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# HABITATS REGULATIONS ASSESSMENT FOR THE MID SUSSEX DISTRICT PLAN

May 2012

**NATURAL** PROGRESSION

# Habitats Regulations Assessment for the Mid Sussex District Plan

May 2012

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# Contents

Executive Summary	i
E1 Introduction	i
E2 Purpose and Requirement for Habitats Regulations Assessment	i
E3 Scope of the Assessment	i
E4 Assessment of Effects	ii
E5 Conclusions	viii
Glossary of terms	x
1 Introduction	1
1.1 Background	1
1.2 Habitats Regulations Assessment	1
1.3 Guidance and Best Practice	2
1.4 The HRA Process to Date	3
1.5 Related Studies	5
1.6 Purpose and Structure of this Document	5
2 Mid Sussex and the District Plan	7
2.1 Character and Geography of the District	7
2.2 The District Plan	8
3 European Site Information	11
3.1 Introduction	11
3.2 Site Descriptions	11
3.3 Qualifying Features	12
3.4 Vulnerabilities and Opportunities	12
3.5 Conservation Objectives	14
4 Appropriate Assessment	17
4.1 Introduction	17
4.2 Review and Update of the Screening Stage	17
4.3 The Appropriate Assessment Stage	18

5	Atmospheric Pollution	21
5.1	Baseline Conditions	21
5.2	Impact Source	22
5.3	Impact Pathway	24
5.4	Avoidance and Mitigation measures designed into the Plan	27
5.5	Impact Assessment	29
5.6	Assumptions and Limitations	29
5.7	Conclusions and Recommendations	30
6	Disturbance	33
6.1	Baseline Conditions	33
6.2	Impact Source	37
6.3	Impact Pathway	37
6.4	Avoidance and Mitigation measures designed into the Plan	44
6.5	Impact Assessment	44
6.6	Assumptions and Limitations	45
6.7	Conclusions and Recommendations	46
7	Determining Effects on Site Integrity	49
7.1	Introduction	49
7.2	Ashdown Forest SAC	50
7.3	Ashdown Forest SPA	50
8	Conclusions	51
8.1	Conclusions	51
	References and Bibliography	53
	Appendix I: Favourable Condition Table for Ashdown Forest	A
	Appendix II: HRA Screening Findings	K

## List of Tables and Figures

Table 1.1: Stages in the HRA process drawing on guidance from DCLG and Natural England	4
Table 2.1: District Plan proposed policies	9
Table 3.1: Qualifying features of the Ashdown Forest SAC and SPA	12
Table 3.2: Vulnerabilities and opportunities within Ashdown Forest	14
Table 3.3: Typical species of Annex 1 habitat types present within SAC	15
Table 5.1: Critical load/level for Ashdown Forest SAC compared to actual load/level where load denotes percentage of lowest value of critical range (Source: APIS, data to 2008)	22
Table 5.4: Mitigation measures for reducing or removing atmospheric pollution effects from road traffic (Source: Transport & Travel Research, 2005)	30
Table 5.5: Monitoring and best practice measures in relation to atmospheric pollution	31
Table 6.1: Predicted additional visitor rates to Ashdown Forest SPA as a result of new development at a selection of locations (Source: Clarke et al, 2010)	39
Table 6.2: SANG estimate from Mid Sussex dwelling delivery range within 7km of the Forest	42
Table 6.3: Considerations for access management within Ashdown Forest	47
Figure 3.1: Ashdown Forest SAC/SPA in relation to Mid Sussex	13
Figure 5.1: APIS grid reference locations	23
Figure 5.2: Road network crossing Ashdown Forest	25
Figure 6.1: Cumulative percentage curve showing the proportion of car visitors to Ashdown Forest travelling from within a range of distances, in comparison to visitors to Thames Basin and Dorset Heaths (Source: Clarke et al, 2010)	40
Figure 6.2: Distances travelled to Ashdown Forest in 2008 by all respondents who gave a full post code (n=286)	40
Figure 6.3: Ashdown Forest's 7km zone of influence within Mid Sussex	41

## Abbreviations

AA	Appropriate Assessment
AADT	Annual Average Daily Traffic
FCT	Favourable Condition Table
HDV	Heavy Duty Vehicle
HRA	Habitats Regulations Assessment
IROPI	Imperative Reasons of Overriding Public Interest
keq/ha/yr	Kilograms equivalent per hectare per year
Kg/ha/yr	Kilograms per hectare per year
LDD	Local Development Document
LNR	Local Nature Reserve
NGR	National Grid Reference
NO <sub>x</sub>	Oxides of nitrogen
RSS	Regional Spatial Strategy
SAC	Special Area of Conservation
SANG	Suitable Alternative Natural Greenspace
SNCI	Site of Nature Conservation Importance
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
µgm <sup>-3</sup>	Micrograms per cubic metre

# Executive Summary

## E1 Introduction

E1.1 This report presents the findings and recommendations of the Habitats Regulations Assessment (HRA) for the Revised Draft District Plan for Mid Sussex. An HRA was prepared for the Consultation Draft District Plan in order that any potential effects of the Plan on the integrity of the Ashdown Forest Special Area of Conservation (SAC) and Special Protection Area (SPA) were known at an early stage in the process. Further work has now been progressed since that stage to identify options for avoiding any adverse effects.

E1.2 A considerable amount of work on the HRA of the Mid Sussex draft Core Strategy (the District Plan's predecessor) was carried out. Much of this work is still relevant and forms the background to this report. However the preparation of the new District Plan provides the opportunity to review and update this work. A new screening exercise has been carried out to identify more precisely which elements of the plan are likely to lead to significant effects, and then to determine whether there will be adverse effects on site integrity.

## E2 Purpose and Requirement for Habitats Regulations Assessment

E2.1 The application of Habitats Regulations Assessment to land use plans is a requirement of the Conservation of Habitats and Species Regulations 2010 (the Habitats Regulations), the UK's transposition of European Union Directive 92/43/EEC *on the conservation of natural habitats and of wild fauna and flora* (the Habitats Directive). HRA must be applied to all Local Development Documents in England and Wales and aims to assess the potential effects of the plan against the conservation objectives of any sites designated for their nature conservation importance as part of the Natura 2000 network of European sites.

E2.2 Under regulation 102 of the Habitats Regulations, the assessment must determine whether or not a plan will adversely affect the integrity of the European site(s) concerned. Where negative effects are identified, the process should consider alternatives to the proposed actions and explore mitigation opportunities, whilst adhering to the precautionary principle. A glossary of technical terms used in this summary is given towards the end.

## E3 Scope of the Assessment

E3.1 The District Plan's forerunner, the draft Core Strategy, underwent an HRA screening and scoping exercise in 2007. This revealed five designated areas potentially at risk of effects from within Mid Sussex:

- ▶ Ashdown Forest Special Area of Conservation (SAC);



- ▶ Ashdown Forest Special Protection Area (SPA);
- ▶ Castle Hill SAC;
- ▶ Lewes Downs SAC; and
- ▶ Mole Gap to Reigate Escarpment SAC.

E3.2 Castle Hill, Lewes Downs and Mole Gap to Reigate Escarpment were screened out of the assessment, largely due to their distance from the district and the low likelihood of residents travelling along roads close to the sites. Natural England concurred with these findings in its screening opinion on the plan. The screening exercise found likely significant effects on Ashdown Forest SAC/SPA as a result of disturbance and atmospheric pollution.

E3.3 Having identified likely significant disturbance and pollution effects, further work was undertaken by the Council to establish what evidence would be required to undertake the HRA. As a result, three studies were commissioned to provide information necessary to undertake the assessment and guide the planning of the area:

- ▶ *Ashdown Forest Visitor Survey Data Analysis* (Natural England Commissioned Reports, Number 048: Clarke RT, Sharp J & Liley D 2010);
- ▶ *Visitor Access Patterns on the Ashdown Forest: Recreational use and nature conservation* (UE Associates and University of Brighton, 2009); and
- ▶ *Habitats Regulations Assessment for the Mid Sussex District Council Core Strategy: Mid Sussex Air Quality Baseline Study* (UE Associates, 2008).

#### E4 Assessment of Effects

##### *Atmospheric pollution*

E4.1 Atmospheric pollution is a widespread issue, with background air quality heavily influenced by large point-source emitters including transboundary sources. Local pollutant sources are expected to affect Ashdown Forest, particularly in relation to habitats of the SAC, and especially from road traffic emissions. The Revised Draft District Plan cannot feasibly influence causes of background pollution such as large point sources but, through its distribution of development and sustainable transport measures, will affect the way in which locally emitted pollutants reach the site.

E4.2 The habitats qualifying for protection within Ashdown Forest SAC, and which are sensitive to air pollution, are European dry heaths and North Atlantic wet heaths. The main pollutant effects of interest are acid deposition and eutrophication by nitrogen deposition. The critical load or level (the level below which harm to habitats and species is not thought to occur) for each of these pollutant classes is already exceeded in parts of Ashdown Forest.

E4.3 Additional sources of these pollutants generated as a result of proposals in the District Plan should be avoided or mitigated to prevent additional adverse effects on ecological integrity, while it would be beneficial to explore opportunities to improve baseline conditions.



- E4.4 The Design Manual for Roads and Bridges (DMRB; Highways Agency, 2007) provides guidance on assessment of the impact that road projects may have on local air quality. Specific provision is made in relation to sites designated under the Habitats Directive. In this instance the assessment is in relation to existing, as opposed to new roads, however the guidance clarifies that *'where appropriate, the advice may be applied to existing roads'*. In accordance with this guidance, and with agreement from Natural England, the HRA examines whether there is a likely significant effect using the DMRB guidance. The criteria for defining such an effect include where:
- ▶ Daily traffic flows will change by 1,000 or more movements a day; or
  - ▶ Heavy Duty Vehicle flows will change by 200 or more movements a day.
- E4.5 Mid Sussex District Council commissioned Amey Transport Consultants to carry out the Mid Sussex Transport Study (May 2012) in order to assess and understand the transport impacts of its policies and proposals in the Revised Draft District Plan. The draft findings show that the maximum two-way AADT flow increase on A275 in 2021, will be 179 vehicles in the scenario without remedial transport interventions and 100 vehicles with transport interventions. Similarly the maximum two way AADT flow on A275 in 2031 will be 417 vehicles (without remedial transport interventions) and 358 (with transport interventions). The interventions are described in the Transport Study.
- E4.6 The Revised Draft District Plan contains measures to promote sustainable transport over the plan period, including measures relating to existing development, and additional actions to assess and manage air pollution. These are intended to improve the overall sustainability of the district and will also reduce the traffic emissions from proposed development, including along roads passing through or close to Ashdown Forest. The measures include:

#### Summary of District Plan measures relating to atmospheric pollution

##### DP18 Transport:

Development will be required to support the objectives of the West Sussex Local Transport Plan, which are:

- a high quality transport network that promotes a competitive and prosperous economy;
- a resilient transport network that complements the built and natural environment whilst reducing carbon emissions over time;
- access to services, employment and housing; and
- a transport network that feels, and is, safer and healthier to use

To meet these objectives at a local level, development will only be permitted where:

- it is sustainably located to minimise the need for travel;
- it facilitates and promotes the increased use of alternative modes of transport to the private car, such as the provision of safe and convenient routes for walking, cycling and public transport;
- does not cause an unacceptable impact in terms of road safety and increased traffic congestion;
- is designed to adoptable standards, or other standards as agreed by the Local Planning Authority, including road widths and size of car parking space and size of garages; and
- provides adequate car parking for the proposed development in accordance with parking

standards as agreed by the Local Planning Authority.

Neighbourhood Plans can set local standards for car parking provision provided that it is justified by evidence.

Where practical developments should be located and designed to incorporate facilities for charging plug-in and other ultra-low emission vehicles.

Depending on the size of and the likely transport impact of development, a Transport Statement or Transport Assessment will be submitted alongside planning applications.

DP26 Noise, air and light pollution:

The environment, including nationally designated environmental sites; areas of nature conservation or geological interest and the quality of people's life will be protected from unacceptable levels of noise, light and air pollution by only permitting development where:

Noise pollution:

- Development is designed, located and controlled to minimise the impact of noise on health and quality of life, neighbouring properties and the surrounding area;
- Developments likely to generate significant levels of noise incorporates appropriate noise attenuation measures;
- Noise sensitive development is not permitted in close proximity to existing or proposed development generating high levels of noise unless adequate sound insulation measures are incorporated within the development;
- Requiring (where appropriate), the applicant to provide an assessment of the impact of noise generated by a proposed development
- Requiring (where appropriate), the applicant to provide an assessment of the effect of noise by an existing noise source upon a proposed development;

Light pollution:

- The impact on local amenity, intrinsically dark landscapes and nature conservation areas of artificial lighting proposals including floodlighting, is minimised, in terms of intensity and number of fittings;
- The applicant can demonstrate good design including fittings to restrict emissions from proposed lighting schemes.

Air Pollution:

- Development which does not cause unacceptable levels of air pollution;
- Development on land adjacent to an existing use which generates air pollution or odour where this can be mitigated to reduce exposure to poor air quality and/or would not cause any adverse effects on the proposed development;
- The potential impacts of new development and increased traffic levels on internationally designated conservation sites should be provided by the applicant including adopting necessary avoidance or mitigation measures to address these impacts (see policy DP12 Ashdown Forest Special Area of Conservation and Special Protection Area');
- Development proposals (where appropriate) are consistent with Air Quality Management Plans.

DP13 Ashdown Forest SAC/SPA:

In order to prevent adverse effects on the Ashdown Forest SAC and SPA, the Council will work with partners to develop a strategic approach to protecting from recreational pressures. The following provisions will apply:

- 1) Development will not be permitted within a 400 metres buffer zone around the Ashdown Forest;
- 2) Within a 7 km buffer zone around the Ashdown Forest, all development leading to a net increase

in dwellings will be required to contribute to:

- the provision of Suitable Alternative Natural Green Space (SANGs) to the level of 8ha per 1,000 net increase in population (in the form of providing SANGs, or in the form of financial contributions to SANGs elsewhere); and
- the Ashdown Forest Access Management and Monitoring Strategy which will be prepared in association with the Conservators of the Ashdown Forest, Natural England and Wealden DC.

E4.7 Given that the traffic modelling results indicate that adverse effects are unlikely, no further measures are necessary. However, where opportunities exist, it would be good practice to promote the preparation of travel plans, car free developments, and lower parking standards where practical.

#### *Disturbance*

E4.8 The bird species afforded protection by Ashdown Forest SPA are Dartford warbler and nightjar. The Forest supports approximately 2.1% and 1.1% of the UK's breeding population of these species, respectively; disturbance is expected to affect the SPA more than the SAC. Woodlark is also present in qualifying numbers but is not listed as a qualifying feature of the SPA. Many visitors to the Forest originate from the surrounding area, and increases in the number of homes around the Forest may compound the effects of disturbance from recreation of these birds of European importance.

E4.9 The findings of a visitor survey in 2008 found that Ashdown Forest attracts upwards of 1.3 million visitors each year. It also found that 60% of people interviewed during the survey visited for the primary purpose of walking the dog, while a further 30% visited to go for a walk. The potential effects of disturbance to ground and near-ground nesting breeding birds are described in the main draft report by reference to numerous studies in a range of locations. Summarising this literature review, potential impacts can be described as follows:

- ▶ Increased nest predation by natural predators when adults are flushed from the nest or deterred from returning to it by the presence of people or dogs;
- ▶ Chicks or eggs dying of exposure because adult birds are kept away from the nest;
- ▶ Accidental trampling of eggs by people, given that (nightjar and woodlark) nests are on the ground and may be close to paths;
- ▶ Predation of chicks or eggs by domestic dogs; and
- ▶ Increasing stress levels in adult birds in response to perceived predation risk.

E4.10 A statistical model of visiting rates of pedestrian and car visitors was developed, taking into account observed visitor rates from the 2008 field survey, the residential density of nearby areas, and car park size. The model can be used to predict the number of additional visitors to each access point, and therefore the whole Forest, arising from the proposed development of a specific number of dwellings in defined areas. The model provides a means to directly compare the consequences of development (in terms of increased SPA visitor numbers) at a potential development location. Accordingly, 100 new dwellings at Crowborough, in close proximity to parts of the SPA, is predicted to lead to 12.2 extra visitors per 16 hours, in

contrast to 5.1 extra visitors for an equivalent number of dwellings at East Grinstead, further away from the Forest.

E4.11 Following consultations with Natural England, a 7km zone of influence around Ashdown Forest was established. This is the area within which the majority (83%) of regular visitors to the Forest originate, and therefore where measures targeted at reducing pressure on the Forest would be most effective. Suitable Alternative Natural Greenspaces (SANG) are an example of such a measure. SANGs are sites that cater for the recreational needs of communities in order to reduce the likelihood of increasing visitor pressure and disturbance on important nature conservation areas, and should be supported by access management measures within Ashdown Forest itself. Natural England has stated that 8ha of SANG should be provided for every 1,000 increase in population (or part thereof) within this zone, in line with the Thames Basin Heaths approach to avoiding adverse effects on the site.

E4.12 SANGs are characterised by a number of factors, as defined by Natural England:

- ▶ For SANGs larger than 4ha there must be adequate parking for visitors, unless the site is intended for local use, i.e. within easy walking distance (400m) of the developments linked to it. The amount of car parking space should be determined by the anticipated use of the site and reflect the visitor catchment of both the SANG and the SPA.
- ▶ It should be possible to complete a circular walk of 2.3-2.5km around the SANG.
- ▶ Car parks must be easily and safely accessible by car and should be clearly sign posted.
- ▶ The accessibility of the site must include access points appropriate for the particular visitor use the SANG is intended to cater for.
- ▶ The SANG must have a safe route of access on foot from the nearest car park and/or footpath/s.
- ▶ All SANGs with car parks must have a circular walk which starts and finishes at the car park.
- ▶ SANGs must be designed so that they are perceived to be safe by users; they must not have tree and scrub cover along parts of the walking routes.
- ▶ Paths must be easily used and well maintained but most should remain unsurfaced to avoid the site becoming too urban in feel.
- ▶ SANGs must be perceived as semi-natural spaces with little intrusion of artificial structures, except in the immediate vicinity of car parks. Visually-sensitive way-markers and some benches are acceptable.
- ▶ All SANGs larger than 12ha must aim to provide a variety of habitats for users to experience. Access within the SANG must be largely unrestricted with plenty of space provided where it is possible for dogs to exercise freely and safely off lead.
- ▶ SANGs must be free from unpleasant intrusions (e.g. sewage treatment works smells).
- ▶ SANGs should be clearly sign-posted or advertised in some way.

- ▶ SANGs should have leaflets and/or websites advertising their location to potential users. It would be desirable for leaflets to be distributed to new homes in the area and be made available at entrance points and car parks.
- ▶ It would be desirable for an owner to be able to take dogs from the car park to the SANG safely off the lead.
- ▶ Where possible it is desirable to choose sites with a gently undulating topography for SANG.
- ▶ It is desirable for access points to have signage outlining the layout of the SANG and the routes available to visitors.
- ▶ It is desirable that SANGs provide a naturalistic space with areas of open (non-wooded) countryside and areas of dense and scattered trees and shrubs. The provision of open water on part, but not the majority of sites is desirable.
- ▶ Where possible it is desirable to have a focal point such as a view point or monument within the SANG.

E4.13 The Revised Draft Mid Sussex District Plan sets out a housing requirement for the District based on the Local Housing Assessment which identifies a need for 10,600 homes to be built between 2011 and 2031. This requirement will be delivered through strategic development at Burgess Hill (outside of the 7km zone of influence) and through Neighbourhood Plans. The majority of towns and parishes in the District are committed to preparing their own Neighbourhood Plan. It is estimated from Neighbourhood Plans and the Council's housing land supply information that a range of between 200 and 500 homes could be delivered within the 7km zone around the Ashdown Forest over the plan period.

E4.14 Within Mid Sussex, the options for creating SANG could include existing open space of SANG quality currently without public access, open space which is already accessible but which could be improved to perform better as SANG, or land in other uses which could be converted to SANG. In order to facilitate the delivery of SANG, developer contributions will need to be collected within the 7km zone of influence. The most likely vehicle for this is the Community Infrastructure Levy (CIL). The sum of contributions for SANG within Mid Sussex will firstly be determined by the preferred option for delivering SANG. The evidence base for establishing and justifying the sum needs to be robust and informed by (i) estimations of the likely increase in population within the zone of influence, (ii) a detailed and costed programme of works to establish the SANG, and (iii) costs for long term management and maintenance of the site as SANG.

E4.15 The Revised Draft District Plan contains measures to establish an avoidance and mitigation strategy to prevent adverse effects on the Ashdown Forest SPA through the provision of Suitable Alternative Natural Greenspace (SANG) sites and onsite management measures on the Forest itself. The Council is also carrying out work on its Community Infrastructure Levy Charging Schedule and Infrastructure Delivery Plan to bring these measures forward.

E4.16 The deliverability and viability of providing SANGs within Mid Sussex, and the best means of funding them have also been explored. Potential examples of sites within the 7km zone that could function as a SANG include:

- ▶ Ashplats Wood on the north-eastern fringe of East Grinstead: c. 26ha;
- ▶ Gravetye Woods in the north of the District near West Hoathly: c. 251ha; and
- ▶ Imberhorne Farm on the western fringe of East Grinstead: c. 122 ha.

E4.17 The Council will need to decide which of these options best suits the District's needs and is likely to be most deliverable. Further details on the characteristics of these sites and what measures would be required for the sites to function as SANGs is set out in paragraph 6.1.19 of the main report. Additionally, visitor surveys will be required to establish the existing use of the chosen site(s) so that this can be discounted from its capacity to absorb new visits. Additional or alternative sites may come through Neighbourhood Plans. But it is clear that, within the 7km zone, land is available to help offset the effects of new housing development within 7km zone.

E4.18 The policy measures included within the plan are:

#### Summary of District Plan measures relating to disturbance

##### DP13 Ashdown Forest SAC/SPA:

In order to prevent adverse effects on the Ashdown Forest SAC and SPA, the Council will work with partners to develop a strategic approach to protecting from recreational pressures. The following provisions will apply:

- 1) Development will not be permitted within a 400 metres buffer zone around the Ashdown Forest;
- 2) Within a 7 km buffer zone around the Ashdown Forest, all development leading to a net increase in dwellings will be required to contribute to:
  - the provision of Suitable Alternative Natural Green Space (SANGs) to the level of 8ha per 1,000 net increase in population (in the form of providing SANGs, or in the form of financial contributions to SANGs elsewhere); and
  - the Ashdown Forest Access Management and Monitoring Strategy which will be prepared in association with the Conservators of the Ashdown Forest, Natural England and Wealden DC.

## E5 Conclusions

E5.1 The HRA Report establishes the nature and severity of effects on the ecological integrity of Ashdown Forest and assesses the avoidance and mitigation measures put forward within the Revised Draft District Plan. It has informed the development of the District Plan, drawing on the information that is currently available, and provides recommendations for additional monitoring measures to help ensure that adverse effects on the European sites can be avoided.

- E5.2 In conclusion, in relation to the SAC, modelling of the traffic impacts of the Revised Draft District Plan has shown that predicted traffic increases are not sufficiently large to adversely affect the designated heathland habitats.
- E5.3 In relation to the SPA, the HRA concludes that measures to avoid or mitigate the adverse effects of increasing recreational pressure are capable of being delivered, and thus no adverse effects on integrity are expected. Potential sites to be brought forward for use as SANG are identified, and these are of sufficient size to accommodate the additional recreational pressure expected to result from the likely number of homes to be developed within the 7km zone of influence. Furthermore, the Revised Draft District Plan commits to the development of an Access Management and Monitoring Strategy for delivery within Ashdown Forest.

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## Glossary of terms

**Acid deposition:** caused by oxides of nitrogen (NO<sub>x</sub>) (or sulphur dioxide) reacting with rain/cloudwater to form nitric (or sulphuric) acid, and is caused primarily by energy generation, as well as road traffic and industrial combustion.

**Avoidance and mitigation measures:** Avoidance measures which aim to avoid the occurrence of adverse effects on protected sites. Mitigation measures aim to reduce the severity of adverse effects and/or manage adverse effects in a way that lessens their impact.

**Background air quality:** A baseline measure of air quality conditions, within which existing local pollutant sources and transboundary sources are already represented.

**Integrity:** Ecological integrity can be defined as (ODPM, 2005): *"The integrity of a site is the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified."*

**Local pollutant sources:** Locally sources of pollution emissions, for example linear sources such as roads or point sources such as chimneys, but which directly affect local air quality.

**Modal split:** The percentage share of total journeys made that each mode of transport experiences. Modes include car, taxi, bus, train, cycling and walking. Sustainable transport policies aim to encourage modal shift whereby more sustainable forms of transport become more popular, and less sustainable modes become less popular.

**Nitrogen deposition:** consists of the input of nitrogen from NO<sub>x</sub> (and sometimes ammonia) emissions by deposition, and is caused primarily by road traffic, as well as energy generation, industrial combustion and agricultural practices. Nitrogen deposition leads to nutrient enrichment (eutrophication) and toxic damage to vegetation.

**Point source emitters:** Can be either large or small sources of pollution from a fixed point such as a chimney, as opposed to linear source such as a road. Emissions from large point sources, such as a power station, can travel long distances and affect background air quality over wide areas, and can include transboundary effects (i.e. crossing intra- or international administrative boundaries).

**Precautionary Principle:** The European Commission (2000a) describes the principle as: *"If a preliminary scientific evaluation shows that there are reasonable grounds for concern that a particular activity might lead to damaging effects on the environment... decision-makers then have to determine ... the potential consequences of taking no action, the uncertainties inherent in the scientific evaluation, and ... possible ways of managing the risk."* (See also section 1.2 of the main report.)

**Process contribution:** The contribution of a proposed process to air pollution. A process may be an industrial or combusive process, or a proposal which effects a change in traffic flow for example.

**SAC:** Special Areas of Conservation are strictly protected sites designated under European Union Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive). SACs make a significant contribution to conserving the 189 habitat types and 788 species identified in Annexes I and II of the Directive (as amended). The listed habitat types and species are those considered to be most in need of conservation at a European level (excluding birds).

**SPA:** Special Protection Areas are strictly protected sites classified in accordance with Article 4 of European Union Directive 2009/147/EC on the conservation of wild birds (the Birds Directive). They are classified for rare and vulnerable birds (as listed on Annex I of the Directive), and for regularly occurring migratory species.

# 1 Introduction

## 1.1 Background

1.1.1 This report presents the findings and recommendations of the Habitats Regulations Assessment (HRA) for the Revised Draft District Plan for Mid Sussex. An HRA was prepared for the Consultation Draft District Plan in order that any potential effects of the Plan on the integrity of the Ashdown Forest Special Area of Conservation (SAC) and Special Protection Area (SPA) were known at an early stage in the process. Further work has now been progressed since that stage to identify options for avoiding any adverse effects.

1.1.2 A considerable amount of work on the HRA of the Mid Sussex draft Core Strategy (the District Plan's predecessor) was carried out. Much of this work is still relevant and forms the background to this report. However the preparation of the new District Plan provides the opportunity to review and update this work. A new screening exercise has been carried out to identify more precisely which elements of the plan are likely to lead to significant effects, and then to determine whether there will be adverse effects on site integrity.

## 1.2 Habitats Regulations Assessment

1.2.1 The application of Habitats Regulations Assessment to land use plans is a requirement of the Conservation of Habitats and Species Regulations 2010 (the Habitats Regulations), the UK's transposition of European Union Directive 92/43/EEC *on the conservation of natural habitats and of wild fauna and flora* (the Habitats Directive). HRA must be applied to all Local Development Documents (LDD) in England and Wales and aims to assess the potential effects of the plan against the conservation objectives of any sites designated for their nature conservation importance as part of a system known collectively as the Natura 2000 network of European sites.

1.2.2 European sites provide ecological infrastructure for the protection of rare, endangered or vulnerable natural habitats and species of exceptional importance within the European Union. These sites consist of Special Areas of Conservation (SACs, designated under the Habitats Directive) and Special Protection Areas (SPAs, designated under European Union Directive 2009/147/EC *on the conservation of wild birds* (the Birds Directive)). Meanwhile, Government policy and Circular 06/05 (ODPM, 2005)) recommends that Ramsar sites (UNESCO, 1971) are treated as if they are fully designated European sites for the purposes of considering development proposals that may affect them.

1.2.3 Under regulation 102 of the Habitats Regulations, the assessment must determine whether or not a plan will adversely affect the integrity of the European site(s) concerned. Where negative effects are identified, the process should consider alternatives to the proposed actions and explore mitigation opportunities, whilst adhering to the precautionary principle. The European Commission (2000a) describes the principle as follows:

*If a preliminary scientific evaluation shows that there are reasonable grounds for concern that a particular activity might lead to damaging effects on the environment, or on human, animal or plant health, which would be inconsistent with the protection normally afforded to these within the European Community, the Precautionary Principle is triggered.*

*Decision-makers then have to determine what action to take. They should take account of the potential consequences of taking no action, the uncertainties inherent in the scientific evaluation, and they should consult interested parties on the possible ways of managing the risk. Measures should be proportionate to the level of risk, and to the desired level of protection. They should be provisional in nature pending the availability of more reliable scientific data.*

*Action is then undertaken to obtain further information enabling a more objective assessment of the risk. The measures taken to manage the risk should be maintained so long as the scientific information remains inconclusive and the risk unacceptable.*

- 1.2.4 The hierarchy of intervention is important: where significant effects are likely or uncertain, plan makers must firstly seek to avoid the effect, for example, through a change of policy. If this is not possible, mitigation measures should be explored to remove or reduce the effect. If neither avoidance, nor subsequent mitigation is possible, alternatives to the plan should be considered. Such alternatives should explore ways of achieving the plan's objectives that avoid significant effects entirely. If there are no alternatives suitable for removing an adverse effect, plan-makers must demonstrate, under the conditions of Regulation 103 of the Habitats Regulations, that there are Imperative Reasons of Overriding Public Interest (IROPI) to continue with the proposal. This is widely perceived as an undesirable position and should be avoided if at all possible.

### 1.3 Guidance and Best Practice

- 1.3.1 Guidance on Habitats Regulations Assessment has been published in draft form by the Government (Department for Communities and Local Government (DCLG), 2006). This draws on advice from a range of experts as well as European Union guidance regarding methodology for Appropriate Assessment of plans (European Commission, 2001).
- 1.3.2 The guidance recognises that there is no statutory method for undertaking Habitats Regulations Assessment and that the adopted method must be *appropriate* to its purpose under the Habitats Directive and Regulations; this concept is one of the reasons why HRA is also often referred to as Appropriate Assessment (AA).

1.3.3 The guidance identifies three stages to the HRA process:

- ▶ AA1: Likely Significant Effects (Screening)
- ▶ AA2: Appropriate Assessment and Ascertaining the Effect on Integrity
- ▶ AA3: Mitigation Measures and Alternative Solutions

1.3.4 Where stage AA3 cannot produce alternative solutions or mitigation to remove or reduce adverse effects to insignificant levels, there may be a need to explore Imperative Reasons of Overriding Public Interest. This is discouraged by DCLG and will only apply in exceptional circumstances. The three stages collectively make up Habitats Regulations Assessment, while Stage AA2 is the point at which Appropriate Assessment of the plan is carried out if the evidence points to a need for such an assessment.

1.3.5 Natural England has produced more prescriptive draft guidance on the assessment of Local Development Documents under the provisions of the Habitats Regulations (Tyldesley, 2009). This introduces the concept of a stepped approach to the assessment process and fits within the framework of the three stages identified by DCLG. Whilst the guidance is draft it nevertheless provides a helpful approach to HRA and is followed within this report. Table 1.1 illustrates how the two approaches (DCLG and Natural England) can be operated as one integrated methodology to achieve the same outcome from each approach.

1.4 The HRA Process to Date

1.4.1 The District Plan's forerunner, the draft Core Strategy, underwent an HRA screening and scoping exercise in late 2007 and early 2008 using a previous version of the Natural England guidance. This revealed five designated areas potentially at risk of effects from the Plan:

- ▶ Ashdown Forest SAC;
- ▶ Ashdown Forest SPA;
- ▶ Castle Hill SAC;
- ▶ Lewes Downs SAC; and
- ▶ Mole Gap to Reigate Escarpment SAC.

1.4.2 Castle Hill, Lewes Downs and Mole Gap to Reigate Escarpment were screened out of the assessment, largely due to their distance from the district and the low likelihood of residents travelling along roads close to the sites. Natural England (2008) concurred with these findings in its screening opinion on the Core Strategy. Acknowledging that the plan is not necessary to the management of any European site, the screening exercise found likely significant effects on Ashdown Forest SAC/SPA as a result of disturbance and atmospheric pollution.

Table 1.1: Stages in the HRA process drawing on guidance from DCLG and Natural England

DCLG Stage	Natural England (Tyldesley) Steps	
AA1: Likely significant effects	1. Gather the evidence base about international sites.	
	2. Consult Natural England and other stakeholders on the method for HRA and sites to be included.	
	3. Screen elements of the plans for likelihood of significant effects.	
	4. Eliminate likely significant effects by amending the plan / option.	
	5. Consult Natural England and other stakeholders on the findings of the screening stage, and scope of the Appropriate Assessment if required.	
AA2: Appropriate Assessment and ascertaining the effect on integrity	6. Appropriate Assessment of elements of the plan likely to have significant effects on a European site.	8. Assess additions and changes to the plan and prepare draft HRA record.
AA3: Mitigation measures and alternative solutions	7. Amend the plan / option or take other action to avoid any adverse effect on integrity of European site(s).	9. Complete the draft Appropriate Assessment and draft HRA record.
Reporting and recording	10. Submit draft HRA and supporting documents to Natural England.	
	11. Consult Natural England, other stakeholders and the public (if suitable).	
	12. Publish final HRA record and submit with Natural England letter to Inspector for Examination.	
	13. Respond to any representations relating to the HRA and to Inspector's questions.	
	14. Check changes to the plan, complete HRA record and establish any monitoring required.	

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- 1.4.3 Disturbance is expected to result from increasing recreational activity on the Forest as a consequence of the Revised Draft District Plan's residential allocations and related population growth. Atmospheric pollution is a potential result of residential, employment and retail allocations and their associated traffic movements. Residential development is expected to be the greatest contributor, particularly at locations such as East Grinstead where increased traffic movements on roads across, or within 200m of the Forest are likely.
- 1.4.4 Previous work carried out in support of the Mid Sussex draft Core Strategy has been used in the production of this HRA report. Baseline studies for the extent of atmospheric pollution and visitor activity within Ashdown Forest (November 2008 and September 2009) and technical notes (most recently in December 2009) to inform strategic spatial planning decisions were produced as the District Plan's predecessor evolved.

- 1.4.5 Throughout this time, several meetings were held with Natural England and other nature conservation bodies (including Environment Agency, RSPB and Conservators of Ashdown Forest) to ensure the studies were fit for purpose, based on appropriate data, and led to the necessary preparation of avoidance and mitigation measures to ensure the Core Strategy could be delivered without adverse effects on the ecological integrity of the Forest's heathlands or Annex 1 birds.

## 1.5 Related Studies

- 1.5.1 Having identified likely significant air pollution and recreational disturbance effects during the screening stage, further work was undertaken by the Council to establish what evidence would be required to undertake the HRA.
- 1.5.2 Two baseline studies were undertaken during summer and autumn 2008 to provide information necessary to undertake the assessment and guide the planning of the area, with further work carried out by Natural England in 2010. These were:
- ▶ *Ashdown Forest Visitor Survey Data Analysis* (Natural England Commissioned Reports, Number 048: Clarke RT, Sharp J & Liley D 2010);
  - ▶ *Visitor Access Patterns on the Ashdown Forest: Recreational use and nature conservation* (UE Associates and University of Brighton, 2009); and
  - ▶ *Habitats Regulations Assessment for the Mid Sussex District Council Core Strategy: Mid Sussex Air Quality Baseline Study* (UE Associates, 2008).

## 1.6 Purpose and Structure of this Document

- 1.6.1 This report documents the process, findings and recommendations of HRA stages AA2 and AA3 as described in the DCLG (2006) guidance. It reviews and updates work carried out for the draft Core Strategy (the District Plan's predecessor), and identifies, analyses and quantifies (where possible) potential negative impacts on the European sites in question, to determine their effects on site integrity.
- 1.6.2 It presents measures to avoid or reduce these effects to the point at which they are no longer significant, either alone or in combination with other plans and projects. The remaining sections of the report are as follows:
- ▶ Chapter Two: gives an overview of the district and introduces the District Plan;
  - ▶ Chapter Three: identifies the European sites which are receptors of the plan's likely significant effects, together with ecological information about these sites;
  - ▶ Chapter Four: reviews and updates the screening stage of HRA. It introduces the Appropriate Assessment stage and describes how to interpret it;
  - ▶ Chapters Five and Six: describe the findings of the assessment, in relation to atmospheric pollution and disturbance from recreation respectively, and introduce avoidance and mitigation measures;

- ▶ Chapter Seven: illustrates the outcomes of the HRA process by applying avoidance and mitigation measures to the identified effects on each site to determine whether there will be adverse effects on integrity; and
- ▶ Chapter Eight: concludes the document.

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## 2 Mid Sussex and the District Plan

### 2.1 Character and Geography of the District

- 2.1.1 Mid Sussex is located within the County of West Sussex. It lies on the eastern edge of the County and shares boundaries with the Lewes and Wealden Districts in East Sussex to the east, Tandridge District in Surrey to the north, the city of Brighton and Hove to the south, Horsham District to the west and Crawley Borough to the north-west. Mid Sussex covers an area of some 33,152 hectares (approximately 128 square miles) and includes the three main towns of East Grinstead, Burgess Hill and Haywards Heath, set within a predominantly rural area with scattered villages and hamlets. Major road and rail links are features of the district bisecting the different areas and providing excellent accessibility to a variety of destinations, though generally speaking the north-south routes within the district are of better quality than the east-west routes. Gatwick airport lies just to the north-west of Mid Sussex and has an important influence on the district, attracting businesses, residents and visitors to the area.
- 2.1.2 Office for National Statistics data<sup>1</sup> (mid-year population estimate June 2010, and total dwelling stock April 2010) shows that approximately 132,500 people live in 57,070 households giving an average dwelling occupancy of 2.32 persons per household. By comparison, in 1981 the population was 112,941 and the number of homes 40,417 (2.79 persons per household). These changes are the result of decreasing household sizes, the district's popularity as a place to live and its convenient location as a commuting zone for both London and the south coast. Some 60% of the current population live in the three main towns, with the remaining 40% living in the smaller villages and rural areas. The district has a reasonably balanced population in terms of age and gender, although there are fewer young adults and more middle-aged and elderly inhabitants than the national average.
- 2.1.3 The district represents three national landscape character areas (the High Weald, the Low Weald and the South Downs), while the Landscape Character Assessment for Mid Sussex identifies ten distinct character areas, each with specific land management and planning guidelines. Approximately 60% of the district is covered by nationally protected landscape designations, making it one of the most highly designated administrative areas in England; the High Weald Area of Outstanding Natural Beauty (AONB) and South Downs National Park are two higher-profile designations.
- 2.1.4 The district also has 13 Sites of Special Scientific Interest (SSSI), 50 Sites of Nature Conservation Importance (SNCI), and six Local Nature Reserves (LNR), and is the tenth most wooded district in the south east. Two thirds of its woodland is classified as ancient, which covers 16% of the district's area. Ashdown Forest SAC/SPA lies to the east of the north of the District, south and south-east of East Grinstead.

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<sup>1</sup> Online at: <http://neighbourhood.statistics.gov.uk> [Accessed 25/7/11]

## 2.2 The District Plan

2.2.1 In June 2010, the Council halted work on its draft Core Strategy following the Government's announcement of its intention to make changes to the planning system, including the abolition of the regional spatial strategies. In April 2011, the Council agreed a timetable for the preparation of the District Plan, which will provide the overall planning policy framework for Mid Sussex for the next 20 years. The Council also commenced work on a Local Housing Assessment for Mid Sussex in June 2011, which identifies the potential future housing need in the District up to 2031. The findings of the Local Housing Assessment will be used to inform policy choices made during within the District Plan.

2.2.2 The District Plan will:

- ▶ Put in place the overall planning framework for Mid Sussex with a coherent set of policies to protect and enhance the distinctive character of the District and its towns and villages for the next 20 years;
- ▶ Encourage local communities to develop 'bottom up' neighbourhood plans; and
- ▶ Set out the Council's infrastructure needs and requirements in the Plan and ensure the necessary work on the Community Infrastructure Levy is completed in line with the Council's timetable.

2.2.3 The plan is based on the vision for the district set out in the *Mid Sussex Sustainable Communities Strategy 2008-18*:

*A thriving and attractive District, a desirable place to live, work and visit. Our aim is to maintain, and where possible, improve the social, economic and environmental well being of our District and the quality of life for all, now and in the future.*

2.2.4 The vision is underpinned by four priority themes that promote the development of sustainable communities:

- ▶ Protecting and enhancing the environment;
- ▶ Promoting economic vitality;
- ▶ Ensuring cohesive and safe communities; and
- ▶ Supporting healthy lifestyles.

2.2.5 The District Plan is supported by a wide range of evidence studies, one of which is the Local Housing Assessment. On the basis of this assessment of housing needs, the housing strategy identifies an overall target of 10,600 homes to be built between 2011 and 2031. Of these:

- ▶ Approximately 4,300 dwellings are already committed (i.e. either already allocated through the Mid Sussex Local Plan or the Small Scale Housing Allocations Document, or already granted planning permission but not yet implemented);
- ▶ Around 3,500-4,000 dwellings will come forward through strategic development at the north and east of Burgess Hill; and

- ▶ Approximately 2,300-2,800 dwellings will need to be delivered elsewhere in the district, the distribution of which is to be defined through forthcoming Neighbourhood Plans if possible.

2.2.6 If it appears that development will not be delivered through Neighbourhood Plans, then the Council will need to consider producing its own allocations document. The timely provision of necessary infrastructure is essential to the success of sustainable development. The Council will introduce a Community Infrastructure Levy to fund this infrastructure and has consulted on a Community Infrastructure Levy Charging Schedule and Infrastructure Development Plan.

2.2.7 The Revised Draft District Plan's policy proposals are listed in Table 2.1.

Table 2.1: District Plan proposed policies

Policy title	
Quantity and type of development	
DP1	Economic development
DP2	Town centre development
DP3	Village and Neighbourhood Centre development
DP4	Housing
DP5	General principles at Burgess Hill
DP6	Strategic allocation to the east of Burgess Hill at Kings Way
DP7	Strategic allocation to the north and northwest of Burgess Hill
Development in the countryside	
DP8	Protection and enhancement of countryside
DP9	Preventing coalescence
DP10	Sustainable rural development and the rural economy
DP11	New homes in the countryside
DP12	High Weald Area of Outstanding Natural Beauty
DP13	Ashdown Forest Special Area of Conservation and Special Protection Area
DP14	South Downs National Park
DP15	Setting of the South Downs National Park
DP16	Sustainable tourism
Delivery of infrastructure	
DP17	Securing infrastructure
DP18	Transport
DP19	Rights of Way
DP20	Communication infrastructure

DP21	Leisure and cultural activities and facilities
DP22	Community facilities and local services
Nature and quality of development – design	
DP23	Character and design
DP24	Space standards
DP25	Accessibility
DP26	Noise, air and light pollution
Nature and quality of development – housing	
DP27	Housing mix
DP28	Affordable housing
DP29	Rural exception sites
DP30	Gypsy and travellers
Nature and quality of development – historic environment	
DP31	Listed Buildings and other buildings of merit
DP32	Conservation Areas
DP33	Historic Parks and Gardens
DP34	Archaeological sites
Nature and quality of development – natural resources	
DP35	Biodiversity
DP36	Green infrastructure
DP37	Sustainable resources
DP38	Renewable energy in new developments
DP39	Renewable energy schemes
DP40	Flood risk
DP41	Water infrastructure and the water environment

## 3 European Site Information

### 3.1 Introduction

- 3.1.1 In accordance with Natural England's screening opinion, the assessment focuses on Ashdown Forest SAC/SPA; see Figure 3.1. These designations are described in the following sections. Chapter 4 goes on to re-screen the Revised Draft District Plan on the basis of this information.

### 3.2 Site Descriptions

- 3.2.1 An ecological description of Ashdown Forest is given in Box 1 below.

#### Box 1: Site descriptions

##### *Special Area of Conservation interest*

Ashdown Forest contains one of the largest single continuous blocks of lowland heath in south-east England, with both European dry heaths and, in a larger proportion, North Atlantic wet heath.

The dry heath in Ashdown Forest is an extensive example of the south-eastern *Calluna vulgaris* – *Ulex minor* community. This vegetation type is dominated by heather *Calluna vulgaris*, bell heather *Erica cinerea* and dwarf gorse *Ulex minor*, with transitions to other habitats. It supports important lichen assemblages, including species such as *Pycnothelia papillaria*. This site supports the most inland remaining population of hairy greenweed *Genista pilosa* in Britain.

The *Erica tetralix* – *Sphagnum compactum* wet heath element provides suitable conditions for several species of bog-mosses *Sphagnum* spp., bog asphodel *Narthecium ossifragum*, deergrass *Trichophorum cespitosum*, common cotton-grass *Eriophorum angustifolium*, marsh gentian *Gentiana pneumonanthe* and marsh clubmoss *Lycopodiella inundata*. The site supports important assemblages of beetles, dragonflies, damselflies and butterflies, including the nationally rare silver-studded blue *Plebejus argus*.

The site also supports a significant presence of great crested newt *Triturus cristatus*, although this is not a primary reason for site selection.

##### *Special Protection Area interest*

Ashdown Forest is located in the High Weald of East Sussex in south-east England, where valley mires, heath and damp woodland have developed on soils derived from Hastings Sands (Lower Cretaceous). Once a royal hunting forest, reduced grazing has resulted in the accelerated development of woodland and encroachment of bracken *Pteridium aquilinum* over former heath. Nevertheless, some fine examples of heathland habitats remain, with humid or wet heath predominating (around 45% cover), dominated by heather, bell heather and cross-leaved heath *E. tetralix* in the dampest conditions. Where drier heaths occur (around 15% cover) they are dominated by heather in association with gorse *Ulex europaeus* and dwarf gorse. Streamsides and mires add further variety (around 5% cover), with *Sphagnum* mosses, cottongrass *Eriophorum* sp., bog asphodel and round-leaved sundew *Drosera rotundifolia* all characteristic plants. The woodlands (around 35% cover) are also varied, with birch *Betula* sp. typically establishing first over heath, followed by oak *Quercus robur*, willow *Salix* sp. and pine *Pinus* sp. in places, eventually forming dense and shaded areas with sparse ground flora.

Together with the nearby Wealden Heaths SPA and Thames Basin Heath SPA, Ashdown Forest forms part of a complex of heathlands in southern England that support breeding bird populations of European importance – in particular nightjar *Caprimulgus europaeus* and Dartford warbler *Sylvia undata*. Breeding birds of scrub and woodland (such as woodlark *Lullula arborea* [also an Annex 1 species occurring in qualifying numbers] and Eurasian hobby *Falco subbuteo*) are also associated with the varied mosaic of their respective habitats, distributed over the higher slopes and valleys of the High Weald.

Source: adapted from Joint Nature Conservation Committee (JNCC), 2001 and 2008

### 3.3 Qualifying Features

3.3.1 The qualifying features of each site (i.e. the reasons for which the SAC and SPA were designated) are listed in Table 3.1.

Table 3.1: Qualifying features of the Ashdown Forest SAC and SPA

Site	Qualifying Feature	Listing
Ashdown Forest SAC (2,729 ha)	<b>Primary reasons for site selection</b>	
	European dry heaths, for which this is considered to be one of the best areas in the United Kingdom.	EC Habitats Directive 1992: Annex I Habitat
	Northern Atlantic wet heaths with <i>Erica tetralix</i> , for which this is considered to be one of the best areas in the United Kingdom.	EC Habitats Directive 1992: Annex I Habitat
	<b>Present but not a primary reason for site selection</b>	
	Great crested newt <i>Triturus cristatus</i> , for which the area is considered to support a significant presence.	EC Habitats Directive 1992: Annex II Species
Ashdown Forest SPA (3,207 ha)	<b>Article 4.1 Qualification</b>	
	Dartford warbler, 20 pairs representing 2.1% of the breeding population in Great Britain (Count, as at 1994).	EC Birds Directive 1979: Annex I
	Nightjar, 35 pairs representing 1.1% of the breeding population in Great Britain (Count, as at 1991 and 1992).	EC Birds Directive 1979: Annex I

### 3.4 Vulnerabilities and Opportunities

3.4.1 Every European site has distinctive characteristics that make it vulnerable to a variety of impact-inducing activities. Many sites, due to their location or condition, also offer various opportunities for improvement. Identified vulnerabilities and opportunities of Ashdown Forest are shown in Table 3.2.



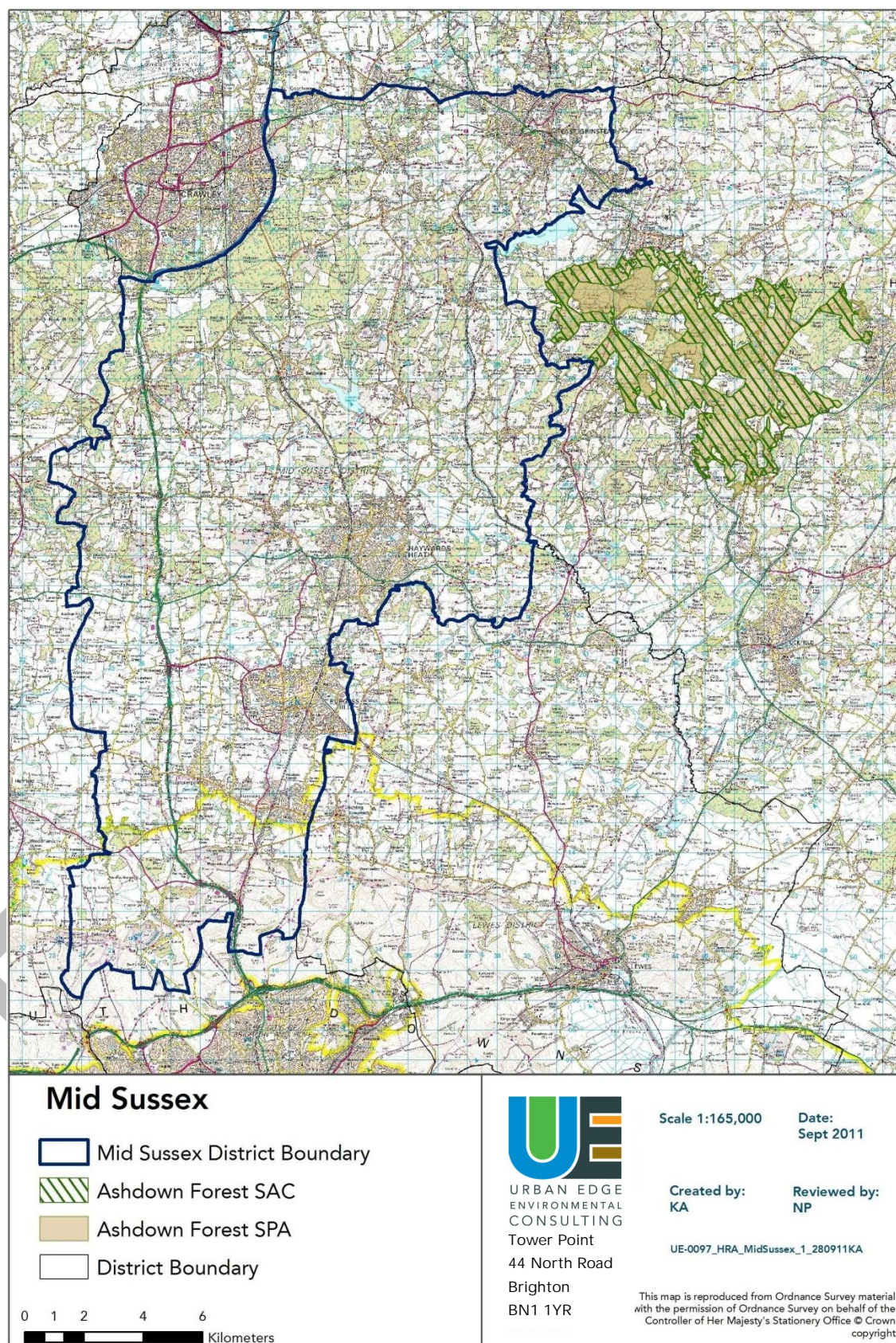


Figure 3.1: Ashdown Forest SAC/SPA in relation to Mid Sussex



Table 3.2: Vulnerabilities and opportunities within Ashdown Forest

Vulnerabilities *	Opportunities *
<ul style="list-style-type: none"> <li>▪ Lack of management coordination (insofar as the absence of management would result in degradation, but a management plan is in place).</li> <li>▪ Rapid succession from open heathland to woodland.</li> <li>▪ Lack of grazing – the optimum management for this site is grazing; however, only approximately 19% of the Forest is grazed.</li> <li>▪ Obstacles to grazing include public opposition to fencing, availability of graziers/suitable livestock, and constraints on dog-walkers.</li> <li>▪ The spread of scrub and invasive/non-native species such as bracken, rhododendron <i>Rhododendron sp.</i></li> <li>▪ Lack of resources for scrub clearance, bracken mowing, etc., particularly in the ungrazed area.</li> <li>▪ The areas not under the Conservators remit tend not to be grazed and have varying degrees of conservation management.</li> <li>▪ Most of the recreation on the site is informal, such as walking and horse riding. However, in places the use is intense resulting in damage to rights of way and disturbance to the Forest and the bird assemblage it supports.</li> <li>▪ Public access may also prevent expansion of the grazed area.</li> <li>▪ Effects of traffic pollutants (eg, nitrogen deposition) on vegetation and species diversity.</li> <li>▪ Possible long-term drying out of the site may take place due to borehole extraction and transpiration from an increase in vegetation cover.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The majority of the site (including the grazed area) is managed sympathetically by the Conservators of Ashdown Forest, according to an agreed management plan.</li> <li>▪ The lack of grazing is now being addressed through a grazing strategy, including the need for fencing, constraints on dog walkers and other forms of informal recreation, and improved availability of appropriate livestock.</li> <li>▪ Where possible, problems of intense recreation are being addressed through the Integrated Management Plan of the Conservators of Ashdown Forest and through a horse riding permit system.</li> <li>▪ Recent increased scrub clearance is likely to have a beneficial effect on wet heath.</li> <li>▪ Improved awareness through code of conduct for dog-walkers.</li> <li>▪ Improved coordination of management; Higher Level Stewardship (HLS), close shepherded grazing project, honey-pot approach</li> </ul>

\* Sources include Natura 200 Data Forms (available from JNCC: <http://jncc.defra.gov.uk/page-0>) and the *Strategic Forest Plan* (Conservators of Ashdown Forest, 2008)

### 3.5 Conservation Objectives

- 3.5.1 The Habitats Directive requires that Member States maintain or where appropriate restore habitats and species populations of European importance to favourable conservation status. Guidance from the EC (2000b; p.19) states: *“The conservation status of natural habitat types and species present on a site is assessed according to a number of criteria established by Article 1 of the Directive. This assessment is done both at site and network level”*. In the UK, the term favourable condition has been used to differentiate the status of a site as compared to that of the wider network of European sites.

- 3.5.2 Regulation 102 requires that an Appropriate Assessment is made of the implications for each site in view of the site's conservation objectives. To make such an assessment, it is necessary to understand in more detail the features of the sites that contribute to their favourable condition or conservation status. Natural England has published detailed Favourable Condition Tables (FCT) in which various attributes of the habitat and species populations are defined for assessing site condition (Appendix I). These have been developed from the definition of Favourable Conservation Status provided in Article 1 of the Habitats Directive (Box 2 overleaf).
- 3.5.3 For the populations of birds within Ashdown Forest SPA, favourable conservation status can be defined by reference to Article 1(i), and for the habitats within the SAC by reference to Article 1(e). Conservation objectives for the Ashdown Forest SPA would therefore be:
- ▶ Objective 1: Maintain the population of each of the Annex 1 bird species as a viable component of their natural habitats on a long-term basis;
  - ▶ Objective 2: Maintain the range (geographic extent) of the population of each of the Annex 1 bird species for the foreseeable future; and
  - ▶ Objective 3: Maintain sufficient area of suitable habitat to maintain the populations of each of the Annex 1 bird species on a long term basis.
- 3.5.4 For the SAC habitats, the conservation objectives developed from the definition of favourable conservation status are:
- ▶ Objective 4: The geographical distribution of the habitats and their overall area within the sites should be maintained or increased;
  - ▶ Objective 5: The mix of species (their species structure) and the ecological inter-relationships between these and other environmental and management factors (ecological function) which are needed for the long-term maintenance of the habitats should be likely to continue to exist; and
  - ▶ Objective 6: The conservation status of the habitats' typical species are maintained in terms of their population size, range and habitat extent.
- 3.5.5 Some of the typical species of each Annex 1 habitat are listed in Table 3.3. These are derived from a combination of sources, including the Joint Nature Conservation Committee (JNCC) Annex 1 habitat accounts and the *Interpretation Manual of European Union Habitats* (EC, 2007).

Table 3.3: Typical species of Annex 1 habitat types present within SAC

Annex 1 Habitat Type	Typical Species
European dry heaths	Bell heather <i>Erica cinerea</i> Dwarf gorse <i>Ulex minor</i> , Reptiles (adder, common lizard, sand lizard, smooth snake), Ants, bees and wasps (Hymenoptera), Beetles (Coleoptera), Dragonflies (Odonata)
North Atlantic wet heaths with <i>Erica tetralix</i>	Cross-leaved heath <i>Erica tetralix</i> , <i>Sphagnum compactum</i> , Deer grass <i>Trichophorum cespitosum</i> , Silver studded blue butterfly <i>Plebejus argus</i>

### Box 2: Extract from Managing Natura 2000 Sites (EC, 2000)

Conservation status is defined in Article 1 of the Habitats Directive. For a natural habitat, Article 1(e) specifies that it is: *'the sum of the influences acting on a natural habitat and its typical species that may affect its long-term natural distribution, structure and functions as well as the long-term survival of its typical species ...'*.

For a species, Article 1(i) specifies that it is: *'the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its population ...'*

The Member State has therefore to take into account all the influences of the environment (air, water, soil, territory) which act on the habitats and species present on the site.

Favourable conservation status is also defined by Article 1(e) for natural habitats and Article 1(i) for species.

For a natural habitat, it occurs when:

- *'its natural range and areas it covers within that range are stable or increasing;*
- *the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future; and*
- *the conservation status of its typical species is favourable'.*

For a species, it occurs when:

- *'the population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats;*
- *the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future; and*
- *there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis'.*

The favourable conservation status of a natural habitat or species has to be considered across its natural range, according to Articles 1(e) and 1(i), i.e. at biogeographical and, hence, Natura 2000 network level. Since, however, the ecological coherence of the network will depend on the contribution of each individual site to it and, hence, on the conservation status of the habitat types and species it hosts, the assessment of the favourable conservation status at site level will always be necessary.

The conservation status of natural habitat types and species present on a site is assessed according to a number of criteria established by Article 1 of the Directive. This assessment is done both at site and network level.

## 4 Appropriate Assessment

### 4.1 Introduction

- 4.1.1 This chapter reviews and updates the findings of the previous HRA screening exercise for the draft Core Strategy, before going on to describe the Appropriate Assessment stage.

### 4.2 Review and Update of the Screening Stage

- 4.2.1 In accordance with regulation 102(1) of the Habitats Regulations the purpose of the screening exercise was, acknowledging that the plan is not directly connected with or necessary to the management of any European site, to identify which elements of the District Plan are considered likely to lead to significant effects at a European site. The screening process was initially carried out for the draft Core Strategy by planning officers from Mid Sussex District Council. Its findings were endorsed by Natural England, the statutory agency for nature conservation.
- 4.2.2 Since the original HRA screening exercise was carried out, both guidance on the HRA process and the content and structure of the District Plan have changed. This provides a helpful opportunity to revisit the screening exercise to update its findings and more precisely identify which elements of the plan are likely to lead to significant effects.
- 4.2.3 To document potential effects, a classification system derived from the Tyldesley guidance (2009) can be used. Four broad categories are employed as follows:

Category A	Elements of the plan / options that would have no negative effect on a European site at all
Category B	Elements of the plan / options that could have an effect, but the likelihood is there would be no significant negative effect on a European site either alone or in combination with other elements of the same plan, or other plans or projects
Category C	Elements of the plan / options that could or would be likely to have a significant effect alone and will require the plan to be subject to an Appropriate Assessment before it may be adopted
Category D	Elements of the plan / options that would be likely to have a significant effect in combination with other elements of the same plan, or other plans or projects and will require the plan to be subject to an Appropriate Assessment before the plan may be adopted

- 4.2.4 Categories A, C and D are subdivided so that the specific reason why the assessor has allocated the policy or proposal to that category is more transparent, and more directly related to the ways in which the plan may affect a European site. These subdivisions are detailed in Appendix II. These categories, and traffic light colour-coded sub-categories, provide the means of recording the results of the assessment in such a way that important issues are identified whilst policies that have no effect are screened out.

- 4.2.5 The revised screening findings are illustrated in Appendix II.

4.2.6 Likely or uncertain significant effects are determined for Ashdown Forest SAC in relation to impacts on Annex 1 habitats and their typical species through atmospheric pollution, principally as a consequence of increased traffic movements along roads close to or within the Forest. The cumulative or in combination effects of residential, employment and retail proposals are the expected drivers of these effects. The mechanisms of atmospheric pollution effects and ways in which the plan seeks to avoid them are explored in Chapter 5.

4.2.7 Additionally, likely or uncertain significant effects are determined for Ashdown Forest SPA in relation to disturbance impacts on Annex 1 birds through rising recreational use of the Forest. The cumulative or in combination effects of the District Plan's scale and distribution of residential proposals, and associated population growth, are the expected drivers of these effects. Disturbance effects and the plan's measures for avoiding such impacts are explored in Chapter 6.

#### 4.3 The Appropriate Assessment Stage

4.3.1 The purpose of the Appropriate Assessment (HRA Stage AA2) is to further analyse likely significant effects identified during the screening stage, as well as those effects which were uncertain or not well understood and taken forward for assessment in accordance with the precautionary principle. The assessment should seek to establish whether or not the plan's effects, either alone or in combination with other plans or projects, will lead to adverse effects on site integrity, in view of the site's conservation objectives (see Chapter 3). Site integrity can be described as follows (ODPM, 2005):

*The integrity of a site is the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified.*

4.3.2 The assessment first focuses on the effects generated by the proposed policies of the District Plan and considers ways in which they can be avoided altogether. Where adverse effects cannot be avoided by changes to the plan, mitigation measures are introduced to remove or reduce the effects to the level of non-significance. Any residual (non-significant) effects can then be taken forward for further analysis to establish whether they might be expected to become significant in combination with the effects of other plans or projects.

4.3.3 The assessments presented in the following chapters are comprised of the following main sections:

- ▶ Baseline conditions: existing conditions within the site in relation to the impact being assessed.
- ▶ Impact source: proposals within the plan that cause the effect;
- ▶ Impact pathway: the mechanisms through which the proposed action may adversely affect certain qualifying features;

- ▶ Avoidance and mitigation measures designed into the plan: proposals that aim to avoid and/or reduce the effect, both originally included as part of the plan and recommended during earlier stages of the HRA;
- ▶ Impact assessment: analysis of the plan's effects on conservation objectives; and
- ▶ Assumptions and limitations: any limiting factors to the assessment which should be borne in mind when considering the recommendations, such as any distance variables or specific vulnerabilities that need to be taken into account.

4.3.4 Each chapter concludes by proposing further recommendations for avoidance and mitigation measures where required, and consideration of residual and in combination effects. The recommendations provide avoidance measures in the first instance, intended to remove the effects, and these are further supported by mitigation measures where necessary to ensure the effects of the plan can successfully be eliminated.

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## 5 Atmospheric Pollution

### 5.1 Baseline Conditions

- 5.1.1 Atmospheric pollution is a widespread issue, with background air quality heavily influenced by large point-source emitters including transboundary sources. Local pollutant sources are expected to affect Ashdown Forest, particularly in relation to habitats of the SAC, and especially from road traffic emissions. The Revised Draft District Plan cannot feasibly influence causes of background pollution such as large point sources but, through its spatial distribution of development and sustainable transport measures, will affect the way in which locally emitted pollutants reach the site.
- 5.1.2 Qualifying habitats most sensitive to air pollution within Ashdown Forest are European dry heaths and North Atlantic wet heaths. The main pollutant effects of interest are acid deposition and eutrophication by nitrogen deposition. The following brief descriptions draw on information presented through the Air Pollution Information System<sup>2</sup> (APIS).
- 5.1.3 Acid deposition: caused by oxides of nitrogen (NO<sub>x</sub>) (or sulphur dioxide) reacting with rain/cloudwater to form nitric (or sulphuric) acid, and is caused primarily by energy generation, as well as road traffic and industrial combustion. Both wet and dry acid deposition have been implicated in the damage and destruction of vegetation (heather, mosses, liverworts and lichens are particularly susceptible to cell membrane damage due to excessive pollutant levels) and in the degradation of soils and watercourses (including acidification and reduced microbial activity).
- 5.1.4 Eutrophication by nitrogen deposition: consists of the input of nitrogen from NO<sub>x</sub> (and sometimes ammonia) emissions by deposition, and is caused primarily by road traffic, as well as energy generation, industrial combustion and agricultural practices. Nitrogen deposition can cause direct damage to heather, mosses, liverworts and lichens, as well as other plant species, because of their sensitivity to additional atmospheric nitrogen inputs, whilst deposition can also lead to long term compositional changes in vegetation and reduced diversity. For example a marked decline in heather and an increased dominance of grasses have been observed throughout the Netherlands and also in the East Anglian Brecklands (see for example Bobbink *et al* (1993) and Pitcairn *et al* (1991)).
- 5.1.5 Furthermore, while plants are able to detoxify and assimilate low exposure to atmospheric concentrations of NO<sub>x</sub>, high levels of uptake can lead to detrimental impacts including:
- ▶ Inhibition of pigment biosynthesis, leading to reduced rates of photosynthesis;
  - ▶ Water soaking as NO<sub>2</sub> molecules attach to lipids in membranes, causing plasmolysis (removal of water) and eventually necrosis;

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<sup>2</sup> Online at: <http://www.apis.ac.uk/index.html> [Accessed 25/7/11]

- ▶ Inhibition of lipid biosynthesis, leading to reduced rates of regeneration and growth;
- ▶ Injury to mitochondria and plastids, essential to internal processing of energy and proteins;
- ▶ Decrease in stomatal conductance of air and water vapour; and
- ▶ Inhibition of carbon fixation (at least under low light levels).

5.1.6 The critical load or level for each of these pollutant classes is already exceeded in parts of Ashdown Forest; Table 5.1 presents information on background critical load/level exceedances for these key pollutants on qualifying habitat types at a selection of grid references across the Forest, shown on Figure 5.1. Cells shaded in red indicate an exceedance. Nilsson and Grennfelt (1988) define critical loads and levels as “a quantitative estimate of exposure to one or more pollutants below which significant harmful effects on specified sensitive elements of the environment do not occur according to present knowledge”. Critical loads concern the quantity of pollutants deposited from the air to the ground (for example nitrogen deposition and acid deposition), whilst critical levels concern the gaseous concentration of a pollutant in the air (for example nitrogen oxides).

Table 5.1: Critical load/level for Ashdown Forest SAC compared to actual load/level where load denotes percentage of lowest value of critical range (Source: APIS, data to 2008)

Receptor	Atmospheric N ( $\mu\text{gm}^{-3}$ )		N Deposition ( $\text{kg/ha/yr}$ )		Acid dep ( $\text{keq/ha/yr}$ )	
	Crit. load	Actual load	Crit. load	Actual load	Crit. load	Actual load
1. Woodland	30	50%	10	302%	0.14	1570%
2. Dry heath	30	50%	10	157%	0.32	481%
3. Wet heath	30	48%	10	162%	0.32	487%

1. Nearest SAC location to East Grinstead and close to A22; woodland habitat (not designated). NGR542021,133634. APIS Habitat: Oak woodland.

2. Dry heath habitat location close to A22 at Ashdown Llama Farm. NGR542115,131399. APIS Habitat: Lowland heathland.

3. Wet heath habitat location close to A22 at Millbrook. NGR544045,128936. APIS Habitat: Lowland heathland.

5.1.7 The data in Table 5.1 is historical (2008) and provides an indicative assessment as to which areas are approaching the limits of environmental capacity. In all cases, the critical load for nutrient nitrogen and acid deposition is exceeded. This suggests that additional sources of these pollutants generated as a result of proposals in the District Plan should be avoided or mitigated to prevent additional adverse effects on ecological integrity, while it would be beneficial to explore opportunities to improve baseline conditions.

## 5.2 Impact Source

5.2.1 The screening exercise identified the residential, employment and retail elements of policies DP1, DP2, DP4, DP6 and DP7 as the drivers of increased air pollution, principally through the generation of associated road traffic.



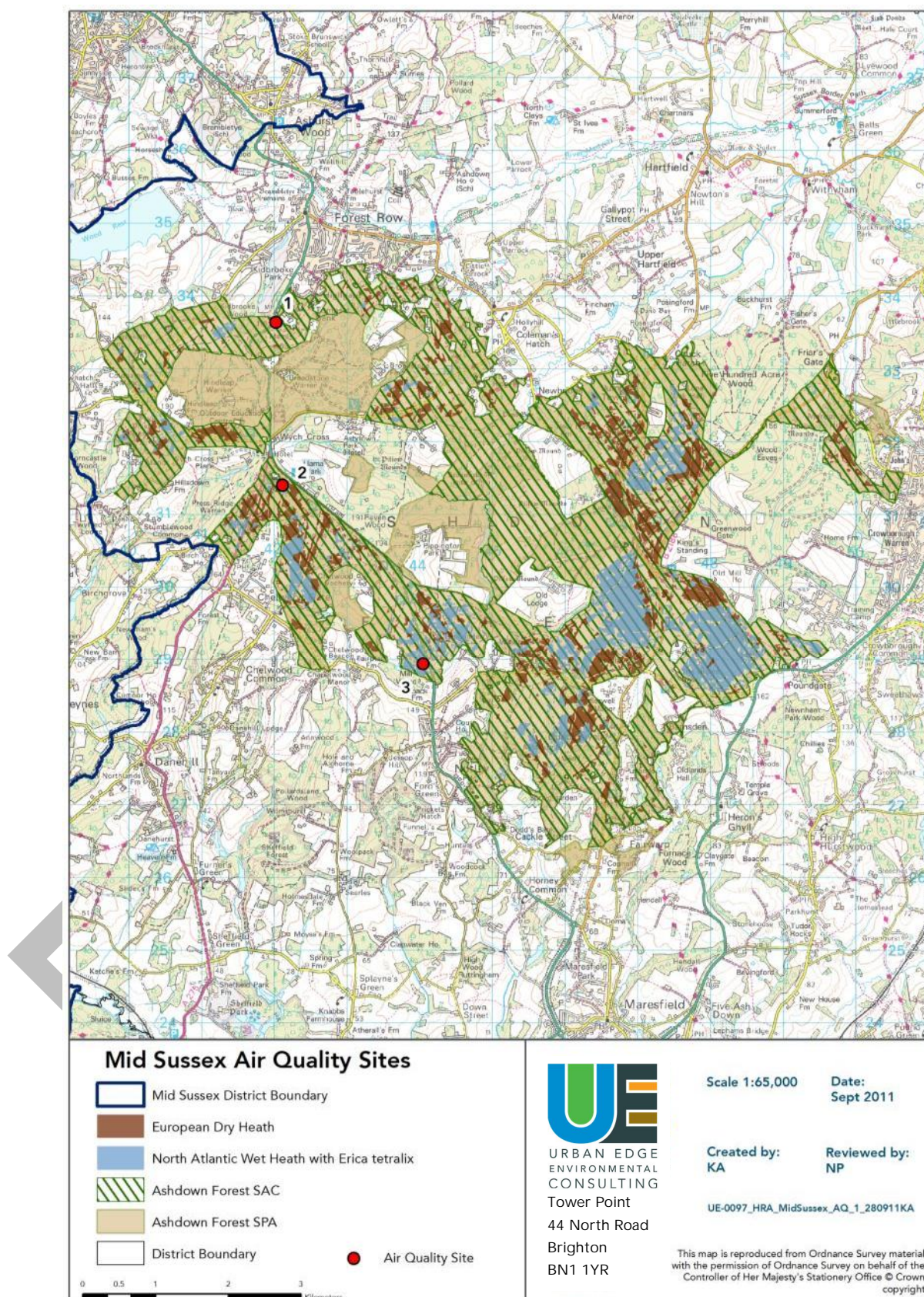


Figure 5.1: APIS grid reference locations

### 5.3 Impact Pathway

- 5.3.1 The Design Manual for Roads and Bridges (DMRB; Highways Agency, 2007) provides guidance on assessment of the impact that road projects may have on local air quality. Specific provision is made in relation to sites designated under the Habitats Directive. In this instance the assessment is in relation to existing, as opposed to new roads, however the guidance clarifies that *'where appropriate, the advice may be applied to existing roads'*. In accordance with this guidance, and with agreement from Natural England (minutes of meeting between Natural England, Mid Sussex District Council and Wealden District Council, 16 September 2010), the HRA examines whether there is a likely significant effect using the DMRB guidance.
- 5.3.2 DMRB provides a scoping assessment for local air quality and initially requires the identification of roads which are likely to be affected by the proposals. The criteria for defining an affected road are:
- ▶ Road alignment will change by 5 metres or more; or
  - ▶ Daily traffic flows will change by 1,000 annual average daily traffic (AADT) or more; or
  - ▶ Heavy Duty Vehicle (HDV) flows will change by 200 AADT or more; or
  - ▶ Daily average speed will change by 10km/hr or more; or
  - ▶ Peak hour speed will change by 20km/hr or more.
- 5.3.3 The scoping assessment then requires that nature conservation sites (e.g. SACs) within 200m of the road and their characteristics be identified. Beyond 200m effects from this source diminish to the equivalent of background levels (Laxen & Wilson (2002), DfT (2005)).
- 5.3.4 The guidance clarifies that if none of the roads in the network meet the traffic/alignment criteria (that is, they are not affected roads) or there are no relevant designated sites near the affected roads, then the impact of the scheme can be considered neutral in terms of local air quality and no further work is needed. Major roads passing through the Forest along which residents from Mid Sussex could be likely to travel are: A22, A26 and A275, while the B2188, B2026, B2110 and Coleman's Hatch Road may also be of concern; see Figure 5.2.

#### *Mid Sussex Transport Study Report (May 2012)*

- 5.3.5 Mid Sussex District Council commissioned Amey Transport Consultants to carry out the Mid Sussex Transport Study (May 2012) in order to assess and understand the transport impacts of its policies and proposals in the Mid Sussex District Plan. Part of the brief required an assessment of whether or not future land use and travel patterns in Mid Sussex would impact on the environmentally sensitive habitat of the Ashdown Forest SAC.
- 5.3.6 The study utilises a derivative of the West Sussex County Council strategic multi modal transport model (WSCCM) to assess the transport impacts of the District Plan. Using the Design Manual for Roads and Bridges guidance, representative local flow factors were applied to convert forecast AM peak model outputs at 2021 and 2031 to AADT equivalent.



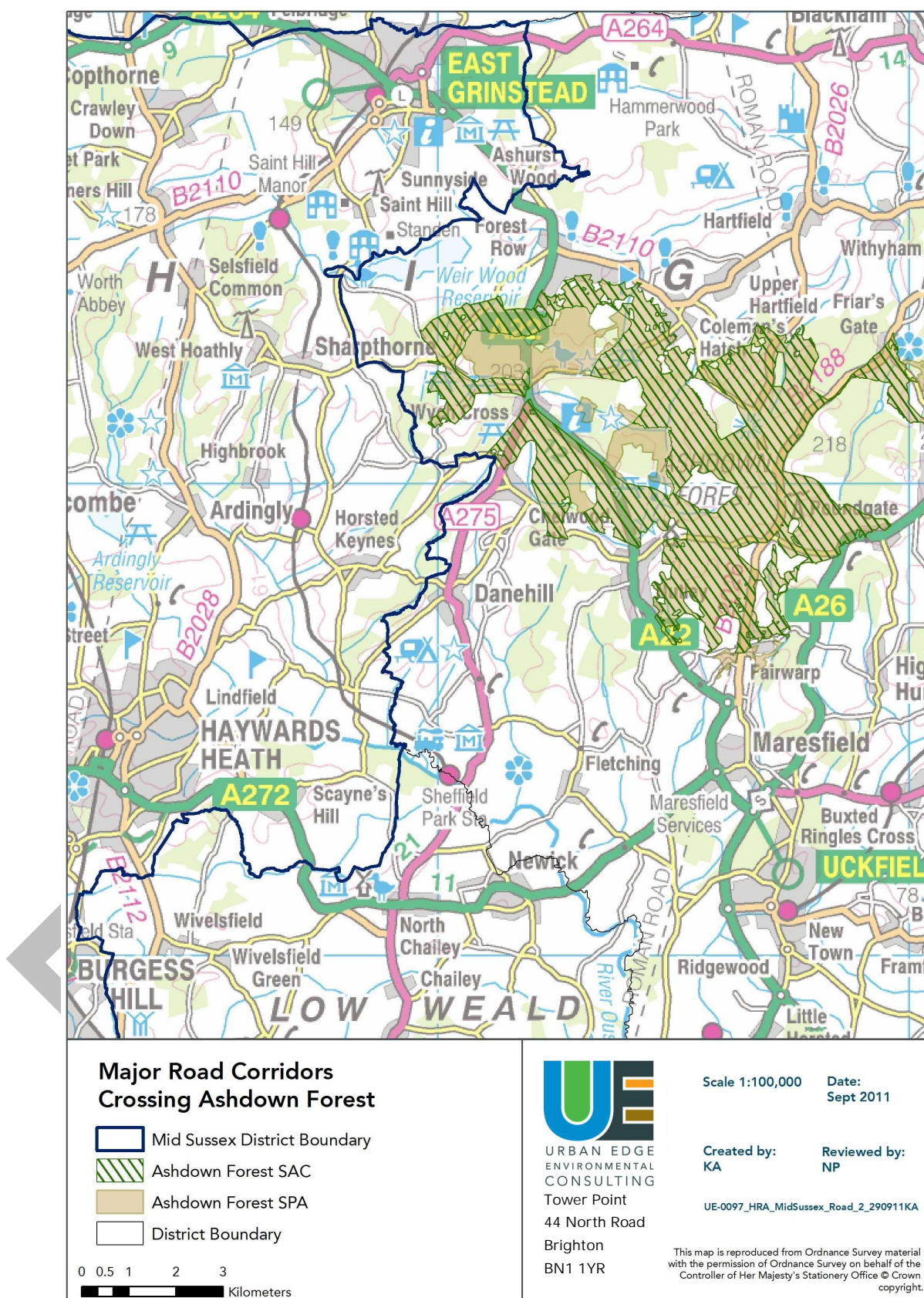


Figure 5.2: Road network crossing Ashdown Forest

### *Study area*

- 5.3.7 The Transport model was specifically refined to include new network detail covering roads that access or cross Ashdown Forest, namely:
- ▶ A275 (Lewes-East Grinstead);
  - ▶ A22 (Uckfield-East Grinstead);
  - ▶ A26 (Uckfield-Crowborough);
  - ▶ B21110 (East Grinstead-Royal Tunbridge Wells);
  - ▶ B2110 (East Grinstead- Royal Tunbridge Wells);
  - ▶ B2188 (Maresfield – Groombridge);
  - ▶ B2026 (B2188-B2110); and
  - ▶ Coleman’s Hatch Road (East –West through Ashdown Forest).
- 5.3.8 Owing to the strategic nature of the Mid Sussex Transport Study and the location of Ashdown Forest on the north east periphery of the modelled network, meaningful flow assignments for B2188, B2026 and Coleman’s Hatch Road could not be derived. However an assessment has been made of future traffic impacts on A275, A22, A26 and B2110 which are the main routes that are used in the area and experience most traffic flows.

### *Treatment of development scenarios*

- 5.3.9 The Revised Draft District Plan identifies the overall amount of new development needed over the period 2011-2031 and identifies strategic allocations at Burgess Hill. The Council has produced a Local Housing Assessment for Mid Sussex to inform the decisions made regarding the levels of growth that will be appropriate in Mid Sussex. The Revised Draft District Plan sets a housing requirement of 530 per annum (10,600 to 2031). The introduction of Neighbourhood Planning has also influenced the strategy contained within the District Plan.
- 5.3.10 The Revised Draft District Plan policies for strategic development at Burgess Hill require 3,500 – 4,000 new homes to the north and east of the town, together with up to 40 hectares of employment land as a “high quality campus style business park” and sporting facilities. The residential development is identified as two strategic development allocations of land to the east of Burgess Hill at Kings Way and land to the north and northwest of Burgess Hill.
- 5.3.11 A further 2,300 – 2,800 homes and sufficient employment land to meet the needs of business will need to be delivered elsewhere in the District. The Council’s preference is that the location and nature of the development is identified through Neighbourhood Plans. However for the work of the Transport Study a number of Development Scenarios were tested which included proposed strategic sites at Burgess Hill and housing likely to come forward elsewhere which was distributed proportionally, according to defined ‘Zones’. These are Zones based on urban and rural areas. Further detail is provided in Chapter 3 of the Mid Sussex Transport Study Report.



## Results

- 5.3.12 The draft findings show that the maximum two-way AADT flow increase on A275 in 2021, will be 179 vehicles in the scenario without remedial transport interventions and 100 vehicles with transport interventions. Similarly the maximum two way AADT flow on A275 in 2031 will be 417 vehicles (without remedial transport interventions) and 358 (with transport interventions). The suggested transport interventions are set out in the Mid Sussex Transport Study Report, which concludes that traffic impacts will be less on A22, A26 and B2100 than they are predicted to be on A275 (refer to Appendix C of the transport study for further details).
- 5.3.13 All projected traffic increases are therefore expected to fall well below the 1,000 AADT increase threshold, specified in the Design Manual for Roads and Bridges Guidance as the level below which a proposal can be considered neutral in terms of local air quality in relation to European sites.
- 5.4 Avoidance and Mitigation measures designed into the Plan
- 5.4.1 The Revised Draft District Plan contains measures to promote sustainable transport over the plan period, including measures relating to existing development, and additional actions to assess and manage air pollution. These are intended to improve the overall sustainability of the district as well as reduce the traffic emissions from proposed development, including along roads passing through or close to Ashdown Forest. The measures are summarised in Box 3.

### Box 3: Summary of District Plan measures relating to atmospheric pollution

#### DP18 Transport:

Development will be required to support the objectives of the West Sussex Local Transport Plan, which are:

- a high quality transport network that promotes a competitive and prosperous economy;
- a resilient transport network that complements the built and natural environment whilst reducing carbon emissions over time;
- access to services, employment and housing; and
- a transport network that feels, and is, safer and healthier to use

To meet these objectives at a local level, development will only be permitted where:

- it is sustainably located to minimise the need for travel;
- it facilitates and promotes the increased use of alternative modes of transport to the private car, such as the provision of safe and convenient routes for walking, cycling and public transport;
- does not cause an unacceptable impact in terms of road safety and increased traffic congestion;
- is designed to adoptable standards, or other standards as agreed by the Local Planning Authority, including road widths and size of car parking space and size of garages; and
- provides adequate car parking for the proposed development in accordance with parking standards as agreed by the Local Planning Authority.

Neighbourhood Plans can set local standards for car parking provision provided that it is justified by evidence.

Where practical developments should be located and designed to incorporate facilities for charging plug-in and other ultra-low emission vehicles.

Depending on the size of and the likely transport impact of development, a Transport Statement or Transport Assessment will be submitted alongside planning applications.

DP26 Noise, air and light pollution:

The environment, including nationally designated environmental sites; areas of nature conservation or geological interest and the quality of people's life will be protected from unacceptable levels of noise, light and air pollution by only permitting development where:

Noise pollution:

- Development is designed, located and controlled to minimise the impact of noise on health and quality of life, neighbouring properties and the surrounding area;
- Developments likely to generate significant levels of noise incorporates appropriate noise attenuation measures;
- Noise sensitive development is not permitted in close proximity to existing or proposed development generating high levels of noise unless adequate sound insulation measures are incorporated within the development;
- Requiring (where appropriate), the applicant to provide an assessment of the impact of noise generated by a proposed development
- Requiring (where appropriate), the applicant to provide an assessment of the effect of noise by an existing noise source upon a proposed development;

Light pollution:

- The impact on local amenity, intrinsically dark landscapes and nature conservation areas of artificial lighting proposals including floodlighting, is minimised, in terms of intensity and number of fittings;
- The applicant can demonstrate good design including fittings to restrict emissions from proposed lighting schemes.

Air Pollution:

- Development which does not cause unacceptable levels of air pollution;
- Development on land adjacent to an existing use which generates air pollution or odour where this can be mitigated to reduce exposure to poor air quality and/or would not cause any adverse effects on the proposed development;
- The potential impacts of new development and increased traffic levels on internationally designated conservation sites should be provided by the applicant including adopting necessary avoidance or mitigation measures to address these impacts (see policy DP12 Ashdown Forest Special Area of Conservation and Special Protection Area');
- Development proposals (where appropriate) are consistent with Air Quality Management Plans.

DP13 Ashdown Forest SAC/SPA:

In order to prevent adverse effects on the Ashdown Forest SAC and SPA, the Council will work with partners to develop a strategic approach to protecting from recreational pressures. The following provisions will apply:

- 1) Development will not be permitted within a 400 metres buffer zone around the Ashdown Forest;
- 2) Within a 7 km buffer zone around the Ashdown Forest, all development leading to a net increase in dwellings will be required to contribute to:

- the provision of Suitable Alternative Natural Green Space (SANGs) to the level of 8ha per 1,000 net increase in population (in the form of providing SANGs, or in the form of financial contributions to SANGs elsewhere); and

- the Ashdown Forest Access Management and Monitoring Strategy which will be prepared in association with the Conservators of the Ashdown Forest, Natural England and Wealden DC.

## 5.5 Impact Assessment

- 5.5.1 This section considers the available data in relation to the conservation objectives of the site.

*Objective 4: The geographical distribution of the habitats and their overall area within the sites should be maintained or increased*

- 5.5.2 Predicted traffic increases as a result of development proposed by the plan are such that changes in the geographic distribution and area of habitats within Ashdown Forest are unlikely to alter as a result of atmospheric pollution.

*Objective 5: The mix of species (their species structure) and the ecological inter-relationships between these and other environmental and management factors (ecological function) which are needed for the long-term maintenance of the habitats should be likely to continue to exist*

- 5.5.3 The level of air pollution associated with predicted traffic increases is unlikely to affect species structure or ecological function.

*Objective 6: The conservation status of the habitats' typical species are maintained in terms of their population size, range and habitat extent*

- 5.5.4 The population, range and extent of typical species, such as bell heather and dwarf gorse, are unlikely to decrease as a result of air pollution associated with predicted traffic increases predicted as a result of the plan's development targets.

## 5.6 Assumptions and Limitations

- 5.6.1 The HRA is based on official guidance (DMRB) that has been agreed with Natural England as being suitable for use in the assessment. The guidance states that if none of the relevant roads are an 'affected' road then the proposal can be considered neutral in terms of air quality. The transport assessment has found that the levels of predicted traffic growth associated with the Revised Draft District Plan's development targets are such that none of the roads travelling through Ashdown Forest is an affected road.

- 5.6.2 However, baseline air pollution levels at Ashdown Forest are already degraded, approaching the critical level for NO<sub>x</sub> and exceeding the critical deposition load for acid and nitrogen. It is recommended that a programme of monitoring is undertaken to establish that increases in traffic-related pollution do not occur during the plan's delivery period. Monitoring should seek to establish changes in traffic flow and pollutant emissions and deposition along key road corridors on the Forest, including A275, A26, A22 and B2100.

## 5.7 Conclusions and Recommendations

5.7.1 Natural England refers to a best practice guide for reducing contributions to atmospheric pollution from road traffic (Transport & Travel Research, 2005), many principles from which could be employed as part of the development plan. Suggested measures are set out under four themes as follows, and listed in Table 5.2:

- ▶ Behavioural measures and modal shift - reducing the amount of traffic overall;
- ▶ Traffic management - modifying traffic behaviour to control where emissions are generated;
- ▶ Emissions reduction at source - reducing the emissions level per vehicle; and
- ▶ Roadside barriers - reducing the impact of emissions.

5.7.2 The Revised Draft District Plan already states clear intentions (in DP18) to: minimise the need to travel by promoting sustainably located development; encourage modal shift and use of cleaner technologies; and avoid unacceptable traffic congestion. Given that the traffic modelling results indicate that adverse effects are unlikely, no further measures are necessary. However, where opportunities exist, it would be good practice to promote the preparation of travel plans, car free developments, and lower parking standards where practical. Additionally, a programme of monitoring and good practice measures is outlined in Table 5.3.

*Table 5.2: Mitigation measures for reducing or removing atmospheric pollution effects from road traffic (Source: Transport & Travel Research, 2005)*

Mitigation measures for atmospheric pollution emissions from road traffic	
Behavioural measures and modal shift	
<ul style="list-style-type: none"> <li>▪ Minimising the need to travel</li> <li>▪ School travel plans</li> <li>▪ Employment travel plans</li> </ul>	<ul style="list-style-type: none"> <li>▪ Individualised marketing/information</li> <li>▪ Car free developments</li> <li>▪ Promoting sustainable modes</li> </ul>
Traffic management	
<ul style="list-style-type: none"> <li>▪ Environmental traffic management / diversion of flows</li> <li>▪ Optimising speed limits</li> <li>▪ Control of access</li> </ul>	<ul style="list-style-type: none"> <li>▪ Parking availability information</li> <li>▪ Environmental and low emission zones around sensitive sites</li> <li>▪ Parking management / reduction</li> </ul>
Emissions reduction at source	
<ul style="list-style-type: none"> <li>▪ Promotion of cleaner/electric vehicles (fleet and personal)</li> <li>▪ Emissions testing and anti-idling regulations</li> </ul>	<ul style="list-style-type: none"> <li>▪ Driver training</li> <li>▪ Ultra-low sulphur diesel for construction vehicles and plant</li> </ul>
Roadside barriers	
<ul style="list-style-type: none"> <li>▪ Barriers and planting to absorb/disperse pollutants</li> </ul>	<ul style="list-style-type: none"> <li>▪ NOx-absorbent paving</li> </ul>

*Table 5.3: Monitoring and best practice measures in relation to atmospheric pollution*

Measure	Notes / description
1. Continued promotion of measures to achieve modal shift	<p>Through development control and/or lower tier plans within the LDF, the Council should promote best practice measures in implementing policy DP18, including:</p> <ul style="list-style-type: none"> <li>▪ preparation of travel plans for larger developments;</li> <li>▪ car free developments opportunities in town centre locations; and</li> <li>▪ lower parking standards where it is practical to implement them.</li> </ul>
2. Monitoring, research and review	<p>A programme of monitoring and research to allow the pollution effects of development on Ashdown Forest SAC to be reviewed, to ensure the sites' conservation objectives are not compromised. The programme should include (but not be limited to):</p> <ul style="list-style-type: none"> <li>▪ Monitoring of traffic flow patterns on the Forest, including on the A275, A26, A22 and B2100;</li> <li>▪ Monitoring the level of modal shift attained by sustainable transport policies;</li> <li>▪ Regular monitoring of acid/nitrogen deposition and nitrogen concentration rates along road corridors within the Forest; and</li> <li>▪ Research and monitoring of the onsite effects on habitat extent and vegetation diversity.</li> </ul> <p>Reporting of the monitoring results should be incorporated into the Council's Annual Monitoring Report</p>
3. Building flexibility into District Plan delivery programme	<p>Delivery of the District Plan's development targets, including through Neighbourhood Plans or an Allocations DPD, should be sufficiently flexible to respond to the findings of monitoring described in item 2, to ensure that adverse effects are avoided. Where the results of monitoring show that worse than anticipated traffic or pollution effects are being experienced on the Forest's roads, the rate, scale or distribution of housing, employment and retail development should be adjusted.</p>

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## 6 Disturbance

### 6.1 Baseline Conditions

- 6.1.1 Ashdown Forest has been a popular place for recreation and natural resources since the Common Lands Regulation (Ashdown Forest) Provisional Order Confirmation Act of 1885, and before. It is now the largest free public access open space in the South East. As such it is a vital resource that contributes exceptional value to the quality of life of residents in East and West Sussex and beyond.
- 6.1.2 However, it is also home to approximately 2.1% and 1.1% of the UK's population of breeding Dartford warbler and nightjar, respectively. Woodlark is also present in qualifying numbers but is not listed as a qualifying feature of the SPA. Disturbance is expected to affect the SPA more than the SAC. The findings of the visitor survey in 2008 found that Ashdown Forest attracts upwards of 1.3 million visitors each year. It also found that 60% of people interviewed during the survey visited for the primary purpose of walking the dog, while a further 30% visited to go for a walk. Many visitors to the Forest originate from the surrounding area, and increases in the number of homes around the Forest may compound the effects of disturbance from recreation of these birds of European importance.
- 6.1.3 Murison *et al.* (2007) note that animals often react to human disturbance as a form of predation risk (see also Frid & Dill, 2002). Such a response can include elevated heart rate, heightened defensive behaviour, including evasive measures with associated energy expenditure, and the avoidance of high risk areas (Murison *et al.* (2007), Liley & Sutherland (2007)). It is possible, therefore, that high levels of human activity in important nature conservation areas changes the behaviour of animals to such a degree that conservation priorities become compromised. This may be elicited through, for example, reduced breeding success, increased predation or exposure of nests, eggs or young to trampling and the elements (Liley & Sutherland, 2007). Meanwhile, it has been observed that the removal of human disturbance effects could result in an increase of between 13% and 48% in the breeding population of woodlark over 16 heathland sites (Mallord (2005), quoted in Underhill-Day & Liley (2007)).
- 6.1.4 Liley and Clarke (2003), following field studies into the population density of nightjar on 36 patches of heathland in Dorset, demonstrated that patches surrounded by higher levels of development supported smaller populations of nightjar. The types of effects associated with urbanisation that they identified as relevant in this respect included human disturbance, light pollution, predation from natural predators and domestic pets (as well as corvids, foxes *Vulpes vulpes*, and hedgehogs *Erinaceus europaeus*), and habitat change. In the face of these challenges, conservation officers and managers of open access land need to consider a number of responses to balance the effects of human disturbance and urbanisation with requirements for access to recreation.

- 6.1.5 These might include both site-level responses, such as restricted access at certain times of year or changes to planting regimes, as well as strategic alternatives, such as the provision of substitute recreational facilities in less sensitive areas (Underhill-Day & Liley, 2007). Langston *et al.* (2007) suggest that responsible access '*... necessitates the provision of information for visitors to heathland to help them understand their... responsibilities and... change their behaviour*'.
- 6.1.6 Ashdown Forest is qualitatively different to the Dorset heathlands, which are made up of a series of heathland fragments disconnected from one another, whereas Ashdown Forest is a single large composite site where the patches of heathland are interconnected by semi-natural grassland and woodland.
- 6.1.7 An analysis of visitor access patterns, therefore, is an essential first stage in developing an understanding of how to react to the challenges presented by increasing levels of human disturbance that might be associated with increased development. As Underhill-Day and Liley (2007) put it, the range of site-level and strategic management responses available need to be considered in light of '*a range of questions on where heathland users come from, why they come to the heaths, where they go and what they do once there.*'
- 6.1.8 Several studies of the interrelationship between recreational access and heathland biodiversity have been undertaken in recent years (see for example Clarke *et al.* (2006), Liley (1999), Liley & Clarke (2002, 2003), Liley *et al.* (2006), Murison (2002) and Murison *et al.* (2007)). The focus of most of these studies has been on the Dorset Heathlands, and also Thames Basin Heaths. The following sections introduce some of the pertinent issues, which may prove relevant to a study of Ashdown Forest.

#### *Mechanisms and measures of disturbance*

- 6.1.9 In a study into the relationship between habitat type and disturbance effects on the breeding Dartford warbler, Murison *et al.* (2007) noted the following as important measures of disturbance. First, they noted that indirect disturbance was associated with factors such as the distance from the centre of the heathland patch (or nest) to the nearest road, path, building or car park. Second, the proximity of a nest territory to the nearest access point showed a strong, direct negative relationship with the timing of a first brood. Third, disturbance appeared to be associated with increased stress levels, with birds exhibiting an extended period of agitation while searching for cover, leading to increased energy expenditure.
- 6.1.10 They suggest that the mechanisms by which disturbance affects the Dartford warbler's breeding success are associated with its particular susceptibility to disturbance during nest-building activities, with birds often abandoning their work and materials. The effects of this are threefold. The timing of the first brood was delayed for long enough (up to six weeks) to prevent multiple broods in one season. Also, the fledgling success of a first brood delayed until June was limited by the decreased availability of invertebrate prey. And similarly, that continued disturbance events reduced the foraging effectiveness of the birds, and their ability to feed their young, by keeping the adults away from the nest for longer than normal.

- 6.1.11 Analysing the results of their study, Murison *et al.* (2007) found that breeding pairs with territories in areas experiencing as many as 13 to 16 disturbance events each hour of every day, delayed breeding for sufficiently long enough to prevent multiple broods in one season. Importantly, they also found a significant correlation between the reproductive success of Dartford warbler and the proportion of different gorse types present in the heathland patch. They discovered a strong positive relationship with European gorse *Ulex europaeus*, where heathland patches containing more of this type produced more successful broods. While the significance of disturbance events in delaying breeding among Dartford warbler pairs nesting in heather-dominated territories was high, often leading to reduced breeding success, the correlation was weaker in territories dominated by Western gorse *U. gallii*.
- 6.1.12 During their surveys, dogs were observed ranging as far as 45m into heather dominated areas, but never strayed from the path in areas with vegetation dominated by gorse. This could provide a useful tool to heathland managers, whereby tactical positioning of gorse varieties, particularly alongside paths and bridleways, may help to reduce the incidence of disturbance. This may, of course, conflict with other conservation priorities especially in areas where the heathland habitat itself is of international importance, such as Ashdown Forest.

#### *Vulnerabilities of ground-nesting birds*

- 6.1.13 As already mentioned, Liley and Clarke (2003) found that nightjar populations appeared particularly vulnerable to the effects of urbanisation, including human disturbance, light pollution, and predation by natural predators, pets and urban scavengers. In a study investigating the relationship between walkers with dogs and the success of breeding nightjar, Langston *et al.* (2007) observed that the flushing of birds from the nest by a disturbance event during daylight hours led to predation by diurnal predators, particularly of eggs.
- 6.1.14 Moreover, birds tend to flush more readily in response to dogs than to humans, and take longer to return to the nest. Langston *et al.* (2007) noted that disturbance effects on nightjar were more marked when breeding conditions were less favourable due to incidental factors such as weather conditions. Birds flushing the nest as a result of disturbance events during harsh or wet weather tended to bear smaller, less successful broods. Overall, they found a significant relationship between nest failure and disturbance, with failure being more likely in nests with higher total footpath length within 50, 100 and 500m of the nest clearing.

#### *Summary*

- 6.1.15 Impacts to ground and near-ground nesting breeding birds can be described as follows:
- ▶ Increased nest predation by natural predators when adults are flushed from the nest or deterred from returning to it by the presence of people or dogs;
  - ▶ Chicks or eggs dying of exposure because adult birds are kept away from the nest;
  - ▶ Accidental trampling of eggs by people, given that (nightjar and woodlark) nests are on the ground and may be close to paths;
  - ▶ Predation of chicks or eggs by domestic dogs; and
  - ▶ Increasing stress levels in adult birds in response to perceived predation risk.

*Practical measures used elsewhere to manage impacts*

- 6.1.16 Policy precedent on the combined issues of development, increasing visitor pressure and internationally important nature conservation areas can be derived from the consideration of the Thames Basin Heaths SPA within the South East Plan (RS). Approximately 40km to the north west at their easternmost extent, the Thames Basin Heaths share some similarities with Ashdown Forest, and form part of a series of fragmented lowland heathland sites supporting internationally important populations of ground and near-ground nesting birds, functioning at a landscape ecology scale across Berkshire, Surrey, Hampshire and Sussex.
- 6.1.17 RS policy NRM6<sup>3</sup> requires that a minimum of 8ha of Suitable Alternative Natural Greenspace (SANG) should be provided for every 1,000 net increase in population as a result of new residential development within a 5km zone of influence around the Thames Basin Heaths SPA, to offset the impact of increasing visitor pressure. This was based on a simple arithmetical calculation in which it was estimated that there would be an increase in the population within the vicinity of the Thames Basin Heaths SPA of 3,419 people per year over the plan period. From visitor studies it was calculated that each person makes 4.58 visits to the SPA per year and a hectare of the Thames Basin Heaths SPA absorbs 638 visits per year.
- 6.1.18 Using these figures it was possible to calculate that 24.5ha/year of additional open space would be required to absorb this additional population which equates to 490ha to be provided over the 20 year plan period. This gives a mitigation standard of 7.16ha/1,000 head of population. The figure was rounded up to the 8ha per 1,000 SANG standard which was subsequently widely adopted across the Thames Basin. The 5km zone of influence aims to 'capture' around three quarters of all visitors to the heaths, including 70% of drivers and all pedestrians.
- 6.1.19 SANGs are sites that cater for the recreational needs of communities in order to reduce the likelihood of increasing visitor pressure and disturbance on important nature conservation areas, and should be supported by access management measures within the SPA itself. They are characterised by a number of factors, as defined by Natural England (draft 2008):
- ▶ For any SANG larger than 4ha there must be adequate parking for visitors, unless it is intended for local use, i.e. within easy walking distance (400m) of the developments linked to it. The amount of car parking space should be determined by the anticipated use of the site and reflect the visitor catchment of both the SANG and the SPA.
  - ▶ It should be possible to complete a circular walk of 2.3-2.5km around the SANG.
  - ▶ Car parks must be easily and safely accessible by car and should be clearly sign posted.
  - ▶ The accessibility of the site must include access points appropriate for the particular visitor use the SANG is intended to cater for.
  - ▶ The SANG must have a safe route of access on foot from the nearest car park and/or footpath/s.
  - ▶ All SANGs with car parks must have a circular walk which starts and finishes at the car park.

<sup>3</sup> The RSS is likely to be revoked in due course, but evidence gathered in relation to Thames Basin Heaths SPA is still relevant.

- ▶ SANGs must be designed so that they are perceived to be safe by users; they must not have tree and scrub cover along parts of the walking routes.
- ▶ Paths must be easily used and well maintained but most should remain unsurfaced to avoid the site becoming too urban in feel.
- ▶ SANGs must be perceived as semi-natural spaces with little intrusion of artificial structures, except in the immediate vicinity of car parks. Visually-sensitive way-markers and some benches are acceptable.
- ▶ All SANGs larger than 12ha must aim to provide a variety of habitats for users to experience. Access within the SANG must be largely unrestricted with plenty of space provided where it is possible for dogs to exercise freely and safely off lead.
- ▶ SANGs must be free from unpleasant intrusions (e.g. sewage treatment works smells).
- ▶ SANGs should be clearly sign-posted or advertised in some way.
- ▶ SANGs should have leaflets and/or websites advertising their location to potential users. It would be desirable for leaflets to be distributed to new homes in the area and be made available at entrance points and car parks.
- ▶ It would be desirable for an owner to be able to take dogs from the car park to the SANG safely off the lead.
- ▶ Where possible it is desirable to choose sites with a gently undulating topography for SANG.
- ▶ It is desirable for access points to have signage outlining the layout of the SANG and the routes available to visitors.
- ▶ It is desirable that SANGs provide a naturalistic space with areas of open (non-wooded) countryside and areas of dense and scattered trees and shrubs. The provision of open water on part, but not the majority of sites is desirable.
- ▶ Where possible it is desirable to have a focal point such as a view point or monument within the SANG.

## 6.2 Impact Source

- 6.2.1 The screening exercise identified the residential elements of policy DP4 as the driver of increased disturbance through growing recreational pressure.

## 6.3 Impact Pathway

- 6.3.1 The visitor survey undertaken during summer and autumn 2008 investigates visitor access patterns at Ashdown Forest in detail. Interviews were carried out at 20 different access points across the Forest and respondents were asked about where they came from that day. By establishing patterns of travel by distance and mode of transport it is possible to estimate additional visitor pressure as a result of new development.

- 6.3.2 The data gathered during the field survey were further analysed on behalf of Natural England (Clarke *et al*, 2010) in order to extrapolate the findings to derive estimates of visitor numbers at un-surveyed access points, and explore the relationship between visitor intensity and bird territories within the SPA. Their analysis concluded that:

*The research undertaken indicates that the current level of visitor pressure is not affecting the distribution of nightjar, woodlark or Dartford warbler within Ashdown Forest SPA. Based upon the analysis undertaken, the birds do not appear to be avoiding areas of greater recreational pressure. Visitor densities at the site appear to be less than on the Thames Basin Heaths as a whole and slightly higher than the whole of the Dorset Heaths... In considering the duty set out within Article 6(2) [of the Habitats Directive] it is concluded that the current level of visitor pressure in Ashdown Forest is not displacing the birds from otherwise suitable habitat, even within areas that the analysis of the visitor data shows to hold greater concentrations of visitors.*

*Recreational disturbance could still however be having an impact on the Annex I bird species at Ashdown Forest. For example this study has not looked at breeding success. Also it may be that the density of birds is so low (due to other, currently unknown factors) that there is little competition for space and therefore no impacts of disturbance. While the results of the analysis presented in the report are potentially encouraging, in the absence of data on breeding success, and without understanding why bird densities are low, it currently cannot be concluded on the basis of scientific evidence that the ecological integrity of nightjar and Dartford warbler populations is not being adversely affected by a combination of existing pressure and/or habitat management. (Clarke *et al*, 2010, p.29)*

- 6.3.3 In this context, and with bird numbers already being lower than might be expected given the available area of habitat, unmanaged increases in visiting activity could lead to further adverse effects on site integrity.
- 6.3.4 Clarke *et al* (2010) found that, across all Forest access points, the total number of people predicted to visit over 16 daylight hours in September was 5,198, or 325 per hour. Spreading these visitors out across the Forest's 2,388 visitable hectares, this equates to an average of 2.17 visitors per hectare over 16 daylight hours, which compares to 1.8 at Dorset Heathlands and 3.7 at Thames Basin Heaths.
- 6.3.5 In addition they developed a statistical model of visiting rates of pedestrian and car visitors, taking into account observed visitor rates from the 2008 field survey, the residential density of nearby areas, and car park size. The model can be used to predict the number of additional visitors to each access point, and therefore the whole Forest, arising from the proposed development of a specific number of dwellings in defined areas. A selection of settlements around Ashdown Forest were chosen to illustrate the model, and for each location the additional number of visits to Ashdown Forest arising from 100 extra dwellings is predicted; see Table 6.1.



*Table 6.1: Predicted additional visitor rates to Ashdown Forest SPA as a result of new development at a selection of locations (Source: Clarke et al, 2010)*

Settlement	Distance from SPA *	Number of added visits per 100 dwellings **
East Grinstead	5.10	4.1
Crawley	12.98	0.3
Haywards Heath	9.48	1.2
Uckfield	4.99	3.9
Crowborough	1.50	12.2
Royal Tunbridge Wells	10.25	0.8

\* Shortest distance from settlement boundary to SPA boundary – except Crowborough

\*\* Visits per 16 daylight hours in September

- 6.3.6 The model provides a means to directly compare the consequences of development (in terms of increased SPA visitor numbers) at a potential development location. Accordingly, 100 new dwellings at Crowborough, in close proximity to parts of the SPA, is predicted to lead to 12.2 extra visitors per 16 hours, in contrast to 5.1 extra visitors for an equivalent number of dwellings at East Grinstead, or 1.2 extra visitors for the same number at Haywards Heath, further away from the Forest (Clarke et al, 2010). The analysis shows that, although the existing numbers of visitors to Ashdown Forest may not be negatively affecting populations of Dartford warbler and nightjar, the visitors associated with new strategic housing allocations may do, especially in combination with the effects of other plans and projects. Generally speaking, the closer an individual dwelling or residential development is to the Forest, the more likely its inhabitants are to visit on a regular basis.
- 6.3.7 Clarke et al (2010) found that the majority of visitors travelling by car (>85%) originated from within a 15km distance from the Forest (see Figure 6.1). In order to establish a zone of influence around Ashdown Forest within which SANG should be provided in a similar way to the Thames Basin, the distances between post code origin and SAC/SPA from field survey data were recalculated for all modes of transport; see Figure 6.2. The recalculations excluded invalid post codes, stem post codes, records that gave no response and those within the Forest (n=286 out of 639 interviews conducted).
- 6.3.8 Following consultations with Natural England, a 7km zone of influence around Ashdown Forest was established. This is the area within which the majority (83%) of regular visitors to the Forest originate, and therefore where measures targeted at reducing pressure on the Forest would be most effective. See Figure 6.3. Natural England has stated that 8ha of SANG should be provided for every 1,000 increase in population (or part thereof) within this zone, in line with the Thames Basin Heaths approach to avoidance and mitigation.
- 6.3.9 SANGs should be complimented by developer-funded changes to access management within Ashdown Forest to reduce the onsite impacts of the remaining people who will inevitably continue to visit the site.

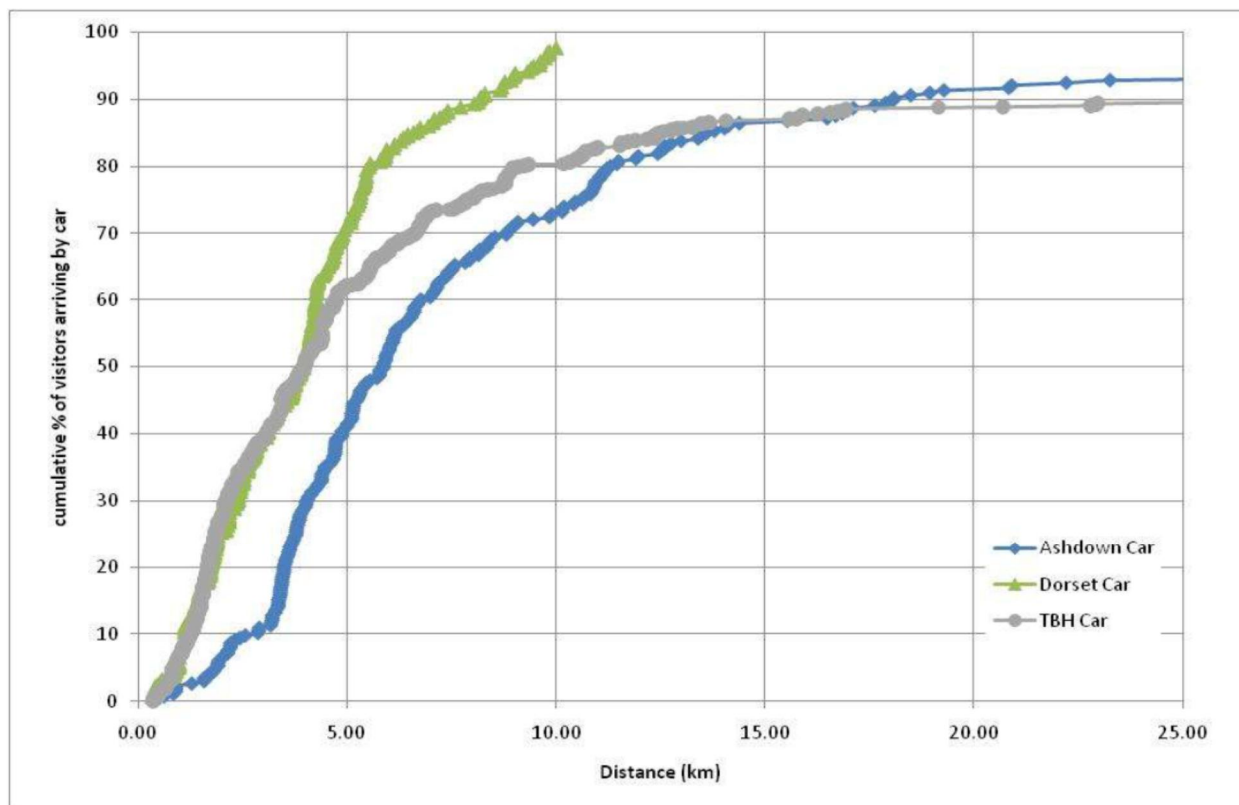


Figure 6.1: Cumulative percentage curve showing the proportion of car visitors to Ashdown Forest travelling from within a range of distances, in comparison to visitors to Thames Basin and Dorset Heaths (Source: Clarke et al, 2010)

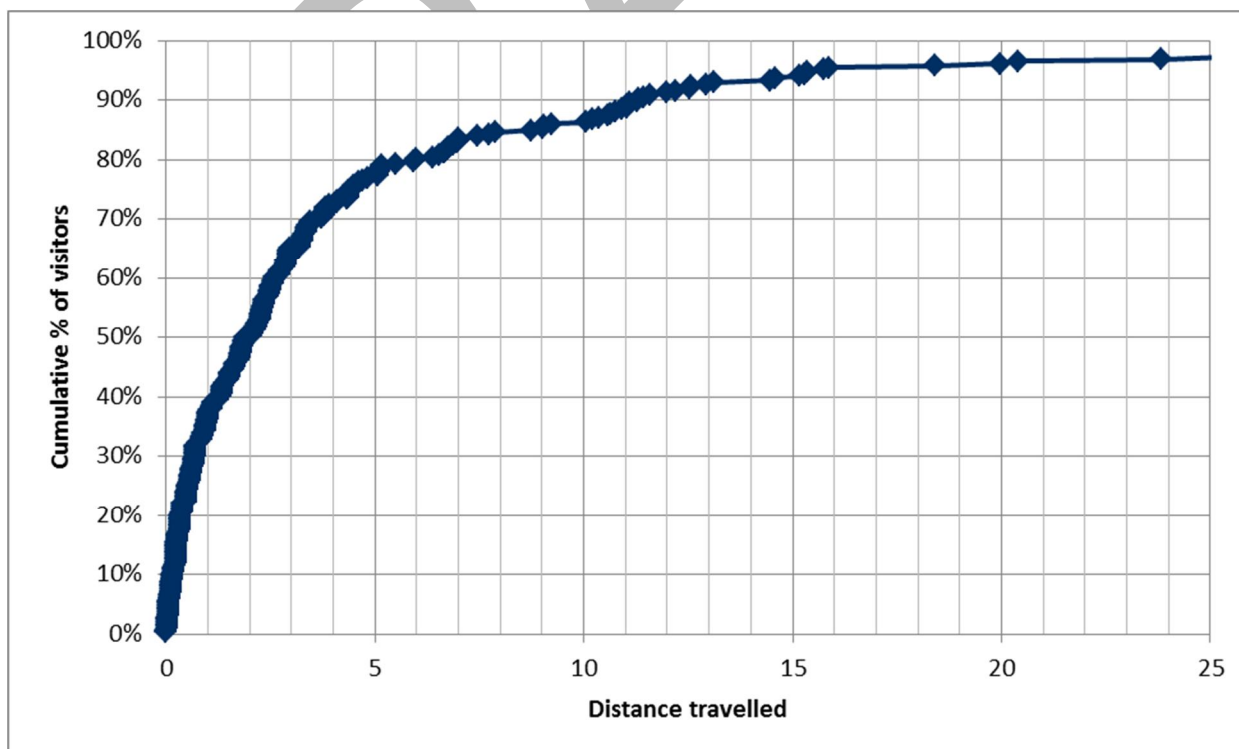


Figure 6.2: Distances travelled to Ashdown Forest in 2008 by all respondents who gave a full post code (n=286)





Figure 6.3: Ashdown Forest's 7km zone of influence within Mid Sussex



- 6.3.10 The Mid Sussex Revised Draft District Plan sets out a housing requirement for the District based on the Local Housing Assessment which identifies a need for 10,600 homes to be built between 2011 and 2031. This requirement will be delivered through strategic development at Burgess Hill (outside of the 7km zone of influence) and through Neighbourhood Plans. The majority of towns and parishes in the District are committed to preparing their own Neighbourhood Plan. It is estimated from Neighbourhood Plans and the Council's housing land supply information that a range of between 200 and 500 homes could be delivered within the 7km zone around the Ashdown Forest over the plan period.
- 6.3.11 The amount of SANG that would be required to support this level of development in order to avoid adverse disturbance effects on the Ashdown Forest SPA's bird assemblage can be calculated in accordance with Natural England's requirement for 8ha of SANG for every 1,000 increase in population. The calculation is shown in Table 6.2.
- 6.3.12 The deliverability and viability of providing SANGs within Mid Sussex, and the best means of funding them, have also been explored.

Table 6.2: SANG estimate from Mid Sussex dwelling delivery range within 7km of the Forest

Dwelling delivery range	People per dwelling	Population growth	Estimated ha SANG (8ha/1,000 pop.)
200	2.32	464	3.71
500	2.32	1,160	9.28

*Options for providing Suitable Alternative Natural Greenspace*

- 6.3.13 Within Mid Sussex, the options for creating SANG could include:
- ▶ Existing open space of SANG quality with no existing or limited public access, which for the purposes of mitigation could be made fully accessible to the public;
  - ▶ Existing open space which is already accessible but which could be changed in character so that it is more attractive to the specific group of visitors who might otherwise visit the SPA; and
  - ▶ Land in other uses which could be converted to SANG.
- 6.3.14 Potential examples of sites within the 7km zone that could function as a SANG include:
- ▶ Ashplats Wood on the north-eastern fringe of East Grinstead: c. 26ha;
  - ▶ Gravetye Woods in the north of the District near West Hoathly: c. 251ha; and
  - ▶ Imberhorne Farm on the western fringe of East Grinstead: c. 122 ha.
- 6.3.15 An initial deliverability and viability analysis of each of these sites has been carried out, which is presented in Box 4. The Council will need to decide which of these options best suits the District's needs and is likely to be most deliverable. Further details on the characteristics of these sites and what measures would be required for the sites to function as SANGs are set out in paragraph 6.1.19. Additionally, visitor surveys will be required to establish the existing

use of the chosen site(s) so that this can be discounted from its capacity to absorb new visits. Additional or alternative sites may come through Neighbourhood Plans. But it is clear that, within the 7km zone, sufficient land is available to help offset the effects of new housing development within 7km zone. It is also clear that sufficient additional land is available to accommodate the requirements of any further development that arises from natural growth.

#### Box 4: Deliverability and viability of potential SANGs

##### Ashplats Wood

This woodland is situated on the north-eastern fringe of East Grinstead on the border with the nationally designated High Weald Area of Outstanding Natural Beauty. Recognised as a Site of Nature Conservation Interest, it totals over 26 hectares in size, a significant proportion of which is Ancient Woodland. It is owned by East Grinstead War Memorial Limited. Much of the previously managed woodland had been neglected in recent years and a 40 year lease for its management was signed with Mid Sussex District Council in 1997. A Steering Group comprising representatives from the landholders, local community, District Councillors, local Councils and Conservation lead bodies has been established, to provide guidance on the future management of the site. The site currently has public access, and is well promoted through the existing friends group. An initial appraisal has identified significant opportunities for improving access within the woods, mainly through the implementation of a woodland management plan which balances the biodiversity of the site with recreational opportunities. Key improvements to ensure the site is suitable for SANG include:

- Improved signage and information.
- Works to trees and the woodland canopy.
- Creation of woodland paths and clearings.
- Creation of circular walks.
- Sensitive habitat management of trees and creation of woodland glades.

##### **Potential challenges:**

- Sensitive nature of the woodland habitat to accommodate increased visitor use.
- Securing a long term lease for the site.

##### Gravetye Woods

This is a 251 hectare woodland site in the north of the District, 2.5 miles from the centre of East Grinstead. It is owned by the William Robinson Trust and managed by the Forestry Commission. There is a car park to the south of the site, and other pedestrian access points around the site. There is open public access to the site, which is largely used for informal recreation. An initial assessment has identified that the site could already function as a SANG but there are opportunities for improved access. Management interventions would need to be agreed with the Forestry Commission, but could include:

- Improved waymarking of routes.
- Woodland management.
- Improved information provision.
- Creation of circular walks and routes.

##### **Potential challenges:**

- The site is managed by the Forestry Commission, and owned William Robinson Trust so delivering the SANG would require a commitment from them to secure public access to the site for at least 80 years.

##### Imberhorne Farm

The site is a large 122 hectare site located on the western fringe of East Grinstead. The land includes open agricultural land and woodland copse. There are good open views across the surrounding countryside. There is a bridleway that runs through the site giving access, however, the majority of the site is currently inaccessible. The

site is in private ownership. An initial assessment has identified that although the site is not currently accessible, if access could be secured it has significant potential as a SANG. To meet the SANG criteria would require works to the site, but the good views and natural undulating landscape could potentially be attractive to visitors. Works required to the site include:

- A car park.
- Creation of circular walks and paths.
- Removal of fencing.
- Enhanced habitat works e.g. management of meadows, woodland planting, hedgerow planting.
- Information and signage for visitors.

**Potential challenges:**

- The site is in private ownership so would need agreement with the landowner to secure its use for this purpose.
- There is planning history on the site related to housing.

#### 6.4 Avoidance and Mitigation measures designed into the Plan

##### 6.4.1 Within the zone of influence the Council plans to implement an avoidance and mitigation strategy (see Box 5).

#### Box 5: Summary of District Plan measures relating to disturbance

##### DP13 Ashdown Forest SAC/SPA:

In order to prevent adverse effects on the Ashdown Forest SAC and SPA, the Council will work with partners to develop a strategic approach to protecting from recreational pressures. The following provisions will apply:

- 1) Development will not be permitted within a 400 metres buffer zone around the Ashdown Forest;
- 2) Within a 7 km buffer zone around the Ashdown Forest, all development leading to a net increase in dwellings will be required to contribute to:
  - the provision of Suitable Alternative Natural Green Space (SANGs) to the level of 8ha per 1,000 net increase in population (in the form of providing SANGs, or in the form of financial contributions to SANGs elsewhere); and
  - the Ashdown Forest Access Management and Monitoring Strategy which will be prepared in association with the Conservators of the Ashdown Forest, Natural England and Wealden DC.

#### 6.5 Impact Assessment

##### 6.5.1 This section considers the available data in relation to the conservation objectives of the site.

*Objective 1: Maintain the population of each of the Annex 1 bird species as a viable component of their natural habitats on a long-term basis*

##### 6.5.2 The District Plan embraces current practice on providing for the recreational needs of new developments without placing additional pressure on internationally important nature conservation sites. On the basis of currently available information, it seems likely that the maximum area of SANG that would be required in to order to avoid adverse effects on the population of Annex 1 birds, in accordance with Natural England's requirements, is 9.28ha.



The Council has begun work on assessing the deliverability and viability of possible SANGs and has identified three sites which could potentially be put to this use; together the sites come to almost 400ha.

- 6.5.3 The Council has also, through DP13, committed to preparing an Ashdown Forest Access Management and Monitoring Strategy so that the visiting patterns of those visitors who will continue to use Ashdown Forest can be monitored and managed, with the aim of ensuring there is no reduction in the populations of Dartford warbler and nightjar (and woodlark).

*Objective 2: Maintain the range (geographic extent) of the population of each of the Annex 1 bird species for the foreseeable future*

- 6.5.4 Assuming that SANGs are brought forward and successfully delivered in tandem with new residential development, there are unlikely to be range contractions for Dartford warbler and nightjar (and woodlark) as a consequence of increasing visitor rates resulting from District Plan development.

*Objective 3: Maintain sufficient area of suitable habitat to maintain the populations of each of the Annex 1 bird species on a long term basis*

- 6.5.5 The District Plan commits to developing an Access Management and Monitoring Strategy for Ashdown Forest, in consultation with the Conservators, Natural England and other stakeholders. This offers a reasonable prospect of ensuring that sufficient area of suitable breeding and foraging habitat (in the absence of excess disturbance) for Dartford warbler and nightjar (and woodlark) is likely to be maintained on a long-term basis.

## 6.6 Assumptions and Limitations

- 6.6.1 The precise level of residential development that will come forward within the 7km zone over the plan period is not yet known. But the Council has demonstrated that the number of additional homes is likely to be relatively low (between 200 and 500) and that ample opportunities exist to provide sufficient SANG. It is not yet known what capacity Ashplatts Wood and Gravetye Woods (the two potential SANGs with existing public access) have to absorb new visits. But given their combined area, and the character of the district in general, it seems likely that sufficient land will be available to satisfactorily cater for the increased pressure for semi-natural recreation that results from development.

- 6.6.2 Further work has also been carried out to decide upon a funding mechanism to deliver the SANG, and to develop the Access Management and Monitoring Strategy for Ashdown Forest. At the present stage, based on the latest information and current regulations, the funding mechanism will be from development contributions collected via the Community Infrastructure Levy.

## 6.7 Conclusions and Recommendations

6.7.1 Developer contributions will be collected via the Community Infrastructure Levy (CIL) in order to facilitate the delivery of SANG within the 7km zone of influence. Under the CIL each development pays a flat rate towards a variety of infrastructure types. Delivery of SANG and the Access Management and Monitoring Strategy will be included within the Infrastructure Delivery Plan for the district. Through its governance of the CIL, the Council commits to providing SANG in accordance with the Revised Draft District Plan and its HRA.

6.7.2 The sum required for SANG within Mid Sussex will firstly be determined by the preferred option for delivering SANG. The evidence base for establishing and justifying this sum needs to be robust and informed by (i) estimations of the likely increase in population within the zone of influence, (ii) a detailed and costed programme of works to establish the SANG, and (iii) costs for management and maintenance of the site as SANG in perpetuity (i.e. at least 80 years).

### *Developing a cost for SANG*

6.7.3 In order to establish the cost of delivering a SANG, the following work needs to be undertaken:

- ▶ Agree the preferred site(s) for delivering SANG;
- ▶ Develop and cost a SANG delivery plan for the agreed site(s);
- ▶ Develop and cost a management plan for the proposed SANG(s), for a period of at least 80 years;
- ▶ Using the above, calculate the total costs for delivering the SANG(s);

### *Options for establishing an Access Management and Monitoring Strategy*

6.7.4 The approach to developing options for strategic access management and monitoring is well established in the Thames Basin. For each of the SPAs, a plan has been developed which sets out the access management works required on the SPA to mitigate the effect of development, along with a programme for monitoring the impact of visitors on the SPA. Each plan has been written by site managers and approved by Natural England. These plans are also in perpetuity. The plans produced are priced and the cost is used to calculate the sum required from CIL.

6.7.5 It is recommended that a similar approach is adopted for Ashdown Forest. In order to take this forward, an access management strategy and associated programme of works will need to be set out for the site. This should be led by the Conservators of Ashdown Forest, in association with Mid Sussex District Council, Natural England and Wealden District Council. The strategy should include a programme of monitoring to check the effectiveness of measures. Both the access works and the monitoring will need to be detailed and have costs attached to them.

### *Issues to consider in developing an Access Management Strategy*

- 6.7.6 Consultations with the Conservators of Ashdown Forest have revealed a number of issues at which onsite access management measures should be targeted. The Conservators have also provided a preliminary list of measures which could be implemented, and supporting monitoring initiatives. These are listed in Table 6.3 and should be further explored through the development of the Access Management and Monitoring Strategy.

*Table 6.3: Considerations for access management within Ashdown Forest*

#### Onsite issues which access management could help address

- Vandalism – including fire, fly-tipping, off-roading
- Enrichment and pollution plus introduction of alien species e.g. *Crocasmia* – dumped household garden waste
- Public hostility – opposition to site management
- Fragmentation within the heath – due to new footpaths and wider tracks
- Fragmentation between heathland blocks – increased traffic and wider roads
- Enrichment – due to dog waste
- Disturbance – from visitors and their dogs
- Trampling

#### Possible access management measures to explore

- Ranger-led, on-Forest campaigns, including weekend volunteers, to encourage/enforce a dogs-on-leads policy in grazed areas
- Employ additional (seasonal?) Rangers to enforce laws and byelaws regarding dog behaviour
- Dog faeces collection bins in car parks
- Additional education in car parks to explain the ecological benefit of keeping dogs under control
- Dog owner training courses specifically aimed at behaviour towards livestock
- Additional interpretation and education to explain the ecological benefit of keeping dogs under control
- Firebreak / ride re-orientation to lead visitors away from most sensitive sites
- Car park re-location to lead visitors away from most sensitive sites
- Self-guided trails to lead visitors away from most sensitive sites
- Encouraging gorse to grow to act as ride hedges

#### Monitoring

- Visitor behaviour surveys
- Status of birds
- Impacts on habitat e.g. ride species composition, ride width, erosion

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## 7 Determining Effects on Site Integrity

### 7.1 Introduction

7.1.1 Using the information presented in Chapters 5 and 6, the following sections consider whether there will be adverse effects on the integrity of Ashdown Forest SAC or SPA.

7.1.2 English Nature (2004; now Natural England) has produced guidance on determining site integrity which includes a 'simple, pragmatic checklist' for assessing likely effects on integrity. This requires the assessor to pose a series of five questions to consider whether the Appropriate Assessment has shown:

- ▶ That the area of Annex 1 habitats (or composite features) will not be reduced?
- ▶ That there will be no direct effect on the population of the species for which the site was designated or classified?
- ▶ That there will be no indirect effects on the populations of species for which the site was designated due to loss or degradation of their habitat (quantity/quality)?
- ▶ That there will be no changes to the composition of the habitats for which the site was designated (e.g. reduction in species structure, abundance or diversity that comprises the habitat over time)?
- ▶ That there will be no interruption or degradation of the physical, chemical or biological processes that support habitats and species for which the site was designated or classified?

7.1.3 The guidance suggests that if the answer to all of these questions is 'Yes' then it is reasonable to conclude that there is not an adverse effect on integrity. If the answer is 'No' to one or more of the questions then further site-specific factors need to be considered in order to reach a decision. Such factors include:

- ▶ Scale of impact;
- ▶ Long term effects and sustainability;
- ▶ Duration of impact and recovery/reversibility;
- ▶ Dynamic systems;
- ▶ Conflicting feature requirements;
- ▶ Off-site impacts; and
- ▶ Uncertainty in cause and effect relationships and a precautionary approach.

7.1.4 This two-step process is applied to determine whether there will be adverse effects on Ashdown Forest SAC or SPA as a result of the Revised Draft District Plan.

## 7.2 Ashdown Forest SAC

### Step-one tests

Has the Appropriate Assessment shown:	Y/N
That the area of annex I habitats (or composite features) will not be reduced?	Yes
That there will be no direct effect on the population of the species for which the site was designated or classified?	N/A*
That there will be no indirect effects on the populations of species for which the site was designated or classified due to loss or degradation of their habitat (quantity/quality)?	Yes**
That there will be no changes to the composition of the habitats for which the site was designated (eg reduction in species structure, abundance or diversity that comprises the habitat over time)?	Yes
That there will be no interruption or degradation of the physical, chemical or biological processes that support habitats and species for which the site was designated or classified?	Yes

\* SAC not designated for any Annex 2 species. Great crested newt is present but not as a primary reason for site selection.

\*\* Considered as typical species for the purposes of the assessment

- 7.2.1 The ecological integrity of Ashdown Forest SAC is unlikely to be adversely affected as a result of the Revised Draft District Plan, in relation to atmospheric pollution. Step-two tests are not necessary.

## 7.3 Ashdown Forest SPA

### Step-one tests

Has the Appropriate Assessment shown:	Y/N
That the area of annex I habitats (or composite features) will not be reduced?	Yes
That there will be no direct effect on the population of the species for which the site was designated or classified?	Yes
That there will be no indirect effects on the populations of species for which the site was designated or classified due to loss or degradation of their habitat (quantity/quality)?	Yes
That there will be no changes to the composition of the habitats for which the site was designated (eg reduction in species structure, abundance or diversity that comprises the habitat over time)?	Yes
That there will be no interruption or degradation of the physical, chemical or biological processes that support habitats and species for which the site was designated or classified?	Yes

- 7.3.1 The ecological integrity of Ashdown Forest SPA is unlikely to be adversely affected as a result of the Revised Draft District Plan, in relation to disturbance. Step-two tests are not necessary.



## 8 Conclusions

### 8.1 Conclusions

- 8.1.1 This report presents the Habitats Regulations Assessment of the Revised Draft District Plan for Mid Sussex. It presents a revised screening assessment to determine which aspects of the plan are likely to lead to significant effects, and renews the Appropriate Assessment to determine whether there will be adverse effects on the integrity of Ashdown Forest SAC or SPA.
- 8.1.2 The report establishes the nature and severity of effects on ecological integrity and assesses the avoidance and mitigation measures put forward within the Revised Draft District Plan, drawing on the information that is currently available. It provides recommendations for additional monitoring measures to help ensure that adverse effects on the European sites can be avoided.
- 8.1.3 In conclusion, in relation to the SAC, modelling of the traffic impacts of the Revised Draft District Plan has shown that predicted traffic increases are not sufficiently large to adversely affect the designated habitats.
- 8.1.4 In relation to the SPA, the HRA concludes that measures to avoid or mitigate the adverse effects of increasing recreational pressure are capable of being delivered, and thus no adverse effects on integrity are expected. Potential sites to be brought forward for use as SANG are identified, and these are of sufficient size to accommodate the additional recreational pressure expected to result from the likely number of homes to be developed within the 7km zone of influence. Furthermore, the Revised Draft District Plan commits to the development of an Access Management and Monitoring Strategy for delivery within Ashdown Forest.

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## Appendix I: Favourable Condition Table for Ashdown Forest

The Conservation Objectives for the Ashdown Forest SPA and SAC are shared with the SSSI (please note, only those components relating specifically to the European-qualifying features are reproduced below): subject to natural change, to maintain the following habitats and geological features in favourable condition (\*), with particular reference to any dependent component special interest features (habitats, vegetation types, species, species assemblages etc) for which the land is designated.

(\*) or restored to favourable conservation status if features are judged to be unfavourable.

### Conservation Objective for Habitat Extent

To maintain the designated habitats in favourable condition, which is defined in part in relation to a balance of habitat extent (extent attribute). On this site favourable condition requires the maintenance of the extent of each designated habitat type. Maintenance implies restoration if evidence from condition assessment suggests a reduction in extent.

Habitat Feature	Estimated extent (ha)	Measure	Site Specific Targets	Comments
Dwarf Shrub Heath	Dry heath: 320.49 Wet heath: 298.86 Mixed/unknown heath: 969.64 Total: 1588.99	Field survey and aerial photos (using photos from 2001). Check edges when they are defined by trees, scrub or bracken, to avoid encroachment into the heath. Aerial photos may be a good way to measure any changes.	No un-consented decline in the area of the habitat, except where a target has been set to increase the extent of other habitat features on the site at the expense of lowland heath. Sufficient area of suitable habitat to bryophyte and lichen populations: Area maintained where soils wet in winter /droughted in summer. No loss of open heath (where Calluna/grass cover is less than 50%). Open heath & bare ground to remain in same location.	Lowland heathlands are habitats created mostly through human management by grazing, cutting and burning. If they are left to natural processes, then they lose their open character and disappear under thick scrub or secondary forest. However some fluctuations and variations from year to year are normal and acceptable. Heath is important for bryophytes and lichens, some species are poor dispersers. Factors that reduce the area of open heath are damaging. Several bryophyte and lichen species require open bare ground that is wet in winter but dry in summer. Refer to site dossier for base-line info and location of important areas for bryophytes and lichens.

Open Standing Water	At least 17.15ha (probably includes some running water)	Assessment against baseline map. Aerial photographs may be useful. Record number of ponds once every 3 years (any time of year). Include breeding ponds and non-breeding ponds. The latter may be used to forage or to support prey populations.	Ponds (permanent and temporary) to remain in suitable numbers to sustain the size and range of great crested newt population. Once a survey has been carried out, a target for the minimum number of ponds should be set. No net loss of extent	There are over 100 ponds at Ashdown forest that support invertebrates and great crested newts. Assess changes caused by active management, such as infilling or channel diversion. Changes due to drying out or succession are covered later. In exceptional cases, a net loss may be acceptable if enhancements are made to remaining ponds. A full great crested newt survey is in process.
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#### Conservation Objective for Species Populations

To maintain the designated species in favourable condition, which is defined in part in relation to their population attributes. On this site favourable conservation status requires the maintenance of the population of each designated species or assemblage. Maintenance implies restoration if evidence from condition assessment suggests a reduction in size of population or assemblage.

Species Feature	Habitat Feature	Population Attribute	Site Specific Target Range and Measures	Comments
Nightjar, <i>Caprimulgus europaeus</i>	Dwarf Shrub Heath	35 pairs (1991-92 survey) 1.1% of British population	Maintain population within acceptable limits: Maintain the population above 75% (27 pairs) of that at designation - loss of 25% (9 pairs) or more unacceptable. Use counts or estimates of numbers of breeding individuals, pairs or calling males, occupied breeding sites or occupied territories.	Standard monitoring methods are widely published and recommended species-specific surveys are listed in Part 2 (available on JNCC website).
Dartford warbler, <i>Sylvia undata</i>	Dwarf Shrub Heath	20 pairs (1994 survey) 2.1% of British population	Maintain population within acceptable limits: Maintain the population above 75% (15 pairs) of that at designation - loss of 25% (5 pairs) or more unacceptable. Use counts or estimates of numbers of breeding individuals, pairs or calling males, occupied breeding sites or occupied territories.	Standard monitoring methods are widely published and recommended species-specific surveys are listed in Part 2 (available on JNCC website).
Great crested	Open standing	Eggs - Awaiting	Present in all or sample <sup>4</sup> of breeding ponds <sup>5</sup> at least once	Eggs normally laid starting mid-

<sup>4</sup> Use a sample at sites with high numbers of ponds (>20), where monitoring each pond is prohibitive; select at least 20 individual breeding ponds or 10% of all breeding ponds (whichever is larger), to represent geographic spread and variation in pond type plus immediate terrestrial habitat across the site. Sample ponds should ideally support a majority of the breeding population.

newt, <i>Triturus cristatus</i>	water	the results of a full survey	every 4 years. (i.e. acceptable for eggs to be absent from individual ponds 3 years out of 4; fail if any breeding pond lacks eggs for 4 years) Record presence by one day or night visit Mid-March – Mid-May. Survey for 4 consecutive years	February (southern England) but increasing numbers present (and therefore easier to find) through spring. Best to combine with visit for adult attribute.
Great crested newt, <i>Triturus cristatus</i>	Open standing water	Adults - Awaiting the results of a full survey	Peak count <sup>6</sup> should be at least 20% of the previous peak count recorded over 4 consecutive years. Record total adults detected in all or sample <sup>1</sup> ponds in spring. Record for 4 consecutive years within each 6 year reporting cycle. 3 visits per year required. Timing based on known peak season for the area, and in-year weather conditions; likely to be Mid-April to Mid-May. Derive peak by summing counts across site on "best" night for each season.	Considerable between-year variation is frequent.

#### Conservation Objective for Dwarf Shrub Heath

To maintain the Dwarf Shrub Heath at this site in favourable conservation status, with particular reference to relevant specific designated interest features. Favourable conservation status is defined at this site in terms of the following site-specific standards:

Criteria Feature	Attribute	Measure	Site Specific Targets	Comments
Lowland dry and wet heathland	Bare ground (%)	Visual assessment of cover, using structured walk or transects	At least 1% but not more than 10% cover of the area of the feature should consist of firm, sunlit, horizontal, sloping or vertical, exposed bare ground. <1% of habitat heavily disturbed, eroded or showing signs of trampling/paths	Bare ground should form a patchwork with vegetation and be present mainly in south-facing slopes. Exclude rock, stone, litter and for wet heaths: bryophyte/lichen mats or heavily trampled soil. Tracks or paths can be a source of bare ground for nesting invertebrates. Record presence or signs of overgrazing & fires in the activities list on the field form. Burning of wet heath should be carried out in a controlled manner on a 10-20 year cycle.
Bryophyte species of	Niche diversity	Visual assessment	Features such as banks and paths retained	Several species have specialist requirements of

<sup>5</sup> Breeding ponds are those which have egg-laying and successful metamorphosis at least 1 in every 4 years.

<sup>6</sup> Peak count to be taken as the highest site total from monitoring data in the 3 years leading up to designation.

lowland heathland with bare ground that is winter-wet, summer droughted, and with light disturbance		based on mapping and aerial photographs		open bare ground (often with only other bryophytes and lichens as associates) that are wet in winter but dry out in summer. The regular use of paths or tracks is beneficial as long as there is not excessive erosion.
Lowland dry and wet heathland	Vegetation structure: growth phase composition of ericaceous cover	Visual assessment of total ericaceous cover, using structured walk or transects	Pioneer (& pseudo-pioneer): 10-40% Building/mature phase: 20-80% Degenerate phase: <30% Dead: <10% Presence of heather in all stages	Both young and mature stands would meet the targets, though structurally very different. Annual variation and succession should be accounted for within the targets. This attribute should be assessed only where it is possible to differentiate the growth phases. No one growth form should dominate.
	Vegetation structure: where bryophyte species of lowland heathland with bare ground that is winter-wet, summer droughted with light disturbance are present	Visual assessment	At least 50% of area to consist of pioneer/ degenerate Calluna OR at least 50% of site with vegetation height less than 15 cm	Bryophytes can survive under an open canopy of Calluna in degenerate/pioneer stages, but not under a dense canopy. Aim should be to retain/create bare patches in heath mosaic.
Lowland dry and wet heathland	Vegetation composition: dwarf shrubs	Visual assessment of cover, using structured walk or transects	At least two species of dwarf shrubs present and at least frequent. Dwarf shrub cover 25-90% Total Ulex and/or Genista spp. Cover <50%, Ulex europaeus <25% for dry heath and <10% for wet heath.	Dwarf-shrubs include: <i>Arctostaphylos uva-ursi</i> , <i>Calluna vulgaris</i> , <i>Empetrum nigrum</i> , <i>Erica ciliaris</i> , <i>E.cinerea</i> , <i>E.tetralix</i> , <i>E.vagans</i> , <i>Genista anglica</i> , <i>G.pilosa</i> , <i>Ulex gallii</i> , <i>U. minor</i> , <i>Vaccinium myrtillus</i> , <i>Vaccinium</i> spp. and <i>V.vitis-idaea</i> (and hybrids). Assess over whole feature. Annual variation and succession should be accounted for within the targets.  Gorse species support a rich invertebrate and vertebrate fauna. However, they can also

				affect soil characteristics. See also 'negative indicators.'
Lowland dry heathland	Vegetation composition: graminoids	Record presence, using structured walk or transects	At least 1 spp frequent and 2 spp occasional ( <i>Deschampsia flexuosa</i> and <i>Nardus stricta</i> no more than occasional & <25% cover): <i>Agrostis</i> , <i>Festuca</i> & <i>Carex</i> spp., <i>Ammophila arenaria</i> , <i>Trichophorum cespitosum</i> , <i>Deschampsia flexuosa</i> , <i>Danthonia decumbens</i> , <i>Molinia caerulea</i> , <i>Nardus stricta</i> .	In naturally species-poor sites, the presence of just one graminoid species may be enough to meet the target. For species-rich sites a higher target may be appropriate (see text).
Lowland wet heathland	Vegetation composition: graminoids	Visual assessment of cover, using structured walk or transects	At least 1 spp frequent and 2 spp occasional: <i>Eleocharis</i> spp., <i>Carex panicea</i> , <i>C. pulicaris</i> , <i>Eriophorum angustifolium</i> , <i>Juncus acutiflorus</i> , <i>J. articulatus</i> , <i>Molinia caerulea</i> , <i>Rhynchospora alba</i> , <i>Schoenus nigricans</i> , <i>Trichophorum cespitosum</i> .	<i>Molinia</i> no more than occasional and <i>Schoenus</i> at least occasional when naturally present. In naturally species-poor sites, the presence of just one graminoid species may be enough to meet the target. For species-rich sites a higher target may be appropriate (see text).
Lowland dry heathland	Vegetation composition: desirable forbs	Record presence, using structured walk or transects	At least 2 species occasional: <i>Viola riviniana</i> , <i>Armeria maritima</i> , <i>Galium saxatile</i> , <i>Genista anglica</i> , <i>Potentilla erecta</i> , <i>Hypochaeris radicata</i> , <i>Lotus corniculatus</i> , <i>Plantago lanceolata</i> , <i>P. maritima</i> , <i>Polygala serpyllifolia</i> , <i>Rumex acetosella</i> , <i>Scilla verna</i> , <i>Serratula tinctoria</i> , <i>Thymus praecox</i> ,	In naturally species-poor sites, the presence of just one forb species may be enough to meet the target. For species-rich sites a higher target may be appropriate (see text).
Lowland wet heathland	Vegetation composition: desirable forbs	Visual assessment of cover, using structured walk or transects	At least 2 species occasional: <i>Anagallis tenella</i> , <i>Drosera</i> spp., <i>Galium saxatile</i> , <i>Genista anglica</i> , <i>Myrica gale</i> , <i>Narthecium ossifragum</i> , <i>Pinguicula</i> spp., <i>Polygala serpyllifolia</i> , <i>Potentilla erecta</i> , <i>Serratula tinctoria</i> , <i>Succisa pratensis</i> .	In naturally species-poor sites, the presence of just one forb species may be enough to meet the target. For species-rich sites a higher target may be appropriate (see text).
Lowland dry and wet heathland	Vegetation composition: bryophytes and lichens	Visual assessment of cover, using structured walk or transects	Dry Heath: % cover maintained or increased (if naturally present) Wet Heath: >10% cover of <i>Sphagna</i> and >5% cover of lichens (if naturally present)	Not applicable on all sites. Refer to existing information and surveys of the site. Does not include dense mats of acrocarpous mosses which should be no more than occasional



Lowland dry and wet heathland	Indicators of local distinctiveness :	As appropriate to feature	Maintain distinctive elements at current extent/levels and/or in current locations. Map area of species, maintain area	This attribute is not intended to set a target for detailed species monitoring, rather to provide a rapid indication of presence/ absence and/or approximate extent
Lowland dry and wet heathland	Negative indicators: Exotic Species	Visual assessment of cover, use structured walk or transect	<1% exotic species, e.g.: <i>Gaultheria shallon</i> , <i>Fallopia japonica</i> , <i>Rhododendron ponticum</i> <i>Acrocarpus</i> mosses <occasional e.g. <i>Campylopus introflexus</i> <10% bracken but <5% bracken for wet heath	Exotic species should be eradicated if possible. Species in this list may be beneficial for a range of invertebrates and only become indicators of negative quality if they are over the established limit.
Lowland dry and wet heathland	Negative indicators: Herbaceous Species	Visual assessment of cover, use structured walk or transect	< 1 % ragwort, thistles and: <i>Cirsium arvense</i> , <i>Digitalis purpurea</i> , <i>Epilobium</i> spp. (excl. <i>E. palustre</i> ), <i>Juncus effusus</i> , <i>J. squarrosus</i> , <i>Rumex obtusifolius</i> , <i>Urtica dioica</i> and: Dry heath <1%: <i>Chamerion angustifolium</i> , <i>Ranunculus</i> spp., <i>Senecio</i> spp. coarse grasses Wet heath <1%: <i>Apium nodiflorum</i> , <i>Fallopia japonica</i> , <i>Glyceria fluitans</i> , <i>Oenanthe crocata</i> , <i>Phragmites</i> spp., <i>Ranunculus repens</i> , <i>Senecio jacobaea</i> , <i>Typha</i> spp., <i>Urtica</i> spp.	Species in this list may be beneficial for a range of invertebrates and only become indicators of negative quality if they are over the established limit.
Lowland dry and wet heathland	Negative indicators: Tree and Scrub Species	Visual assessment of cover, using structured walk or transects	Trees and shrub <15% (but <10% for wet heath), e.g. <i>Prunus spinosa</i> , <i>Betula</i> , <i>Pinus</i> , <i>Quercus</i> & <i>Rubus</i> spp. Dry heath: <i>Hippophae rhamnoides</i> , <i>Sarothamnus scoparius</i> Wet heath: <i>Alnus glutinosa</i> , <i>Salix</i> sp.	Up to 25% scrub cover can be accepted if indicated in conservation objectives or management plan.
Lowland wet heath	Negative indicators: signs of disturbance	Visual assessment of cover, use structured walk or transect	No silt, leachate or artificial drains	Drains can adversely affect hydrology.

Conservation Objective for Open Standing Water

To maintain the open standing water habitat at this site in favourable conservation status, with particular reference to relevant specific designated interest features. Favourable conservation status is defined at this site in terms of the following site-specific standards:

Criteria Feature	Attribute	Measure	Site Specific Targets	Comments
Great crested newt, <i>Triturus cristatus</i>	Aquatic macrophyte cover	"Good" cover of marginal vegetation, emergent, submerged and/or floating vegetation to be present in at least 50% of breeding ponds.	Visual assessment between May and mid-September. Record for 4 consecutive years within each 6 year reporting cycle. 1 visit per year required. "Good" defined as: 25% - 100% of margin covered by marginal and emergent species, and 25% - 75% of pond bottom/ midwater/ surface covered by submerged or floating species.	This attribute allows for considerable variation in aquatic vegetation, but should prohibit a majority of ponds becoming overgrown, or suffering severe macrophyte die-back. Short-term algal blooms and duckweed <i>Lemna</i> coverage not normally problematic. Attribute should also serve as a proxy for detecting eutrophication, toxic spills, catastrophic reduction in invertebrate community, or underlying water quality issues; however if other evidence confirms one of these is a serious problem in >50% of ponds and the vegetation cover measures are nonetheless acceptable, then the attribute should fail.
Great crested newt, <i>Triturus cristatus</i>	Pond shading by scrub/trees	Sites with <20 breeding ponds: <25% of breeding ponds to have >20% of southern margin solidly shaded. Sites with >20 breeding ponds: Use above target in most cases, but if the habitat type and previous newt monitoring suggest a higher extent of shading is acceptable, <50% of breeding ponds to have >20% of southern margin solidly shaded.	Visual assessment of extent and orientation of pond margin solidly shaded by scrub/trees directly overhanging or adjacent to margin (not floating or emergent macrophytes). Assess April to June. Record once every 3 years. Shade should only be counted if relatively solid (and therefore likely to cause lower light levels and lower water temperatures).	Shading of southern margin is detrimental. Some shading of northern margin is often beneficial. Note that site context is important to consider (eg woodland sites should have higher threshold for shading than sand dune sites).
Great crested newt, <i>Triturus cristatus</i>	Terrestrial refuge habitat - structure and quality	Presence of suitable terrestrial refuge habitat – define on site basis.	Visual assessment at any time of year. Record once every 3 years.	High inter-site variation; dependent on site context. Record key features at time of designation and define components providing refuge potential; mark on map. May include discrete features or

				<p>patches of habitat. Base on habitat structure that (i) provides refuge from extremes of climate (hot, cold, or dry); (ii) provides daytime shelter; (iii) is conducive to invertebrate prey populations. Most important close (&lt;50m) to main breeding ponds. Most often provided by shrub layer, tussocky grass/rushes/sedges, scrub, woodland, leaf litter, cracked clay, quarry spoil, rubble, heaped brash, deadwood, log piles. Eg broadleaved woodland sites may have much undisturbed leaf litter, deadwood and exposed old root systems.</p>
Great crested newt, <i>Triturus cristatus</i>	Pond persistence	<p>Generic target for most sites: Minimum summer water depth 10cm for at least 50% of all or sample 1 breeding ponds on each year of assessment. Note: the target may be adjusted downwards at sites where early desiccation is a natural feature (e.g. sand dunes, with many small, shallow ponds in close proximity) and where previous records demonstrate this is consistent with population viability. Target may be adjusted upwards at sites supporting ponds that do not normally dry out in summer.</p>	<p>Record approximate depth of water in identified breeding ponds between mid-August and mid-September. Visual assessment is suitable. Record once every 3 years.</p>	<p>High inter-site variation. Note the requirement for setting site-specific objectives with deviation from the standard target at sites where ponds naturally desiccate more frequently and earlier in the season without negatively affecting population viability. Target setting may require examination of historical site records and weather conditions to assess normal desiccation pattern. Premature desiccation (ie before mid-July (southern ponds) to mid-August (northern ponds)) is acceptable for all ponds in two out of three years provided highly successful recruitment in third year. Three consecutive years of desiccation with no recruitment should be considered unfavourable. Deep ponds are acceptable at sites where there is no chance of colonisation by fish.</p>
Great crested newt, <i>Triturus cristatus</i>	Terrestrial habitat extent	<p>No loss of area or fragmentation of site (through significant barriers to newt dispersal), compared with status at designation.</p>	<p>Determine area by walking site and comparing with map or aerial photo; most semi-natural habitats within 500m of breeding pond to be included. Assess</p>	<p>Can be modified if there have been major, beneficial habitat alterations since designation</p>

			presence of fragmentation. Any time of year. Record once every 3 years. Fragmentation refers to significant barriers to movement such as walls, buildings, and not, for instance, footpaths or tracks.	
Great crested newt, <i>Triturus cristatus</i>	Fish and wildfowl	Sites with fewer than 5 breeding ponds: Fish and wildfowl problems absent from all ponds. Sites with > 5 breeding ponds: Fish and wildfowl problems absent from >75% of ponds.	Visual assessment, March-September. Record for 4 consecutive years within each 6 year reporting cycle. 1 visit per year required. Look for fish and stocked wildfowl, or evidence of their presence: characteristic disturbance at water surface for fish, high turbidity, nests, droppings at pond margin, major loss of aquatic macrophytes, presence of algal blooms, heavily grazed grasses on bank. Numbers required to fail target: Fish: any number of individuals (need only to determine presence). Wildfowl: > 4 pairs/ha of open water.	Fish refers to all species known to be predators of great crested newt larvae, including stickleback, goldfish, orfe, rudd, pike, roach, perch. Target can be adjusted downwards if regular desiccation is likely, or (exceptionally) if larval survival is high despite fish presence. Target may be adjusted upwards if site is especially vulnerable (e.g. all ponds linked by ditches). "Wildfowl" refers to stocked ducks, swans or geese, and not natural populations of moorhens etc (which are not problematic).

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## Appendix II: HRA Screening Findings

The following table presents the findings of the HRA screening exercise, which categorises each policy proposal according to the likelihood of it leading to significant effects on a European site. The key which follows the table describes the colours and alphanumeric coding for each category.

No.	Policy title	Ashdown Forest	
-	Quantity and type of development	SAC	SPA
DP1	Sustainable economic development	D2	A4
DP2	Town centre development	D2	A4
DP3	Village and Neighbourhood Centre development	B	B
DP4	Housing	D2	D2
DP5	General principles for Strategic Development at Burgess Hill	A1	A1
DP6	Strategic allocation to the east of Burgess Hill at Kings Way	D2	A4
DP7	Strategic allocation to the north and northwest of Burgess Hill	D2	A4
-	Development in the countryside	SAC	SPA
DP8	Protection and enhancement of countryside	A1	A1
DP9	Preventing coalescence	A1	A1
DP10	Sustainable rural development and the rural economy	A1	A1
DP11	New homes in the countryside	A1	A1
DP12	High Weald Area of Outstanding Natural Beauty	A3	A3
DP13	Ashdown Forest SAC and SPA	A4	A4
DP14	South Downs National Park	A2	A2
DP15	Setting of the South Downs National Park	A3	A3
DP16	Sustainable tourism	A1	A1
-	Delivery of infrastructure	SAC	SPA
DP17	Securing infrastructure	A1	A1
DP18	Transport	A1	A1
DP19	Rights of Way	A1	A1
DP20	Communication infrastructure	A1	A1
DP21	Leisure and cultural activities and facilities	A1	A1
DP22	Community facilities and local services	A1	A1

-	Nature and quality of development – design	SAC	SPA
DP23	Character and design	A1	A1
DP24	Space standards	A1	A1
DP25	Accessibility	A1	A1
DP26	Noise, air and light pollution	A3	A3
-	Nature and quality of development – housing	SAC	SPA
DP27	Housing mix	A1	A1
DP28	Affordable housing	A1	A1
DP29	Rural exception sites	A1	A1
DP30	Gypsy and travellers	A1	A1
-	Nature and quality of development – historic envt.	SAC	SPA
DP31	Listed Buildings and other buildings of merit	A3	A3
DP32	Conservation Areas	A3	A3
DP33	Historic Parks and Gardens	A3	A3
DP34	Archaeological sites	A3	A3
-	Nature and quality of development – natural resources	SAC	SPA
DP35	Biodiversity	A3	A3
DP36	Green infrastructure	A1	A1
DP37	Sustainable resources	A3	A3
DP38	Renewable energy in new developments	A3	A3
DP39	Renewable energy schemes	A3	A3
DP40	Flood risk	A3	A3
DP41	Water infrastructure and the water environment	A3	A3

Key: Categories for the screening assessment of policies (derived from Tyldesley, 2009)

Category A: No negative effect	
A1	Options / policies that will not themselves lead to development e.g. because they relate to design or other qualitative criteria for development, or they are not a land use planning policy.
A2	Options / policies intended to protect the natural environment, including biodiversity.
A3	Options / policies intended to conserve or enhance the natural, built or historic environment, where enhancement measures will not be likely to have any negative effect on a European Site.
A4	Options / policies that positively steer development away from European sites and associated sensitive areas.
A5	Options / policies that would have no effect because no development could occur through the policy itself, the development being implemented through later policies in the same plan, which are more specific and therefore more appropriate to assess for their effects on European Sites and associated sensitive areas.

### Category B: No significant effect

- B** Options / policies that could have an effect, but the likelihood is there would be no significant negative effect on a European site either alone or in combination with other elements of the same plan, or other plans or projects.

### Category C: Likely significant effect alone

- C1** The option, policy or proposal could directly affect a European site because it provides for, or steers, a quantity or type of development onto a European site, or adjacent to it.
- C2** The option, policy or proposal could indirectly affect a European site e.g. because it provides for, or steers, a quantity or type of development that may be very close to it, or ecologically, hydrologically or physically connected to it or it may increase disturbance as a result of increased recreational pressures.
- C3** Proposals for a magnitude of development that, no matter where it was located, the development would be likely to have a significant effect on a European site.
- C4** An option, or policy that makes provision for a quantity / type of development (and may indicate one or more broad locations e.g. a particular part of the plan area), but the effects are uncertain because the detailed location of the development is to be selected following consideration of options in a later, more specific plan. The consideration of options in the later plan will assess potential effects on European Sites, but because the development could possibly affect a European site a significant effect cannot be ruled out on the basis of objective information.
- C5** Options, policies or proposals for developments or infrastructure projects that could block options or alternatives for the provision of other development or projects in the future, which will be required in the public interest, that may lead to adverse effects on European sites, which would otherwise be avoided.
- C6** Options, policies or proposals which depend on how the policies etc are implemented in due course, for example, through the development management process. There is a theoretical possibility that if implemented in one or more particular ways, the proposal could possibly have a significant effect on a European site.
- C7** Any other options, policies or proposals that would be vulnerable to failure under the Habitats Regulations at project assessment stage; to include them in the plan would be regarded by the EC as 'faulty planning'.
- C8** Any other proposal that may have an adverse effect on a European site, which might try to pass the tests of the Habitats Regulations at project assessment stage by arguing that the plan provides the imperative reasons of overriding public interest to justify its consent despite a negative assessment.

### Category D: Likely significant effects in combination

- D1** The option, policy or proposal alone would not be likely to have significant effects but if its effects are combined with the effects of other policies or proposals provided for or coordinated by the LDD (internally) the cumulative effects would be likely to be significant.
- D2** Options, policies or proposals that alone would not be likely to have significant effects but if their effects are combined with the effects of other plans or projects, and possibly the effects of other developments provided for in the LDD as well, the combined effects would be likely to be significant.
- D3** Options or proposals that are, or could be, part of a programme or sequence of development delivered over a period, where the implementation of the early stages would not have a significant effect on European sites, but which would dictate the nature, scale, duration, location, timing of the whole project, the later stages of which could have an adverse effect on such sites.

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The background features a large green area at the top, a grey area at the bottom, and a blue wavy line separating them. The blue line starts from the left, curves down, then up and right, then down and right, and finally up and right. There are also some orange and brown horizontal bars on the right side.

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