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

Stodmarsh Special Protection Area (SPA)
Site code: UK9012121

© Natural England/Mike Hammett

Nesting Bittern

Date of Publication: 25 January 2019

About this document

This document provides Natural England's supplementary advice for the European Site Conservation Objectives relating to Stodmarsh SPA. This advice should therefore be read together with the SPA 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.

Where this site overlaps with other European Site(s), you should also refer to the separate European Site Conservation Objectives and Supplementary Advice (where available) provided for those sites.

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	Stodmarsh Special Protection Area (SPA)
Location	Kent
Site Maps	The designated boundary of this site can be viewed here on the MAGIC website
Designation Date	December 1993
Qualifying Features	A021 *Botaurus stellaris*; Great bittern (Non-breeding) A051 *Anas strepera*; Gadwall (Breeding) A051 A*nas strepera*; Gadwall (Non-breeding) A056 *Anas clypeata*; Northern shoveler (Non-breeding) A082 *Circus cyaneus*; Hen harrier (Non-breeding) Waterbird assemblage Breeding bird assemblage
Designation Area	483.58 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)	Stodmarsh SSSI
Relationship with other European or International Site designations	Stodmarsh SAC; Stodmarsh Ramsar site

Site background and geography

Covering a total area of 563.27 hectares, Stodmarsh is Marshland habitat with open water (ditches), a rare plant assemblage, neutral grassland, breeding and wintering birds. Stodmarsh is located in central Kent in south-east England roughly 250 m north east of Stodmarsh Village and 3.3 km east of Sturry. It is a wetland site resulting from subsidence under the valley of the Great Stour. The range of wetland habitats include open water, extensive reed-beds, grazing marsh and Alder *Alnus glutinosa* carr.

The site supports a number of uncommon wetland invertebrates and plants, and provides wintering habitats for wetland bird species. It is especially notable in winter for supporting significant numbers of Hen Harrier *Circus cyaneus* Bittern *Botaurus stellaris* and other wetland bird species.

The site is situated with the North Kent Plain National Character Area (NCA), which is the strip of land between the Thames Estuary to the north and the chalk of the Kent Downs to the south. The area is open, low and gently undulating. It is a very productive agricultural area with predominantly high-quality, fertile loam soils characterised by arable use. More information on this NCA can be found here.

About the qualifying features of the SPA

The following section gives you additional, site-specific information about this SPA's qualifying features. These are the individual species of wild birds listed on Annex I of the European Wild Birds Directive, and/or the individual regularly-occurring migratory species, and/or the assemblages (groups of different species occurring together) of wild birds for which the SPA was classified for.

Qualifying individual species listed in Annex I of the Wild Birds Directive

During the non-breeding season the SPA regularly supports:

- **A021 *Botaurus stellaris*; Great bittern (Non-breeding)**

The Great bittern is a bird of wetlands, typically associated with reed-bed habitat. It flies on broad, rounded, bowed wings. A secretive bird, very difficult to see, as it moves silently through reeds at the water's edge, looking for fish. The males make a remarkable far-carrying, booming sound in spring. See table below for population data. 2 individuals representing at least 2.0% of the wintering population in Great Britain (5 year peak count, 1987/8-1991/2)

- **A082 *Circus cyaneus*; Hen harrier (Non-breeding)**

Male Hen harriers are a pale grey colour, females and immatures are brown with a white rump and a long, barred tail which give them the name 'ringtail'. They fly with wings held in a shallow 'V', gliding low in search of food. These harrier visit the Stodmarsh SPA in winter to feed on small mammals and birds within the areas reed and grassy habitats. 9 individuals representing at least 1.2% of the wintering population in Great Britain (5 year peak count, 1987/8-1991/2)

Qualifying individual species not listed in Annex I of the Wild Birds Directive

During the breeding season the SPA regularly supports:

- **A051 *Anas strepera*; Gadwall (Breeding)**

Gadwall require generally undisturbed, still, eutrophic waters that have a combination of open water and emergent vegetation. Gadwall eat mostly submerged aquatic vegetation such as algae, grasses, rushes, sedges, pondweed, grass, and water milfoil, including leaves, stems, roots, and seeds. They also eat snails, midges, water beetles, and other invertebrates. During the winter they visit the SPA and predominantly eat plant life with a small amount of animal life and use the area as breeding grounds in the summer. The site has regularly supported above 1% of the British breeding population since time of notification.

During the non-breeding season the SPA regularly supports:

- **A051 *Anas strepera*; Gadwall (Non-breeding**)

At the time of notification this site supported 77 wintering individuals (5 year peak count, 1987/88-1991/92)

- **A056 *Anas clypeata*; Northern shoveler (Non-breeding)**

Shovelers are surface feeing ducks with huge spatulate bills. Males have dark green heads, with white breasts and chestnut flanks. Females are mottled brown. Shovelers prefer poorly drained treeless meadows interspersed with eutrophic shallow, stagnant freshwater pools and lakes, rivers with undisturbed creeks and muddy bottoms usually processing lush emergent and floating vegetation. At the

time of notification the site supported 165 individuals (1.8% of the British population during winter periods 1987/88-1991/92).

Qualifying assemblage(s) of species

- **Assemblage of breeding birds**

During the breeding season the SPA regularly supports an assemblage of breeding birds specifically associated with reed-bed, grazing marsh and other wetland habitats.

The main component-species of the assemblage at this SPA can include: Lapwing, Mallard, Moorhen, Reed Bunting, Sedge Warbler, Common Tern, Coot, Redshank, Reed Warbler, Shelduck, Snipe, Mute Swan, Great Crested Grebe, Shoveler, Teal, Tufted Duck, Water Rail, Bearded Tit, Cetti's Warbler, Gadwall and Pochard

- **Assemblage of non-breeding birds**

During the non-breeding season the SPA regularly supports an assemblage of waterfowl of more than 20,000 birds. Component species include; gadwall, shoveler, bittern, hen harrier, Tufted duck, wigeon, white-fronted geese, mallard, lapwing and snipe

Site-specific seasonality of SPA features

The table below highlights in grey those months in which significant numbers of each mobile qualifying feature are most likely to be present at the SPA during a typical calendar year. This table is provided as a general guide only.

Unless otherwise indicated, the months shown below are primarily based on information relating to the general months of occurrence of the feature in the UK. Where site-based evidence is available and has been used to indicate below that significant numbers of the feature are typically present at this SPA outside of the general period, the site-specific references have been added to indicate this.

Applicants considering projects and plans scheduled in the periods highlighted in grey would benefit from early consultation with Natural England given the greater scope for there to be likely significant effects that require consideration of mitigation to minimise impacts to qualifying bird features during the principal periods of site usage by those features. The months which are *not* highlighted in grey are not ones in which the features are necessarily absent, rather that features may be present in less significant numbers in typical years. Furthermore, in any given year, features may occur in significant numbers in months in which typically they do not. Thus, applicants should not conclude that projects or plans scheduled in months not highlighted in grey cannot have a significant effect on the features. There may be a lower likelihood of significant effects in those months which nonetheless will also require prior consideration.

Any assessment of potential impacts on the features must be based on up-to-date count data and take account of population trends evident from these data and any other available information. Additional site-based surveys may be required. Non-breeding water bird monthly maxima data gathered for this site through the Wetland Bird Survey ('WeBS') may be available upon request from the British Trust for Ornithology.

Feature	Season	Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Site-specific references where available
Great bittern	Non-breeding	Winter													*Includes analysis of SPA WeBS Counts (available from BTO)*
Gadwall	Non-breeding	Winter													*Includes analysis of SPA WeBS Counts (available from BTO)*
Northern Shoveler	Non-breeding	Winter													*Includes analysis of SPA WeBS Counts (available from BTO)*
Hen harrier	Non-breeding	Winter													Includes analysis of SPA WeBS Counts (available from BTO)
Gadwall	Breeding	Summer													
Assemblage of breeding birds	Breeding	Summer													

Feature	Season	Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Site-specific references where available
Assemblage of non-breeding water birds	Non-breeding	Winter													

Guide to terms:
Breeding – present on a site during the normal breeding period for that species
Non-breeding - present on a site outside of the normal breeding period for that species (includes passage and winter periods).
Summer – the period generally from April to July inclusive
Passage - the periods during the autumn and spring when migratory birds are moving between breeding areas and wintering areas. These periods are not strictly defined but generally include the months of July – October inclusive (autumn passage) and March – April inclusive (spring passage).
Winter - the period generally from November to February inclusive.

Table 1: Supplementary Advice for Qualifying Features: A021. *Botaurus stellaris*; Great bittern (Non-breeding)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Breeding population	**Population abundance**	Maintain the size of the non-breeding bittern population at or above 2 individuals, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	This will sustain the site's population and ensures it contributes to a viable local, national and bio-geographic population. Due to the mobility of birds and the dynamic nature of population change, the target-value given for the abundance of this feature is considered to be the minimum standard for conservation/restoration measures to achieve. This minimum-value may be revised where there is evidence to show that a population's size has significantly changed as a result of natural factors or management measures and has been stable at or above a new level over a considerable period. The values given here may also be updated in future to reflect any strategic objectives which may be set at a national level for this feature. Given the likely fluctuations in numbers over time, any impact-assessments should focus on the current abundance of the site's population, as derived from the latest known or estimated level established using the best available data. This advice accords with the obligation to avoid deterioration of the site or significant disturbance of the species for which the site is classified, and seeks to avoid plans or projects that may affect the site giving rise to the risk of deterioration. Similarly, where there is evidence to show that a feature has historically been more abundant than the stated minimum target and its current level, the ongoing capacity of the site to accommodate the feature at such higher levels in future should also be taken into account. Maintaining or restoring bird abundance depends on the suitability of the site. However, factors affecting suitability can also determine other demographic rates of birds using the site including survival (dependent on factors such as body condition which influences the ability to breed or make foraging and / or migration movements) and breeding productivity. Adverse anthropogenic impacts on either of these rates may precede changes in population abundance (e.g. by changing proportions of birds of different ages) but eventually may negatively affect abundance. These rates can be measured/estimated to inform judgements of likely impacts on abundance targets. Unless otherwise stated, the population size will be that measured using standard methods such as peak mean counts or breeding surveys. This value is also provided recognising there will be inherent variability as a result of natural fluctuations and margins of error during data collection. Whilst we will endeavour to keep these values as up to date as possible,	Natural England. *Definitions of Favourable Condition for Stodmarsh SSSI*. Available from Natural England on request English Nature, 1993. Stodmarsh SPA Citation. Available here: http://publications.naturalengland.org.uk/publication/6543516511502336

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			local Natural England staff can advise on whether the figures stated are the best available.	
Supporting habitat (within the SPA): structure	**Vegetation characteristics**	Maintain the cover of scrub-free areas of reed-bed with common reed *Phragmites australis* at or above 90% cover and with a diverse age structure (typically at least 30% of the reedbed should be uncut with the remainder <7 years old with <20% cut in any year).	The height, cover, variation and composition of vegetation are often important characteristics of habitats supporting this feature which enable successful nesting/rearing/feeding/concealment/roosting. Many bird species will have specific requirements that conservation measures will aim to maintain, for others such requirements will be less clear. Activities that may directly or indirectly affect the vegetation of supporting habitats and modify these characteristics may adversely affect the feature. The conservation objectives for this site is are to maintain the extent of the 136 ha of reedbed (S4 *Urtica dioica ,Galium aparine*) There should be no reduction in the total combined extent of wetland in relation to the established baseline. These habitats are not well mapped and have never been identified in NVC. See Map 1 for broad habitat distributions	Natural England. *Definitions of Favourable Condition for Stodmarsh SSSI*. Available from Natural England on request
Supporting habitat (both within and outside the SPA): minimising disturbance	**Minimising disturbance caused by human activity**	Reduce the frequency, duration and/or intensity of disturbance affecting roosting, foraging, feeding, and/or loafing birds so that the bitten population is not significantly disturbed	The nature, scale, timing and duration of some human activities can result in the disturbance of birds at a level that may substantially affect their behaviour, and consequently affect the long-term viability of the population. Such disturbing effects can for example result in changes to feeding or roosting behaviour, increases in energy expenditure due to increased flight, abandonment of nest sites and desertion of supporting habitat (both within or outside the designated site boundary where appropriate). This may undermine successful nesting, rearing, feeding and/or roosting, and/or may reduce the availability of suitable habitat as birds are displaced and their distribution within the site contracts. Disturbance associated with human activity may take a variety of forms including noise, light, sound, vibration, trampling, and the presence of people, animals and structures.	
Supporting habitat (within the SPA): structure	**Landform**	Maintain the extent of wet reed-fringed ditches and/or pools with suitable profiles (typically, with a deep central channel of 1.5-2.5 m deep and one or more 1 m deep with 5 m wide shallow margins).	The physical topography and landform of a site will strongly influence the quality and extent of supporting habitats used by this feature for nesting/rearing, feeding and/or roosting as appropriate. This will also influence the interactions with underlying supporting processes on which the supporting habitat may rely. Any changes or modifications to site topography may adversely affect the ability of the supporting habitats to support and sustain this feature.	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			Relevant target - no loss of reedbed habitat below 129 hectares (5% of the habitat).	
Supporting habitat (both within and outside the SPA): function/supporting process	**Connectivity with supporting habitats**	Maintain the safe passage of bitterns moving between roosting and feeding areas	The ability of the feature to safely and successfully move to and from nesting, feeding and roosting areas is critical to their breeding success and to the adult fitness and survival. This target will apply within the site boundary and where birds regularly move to and from off-site habitat where this is relevant.	
Supporting habitat (within the SPA): function/ supporting process	**Water area**	Maintain the number of open waterbodies of optimal size (>0.5 ha), and the percentage cover of pools overall, with shallow water extending at least 30 m landward into surrounding dense vegetation.	This feature depends on the presence and continuity of open water habitat; often requiring water bodies of a particular size to in order to successfully nest, rear their young, feed and/or roost. Changes in water area, and associated marginal habitat, can adversely affect the suitability of supporting open water habitat. Open water at Stodmarsh is generally artificial to a lesser or greater extent. At the Fordwhich (western) end the lakes were formed by gravel extraction. In the centre of the SSSI, the lakes are thought to be caused by mining subsidence. The ditch length as an aspirational total is probably near 50 km. This is an approximate from ditches measured during survey work as well from OS mapping.	Natural England. *Definitions of Favourable Condition for Stodmarsh SSSI*. Available from Natural England on request
Supporting habitat (within the SPA): function/ supporting process	**Salinity**	Maintain water salinity at <0.5% (or <5ppt (parts per thousand)).	This feature is known to be particularly susceptible to changes in the salinity (concentration of salt) of its shallow brackish/fresh water habitat; Salinity is a major factor determining the distribution and composition of communities of fish, amphibians and aquatic invertebrates such as insects, crustaceans and worms on which this feature feeds. High levels of salinity may adversely affect fish and invertebrate food for adults and chicks. The principal factors governing the temporal and spatial nature of the salinity regime of coastal sites are the diurnal incursion of the tide and fresh water flow from the river(s). Any activity changing either of these factors can result in a change to the salinity regime. The bulk of the ditch system (that on the NNR) is separately fed by the Lampen Stream and is thus wholly freshwater. The Great Stour, though tidal	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			is not saline this far up the river.	
Supporting habitat (both within and outside the SPA): structure	**Landscape**	Maintain an open and unobstructed terrain which provides safe passage for birds moving between breeding, roosting and feeding areas across the site.	This feature is known to favour large areas of open terrain, largely free of obstructions, in and around its nesting, roosting and feeding areas. Often there is a need to maintain an unobstructed line of sight within nesting, feeding or roosting habitat to detect approaching predators, or to ensure visibility of displaying behaviour. An open landscape may also be required to facilitate movement of birds between the SPA and any off-site supporting habitat. Feeding areas for bitterns should have little or no litter, this is abnormal for breeding bird's species on Stodmarsh.	
Supporting habitat (within the SPA): function/ supporting process	**Water depth**	Maintain the overall depth of swamp and marginal water which is typically between 30 – 100 cms, and/or within pools and dykes at typically 200-400 cm deep.	This feature is known to require extensive areas of water in which to feed. Birds are visual predators, with some having the ability to dive or to feed from the surface. As they will rely on detecting their prey within the water to hunt, the depth of water at critical times of year may be paramount for successful feeding and therefore their fitness and survival. Deep water surrounding nesting sites may also be important to deterring predators. Characteristic water levels on site generally, in wet ditches summer water depth at least 0.5 m in minor ditches and 1 m in major drains. 90% of channel length should reach this target. The levels characteristic of the site, in relation to both freeboard and water depth, should be maintained. High water levels are particularly important in spring and early summer for semi-aquatic riparian invertebrates. A good depth of water should be maintained. Parts of the site are subject to periodic flooding from the Great Stour and on the NNR where there are gauge boards installed these should be regularly monitored.	Natural England. *Definitions of Favourable Condition for Stodmarsh SSSI*. Available from Natural England on request
Supporting habitat (both within and outside the SPA): function/ supporting process	**Food availability within supporting habitat**	Maintain the distribution, abundance and availability of key prey items (e.g.eel, rudd, roach, frogs, toads) at preferred prey sizes (e.g. roach of 6-35 cm).	The availability of an abundant food supply is critically important for successful breeding, adult fitness and survival and the overall sustainability of the population. As a result, inappropriate management and direct or indirect impacts which may affect the distribution, abundance and availability of prey may adversely affect the population. The NNR lake fluctuating water level is controlled on site and contains a currently unmeasured fish population. The ditch network is extensive within the grazing marsh system and also within the reedbed and fen areas which is another notified habitat.	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Supporting habitat (both within and outside the SPA): function/ supporting process	**Conservation measures**	Maintain management and/or other measures (whether within and/or outside the site boundary as appropriate) as necessary to maintain or restore the structure, function and/or the supporting processes associated with the feature and its supporting habitats.	Active and ongoing conservation management is often needed to protect, maintain or restore this feature at this site. Active management of this feature (supporting habitat in general, but principally long heather or mature-degenerate phase heather) will have the potential to affect merlin nest sites. The aim is restore frequent distribution of long vegetation at sufficient parcel size across suitable habitat and in particular at historic merlin nest locations Direct disturbance during breeding cycle (see calendar at 2.1) in sensitive areas must be avoided however, caution must also be taken in action taken at other times in the year (such as cutting or burning of heather) to avoid loss of suitable habitat for future seasons. Further details about the necessary conservation measures for this site can be provided by Natural England on a site by site basis. This information is sensitive and will not be published in the detail required for casework or development. Information will be incorporated into Long Term moorland Management Plans and other land management plans.	Natural England, 2014. Stodmarsh Site Improvement Plan. http://publications.naturalengland.org.uk/publication/5749196032311296
Supporting habitat (both within and outside the SPA): function/ supporting process	**Adaptation and resilience**	Maintain the ability of the feature's supporting habitats 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 SPA to climate change has been assessed by Natural England as being high, taking into account the sensitivity, fragmentation, topography and management of its supporting habitats. This means that this is considered to be amongst the most vulnerable sites overall and are likely to require the most adaptation action, most urgently. A site based assessment should be carried out as a priority. This means that action to address specific issues is likely, such as reducing habitat fragmentation, creating more habitat to buffer the site or expand the	NATURAL ENGLAND, 2015. Climate Change Theme Plan and supporting National Biodiversity Climate Change Vulnerability assessments ('NBCCVAs') for SACs and SPAs in England [Available at http://publications.naturalengland.org.uk/publication/4954594591375360].

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			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 advisable.	
Version Control Advice last updated: n/a				
Variations from national feature-framework of integrity-guidance: n/a				

Table 2: Supplementary Advice for Qualifying Features: A051. *Anas strepera*; Gadwall (Breeding)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Supporting habitat (both within and outside the SPA): function/ supporting process	**Water quality/ quantity**	Where the supporting habitats of the SPA feature are dependent on surface water, restore water quality and quantity to a standard which provides the necessary conditions to support the feature	For many SPA features which are dependent on wetland habitats supported by surface water, maintaining the quality and quantity of water supply will be critical, especially at certain times of year during key stages of their life cycle. Poor water quality and inadequate quantities of water can adversely affect the availability and suitability of breeding, rearing, feeding and roosting habitats. Typically, meeting the surface water and groundwater environmental standards set out by the Water Framework Directive (WFD 2000/60/EC) will also be sufficient to support the SPA Conservation Objectives but in some cases more stringent standards may be needed to support the SPA feature. Further site-specific investigations may be required to establish appropriate standards for the SPA. Gadwall - breeding birds using the 43 kilometres of ditch and bank-side habitat. Ditches must present in a variety of vegetated states to provide feeding and nesting areas. Characteristic water levels to be maintained. Generally, in wet ditches summer water depth at least 0.5 m in minor ditches and 1 m in major drains. 90% of channel length should reach this target. The levels characteristic of the site, in relation to both freeboard and water depth, should be maintained. High water levels are particularly important in spring and early summer for semi-aquatic riparian invertebrates. A good depth of water should be maintained. Parts of the site are subject to periodic flooding from the Great Stour. Chemical - Total phosphorus levels for groundwater-fed systems should be considerably less than 0.1 mg L-1. Toxic substances are of concern, but there is currently no relevant standard biological monitoring technique or surveillance programme for ditches. For basic parameters (dissolved oxygen, biochemical oxygen demand and total ammonia) a minimum equivalent to biological and chemical GQA classes a/b and A/B respectively should be maintained, with no drop in class.	Natural England. *Definitions of Favourable Condition for Stodmarsh SSSI*. Available from Natural England on request
Supporting habitat (both within and outside	**Conservation measures**	Maintain management or other measures (whether within and/or outside the site boundary as appropriate) necessary to	Active and ongoing conservation management is often needed to protect, maintain or restore this feature at this site. Other measures may also be required, and in some cases, these measures may apply to areas outside of the designated site boundary in order to achieve this target. Further	English Nature (2005) Stodmarsh SSSI. Views About Management.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
the SPA): function/supporting process		maintain the structure, function and/or the supporting processes associated with the feature and its supporting habitats.	details about the necessary conservation measures for this site can be provided by 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.	Available here: https://designatedsites.naturalengland.org.uk/PDFsForWeb/VAM/1003639.pdf Natural England (2014) Stodmarsh Site Improvement Plan. Available from: http://publications.naturalengland.org.uk/publication/5749196032311296
Supporting habitat (within the SPA): predation	**Predation**	Restrict the predation and disturbance of breeding Gadwall caused by native and non-native predators.	This will ensure that breeding productivity (number of chicks per pair) and survival are sustained at rates that maintain or restore the abundance of the feature. Impacts to breeding productivity can result directly from predation of eggs, chicks, juveniles and adults, and also from significant disturbance. The presence of predators can influence bird behaviours, such as abandonment of nest sites or reduction of effective feeding. Where evidence suggests predator management is required, measures can include their exclusion through fencing and scaring or by direct control. Any such measures must consider the legal protection of some predators, as well as the likely effects of such control on other qualifying features.	
Supporting habitat (within the SPA): function/ supporting process	**Air quality**	Restore as necessary the concentrations and deposition of air pollutants to below the site-relevant Critical Load or Level values given for the supporting habitat of this feature of the site on the Air Pollution Information System (www.apis.ac.uk).	The structure and function of the habitats which support this SPA feature may be sensitive to changes in air quality. Exceeding critical values for air pollutants may result in changes to the chemical status of its habitat substrate, accelerating or damaging plant growth, altering vegetation structure and composition and thereby affecting the quality and availability of nesting, feeding or roosting habitats. Critical Loads and Levels are thresholds below which such harmful effects on sensitive UK habitats will not occur to a noteworthy level, according to current levels of scientific understanding. There are critical levels for ammonia (NH3), oxides of nitrogen (NOx) and sulphur dioxide (SO2), and critical loads for nutrient nitrogen deposition and acid deposition. 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. There are currently no critical loads or levels for other pollutants such as Halogens, Heavy Metals, POPs, VOCs or Dusts. These	More information about site-relevant Critical Loads and Levels for this SPA 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)
			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.	
Breeding population (within the SPA)	**Population abundance**	Maintain the size of the breeding Gadwall population at or above 6 breeding pairs, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	See the notes for this attribute in Table 1 above The up to date population on Stodmarsh are available publicly on BTO WeBS data website.	Natural England. *Definitions of Favourable Condition for Stodmarsh SSSI*. Available from Natural England on request
Supporting habitat (both within and outside the SPA): extent and distribution	**Extent and distribution of supporting breeding habitat**	Maintain the extent, distribution and availability of suitable breeding habitat which supports the feature for all necessary stages of its breeding cycle (courtship, nesting, feeding)	Conserving or restoring the extent of supporting habitats and their range will be key to maintaining the site's ability and capacity to support the SPA population. The information available on the extent and distribution of supporting habitat used by the feature may be approximate depending to the nature, age and accuracy of data collection. This target may apply to any supporting habitat which is known to occur outside the site boundary.	Natural England. *Definitions of Favourable Condition for Stodmarsh SSSI*. Available from Natural England on request
Supporting habitat (both within and outside the SPA): function/supporting process	**Hydrology**	Maintain the hydrology of waterbodies used by breeding Gadwall for feeding such that water levels reduce (or are reduced) by 5-15% each month from the time of mean hatch date to the end of the breeding season.	Changes in source, depth, duration, frequency, magnitude and timing of water supply or flow can have important implications for this feature. Such changes may affect the quality and suitability of habitats used by birds for nesting, drinking, preening, rearing, feeding or roosting. Unless these have already been undertaken, further site-specific investigations may be required to fully inform conservation measures for this feature and/or the likelihood of impacts on this attribute. The fen habitats appear to conform to a mix of flood plain and open-water transition fen and are thus topogenous (vertical water table movements dominate), this is due to the influence of the river. However there are some flushes along the northern side of the site where water flows in from the high ground. Open water at Stodmarsh is generally artificial to a lesser or greater extent. At the Fordwhich (western) end the lakes were formed by gravel extraction. In the centre of the SSSI, the lakes are thought to be caused by mining subsidence.	Natural England. *Definitions of Favourable Condition for Stodmarsh SSSI*. Available from Natural England on request
Supporting habitat (within the	**Vegetation characteristics**	Maintain the overall heights of vegetation patches (20-60 cm) within nesting areas that are	The height, cover, variation and composition of vegetation are often important characteristics of habitats supporting this feature which enable successful nesting/rearing/concealment/roosting.	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
SPA): structure		typically <50 m from the water's edge.	Many bird species will have specific requirements that conservation measures will aim to maintain, for others such requirements will be less clear. Activities that may directly or indirectly affect the vegetation of supporting habitats and modify these characteristics may adversely affect the feature. Ensure that ditches are present in a variety of vegetated states to provide feeding and nesting areas.	
Supporting habitat (both within and outside the SPA): minimising disturbance	**Minimising disturbance caused by human activity**	Restrict the frequency, duration and/or intensity of disturbance affecting nesting, roosting, foraging, feeding, moulting and/or loafing birds so that the breeding Gadwall population is not significantly disturbed	The nature, scale, timing and duration of some human activities can result in the disturbance of birds at a level that may substantially affect their behaviour, and consequently affect the long-term viability of the population. Such disturbing effects can for example result in changes to feeding or roosting behaviour, increases in energy expenditure due to increased flight, abandonment of nest sites and desertion of supporting habitat (both within or outside the designated site boundary where appropriate). This may undermine successful nesting, rearing, feeding and/or roosting, and/or may reduce the availability of suitable habitat as birds are displaced and their distribution within the site contracts. Disturbance associated with human activity may take a variety of forms including noise, light, sound, vibration, trampling, presence of people, animals and structures.	
Supporting habitat (both within and outside the SPA): function/supporting process	**Water depth**	Maintain the availability of standing water of optimal depth, typically <0.25 m deep, over at least 50% of the total standing water area.	This feature is known to require extensive areas of water in which to feed. Birds are visual predators, with some having the ability to dive or to feed from the surface. As they will rely on detecting their prey within the water to hunt, the depth of water at critical times of year may be paramount for successful feeding and therefore their fitness and survival. Deep water surrounding nesting sites may also be important to deterring predators. Characteristic water levels on site generally, in wet ditches summer water depth at least 0.5 m in minor ditches and 1 m in major drains. 90% of channel length should reach this target. The levels characteristic of the site, in relation to both freeboard and water depth, should be maintained. High water levels are particularly important in spring and early summer for semi-aquatic riparian invertebrates. A good depth of water should be maintained. Parts of the site are subject to periodic flooding from the Great Stour and on the NNR where there are gauge boards installed these should be regularly monitored.	Natural England. *Definitions of Favourable Condition for Stodmarsh SSSI*. Available from Natural England on request

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Supporting habitat (both within and outside the SPA): function/ supporting process	**Food availability within supporting habitat**	Maintain the distribution, abundance and availability of key prey items (e.g. hatching midges) at prey sizes preferred by Gadwall. Maintain a high cover/abundance of preferred food plants (e.g. *Glyceria fluitans, Agrostis stolonifera, Chara, Potomageton, Ceratophyllum spp., Ruppia*)	The availability of an abundant food supply is critically important for successful breeding, adult fitness and survival and the overall sustainability of the population. As a result, inappropriate management and direct or indirect impacts which may affect the distribution, abundance and availability of prey may adversely affect the population. See map 1 for open water areas as the main food sources are aquatic vegetation, aquatic invertebrates, and seeds. Gadwall are surface feeders feeding mostly on plant material growing close to the surface.	
Version Control Advice last updated: n/a				
Variations from national feature-framework of integrity-guidance: n/a				

Table 3: Supplementary Advice for Qualifying Features: A051. *Anas strepera*; Gadwall (Non-breeding)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Supporting habitat (both within and outside the SPA): extent and distribution	**Extent and distribution of supporting non-breeding habitat**	Maintain the extent and distribution of suitable habitat (either within or outside the site boundary) which supports Gadwall for all necessary stages of the non-breeding period (moulting, roosting, loafing, feeding)	Conserving or restoring the extent of supporting habitats and their range will be key to maintaining the site's ability and capacity to support the SPA population. The information available on the extent and distribution of supporting habitat used by the feature may be approximate depending to the nature, age and accuracy of data collection. This target may apply to critical supporting habitat which also lies outside the site boundary.	Natural England. *Definitions of Favourable Condition for Stodmarsh SSSI*. Available from Natural England on request
Supporting habitat (both within and outside the SPA): function/supporting process	**Water quality/ quantity**	Where the supporting habitats of the SPA feature are dependent on surface water ensure water quality and quantity is restored to a standard which provides the necessary conditions to support the feature		Natural England. *Definitions of Favourable Condition for Stodmarsh SSSI*. Available from Natural England on request
Supporting habitat (both within and outside the SPA): function/supporting process	**Conservation measures**	Maintain management or other measures (whether within and/or outside the site boundary as appropriate) necessary to Maintain the structure, function and/or the supporting processes associated with the feature and its supporting habitats.	Active and ongoing conservation management is often needed to protect, maintain or restore this feature at this site. Other measures may also be required, and in some cases, these measures may apply to areas outside of the designated site boundary in order to achieve this target. Further details about the necessary conservation measures for this site 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. The Conservation Objectives for this site are, subject to natural change, to maintain the following habitats and geological features in favourable condition, with particular reference to any dependent component special interest features (habitats, vegetation types, species, species assemblages etc.) for which the land is designated SPA.	Natural England. Stodmarsh Management plan 2015-2020, Available on request. English Nature (2005) Stodmarsh SSSI. Views About Management. Available here: https://designatedsites.naturalengland.org.uk/PDFsForWeb/VAM/1003639.pdf Natural England (2014) Stodmarsh Site Improvement Plan. Available from: http://publications.natural

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
				england.org.uk/publication/5749196032311296
Supporting habitat (both within and outside the SPA): function/supporting process	**Air quality**	Restore as necessary concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for the supporting habitats of this feature of the site on the Air Pollution Information System (www.apis.ac.uk).	See notes for this attribute in Table 2 above.	More information about site-relevant Critical Loads and Levels for this SPA is available by using the 'search by site' tool on the Air Pollution Information System (www.apis.ac.uk).
Non-breeding population	**Population abundance**	Maintain the size of the non-breeding Gadwall population at a level which is consistently above 77 individuals whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	See notes for this attribute in Table 2 above. This objective is based on maintaining 1.2% of the British wintering population, taken from period of notification - winter period 1987/88-1991/92),	Natural England. *Definitions of Favourable Condition for Stodmarsh SSSI*. Available from Natural England on request Stodmarsh SPA Citation. Available here: http://publications.naturalengland.org.uk/publication/6543516511502336 The up to date population on Stodmarsh SPA are available publicly on BTO WeBS data website.
Supporting habitat (both within and outside the SPA): minimising disturbance	**Minimising disturbance caused by human activity**	Restrict the frequency, duration and/or intensity of disturbance affecting roosting, foraging, feeding, moulting and/or loafing birds so that the Gadwall population is not significantly disturbed	The nature, scale, timing and duration of some human activities can result in the disturbance of birds at a level that may substantially affect their behaviour, and consequently affect the long-term viability of the population. Such disturbing effects can for example result in changes to feeding or roosting behaviour, increases in energy expenditure due to increased flight, and desertion of supporting habitat (both within or outside the designated site boundary where appropriate). This may undermine successful feeding and/or roosting, and/or may reduce the availability of suitable habitat as birds are displaced and their distribution within the site contracts. Disturbance associated with human activity may take a variety of forms including noise, light, sound,	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			vibration, trampling, presence of people, animals and structures.	
Supporting habitat (within the SPA): function/ supporting process	**Water depth**	Maintain the availability of standing water of optimal depth, typically <0.25 m deep, over at least 50% of the total standing water area.	This feature is known to require extensive areas of water in which to feed. Birds are visual predators, with some having the ability to dive or to feed from the surface. As they will rely on detecting their prey within the water to hunt, the depth of water at critical times of year may be paramount for successful feeding and therefore their fitness and survival. Deep water surrounding nesting sites may also be important to deterring predators. Characteristic water levels on site generally, in wet ditches summer water depth at least 0.5 m in minor ditches and 1 m in major drains. 90% of channel length should reach this target. The levels characteristic of the site, in relation to both freeboard and water depth, should be maintained. High water levels are particularly important in spring and early summer for semi-aquatic riparian invertebrates. A good depth of water should be maintained. Parts of the site are subject to periodic flooding from the Great Stour and on the NNR where there are gauge boards installed these should be regularly monitored.	Natural England. *Definitions of Favourable Condition for Stodmarsh SSSI*. Available from Natural England on request
Supporting habitat (both within and outside the SPA): function/supporting process	**Food availability within supporting habitat**	Maintain a high cover/abundance of food plants preferred by Gadwall (e.g. *Glyceria fluitans, Agrostis stolonifera, Chara, Potomageton, Ceratophyllum spp., Ruppia*).	The availability of an abundant food supply is critically important for successful breeding, adult fitness and survival and the overall sustainability of the population. As a result, inappropriate management and direct or indirect impacts which may affect the distribution, abundance and availability of prey may adversely affect the population. See map 1 for open water areas as the main food sources are aquatic vegetation, aquatic invertebrates, and seeds. They are surface feeders feeding mostly on plant material growing close to the surface	.
Version Control Advice last updated:n/a				
Variations from national feature-framework of integrity-guidance: n/a				

Table 4: Supplementary Advice for Qualifying Features: A056. *Anas clypeata*; Northern shoveler (Non-breeding)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Supporting habitat (both within and outside the SPA): extent and distribution	**Extent and distribution of supporting non-breeding habitat**	Maintain the extent and distribution of suitable habitat (either within or outside the site boundary) which supports Shoveler for all necessary stages of the non-breeding period (moulting, roosting, loafing, feeding)	Conserving or restoring the extent of supporting habitats and their range will be key to maintaining the site's ability and capacity to support the SPA population. The information available on the extent and distribution of supporting habitat used by the feature may be approximate depending to the nature, age and accuracy of data collection. This target may apply to supporting habitat which also lies outside the site boundary. The objectives for this site is are to maintain the extent of the 136 ha of reedbed (S4 *Urtica dioica ,Galium aparine*). There should be no reduction in the total combined extent of wetland in relation to the established baseline. See Map 1 for broad habitat distributions	Natural England. *Definitions of Favourable Condition for Stodmarsh SSSI*. Available from Natural England on request
Supporting habitat (both within and outside the SPA): function/supporting process	**Water quality/ quantity**	Where the supporting habitats of the SPA feature are dependent on surface water ensure water quality and quantity is restored to a standard which provides the necessary conditions to support the feature	See notes for this attribute in Table 2 above.	Natural England. *Definitions of Favourable Condition for Stodmarsh SSSI*. Available from Natural England on request
Supporting habitat (both within and outside the SPA): function/supporting process	**Conservation measures**	Maintain management or other measures (whether within and/or outside the site boundary as appropriate) necessary to Maintain the structure, function and/or the supporting processes associated with the feature and its supporting habitats.	Active and ongoing conservation management is often needed to protect, maintain or restore this feature at this site. Other measures may also be required, and in some cases, these measures may apply to areas outside of the designated site boundary in order to achieve this target. Further details about the necessary conservation measures for this site 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.	Natural England. Stodmarsh Management plan 2015-2020, Available on request. English Nature (2005) Stodmarsh SSSI. Views About Management. Available here: https://designatedsites.naturalengland.org.uk/PDFsForWeb/VAM/1003639.pdf Natural England (2014)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
				Stodmarsh Site Improvement Plan. Available from: http://publications.naturalengland.org.uk/publication/5749196032311296
Supporting habitat (within the SPA): function/ supporting process	**Air quality**	Restore as necessary the concentrations and deposition of air pollutants to below the site-relevant Critical Load or Level values given for the supporting habitats of this feature of the site on the Air Pollution Information System (www.apis.ac.uk).	See notes for this attribute in Table 2 above.	More information about site-relevant Critical Loads and Levels for this SPA is available by using the 'search by site' tool on the Air Pollution Information System (www.apis.ac.uk).
Non-breeding population (within the SPA)	**Population abundance**	Maintain the size of the non-breeding Shoveler population at 165 individuals, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	See notes for this attribute in Table 2 above.	Natural England. *Definitions of Favourable Condition for Stodmarsh SSSI*. Available from Natural England on request Stodmarsh SPA Citation. Available here: http://publications.naturalengland.org.uk/publication/6543516511502336 The up to date population on Stodmarsh are available publicly on BTO WeBS data website.
Supporting habitat (both within and outside the SPA): minimising disturbance	**Minimising disturbance caused by human activity**	Restrict the frequency, duration and/or intensity of disturbance affecting roosting, foraging, feeding, moulting and/or loafing birds so that the shoveler population is not significantly disturbed	See notes for this attribute in Table 2 above.	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Supporting habitat (both within and outside the SPA): function/supporting process	**Water depth**	Maintain the availability of standing water at optimal depth, typically <0.3 m deep, over at least 50% of the total standing water area.	See notes for this attribute in Table 2 above.	Natural England. *Definitions of Favourable Condition for Stodmarsh SSSI*. Available from Natural England on request
Supporting habitat (both within and outside the SPA): function/ supporting process	**Connectivity with supporting habitats**	Maintain the safe passage of shoveler moving between roosting and feeding areas during the non-breeding season	The ability of the feature to safely and successfully move to and from feeding and roosting areas is critical to their breeding success and to the adult fitness and survival. This target may apply within the site boundary and where birds regularly move to and from off-site habitat where this is relevant.	
Supporting habitat (both within and outside the SPA): function/ supporting process	**Food availability within supporting habitat**	Maintain a high cover/abundance of preferred food plants (e.g. *Scirpus, Eleocharis, Carex, Potamogeton, Glyceria*, surface plankton). Maintain the distribution, abundance and availability of key prey items (e.g. *Hydrobia, crustaceans, caddisflies, diptera, beetles)* at preferred prey sizes.	The availability of an abundant food supply is critically important for successful breeding, adult fitness and survival and the overall sustainability of the population. As a result, inappropriate management and direct or indirect impacts which may affect the distribution, abundance and availability of prey may adversely affect the population. See map 1 for open water areas as the main food sources are tiny crustaceans, other aquatic invertebrates, and seeds which they filter out of the water with comb-like projections (called 'lamellae') along the edge of the bill.	
Version Control Advice last updated: n/a				
Variations from national feature-framework of integrity-guidance: n/a				

Table 5: Supplementary Advice for Qualifying Features: A082. *Circus cyaneus*; Hen harrier (Non-breeding)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Supporting habitat (both within and outside the SPA): extent and distribution	**Extent and distribution of supporting non-breeding habitat**	Maintain the extent and distribution of suitable habitat (either within or outside the site boundary) which supports the feature for all necessary stages of the non-breeding period (e.g. moulting, roosting, loafing, feeding)	Conserving or restoring the extent of supporting habitats and their range will be key to maintaining the site's ability and capacity to support the SPA population. The information available on the extent and distribution of supporting habitat used by the feature may be approximate depending to the nature, age and accuracy of data collection. This target may apply to supporting habitat which also lies outside the site boundary. Reedbed is also the key habitat for roosting hen harrier	Natural England. *Definitions of Favourable Condition for Stodmarsh SSSI*. Available from Natural England on request
Supporting habitat (both within and outside the SPA): function/ supporting process	**Conservation measures**	Maintain management or other measures (whether within and/or outside the site boundary as appropriate) necessary to maintain the structure, function and/or the supporting processes associated with the feature and its supporting habitats.	Active and ongoing conservation management is often needed to protect, maintain or restore this feature at this site. Other measures may also be required, and in some cases, these measures may apply to areas outside of the designated site boundary in order to achieve this target. Further details about the necessary conservation measures for this site 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.	Natural England. Stodmarsh Management plan 2015-2020, Available on request. English Nature (2005) Stodmarsh SSSI. Views About Management. Available here: https://designatedsites.naturalengland.org.uk/PDFsForWeb/VAM1003639.pdf Natural England (2014) Stodmarsh Site Improvement Plan. Available from: http://publications.naturalengland.org.uk/publication/5749196032311296
Supporting habitat (both within and outside	**Air quality**	Restore as necessary the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or	See the notes for this attribute in Table 2 above.	More information about site-relevant Critical Loads and Levels for this SPA is available by

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
the SPA): function/ supporting process		Level values given for the supporting habitat of this feature of the site on the Air Pollution Information System (www.apis.ac.uk).		using the 'search by site' tool on the Air Pollution Information System (www.apis.ac.uk).
Non-breeding population (within the SPA)	**Population abundance**	Maintain the size of the non-breeding Hen Harrier population at a level which is above 9 individuals, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	See the notes for this attribute in Table 2 above.	Natural England. *Definitions of Favourable Condition for Stodmarsh SSSI*. Available from Natural England on request Stodmarsh SPA Citation. Available here: http://publications.naturalengland.org.uk/publication/6543516511502336
Supporting habitat (within the SPA): structure	**Vegetation characteristics**	Maintain an optimal mix of vegetation (flat or gently sloping areas with wet rush, heather, cotton grass or other wetland vegetation) in areas used for roosting.	The height, cover, variation and composition of vegetation are often important characteristics of habitats supporting this feature which enable successful nesting/rearing/concealment/roosting. Many bird species will have specific requirements that conservation measures will aim to maintain, for others such requirements will be less clear. Activities that may directly or indirectly affect the vegetation of supporting habitats and modify these characteristics may adversely affect the feature.	
Supporting habitat (both within and outside the SPA): minimising disturbance	**Minimising disturbance caused by human activity**	Restrict the frequency, duration and/or intensity of disturbance affecting nesting, roosting, foraging, feeding, moulting and/or loafing birds so that the hen harrier population is not significantly disturbed	The nature, scale, timing and duration of some human activities can result in the disturbance of birds at a level that may substantially affect their behaviour, and consequently affect the long-term viability of the population. Such disturbing effects can for example result in changes to feeding or roosting behaviour, increases in energy expenditure due to increased flight, abandonment of nest sites and desertion of supporting habitat (both within or outside the designated site boundary where appropriate). This may undermine successful nesting, rearing, feeding and/or roosting, and/or may reduce the availability of suitable habitat as birds are displaced and their distribution within the site contracts. Disturbance associated with human activity may take a variety of forms including noise, light, sound, vibration, trampling, presence of people, animals and structures.	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Supporting habitat (both within and outside the SPA): function/ supporting process	**Connectivity with supporting habitats**	Maintain the safe passage of hen harriers moving between feeding and/ roosting areas	The ability of the feature to safely and successfully move to and from nesting, feeding and roosting areas is critical to their breeding success and to the adult fitness and survival. This target will apply within the site boundary and where birds regularly move to and from off-site habitat where this is relevant. The home range of hen harriers can extend several kilometres from their nesting territory. During winter, Hen Harriers can gather at coastal sites and form communal roosts at night. These can hold significant numbers of individuals and roosting habitat can include carr-woodland, marshes and reed-beds.	
Supporting habitat (both within and outside the SPA): function/ supporting process	**Food availability within supporting habitat**	Maintain the distribution, abundance and availability of key prey items (small birds, small mammals) at preferred prey sizes	The availability of an abundant food supply is critically important for successful breeding, adult fitness and survival and the overall sustainability of the population. As a result, inappropriate management and direct or indirect impacts which may affect the distribution, abundance and availability of prey may adversely affect the population.	
Version Control Advice last updated: n/a				
Variations from national feature-framework of integrity-guidance: n/a				

Table 6: Supplementary Advice for Qualifying Features: Waterbird assemblage (non-breeding)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Supporting habitat (both within and outside the SPA): function/supporting process	**Water quality/ quantity**	Where the supporting habitats of the SPA feature are dependent on surface water ensure water quality and quantity is maintained a standard which provides the necessary conditions to support the feature.	For many SPA features which are dependent on wetland habitats supported by surface water, maintaining the quality and quantity of water supply will be critical, especially at certain times of year during key stages of their life cycle. Poor water quality and inadequate quantities of water can adversely affect the availability and suitability of breeding, rearing, feeding and roosting habitats. Typically, meeting the surface water and groundwater environmental standards set out by the Water Framework Directive (WFD 2000/60/EC) will also be sufficient to support the SPA Conservation Objectives but in some cases more stringent standards may be needed to support the SPA feature. Further site-specific investigations may be required to establish appropriate standards for the SPA. Characteristic water levels to be maintained. Generally, in wet ditches summer water depth at least 0.5 m in minor ditches and 1 m in major drains. 90% of channel length should reach this target. The levels characteristic of the site, in relation to both freeboard and water depth, should be maintained. High water levels are particularly important in spring and early summer for semi-aquatic riparian invertebrates. A good depth of water should be maintained. Parts of the site are subject to periodic flooding from the Great Stour.	Natural England. *Definitions of Favourable Condition for Stodmarsh SSSI*. Available from Natural England on request
Assemblage of species	**Diversity of species**	Maintain the species diversity of the bird assemblage.	This will ensure the bird assemblage reflects the diversity of species the SPA supports. Assemblage diversity is a product of species richness (the number of different species present), abundance (population size of each assemblage component species) and relative 'importance' (an assessment of the conservation status of each assemblage component, described below). Each component makes a different contribution to the diversity of the assemblage, and changes to some components may be considered to affect diversity more than others. Negative changes to small numbers of relatively important assemblage components may have a similar overall effect to negative changes in larger numbers of less important components. To meet this objective, the populations of each of the 'main component' assemblage species to be maintained or restored are i) those present in nationally important numbers (≥1% GB population); ii) migratory species	For further information; condition assessments data on Designated Sites View

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			present in internationally important numbers (≥1% biogeographic population); iii) those species comprising ≥2,000 individuals (≥10% of the minimum qualifying threshold for an internationally-important assemblage); and iv) 'named components' otherwise listed on the SPA citation. In addition to the main components, other components should be considered as these contribute collectively to the assemblage diversity, in particular proportionally abundant populations of species of conservation importance. Examples are those 'red-listed' as Birds of Conservation Concern and/or those listed on Sections 41/42 of the Natural Environment and Rural Communities Act 2006. The species composition of an assemblage may change over time. However, to meet this target, the total number of all native water bird species contributing to the assemblage species richness should not decline significantly. At this SPA, the population of Bearded Tits is a notable elementsof this assemblage, averaging 75 birds and representing 1.5-2.5% of the GB population.	
Supporting habitat (both within and outside the SPA): extent and distribution	**Extent and distribution of supporting non-breeding habitat**	Maintain the extent and distribution of habitats which support the assemblage feature during all necessary stages (moulting, roosting, loafing, feeding) of the non-breeding period.	Conserving or restoring the extent of supporting habitats and their range will be key to maintaining the site's ability and capacity to support the SPA population. The information available on the extent and distribution of supporting habitat used by the feature may be approximate depending to the nature, age and accuracy of data collection. This target may apply to any supporting habitat which is known to occur outside the site boundary.	Natural England. *Definitions of Favourable Condition for Stodmarsh SSSI*. Available from Natural England on request
Supporting habitat (both within and outside the SPA): minimising disturbance	**Minimising disturbance caused by human activity**	Restrict the frequency, duration and/or intensity of disturbance affecting moulting, loafing, feeding and/or roosting birds so that the assemblage feature is not significantly disturbed	The nature, scale, timing and duration of some human activities can result in the disturbance of birds at a level which may significantly affect their behaviour, and consequently impact on the long-term viability of their population. Such disturbing effects can for example result in changes to feeding or roosting behaviour, increased energy expenditure due to more frequent flights, disrupted incubation of eggs and desertion of supporting habitat (both within or outside the designated site boundary where appropriate). Anthropogenic disturbance of birds may in effect reduce the availability to the birds of suitable habitat through temporary or long-lasting displacement of birds from affected areas and may result in their	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			redistribution within the site or displacement from it. Disturbance associated with human activity may take a variety of forms including noise, light, sound, vibration, trampling and sight of people, animals and structures.	
Supporting habitat (both within and outside the SPA): structure/ function	**Quality of supporting non-breeding habitat**	Maintain the structure, function and availability of the following habitats which support the main component species of the assemblage feature for all stages (moulting, roosting, loafing, feeding) of the non-breeding period; Fen, Marsh and Swamp Lowland Neutral Grassland Standing open water & canals Broadleaved, Mixed and Yew Woodland	The site's ability to support and sustain an assemblage comprising a very large number of birds (in excess of 20,000) made up of a diverse mix of species will be reliant on the overall quality and diversity of the habitats that support them. The feeding and roosting habitats which support the assemblage will occur within, and in some cases outside, the site boundary. This target is applicable to both circumstances. Due to the large number of species and natural fluctuations in the overall composition of an assemblage, it is not practical to provide specific targets relating to each supporting habitat relevant to the assemblage. Generally speaking, the specific attributes of each supporting habitat may include vegetation characteristics and structure, water depth, food availability, connectivity between nesting, roosting and feeding areas both within and outside the SPA. Further advice will be provided by Natural England on a case by case basis.	
Supporting habitat (both within and outside the SPA): function/supporting process	**Conservation measures**	Maintain management or other measures (whether within and/or outside the site boundary as appropriate) necessary to Maintain the structure, function and/or the supporting processes associated with the feature and its supporting habitats.	Active and ongoing conservation management is often needed to protect, maintain or restore this feature at this site. Other measures may also be required, and in some cases, these measures may apply to areas outside of the designated site boundary in order to achieve this target. Further details about the necessary conservation measures for this site 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.	English Nature (2005) Stodmarsh SSSI. Views About Management. Available here: https://designatedsites.naturalengland.org.uk/PDFsForWeb/VAM/1003639.pdf Natural England (2014) Stodmarsh Site Improvement Plan. Available from: http://publications.natu

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
				ralengland.org.uk/publication/5749196032311296
Supporting habitat (both within and outside the SPA): function/supporting process	**Air quality**	Restore as necessary the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for the supporting habitats of this feature of the site on the Air Pollution Information System (www.apis.ac.uk).	See the notes for this attribute above in table 2.	More information about site-relevant Critical Loads and Levels for this SPA is available by using the 'search by site' tool on the Air Pollution Information System (www.apis.ac.uk).
Assemblage of species	**Assemblage abundance**	Maintain the overall abundance of the non-breeding assemblage at its current level, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	This will sustain the assemblage population and contribute to viable local, national and bio-geographic populations of its component species. Assemblage abundance is the annual sum of peak counts of each assemblage component species (at any time of year, though peaks tend to occur in the non-breeding season), unless otherwise stated. Five year peak means are the average of these annual peak sums for the relevant period. An assemblage component is any waterbird using the site. Due to the dynamic nature of assemblage component populations, this target may be subject to periodic review. However, the target assemblage abundance is considered to be the minimum standard for conservation or restoration measures and therefore where at any time the assemblage abundance is greater than the target value given, any measure or impact assessment should take account of the greater abundance. This meets with the obligation to avoid deterioration of a European site or significant disturbance of the species for which the site is classified, and seeks to avoid plans or projects giving rise to the risk of such deterioration or disturbance. Similarly, where there is evidence to show that a feature has historically been more abundant than the stated minimum target and its current level, the ongoing capacity of the site to accommodate the feature at such higher levels in future should also be taken into account. Whether to maintain or restore depends on the overall assemblage abundance (i.e. the peak mean derived from the summer peak counts of components), and should only change in response to this value, excepting	The most recent data about this feature on this SPA can be derived from BTO WeBS data and Natural England, For further information please refer to condition assessments data on Designated Sites View

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			natural change. Fluctuations of individual assemblage component species alone should not necessarily change the target. Assemblage abundance is linked to the demographic rates of assemblage components, including survival (dependent on factors such as body condition which influences the ability to breed or make foraging and / or migration movements) and breeding productivity. Adverse anthropogenic impacts on either of these rates may precede changes in population abundance (e.g. by changing proportions of birds of different ages) but eventually may negatively affect abundance. These rates can be measured / estimated (particularly for the main or named components) to inform judgements of likely changes to the assemblage and associated impacts on abundance targets. Whilst we will endeavour to keep these values as up to date as possible, local Natural England staff can advise on whether the figures stated are the best available.	
Version Control Advice last updated: n/a				
Variations from national feature-framework of integrity-guidance: n/a				

Table 7: Supplementary Advice for Qualifying Features: wetland bird assemblage (breeding)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Supporting habitat (both within and outside the SPA): function/ supporting process	**Water quality/ quantity**	Where the supporting habitats of the SPA feature are dependent on surface water ensure water quality and quantity is restored to a standard which provides the necessary conditions to support the feature.	See the notes for this attribute in table 6 above.	Natural England. *Definitions of Favourable Condition for Stodmarsh SSSI*. Available from Natural England on request
Supporting habitat (both within and outside the SPA): extent and distribution	**Extent and distribution of supporting breeding habitat**	Maintain the extent and distribution of habitat which supports the assemblage feature during all necessary stages (breeding, moulting, roosting, loafing, feeding) of the breeding period;	Conserving or restoring the extent of supporting habitats and their range will be key to maintaining the site's ability and capacity to support the SPA population. The information available on the extent and distribution of supporting habitat used by the feature may be approximate depending to the nature, age and accuracy of data collection. This target may apply to any supporting habitat which is known to occur outside the site boundary. The principal habitats known or likely to support the assemblage feature at this SPA are: Fen, Marsh and Swamp Lowland Neutral Grassland, Standing open water & canals,	Natural England. Stodmarsh NNR Management Plan 2015-2020, Available on request. Natural England. *Definitions of Favourable Condition for Stodmarsh SSSI*. Available from Natural England on request
Supporting habitat (both within and outside the SPA): minimising disturbance	**Minimising disturbance caused by human activity**	Restrict the frequency, duration and/or intensity of disturbance affecting nesting, roosting, foraging, feeding, moulting and/or loafing birds so that the assemblage feature is not significantly disturbed	The nature, scale, timing and duration of some human activities can result in the disturbance of birds at a level which may significantly affect their behaviour, and consequently impact on the long-term viability of their population. Such disturbing effects can for example result in changes to feeding or roosting behaviour, increased energy expenditure due to more frequent flights, abandonment of nest sites, disrupted incubation of eggs and desertion of supporting habitat (both within or outside the designated site boundary where appropriate). Anthropogenic disturbance of birds may in effect reduce the availability to the birds of suitable habitat through temporary or long-lasting displacement of birds from affected areas and may result in their redistribution within the site or displacement from it. Disturbance associated with human activity may take a variety of forms including noise, light, sound, vibration, trampling and sight of people, animals and structures.	

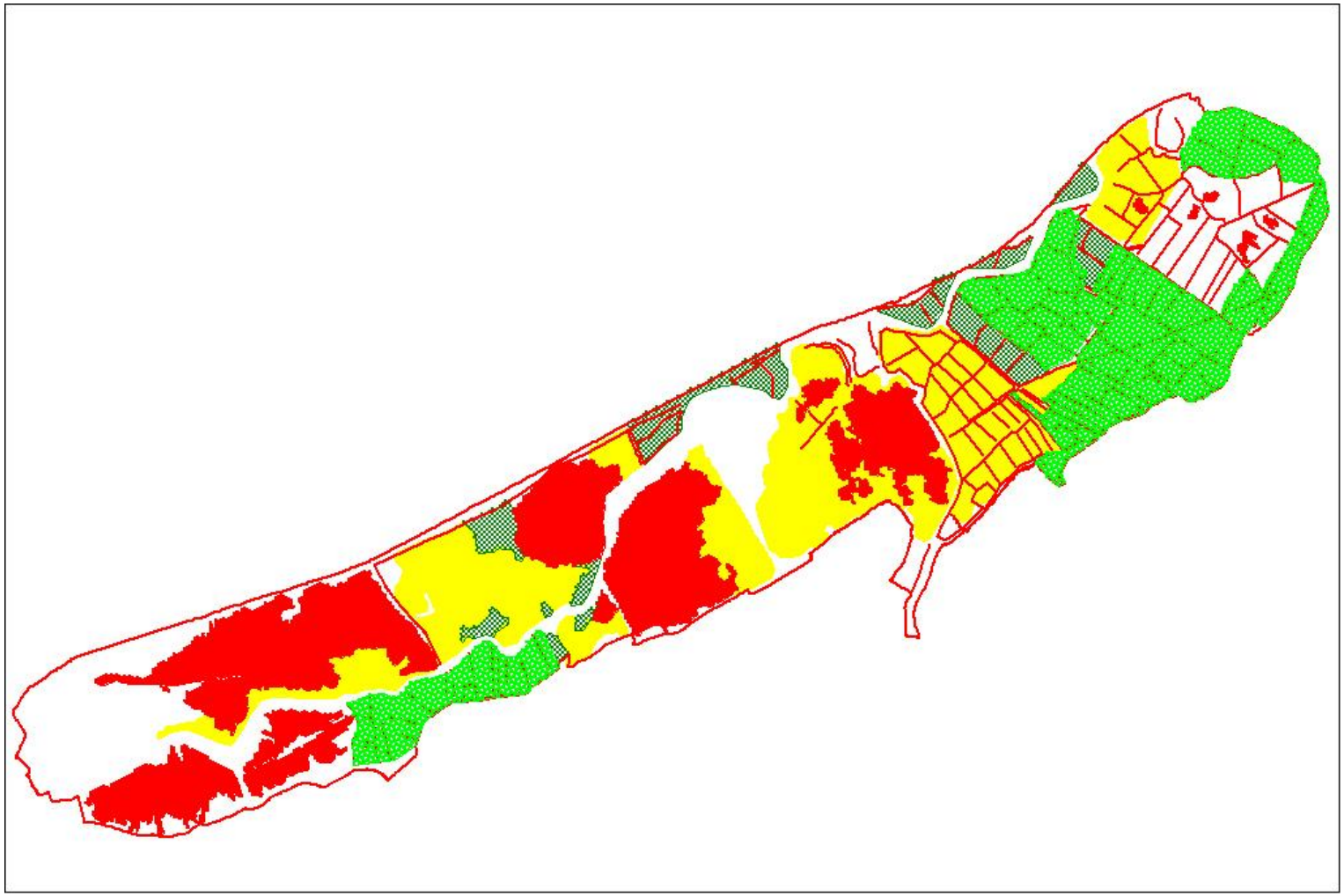
Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Supporting habitat (within the SPA): structure/ function	**Quality of supporting breeding habitat**	Maintain the structure, function and availability of the following habitats which support the main component species of the assemblage feature for all stages (breeding, moulting, roosting, loafing, feeding) of the breeding period; Fen, Marsh and Swamp Lowland Neutral Grassland Standing open water & canals Broadleaved, Mixed and Yew Woodland	The site's ability to support and sustain an assemblage comprising a very large number of birds (in excess of 20,000) made up of a diverse mix of species will be reliant on the overall quality and diversity of the habitats that support them. The feeding and roosting habitats which support the assemblage will occur within, and in some cases outside, the site boundary. This target is applicable to both circumstances. Due to the large number of species and natural fluctuations in the overall composition of an assemblage, it is not practical to provide specific targets relating to each supporting habitat relevant to the assemblage. Generally speaking, the specific attributes of each supporting habitat may include vegetation characteristics and structure, water depth, food availability, connectivity between nesting, roosting and feeding areas both within and outside the SPA. Further advice will be provided by Natural England on a case by case basis.	Natural England. Stodmarsh NNR Management Plan 2015-2020. Available on request.
Supporting habitat (both within and outside the SPA): function/supporting process	**Conservation measures**	Maintain management or other measures (whether within and/or outside the site boundary as appropriate) necessary to maintain the structure, function and/or the supporting processes associated with the feature and its supporting habitats.	Active and ongoing conservation management is often needed to protect, maintain or restore this feature at this site. Other measures may also be required, and in some cases, these measures may apply to areas outside of the designated site boundary in order to achieve this target. Further details about the necessary conservation measures for this site 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.	Natural England. Stodmarsh NNR Management plan 2015-2020, Available on request. English Nature (2005) Stodmarsh SSSI. Views About Management. Available here: https://designatedsites.naturalengland.org.uk/PDFsForWeb/VAM/1003639.pdf Natural England (2014) Stodmarsh Site Improvement Plan. Available from: http://publications.natu

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
				ralengland.org.uk/publication/5749196032311296
Assemblage of species	**Assemblage abundance**	Maintain the overall abundance of the assemblage at its current level, whilst avoiding deterioration from its current level as indicated by the latest peak mean count or equivalent.	This will sustain the assemblage population and contribute to viable local, national and bio-geographic populations of the component species. Assemblage abundance is the annual sum of peak counts of each assemblage component species (generally during the breeding season), unless otherwise stated. Due to the dynamic nature of assemblage component populations, this target may be subject to periodic review. However, the target assemblage abundance is considered to be the minimum standard for conservation or restoration measures and therefore where at any time the assemblage abundance is greater than the target value given, any measure or impact assessment should take account of the greater abundance. This meets with the obligation to avoid deterioration of a European site or significant disturbance of the species for which the site is classified, and seeks to avoid plans or projects giving rise to the risk of such deterioration or disturbance. Similarly, where there is evidence to show that a feature has historically been more abundant than the stated minimum target and its current level, the ongoing capacity of the site to accommodate the feature at such higher levels in future should also be taken into account. Whether to maintain or restore depends on the overall assemblage abundance (i.e. the peak mean derived from the summed peak counts of components), and should only change in response to this value, excepting natural change. Fluctuations of individual assemblage component species alone should not necessarily change the target. Assemblage abundance is linked to the demographic rates of assemblage components, including survival (dependent on factors such as body condition which influences the ability to breed or make foraging and / or migration movements) and breeding productivity. Adverse anthropogenic impacts on either of these rates may precede changes in population abundance (e.g. by changing proportions of birds of different ages) but eventually may negatively affect abundance. These rates can be	Natural England. *Definitions of Favourable Condition for Stodmarsh SSSI*. Available from Natural England on request

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			measured / estimated (particularly for the main or named components) to inform judgements of likely changes to the assemblage and associated impacts on abundance targets. Whilst we will endeavour to keep these values as up to date as possible, local Natural England staff can advise on whether the figures stated are the best available.	
Assemblage of species	**Diversity of species**	Maintain the species diversity of the bird assemblage.	This will ensure the bird assemblage reflects the diversity of species the SPA supports. Assemblage diversity is a product of species richness (the number of different species present), abundance (population size of each assemblage component species) and relative 'importance' (an assessment of the conservation status of each assemblage component, described below). Each component makes a different contribution to the diversity of the assemblage, and changes to some components may be considered to affect diversity more than others. Negative changes to small numbers of relatively important assemblage components may have a similar overall effect to negative changes in larger numbers of less important components. To meet the target, the populations of each of the 'main component' assemblage species to be maintained or restored will be those bird species characteristic of the particular SPA habitat and those 'named components' listed on the SPA citation. In addition to the main components, other components should be considered as these contribute collectively to the assemblage diversity, in particular proportionally abundant populations of species of conservation importance. Examples are those 'red-listed' as Birds of Conservation Concern and/or those listed on Sections 41/42 of the Natural Environment & Rural Communities Act 2006. The species composition of an assemblage may change over time. However, to meet this target, the total number of all native bird species contributing to the assemblage species richness should not decline significantly.	Natural England. *Definitions of Favourable Condition for Stodmarsh SSSI*. Available from Natural England on request
Supporting habitat	**Predation**	Reduce predation and disturbance of assemblage-	This will ensure that breeding productivity (number of chicks per pair) and survival are sustained at rates that maintain or restore the abundance of	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
(both within and outside the SPA): predation		component species caused by native and non-native predators.	the feature. Impacts to breeding productivity can result directly from predation of eggs, chicks, juveniles and adults, and also from significant disturbance. The presence of predators can influence bird behaviours, such as abandonment of nest sites or reduction of effective feeding. Where evidence suggests predator management is required, measures can include their exclusion through fencing and scaring or by direct control. Any such measures must consider the legal protection of some predators, as well as the likely effects of such control on other qualifying features.	
Version Control Advice last updated: n/a				
Variations from national feature-framework of integrity-guidance: n/a				

Map 1 – Habitats (light green - grazing marsh, dark green - fen, yellow - reedbed, red – open water)



Map 2: OS of site and surrounding area