectives of the HCS.

# 7 CONCLUSIONS OF THE ASSESSMENT

## The components of the assessment

7.1 The assessment of phase 1 of the HCS alone is that, without consideration of additional avoidance or mitigation measures, it has the potential to lead to the following adverse impacts on the SPA:

- An increase in recreational access by people and people with dogs on to the SPA affecting the breeding populations of the Annex 1 birds.
- An increase in the incidence of uncontrolled fires affecting the habitat on which the Annex 1 birds depend.

7.2 Phase 1 of the HCS alone will not give rise to adverse impacts on the SPA through:

- Garden waste tipping.
- Predation by cats.

7.3 It is concluded that phase 2 of the HCS (the Baron's site) has, if developed for residential dwellings, the potential to lead to adverse impacts on the SPA through:

- Garden waste tipping.

7.4 The conclusion of the assessment of the HCS in-combination with the A3 Hindhead improvement scheme (the plan or project identified as most likely to give rise to in-combination effects) is that:

- The A3 Hindhead scheme, through attracting increased numbers of visitors would act in-combination with the predicted increase in recreational access to the SPA as a result of the increased number of residents produced by the HCS. The A3 Hindhead scheme includes significant improvements in the environment for the Annex 1 heathland bird species resulting from improvements to the condition of the habitats, habitat creation and reduction in road noise. These improvements in the environment act to offset the predicted in-combination adverse impact from recreational access resulting from the increased attractiveness of the Hindhead area and the HCS.
- The HCS creates a particular source of effect that is distinct from the recreational effects arising from the A3 improvement scheme. This is that the HCS will create a demand for somewhere very close to the new dwellings and businesses for residents and employees to walk their dog(s) several times a day. It is not considered that this potential impact that occurs close to Hindhead (within the 'daily dog walk' range) is 'offset' through an in-combination benefit with the environmental improvements resulting from the A3 scheme. Thus there is a residual adverse impact when the HCS 'dog walker effect' is considered in-combination with the environmental improvements resulting from the A3 scheme.

- The HCS and the A3 improvement scheme both produce a potential increase in the risk of uncontrolled fires. This arises partly from visitors (HCS and A3) and partly from an increase in the number of children living close to the SPA (the HCS alone).

7.5 The residual effects of phase 1 of the HCS requiring avoidance and mitigation actions are:

- An increase in recreational access with dogs on to the SPA on a daily basis by residents of the new dwellings and any employees of the businesses that bring their dog(s) to work.

- An increase in the incidence of uncontrolled fires affecting the habitat on which the Annex 1 birds depend.

7.6 The residual effects of phase 2 of the HCS, if residential development were to take place immediately adjacent to the SPA, requiring avoidance and mitigation actions is:

- Garden waste tipping.

7.7 The programme of avoidance actions is:

- A combination of measures to encourage dog walking by future local residents and employees from the proposed HCS regeneration area to take place away from the heathland areas of the SPA.

- A programme of education targeted at the new residents (adults and children) of the HCS regeneration area, visitors to the heathlands (particularly at times of high fire risk) and children attending local schools about the risk of heathland fires and their effects.

- Commercial use of the land that has the common boundary with the SPA or, if it is residential development, conditions requiring green waste collection and/or composting facilities and a property boundary to the SPA that precludes garden waste tipping.

7.8 It is recognised that successful delivery of the avoidance measure requiring encouragement of dog walking by future local residents and employees from the proposed HCS regeneration area to take place away from the heathland areas of the SPA is dependent on participation by the National Trust. This is a risk to the delivery of the proposed avoidance measure. It is a risk that is not considered great and does not prevent the inclusion of the avoidance measure in this assessment.

### Overall finding of the assessment

7.9 The proposals in the HCS assessed alone and in-combination and accompanied by a programme of avoidance measures will not have an adverse impact on the interest features of the Wealden Heaths Phase 2 SPA.

# 8 NEXT STEPS

8.1 The following next steps have been identified, set out in order of action:

1. It should be confirmed with Natural England that this revised assessment of the HCS satisfies their requirements as set out in the letter of 15th October 2010 to Paul Falconer of Waverley BC.

2. A detailed programme of measures in the form of an Avoidance Strategy should be produced by the National Trust through the Wider Concept Statement working group of the Hindhead Together partnership. The programme of measures in the Avoidance Strategy will allow the preparation of a budget for capital and revenue costs and the calculation of developer contributions.

3. As the competent authority for the appropriate assessment, Waverley Borough Council should be involved in the process of producing the Avoidance Strategy, agreeing the approach and making the final decision.

## 9 REFERENCES

Alexander, I. and B. Cresswell. 1990. Foraging by Nightjars *Caprimulgus europaeus* away from their nesting areas. *Ibis* 132: 568-574.

Barratt, D.G. 1997. Home range size, habitat utilisation and movement patterns of suburban and farm cats *Felix catus*. *Ecography* 20: 271-280.

Bibby, C. J. 1979a. Breeding biology of the Dartford warbler *Sylvia undata* in England. *Ibis* 121: 41-52.

Bibby, C. J. 1979b. Conservation of the Dartford Warbler on English lowland heaths: A review. Biological Conservation 13: 299 - 307.

Bowden, C. G. R. 1990. Selection of foraging habitats by Woodlarks (*Lullula arborea*) nesting in pine plantations. *Journal of Applied Ecology* 27: 410-419.

Bowden, C. and R. Hoblyn. 1990. The Increasing Importance of Restocked Conifer Plantations for Woodlarks in Britain: Implications and Consequences. *RSPB Conservation Review* 4: 26-31.

Catchpole, C. K. and J. F. Phillips. 1992. Territory quality and reproductive success in the Dartford warbler *Sylvia undata* in Dorset, England. *Biological Conservation* 61: 209 - 215.

Conway, G., Wotton, S., Henderson, I., Langston, R., Drewitt, A. and Currie, F. 2007. Status and distribution of European Nightjars *Caprimulgus europaeus* in the UK in 2004. *Bird Study* 54: 98-111.

Conway, G., Wotton, S., Henderson, I., Eaton, M., Drewitt, A. and Spencer, J. 2009. The status of breeding Woodlarks *Lullula arborea* in Britain in 2006. *Bird Study* 56: 310-325.

Cresswell, B. 1996. Nightjars - some aspects of their behaviour and conservation. *British Wildlife* 7: 297-304.

DCLG. 2006. *Planning for the Protection of European Sites: Appropriate Assessment.* DCLG, London.

DCLG. 2009. *Planning Policy Statement: eco-towns. A supplement to Planning Policy Statement 1.* DCLG, London.

Edwards V and Knight S. 2006. *Understanding the Psychology of Walkers with Dogs: New approaches to better management.* University of Portsmouth, Portsmouth, Hants.

English Nature. 1997. *Habitats Regulations Guidance Note (HRGN1): The Appropriate Assessment (Regulation 48), the Conservation (Natural Habitats &c) Regulations, 1994.* English Nature, Peterborough.

English Nature, 2005. *Conservation Objectives for the European Interest on the Devil's Punch Bowl Site of Special Scientific Interest (SSSI).* English Nature, Peterborough.

European Commission. 2000. *Managing Natura 2000 Sites. The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC*. Office for Official Publications of the European Communities, Luxembourg.

European Commission. 2002. *Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites. Methodological Guidance on the Provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC.* Office for Official Publications of the European Communities, Luxembourg.

Gibbons, D.W. and Wotton, S. 1996. The Dartford Warbler in the United Kingdom in 1994. *Brit. Birds* 89: 203–212

Gilbert, G., Gibbons, D.W. and Evans, J. 1998. *Bird Monitoring Methods: A manual of techniques for key UK species*. RPSB, The Lodge, Sandy, Bedfordshire.

Gill, J.A. 2007. Approaches to measuring the effects of human disturbance on birds. In *Proceedings of the BOU Conference 2006: Birds and Recreational Disturbance*. *Ibis*: 149(s1): 9–14.

Highways Agency. 2004a. *A3 Hindhead Environmental Statement*. Highways Agency, Dorking, Surrey.

Highways Agency. 2004b. *A3 Hindhead Appropriate Assessment (July 2004).* Highways Agency, Dorking, Surrey.

Hill, D., Hockin, D., Price, D., Tucker, G., Morris, R. & Treweek, J. 1997. Bird disturbance: improving the quality and utility of disturbance research. *Journal of Applied Ecology*, 34: 275-288.

Hindhead Together. 2008. *Regeneration of London Road – Concept Plan Spring 2008*. Hindhead Together, Witley, Surrey. [as adopted by Waverley BC on 22nd July 2008 as the policy of the Council}

JNCC. 2006. Wealden Heaths Phase 2 Standard Natura 2000 Data Form. (version 1.1, 05/05/06). JNCC, Peterborough.

Kirby, J.S. & Tantrum, D.A.S. 1999. *Monitoring heathland fires in Dorset: Phase 1*. Report to DETR by the Terra Environmental Consultancy, Northampton.

Langston, R., Liley, D., Murison, G., Woodfield, E., & Clarke, R.T. 2007. What effects do walkers and dogs have on the distribution and productivity of breeding Nightjar Caprimulgus europaeus? In *Proceedings of the BOU Conference 2006: Birds and Recreational Disturbance*. Ibis: 149(s1): 27-36.

Liley, D. & Clarke, R.T. 2003. The impact of urban development and human disturbance on the numbers of nightjar *Caprimulgus europaeus* on heathlands in Dorset, England. *Biological Conservation*, 114: 219 - 230.

Liley D. 2005. *A summary of the evidence base for disturbance effects to Annex I bird species on the Thames Basin Heaths, and research on human access patterns to heathlands in southern England*. Footprint Ecology, Wareham, Dorset.

Liley, D., Mallord, J.W., & Lobley, M. 2006a. *The "quality" of green space: Features that attract people to open spaces in the Thames Basin Heaths area*. English Nature, Peterborough.

Liley, D., Underhill-Day, J. and Squirrell, N. 2006b. *Dog-walkers on the Dorset Heaths. Analysis of questionnaire data collected by wardens on Dorset's Urban Heaths*. English Nature Research Reports, No 713. English Nature, Peterborough.

Liley, D., Clarke, R., Tyldesley, D., Underhill-Day, J. & Lowen, J. 2006c. *Evidence to support Appropriate Assessment of development plans and projects in south-east Dorset*. Footprint Ecology, Wareham, Dorset.

Mallord, J.W. 2005. *Predicting the consequences of human disturbance, urbanisation and fragmentation for a woodlark* Lullula arborea *population*. PhD Thesis, University of East Anglia, Norwich.

Mallord, J.W., Dolman, P.M., Brown, A. and Sutherland, W.J. 2007a. Quantifying density dependence in a bird population using human disturbance. *Oecologia* 153: 49–56.

Mallord, J.W., Dolman, P.M., Brown, A.F. & Sutherland, W.J. 2007b. Linking recreational disturbance to population size in a ground-nesting passerine. *Journal of Applied Ecology* 44: 185–195.

Morris, A., Burges, D., Fuller, R.J., Evans, A.D. and Smith, K.W. 1994. The status and distribution of Nightjars *Caprimulgus europaeus* in Britain in 1992. *Bird Study* 41: 181–191.

Murison, G. 2002. *The impact of human disturbance on the breeding success of nightjar* Caprimulgus europaeus *on heathlands in south Dorset, England*. English Nature Research Report 483. English Nature, Peterborough.

Murison, G. 2007. *The impact of human disturbance, urbanistation and habitat type on a Dartford warbler* Sylvia undata *population*. PhD thesis, University of East Anglia, Norwich.

Murison, G., Bullock, J.M., Underhill-Day, J., Langston, R., Brown, A.F. and Sutherland, W.J. 2007. Habitat type determines the effects of disturbance on the breeding productivity of the Dartford Warbler *Sylvia undata*. In *Proceedings of the BOU Conference 2006: Birds and Recreational Disturbance*. *Ibis* 149(s1): 16–26

National Trust. 2005. Hindhead Commons – Principal Footpaths and Tracks. National Trust, Witley, Surrey.

National Trust. Undated. *Great places to walk your dog!* Accessed from http://www.nationaltrust.org.uk/main/w-dogwalking.pdf

Nol, E. and Brooks, R.J. 1982. Effects of predator exclosures on nesting success of Killdeer. *Journal of Field Ornithology* 53: 263-268.

Pet Food Manufacturers Association. 2009. Pet ownership statistics from http://www.pfma.org.uk/overall/pet-population-figures-.htm

Scott Wilson and DCLG. 2009a. *Eco-towns: Sustainability Appraisal and Habitats Regulations Assessment of the draft Planning Policy Statement: eco-towns Statement*. DCLG, London.

Scott Wilson and DCLG. 2009b. *Eco-towns: Sustainability Appraisal and Habitats Regulations Assessment of the draft Planning Policy Statement: eco-towns Addendum*. DCLG, London.

Sharp, J. and Liley, D. 2010. *Visitor flow monitoring and analysis at Hindhead Common and the Devil's Punchbowl.* Footprint Ecology, Wareham, Dorset.

Sitter, H.P., Fuller, R.J., Hoblyn, R.A., Wright, M.T., Cowie, N. and Bowden, C.G.R. 1996. The Woodlark *Lullula arborea* in Britain: population trends, distribution and habitat occupancy. *Bird Study* 43: 172-187.

Surrey Hills AONB Board. 2009. *Surrey Hills AONB Management Plan (2009 – 2014).* Surrey Hills AONB Board.

Taylor, E. 2002. *Predation risk in woodlark* Lullula arborea*: The influence of recreational disturbance, predator abundance, nest site characteristics and temporal factors*. MSc thesis, University of East Anglia, Norwich.

Taylor, K., Anderson, P., Taylor, R., Longden, K. & Fisher, P. 2005. *Dogs, access and nature conservation*. EN Research Report 649, Peterborough.

Taylor, E.C., Green, R.E. & Perrins, J. 2007. Stone-curlews Burhinus oedicnemus and recreational disturbance: developing a management tool for access. In *Proceedings of the BOU Conference 2006: Birds and Recreational Disturbance*. *Ibis* 149(s1): 37-44.

Turner, D.C. and Meister, O. 1988. Hunting behaviour of the domestic cat. In: *The domestic cat: The biology of its behaviour*. Ed. Turner D.C. and Bateson P. Cambridge University Press.

Underhill-Day, J.C. 2005. *A literature review of urban effects on lowland heaths and their wildlife.* English Nature Research Report 624. English Nature, Peterborough.

Underhill-Day, J.C. and Liley, D. 2007. Visitor patterns on southern heaths: a review of visitor access patterns to heathlands in the UK and the relevance to Annex I bird species. In *Proceedings of the BOU Conference 2006: Birds and Recreational Disturbance*. *Ibis* 149(s1): 112-119.

Waverley Borough Council. 2006. Assessment of the Core Strategy of the Waverley Borough Local Development Framework in relation to the Special Protection Areas and Special Area of Conservation. Waverley Borough Council, Godalming.

Waverley Borough Council. 2008. *Appropriate assessment in relation to the Habitats Regulations 1994 and 2007 for the Hindhead Concept Plan*. Waverley Borough Council, Godalming, Surrey.

Waverley Borough Council. 2009. *Avoidance Strategy for Thames Basin Heaths Special Protection Area*. Adopted December 2009. Waverley Borough Council, Godalming, Surrey.

Woods, M., McDonald, R.A. and Harris, S. 2003. Predation of wildlife by domestic cats *Felis catus* in Great Britain. *Mammal Review* 33: 174-188.

Woodfield E, and Langston, R. 2004a. *Literature review on the impact of bird populations of disturbance due to human access on foot*. RSPB Research Report No.9, Sandy.

Woodfield, E. and Langston, R.H. 2004b. *A study of the effects on breeding nightjars of access on foot to heathland.* RSPB Research Report 11. RSPB Sandy.

Wotton, S. R. and S. Gillings. 2000. The status of breeding Woodlarks *Lullula arborea* in Britain in 1997. *Bird Study* 47: 212-224.

Wotton, S., Conway, G., Eaton, M., Henderson, I. and Grice, P. 2009. The status of the Dartford Warbler in the UK and the Channel Islands in 2006. *Brit. Birds* 102: 230-246

Yanes, M. and Suarez, F. 1996. Incidental nest predation and lark conservation in an Iberian semiarid shrubsteppe. *Conservation Biology* 10: 881-887

## APPENDIX 1: LIST OF PLANS, PROGRAMMES AND PROJECTS THAT MIGHT ACT IN COMBINATION

The South East Plan (final May 2009)

East Hampshire District Council Second Review Local Plan (adopted March 2006) (saved policies)

East Hampshire District Council LDF (Core Strategy Preferred Policies consultation November 2009)

Waverley Borough Local Plan 2002 (saved policies)

Waverley Borough LDF (Core Strategy consultation February 2009)

Waverley Borough Planning Infrastructure Contributions SPD (adopted 2008)

The Interim Planning Statement for Hindhead (2007)

Whitehill-Bordon Ecotown proposal

The Surrey Hills AONB Management Plan (2004-2009)

The Surrey Hills AONB Management Plan (2009-2014 draft January 2009)

A3 Hindhead dualling and tunnel, including associated habitat and public access works

The National Trust land management plan for their Hindhead estate including their response to the closure of the old A3 and the associated visitor facility improvements

**Figure 1: The distribution of Nightjar territories in 2003 to 2008**

**Figure 2: The distribution of Woodlark territories in 2003 to 2008**

**Figure 3: The distribution of Dartford Warbler territories in 2003 to 2008**

**Figure 4: National Trust land ownership, Public Rights of Way and other access routes**

**Figure 5: The new layout of the access routes after the construction of the new A3 and tunnel in the Hindhead and Tyndall's Wood area**