Chattenden Woods and Lodge Hill SSSI
Kent

Supporting Information

A supplement to the notification document

Issued by Natural England's Kent Land Management Team on [**insert notification date**]

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Summary

Chattenden Woods and Lodge Hill SSSI is notified under section 28C of the Wildlife and Countryside Act 1981, as inserted by Schedule 9 to the Countryside and Rights of Way Act 2000.

Chattenden Woods and Lodge Hill SSSI comprises a mosaic of habitats, including ancient and other long-established semi-natural woodland, scrub, and neutral grassland. It is a nationally important site specifically by reason of the following biological features of special interest that occur within and are supported by the wider habitat mosaic:

- **Ancient and long-established semi-natural woodland –** The extensive woodland represents one of the best examples of coppice-with-standards woodland on the London Clay. The dominant woodland community is of the National Vegetation Classification (NVC) type W10 pedunculate oak *Quercus robur* – bracken *Pteridium aquilinum* – bramble *Rubus fruticosus* woodland.
- **Unimproved neutral grassland –** Rough Shaw is an area of dense and scattered scrub on a north facing slope with tall-herb neutral grassland along its upper margin. The tall-herb neutral grassland includes stands of the unimproved nationally scarce NVC type MG5 crested dog's-tail *Cynosurus cristatus* – common knapweed *Centaurea nigra* grassland.
- **Breeding nightingale *Luscinia megarhynchos* –** The SSSI supports a nationally important number of nightingales during the breeding season. Nightingales use coppice woodland and scrub throughout the SSSI.
- **Assemblage of breeding birds chiefly associated with scrub habitats –** The SSSI supports an assemblage of breeding birds chiefly associated with scrub habitats. At least 12 species comprise a breeding assemblage, including turtle dove *Streptopelia turtur*, cuckoo *Cuculus canorus*, nightingale, whitethroat *Sylvia communis*, lesser whitethroat *S. curruca*, garden warbler *S. borin*, blackcap *S. atricapilla*, long-tailed tit , linnet *Carduelis cannabina*, greenfinch *C. chloris*, goldfinch *C. carduelis* and bullfinch *Pyrrhula pyrrhula*. The species making up this assemblage breed in scrub and woodland edge habitats throughout the site, and many will also forage more widely in the woodland and grassland habitats.

1. Information used to support the selection of Chattenden Woods and Lodge Hill SSSI

Feature	Data Source	Author	Date	Content
General	Botanical Surveys of SSSIs in Kent (including proposed sites). Volume 1: A-K. Nature Conservancy Council Report	Barter, G.	1979	Results of surveys of Chattenden Wood SSSI in the late 1970s
	Guidelines for selection of biological SSSIs. Published by Nature Conservancy Council, Peterborough	Nature Conservancy Council	1989	National selection guidelines for biological Sites of Special Scientific Interest
	The Natural History of Chattenden. Unpublished report	E. Philp, Maidstone Museum	1989	Species lists including plants, invertebrates, birds, amphibians, reptiles and mammals
	British Plant Communities. Volume 1: Woodlands and Scrub. Published by Cambridge University Press, Cambridge	Rodwell, J.S. (ed).	1991	National Vegetation Classification (NVC) for woodlands and scrub communities
	British Plant Communities: Volume 3: Grasslands and Montane Communities. Published by Cambridge University Press, Cambridge	Rodwell, J.S. (ed).	1992	NVC for lowland grassland communities
	The nature conservation value of scrub in Britain. Published by Joint Nature Conservation Committee, Peterborough.	Mortimer, S.R. *et al.*	2000	Report looking at ecology, conservation and management of scrub and its value to wildlife
	Wainscot Training Area Ecological Assessment. Report for Holdfast Limited. http://publicaccess.medway.gov.uk/WAM/doc/Supporting%20Documents-487936.pdf?extension=.pdf&id=487936&appid=1001&location=dtmedwaydc&contentType=application/pdf&pageCount=57	Atkins Limited	2007	Surveys and assessment of habitats and species in the area of a proposed extension to the MOD training facility
	State of the Natural Environment 2008. Published by Natural England, Peterborough.	Natural England	2008	Review of the state of England's natural environment
	Kent and Medway Biological Records Centre search query 1969-2012.	Kent and Medway Biological Records Centre	2012	Data for breeding birds and other species in the SSSI
Woodland	A woodland NVC Survey of Chattenden Woods SSSI. English Nature internal report.	Davis, S.	1995	NVC survey, including list of ancient woodland specialists

Feature	Data Source	Author	Date	Content
	A woodland NVC Survey of Chattenden Woods SSSI and surrounding woodlands. Natural England internal report	Williams, P. & Smith, L.	2012	NVC survey, including list of woodland flora and target notes
	Specialist support for notification of Chattenden Woods and Lodge Hill as a SSSI for woodland	Goldberg, E.	2012	Support for notifying the site from Natural England's woodland specialist
Birds	Population trends in British Breeding Birds. Published by the British Trust for Ornithology, Tring	Marchant, J.H., Hudson, R., Carter, S.P. & Whittington, P.	1990	Nightingale population trends
	Survival of British sedge warblers *Acrocephalus schoenobaenus* in relation to West African rainfall. *Ibis* **133**: 300-305	Peach, W.J., Baillie, S. & Underhill, L.	1991	Factors affecting British migrant breeding birds on their African wintering grounds
	The nightingale in England – problems and prospects. *British Wildlife* **10** (4):221-230	Fuller, R.J., Henderson, A.C.B. & Wilson, A.M.	1999	Nightingale habitat requirements
	Status of the nightingale *Luscinia megarhynchos* in Britain at the end of the 20th Century with particular reference to climate change *Bird Study* **49**: 193-204	Wilson, A.M., Henderson, A.C.B. & Fuller, R.J.	2002	Results of 1999 national nightingale survey
	Birds in Europe: population estimates, trends and conservation status. Published by BirdLife International, Cambridge	BirdLife International	2004	European nightingale population trends
	Population estimates of birds in Great Britain and the United Kingdom. *British Birds* **99**: 25-44	Baker, H., Stroud, D.A., Aebischer, N.J., Cranswick, P.A., Gregory, R.D., McSorley, C.A., Noble, D.G. & Rehfisch, M.M.	2006	National population estimates of breeding birds
	Population trends of widespread woodland birds in Europe. *Ibis* **149** (Suppl. 2): 78-97	Gregory. R.D., Vorisek, P., van Strier, A., Meyling, A.W.G., Jiguet, F., Fornasari, L., Reif, J., Chylarecki, P., & Burfield, I.J.	2007	European nightingale population trends
	Population trends of breeding birds in woodlands over a 32-year period: relationships with food, habitat use and migratory behaviour. *Ibis* **151**: 464-486	Hewson, C.M. & Noble, D.G.	2009	Nightingale population trends

Feature	Data Source	Author	Date	Content
	Berry Court Wood breeding bird survey (2009 and 2010). Unpublished report	RSPB	2009, 2010	Breeding bird records for Berry Court Wood
	The Breeding Bird Survey 2010. BTO Research Report 597. Published by the British Trust for Ornithology, Thetford	Risely, K., Kenwick, A.R., Dadam, D., Eaton, M.A., Johnston, A., Baillie, S.R., Musgrove, A.J. & Noble, D.G.	2011	Nightingale population trends
	Nightingale survey: preliminary results for Kent. Report to the British Trust for Ornithology	Henderson, A.	2012	Preliminary results for Kent from the BTO national nightingale survey 2012
	The nightingale in Britain: status, ecology and conservation needs. *British Birds* **105**:172-187	Holt, C.A., Hewson, C.M. & Fuller, R.	2012	Nightingale population trends
	Lodge Hill Outline Planning Application on behalf of Defence Infrastructure Organisation: Masterplan for breeding birds. Environmental Statement Addendum	Hyder Consulting UK	2012	Breeding bird records in the SSSI
	BTO Nightingale Survey 2012: Lodge Hill, Kent (TQ77). Unpublished results	British Trust for Ornithology	2012	Map showing location of all validated nightingale territories recorded in the SSSI in 2012
	Breeding bird assemblage for Chattenden Woods 2008-2012. Unpublished BTO Bird Atlas survey records (2008-11) and additional 2012 records collected by Kent Ornithological Society	M. Orchard, Kent Ornithological Society	2012	Breeding bird assemblage for Chattenden Woods 2008-2012
	Specialist support for notification of Chattenden Woods and Lodge Hill as a SSSI for breeding birds	Drewitt, A.	2012	Support for notifying the site from Natural England's senior ornithological specialist
	SSSI notification strategy – birds. Draft Natural England internal report	Drewitt, A.	In prep.	Priorities for SSSI notification for birds
Grassland	Survey of neutral grassland. English Nature survey	Williams, P	1998	Grassland recording card.
	Monitoring the condition of lowland grassland SSSIs: Part 1 – English Nature's rapid assessment method. English Nature Research Reports 315	Robertson, H.J. & Jefferson, R.G.	2000	Rationale behind the rapid assessment methodology, describes practical ways of making rapid assessments

Feature	Data Source	Author	Date	Content
	Guidance on the survey and boundary definition of candidate grassland sites. Unpublished internal guidance note.	Jefferson, R.G. & Robertson, H.J.	2001	Internal Natural England guidance on SSSI boundaries
	National assessment of lowland neutral grassland. Paper to the Council of English Nature	Holmes, P., Pinches, C. & Jefferson, R.J.	2005	Strategic review of the conservation of lowland neutral grassland in England
	UK Biodiversity Action Plan (BAP) Priority Habitat Descriptions – Lowland Meadows. Published online at http://jncc.defra.gov.uk/PDF/UKBAP_PriorityHabitatDesc-Rev2010.pdf	Biodiversity Reporting and Information Group (ed. A. Maddock)	2008	Describes the lowland meadow habitat as defined by the UK BAP
	Survey of neutral grassland. Natural England survey	Williams, P. & Smith, L.	2012	Grassland recording card.
	National Vegetation Classification survey of neutral grassland at Rough Shaw. Natural England internal report	Williams, P.	2012	NVC survey including assessment of the extent of grassland NVC communities
	Specialist support for notification of Chattenden Woods and Lodge Hill as a SSSI for grassland	Jefferson, R.G.	2012	Support for notifying the site from Natural England's senior grassland specialist
	Biodiversity: Action for Kent's Wildlife. Lowland Meadows – current status. http://www.kentbap.org.uk/habitats-and-species/priority-habitat/lowland-meadow/ Webpage accessed 5 September 2012	Kent Biodiversity Partnership	2012	Description and status of lowland meadows in Kent as defined by the Kent Habitat Survey 2003.
	SSSI notification strategy – lowland grassland. Draft Natural England internal report	Jefferson. R.G.	In prep.	Priorities for lowland grassland SSSI notification

2. Explanation of how Chattenden Woods and Lodge Hill meets the SSSI selection guidelines

This section explains how the information listed in section 1 has informed our decision to notify the SSSI, according to the *Guidelines for selection of biological SSSIs* (Nature Conservancy Council, 1989), hereafter referred to as 'the Guidelines'.

2.1 Woodlands

The Chattenden Woods and Lodge Hill SSSI supports extensive areas of long-established semi-natural woodland (see photograph 1 in section 6), parts of which are recorded as 'ancient semi-natural woodland' (ASNW). The dominant woodland community in the SSSI most closely resembles the National Vegetation Classification (NVC) type W10 pedunculate oak *Quercus robur* – bracken *Pteridium aquilinum* – bramble *Rubus fruticosus* woodland. Two sub-communities are

represented; the W10a typical sub-community and the W10b wood anemone *Anemone nemorosa* sub-community W10b. The Guidelines (Chapter 2, section 4.7, p.80) state that:

> '*Within an AOS [area of search] several examples of most types should be selected to account for the variation in woodland structure, floristic composition of tree and subsidiary layers and animal assemblages, to represent the various ways in which different types may naturally be combined, to give a geographical spread of sites, and to include any special features.*'

The woodland vegetation communities are characteristic of those found on London Clay within the North Kent Plain National Character Area (NCA)[1]. The woodland complex covers over 160 ha of semi-natural woodland, of which 53.59 ha is recorded as ancient semi-natural woodland on the Ancient Woodland Inventory, making Chattenden Woods and Lodge Hill the largest woodland complex of this type within the North Kent Plain NCA, outside of the Blean Complex[2]. Within the woodland complex at Chattenden Woods and Lodge Hill, the largest contiguous block totals over 93 ha. Across the whole of the woodland complex over 100 woodland species have been recorded, 33 of which are woodland specialists, and many of which occur in the long-established semi-natural woodland.

The Guidelines provide the basis for selecting woodland SSSIs in terms of both their floristic composition and their structural form. The Guidelines (Chapter 2, paragraph 1.5, p74) state that:

> '*The total area of ancient semi-natural and other woodland selected as SSSIs in each AOS should be sufficient to protect an adequate extent of, as well as the full range of variation in, native woodland communities and features against future threats, independently of other land-use policies*.'

The proportion of England's woodland resource within SSSIs is much less than for many other habitats (between 10 and 25% depending on whether all woodland or ASNW is considered). In the North Kent Plain there are around 4,584 ha of extant woodland regarded as ancient. Of this nearly 25% comprises 'plantations on ancient woodland sites' (PAWS), woodlands that have usually been planted with non-native conifers, and/or converted to plantation stands with mixes of conifers and broadleaves for mainly commercial forestry.

The most extensive woodlands within the North Kent Plain NCA are the Blean Complex (1,511 ha). The total area of woodland within the Chattenden Woods and Lodge Hill SSSI is 160 ha and is of key significance in the NCA. In addition, there is good continuity with dense scrub habitat and neutral grassland.

In terms of judging the quality of individual woodland stands and sites, the Guidelines recommend a number of specific attributes which are applicable to Chattenden Woods and Lodge Hill. The Guidelines (Chapter 2, section 3.4.1, p.77) state that:

> '*…A basic presumption is that [Natural England] should seek to protect the largest areas available of all the major types in an AOS...*'

At over 160 ha Chattenden Woods and Lodge Hill forms one of the largest remaining blocks or connected stands of long-established and ancient semi-natural woodlands in the NCA. The woodland is important in terms of its total area but also as part of a functioning habitat mosaic. Natural England's emerging SSSI notification strategy for woodland endorses the approach to target the largest ancient and long-established woodland sites as priorities for SSSI selection and also emphasises the enhanced value of woodlands in combination with other adjacent semi-natural habitats. The Guidelines (Chapter 2, section 3.4.2, p.77) further state that:

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[1] National Character Areas (NCAs) divide England into 159 natural areas each defined by a unique combination of landscape, biodiversity, geodiversity and economic and cultural activity. Chattenden Woods and Lodge Hill SSSI lies within the North Kent Plain NCA. NCAs are now used as 'areas of search' for the purposes of SSSI selection (where appropriate) in England. For more information on NCAs, see Natural England's website: http://www.naturalengland.org.uk/publications/nca/default.aspx

[2] Blean Complex is formed of four SSSIs: West Blean and Thornden Woods SSSI, East Blean SSSI, Church Woods SSSI and Ellenden Wood SSSI

> '*Whole woods may be judged...in particular by their size, relative naturalness and diversity*.'

The woodland occuring within the Chattenden Woods and Lodge Hill SSSI forms a number of large stands, most notably Great Chattenden Wood, which, in combination with adjoining woods, forms a contiguous block totalling over 93 ha. The woodlands occuring within the SSSI demonstrate a naturalness in species composition, comprising mainly of pedunculate oak standards with ash *Fraxinus excelsior* coppice, which is uncommon within the North Kent Plain NCA and in contrast to the Blean Complex, which is largely dominated by sweet chestnut *Castanea sativa* coppice and, in more natural stands, by hornbeam *Carpinus betulus* coppice.

When considering the species richness of a site the Guidelines (Chapter 2, section 3.4.3, p.77) state that:

> '*The standard recording form covering all woodland contains about 400 species. As a rough guide, sites with 100-200 of these (25-50% of the total possible) can be considered rich in absolute terms.'*

The botanical species richness of the woodlands within Chattenden Woods and Lodge Hill SSSI has been recorded in the 1995 and 2012 NVC surveys, which documented over 100 woodland species across the site, 33 of which are woodland specialists, and many of which occur in the long-established semi-natural woodland. The Guidelines (Chapter 2, section 3.4.4, p. 78) further state that:

> '*Coppiced woodland which is still worked on a regular rotation with a wide range of standard trees and mixed composition is to be preferred to single-species stands of neglected growth (40-70 years old) with few standards.*'

A large proportion of the woodland is actively managed, in particular Great Chattenden Woods and Berry Court Woods, which contain areas of recently coppiced woodland comprising ash, field maple *Acer campestre*, hazel *Corylus avellana*, and occasional hornbeam (see photograph 2 in section 6). Old boundary oak standards add diversity to the age structure of the woodland (see photograph 3 in section 6).

The importance of the woodlands within a habitat mosaic is recognised within the Guidelines (Chapter 2, section 3.4.5, p.78) which state:

> '*Woods which adjoin or are in a mosaic with other habitats tend to be more valuable than those sharply abutted by arable or improved grassland...Within the wood, clearings (natural glades and managed rides)...variations in drainage and abundance of dead wood increase the importance of the site through greater diversity.*'

The woodland feature adjoins areas of neutral grassland and dense scrub, which collectively form a network of semi-natural habitat that supports a range of species. Great Chattenden Woods, Berry Court Wood and Ash Wood contain an extensive network of wide rides (see photograph 4 in section 6), some of which lie wet and support a range of tall herbs (see photograph 5 in section 6). Berry Court Wood supports a pond on the lower slope adding further diversity to the habitat. Standing deadwood is generally well represented supporting invertebrates such as stag beetle *Lucanus cervus*.

The Guidelines (Chapter 2, section 4.4, p.79) states that the selection procedure within each Area of Search (AOS) should:

> '*Identify the best, usually the largest, candidate stands, but taking account also of relative naturalness and diversity...*'

The woodland is one of the best and largest examples of coppice with standards on London Clay within the North Kent Plain NCA. The woodland complex covers over 160 ha of semi-natural woodland, of which 53.59 ha is recorded as ancient semi-natural woodland on the Ancient Woodland Inventory, making Chattenden Woods and Lodge Hill the largest woodland complex of its type outside the Blean Complex, within the North Kent Plain. The woodlands occuring within the SSSI demonstrate a naturalness in species composition, comprising mainly of pedunculate oak

standards with ash coppice, which is in contrast to the Blean Complex, which is largely dominated by sweet chestnut coppice and in more natural stands by hornbeam coppice.

2.2 Neutral grassland

Within Chattenden Woods and Lodge Hill SSSI, the area known as Rough Shaw comprises a mosaic of dense and scattered scrub on a north facing slope with approximately 4 ha of tall-herb neutral grassland along its upper margin. Within this area of grassland is 1 ha of unimproved species-rich neutral grassland characterised by the nationally scarce NVC type MG5 crested dog's-tail *Cynosurus cristatus* – common knapweed *Centaurea nigra* grassland, which conforms mainly to the MG5b lady's bedstraw *Galium verum* sub-community.

In the UK the amount of lowland meadow has recently been estimated to be around 15,000ha, the majority of which is widespread but highly fragmented mainly across the lowlands of England. In England there is estimated to be around 7,282 ha of which <6,000 ha is MG5 (Robertson & Jefferson 2000). This habitat forms part of a semi-natural grassland resource that is collectively well represented in the England SSSI series; the Natural England State of the Natural Environment Report 2008 cites an estimate of 68% of the total resource is currently within the SSSI series.

However, unimproved neutral grassland habitat has undergone a considerable decline in the 20th Century, almost entirely due to changing agricultural practice. It is estimated that by 1984 in lowland England and Wales, semi-natural grassland had declined by 97% over the previous 50 years. Losses continued during the 1980s and 1990s, and have been recorded at 2 -10% per annum in some parts of England. The national decline has continued into the 21st Century; an assessment of the condition of semi-natural grassland types in non-statutory sites in England in 2005 found only 16% of lowland hay meadows outside of the SSSI series were considered to be in a favourable condition largely due to neglect or agricultural improvement.

The direct effects of eutrophication (artificial fertilisers) due to agricultural improvement, which over the past century and more have been one of the major factors in the disappearance and degradation of most types of lowland grassland in the UK, continue to make an impact on surviving stands of these vegetation types where the measure of protection through some sort of designation frame or beneficial influence on management is low. This is of particular importance still with the lowland meadows in the wider countryside of the UK, especially where they occur on more fertile and better-drained soils where the benefits of upgrade are more immediate and economic.

The Kent Habitat Survey 2003 recorded 71 ha of lowland meadows and a further 587 ha of species-rich 'other neutral grassland' of which 69 ha currently fall within SSSIs. There are two other sites in the North Kent Plain NCA notified for MG5 grassland: Thanet Coast SSSI and West Blean and Thornden Woods SSSI. Both are approximately 37 km to the east of Chattenden Woods and Lodge Hill SSSI.

The Guidelines (Chapter 3, section 1.4, p. 92) state that:

> '*In most counties, meadow grasslands with significant botanical interest now occupy less than 3% of the total, and even these remnants continue to dwindle...It is thus imperative to notify as SSSIs as many as possible of the good examples that remain*.'

A national strategic review of lowland neutral grassland conservation in 2005 undertaken by English Nature reaffirmed this principle and also concluded that, given the scarcity and vulnerability of these grassland types and evidence of their ongoing decline, all examples of the community type MG5 which are considered to satisfy the Guidelines should continue to be notified across its English range. This approach is further advocated in Natural England's draft SSSI notification strategy for lowland grassland.

The Guidelines (Chapter 3, section 3.3, p.93) state that:

> '*…those areas containing good examples of the NVC lowland grassland communities in Table 9 will qualify for SSSI selection on floristic merits.*'

The Guidelines (Chapter 3, section 3.5, p.94) further state that:

> '*Examples of grassland with any of the communities listed in Table 9, either singly or in mixtures, should be at least 0.5ha in area to qualify for selection.*'

Chattenden Woods and Lodge Hill SSSI supports an example of the NVC type MG5 crested dog's-tail *Cynosurus cristatus* – common knapweed *Centaurea nigra* grassland, which conforms mainly to the MG5b lady's bedstraw *Galium verum* sub-community. This type of grassland is now nationally scarce and is identified as being a lowland grassland community of high botanical interest in Table 9 on p.96 of the Guidelines. With 1 ha of MG5 grassland, the Chattenden Woods and Lodge Hill SSSI exceeds the minimum threshold area of 0.5 ha recommended by the Guidelines for grassland communities with high botanical interest.

Other lowland grassland types in the SSSI include stands of communities of generally lower botanical interest, namely MG1e false oat-grass *Arrhenatherum elatius* grassland, common knapweed *Centaurea nigra* sub-community.

The Guidelines (Chapter 3, section 3.1, p.93) state that:

> '*The NVC communities MG1, 6, 7, 9 and 10 are considerably modified types with generally low botanical interest...They can, however, be included within an SSSI where they form a mosaic with more important communities or a peripheral zone between higher-quality habitat and a clearly defined boundary*.'

The semi-improved grasslands of MG1 occur in a mosaic with scrub and the stands of MG5 grassland.

2.3 Nightingales *Luscinia megarhynchos*

Natural England's draft SSSI notification strategy for birds has identified breeding nightingales as a species not previously listed as a notified feature in its own right at any SSSI (although they are potentially included as a contributing species in woodland and scrub breeding bird assemblages). It is recommended that all known aggregations reaching or exceeding 1% of the GB population are notified. Improving coverage for nightingales, along with four other relatively scarce breeding woodland birds of conservation concern, is considered a priority.

2.3.1 Numbers of nightingales in Chattenden Woods and Lodge Hill SSSI

Chattenden Woods and Lodge Hill SSSI is used by nationally important numbers of Nightingales *Luscinia megarhynchos* during the breeding season. In 1999, the nightingale population was concentrated within five counties in south-east England (Wilson *et al.* 2002). These five counties held 77% of the total population: Kent (26%), Suffolk (19%), Sussex (15%), Essex (9%) and Norfolk (7%). Available information indicates that the site is currently the most important location in Kent for nightingales, both in terms of numbers and density (Henderson 2012). Kent's position as the most important county for nightingales in Great Britain (as revealed by national surveys in 1980 and 1999) suggests that this, apparently the most important site in Kent, should receive highest priority for notification.

The Guidelines (Chapter 14, section 3.1, p.244) state that:

> '*Localities which normally contain 1% or more of the total British breeding population of any native species…are eligible for selection*.'

There are four data sources for the numbers of breeding nightingales in the SSSI, the results of which are presented in table 1 (below):

- 1999 National nightingale survey (Results summarised in Henderson, 2012)
- 2009 Thomson Ecology Survey (Lodge Hill Environmental Statement addendum)
- 2010 Kent Ornithological Society (Lodge Hill Environmental Statement addendum)
- 2012 Validated results of the national nightingale survey (British Trust for Ornithology)

The 1999 national nightingale survey was undertaken by volunteers using standardised survey techniques devised by the British Trust for Ornithology (BTO). Volunteer surveyors were asked to visit all known nightingale sites at least three times between mid-April and early June with at least two visits in May (Wilson *et al.* 2002). Observers were also asked to visit between nightfall and

08:00 hours when singing birds are most active. Data were collated, verified and analysed by BTO and were used to estimate the British population.

The 2009 Thomson Ecology survey was a general breeding bird survey of all habitats within the SSSI. This employed the BTO's Common Bird Census (CBC) method and the area was visited on five occasions from early March to mid July, with an additional evening survey of the Lodge Hill Training Area (Hyder Consulting UK 2012). Although the CBC method is rigorous and designed to identify individual territories of all breeding species, a survey limited to five visits (rather than the recommended ten) plus one evening visit is likely to underestimate territory numbers. Also, as the CBC method is not specifically targeted at the time of year and day when migratory nightingales are present and most active, it is likely to underestimate numbers in comparison to the results of a dedicated nightingale survey. The 2010 Kent Ornithological Society survey was specifically for nightingales and was similar in methodology to that of the Thomson Ecology survey (Hyder Consulting UK 2012).

The 2012 national nightingale survey was similar to the 1999 survey with the exception that a minimum of two early morning visits were requested between 21 April and 20 May and nocturnal visits were optional. Data are preliminary and subject to some limitations, particularly: not all results have been received; validation of territorial clusters is still required; and numbers have not been corrected to allow for under-recording (Henderson 2012). These limitations do not apply to the data for the SSSI, however, as these have been fully validated by the BTO.

Table 1 Nightingale surveys of Chattenden Woods and Lodge Hill

Survey	Date	Nightingale territories
National nightingale survey	1999	46*
Thomson Ecology Survey	2009	28
Kent Ornithological Society	2010	44
National nightingale survey	2012	84

*Chattenden Woods-Upnor Area

All surveys are considered to have been reliably undertaken and reported but it is probable that the Thomson Ecology survey significantly underestimates nightingale numbers because of methodological differences. The difference between the 2012 count and the results of similar surveys in 1999 and 2010 may be due to greater coverage of the SSSI habitats or a real increase in bird numbers, perhaps due to habitat changes in the SSSI. Only the 2012 survey results have been used to support the inclusion of nightingales as a feature of the SSSI. This is because the 2012 data are considered to better represent the numbers of nightingales in the SSSI than other data for the following reasons:

- They are the most recently available data and therefore best reflect current conditions on the site;
- They result from a dedicated survey employing methods designed to locate singing nightingales and are therefore less likely to underestimate numbers; and
- They cover the full extent of the Chattenden Woods and Lodge Hill SSSI and the locations of all recorded territories are mapped.

Although it is preferable to use data collected over several years, where available, to take account of population fluctuations (which might otherwise lead to under- or over-estimates of numbers), it is sometimes necessary to use data from a single year. This is often the case for species which are only systematically surveyed periodically (e.g. breeding nightjars *Caprimulgus europaeus*, woodlarks *Lullula arborea* and Dartford warblers *Sylvia undata*, which are features of many SSSIs and Special Protection Areas). Above-average numbers of nightingales in Britain often occur in years with warm, dry weather in spring (Marchant *et al.* 1990) and it is therefore considered unlikely that numbers counted in 2012 are unusually high. Furthermore, given the long-term and steady decline of breeding nightingales in the UK (Holt *et al.* 2012) it is unlikely that numbers present in 2012 would be exceptional.

Based on the results of the 2012 survey which recorded 84 territories, it is estimated that the SSSI supports at least 1.3% of the GB nightingale population. This is assessed against the GB

population of 6,700 singing males estimated in 1999 as that is the most recently available national population estimate. Given the evidence of a further significant decline since 1999 it is likely that the SSSI population represents an even greater proportion of the current national population.

2.3.2 Analysis of nightingale population trends and implications for the SSSI

Nightingales at Chattenden Woods and Lodge Hill SSSI depend on a dense cover of shrubs in the form of coppiced woodland and scrub habitats. Maintaining the current numbers of nightingales in the SSSI will require detailed management planning and long-term habitat interventions. The key management principles are set out in the statement of Natural England's views about the management of the SSSI, which forms an annex to the notification document.

Annual monitoring shows that nightingales in the UK declined by 60% between 1995 and 2009 and by more than 90% since the 1960s (Risely *et al.* 2011; Holt *et al.* 2012). This reduction has been accompanied by a contraction in range towards south-east England. Nightingales in mainland Europe showed a steep initial decline in the 1980s followed by stability, although more recent declines have been reported in the north-west of the species' range (BirdLife International 2004; Gregory *et al.* 2007). This broader trend suggests that the population in Britain, on the edge of the species' range, may be particularly affected by large-scale population changes, perhaps due to lower productivity or reduced overwinter survival (Holt *et al.* 2012).

Preliminary data from the 2012 survey indicates that numbers in Kent have mirrored the national trend, declining by 26% since 1999 (Henderson 2012). Between 1999 and 2012 only three survey hectads have shown an increase in numbers, including the hectad TQ77 covering Chattenden Woods and Lodge Hill SSSI.

It is likely that a range of factors are responsible for the decline in nightingales in Britain. Habitat loss and deterioration due to rapid infrastructure and housing development, and reduced woodland management and increased deer populations are likely to be significant causes (Holt *et al.* 2012). It is also likely that increasing pressures in migratory and wintering areas due to low rainfall in the Sahel and perhaps agricultural intensification in West Africa have reduced adult survival, in common with other migratory species (Peach *et al.* 1991; Hewson & Noble 2009). The role of other potential effects such as increased predation and reductions in food quality and abundance are as yet unknown.

In conclusion, although maintaining habitat extent and quality in the SSSI should help to maintain numbers of nightingales, without a full understanding or control of all factors which may affect the species, both in Britain and abroad, it is not possible to predict future population trends. This is no less true for many other migratory bird species and does not imply that any less importance should be attached to protecting and securing appropriate management of nightingale habitat in Britain. Given that habitat loss and deterioration have at least contributed to the species' decline it is important to halt and reverse this effect whilst continuing to research and address other potential pressures.

2.4 Assemblage of breeding birds chiefly associated with scrub habitats

The following sources of data have been used to identify probable or confirmed breeding of species making up the scrub breeding bird assemblage:

- 2009 Thomson Ecology Survey (Lodge Hill Environmental Statement addendum)
- Kent and Medway Biological Records Centre (KMBRC) 1969-2010
- Assessment of breeding bird assemblage of Chattenden Woods area by M. Orchard, Kent Ornithological Society (KOS) using BTO Breeding Bird Atlas records 2008-11, with additional KOS records for 2012

The KMBRC records appear largely casual and from various sources, with little information on breeding activity. All records submitted during the breeding season have been considered but it is not known if they all relate to confirmed or probable breeding. The Thomson Ecology survey used the standard CBC method although the limited number of annual survey visits reduces its value, particularly for later nesting species. The Thomson Ecology survey includes maps which allow the

discrimination of scrub bird registrations. The 2008-12 BTO Atlas/KOS records cover several years, and indicate probable and confirmed breeding.

The guidelines (Chapter 14, section 3.5, p.245) state that:

> 'Localities are eligible which support an especially good range of bird species characteristic of the habitat, as defined by a 'BTO index' equal to or exceeding the value for the appropriate habitat given in Appendix C and Table 28.'

Natural England's emerging SSSI notification strategy for birds does not recommend any changes to the approach set out in the Guidelines for identification of breeding bird assemblages. However, bird population estimates, habitat associations and species' national statuses, which all influence the composition of SSSI assemblages, have changed significantly since the Guidelines were published in the 1980s. These changes have consequential effects on the lists of species in each assemblage, individual species' ranking and the threshold site-index values for each habitat.

The Guidelines (Chapter 14, Appendix C, p.257) describe the method for ascribing species' rankings and deriving threshold site-index values. The same method has been used to derive revised species rakings and threshold site-index values for scrub, based on the most recently available published national population estimates by the Avian Population Estimates Panel (Baker *et al.* 2006). Table 2 (below) shows the resulting amendments to scrub breeding bird assemblage guidance (with justification for each change) and also provides an assessment of the Chattenden Woods and Lodge Hill SSSI against the revised threshold site-index value.

Table 2 Breeding bird assemblage of scrub based on national population estimates published in 2006 and proposed changes to the list of contributing species

Species	Reason for change	Ranking	Present in scrub habitats within the SSSI
Turtle dove	Score increased from 1.5 due to lower population estimate	2	Yes
Cuckoo	No change	2	Yes
Long-eared owl	No change	3	
Nightjar	Deleted: heathland rather than scrub species		
Tree pipit	Deleted: associated with heathland, forestry plantation and woodland edge rather than scrub		
Nightingale	No change	3	Yes
Whinchat	Deleted: now largely restricted to bracken in upland areas		
Stonechat	No change	2	
Grasshopper warbler	No change	2	
Whitethroat	Score decreased from 2 due to higher population estimate	1	Yes
Lesser whitethroat	No change	2	Yes
Garden warbler	No change	1	Yes
Blackcap	No change	1	Yes
Long-tailed tit	New species: associated with scrub and <1 million pairs	1	Yes
Red-backed shrike	Deleted: now an irregular breeding species only		
Linnet	No change	1	Yes
Greenfinch	New species: associated with scrub and <1 million pairs	1	Yes
Goldfinch		1	Yes
Bullfinch		1	Yes
Yellowhammer		1	
Cirl bunting	No change	4	
New threshold site-index value = 14.5 (half of maximum score)			

Based upon the revised guidelines, the species breeding within scrub habitats at Chattenden Woods and Lodge Hill SSSI score a site-index value of 17 (see table 2) against a threshold of 14.5[3]. Therefore the site qualifies for its breeding bird assemblage associated with scrub habitat.

3. Assessment of the current condition of the Chattenden Woods and Lodge Hill SSSI

Site units*	Interest features	Reported condition**	Date of last assessment
1	Breeding nightingale, breeding bird assemblage of scrub	Favourable	6 September 2012
2	Woodland, breeding nightingale	Favourable	14 June 2012
3	Neutral grassland, breeding nightingale, breeding bird assemblage of scrub	Unfavourable – no change	22 August 2012
4	Woodland, breeding nightingale	Favourable	14 June 2012
5	Woodland, breeding nightingale	Favourable	14 June 2012
6	Woodland, breeding nightingale	Favourable	14 June 2012
7	Woodland, breeding nightingale, breeding bird assemblage of scrub	Favourable	6 September 2012
8	Breeding nightingale, breeding bird assemblage of scrub	Favourable	6 September 2012

*** Site units** are divisions used by Natural England for administrative purposes only.

**** Reported condition**
SSSIs are notified because of special biological or geological features. When these features are being managed so that their special nature conservation interest is being maintained they are said to be in favourable condition. This is a United Kingdom standard and the terminology and definitions are more fully described in 'A Statement on Common Standards Monitoring', produced by the Joint Nature Conservation Committee in 1998.

3.1 Reasons for adverse condition

The unimproved neutral grassland in unit 3 has been assessed as 'unfavourable – no change' due to the low frequency of positive indicator species, excessive cover of coarse grasses and the sward height being above the recommended level. Altering the grazing regime to increase the grazing pressure will address these issues.

[3] Using the original scoring system as published in the Guidelines in 1989, the site scores a site index value of 13.5 against a threshold of 15.

4. Selection of 'operations requiring Natural England's consent'

Natural England selects operations from a master list when determining the list of operations requiring consent for individual SSSIs. The selection is based on the likelihood that the operations may cause damage to the special features that are the reasons for notification of the SSSI. As well as selecting operations from the master list, the precise wording of each operation may be tailored to suit the particular circumstances at the site.

It is not possible to predict every possible eventuality that may arise on a site but the aim is to identify all operations where it is reasonably foreseeable that, if carried out at certain times or in a particular manner somewhere within the SSSI, they are likely to damage the special interest features. The table below records at least one reason justifying the inclusion of each operation in the list for Chattenden Woods and Lodge Hill SSSI. It is not intended to be exhaustive and in most cases there will be other ways in which the specified operation is likely to cause damage.

Standard reference number	Type of operation	At least one reason for listing
1.	Cultivation, including ploughing, rotovating, harrowing and re-seeding.	Important habitats could be destroyed.
2.	Grazing and alterations to the grazing regime (including type of stock, intensity or seasonal pattern of grazing).	Important habitats sensitive to over or under grazing.
3.	Stock feeding and alterations to stock feeding practice.	Could lead to localised nutrient enrichment or poaching which would damage important habitats.
4.	Mowing or cutting vegetation and alterations to the mowing or cutting regime (such as from haymaking to silage).	Inappropriate mowing can damage or destroy the structural diversity of important habitats.
5.	Application of manure, slurry, silage liquor, fertilisers and lime.	Important habitats sensitive to nutrient enrichment.
6.	Application of pesticides, including herbicides (weedkillers) whether terrestrial or aquatic, and veterinary products.	Important habitats and associated flora/fauna all sensitive to these.
7.	Dumping, spreading or discharging of any materials.	Risk of obscuring/smothering important habitats.
8.	Burning and alterations to the pattern or frequency of burning.	Burning could damage or destroy lowland grassland and fen features.
9.	Release into the site of any wild, feral, captive-bred or domestic animal, plant, seed or micro-organism (including genetically modified organisms).	The introduction of invasive species can damage the features of interest.
10.	Killing, injuring, taking or removal of any wild animal (including dead animals or parts thereof), or their eggs and nests, including pest control and disturbing them in their places of shelter.	Could lead to unforeseen changes in community composition.
11.	Destruction, displacement, removal or cutting of any plant, fungus or plant remains, including tree, shrub, herb, hedge, dead or decaying wood, moss, lichen, fungal fruiting body, leaf-mould or turf.	Damage to important habitats and direct loss of features.

Standard reference number	Type of operation	At least one reason for listing
12.	Tree and/or woodland management and alterations to tree and/or woodland management (including, planting, felling, pruning and tree surgery, thinning, coppicing, changes in species composition, and removal of fallen timber).	Woodland, dead wood features could be damaged or destroyed. All features vulnerable to incidental damage from unsympathetic tree and woodland management.
13a.	Draining (including the use of mole, tile, tunnel or other artificial drains).	Installation of drains could directly damage or destroy important habitats.
13b.	Modification to the structure of water courses (streams, springs, ditches and drains), including their banks and beds, as by re-alignment, regrading, damming or dredging.	Modification of structure of water courses could directly damage or destroy important habitats.
13c.	Management of aquatic and bank vegetation for drainage purposes.	Risk of direct and incidental damage to adjacent habitats.
14.	Alterations to water levels and tables and water utilisation (including irrigation, storage and abstraction from existing water bodies and through boreholes). Also the modification of current drainage operations (such as through the installation of new pumps).	Alterations to water levels and tables and water utilisation could directly damage or destroy important habitats.
15.	Infilling or digging of ditches, dykes, drains, ponds, pools, marshes or pits.	Could directly damage or destroy important habitats.
20.	Extraction of minerals including sand and gravel, topsoil, subsoil and spoil.	Direct loss of interest features and indirect negative impact on hydrology.
21.	Destruction, construction, removal, rerouting, or regrading of roads, tracks, walls, fences, hard-standing, banks, ditches or other earthworks, including soil and soft rock exposures or the laying, maintenance or removal of pipelines and cables, above or below ground.	Direct loss of or incidental damage to important habitats and associated flora/fauna.
22.	Storage of materials.	Risk of obscuring/smothering important habitats and associated flora/fauna.
23.	Erection of permanent or temporary structures or the undertaking of engineering works, including drilling.	Direct loss of or incidental damage to important habitats and associated flora/fauna.
26.	Use of vehicles or craft.	Vehicles can erode and compact soils and vegetation.
27.	Recreational or other activities likely to damage or disturb the features of special interest or their habitats.	Could have a negative impact on the site's habitats, and there is a risk of disturbance to breeding birds.
28a.	Game and waterfowl management and hunting practices and alterations to game and waterfowl management and hunting practice.	Inappropriate location and types could damage important habitats, lead to unforeseen changes in community composition and disturb breeding birds.

5. Site unit maps

The maps on the following pages show the provisional boundaries of the site units, which are divisions used by Natural England for administrative purposes only.

Insert site unit map here – A3 landscape format in colour

6. Photographs

Insert aerial photo here – A3 landscape format in colour

Photograph 2: View across area of recent coppice within Great Chattenden Woods.

Photograph 3: Oak standard within recent coppice in Great Chattenden Woods.

Photograph 4: View south across Ash Wood.

Photograph 5: Wet ride in Ash Wood.