



Reigate Heath SSSI Surrey

Supporting Information

A supplement to the notification document

Contact points and further information

This supplement is issued on request by Natural England's Thames Solent Team and is intended to be read in conjunction with the notification document for owners, occupiers and other notified parties.

During the current coronavirus situation, Natural England staff are working remotely and a limited number of our offices are open. Please send any correspondence relating to this notification by email or contact us by phone using the information below. Alternatively, you can send a response online using the Citizenspace link below.

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Summary

Reigate Heath was last notified as a Site of Special Scientific Interest (SSSI) on 30 May 1986. The SSSI has been extended to include an area of additional land which supports species-rich lowland dry acid grassland of the National Vegetation Classification (NVC) type U1b sheep's fescue *Festuca ovina* – common bent *Agrostis capillaris* – sheep's sorrel *Rumex acetosella* grassland, typical sub-community. The additional land is adjacent to the previously notified SSSI in the south-west of the site, adjoining the grounds of Dungate Manor.

The SSSI continues to be of special interest for its lowland acid grassland, dry heathland, alder woodland and marshy grassland.

1. Information used to support the extension of Reigate Heath SSSI

| Feature | Data Source | Author | Date | Content |
|----------------------------|---|---|------|---|
| Lowland dry acid grassland | The changing extent and conservation interest of lowland grasslands in England and Wales: a review of grassland surveys 1930-1984. <i>Biological Conservation</i> 40 : 281-300. https://www.sciencedirect.com/science/article/pii/0006320787901212 | Fuller, R.M. | 1987 | Information on the national status of grassland habitats. |
| | British Plant Communities. Volume 3: Grasslands and montane communities. Published by Cambridge University Press, Cambridge. | Rodwell, J.S. (ed) | 1992 | National Vegetation Classification for grasslands. |
| | A review of the extent, conservation interest and management of lowland acid grassland in England. English Nature Research Reports No. 259. Published online: http://publications.naturalengland.org.uk/publication/60050 | Sanderson, N.A. | 1998 | Review of lowland acid grassland. |
| | Monitoring the condition of lowland grassland SSSIs. English Nature Research Report 315. Published online: http://publications.naturalengland.org.uk/publication/64033 | Robertson, H.J. & Jefferson, R.G. | 2000 | National extent of lowland dry acid grassland |
| | The condition of lowland BAP priority grasslands. Results from a sample survey of non-statutory stands in England. English Nature Research Report 636. Published online: http://publications.naturalengland.org.uk/publication/106007 | Hewins, E.J., Pinches, C., Arnold, J., Lush, M., Robertson, H. & Escott, S. | 2005 | Information on the condition of grassland habitats. |
| | Reigate Heath - Description of the Acid Grassland of the Fairways. Report commissioned by Reigate and Banstead Borough Council. | Bruce Middleton | 2007 | Provides detailed descriptions of the acid grassland associated with Reigate Heath golf course. |
| | Reigate Heath – Re-survey of acid grassland areas. Report commissioned by Reigate and Banstead Borough Council | Bruce Middleton | 2011 | A detailed survey and condition assessment of the acid grassland on and around Reigate Heath golf course. |

| Feature | Data Source | Author | Date | Content |
|---------|--|--|------|---|
| | Guidelines for the Selection of Biological SSSIs. Part 1: Rationale, Operational Approach and Criteria for Site Selection. Joint Nature Conservation Committee, Peterborough. http://jncc.defra.gov.uk/pdf/SSSI_GuidelinesPart1_PUBLICATION_Dec2013v2.pdf | Bainbridge, I., Brown, A., Burnett, N., Corbett, P., Cork, C., Ferris, R., Howe, M., Maddock, A. & Pritchard, S. (eds) | 2013 | National selection guidelines for biological SSSIs. |
| | <i>A Vascular Plant Red List for England</i> . Botanical Society of Britain and Ireland, UK. https://bsbi.org/wp-content/uploads/dlm_uploads/England_Red_List_1.pdf | Stroh, P.A., Leach, S.J., T.A. August, T.A., Walker, K.J., Pearman, D.A., Rumsey, F.J., Harrower, C.A., M.F. Fay, M.F., J.P. Martin, J.P., T. Pankhurst, T., C.D. Preston, C.D. & Taylor, I. | 2014 | Threat status of plants of acid grasslands. |
| | Fate of semi-natural grasslands in England between 1960 and 2013: A test of national conservation policy. <i>Global Ecology and Conservation</i> 4: 516-525. https://www.sciencedirect.com/science/article/pii/S2351989415300184 | Ridding, L.E. Redhead, J.W & Pywell, R.F. | 2015 | National study on loss rates of semi-natural grasslands within and outside protected sites. |
| | European Red List of Habitats. Part 2. Terrestrial and freshwater habitats. Publications Office, European Union. https://op.europa.eu/en/publication-detail/-/publication/22542b64-c501-11e7-9b01-01aa75ed71a1/language-en | Janssen, J.A.M. and 48 others | 2016 | Status (Red List) of European habitats. |
| | Guidelines for the Selection of Biological SSSIs. Part 2: Detailed Guidelines for Habitats and Species Groups. Chapter 3. Lowland grasslands. JNCC, Peterborough. http://jncc.defra.gov.uk/pdf/SSSI_Chptr03_revision_2017(v2.0).pdf | Jefferson, R.G., Smith, S.L.N. & MacKintosh, E.J. | 2019 | National selection guidelines for SSSIs for lowland grasslands. |
| | A botanical survey of land proposed for inclusion in Reigate Heath Site of Special Scientific Interest, Surrey. | Steven, G. | 2019 | National Vegetation Classification (NVC) survey of the additional land. |
| | Specialist support for the notification of additional land in the Reigate Heath SSSI | Jefferson, R.G. | 2020 | Support for notifying the site from Natural England's senior grassland specialist. |

2. Explanation of how the notification of additional land at Reigate Heath meets the SSSI selection guidelines

This section explains how the information listed in section 1 has informed our decision to notify the additional land, according to the *Guidelines for the selection of Biological SSSIs. Part 1: Rationale, Operational Approach and Criteria for Site Selection* (Bainbridge *et al.* 2013) and *Part 2: Detailed Guidelines for Habitats and Species Groups. Chapter 3 Lowland Grasslands* (Jefferson *et al.* 2019), hereafter referred to as 'the Guidelines'.

2.1 Lowland dry acid grassland

The additional land is in the south-west of Reigate Heath adjacent to Dungate Manor. It supports lowland dry acid grassland of the National Vegetation Classification (NVC) type U1b sheep's fescue *Festuca ovina* – common bent *Agrostis capillaris* – sheep's sorrel *Rumex acetosella* grassland, typical sub-community (see photographs 2-5 in section 6). Reigate Heath SSSI (as notified in 1986) is considered to be of special interest for its nationally important lowland dry acid grassland, including the NVC type U1 grassland that is found in the additional land. 'Lowland dry acid grassland' is included on the list of habitats and species which are of principal importance for the conservation of biodiversity in England, as required under Section 41 of the Natural Environment and Rural Communities Act 2006.

Historically the area of semi-natural grassland in the UK (including U1) has undergone a severe decline. The widespread specialisation and intensification of agricultural systems that took place from 1945 onwards had profound impacts on semi-natural grasslands and the species that depend upon them. It is estimated that by 1984 in lowland England and Wales, semi-natural grassland had declined by 97% as a consequence of conversion to agriculturally improved grassland or arable (Fuller 1987). More recently a 47% loss has been reported between 1960 and 2013 on sites known to have supported species-rich grassland (Ridding, Redhead & Pywell 2015). This study demonstrated that SSSIs had retained more grassland (91%), compared with non-protected sites (27%), thereby highlighting the effectiveness of designation as a means of protecting semi-natural grasslands.

Such widespread loss has led to extensive fragmentation, with remaining grasslands, including lowland dry acid grasslands, often isolated within the landscape. In addition to loss of habitat, the quality of unimproved grasslands has also declined. An assessment of the condition of semi-natural grasslands on non-statutory sites in England in 2002/3 found that only 21% of lowland dry acid grasslands were considered to be in good condition, with many lacking positive indicators in sufficient number and frequency, primarily as a consequence of neglect or agricultural improvement (Hewins *et al.* 2005).

These losses have led to severe declines in the characteristic plant species of lowland acid grasslands in recent decades (see for example Sanderson 1998). Lowland dry acid grasslands, especially parched U1 acid grassland, provide a habitat for a number of plant species that have undergone substantial declines over the last 60 years. These include several species that are now listed as Vulnerable or Endangered in the vascular plant Red List for England (Stroh *et al.* 2014) including upright chickweed *Moenchia erecta*, smooth cat's-ear *Hypochaeris glabra*, maiden pink *Dianthus deltoides*, spring speedwell *Veronica verna* and pale dog-violet *Viola lactea*.

Lowland dry acid grassland, in particular parched acid grassland, is a very important habitat for vascular plants, bryophytes, lichens, fungi and invertebrates. This includes a high number of threatened plants and invertebrates. It supports 24 species of threatened vascular plants. This is the second highest total of the priority grassland types, exceeded only by lowland calcareous grassland and far richer than, for example, lowland dry heath.

For these reasons, it is listed as a 'habitat of principal importance for the conservation of biodiversity in England' under Section 41 of the Natural Environment and Rural Communities Act 2006. There is an estimated 20,142ha of lowland dry acid grassland in England (Robertson & Jefferson 2000). Whilst U1 grassland is the most commonly occurring type, only approximately 12,500 ha are estimated to remain in England. In Europe as a whole, parched acid grassland is

classed as Vulnerable in the European Red List of habitats published in 2016 (Janssen *et al.* 2016).

Specialist surveys of the acid grassland across the whole of Reigate Heath were commissioned by Reigate and Banstead Borough Council in 2007 (Middleton 2007) and 2011 (Middleton 2011). These highlighted the occurrence of species-rich grassland in the additional land which supported a number of characteristic acid-grassland plants, including notable species which are under threat in a national context. A full NVC survey of the additional land in 2019 (Steven 2019) found that the lowland acid grassland in this part of the site is the NVC community U1b.

The acid grassland in the additional land at Reigate Heath is considered to be a good representative of the U1 community. It contains two of the three community constants with the third (sheep's fescue *Festuca ovina*) being replaced by red fescue *Festuca rubra* and fine-leaved sheep's-fescue *Festuca filiformis* (formerly *tenuifolia*). As far as the sub-community is concerned, it is not a particularly good fit to the U1b typical sub-community and has affinities to the more mesophytic U1d *Anthoxanthum odoratum*-*Lotus corniculatus* sub-community. This effectively means that it contains a mixture of the preferential species for the two sub-types (U1b typical and U1d). Both well and ill-fitting stands represent the real field of variation in a vegetation type and in many cases a 'poor' fit indicates valuable local peculiarities, which is the case at Reigate Heath.

The Guidelines (Chapter 3, section 4.11, page 7) state:

'For those grassland types where the total British resource exceeds 10,000 ha (as shown in section A of Annex 1), an exemplar approach to the selection of sites should be taken. The selection should include the best examples within an AOS [Area of Search], ensuring representation of the range of sub-communities and other significant variation. There should be a general presumption to select sites of 5 ha or more, although in the upland fringes and in AOS with extensive representation of the habitat, selection should focus on the largest, diverse and least modified examples.'

The Wealden Greensand National Character Area (NCA)¹ is considered to be one of the most important areas for lowland dry acid grassland in England (Sanderson 1998). This is due to the presence of areas of acid grassland that have an unusually rich flora and fauna and include some of the best examples of the type. They also represent a transition between the southern acid grasslands such as those in the New Forest and the more continental acid grasslands in eastern England. The acid grassland and heathland in the NCA and the county has suffered from loss and fragmentation. Although no figures are available for the NCA, there is only around 500-1000 ha of acid grassland in Surrey, of which around 100 ha is U1 (Sanderson 1998).

The 2019 NVC survey recorded 1.4 ha of U1b grassland at the site (see map in section 7). The previously notified area of Reigate Heath SSSI has approximately 12.3 ha of lowland dry acid grassland (primarily of the NVC type U1) occurring in a mosaic with lowland heathland. The inclusion of 1.4 ha of U1b grassland increases the overall extent of the lowland dry acid grassland habitat in the SSSI to 13.7 ha, thus further exceeding the area of 5 ha above which the Guidelines advocate a general presumption that sites should be selected.

The Guidelines (Chapter 3, section 5.4, page 10) state:

'Decisions as to what constitutes a 'site' where there are non-contiguous fields or units (a compound site) should be guided by one or more of the following criteria applying, with the exception of the first which may not be enough on its own, depending on the distance apart of fields or units:

- *the component fields are similar in terms of their vegetation composition (e.g. same NVC community type or broad NVC grouping) and occur on similar soil types/geology within a*

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. NCAs are now used as 'areas of search' for the purposes of SSSI selection (where appropriate) in England. For more information on NCAs, see <https://www.gov.uk/government/publications/national-character-area-profiles-data-for-local-decision-making>

discrete landscape or occur in similar topographical situations (e.g. disjunct flushes along a valley);

- *it is very likely that local habitat fragmentation has caused the current disjunct nature of the habitat(s) and that the elements would formerly have been linked;*
- *where different vegetation types are present, there is evidence that these once occurred in previously contiguous mosaics and transitions reflecting local changes in soils, hydrology etc, within a similar landscape setting;*
- *there is a high likelihood that individual sub-components provide an overall habitat resource for certain wide-ranging species.'*

Bullet points 1 and 2 apply in this case. Lowland acid grassland of the NVC type U1 is present in both Reigate Heath SSSI and the additional land. The two areas are only separated by a road and track and would previously have been linked.

2.2 Site boundary determination

The additional land is directly adjacent to the previously notified SSSI. It comprises a mosaic of species-rich acid grassland habitats, golf course infrastructure (tracks, greens and bunkers), scrub and secondary woodland. To the north it is bounded by the Flanchford Road. To the east it follows (but does not include) an access track which forms the boundary of the previously notified SSSI. To the south and west it closely follows the boundary of Reigate Heath Local Nature Reserve (LNR), thereby excluding the grounds of Dungate Manor (see photograph 1 in section 6).

The Guidelines (Part 2, Chapter 3, Section 5.1, page 10) state:

'SSSI boundaries should be drawn to encompass the special features of the site and all land necessary to ensure the protection and sustainability of those features. [...] Consideration should be given to the inclusion of whole management units, entire ecological units and land required for supporting processes, such as hydrology. Thus, for example, this may require the inclusion within a site boundary of areas of land supporting grassland communities of lower botanical interest (section B of Annex 1), or non-grassland vegetation.'

The communities of lower botanical interest (such as improved grassland on the golf course greens) and non-grassland vegetation on the additional land are an integral part of the ecological and management unit. The additional area is managed as a whole by Reigate and Banstead Borough Council and Reigate Heath Golf Club. For these reasons they are included within the SSSI boundary.

3. Assessment of the current condition of Reigate Heath SSSI

The SSSI (as last notified in 1986) was divided into three units. Unit 2 comprising heathland and acid grassland, has been assessed as being in a 'favourable' condition. Unit 1 comprising alder woodland is in 'unfavourable – no change' condition and unit 3 comprising marshy grassland is in 'unfavourable – declining' condition.

The additional land is included in a new unit 4 which also includes the entirety of the former unit 2. The current condition of unit 4 including the additional land is shown below.

| Unit number* | Interest features | Condition** | Date of assessment |
|--------------|---------------------------------------|-------------|--------------------|
| 4 | Lowland dry acid grassland, dry heath | Favourable | 29/01/2018 |

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

** Condition

SSSIs are notified because of special biological, physiographical 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 UK standard for which the terminology and definitions are more fully described in 'A Statement on Common Standards for Monitoring Protected Sites' (Joint Nature Conservation Committee, 2019).

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 predictable 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 list of operations for the site as notified in 1986 remains unchanged. Where appropriate, the table below records at least one reason justifying the inclusion of each operation in the list for the additional land in Reigate Heath 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. | Grassland could be destroyed. |
| 2. | Grazing and changes in the grazing regime (including type of stock, intensity or seasonal pattern of grazing and cessation of grazing). | Grassland is sensitive to over or under grazing, which could lead to changes in community composition. |
| 3. | Stock feeding. | Could lead to localised nutrient enrichment or poaching, which would damage grassland. |
| 4. | Mowing or other methods of cutting vegetation. | Grassland is sensitive to cutting or mowing, which could lead to changes in community composition if carried out inappropriately. |
| 5. | Application of manure, fertilisers and lime. | Grassland is sensitive to nutrient enrichment, which could lead to dominance by competitive species. |
| 6. | Application of pesticides, including herbicides (weedkillers). | Grassland and its associated flora/fauna is sensitive to these, both through direct loss and change to community composition. |
| 7. | Dumping, spreading or discharge of any materials. | Risk of obscuring/smothering grassland and introduction of soil contaminants or non-native species. |
| 8. | Burning. | Grassland is sensitive to burning, both through direct loss and changes in community composition. |
| 9. | The release into the site of any wild, feral or domestic animal, plant or seed. | Could lead to unforeseen interactions with indigenous species and changes in community composition. |
| 10. | The killing or removal of any wild animal, including pest control. | Could lead to unforeseen changes in community composition, for instance if key herbivores, pollinators or predators affected. Direct damage to sward could result from some methods. |
| 11. | The destruction, displacement, removal or cutting of any plant or plant remains, including tree, shrub, herb, hedge, dead or decaying wood, moss, lichen, fungus, leaf-mould and turf. | Damage to grassland habitats and constituent species. |

| Standard reference number | Type of operation | At least one reason for listing |
|---------------------------|--|---|
| 12. | Tree and/or woodland management, including afforestation, planting, clear and selective felling, thinning, coppicing, modification of the stand or underwood, changes in species composition, cessation of management. | Risk of incidental damage to grassland, direct loss and changes in community composition due to shading. |
| 13a. | Drainage (including the use of mole, tile, tunnel or other artificial drains). | Risk of incidental damage and direct loss to grassland. |
| 13b. | Modification of the structure of watercourses (e.g. streams, springs, ditches, drains), including their banks and beds, as by re-alignment, re-grading and dredging. | Currently there are no watercourses or waterbodies within the additional land, so these operations are unlikely to arise. In the event that a waterbody or watercourse were to naturally form or be lawfully created, there would be a future risk of incidental damage and direct loss to grassland arising from these operations. |
| 13c. | Management of aquatic and bank vegetation for drainage purposes. | |
| 14. | The changing of water levels and tables and water utilisation (including irrigation, storage and abstraction from existing water bodies and through boreholes). | Grassland is sensitive to changes in hydrology. Direct damage to grassland in the immediate vicinity. |
| 15. | Infilling of ditches, drains, ponds and marshes. | Direct damage to grassland. |
| 16a. | Freshwater fishery production and/or management, including sporting fishing and angling. | Currently there are no watercourses or waterbodies within the additional land, so this operation is unlikely to arise. In the event that a waterbody or watercourse were to naturally form or be lawfully created, there would be a future risk of incidental damage to grassland arising from this operation. |
| 20. | Extraction of minerals, including peat, shingle, sand and gravel, topsoil, subsoil, and spoil. | Direct loss of grassland. |
| 21. | Construction, removal or destruction of roads, tracks, walls, fences, hardstands, banks, ditches or other earthworks, or the laying, maintenance or removal of pipelines and cables, above or below ground. | Direct loss of or incidental damage to grassland. |
| 22. | Storage of materials. | Risk of obscuring/smothering grassland and accidental introduction of non-native species. |
| 23. | Erection of permanent or temporary structures, or the undertaking of engineering works, including drilling. | Direct loss of grassland. |
| 26. | Use of vehicles or craft likely to damage or disturb features of interest. | Risk of damage to grassland, for instance from soil compaction or wheel-rutting. |
| 27. | Recreational or other activities likely to damage or disturb features of interest. | Risk of damage to grassland, for instance due to excessive trampling. |
| 28. | Game and waterfowl management and hunting practice. | Inappropriate location and types could damage grassland, for instance due to nutrient enrichment around feeders. |

5. Site unit map

The map on the following page shows the provisional boundaries of the site units, which are divisions used by Natural England for administrative purposes only.

[insert site unit map here – 1 x A3 in colour]

6. Photographs



Photograph 1

**Reigate Heath SSSI
boundary shown in red**



Scale (at A3): 1:4,986

Map produced by Denise Rose,
Landscape, Biodiversity & Designation Team
Date flown: 07/06/2016.

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Photograph 2: Acid grassland on the northern fringe of the additional land. The tall grass is upright brome, an unusual feature in this habitat.



Photograph 3: An outstanding example of acid grassland very similar in character to the grassland in the additional land is present in the previously notified SSSI to the east.



Photograph 4: A typical view of the sward on the northern margin of the additional land. There is frequent mouse-ear hawkweed and common cat's-ear.



Photograph 5: In places the cover of herbs is very high. Sheep's sorrel is particularly abundant in patches towards the eastern end of the area. This is a characteristic plant of drought-prone acid grassland.

7. Vegetation survey map

Blue shading denotes area of acid grassland.

Red line denotes boundary of Local Nature Reserve

