



Pre-Submission Redbridge Local Plan
2015-2030

Habitats Regulations Assessment

Stage 1 Screening Report

Prepared for Cundall

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Version 3.0 / Ref. 15-073-03

14/01/2016





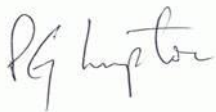
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Redbridge Local Plan

Habitats Regulations Assessment

Report Reference	Ref. 15-073-03
Date	14/01/2016
Date of survey/s	n/a

Issue	Prepared by	Checked by	Approved by	Status	Date
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1 Introduction

1.1 Aims and objectives

1.1.1 This document provides information to assist the local planning authority, London Borough of Redbridge, in carrying out a Habitats Regulations Assessment ('HRA') in accordance with Article 6(3) and (4) of the EU Habitats Directive (92/43/EEC), as Competent Authority with respect to the assessment of the Redbridge Local Plan.

1.1.2 The primary aim is to provide information to assist the Competent Authority in determining whether the Proposed Development would have a likely significant effect on Natura 2000 sites (European conservation sites), either alone or in combination with other plans or projects. This is equivalent to the requirements of Stage 1 of the HRA process, following the procedures set out in European and current national guidance (European Commission, 2001; DEFRA, 2012; Tyldseley & Chapman, 2013).

1.1.3 Following minor corrections in version 2, this final version (v3) incorporates changes in the nature conservation policies made in the 15th December 2015 Pre-Submission Working Draft of the Redbridge Local Plan.

1.2 Redbridge Local Plan

1.2.1 Redbridge Local Plan is a spatial plan containing policies to guide the location, type, scale and design of new development between 2015 and 2030 (London Borough of Redbridge, 2015).

1.2.2 The London Borough of Redbridge covers an area of 56.4km², and had a population of 279,000 at the 2011 census. This represented an annual growth rate of 1.43% over the preceding 10 years, which if projected forward at the same rate would increase by 86,000 by 2030. The Local Plan acknowledges that this growth has implications for housing and infrastructure needs.

1.2.3 The Local Plan is organised into four main Themes, comprising:

- **Theme 1: Promoting and Managing Growth**

Including policies for investing in accessible locations, meeting housing need, and extracting minerals

- **Theme 2: Promoting a Green Environment**

Including policies for promoting sustainable transport, nature conservation and pollution policies

- **Theme 3:** Achieving Design Quality
- **Theme 4:** Protecting and Enhancing the Borough's Assets

Including policies for protecting open spaces, and green infrastructure.

1.3 European conservation sites considered in assessment

1.3.1 European conservation sites comprise Special Areas of Conservation (SAC) designated under the EU Habitats Directive (Council Directive 92/43/EEC), and Special Protection Areas (SPA) classified under the EU Birds Directive (Council Directive 2009/147/EC). They collectively form part of the Natura 2000 network of European conservation sites.

1.3.2 Following an initial scanning of European sites within London Borough of Redbridge and neighbouring boroughs and districts, two potential sites were initially considered: Lee Valley Special Protection Area (SPA) and Epping Forest Special Area of Conservation (SAC).

1.3.3 After consideration of potential zones of influence and impact pathways (described in Section 3.1 below), Lee Valley SPA was excluded from further consideration, and the Stage 1 HRA focussed on Epping Forest SAC.

1.4 Regulatory basis of Habitats Regulations Assessment

European Directives

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

'Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.'

1.4.2 Article 6 (4) states: 'If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of

social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.'

National Regulations

1.4.3 The Conservation of Habitats and Species Regulations 2010 (hereafter referred to as the 'Habitats Regulations') implement the provisions of the Habitats Directive in UK law. The Habitats Regulations consolidate the Conservation (Natural Habitats &c.) Regulations 1994, and Offshore Marine Conservation (Natural Habitats &c.) Regulations 2007.

1.4.4 Regulation 61 (1) of the Habitats Regulations states:

'A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which-

(a) is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects), and

(b) is not directly connected with or necessary to the management of the site,

must make an appropriate assessment of the implications for the site in view of that site's conservation objectives.'

1.4.5 The 'competent authority' in this case comprises the London Borough of Redbridge, as local planning authority.

1.4.6 The Habitats Regulations were amended by the Conservation of Habitats and Species (Amendment) Regulations 2012. This provides for clearer transposition of the provisions of the Birds Directive into UK law, and revokes two Regulations (20 & 22) which duplicate measures to control potentially damaging activities on SSSIs. Regulation 9A sets out the duties of appropriate authorities and nature conservation bodies with respect to the Birds Directive. Regulation 9A (8) provides the legislative basis for considering pollution or deterioration of habitats inside or outside a designated site, transposing Article 4 (4) of the 2009 Birds Directive.

1.4.7 The Habitats and Birds Directives continue to have direct effect in the UK, and would prevail in the event of a conflict between their provisions and those of the Habitats Regulations (Tyldesley & Chapman, 2013).

1.5 Stages in a Habitats Regulations Assessment

1.5.1 It has been established that the assessment requirements under Article 6 of the Habitats Directive require a stage-by-stage approach, as set out in guidance by the European Commission (2001). These can most simply be categorised as follows:

- Stage 1: determination of likely significant effect;
- Stage 2: Appropriate Assessment to determine effect on site integrity;
- Stage 3: Consideration of alternatives; and
- Stage 4: Consideration of imperative reasons of over-riding public interest, and compensation measures.

1.5.2 This document provides information to support a Stage 1 HRA, in order to determine whether the Local Plan will have a likely significant effect on European sites, and whether an Appropriate Assessment is necessary.

2 Scope and methodology

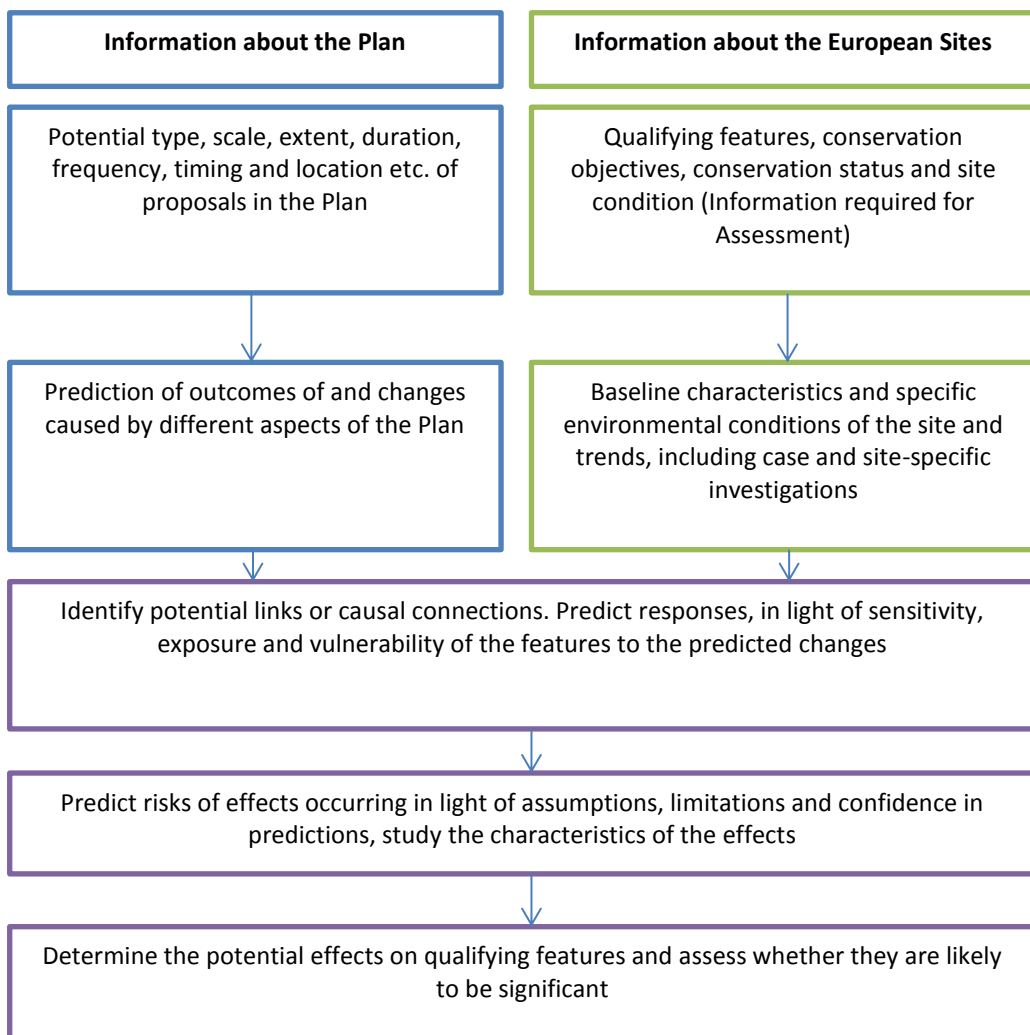
2.1 Approach to assessment

2.1.1 The approach to the assessment follows guidance in Tyldesley & Chapman (2013) on carrying out Stage 1 screening assessments of plans. This essentially requires the combination of two strands of information:

- information about the plan and its likely outcomes, and
- information about the qualifying features of relevant European sites, their conservation objectives, site condition and identified vulnerabilities.

2.1.2 This process can be illustrated by the flowchart below:

Fig. 2.1: Consideration of information concerning Local Plan and qualifying features of European sites in predicting and assessing potential effects (from Tyldesley and Chapman, 2013)



2.1.3 In order to focus on those areas of the Local Plan which have a potential effect on the qualifying features, the assessment first considers information about the European sites, and in particular the sensitivity of qualifying features to pressures or threats which may affect the maintenance or attainment of favourable conservation status.

2.2 Data sources

2.2.1 The following documents and web-based sources have been reviewed, including:

Information about European sites

- Natural England digital boundary datasets
- Natural England Site Improvement Plans
- Natural England SSSI Unit Condition Assessment digital boundary datasets
- City of London Visitor Surveys for Epping Forest.

Redbridge Local Plan and its potential ecological effects

- Redbridge Local Plan and draft Proposals Map
- Redbridge Local Plan Sustainability Appraisal.

In-combination assessment

- East London Joint Waste Strategy
- London Borough of Waltham Forest Local Development Framework Submission Core Strategy and Habitats Regulations Assessment
- Epping Forest District Council emerging Local Plan and Habitats Regulations Scoping Assessment
- Mayor of London's Transport Strategy and Integrated Impact Assessment, with the Redbridge Local Implementation Plan
- Mayor of London's Water Strategy.

3 European conservation sites

3.1 Initial scan for relevant sites

European sites in the vicinity of Redbridge

3.1.1 Figure 3.1 overleaf shows the location of European conservation sites in the wider vicinity of Redbridge Borough, together with 400m and 2km buffer zones.

3.1.2 The only European site within Redbridge is Epping Forest SPA. A total of 43.5ha of the 1604.5ha SPA (2.9% of total) is located within the borough, with other component sites immediately adjacent within the boundaries of the London Borough of Waltham Forest and Epping Forest District. Lee Valley SPA is located within Waltham Forest Borough, over 3.9km west of the Redbridge Borough boundary at its closest point.

Definition of relevant zone of influence

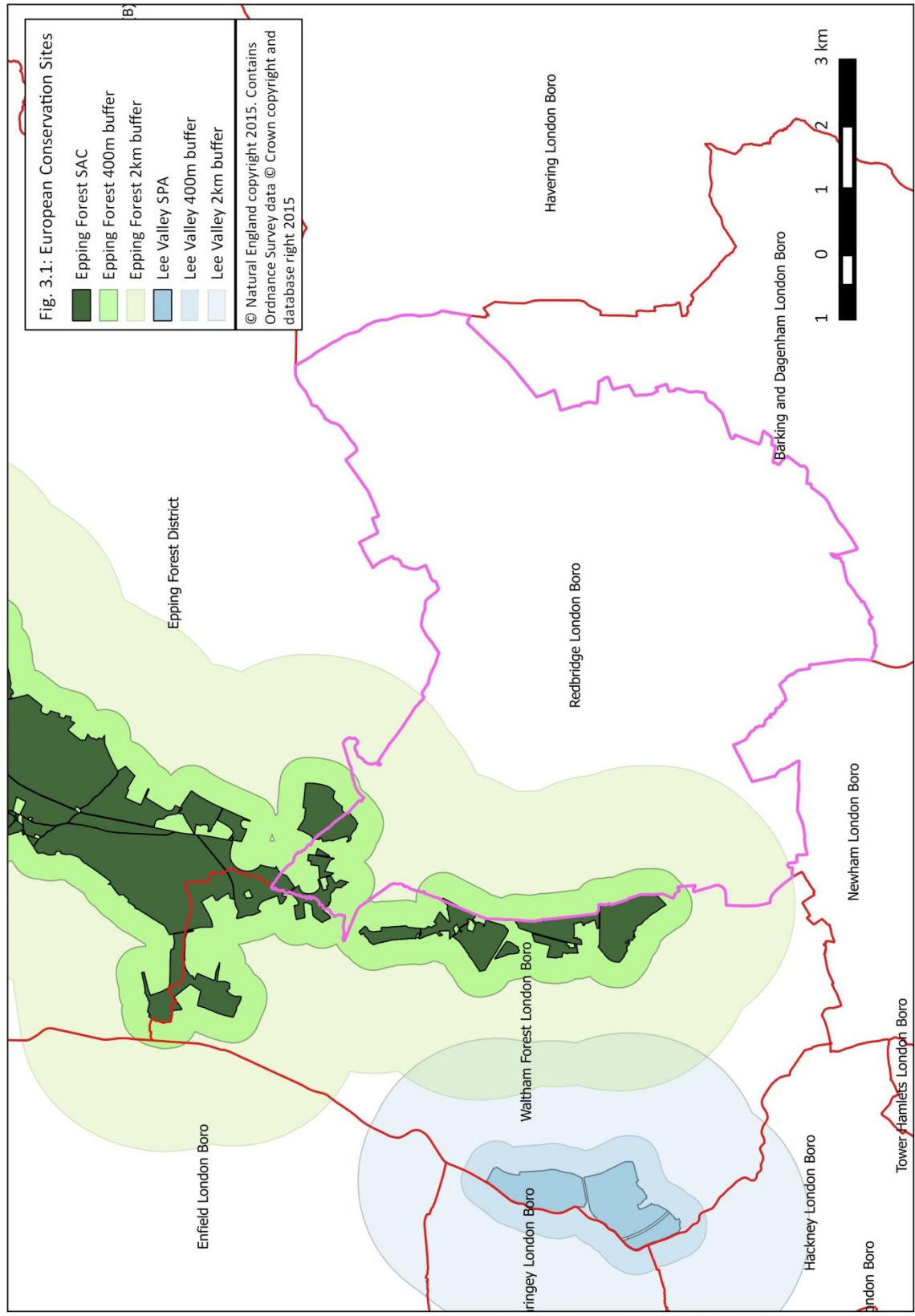
3.1.3 A 400m buffer is frequently used to define a zone of influence for housing developments which would have a likely significant effect (e.g. the 'exclusion zone' defined for Thames Basin Heaths SPA (Guildford Borough Council, 2015)). This is based on likelihood of domestic cat predation and increased levels of human access.

3.1.4 Various buffer zones are defined beyond this exclusion zone; for example, a 5km zone of influence has been defined for Thames Basin Heaths SPA where impact avoidance measures would be applied to new developments, with a 7km zone of influence for major developments.

3.1.5 For Epping Forest SAC, surveys have shown that 95% of visitors live within 2km of the site boundary (City of London, 2014), and this is therefore an appropriate zone of influence to consider with respect to recreational impacts. Over 26% of the Borough (1588ha) lies within 2km of the SAC boundary.

3.1.6 Wider zones of influence are defined with respect to air quality impacts on European sites, with distances of 10km normally defined for major point-sources such as Energy from Waste plants. With respect to the Local Plan, key air quality issues are likely to focus on diffuse pollution generated by traffic growth, unless major new roads or major growth in traffic is predicted on roads in close proximity to the European site.

3.1.7 It is reasonable to consider Lee Valley SPA as outside any relevant zone of influence for the purposes of the HRA. It is necessary to consider Epping Forest SAC with respect to a range of possible impacts, including effects of direct development within a 400m zone, and indirect impacts such as recreational and air quality effects.



3.2 Epping Forest SAC

Qualifying features

3.2.1 Qualifying features are set out below as reproduced in the SAC Citation (English Nature, 2006).

Qualifying habitats: The site is designated under **article 4(4)** of the Directive (92/43/EEC) as it hosts the following habitats listed in Annex I:

- Atlantic acidophilous beech forests with *Ilex* and sometimes also *Taxus* in the shrublayer (*Quercion robori-petraeae* or *Ilici-Fagenion*). (Beech forests on acid soils)
- European dry heaths
- Northern Atlantic wet heaths with *Erica tetralix*. (Wet heathland with cross-leaved heath)

Qualifying species: The site is designated under **article 4(4)** of the Directive (92/43/EEC) as it hosts the following species listed in Annex II:

- Stag beetle *Lucanus cervus*

3.2.2 Further information on the qualifying features is given within the Citation in the following Site Description:

“Epping Forest is a large ancient wood-pasture with habitats of high nature conservation value including ancient semi-natural woodland, old grassland plains, wet and dry heathland and scattered wetland. The semi-natural woodland is particularly extensive but the Forest plains are also a major feature and contain a variety of unimproved acid grasslands.

*The semi-natural woodlands of Epping Forest include important beech *Fagus sylvatica* forests on acid soils, which are important for a range of rare epiphytic species, including the moss *Zygodon forsteri*. The long history of pollarding, and resultant large number of veteran trees, ensures that the site is also rich in fungi and invertebrates associated with decaying timber. Records of stag beetle *Lucanus cervus* are widespread and frequent.*

*Areas of acidic grassland transitional with heathland are generally dominated by a mixture of fine-leaved grasses. In marshier areas, purple moor-grass *Molinia caerulea* frequently becomes dominant. Broad-leaved herbs typical of acidic grassland and heathland are frequent, including heather *Calluna vulgaris*. The site also contains an*

example of wet dwarf-shrub heath with both heather and cross-leaved heath Erica tetralix.”

- 3.2.3 There are no available maps which show distribution of qualifying features at site level; Natural England’s Priority Habitat database provides an indication of local distribution. However, this is based on priority habitats listed on Section 41 of the Natural Environment and Rural Communities Act 2006, which uses a different classification to the Annex I habitats, and is not therefore directly comparable. In particular, some habitats within Epping Forest SAC, particularly open acid grassland / heathland, are not shown listed in the Priority Habitats database.

Conservation Objectives

- 3.2.4 The following Conservation Objectives are set out for Epping Forest SAC (Natural England, 2014):

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the ‘Qualifying Features’ listed below), and subject to natural change:

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- **The extent and distribution of qualifying natural habitats and habitats of qualifying species;**
- **The structure and function (including typical species) of qualifying natural habitats;**
- **The structure and function of the habitats of qualifying species;**
- **The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely;**
- **The populations of qualifying species; and,**
- **The distribution of qualifying species within the site.**

Conservation Status

- 3.2.5 Information on the UK-wide conservation status of qualifying features is available through the report of the UK Government to the European Commission under provisions of Article 17 of the Habitats Directive (JNCC, 2013).

3.2.6 UK-wide conservation status is assessed using a number of parameters for habitats, including range; area; structures and functions (including pressures and current condition; and future prospects. Table 3.1 below summarises conservation status with respect to area, structures and functions and future prospects for the three component habitats of Epping Forest:

Table 3.1: UK-wide conservation status of Epping Forest SAC qualifying habitats

Habitat	Area	Structures and functions	Future prospects	Overall assessment
H9120: Beech forests on acid soils	Inadequate, stable	Bad, stable	Bad, stable	Bad, stable
H4010: Wet heaths	Favourable	Bad, declining	Bad, improving	Bad, stable
H4030: Dry heaths	Favourable	Bad, declining	Bad, improving	Bad, stable

3.2.7 For species, additional parameters include population size and population trend, as well as the area, quality and trend of supporting habitat. Table 3.2 summarises the assessment for the only qualifying species, stag beetle:

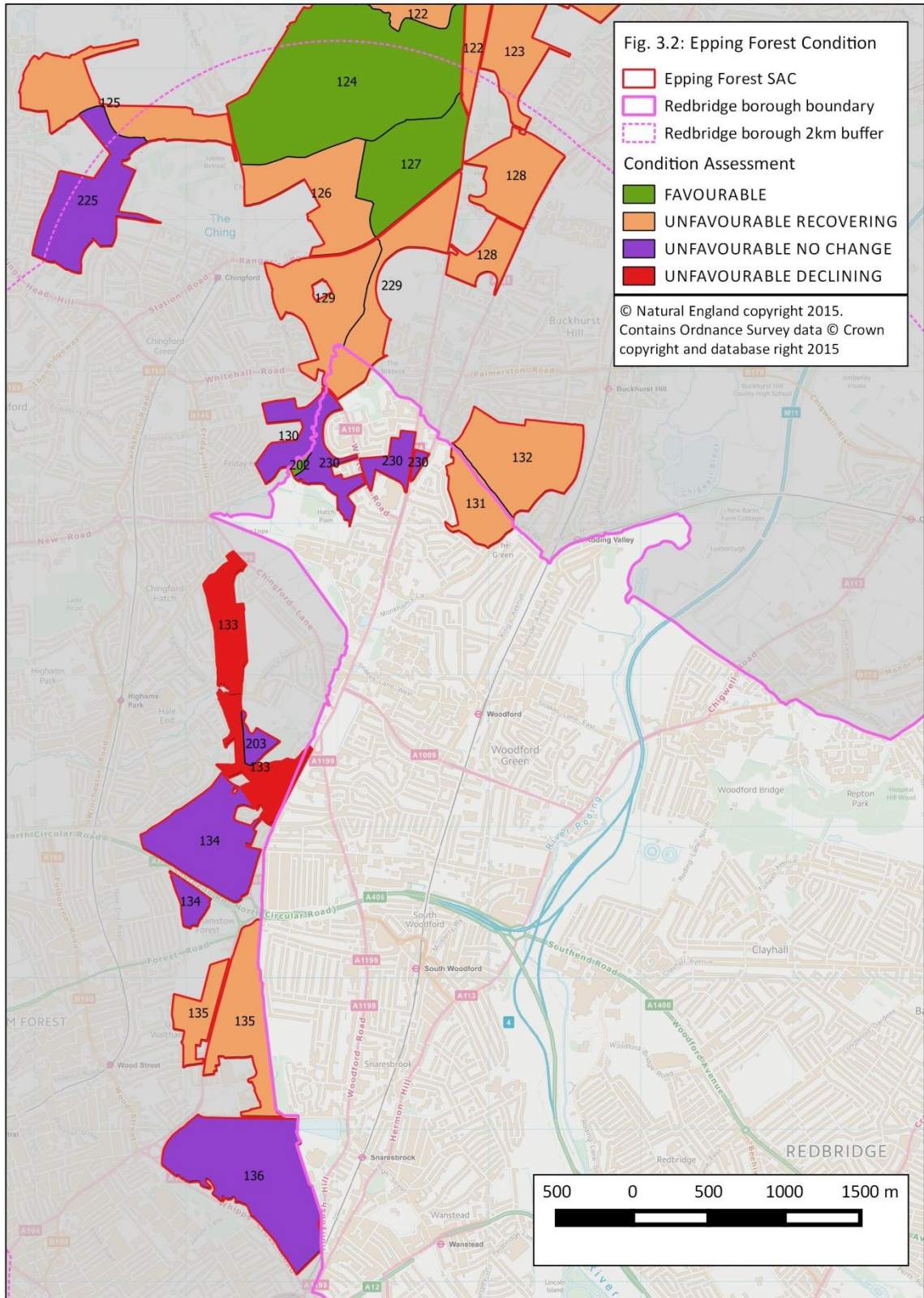
Table 3.2: UK-wide conservation status of Epping Forest SAC qualifying species

Species	Population size and trend	Habitat for the species	Future prospects	Overall assessment
S1083: stag beetle	Favourable	Favourable	Favourable	Favourable

Site condition

3.2.8 Condition assessment of European sites is assessed by Natural England as part of Common Standards Monitoring of European site qualifying features and Site of Special Scientific Interest (SSSI) qualifying interests. These are available at the level of the SSSI management unit.

3.2.9 Figure 3.2 overleaf illustrates the condition of those component units of Epping Forest SAC situated either within Redbridge Borough, or within 2km of the borough boundaries.



3.2.10 Table 3.3 below provides a summary of the relevant units, including the main reasons for their condition assessment, as summarised from data accessed from the Natural England website:

Table 3.3: Condition Assessment of relevant SSSI units

Main Habitat	Unit Number	Area (ha)	Assessment Description	Adverse Condition Reasons
<i>Units wholly or partly within Redbridge Borough</i>				
BROADLEAVED, MIXED AND YEW WOODLAND - Lowland	131	16.1296	Unfavourable - Recovering	Air quality - nitrogen deposition, acid deposition. Anticipated recovery dependent on management.
BROADLEAVED, MIXED AND YEW WOODLAND - Lowland	133	32.7841	Unfavourable - Declining	Air quality - nitrogen deposition, acid deposition (stress symptoms of veteran trees, sparse bryophytes, excessive bramble growth, excessive grass growth relative to broadleaved species, dense stands of nettles along roadsides and ride edges)
BROADLEAVED, MIXED AND YEW WOODLAND - Lowland	202	0.86	Favourable	Air quality - nitrogen deposition, acid deposition
BROADLEAVED, MIXED AND YEW WOODLAND - Lowland	230	19.8366	Unfavourable - No change	Air quality - nitrogen deposition, acid deposition (stress symptoms of veteran trees, sparse bryophytes, excessive bramble growth, excessive growth of grasses compared to herbs, dense stands of nettles along roadsides)
BROADLEAVED, MIXED AND YEW WOODLAND - Lowland	122	56.1581	Unfavourable - Recovering	Air quality - nitrogen deposition, acid deposition (stress symptoms of veteran trees, sparse bryophytes, excessive grass growth relative to broadleaved species, dense stands of nettles along roadsides and ride edges)
<i>Units within 2km of Redbridge Borough boundary</i>				
BROADLEAVED, MIXED AND YEW WOODLAND - Lowland	123	55.0209	Unfavourable - Recovering	Air quality - nitrogen deposition, acid deposition (stress symptoms of veteran trees, sparse bryophytes, excessive grass growth relative to broadleaved species, dense stands of nettles along roadsides and ride edges)

Main Habitat	Unit Number	Area (ha)	Assessment Description	Adverse Condition Reasons
BROADLEAVED, MIXED AND YEW WOODLAND - Lowland	124	116.9521	Favourable	Air quality - nitrogen deposition, acid deposition (stress symptoms of veteran trees, sparse bryophytes, excessive grass growth relative to broadleaved species, dense stands of nettles along roadsides and ride edges).
BROADLEAVED, MIXED AND YEW WOODLAND - Lowland	125	36.5836	Unfavourable - Recovering	Air quality - nitrogen deposition, acid deposition (stress symptoms of veteran trees, sparse bryophytes, excessive grass growth relative to broadleaved species, dense stands of nettles along roadsides and ride edges)
ACID GRASSLAND - Lowland	126	33.9117	Unfavourable - Recovering	Air quality - nitrogen deposition, acid deposition (stress symptoms of veteran trees, sparse bryophytes, excessive grass growth relative to broadleaved species). Anticipated recovery in condition of grassland areas dependent on continuation of extensive grazing regime
BROADLEAVED, MIXED AND YEW WOODLAND - Lowland	127	36.5123	Favourable	Air quality - nitrogen deposition, acid deposition (stress symptoms of veteran trees)
BROADLEAVED, MIXED AND YEW WOODLAND - Lowland	128	35.0728	Unfavourable - Recovering	Air quality - nitrogen and acid deposition (stress symptoms of veteran trees, excessive growth of grasses compared to broad-leaved species).
BROADLEAVED, MIXED AND YEW WOODLAND - Lowland	129	33.8037	Unfavourable - Recovering	Air quality - nitrogen deposition, acid deposition (stress symptoms of veteran trees, excessive grass growth relative to broadleaved species)
BROADLEAVED, MIXED AND YEW WOODLAND - Lowland	130	11.9897	Unfavourable - No change	Air quality - nitrogen deposition, acid deposition (stress symptoms of veteran trees, sparse bryophytes, excessive bramble growth). Anticipated recovery in condition of grassland and heathland areas require continued management.
BROADLEAVED, MIXED AND YEW WOODLAND - Lowland	132	37.0598	Unfavourable - Recovering	Air quality - nitrogen and acid deposition; need for continued management to ensure anticipated recovery.

Main Habitat	Unit Number	Area (ha)	Assessment Description	Adverse Condition Reasons
BROADLEAVED, MIXED AND YEW WOODLAND - Lowland	134	41.3658	Unfavourable - No change	Air quality - nitrogen deposition, acid deposition (stress symptoms of veteran trees, sparse bryophytes, excessive bramble growth, excessive grass growth relative to broadleaved species, dense stands of nettles along roadsides and ride edges)
BROADLEAVED, MIXED AND YEW WOODLAND - Lowland	135	40.8646	Unfavourable - Recovering	Air quality - nitrogen deposition, acid deposition (stress symptoms of veteran trees, sparse bryophytes, excessive grass growth relative to broadleaved species, dense stands of nettles along roadsides and ride edges)
BROADLEAVED, MIXED AND YEW WOODLAND - Lowland	136	58.7403	Unfavourable - No change	Air quality - nitrogen deposition, acid deposition (stress symptoms of veteran trees, sparse bryophytes, excessive grass growth relative to broadleaved species, dense stands of nettles along roadsides and ride edges). Recreational / visitor pressure - high level of recreational pressure
BROADLEAVED, MIXED AND YEW WOODLAND - Lowland	203	3.8298	Unfavourable - No change	Air quality - nitrogen deposition, acid deposition (stress symptoms of veteran trees, sparse bryophytes, excessive bramble growth).
BROADLEAVED, MIXED AND YEW WOODLAND - Lowland	225	36.1326	Unfavourable - No change	Management - undergrazing; Air pollution - nitrogen and acid deposition (stress symptoms of veteran trees, sparse bryophytes, excessive bramble growth, excessive growth of grasses compared to broadleaved species)
BROADLEAVED, MIXED AND YEW WOODLAND - Lowland	229	30.5217	Unfavourable - Recovering	Air pollution - nitrogen and acid deposition (stress symptoms of veteran trees, sparse bryophytes, excessive bramble growth, excessive growth of grasses compared to broadleaved species).

4 Sensitivity of qualifying features

4.1 Site Improvement Plan sensitivity matrix

4.1.1 The following sensitivity matrix is derived from identified threats ('T') and pressures ('P') in the Epping Forest Site Improvement Plan (SIP; Natural England, 2015).

Table 4.1: Epping Forest SIP sensitivity matrix

Qualifying feature	Air pollution: nitrogen deposition	Undergrazing	Public access / disturbance	Changes in species distributions	Inappropriate water levels	Water pollution	Invasive species	Disease
H9120: Beech forests on acid soils	P	-	P	T	-	-	P/T	T
H4010: Wet heaths	P	P	P	-	T	T	T	-
H4030: Dry heaths	-	-	-	-	-	-	-	-
S1083: Stag beetle	-	-	-	-	-	-	-	-

4.1.2 The SIP provides more detail on the relevant pressures and threats facing the SAC; these are summarised below.

Table 4.2: Detail of Epping Forest SAC pressures and threats (Natural England, 2015)

Pressure / threat	Effects
Air pollution: nitrogen deposition	Nitrogen deposition exceeds site-relevant critical loads for ecosystem protection. Some parts of the site are assessed as in unfavourable condition for reasons linked to air pollution impacts.
Undergrazing	The quality and diversity of the SAC features requires targeted management best achieved through grazing to: minimise scrub invasion; minimise robust grass domination, and maximise the species diversity of heathland plant communities.
Public access / disturbance	Epping Forest is subject to high recreational pressure. There is a high general level of footfall in Epping Forest throughout the year, including periods of significant use, and resulting in a diverse range of impacts which include mountain biking and unmanaged fires. Population and visitor numbers are likely to continue to increase.
Changes in species distributions	Beech tree health and recruitment may not be coping sufficiently with environmental conditions to sustain its presence and representation within the SAC feature. This may be linked to climate change as well as other factors such as air quality, recreational pressure and water availability.
Inappropriate water levels	Wet heath is dependent on suitable ground water levels. There is a threat of prolonged drying out through climate change.

Pressure / threat	Effects
Water pollution	Surface run-off of poor quality water from roads with elevated levels of pollutants, nutrients and salinity may be affecting wet heath, probably mostly around the edges.
Invasive species	Heather beetle has locally impacted on some heathland areas. Vigilance is required to survey it and increase awareness of its likely effects and signs of impact. Grey squirrel is not currently known to be significantly affecting tree health or regeneration, but there is a need to retain vigilance and perhaps consider increased awareness of the likely effects and signs of impact.
Disease	Tree diseases such as <i>Phytophthora</i> present a real threat to Beech.

4.2 Sensitivity to air quality impacts

Critical Levels

4.2.1 Given the identification of air quality impacts as an important factor affecting the favourable condition of qualifying habitats in Epping Forest SAC, it is important to give particular consideration to air quality standards and background levels of key pollutants. Of particular relevance are oxides of nitrogen (NO_x) and ammonia (NH₃) levels, because of their contribution to nitrogen and acid deposition. Sulphur dioxide (SO₂), which contributes to acid deposition is generally now of less relevance, having declined since the second half of the 20th century.

4.2.2 The following Air Quality Standards are relevant to the protection of vegetation and ecosystems (from Air Pollution Information Service, APIS):

Table 4.3: Critical levels for protection of ecosystems

Pollutant	Critical Level
Oxides of nitrogen (NO _x):	30µg/m ³ annual mean (long-term mean)
	75µg/m ³ daily (24-hour) mean (short-term mean)
Ammonia (NH ₃):	1µg/m ³ annual mean (sensitive bryophytes / lichens)
	3µg/m ³ annual mean (other habitats)
Sulphur dioxide (SO ₂):	10µg/m ³ annual mean (sensitive lichens)
	20µg/m ³ annual mean / winter mean (other natural habitats)

4.2.3 In the case of Epping Forest, the presence of the epiphytic moss *Zygodon forsteri* indicates that the relevant Critical Level for ammonia should be the lower 1µg/m³ annual mean. Although not a qualifying species in its own right, it is an integral component of favourable conservation status for beech woodland.

4.2.4 Background values for long-term (annual mean) levels within the SAC are given in the following table, taken from APIS concentrations and depositions information for Epping Forest SAC. These are based on modelled values for 5km grid-squares; values for the most relevant grid-squares which include those parts of the SAC within and nearest to Redbridge Borough are also given (5km grid-squares 537500,187500 and 537500,192500).

Table 4.4: Background pollutant levels at Epping Forest SAC (all values $\mu\text{g}/\text{m}^3$)

Pollutant	Mean background (% of CL)	Range across SAC (% of CL)	Range (Redbridge 5km squares only) (% of CL)
Oxides of nitrogen	21.6 (72%)	17.6 – 30.05 (58.7% - 100.2%)	26.4 – 30.05 (88% - 100.2%)
Ammonia	1.2 (120%)	1.02 – 2.34 (102% - 234%)	1.38 – 2.34 (138% - 234%)
Sulphur dioxide	1.5 (7.5%)	1.44 – 1.67 (7.2% - 8.4%)	1.60 – 1.61 (8% - 8.05%)

4.2.5 The values within Redbridge are generally at the higher end of the range, with the highest oxides of nitrogen values in those parts of the SAC along the western boundary of the borough, and highest ammonia values in the northern corner. It should be stressed that these are modelled values at a coarse scale of resolution; however, higher oxides of nitrogen values correlate with the more urbanised areas with higher levels of road traffic, while the northern 5km grid square includes areas of agricultural land north of London containing potential ammonia sources.

4.2.6 More detailed monitoring of nitrogen dioxide (NO_2) has been carried out by the Council following the designation of the whole of the Borough as an Air Quality Management Area (AQMA), and is reported in the 2012 *Air Quality Updating and Screening Assessment* (London Borough of Redbridge, 2012). This is primarily concerned with human health impact of air pollution, and currently involves monitoring of nitrogen dioxide (NO_2) and particulates. Consequently most monitoring is undertaken in 'worst-case' roadside locations. Urban background locations are likely to be more relevant to the SAC; there are two locations in Redbridge, Mayfield School and Perth Terrace (see Figure 4.1), with monitored annual mean NO_2 levels between 28.2 – 34.2 $\mu\text{g}/\text{m}^3$ in 2011. When the contribution of nitric oxide (NO) is taken into

account, total oxides of nitrogen levels at both sites will exceed the 30µg/m³ annual mean level for protection of ecosystems.

4.2.7 Finer scale modelling of background data (1km grid) is available from DEFRA, principally for use in local air quality modelling to assess human health impacts of road traffic. Figure 4.1 shows modelled NO_x values for 2011 (the latest available year based on monitoring data), with contours added in QGIS 2.8 using Contour plugin v1.3.5. This shows potentially higher background values in the west of the Borough in the vicinity of Epping Forest SAC. Values are likely to be higher in close proximity to roads, particularly heavily-trafficked routes such as the A406 North Circular Road where it crosses the SAC.

Critical Loads

4.2.8 Site-relevant Critical Loads are provided on the APIS website, and are summarised below for all qualifying features for Epping Forest SAC, with the relevant Critical Load for nitrogen for environmental screening purposes given by APIS selected from the Critical Load range.

4.2.9 An indication is also given of whether background levels currently exceed the Critical Load for each habitat; note that as for Critical Levels, APIS represents these values as a weighted average for the SAC as a whole, which covers a number of 5x5km grid squares with differing modelled background levels. As these are weighted averages, they differ from values obtained from APIS for specific grid squares.

Table 4.5: Sensitivity of qualifying features to nitrogen deposition

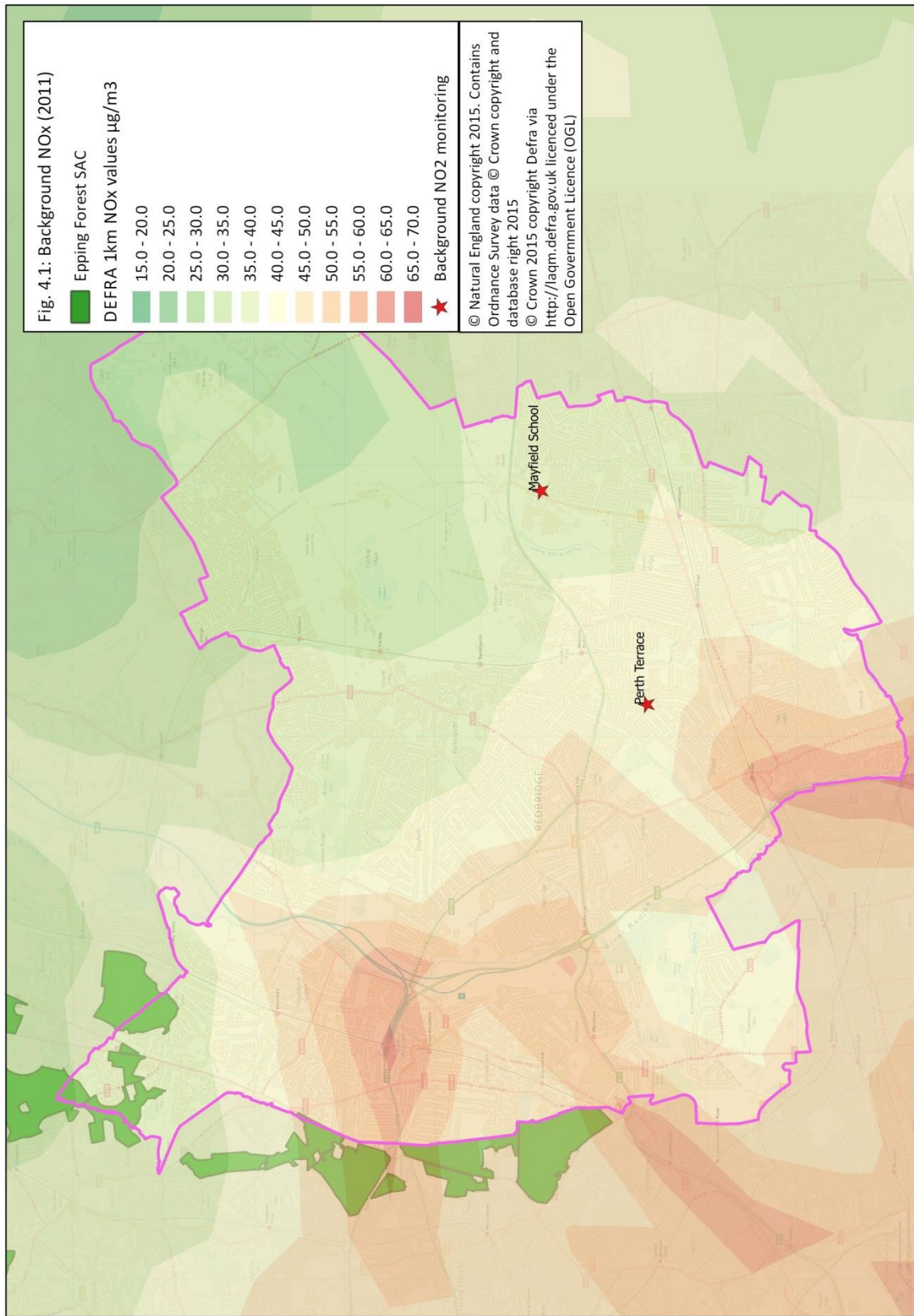
Qualifying feature	Critical Load (CL) for nitrogen deposition (for screening purposes)	Background deposition & % CL (mean / range)	Sensitivity / exceedance effects
H9120: Beech forests on acid soils	10 - 20	26.4 kg N/ha/yr (24.6 – 36.8kg)	Changes in ground vegetation and mycorrhizae, nutrient imbalance, changes soil fauna.
H4010: Wet heaths	10 - 20	15 kg N/ha/yr (14 – 20.6kg)	Transition heather to grass. Ericaceous species susceptible to frost and drought.

Qualifying feature	Critical Load (CL) for nitrogen deposition (for screening purposes)	Background deposition & % CL (mean / range)	Sensitivity / exceedance effects
H4030: Dry heaths	10 – 20	15 kg N/ha/yr (14 – 20.6kg)	Transition from heather to grass dominance, decline in lichens, changes in plant biochemistry, increased sensitivity to abiotic stress.
S1083: Stag beetle	n/a	n/a	No expected negative impact on species due to impacts on the species' broad habitat.

4.2.10 Note that the higher background values shown for woodland habitats are a consequence of the higher deposition velocity to woodland habitats. This is due to the greater surface roughness of a woodland canopy, and high leaf area index (i.e. more layers of leaves per unit area). This also means that woodland habitats in Epping Forest (in common with most woodland habitats in lowland England) show high levels of exceedance of nitrogen critical loads.

Conclusions – air quality baseline

4.2.11 Modelled background oxides of nitrogen levels, and predicted nitrogen deposition rates both support the inference from Natural England condition assessment that air quality is likely to be an important factor affecting the favourable conservation status of Epping Forest SAC.



5 Screening of Local Plan policies

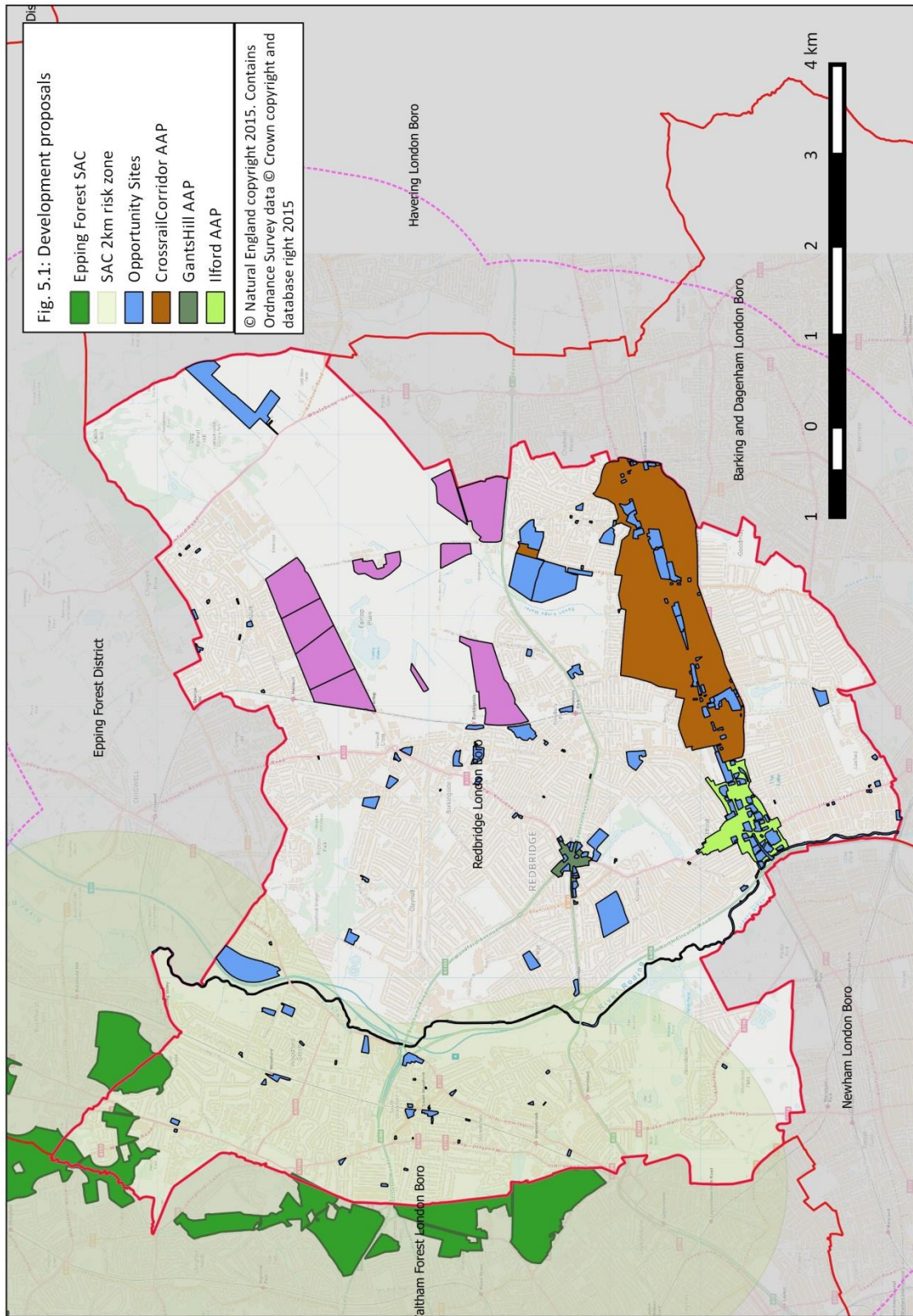
5.1 Key policy areas relevant to assessment

5.1.1 Key policy areas with the potential to impact on Epping Forest SAC can be defined as those which could impact on the Conservation Objectives (paragraph 3.2.3), or which would exacerbate or mitigate the Pressures and Threats set out in the Site Improvement Plan (Table 4.2). These potentially cut across a range of topic areas, and can be summarised as:

- Policies governing direct impacts upon a European site;
- Policies affecting development location within European Site 'risk zone' of up to 2km from Epping Forest SAC;
- Policies affecting recreational opportunities, particularly within 2km of Epping Forest SAC;
- Policies affecting air quality, particularly those relating to transport planning and vehicle use;
- Policies affecting water quality and water supply; and
- Policies relating to climate change.

5.1.2 Relevant policies are considered in turn below, where necessary with consideration of their Reasoned Justifications and Implementation Actions, in order to determine whether they can be screened out from further assessment. Policies which have an explicit spatial dimension (e.g. land allocation for housing or industry) are screened out where they are not likely to have a possible impact on relevant buffer zones. The locations of such policies are illustrated in Figure 5.1.

5.1.3 In accordance with guidance in the *Habitat Regulations Assessment Handbook* (Tyldesley & Chapman, 2013), aspects of the Local Plan which refer to general aspirations, and general statements of overall goals and broad objectives can be screened out.



5.2 Screening of Local Plan policies

Table 5.1: Initial Screening Assessment

Policy	Assessment and reasoning	Conclusion
Theme 1: Promoting and Managing Growth		
Policy 1: Spatial Development Strategy	Focusses development on Investment Areas with good public transport links, minimising traffic pollution: positive impact	Screened out
	Ilford, Gants Hill, Barkingside, and Crossrail Corridor Investment Areas all located outside 2km zone of potential recreational impact on SAC: neutral	Screened out
	South Woodford Investment Area located within 2km zone, although focus is on improvement of open spaces, retail and mixed-use development: mixed effects	Screen in – possible need for mitigation / in-combination effect
Policy 2: Delivering Housing Growth	Requires locations for housing to be capable of development without undue constraints due to environmental sensitivity (4.2.1), and to be well connected to Borough’s public transport network.	Screened out

Policy	Assessment and reasoning	Conclusion
	Minimum 17,365 dwellings within Plan period with potential effects on traffic generation / pollution and recreational visits to SAC. However, of 14,665 units allocated by area, only 692 are in South Woodford Investment Area (4.7%); other Opportunity Sites within 2km of SAC risk zone are small, and none directly adjoin SAC. Policy is therefore largely neutral , with possible minor negative impacts in limited areas in the west of the Borough.	Screen in – possible need for mitigation / in-combination effect
Policy 3: Affordable Housing	Could not have any conceivable effect on SAC: neutral	Screened out
Policy 4: Specialist Accommodation	Could not have any conceivable effect on SAC: neutral	Screened out
Policy 5: Gypsies and Travellers	Current site is outside the SAC 2km risk zone; policy makes reference for need for additional sites to avoid SSSIs or other environmentally sensitive sites, which would protect SAC: neutral	Screened out
Policy 6: Housing Choice	Seeks to restrict conversion of properties to multiple dwellings to Metropolitan, District or Local centres; magnitude of impact in terms of population growth in risk zone likely to be very low: neutral	Screened out
Policy 7: Managing Town Centres and Retail Uses	Retail, leisure and evening uses will not have any possible effect on SAC: neutral	Screened out

Policy	Assessment and reasoning	Conclusion
Policy 8: Stimulating Business and the Local Economy	No Strategic Industrial Land allocated within 2km risk zone; commercial / retail development within South Woodford District Centre unlikely to result in significant effect pathway to SAC: neutral	Screened out
	Policy for concentrating retail / office use in town centres and around transport hubs will minimise effects of vehicle pollution: positive	Screened out
Policy 9: Delivering Community Infrastructure	Delivery Policies seek to concentrate community infrastructure in Town Centres and Investment Areas; no proposals in close proximity to SAC and nature of developments would not cause significant effect if located in wider 2km risk zone: neutral	Screened out
Policy 10: Minerals Extraction	Areas allocated for minerals extraction located in the east of the Borough, remote from SAC and with no possibility of significant direct or indirect (e.g. hydrological) effects: neutral	Screened out
Policy 11: Burial Space	No allocation in Epping Forest SAC 2km risk zone: neutral	Screened out

Policy	Assessment and reasoning	Conclusion
Theme 2: Promoting a Green Environment		
Policy 12: Carbon Reduction and Energy Efficiency	Policy will address climate change which is identified as an exacerbating factor on threats to SAC: positive impact	Screened out
Policy 13: Low Carbon and Renewable Energy	Possibility for both district heating schemes and other renewable energy projects to impact on SAC, but Strategic Outcomes and Delivery Policies incorporate protection of environmental assets: neutral	Screened out
Policy 14: Reducing Flood Risk	Policies mostly have no effect on SAC, although beneficial for wider aquatic and riparian biodiversity in the Borough: neutral	Screened out
Policy 15: Promoting Sustainable Transport	Range of policies very important in helping to offset increase NOx levels / nitrogen deposition on SAC arising from growth in car journeys due to population increase: positive	Screened out
Policy 16: Cycle and Car Parking	Includes policies support green transport and cycle parking; car parking policies have no effect on SAC: neutral to positive	Screened out
Policy 17: Protecting Trees and Enhancing the Landscape	Policies likely to be applied mostly outside SAC, given responsibility of City of London for Epping Forest management; however policies for protection of mature trees may help maintain functionally linked habitat in vicinity of SAC: positive	Screened out

Policy	Assessment and reasoning	Conclusion
Policy 18: Nature Conservation	Policies for protection of Epping Forest SAC accord with the requirements of the Habitats Directive and Habitats Regulations, and accord with the hierarchy of protection set out in National Planning Policy Framework (NPPF) paragraph 117. A 2km Risk Zone is established in order to define an area where screening assessment for built development may need to be undertaken 'Trans-boundary' effects on parts of the SAC in neighbouring administrative areas are explicitly considered. Through providing adequate, proportionate policy protection for the SAC, the policy is positive	Screened out
Policy 19: Pollution	Delivery policies relating to air quality will address one of the key pressures affecting SAC, while water quality policies may be beneficial in some circumstances; remainder of policy neutral but overall positive	Screened out
Policy 20: Telecommunications	No possible adverse effect on SAC qualifying features: neutral	Screened out

Policy	Assessment and reasoning	Conclusion
Theme 3: Achieving Design Quality		
Policy 21: Promoting Good Design	Could not have any conceivable effect on SAC: neutral	Screened out

Policy	Assessment and reasoning	Conclusion
Policy 22: Tall Buildings	No developments supported close to SAC, no predicted effects: neutral	Screened out
Policy 23: Advertising Devices and Shopfronts	Could not have any conceivable effect on SAC: neutral	Screened out
Policy 24: Amenity Space Standards	Could not have any conceivable effect on SAC: neutral	Screened out
Policy 25: Adapting the Housing Stock to Meet Need	Could not have any conceivable effect on SAC: neutral	Screened out
Policy 26: Sustainable Design and Construction	Incorporation of environmental standards in housing construction will help to reduce energy use and contribute to air quality improvements: positive	Screened out

Policy	Assessment and reasoning	Conclusion
Theme 4: Protecting and Enhancing the Borough's Assets		
Policy 27: Protecting the Green Belt and Metropolitan Open Land	Will help to maintain outdoor recreation provision outside the SAC and reduce recreational pressure: positive	Screened out
Policy 28: Protecting and Enhancing Open Spaces	Will help to maintain and improve outdoor recreation provision outside the SAC and reduce recreational pressure: positive	Screened out
Policy 29: Allotments and Local Produce	No effect on SAC, provided no adjacent areas brought into cultivation with potential for localised nutrient enrichment and escape of non-native species; no such proposals identified in policy: neutral	Screened out
Policy 30: Green Infrastructure	Will benefit SAC indirectly by alternative greenspace provision, and may help maintain functionally linked habitat. Possible negative impact of increasing visitor pressure if measures increase accessibility of SAC without corresponding visitor management measures but overall positive	Screened out
Policy 31: Sporting, Leisure and Cultural Facilities	Will benefit SAC indirectly by alternative leisure facility provision and indirect reduction of recreational pressure; no allocation of land in Plan adjacent to SAC for leisure-related development: positive	Screened out

Policy	Assessment and reasoning	Conclusion
Policy 32: Safeguarding Neighbourhood Character and Respecting Heritage	Could not have any conceivable effect on SAC: neutral	Screened out

5.3 Mitigation proposals

Mitigation requirements

5.3.1 The initial screening process has identified two policies which may require mitigation, and which should be further assessed in terms of in-combination effects with other plans and projects. Other policies are either all neutral or have a positive effect. Many of the positive policies offset the effects of increased housing and population size on air quality and recreational pressure.

Policy 1 – Spatial Development Strategy

5.3.2 The effect of the policy is generally positive, locating most Investment Areas well away from Epping Forest SAC, in areas with good public transport links, although this is not based on any explicit acknowledgement of Epping Forest SAC in the decision-making process.

5.3.3 Part of South Woodford Investment Area lies within the 2km SAC risk zone defined by Policy 18 (Nature Conservation). Policy 18 refers to the need for developments within this zone to be screened for likely significant effect on the SAC, in accordance with the Habitats Regulations. This will ensure that individual projects brought forward in accordance with Policy 1 consider their effects, either alone or in combination with other developments, on the SAC.

Policy 2 – Meeting Housing Needs

5.3.4 It could be argued that the most significant effect of this policy is not increased recreational pressure, but the broader effects of an increased population on air quality and water supply to the SAC. However, given the fact that the need to allocate housing and accommodate an increased population is driven by a London-wide policy, this aspect is not amenable to direct mitigation in the Local Plan. Similarly, use of water resources and groundwater abstraction are governed by the Mayor of London's Water Strategy. However those Local Plan policies which can mitigate air quality effects all act in a positive manner to mitigate effects of increased housing numbers.

5.3.5 As for Policy 1, housing allocations are mostly located well outside the proposed 2km risk zone around the SAC, and will therefore not contribute to recreational impacts. Only 4% of housing allocations are within the risk zone, which covers 26% of the Borough's area. As noted above, will ensure that individual projects brought forward

in accordance with Policy 1 consider their effects, either alone or in combination with other developments, on the SAC.

5.3.6 If an individual project is found to have a likely significant effect, suitable mitigation can be incorporated to avoid this, through implementation of measures such as Suitable Alternative Natural Greenspace (SANG), or contribution to management of open space and Green Infrastructure.

5.3.7 While acknowledging the need for some mitigation of recreational impacts on the SAC, there is no reason why such measures should be too onerous, or act as a brake on sustainable development. In mitigating potential recreational impacts, it should be recognised that:

- Epping Forest SAC qualifying features are generally relatively less sensitive to a given level of increase in recreational pressure than (for example) those of an SPA designated for ground-nesting birds (such as Thames Basin Heaths) or wintering waterfowl (such as Lee Valley);
- Epping Forest is already managed by City of London in a positive manner to accommodate visitor numbers while limiting damage to qualifying features; and
- The visitor catchment is already heavily urbanised around those parts of the SAC close to Redbridge, meaning the proportionate increase in visitor numbers from the relatively small quantity of development within the Redbridge 2km risk zone would be small.

Conclusion

5.3.8 Policies 1 and 2 propose relatively little development within the 2km Risk Zone as a proportion of the area of the Borough covered, although South Woodford Investment Area lies within it. Policy 18 includes sufficiently robust provisions to ensure that projects brought forward within this Risk Zone will be subject to a screening assessment, with the possibility to incorporate mitigation measures which will avoid a likely significant effect on Epping Forest SAC.

5.4 Assessment of in-combination effects

Requirement for in-combination assessment

5.4.1 There is a possibility that population growth and housing allocations covered in Policies 1 and 2 could act in combination with comparable policies in neighbouring

authorities to produce in-combination effects on Epping Forest SAC with respect to recreational impacts.

- 5.4.2 There is also a possibility that the mitigation of air quality impacts through policies to locate development near transport hubs, promote sustainable transport and reduce pollution could be offset by wider-scale policies, including those governing transport and waste strategy. Policies regarding water quality and water use could act in-combination with population growth and additional housing to increase water stress in the SAC and its effects on tree health.

Plans screened for in-combination effects

- 5.4.3 The following plans have been screened for possible in-combination effects. Where available, the results of any HRA or Strategic Environmental Assessment (SEA) have been consulted to assess their predicted effects on Epping Forest SAC.

Table 5.1: Screening of relevant plans for in-combination effects

Plan	HRA
Waltham Forest Local Plan	HRA prepared (URS / Scott Wilson, 2010); comments on HRA in Planning Inspector's Report consulted (Planning Inspectorate, 2011)
Epping Forest District Core Strategy (in preparation)	HRA Scoping Report prepared (Scott Wilson, 2010)
Joint Waste Development Plan for the East London Waste Authority Boroughs, Adopted February 2012 (ELWA, 2012)	Inspector's Report consulted which notes that a HRA was carried out and accepted by Natural England
Mayor of London's Transport Strategy, May 2010 (GLA, 2010)	Determined by Natural England not to be required and responsibility devolved to Local Implementation Plans (LIPs) (TfL, 2010)
Local Implementation Plan (LIP), April 2011	SEA incorporating HRA completed, Non-Technical Summary included as LIP appendix
Mayor's Water Strategy	Not consulted

Neighbouring Local Plans

- 5.4.4 Both Waltham Forest Local Plan and the emerging Epping Forest District Core Strategy identify Epping Forest SAC as requiring HRA of plan policies, but based on evidence available as of October 2015, Epping Forest District Council's HRA is still at scoping stage. The same range of vulnerabilities addressed in this document have been identified, although it does not identify spatial plans in the neighbouring London boroughs as relevant for assessment of in-combination effects (Scott Wilson, 2010).
- 5.4.5 The Waltham Forest Local Plan incorporates a Key Growth Area (Wood Street) as close as 0.5km from Epping Forest SAC. The HRA concluded that mitigation measures for Epping Forest SAC within the Local Plan were adequate; they included a requirement for developments within 200m to include a Travel Plan (because of local impacts on air quality), while the requirement of developments elsewhere to contribute to Green Infrastructure was seen as fulfilling the requirement for diversion of recreational pressure.
- 5.4.6 Waltham Forest's HRA placed greater emphasis on the need to manage recreational access at Lee Valley SPA (recognising the frequently greater sensitivity of sites designated for ornithological interest) and proposed a Borough-wide SANG solution. This approach was accepted by the Planning Inspector, with some strengthening of policies recommended.

Joint Waste Development Plan

- 5.4.7 The East London Joint Waste Plan has been assessed as having no likely significant effect on European sites, a finding which was endorsed in the Inspector's Report.
- 5.4.8 Consideration has been given in this assessment to the Joint Waste Plan's allocation of sites for energy recovery projects, which can contribute to nitrogen deposition. None are located in areas likely to have a significant effect on Epping Forest SAC, based on distance and direction.

Mayor of London's Transport Strategy and Local Implementation Plan

- 5.4.9 Although not subject to HRA, this contains policies which support public transport, walking and cycling, incorporating a number of initiatives such as Crossrail which will have a directly beneficial effect on sustainable transport in Redbridge Borough.

Mayor of London's Water Strategy

5.4.10 This contains a number of policies to offset the potential impacts of over-abstraction which could affect natural habitats within London and hydrologically linked areas. The policy therefore helps to mitigate against potential effects of population growth on water supply in Epping Forest and other SAC and SPA sites in and around London.

Conclusion

5.4.11 The plans considered have either not identified likely significant effects on the qualifying features of Epping Forest SAC, or (in the case of Waltham Forest Local Plan) have addressed these through mitigation measures.

5.4.12 Wider-scale strategies for transport and water use both seek to offset the effects of population growth, and support policies in the Borough Local Plan. As such they do not act in-combination to increase the risk of significant effects on the SAC.

6 Conclusions

- 6.1 In the key areas of planned residential development and population increase within SAC 'risk zones', and policies affecting air quality, the assessment indicates that there would be no likely significant effect on European sites as a consequence of implementing the Local Plan, subject to some project-level mitigation measures provided for in development control policies.
- 6.2 Potential negative effects of increased population size and growth in car usage and ownership are largely effectively mitigated by locational policies for major development areas, and by measures to improve public transport links and encourage the use of walking and cycling. In terms of locational policies, although over 26% of the Borough's area is within 2km of Epping Forest SAC, less than 5% of spatially allocated housing units are within this risk zone.
- 6.3 The Local Plan's nature conservation policy (Policy 18) incorporates the 2km risk zone proposed by this assessment, where screening of developments which may have a potential significant effect on the SAC is required. This provides sufficient policy protection to ensure there would be sufficient scrutiny of individual projects and their in-combination effects. Proportionate measures to offset recreational impacts on Epping Forest SAC of residential developments within 2km may then be required to avoid likely significant effects.
- 6.4 Natural England have previously advised in respect of the *Core Strategy Review Preferred Options Report* that they did not consider an Appropriate Assessment was required in respect of that plan, essentially concluding 'no likely significant effect' (letter of 15th February 2013). Given the fact that no new elements of the current Local Plan have been identified to cause any substantive changes to European sites, it is reasonable to expect a similar response to the Local Plan. The determination of 'no likely significant effect' is the responsibility of the Borough Council as Competent Authority, but further confirmation that Natural England would concur with this decision would provide additional support.

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