

Sites of Special Scientific Interest (SSSI): a notification strategy for England



1 Background

1.1 The SSSI notification provides Natural England with a statutory duty to notify land which in its opinion is of 'special interest' by reason of its wildlife (habitats and species) or geology. However, the natural environment is dynamic, the nature of threats to it may change over time and our understanding of habitats, species and geology is constantly developing. Mindful of these facts, Parliament has also given Natural England powers to amend existing SSSI notifications, either by varying interest features, including additional land or both. Taken together, these powers and duties provide Natural England with a means of conserving areas that it considers to be of 'special interest' by reason of their wildlife (habitats and species) or geology. Where land is not considered to be of special interest, Natural England also has a power of 'denotification' to remove an existing notification from a SSSI, or any part of a SSSI.

1.2 There is no statutory purpose for SSSIs; however a general purpose is defined in government policy. Defra's code of guidance¹ states that:

"The purpose of SSSIs is to safeguard, for present and future generations, the diversity and geographic range of habitats, species, and geological and physiographical features, including the full range of natural and semi-natural ecosystems and of important geological and physiographical phenomena throughout England. The sites included within the series of SSSIs are intended collectively to comprise the full range of natural and semi-natural habitats and the most important geological and physiographical sites. The SSSI series should therefore include all of our most valuable nature conservation and earth heritage sites, selected on the basis of well-established and publicly available scientific criteria."

1.3 SSSIs are the country's very best wildlife and geological sites. They include some of our most spectacular and beautiful habitats. They are essential to preserve our remaining natural heritage that is under pressure from development, pollution, climate change and inappropriate land management practices. SSSI status is important since it provides a means of supporting habitats, plants and animals that find it more difficult to survive in the wider countryside, and in turn it protects a wide range of ecosystem services that will be crucial in adapting to and mitigating the effects of climate change. Annex 1 provides background information on the selection and coverage of SSSIs.

2 Issues

2.1 It is recognised that whilst the SSSI series is largely sufficient for many interests, there are some habitats and species not fully covered by current selection

¹ Defra, 2003. *Sites of Special Scientific Interest: Encouraging positive partnerships*. London: Defra. <http://www.defra.gov.uk/wildlife-countryside/pdf/protected-areas/sssi-code.pdf>

guidelines² (such as fungi), and some areas of the country where some features are not well represented (for example lowland heathland in western Cornwall).

- 2.2 As our scientific understanding of the needs of many habitats and species improves, and the predicted impacts of climate change become more apparent, the existing series needs to be kept under review (for example to ensure new features are adequately protected and site boundaries reflect needs of dynamic systems). We may also consider that a higher (or lower) proportion of the total resource should be protected within the SSSI series.
- 2.3 The National Audit Office³ recommends that Natural England periodically reviews the coverage, interest features and boundaries of SSSIs and updates the current suite of SSSIs appropriately. Such changes to the SSSI series would ensure that the series remains responsive and resilient to changes in the natural environment and our understanding of it, as well as highlighting and building on the immense value of SSSIs to society. The review should also consider denotification of sites (or parts thereof) that are not considered to be of special interest, to ensure the series as whole is not devalued.
- 2.4 In recent years, SSSI notifications have been progressed largely on an *ad hoc* basis, with proposals for new or amended sites generally being identified and put forward by Natural England's regional teams; subsequently forming an annual programme of notifications. In order to plug existing gaps in the series and ensure our effort is focused on areas in need of greatest attention, it is timely to put in place a more strategic approach to notification.
- 2.5 The current selection guidelines remain substantially fit for purpose and there is no need to review them in total. There are several generic issues, including the lack of a biogeographical basis for the current 'Areas of Search', insufficient emphasis placed on a holistic approach to boundary selection and the absence of any clear advice on the selection of 'archipelago' sites.

3 Strategic approach

- 3.1 Given the general purpose and value of SSSIs, the SSSI series should have the following three features:
 1. It should comprise the **full diversity and range** of habitats, species, and geological and physiographical features (including the full range of natural and semi-natural ecosystems and of important geological and physiographical phenomena) throughout England.
 2. It should contain our **most valuable** (important) nature conservation and earth heritage sites. With value (and thus special interest) considered as both a factor of intrinsic conservation needs (of habitats and species) both now and in the future and of the value of these features to society (for example, for ecosystem services such as carbon storage and flood management). It should also allow international commitments to be met.
 3. It should be comprised of individual SSSIs that include entire management units, whole systems and (as far as possible) are able to respond **dynamically** to natural processes and the predicted effects of climate change. It should contribute to ecological networks to increase connectivity and reduce habitat fragmentation and the series as a whole should be **resilient** in the face of

² Nature Conservancy Council, 1989. *Guidelines for selection of biological SSSIs*. Peterborough: Nature Conservancy Council. <http://www.jncc.gov.uk/page-2303>

³ National Audit Office. 2008. *Natural England's role in improving Sites of Special Scientific Interest*. London: The Stationery Office
http://www.nao.org.uk/publications/0708/natural_england's_role.aspx

pressures, including the predicted effects of climate change. Sites should be kept under review, to ensure the continued value of the series.

3.2 In order to ensure that the SSSI series exhibits and retains these features, Natural England's strategic approach to notifying new and amended SSSIs should be based on the following principles aimed at addressing the issues identified in section 2 (above):

- Priorities identified by the Biodiversity Action Plan (BAP) process would be a driver, although not the sole focus (since we need to recognise for instance that some features are not BAP priorities simply because existing mechanisms, such as SSSIs already provide for their conservation).
- A strategy for notifications would need to be mindful of the importance of features at EU and international level, in addition to the national context.
- Identification of gaps and shortfalls in existing SSSI coverage would be undertaken at a national level in the context of an ecologically meaningful framework of geographical selection units. Selection of individual sites to fill gaps or validation of proposed sites from national analyses of coverage would then be carried out locally.
- It will be explicit from the outset what contribution a site makes to the overall purpose of the SSSI series, with the coverage sought for a habitat or species in the series informed by factors including its intrinsic value, vulnerability and the importance attached to any ecosystem services provided.
- As far as possible, new and amended SSSIs would be dynamic in the face of natural processes – this may mean that they would accommodate space for natural processes, include whole systems or features and sit within a functioning habitat network.

4 Implementing a strategic approach

4.1 We have neither the resources nor the necessary data to carry out all of the analyses and reviews for all habitats and species in England, to form a complete view on what a sufficient SSSI series (as per the purpose defined above) would comprise. Whilst our longer term aim should clearly be to have this level of understanding, this should not prevent us from progressing notifications in areas where we are already clear of the future needs for both the SSSI series and individual sites. Work is currently underway and planned for the future to improve our habitat inventories that will feed into these analyses and increase their accuracy as they progress.

4.2 Work should progress in cases where existing sites require notification amendments, and also in areas where recent reviews of SSSI coverage have been undertaken and in other cases where a strategic approach can easily be implemented (perhaps for very rare habitats or species where the analyses are straightforward). Where full reviews of coverage have not commenced, specialist judgement and opinion will allow us to form a view on whether there are significant gaps in coverage that need to be addressed more immediately and what improvements to our understanding and data might be necessary in order to progress a more strategic notification programme.

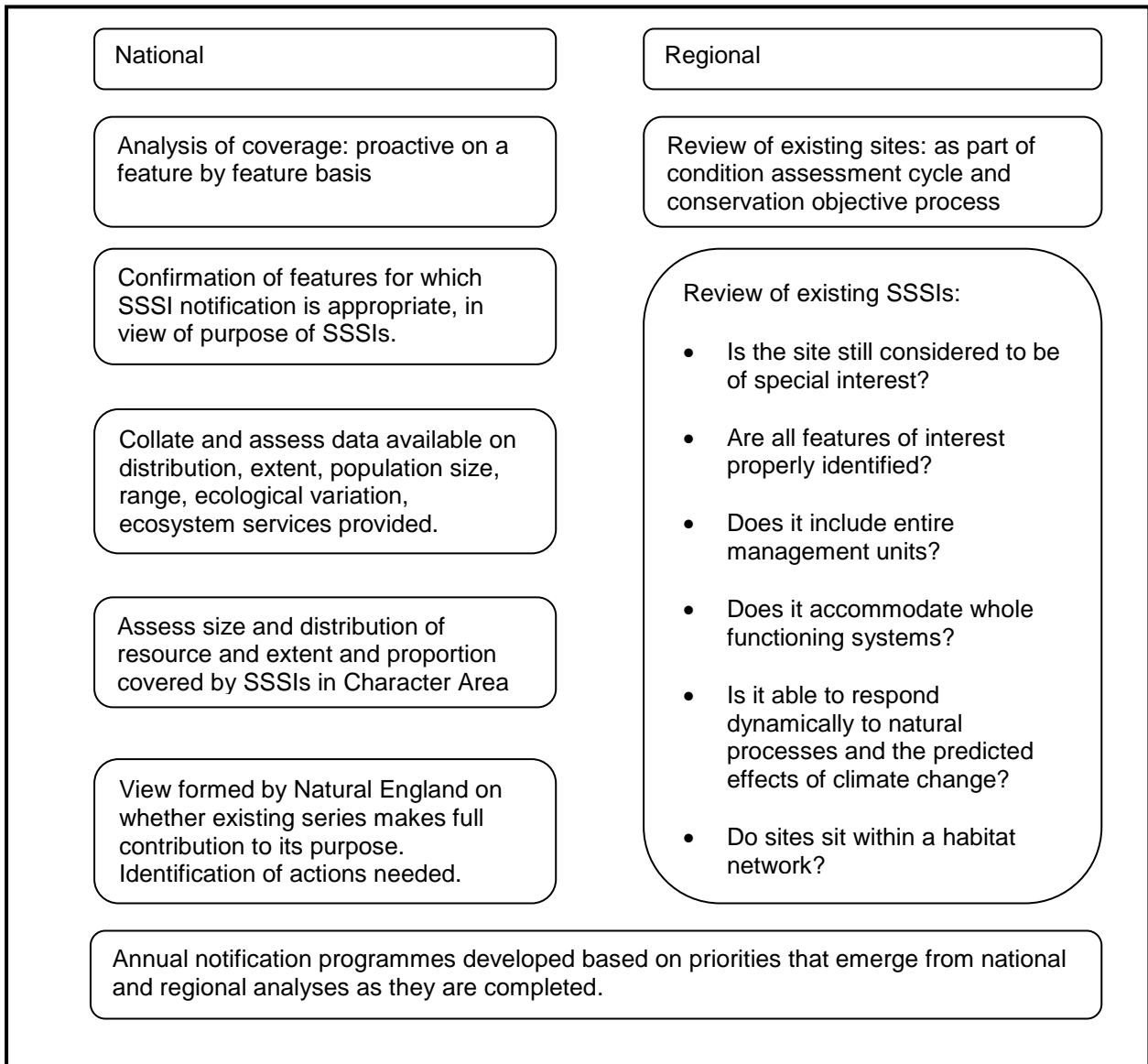
4.3 Natural England will use expert judgement and opinion, in addition to existing reviews of SSSI coverage, to draw up a medium term strategy to plug gaps that Natural England specialists are already aware of or can determine from existing information. For each grouping of SSSI features we will:

1. Define the features for which SSSI notification is appropriate.
2. Assess the contribution of the existing network, in the context of overall coverage and existing sites, on the basis of existing data (identifying shortfalls in data where necessary).

3. Form a view on the adequacy of the existing SSSI series, and identify sites in immediate need of notification amendments (either because interest lost through natural change or favourable condition is dependent on changes to site boundaries, interest features or operations regulated on the site). The adequacy of existing SSSI boundaries and features of interest will be reviewed alongside the condition assessment process.
 4. Produce a prioritised plan of any future new or amended notifications required to fill major gaps in coverage or contribute to delivery of the government's Public Service Agreement target that 95% of SSSIs be in favourable condition by 2010.
- 4.4 In practice, this strategy will be implemented through two parallel and complementary strands of work (see figure 1, below). Strand one will be led by the relevant national specialists in Natural England's Evidence Team, who will review notification requirements, assess the adequacy of the current SSSI series and identify any gaps in coverage. The second strand aims to review the boundaries and interests of existing SSSIs to ensure that they remain fit for purpose and resilient. This will be led by Natural England's regional teams and carried out alongside the condition assessment process.
- 4.5 This strategy will be implemented from 2009/10. The rate of progress will be influenced by the expertise within Natural England and the competing demands on specialists' time. In some areas it is already possible to identify priorities for notifications, in the context of a strategic approach. This means that the results of the national analyses will be delivered over varying timescales for different groups of interest features.
- 4.6 Similarly, the regional reviews will run over a period of at least six years initially (based on the common standards monitoring cycle) and then become part of business-as-usual related to monitoring and conservation objectives. To ensure that any issues are captured as they arise, we will add a reporting requirement to Natural England's SSSI database to flag where sites are 'at risk' in the medium to long term, and for which notification amendment may be required.

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Figure 1 Implementation of the strategy through two strands



Annex 1

Background and Supporting information

1. Selection of SSSIs

SSSIs have been selected over a period of almost 60 years, and the approach has evolved and developed during that time. There are currently 4,115 SSSIs in England covering just over 1 million hectares, with around 26,000 owners and occupiers.

The Geological Conservation Review (GCR)

The objective of the earth science SSSI system is to identify and conserve a Great Britain-wide series of SSSIs for their 'geology and physiography'. Each site within the series must have a special interest demonstrable at national or international level, either in its own right or by virtue of its contribution to a network of closely related sites. The special interest of the series is interpreted as the minimum number of sites needed to demonstrate our current understanding of the diversity and range of earth science features.

The GCR is maintained by the Joint Nature Conservation Committee (JNCC). The results are being published in a series of 45 volumes (the GCR Series) and in the GCR database. JNCC intends to carry out an ongoing incremental review of site coverage, consulting with experts in the geological community. This may result in proposals for new sites and suggestions for deletions. In parallel, sites are also identified by academic geologists and brought to the attention of Natural England (and the other country agencies). Natural England may then propose addition of sites to the GCR, subject to the support of the Chief Scientists of the other two country agencies (Countryside Council for Wales and Scottish Natural Heritage), since the GCR area of search is Great Britain-wide. New proposals are typically limited to sites identified for new GCR features, not additional sites for existing features.

The GCR provides a robust approach to the selection of earth heritage sites at the Great Britain level. It also provides for the network of sites to be updated to reflect increased scientific understanding, discovery of better examples of features or loss of existing sites. Natural England can have confidence that proposals for SSSIs that come forward from the GCR process represent a strategic approach to selection of earth heritage sites.

Biological sites

Selection of biological SSSIs has not generally benefited from such a structured rationale as used for the GCR. The JNCC is responsible for maintaining and updating the guidelines. The selection guidelines state that 'biological interest' has long been understood to mean:

"...the wildlife value of an area to society for a broadly conceived range of cultural purposes which include science, but also educational, aesthetic, and inspirational values."

The guidelines are clearly referring to what we now call 'ecosystem services', although this reference could be made more explicit and expanded to reflect our increased understanding of ecosystem services. So, we may consider the concept of biological special interest to have included both the intrinsic wildlife importance and also the value attached to the ecosystem services provided to society.

A consistent theme in the guidelines is that for those habitats and species which have suffered widespread loss, fragmentation and decline (such as most areas in the lowlands), **all remaining** natural and semi-natural examples have interest. In general, the rarer the habitat or the more threatened the remainder, the higher is the nature conservation value of what is left.

On the other hand, for the larger expanses of undeveloped habitat (such as in the uplands), it is considered important that a **proportion of the total** area is selected for SSSI notification, that is sufficient to represent the complete field of biological interest, in the event that all the rest should change or disappear. This has led to two main approaches to site selection:

- **Minimum standards**, generally apply to those habitats and species that are rarer and more threatened. All examples above a minimum qualitative and/or quantitative threshold are eligible for selection. Some habitats and most species groups are selected in this way (see table 1, below).
- **Exemplar representation**, in the case of the habitats and species that are still widespread. As the guidelines have evolved, fewer habitats and species groups are selected on this basis, although still a considerable proportion (see table 1, below).

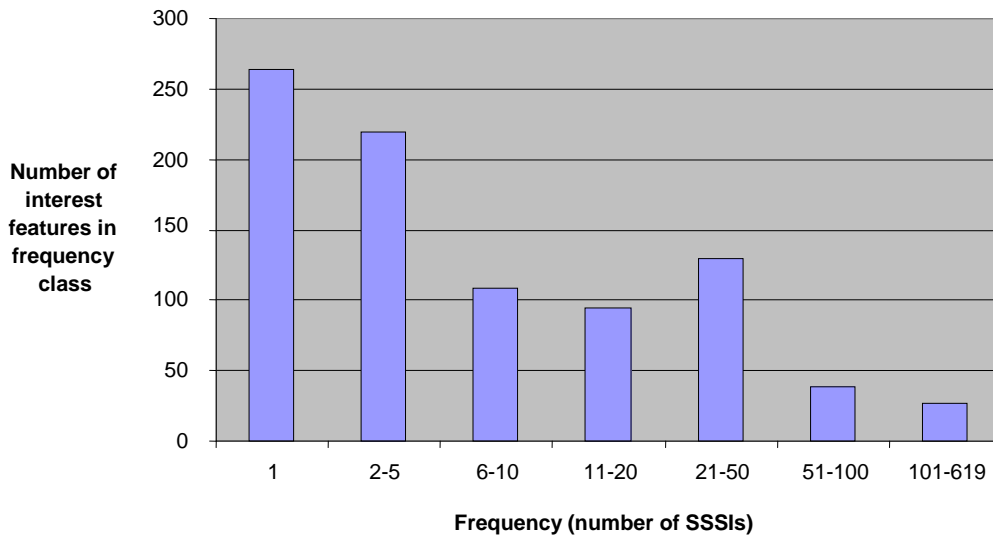
Table 1 Differing approaches to biological SSSI selection (dates refer to when the relevant guidelines were written or last reviewed)

Minimum standards:	Exemplar representation:
<ul style="list-style-type: none"> • Saltmarshes (1989) • shingle beaches and structures (1989) • lowland grasslands (1989) • heathlands (1989) • lowland ditch systems (1989, revised 1997) • rare fen types (1989) • bogs (1994) • more restricted upland habitats (1989) • vascular plants (1989) • non-vascular plants (1992) • bats (1989) • most birds (1989) • reptiles and amphibians (1989) • nationally rare freshwater and estuarine fish (1989, revised 1997) • invertebrates (1989) • the rarest butterflies (1989) • dragonflies (1989) 	<ul style="list-style-type: none"> • sand dunes (1989) • sea cliffs and slopes (1989) • intertidal marine habitats (1996) • saline lagoons (1996) • woodlands (1989, revised 2006 for veteran trees) • non-montane rock habitats (1989) • standing waters (1989, revised 1997) • flowing waters (1989, revised 1997) • most fens (1989) • widespread upland habitats (1989) • mammals (except bats) (1989, revised 2005 for water voles) • isolated breeding bird colonies (1989) • some freshwater and estuarine fish (1989, revised 1997) • most butterflies (1989)

2. Current coverage of the SSSI series

There are 879 different interest features for which at least one SSSI has been notified. Of these, 260 interest features have only one site notified (see figure 2, below). The majority of these features are species. Some of these (such as Sussex emerald moth) are very rare species found at only a single site, which has been duly notified. Others (such as breeding mute swan) have been picked up under a different feature (in this case a wetland breeding bird assemblage) at a much larger number of sites – so, whilst only one site is notified for this species in its own right, there are over 150 SSSIs with breeding bird assemblages that can include mute swan. Similarly, there are eight SSSIs in England where breeding hen harriers are notified in their own right, but a further 36 sites where they may form part of an assemblage of upland breeding birds.

Figure 2: Frequency of individual features within SSSIs



At the other end of the scale, the feature with the most sites selected (619) is the neutral grassland National Vegetation Classification (NVC) type MG5 crested dog's-tail *Cynosurus cristatus* – common knapweed *Centaurea nigra* grassland. This equates to almost one in seven of all SSSIs, yet this should not necessarily be considered sufficient. This grassland type is highly fragmented and exists in very small patches, generally less than 5 ha and often less than 1-2 ha. So, we still have only around 50% of the resource within SSSIs, whilst the selection guidelines advocate the selection of all remaining examples. An analysis of the coverage of broad habitat types reveals variation in the amount of the total resource contained within the SSSI series (see table 2, below). This variation may be due to the application of exemplar representation and minimum standards selection guidelines, or may highlight a more fundamental gap in the series that needs further investigation.

Table 2 Coverage of habitats (based on the categories used in the *State of the Natural Environment Report*⁴)

Habitat	England resource (ha)	Within SSSIs		Within SSSIs notified for this feature		Number of corresponding SSSI notified features ⁵
		Area (ha)	%	Area (ha)	%	
Blanket bog	255,308	176,140	69%	175,315	69%	7
Lowland raised bogs	10,227	8,949	88%	8,046	79%	
Broadleaved, mixed and yew woodland	510,292	82,797	16%	75,559	15%	22
Fen	21,927	19,533	89%	17,427	79%	52 ⁶
Lowland acid grassland	12,202	7,305	60%	3,199	26%	16 ⁷
Lowland calcareous grassland	53,945	42,715	79%	42,501	79%	14
Upland calcareous grassland	12,293	8,485	69%	8,361	68%	
Lowland meadows	20,378	10,948	54%	10,307	51%	12
Upland hay meadows	2,024	1,470	73%	1,072	53%	
Lowland heathland	72,331	48,289	67%	46,428	64%	22
Upland heathland	243,929	179,912	74%	176,185	72%	
Maritime cliff and slope	14,545	8,484	58%	5,232	36%	9
Sand dunes	12,800	10,928	85%	10,553	82%	19

⁴ Available for download at: <http://www.naturalengland.org.uk/publications/sone/default.aspx>

⁵ This column shows the complexity of the interest features; for example the habitat 'blanket bog' is represented in the SSSI series by seven separate types (in this case National Vegetation Classification communities), each of which may require individual assessment of SSSI coverage.

⁶ Includes all 'fen, marsh and swamp' notified features.

⁷ Includes upland acid grassland notified features.