



European Site Conservation Objectives: Supplementary advice on conserving and restoring site features

**Thrislington Special Area of Conservation (SAC)
Site code: UK0012838**



Thrislington © Dave Mitchell /Natural England

Date of Publication: 18 January 2019

About this document

This document provides Natural England's supplementary advice about the European Site Conservation Objectives relating to Thrislington SAC. This advice should therefore be read together with the SAC Conservation Objectives available [here](#).

You should use the Conservation Objectives, this Supplementary Advice and any case-specific advice given by Natural England when developing, proposing or assessing an activity, plan or project that may affect this site.

This Supplementary Advice to the Conservation Objectives presents attributes which are ecological characteristics of the designated species and habitats within a site. The listed attributes are considered to be those that best describe the site's ecological integrity and which, if safeguarded, will enable achievement of the Conservation Objectives. Each attribute has a target which is either quantified or qualitative depending on the available evidence. The target identifies as far as possible the desired state to be achieved for the attribute.

The tables provided below bring together the findings of the best available scientific evidence relating to the site's qualifying features, which may be updated or supplemented in further publications from Natural England and other sources. The local evidence used in preparing this supplementary advice has been cited. The references to the national evidence used are available on request. Where evidence and references have not been indicated, Natural England has applied ecological knowledge and expert judgement. You may decide to use other additional sources of information.

In many cases, the attribute targets shown in the tables indicate whether the current objective is to 'maintain' or 'restore' the attribute. This is based on the best available information, including that gathered during monitoring of the feature's current condition. As new information on feature condition becomes available, this will be added so that the advice remains up to date.

The targets given for each attribute do not represent thresholds to assess the significance of any given impact in Habitats Regulations Assessments. You will need to assess this on a case-by-case basis using the most current information available.

Some, but not all, of these attributes can also be used for regular monitoring of the actual condition of the designated features. The attributes selected for monitoring the features, and the standards used to assess their condition, are listed in separate monitoring documents, which will be available from Natural England.

These tables do not give advice about SSSI features or other legally protected species which may also be present within the European Site.

If you have any comments or queries about this Supplementary Advice document please contact your local Natural England adviser or email

HDIRConservationObjectivesNE@naturalengland.org.uk

About this site

European Site information

Name of European Site	Thrislington Special Area of Conservation (SAC)
Location	Durham
Site Map	The designated boundary of this site can be viewed here on the MAGIC website
Designation Date	1 April 2005
Qualifying Features	See section below
Designation Area	22.58 ha
Designation Changes	n/a
Feature Condition Status	Details of the feature condition assessments made at this site can be found using Natural England's Designated Sites System
Names of component Sites of Special Scientific Interest (SSSIs)	Thrislington Plantation SSSI
Relationship with other European or International Site designations	n/a

Site background and geography

Thrislington Special Area of Conservation (SAC), about 10km south of Durham city, is on the western edge of the [Durham Magnesian Limestone Plateau](#) National Character Area and is recognised as one of the most important stands of the primary grassland type found on the Magnesian Limestone grassland in Britain.

The Durham Magnesian Limestone Plateau rises from the central Durham coal measures to almost 200 meters and forms cliffs along the North Sea coast of County Durham and north almost reaching the Tyne estuary

This Special Area of Conservation is adjacent to a working Magnesian limestone quarry, extracting the limestone which is known commercially as dolomite. [Magnesian Limestone](#) varies from other limestones and chalk in that some of the calcium component is replaced by magnesium. Magnesian Limestone grassland is a type of calcareous grassland that occurs on outcrops of Magnesian limestone, laid down in the Permian period (about 225 million years ago) when shallow seas covered the UK.

Like other unimproved calcareous grassland occurring on other types of limestone and chalk, it is species-rich and particularly important for its botanical and invertebrate interest. The Magnesian Limestone lies on a climatic divide intermediate between the chalks of southern England and the northern carboniferous limestones, occurring in a narrow band stretching from Nottinghamshire to Tyneside. Consequently the Magnesian limestone grasslands hold an unusual assemblage of plants, some at the limits of their southern or their northern ranges.

The grasslands are established on a shallow rendzina soil over the limestone outcrop.

The most notable vegetation community - calcareous grassland characterised by blue moor-grass and small scabious - is restricted globally to the Magnesian limestone plateau of County Durham and Tyne and Wear in north-east England. This habitat now covers less than 200ha nationally and is found mainly as small scattered stands.

The eastern part of the site is intact primary grassland, while the western portion comprises turf which was carefully translocated during the quarry extension in the 1980s and remains in a herb-rich condition.

Thrislington SAC is managed as a [National Nature Reserve](#).

About the qualifying features of the SAC

The following section gives you additional, site-specific information about this SAC's qualifying features. These are the natural habitats and/or species for which this SAC has been designated.

Qualifying habitats:

H6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia); 'Dry grasslands and scrublands on chalk or limestone'

These grasslands are typically found on thin, well-drained, lime-rich soils associated with chalk and limestone. They occur predominantly at low to moderate altitudes in England and Wales, extending locally into upland areas in northern England, Scotland and Northern Ireland. Most of these calcareous grasslands are maintained by grazing. A large number of rare plants are associated with this habitat. The grassland invertebrate fauna can also be noteworthy.

Thrislington is a small site but nonetheless contains the largest of the few surviving stands of CG8 *Sesleria albicans* – *Scabiosa columbaria* grassland. This form of calcareous grassland is confined to the Magnesian (Permian) Limestone of County Durham and Tyne and Wear in the north east of England. It now covers less than 200 ha and is found mainly as small scattered stands.

Floristically the grassland areas of the site are typically dominated by blue moor-grass *Sesleria caerulea* and sheep's-fescue *Festuca ovina*. Other common species include quaking-grass *Briza media*, meadow oat-grass *Helictotrichon pratense*, glaucous sedge *Carex flacca*, rockrose *Helianthemum nummularia*, fairy flax *Linum catharticum*, burnet saxifrage *Pimpinella saxifraga*, salad burnet *Sanguisorba minor*, small scabious *Scabiosa columbaria*, black and greater knapweeds *Centaurea nigra* and *C. scabiosa* and harebell *Campanula rotundifolia*.

Qualifying Species:

Not applicable

Table 1: Supplementary Advice for Qualifying Features: H6210. Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*); Dry grasslands and scrublands on chalk or limestone

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Extent and distribution of the feature	Extent of the feature within the site	Restore the total extent of the H6210 grassland feature to at least 16.32 hectares	There should be no measurable reduction (excluding any trivial loss) in the extent and area of this feature, and in some cases, the full extent of the feature may need to be restored. The baseline-value of extent given has been generated using data gathered from the listed site-based surveys. Area measurements given may be approximate depending on the methods, age and accuracy of data collection, and as a result this value may be updated in future to reflect more accurate information. The extent of an Annex I habitat feature covers the sum extent of all of the component vegetation communities present and may include transitions and mosaics with other closely-associated habitat features. Where a feature is susceptible to natural dynamic processes, there may be acceptable variations in its extent through natural fluctuations.	JNCC Natura 2000 Standard data form
Extent and distribution of the feature	Spatial distribution of the feature within the site	Restore the distribution and configuration of the H6210 feature, including where applicable its component vegetation types; particularly NVC community CG8: <i>Sesleria albicans</i> - <i>Scabiosa columbaria</i> ; <i>Hypericum pulchrum</i> - <i>Carlina vulgaris</i> sub-community across the grassland areas of the site.	A contraction in the range, or geographic spread, of the feature, its typical species and transitional communities across the site will reduce its overall area, the local diversity and variations in its structure and composition, and may undermine its resilience to adapt to future environmental changes. This may also reduce and break up the continuity of a habitat within a site and how well its typical species are able to move around the site to occupy and use habitat. Such fragmentation can impact on their viability and the wider ecological composition of the Annex I habitat. Smaller fragments of habitat can typically support smaller and more isolated populations which are more vulnerable to extinction. These fragments also have a greater amount of open edge habitat which will differ in the amount of light, temperature, wind, and even noise that it receives compared to its interior. These conditions may not be suitable for some of the typical and more specialist species associated with the Annex I habitat feature.	ARGOS ECOLOGICAL SERVICES (1998) Thrislington Vegetation communities. Unpublished report to Natural England (Available from Natural England on request)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Structure and function (including its typical species)	Vegetation community composition	Ensure the component vegetation communities of the H6210 feature are referable to and characterised by the following National Vegetation Classification type: CG8a <i>Sesleria albicans</i>-<i>Scabiosa columbaria</i>; <i>Hypericum pulchrum</i> - <i>Carlina vulgaris</i> sub-community	This habitat feature will comprise a number of associated semi-natural vegetation types and their transitional zones, reflecting the geographical location of the site, altitude, aspect, soil conditions (especially base-status and drainage) and vegetation management. In the UK these have been categorised by the National Vegetation Classification (NVC). Maintaining or restoring these characteristic and distinctive vegetation types, and the range of types as appropriate, will be important to sustaining the overall habitat feature. This will also help to conserve their typical plant species (i.e. the constant and preferential species of a community), and therefore that of the SAC feature, at appropriate levels (recognising natural fluctuations). This is the site specific Important community of H6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia); Dry grasslands and scrublands on chalk or limestone	NATURAL ENGLAND (2013) Definition of Favourable Condition – Thrislington Plantation SSSI (Final) (Available on request from Natural England) This attribute will be periodically monitored as part of Natural England's SSSI Condition Assessments
Structure and function (including its typical species)	Proportion of herbs (including any <i>Carex</i> spp)	Restore the proportion of herbaceous species to within the range 40%-90%	A high cover of characteristic herbs, including sedges is typical of the structure of this NVC CG8 habitat type.	NATURAL ENGLAND (2013) Definition of Favourable Condition – Thrislington Plantation SSSI (Final) (Available on request from Natural England) This attribute will be periodically monitored as part of Natural England's SSSI Condition Assessments
Structure and function (including its typical species)	Key structural, influential and/or distinctive species	Restore the abundance of the typical species listed below to enable each of them to be a viable component of the H6210 habitat:	Some plant or animal species (or related groups of such species) make a particularly important contribution to the necessary structure, function and/or quality of an Annex I habitat feature at a particular site. These species will include;	NATURAL ENGLAND (2013) Definition of Favourable Condition – Thrislington Plantation SSSI (Final) (Available on

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		- Constant and preferential plant species of the CG8a <i>Sesleria albicans</i>-<i>Scabiosa columbaria</i>; <i>Hypericum pulchrum</i> - <i>Carlina vulgaris</i> sub-community - Important invertebrate populations including Northern Brown Argus butterfly <i>Arícia artaxerxes salmacis</i> and glow-worm <i>Lampyris noctiluca</i>. - Mature stands of rockrose, <i>Helianthemum nummularia</i> to support Northern Brown Argus life stages	Structural species which form a key part of the Annex I habitat's structure or help to define that habitat on a particular SAC (see also the attribute for 'vegetation community composition'). Influential species which are likely to have a key role affecting the structure and function of the habitat (such as bioturbators (mixers of soil/sediment), grazers, surface borers, predators or other species with a significant functional role linked to the habitat) Site-distinctive species which are considered to be a particularly special and distinguishing component of an Annex I habitat on a particular SAC. There may be natural fluctuations in the frequency and cover of each of these species. The relative contribution made by them to the overall ecological integrity of a site may vary, and Natural England will provide bespoke advice on this as necessary. The list of species given here for this Annex I habitat feature at this SAC is not necessarily exhaustive. The list may evolve, and species may be added or deleted, as new information about this site becomes available.	request from Natural England) This attribute will be periodically monitored as part of Natural England's SSSI Condition Assessments
Structure and function (including its typical species)	Vegetation: undesirable species	Reduce the frequency/cover of the following undesirable species to within acceptable levels and prevent changes in surface condition, soils, nutrient levels or hydrology which may encourage their spread. Tor Grass <i>Brachypodium pinnatum</i> (reduce to <2% of the NNR management compartment 4 and prevented from encroaching other areas	There will be a range of undesirable or uncharacteristic species which, if allowed to colonise and spread, are likely to have an adverse effect on the feature's structure and function, including its more desirable typical species. These may include invasive non-natives such as <i>Cotoneaster</i> spp, or coarse and aggressive native species which may uncharacteristically dominate the composition of the feature. Undesirable species include: <i>Chamerion angustifolium</i>, <i>Cirsium arvense</i>, <i>Cirsium vulgare</i>, <i>Galium aparine</i> <i>Rumex crispus</i>, <i>Rumex obtusifolius</i> <i>Sonchus</i> spp., <i>Senecio jacobaea</i>, <i>Urtica dioica</i>. An increase in the following grass species may indicate a decline in condition of H6210 feature, <i>Arrhenatherum elatius</i>, <i>Brachypodium sylvaticum</i>, <i>Bromopsis erecta</i>, <i>Dactylis glomerata</i>, <i>Heilcototrichum pubescens</i>	Jefferson. R G. (2018) Unpublished file Note regarding status of Tor grass and Upright Brome in north-east England and management, In Thrislington (Available from on request from Natural England)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		Other named grassland species, indicators of subtle vegetation changes should be <5% Scrub (excluding Juniper) should not exceed 5% in CG8	When Tor Grass <i>Brachypodium pinnatum</i> invades a species-rich sward and is left unmanaged, the nature conservation interest of the site usually declines due to a reduction in species numbers and diversity. By 2000 increasing abundance of the Tor Grass in the translocation plots in the western part of the SSSI is recognised at the expense of characteristic species diversity. There is some evidence that tor grass responds positively to N deposition in addition to its natural regenerative capacity in the absence of insufficient or cessation of grazing. Upright brome <i>Bromopsis erecta</i> is also invasive at the expense of species diversity: there is some indication its northward spread may be linked to climate change, This grass will respond more readily to appropriate grazing than the Tor Grass, The Burnet rose, <i>Rosa pimpinellifolia</i> which spreads through underground roots should also be managed to reduce its extent and spread in the calcareous grassland areas. A new NVC map is to be commissioned (2019) which will also identify and map current extent of Tor Grass, Upright Brome and other extensive invasive species.	
Structure and function (including its typical species)	Vegetation community transitions	Restore the pattern of natural vegetation zonations/transitions	Transitions/zonations between adjacent but different vegetation communities are usually related to naturally-occurring changes in soil, aspect or slope. Such 'ecotones' retain characteristics of each bordering community and can add value in often containing species not found in the adjacent communities. Retaining such transitions can provide further diversity to the habitat feature, and support additional flora and fauna. Changes in the vegetation transitions can be recognised by comparison with the NVC communities. When mapped in 1998, the CG8 was extensive in the eastern area of the site and elsewhere in a matrix with CG3 and CG6. Following management changes there has been an observed deterioration in the last 20 years with increase in CG4 (Tor-grass) and <i>Bromopsis erectus</i>.	ARGOS ECOLOGICAL SERVICES (1998) Thrislington Vegetation communities. Unpublished report to Natural England (Available from Natural England on request)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Structure and function (including its typical species)	Soils, substrate and nutrient cycling	Restore the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal: bacterial ratio, to within typical values for the H6210 habitat.	Soil is the foundation of basic ecosystem function and its properties strongly influence the colonisation, growth and distribution of those plant species which together form vegetation types, and therefore provides a habitat used by a wide range of organisms. Soil biodiversity has a vital role to recycle organic matter. Changes to natural soil properties may therefore affect the ecological structure, function and processes associated with this Annex I feature.	
Structure and function (including its typical species)	Supporting off-site habitat	Restore the extent, quality and spatial configuration of land or habitat surrounding or adjacent to the site which is known to support the H6210 feature, including the adjacent Rough Furze Quarry.	The structure and function of the qualifying habitat, including its typical species, may rely upon the continued presence of areas which surround and are outside of the designated site boundary. Changes in surrounding land-use may adversely (directly/indirectly) affect the functioning of the feature and its component species. This supporting habitat may be critical to the typical species of the feature to support their feeding, breeding, and population dynamics ('meta-populations'), pollination or to prevent/reduce/absorb damaging impacts from adjacent land uses e.g. pesticide drift, nutrient enrichment. Due to the scarce and fragmented nature of this habitat, which is confined to this area of Durham due to geology, soil and climatic conditions the long term integrity and continuance will be significantly enhanced by extending the areas and networks of the NVC communities and associated transitional habitats across National Character Area 15. This is intimately connected with 'functional connectivity with the wider landscape'. Opportunities should also be recognised to extend this important CG8 and associated CG6 within the landscape.	NATURAL ENGLAND. National Character Area Profile 15 Statement of Environment Opportunity (pp 14-16)
Structure and function (including its typical species)	Functional connectivity with wider landscape	Restore and then maintain the overall extent, quality and function of any supporting features within the local landscape which provide a critical functional connection with the site.	This recognises the potential need at this site to maintain or restore the connectivity of the site to its wider landscape in order to meet the conservation objectives. These connections may take the form of landscape features, such as habitat patches, hedges, watercourses and verges, outside of the designated site boundary which are either important for the migration, dispersal and genetic exchange of those typical species closely associated with qualifying Annex I habitat features of the site.	NATURAL ENGLAND. National Character Area Profile 15 Statement of Environment Opportunity (pp 14-16)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			These features may also be important to the operation of the supporting ecological processes on which the designated site and its features may rely. In most cases increasing actual and functional landscape-scale connectivity would be beneficial. Where there is a lack of detailed knowledge of the connectivity requirements of the qualifying feature, Natural England will advise as to whether these are applicable on a case by case basis. Due to the scarce and fragmented nature of this habitat, which is confined to this area of Durham due to geology, soil and climatic conditions the long-term integrity and continuance will be significantly enhanced by extending the areas and networks of the NVC communities and associated transitional habitats across National Character Area 15. This is intimately connected with 'Supporting off-site habitat' Focus should be on increasing the extent and connectivity of CG8 and its relationship with CG6 across the Magnesian Limestone Plateau NCA	
Structure and function (including its typical species)	Adaptation and resilience	Maintain the feature's ability, and that of its supporting processes, to adapt or evolve to wider environmental change, either within or external to the site:	This recognises the increasing likelihood of natural habitat features to absorb or adapt to wider environmental changes. Resilience may be described as the ability of an ecological system to cope with, and adapt to environmental stress and change whilst retaining the same basic structure and ways of functioning. Such environmental changes may include changes in sea levels, precipitation and temperature for example, which are likely to affect the extent, distribution, composition and functioning of a feature within a site. The vulnerability and response of features to such changes will vary. Using best available information, any necessary or likely adaptation or adjustment by the feature and its management in response to actual or expected climatic change should be allowed for, as far as practicable, in order to ensure the feature's long-term viability. The overall vulnerability of this particular SAC to climate change has been assessed by Natural England as being low, taking into account	NATURAL ENGLAND, 2015. Climate Change Theme Plan and supporting National Biodiversity Climate Change Vulnerability assessments ('NBCCVAs') for SACs and SPAs in England ENGLISH NATURE (2001) Assessment of vegetation change at Thrislington Plantation National Nature Reserve, Co Durham (ENRR413)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			the sensitivity, fragmentation, topography and management of its habitats. This means that some adaptation action for specific issues may be required, such as reducing habitat fragmentation, creating more habitat to buffer the site or expand the habitat into more varied landscapes and addressing particular management and condition issues. Individual species may be more or less vulnerable than their habitat itself. In many cases, change will be inevitable so appropriate monitoring would be required. The response of Upright Brome to climate change should be monitored and managed as appropriate	
Supporting processes (on which the feature relies)	Air quality	Restore as necessary the concentrations and deposition of air pollutants to below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).	This habitat type is considered sensitive to changes in air quality. Exceedance of these critical values for air pollutants may modify the chemical status of its substrate, accelerating or damaging plant growth, altering its vegetation structure and composition and causing the loss of sensitive typical species associated with it. Critical Loads and Levels are recognised thresholds below which such harmful effects on sensitive UK habitats will not occur to a significant level, according to current levels of scientific understanding. There are critical levels for ammonia (NH₃), oxides of nitrogen (NO_x) and sulphur dioxide (SO₂), and critical loads for nutrient nitrogen deposition and acid deposition. There are currently no critical loads or levels for other pollutants such as Halogens, Heavy Metals, POPs, VOCs or Dusts. These should be considered as appropriate on a case-by-case basis. Ground level ozone is regionally important as a toxic air pollutant but flux-based critical levels for the protection of semi-natural habitats are still under development. It is recognised that achieving this target may be subject to the development, availability and effectiveness of abatement technology and measures to tackle diffuse air pollution, within realistic timescales. Nitrogen deposition levels are likely to favour undesirable plant species at the expense of positive indicator species typical of the CG8 SAC attribute and associated species rich communities. It is recognised that sturdy mature rockrose plants benefiting from nitrogen are favoured by the North Brown Argus butterfly. Nitrogen dependency on this site may	Information about site-relevant Critical Loads and Levels for this SAC is available by using the 'search by site' tool on the Air Pollution Information System (www.apis.ac.uk).

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			be related to local soil enrichment from grazing rather than aerial deposition, but this state may not be achieved when the plants cannot not mature as a result of grazing or cutting.	
Supporting processes (on which the feature relies)	Conservation measures	Restore the management measures (either within and/or outside the site boundary as appropriate) which are necessary to restore the structure, functions and supporting processes associated with the feature	Active and ongoing conservation management is needed to protect, maintain or restore this feature at this site. Further details about the necessary conservation measures for this site can be provided by contacting Natural England. This information will typically be found within, where applicable, supporting documents such as Natura 2000 Site Improvement Plan, Site Management Strategies or Plans, the Views about Management Statement for the underpinning SSSI and/or management agreements. This is intimately connected with 'functional connectivity with the wider landscape' and 'Supporting off-site habitat' targets. Thrislington SAC is managed as a National Nature Reserve (NNR) by Natural England in perpetuity in agreement with the landowners. The regularly-reviewed NNR Management Plan, available from Natural England, sets out the site management and includes reference to key data and research reports.	NATURAL ENGLAND, 2015. Site Improvement Plan: Thrislington (SIP247).
Version Control Advice last updated: N/A				
Variations from national feature-framework of integrity-guidance: N/A				