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

Nene Washes Special Protection Area (SPA)
Site code: UK9008031

Nene Washes. Justin Tilley.

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About this document

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

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

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

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

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

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

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

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

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

If you have any comments or queries about this Supplementary Advice document please contact your local Natural England adviser or email HDIRConservationObjectivesNE@naturalengland.org.uk

About this site

European Site information

Name of European Site	Nene Washes Special Protection Area (SPA)
Location	Cambridgeshire
Site Maps	The designated boundary of this site can be viewed here on the MAGiC website
Designation Date	June 1992
Qualifying Features	See section below
Designation Area	1517.49 ha
Designation Changes	None
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)	Nene Washes (Whittlesey) SSSI
Relationship with other European or International Site designations	The boundary of this SPA overlaps with that of the Nene Washes SAC and Ramsar boundaries.

Site background and geography

The Nene Washes are an extensive mosaic of low lying wet grassland and rough pasture that lie in the Fens National Character Area (NCA Profile 46) of Norfolk and Cambridgeshire. They were created in the 17th century with a primary function to store floodwater from the Nene and protect surrounding land.

They total around 15 square kilometres and are located on the lower reaches of the River Nene, running out eastwards from Peterborough, towards and past Whittlesey, ending at Ringsend. The soils of the washes are slightly base rich peats, alluvial in nature and with a high silt content from the flood waters. For most of the extent of the Washes, the peat soils overlie Oxford clays laid down in the Jurassic Period although the Barroway Drove Beds of marine alluvial deposits would laterally cut out the lower peat. Around the King's Dyke area between Whittlesey and Peterborough, River Terrace Deposits overlying the Oxford Clay provide evidence of former floodplains of the river. These grasslands play a major land drainage role as a flood water storage area and this washland is therefore subject to regular winter flooding. In the summer months the grasslands provide grazing and hay. The regular winter flooding and the continuance of traditional management of cattle grazing and hay cutting maintains the nature conservation value of the area.

When severe winters occur elsewhere in continental Europe, it can force water birds from these areas to seek a relatively milder climate such as that found around the Washes. The site can also act as refuge when other nearby areas such as the Ouse Washes are subject to deep and prolonged flooding. During the winter large assemblages of waterfowl can congregate, sometimes in excess of 20,000 birds.

Many of the ditches hold a rich flora and several nationally scarce plants including fringed water-lily *Nymphoides peltata*, hair-like pondweed *Potamogeton trichoides,* frogbit *Hydrocharis*

morsus-ranae and marsh dock *Rumex palustris*. Morton's Leam, a large drainage channel and SAC feature, runs along the southern flank of the washes and contains a high density of spined loach *Cobitis taenia.*

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:

- **A037 *Cygnus columbianus bewickii*; Bewick's swan (Non-breeding)**

The site supported 1300 individuals at notification, more than 7% of the north-west European wintering population. The peak 5 year mean from 2013/14 – 2017/18 was 431. Both the north-west European population and numbers occurring within Britain have declined substantially during the last 20 years (Holt et al 2015, Rees & Beekman 2010, Worden et al. 2006), and the majority of British SPAs show short, medium and long term WeBS alerts for Bewick's swan (Holt et al 2015). The declines are thought to be at least in part due to milder winters causing fewer birds to travel as far west as in previous years (Rees and Beekman 2010).

Other influences on population dynamics have been identified in the African Eurasian Waterbird Agreement (AEWA) Single Species Action Plan (Nagy et al 2012), including climate change, disease, illegal/accidental shooting and a diminished food resource and human disturbance on overwintering sites. Numbers of Bewick's swans on the Nene Washes have held up well in comparison with the national trend. Swans tend to spend the daytime foraging on functionally linked arable land around the SPA, as well as on the SPA itself, returning to the SPA to roost on open water at night. Roosting sites can be dependent on water levels in the washes and will change throughout the season.

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

During the breeding season the SPA regularly supports:

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

The site supported 25 breeding pairs at the time of SPA notification, 5% of the British population. UK breeding numbers have been increasing generally in the last few decades, and also in the close continent. The mean population count in the period 2013-17 was 86 pairs.

- **A055 *Anas querquedula*; Garganey (Breeding).**

The site supported 5 breeding pairs at the time of notification, 10% of the British population. UK breeding numbers have increased slightly in the last 25 years. The mean population count in the period 2013-17 was 5 pairs.

- **A056 *Anas clypeata*; Northern shoveler (Breeding).**

The site supported 36 breeding pairs at the time of notification, representing 3% of the British population. The mean population count in the period 2013-17 was 68 pairs. Breeding numbers in the UK have been stable in the last 10 years but there has been an increase since designation.

- **A156a *Limosa limosa limosa*; Black-tailed godwit (Breeding).**

The site supported 16 breeding pairs at the time of notification, representing 30% of the British population. The population on the Nene Washes has increased as the nearby population on the Ouse Washes decreased, peaking at 48 pairs in 2006. An increase in the levels of predation has caused productivity to plummet, but the long life expectancy of the adults means that the mean population count

in the period 2013-17 is still 40 pairs. This represents the majority of breeding pairs in the UK. The species nests on the Low Wash almost without exception, although in recent years there have been relays on March Farmers and past nesting on Ring's End.

The most important area for breeding wetland birds, including the duck species above, on the Nene Washes is the Low Wash (unit 3), with March Farmers becoming increasingly important since restoration from arable land to grassland in 2015. The High Wash (unit 2), Eldernell (unit 4) also support important numbers, while Ring's End, at the higher end of the washes, can be important in some years depending on climatic conditions. Stanground (unit 1), with its drained gravel substrate, and Garner (unit 5), which is largely arable, generally do not support nesting wetland birds.

During the non-breeding season the SPA regularly supports:

- **A050 *Anas penelope*; Eurasian wigeon (Non-breeding)**

The site supported 3640 individuals at notification, 1% of the British population. The peak 5 year mean from 2013/14 – 2017/18 was 13864. The increases could be due to the more suitable management of March Farmers and sub-optimal flooding conditions at the Ouse Washes leading birds to move between sites. Numbers in Britain have increased by about two thirds since the SPA was notified. Wigeon preferentially feed on grassland within the SPA, roosting on open water. Both feeding and roosting areas will be dependent on water levels and wildfowling and will change throughout the season.

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

The site supported 95 individuals at notification, over 1% of the British population. The peak 5 year mean from 2013/14 – 2017/18 was 247. Nationally, the population has approximately doubled over the same period. Gadwall is a dabbling duck requiring shallow water for feeding; feeding and roosting areas will be dependent on water levels and wildfowling and will change throughout the season.

- **A052 *Anas crecca*; Eurasian teal (Non-breeding).**

The site supported 980 individuals at notification, 1% of the British population. The peak 5 year mean from 2013/14 – 2017/18 was 2857. Since notification, the national population has increased by approximately a half. Teal prefers shallow water for feeding; feeding and roosting areas will be dependent on water levels and wildfowling and will change throughout the season.

- **A054 *Anas acuta*; Northern pintail (Non-breeding).**

The site supported 440 individuals at notification, over 1% of the British population. The peak 5 year mean from 2013/14 – 2017/18 was 646. Numbers have fluctuated but have held up well compared to the national trend, which has seen a small decline over the same period for reasons that aren't well understood. Numbers at the Nene Washes were generally much higher from the late 1990s until about 2010.

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

The site supported 110 individuals at notification, over 1% of the British population. The peak 5 year mean from 2013/14 – 2017/18 was 475. Numbers nationally have doubled over the same period.

General comment on the use of the Nene Washes by waterbirds over the winter period. Wildfowling at the Nene Washes is mainly carried out in the Low Wash and the High Wash. During the wildfowling season (September until the end of January) these areas tend to be used less by waders and waterfowl. Stanground and Ring's End are used less by the qualifying bird species than the rest of the site because they are better drained/higher so conditions aren't as suitable in most years; if there is a heavy flood, however, they become important.

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
Black-tailed godwit	Breeding	Summer													Includes analysis of data from SPA's WeBS Counts 2009/10 -2013/14 (available from BTO) and SPA citation
Gadwall	Breeding	Summer													As above
Garganey	Breeding	Summer													As above
Shoveler	Breeding	Summer													As above
Bewick's Swan	Non-breeding	Winter													As above
Gadwall	Non-breeding	Winter													
Pintail	Non-Breeding	Winter													As above
Shoveler	Non-breeding	Winter													As above

Feature	Season	Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Site-specific references where available
Teal	Non-breeding	Winter													As above
Wigeon	Non-breeding	Winter													As above

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: A037. *Cygnus columbianus bewickii;* Bewick's swan (Non-breeding)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Non-breeding population	**Population abundance**	Restore the size of the non-breeding Bewick's Swan population to a level which is above 1300 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 contribute 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 abundance 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 (generally at least 10 years). 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, local Natural England staff can advise on whether the figures	SPA citation 1992. The most recent data about this feature on this SPA can be derived from WeBs data upon request: http://www.bto.org/volunteer-surveys/webs/data/submit-data-request

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			stated are the best available. Since the SPA was notified there has been a substantial decline in the numbers of Bewick's swans travelling to Britain, probably because milder winters in Europe provide suitable conditions closer to breeding grounds. If the climate trend continues, numbers on the Nene Washes are unlikely to recover.	
Supporting habitat (within the SPA): extent and distribution	**Extent and distribution of supporting non-breeding habitat**	Maintain the extent and distribution of suitable supporting habitat which supports the feature for all necessary stages of the non-breeding/wintering period (moulting, roosting, loafing, and 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. Feeding areas: Birds also fly out to the surrounding agricultural land to feed, however currently little is known about their preferred locations, distances travelled and faithfulness to specific sites.	RSPB Management Plan, Nene Washes, 2015-19 ENGLISH NATURE, 2000. Aerial photographs of Nene Washes.
Supporting habitat (both within and outside the SPA): function/ supporting process	**Air quality**	Maintain concentrations and deposition of air pollutants at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).	The structure and function of 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 (NH_3), oxides of nitrogen (NO_x) and sulphur dioxide (SO_2), 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 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. No critical loads have been set for freshwater habitats used by wintering	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)
			Bewick's swan. This does not mean no effect of nitrogen or acid deposition. Nitrogen deposition will affect total nitrogen levels in the ditch water, which are known to be high enough to affect the species composition, but there are likely to be other sources with greater contributions. Terrestrial habitats used for feeding are not thought to be sensitive to acid or nitrogen deposition.	
Supporting habitat (both within and outside the SPA): function/ supporting process	**Connectivity with supporting habitats**	Maintain the safe passage of Bewick's swans moving between roosting and feeding areas	The ability of the feature to safely and successfully move to and from feeding and roosting areas is critical to their 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. Powerlines and wind turbines present a danger to swans. They are particularly vulnerable when flying in flocks from roosts to feeding or loafing areas due to their low manoeuvrability in flight. Where possible powerlines should be dug into the ground or marked with bird flight deflectors, and windfarms located away from known flight paths.	NATURAL RESEARCH INFORMATION NOTE 5 AVOIDANCE RATES OF SWANS UNDER THE 'BAND' COLLISION RISK MODEL D.P. Whitfield MAY 2010
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 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. 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. Livestock grazing and hay cutting in summer to reduce grassland sward height and rank vegetation; partial winter flooding to maintain suitable conditions for wintering birds; flood defence operations and river channel management; minimising disturbance; removal of sediment in ditches to prevent the accumulation of silt and control of invasive non-native species.	RSPB Management Plan, Nene Washes, 2015-19
Supporting habitat (both within and outside the SPA): function/ supporting process	**Food availability within supporting habitat**	Maintain the availability of cereal grains, rape, potatoes and sugar beet, where these sources are locally important to feeding flocks	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. Bewick's swans tend to feed on arable land outside the SPA, returning to the washes to roost.	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Supporting habitat (both within and outside the SPA): function/ supporting process	**Hydrology/flow**	Maintain hydrological processes to ensure continuity of water availability in feeding sites, with visible areas of standing shallow water during non-breeding period.	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.	
Supporting habitat (both within and outside the SPA): function/ supporting process	**Water area**	Maintain the number of large waterbodies of optimal size (typically >10 ha).	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. Roosting sites are greatly affected by water levels within the Washes. Water availability over the wintering period is not limited, and this is not expected to change with climate change. When there is a necessity to use the flood storage function of the Nene Washes, the area of waterbodies increases. Otherwise, the water level is determined by the Water Level Management Plan which ensures there are several large waterbodies during the wintering period.	Environment Agency 2007
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. Soluble reactive phosphorus < 0.1 mg/L-1 annual mean	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. Recent water quality data shows that water quality in Moreton's Leam is marginally within the acceptable limits for total phosphorus but is high for total nitrogen. Field drains are similar, but water quality is slightly worse; this could either be due to the influences of cattle grazing or to the release of nutrients bound to the sediment. Good water quality is important for a diverse macrophyte community	EA Nene Washes Management Statement for maintenance operations 2013-23. EA. Nene Washes Water Level Management Plan (WLMP) 2007 The Environment Agency routinely collects water quality data from Moreton's Leam, which can be found here. This attribute will be periodically monitored as part of Natural

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			There is anecdotal evidence that floodwater is taking longer to drain from the washes so that during periods of flood the water can be higher than is ideal for longer. This is currently being investigated through a review of the Water Level Management Plan, along with concerns over the likely increase in flood events which might lead to sub-optimal conditions for wintering birds.	England's site condition assessments
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 within close proximity of affecting roosting, foraging, feeding, moulting and/or loafing birds so that the 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 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, vibration, trampling, presence of people, animals and structures. Although visitor numbers aren't accurately measured, human disturbance should be low due to the remoteness of the site and lack of infrastructure. It is popular with bird watchers particularly from nearby counties. Parts of the site are also used for wildfowling, angling and skating. Wildfowling causes disturbance to wintering birds until the end of January, particularly in the Low Wash and the High Wash. Land management activities likely to cause disturbance are generally limited to the period between August and October.	RSPB Management Plan, Nene Washes, 2015-19, Section 1.4 Visitors and people engagement.
Supporting habitat (both within and outside the SPA): structure	**Landscape**	Maintain open and unobstructed terrain within and around roosting and feeding areas, with no overall decrease in field sizes	This feature is known to favour large areas of open terrain, largely free of obstructions, in and around its roosting and feeding areas. Often there is a need to maintain an unobstructed line of sight within feeding and 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. Open landscapes have been maintained by RSPB removing/pollarding large willow trees that may serve as perching places for predators within their land holdings. EA also have a tree and bush removal strategy within their maintenance plan to maintain bank stability where grass cover has become reduced, or they serve as cover for predators. Ditches, rather than fences or hedges, mark field boundaries and provide stock control.	RSPB Management Plan, Nene Washes, 2015-19 EA Management Statement for maintenance operations 2013-23.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Supporting habitat (both within and outside the SPA): structure	**Vegetation characteristics**	Maintain the extent and distribution of predominantly short (<10 cm) grassland swards in areas used by Bewick's swans for feeding	The height, cover, variation and composition of vegetation are often important characteristics of habitats supporting this feature which enable successful foraging. 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 grassland habitats are managed through a mixture of summer grazing and hay cutting/topping by local graziers/contractors/landowners/agencies to achieve the ideal sward height for wintering birds.	RSPB Management Plan, Nene Washes, 2015-19
Version Control Advice last updated: N/A				
Variations from national feature-framework of integrity-guidance: N/A				

Table 2: Supplementary Advice for Qualifying Features: A050. *Anas penelope*; Eurasian wigeon (Non-breeding)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Non-breeding population	**Population abundance**	Maintain the size of the non-breeding Wigeon population at a level which is above 3540 individuals, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	See explanatory notes for this attribute in Table 1. The wigeon population has increased by several times since SSSI notification baselines were set. The increase could be due to the more suitable management of March Farmers and sub-optimal conditions at the Ouse Washes leading birds to move between sites. Numbers in Britain have increased by about two thirds since the SPA was notified	SPA citation 1992. The most recent data about this feature on this SPA can be derived from WeBs data upon request: http://www.bto.org/volunteer-surveys/webs/data/submit-data-request
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 non-breeding Wigeon for all necessary stages of the non-breeding/wintering 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 Feeding areas: Birds may fly out to the surrounding agricultural land to feed, however currently little is known about their preferred locations, distances travelled and faithfulness to specific sites	RSPB Management Plan, Nene Washes, 2015-19 ENGLISH NATURE, 2000. Aerial photographs of Nene Washes
Supporting habitat (both within and outside the SPA): function/ supporting process	**Air quality**	Maintain concentrations and deposition of air pollutants within the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).	See explanatory notes for this attribute in Table 1. No critical loads have been set for freshwater habitats used by wintering wigeon. This does not mean no effect of nitrogen or acid deposition. Nitrogen deposition will affect total nitrogen levels in the ditch water, which are known to be high enough to affect the species composition, but there are likely to be other sources with greater contributions. Terrestrial habitats used for feeding are not thought to be sensitive to acid or nitrogen deposition.	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)
Supporting habitat (both within and outside the SPA): function/ supporting process	**Connectivity with supporting habitats**	Maintain the availability of grasslands in close proximity (typically <50 m) to open water bodies.	The ability of the feature to safely and successfully move to and from feeding and roosting areas is critical to their 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 (both within and outside the SPA): function/ supporting process	**Connectivity with supporting habitats**	Maintain the safe passage of wigeon moving between roosting and feeding areas during the non-breeding period	The ability of the feature to safely and successfully move to and from feeding and roosting areas is critical to their 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 (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 restore the structure, function and/or the supporting processes associated with the feature and its supporting habitats.	See explanatory notes for this attribute in Table 1. Livestock grazing and hay cutting in summer to reduce grassland sward height and rank vegetation; partial winter flooding to maintain suitable conditions for wintering birds; flood defence operations and river channel management; minimising disturbance; removal of sediment in ditches to prevent the accumulation of silt and control invasive non-native species.	RSPB Management Plan, Nene Washes, 2015-19
Supporting habitat (both within and outside the SPA): function/ supporting process	**Food availability within supporting habitat**	Maintain the cover/abundance of preferred food plants (particularly grasses and aquatic macrophytes).	The availability of an abundant food supply is critically important for 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. Maintaining areas of grassland within the SPA is important for wigeon grazing, but they are also known to feed on arable land off site.	
Supporting habitat (both within and outside the SPA): function/ supporting	**Water quality/ quantity**	Ensure water quality and quantity is restored to a standard which provides the necessary conditions to sustain the supporting habitats of non-breeding	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,	EA Nene Washes Management Statement for maintenance operations 2013-23. Environment Agency 2007

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
process		wigeon. Soluble reactive phosphorus < 0.1 mg/L-1 annual mean	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. Water quality data collected in 2015 shows that water quality in Moreton's Leam is marginally within acceptable limits for total phosphorus but is high for total nitrogen. Field drains are similar, but water quality is slightly worse; this could either be due to the influence of cattle grazing or to the release of nutrients from the sediment. Good water quality is important for a diverse macrophyte assemblage. There is anecdotal evidence that floodwater is taking longer to drain from the washes, so that during periods of flood the water can be higher than is ideal for longer. This is being investigated through a review of the Water Level Management Plan, along with concerns over the likely increase in flood events which might lead to sub-optimal conditions for wintering birds.	The Environment Agency routinely collects water quality data from Moreton's Leam, which can be found here. This attribute will be periodically monitored as part of Natural England's site condition assessments
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 wigeon 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 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	RSPB Management Plan, Nene Washes, 2015-19, Section 1.4 Visitors and people engagement.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			including noise, light, sound, vibration, trampling, presence of people, animals and structures. Although visitor numbers aren't accurately measured, human disturbance should be low due to the remoteness of the site and lack of infrastructure. It is popular with bird watchers particularly from nearby counties. Wildfowling causes disturbance to wintering birds until the end of January, particularly in the Low Wash and the High Wash. Land management activities likely to cause disturbance are generally limited to the period between August and October.	
Supporting habitat (both within and outside the SPA): structure	**Landscape**	Maintain open and unobstructed terrain within and around feeding and roosting areas used by wigeon during the non-breeding period.	This feature is known to favour large areas of open terrain, largely free of obstructions, in and around its roosting and feeding areas. Often there is a need to maintain an unobstructed line of sight within feeding and 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. Open landscapes are maintained by RSPB removing/pollarding large willow trees that may serve as perching places for predators within their land holdings. EA also have a tree and bush removal strategy within their maintenance plan to maintain bank stability where grass cover has become reduced, or they serve as cover for predators. Across most of the site ditches, rather than fences or hedges, mark field boundaries and provide stock control.	RSPB Management Plan, Nene Washes, 2015-19 EA Management Statement for maintenance operations 2013-23.
Supporting habitat (both within and outside the SPA): structure	**Vegetation characteristics**	Maintain the extent and distribution of predominantly short (<5 cm) swards in areas used by wigeon for feeding.	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.	
Version Control Advice last updated: N/A				

Attributes	Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Variations from national feature-framework of integrity-guidance: N/A			

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

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Breeding population	**Population abundance**	Maintain the size of the breeding Gadwall population at a level which is above 25 pairs, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	See explanatory notes for this attribute in Table 1.	SPA citation 1992. The RSPB carry out breeding bird surveys on the SPA land that they manage and elsewhere.
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 will apply to any supporting habitat which is known to occur outside the site boundary. The most important habitats for breeding gadwall within the Nene Washes are water-filled scrapes (for feeding), field drains and swamp.	
Supporting habitat (both within and outside the SPA): function/ supporting process	**Air quality**	Maintain concentrations and deposition of air pollutants at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).	See explanatory notes for this attribute in Table 1. No critical loads have been set for freshwater habitats used by breeding gadwall. This does not mean no effect of nitrogen or acid deposition. Nitrogen deposition will affect total nitrogen levels in the ditch water, which are known to be high enough to affect the species composition, but there are likely to be other sources with greater contributions. No other habitats have been assessed by APIS for this feature.	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).
Supporting habitat (both within and outside the SPA): function/ supporting	**Conservation measures**	Maintain management or other measures (whether within and/or outside the site boundary as appropriate) necessary to restore the structure, function and/or the	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	RSPB Management Plan, Nene Washes, 2015-19

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
process		supporting processes associated with the breeding Gadwall feature and its supporting habitats.	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. Livestock grazing and hay cutting in summer to reduce grassland sward height and rank vegetation; partial winter flooding to maintain suitable conditions for wintering birds; water reduction in areas in spring/summer months for breeding birds whilst maintaining some areas of shallow flooding for feeding; flood defence operations and river channel management; minimising disturbance; control of some predators and corvids; removal and control of injurious weeds; removal of sediment in ditches to prevent the accumulation of silt and control of invasive non-native species; control of access and recreational activities.	
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 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.	
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 breeding Gadwall (aquatic macrophyte and emergent plants, a variety of seeds).	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.	
Supporting habitat (both within and outside the SPA): function/ supporting process	**Hydrology**	Maintain the hydrology of a waterbody used as a feeding site 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	Environment Agency 2007 RSPB Management Plan, Nene Washes, 2015-19

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			this attribute. There has been a Water Level Management Plan (WLMP) in place since 2000 with a review in 2007. Internal water control structures mean that greater control over water levels in temporary pools can be achieved, but they need regular attention during the nesting season.	
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.	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.	RSPB Management Plan, Nene Washes, 2015-19 Environment Agency 2007
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. Soluble reactive phosphorus < 0.1 mg/L-1 annual mean	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. Recent water quality data shows that water quality in Moreton's Leam is marginally within the acceptable limits for total phosphorus but is high for total nitrogen. Field drains are similar, but water quality is slightly worse; this could either be due to the influences of cattle grazing or to the release of nutrients bound to the sediment. Good water quality is important for a diverse macrophyte community.	EA Nene Washes Management Statement for maintenance operations 2013-23. Environment Agency 2007 The Environment Agency routinely collects water quality data from Moreton's Leam, which can be found here. This attribute will be periodically monitored as part of Natural England's site condition assessments

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			Breeding success can depend on summertime water levels in ditches. High summer retention levels in the ditches need to be achieved by March. A review of the Water Level Management Plan is underway, addressing concerns over summer water shortages and how to prevent the impacts of predicted increased winter flooding from affecting the breeding season.	
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, 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, vibration, trampling, presence of people, animals and structures. Although visitor numbers aren't accurately measured, human disturbance should be low due to the remoteness of the site and lack of infrastructure. It is popular with bird watchers particularly from nearby counties. Anglers are able to use Moreton's Leam, but aren't thought to cause a disturbance problem. Public access is along a footpath on the South Barrier Bank; it is little used and far enough away from the centre of the washes to be unlikely to cause significant disturbance. Land management activities likely to cause disturbance are generally limited to the period between August and October.	RSPB Management Plan, Nene Washes, 2015-19, Section 1.4 Visitors and people engagement.
Supporting habitat (both within and outside the SPA):	**Predation**	Reduce predation of and disturbance to 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,	RSPB Management Plan, Nene Washes, 2015-19

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
predation			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. Trees and scrub are removed or regularly coppiced to reduce avian predator perches. Anti-predator fencing surrounds much of the Low Wash to reduce terrestrial predation. Crow, fox and mink control are carried out within the SPA.	
Supporting habitat (both within and outside the SPA): structure	**Vegetation characteristics**	Maintain the overall heights of vegetation patches (20-60 cm) within nesting areas that are typically <50 m from the water's edge.	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.	RSPB Management Plan, Nene Washes, 2015-19
Version Control Advice last updated: N/A				
Variations from national feature-framework of integrity-guidance: N/A				

Table 4: Supplementary Advice for Qualifying Features: A051. *Anas strepera*; Gadwall (Non-breeding)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Non-breeding population	**Population abundance**	Maintain the size of the non-breeding Gadwall population at a level which is above 95 individuals whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	See explanatory notes for this attribute in Table 1 The gadwall population nationally has more than doubled since notification, and the population on the Nene Washes has increased by a similar proportion.	SPA citation 1992. The most recent data about this feature on this SPA can be derived from WeBs data upon request: http://www.bto.org/volunteer-surveys/webs/data/submit-data-request
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/wintering 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. Gadwall requires shallow water for feeding.	RSPB Management Plan, Nene Washes, 2015-19 ENGLISH NATURE, 2000. Aerial photographs of Nene Washes
Supporting habitat (both within and outside the SPA): function/ supporting process	**Air quality**	Maintain concentrations and deposition of air pollutants at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).	See explanatory notes for this attribute in Table 1. No critical loads have been set for freshwater habitats used by wintering gadwall. This does not mean no effect of nitrogen or acid deposition. Nitrogen deposition will affect total nitrogen levels in the ditch water, which are known to be high enough to affect the species composition, but there are likely to be other sources with greater contributions.	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).
Supporting habitat (both within and outside the SPA): function/	**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	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	RSPB Management Plan, Nene Washes, 2015-19

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
supporting process		associated with the feature and its supporting habitats.	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. Livestock grazing and hay cutting in summer to reduce grassland sward height and rank vegetation; partial winter flooding to maintain suitable conditions for wintering birds; water reduction in areas in spring/summer months for breeding birds whilst maintaining some areas of shallow flooding for feeding; flood defence operations and river channel management; minimising disturbance; control of some predators and corvids; removal and control of injurious weeds; removal of sediment in ditches to prevent the accumulation of silt and control of invasive non-native species; control of access and recreational activities.	
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.	RSPB Management Plan, Nene Washes, 2015-19 Environment Agency 2007
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. Soluble reactive phosphorus < 0.1 mg/L-1 annual mean	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.	EA Nene Washes Management Statement for maintenance operations 2013-23. Environment Agency 2007 The Environment Agency routinely collects water quality data from Moreton's Leam, which can be found here. This attribute will be periodically monitored as part of Natural England's site condition

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			Water quality data collected in 2015 shows that water quality in Moreton's Leam is marginally within acceptable limits for total phosphorus but is high for total nitrogen. Field drains are similar, but water quality is slightly worse; this could either be due to the influence of cattle grazing or to the release of nutrients from the sediment. Good water quality is important for a diverse macrophyte assemblage. There is anecdotal evidence that floodwater is taking longer to drain from the washes, so that during periods of flood the water can be higher than is ideal for longer. This is being investigated through a review of the Water Level Management Plan, along with concerns over the likely increase in flood events which might lead to sub-optimal conditions for wintering birds.	assessments
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 non-breeding Gadwall 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 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, vibration, trampling, presence of people, animals and structures. Although visitor numbers aren't accurately measured, human disturbance should be low due to the remoteness of the site and lack of infrastructure. It is popular with bird watchers particularly from nearby counties. Wildfowling causes disturbance to wintering birds until the end of January, particularly in the Low Wash and the High Wash. Land management activities likely to cause disturbance are generally limited to the period between August and October.	RSPB Management Plan, Nene Washes, 2015-19, Section 1.4 Visitors and people engagement.

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 a high cover/abundance of preferred food plants (aquatic macrophyte and emergent plants, a variety of seeds*).*	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 5: Supplementary Advice for Qualifying Features: A052. *Anas crecca*; Eurasian teal (Non-breeding)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Non-breeding population	**Population abundance**	Maintain the size of the non-breeding Teal population at a level which is above 980 individuals, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	See explanatory notes for this attribute in Table 1	SPA citation 1992. The most recent data about this feature on this SPA can be derived from WeBs data upon request: http://www.bto.org/volunteer-surveys/webs/data/submit-data-request
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/wintering 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. Teal requires shallow water for feeding.	RSPB Management Plan, Nene Washes, 2015-19 ENGLISH NATURE, 2000. Aerial photographs of Nene Washes
Supporting habitat (both within and outside the SPA): function/ supporting process	**Air quality**	Maintain concentrations and deposition of air pollutants at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).	See explanatory notes for this attribute in Table 1. No critical loads have been set for freshwater habitats used by wintering teal. This does not mean no effect of nitrogen or acid deposition. Nitrogen deposition will affect total nitrogen levels in the ditch water, which are known to be high enough to affect the species composition, but there are likely to be other sources with greater contributions.	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).
Supporting habitat (both within and outside the SPA): function/ supporting	**Connectivity with supporting habitats**	Maintain the safe passage of non-breeding teal moving between roosting and feeding areas	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 will apply within the site boundary and where birds regularly move to and from off-site habitat where this is relevant.	.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
process				
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. Livestock grazing and hay cutting in summer to reduce grassland sward height and rank vegetation; partial winter flooding to maintain suitable conditions for wintering birds; water reduction in areas in spring/summer months for breeding birds whilst maintaining some areas of shallow flooding for feeding; flood defence operations and river channel management; minimising disturbance; control of some predators and corvids; removal and control of injurious weeds; removal of sediment in ditches to prevent the accumulation of silt and control of invasive non-native species; control of access and recreational activities.	RSPB Management Plan, Nene Washes, 2015-19
Supporting habitat (both within and outside the SPA): function/ supporting process	**Food availability within supporting habitat**	Maintain the availability of cereal grains, where these sources are locally important to feeding flocks.	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.	
Supporting habitat (both within and outside the SPA): function/ supporting process	**Food availability within supporting habitat**	Maintain the cover/abundance of preferred food plants (e.g. *Polygonum, Eleocharis, Rumex, Ranunculus*) and the availability of key prey species (e.g. *Hydrobia*, flies, caddisfly, beetles, bugs, hatching midges) 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.	

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 of optimal depth, typically <0.1 m 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.	RSPB Management Plan, Nene Washes, 2015-19 Environment Agency 2007
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. Soluble reactive phosphorus < 0.1 mg/L-1 annual mean	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. Water quality data collected in 2015 shows that water quality in Moreton's Leam is marginally within acceptable limits for total phosphorus but is high for total nitrogen. Field drains are similar, but water quality is slightly worse; this could either be due to the influence of cattle grazing or to the release of nutrients from the sediment. Good water quality is important for a diverse macrophyte assemblage. There is anecdotal evidence that floodwater is taking longer to drain from the washes, so that during periods of flood the water can be higher than is ideal for longer. This is being investigated through a review of the Water Level Management Plan, along with concerns over the likely increase in flood events which might lead to sub-optimal conditions for wintering birds.	EA Nene Washes Management Statement for maintenance operations 2013-23. Nene Washes Water Level Management Plan (WLMP) 2007 NATURAL ENGLAND, 2014. Site Improvement Plan: Ouse Washes (SIP160) RSPB Management Plan, Nene Washes, 2015-19

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
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 non-breeding teal 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, vibration, trampling, presence of people, animals and structures. Although visitor numbers aren't accurately measured, human disturbance should be low due to the remoteness of the site and lack of infrastructure. It is popular with bird watchers particularly from nearby counties. Parts of the site are also used for wildfowling, angling and skating. Wildfowling causes disturbance to wintering birds until the end of January, particularly in the Low Wash and the High Wash. Land management activities likely to cause disturbance are generally limited to the period between August and October.	RSPB Management Plan, Nene Washes, 2015-19, Section 1.4 Visitors and people engagement.
Version Control Advice last updated: N/A				
Variations from national feature-framework of integrity-guidance: N/A				

Table 6: Supplementary Advice for Qualifying Features: A054. *Anas acuta*; Northern pintail (Non-breeding)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Non-breeding population	**Population abundance**	Maintain the size of the non-breeding Pintail population at a level which is above 440 individuals, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	See explanatory notes for this attribute in Table 1	SPA citation 1992. The most recent data about this feature on this SPA can be derived from WeBs data upon request: http://www.bto.org/volunteer-surveys/webs/data/submit-data-request
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/wintering 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. Feeding areas: Birds fly out to the surrounding agricultural land to feed, however currently little is known about their preferred locations, distances travelled and faithfulness to specific sites Pintail requires shallow water for feeding.	RSPB Management Plan, Nene Washes, 2015-19
Supporting habitat (both within and outside the SPA): function/ supporting process	**Air quality**	Maintain concentrations and deposition of air pollutants at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).	See explanatory notes for this attribute in Table 1. No critical loads have been set for freshwater habitats used by wintering pintail. This does not mean no effect of nitrogen or acid deposition. Nitrogen deposition will affect total nitrogen levels in the ditch water, which are known to be high enough to affect the species composition, but there are likely to be other sources with greater contributions.	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).
Supporting habitat	**Connectivity with**	Maintain the safe passage of pintail moving between roosting	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	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
(both within and outside the SPA): function/ supporting process	**supporting habitats**	and feeding areas during the non-breeding period	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 (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. Livestock grazing and hay cutting in summer to reduce grassland sward height and rank vegetation; partial winter flooding to maintain suitable conditions for wintering birds; water reduction in areas in spring/summer months for breeding birds whilst maintaining some areas of shallow flooding for feeding; flood defence operations and river channel management; minimising disturbance; control of some predators and corvids; removal and control of injurious weeds; removal of sediment in ditches to prevent the accumulation of silt and invasive non-native species; control of access and recreational activities.	RSPB Management Plan, Nene Washes, 2015-19
Supporting habitat (both within and outside the SPA): function/ supporting process	**Food availability within supporting habitat**	Maintain the availability of cereal grains and potatoes, where these sources are locally important to feeding flocks.	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.	
Supporting habitat (both within and outside the SPA): function/	**Food availability within supporting habitat**	Maintain availability of key prey species (hatching midges, insects, molluscs and crustaceans, *Hydrobia*) of preferred prey sizes and cover/abundance of preferred	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.	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
supporting process		food plants (e.g. *Potamogeton, Elodea, Rumex, Glyceria, Chara*). .		
Supporting habitat (both within and outside the SPA): function/ supporting process	**Water depth**	Maintain the availability of standing water at optimal depths, typically 0.1-0.3 m 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.	RSPB Management Plan, Nene Washes, 2015-19 Environment Agency 2007
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. Soluble reactive phosphorus < 0.1 mg/L-1 annual mean	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. Water quality data collected in 2015 shows that water quality in Moreton's Leam is marginally within acceptable limits for total phosphorus but is high for total nitrogen. Field drains are similar, but water quality is slightly worse; this could either be due to the influence of cattle grazing or to the release of nutrients from the sediment. Good water quality is important for a diverse macrophyte assemblage. There is anecdotal evidence that floodwater is taking longer to drain from the washes, so that during periods of flood the water can be higher than is ideal for longer. This is being investigated through a review of the Water Level Management Plan, along with concerns over the likely increase in flood events which might lead to sub-optimal conditions for wintering birds.	EA Nene Washes Management Statement for maintenance operations 2013-23. Environment Agency 2007 The Environment Agency routinely collects water quality data from Moreton's Leam, which can be found here. This attribute will be periodically monitored as part of Natural England's site condition assessments

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Supporting habitat (both within and outside the SPA): minimising disturbance	**Disturbance from human activity**	Restrict the frequency, duration and/or intensity of disturbance affecting roosting, foraging, feeding, moulting and/or loafing birds so that the non-breeding Pintail 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, vibration, trampling, presence of people, animals and structures. Although visitor numbers aren't accurately measured, human disturbance should be low due to the remoteness of the site and lack of infrastructure. It is popular with bird watchers particularly from nearby counties. Parts of the site are also used for wildfowling, angling and skating. Wildfowling causes disturbance to wintering birds until the end of January, particularly in the Low Wash and the High Wash. Land management activities likely to cause disturbance are generally limited to the period between August and October.	RSPB Management Plan, Nene Washes, 2015-19, Section 1.4 Visitors and people engagement.
Version Control Advice last updated: N/A				
Variations from national feature-framework of integrity-guidance: N/A				

Table 7: Supplementary Advice for Qualifying Features: A055. *Anas querquedula*; Garganey (Breeding)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Breeding population	**Population abundance**	Maintain the size of the breeding Garganey population at a level which is above 5 pairs whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	See explanatory notes for this attribute in Table 1.	SPA citation 1992. The RSPB carry out breeding bird surveys on the SPA land that they manage and elsewhere.
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 will apply to any supporting habitat which is known to occur outside the site boundary. Garganey requires shallow pools for feeding, and tall grass in close vicinity of feeding areas for nesting.	
Supporting habitat (both within and outside the SPA): function/ supporting process	**Air quality**	Maintain concentrations and deposition of air pollutants at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).	See explanatory notes for this attribute in Table 1 Critical loads for both nitrogen deposition and acid deposition are exceeded on the grassland habitats used by breeding garganey at the Nene Washes. Although levels of nitrogen and acid deposition are high enough to change the habitat (an increase in sward height and decrease in diversity), the species isn't thought to be sensitive to the changes and therefore no effect is assumed at current levels.	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).
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.	RSPB Management Plan, Nene Washes, 2015-19

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			Livestock grazing and hay cutting in summer to reduce grassland sward height and rank vegetation; partial winter flooding to maintain suitable conditions for wintering birds; water reduction in areas in spring/summer months for breeding birds whilst maintaining some areas of shallow flooding for feeding; flood defence operations and river channel management; minimising disturbance; control of some predators and corvids; removal and control of injurious weeds; removal of sediment in ditches to prevent the accumulation of silt and control of invasive non-native species; control of access and recreational activities.	
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. snails, *chironomids*, water beetles, caddisfly larvae, bugs) 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.	
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. *Potamogeton, Sparganium, Scirpus, Carex, Glyceria, Rumex, Ranunculus spp., Ceratophyllum, Najas*).	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.	
Supporting habitat (both within and outside the SPA): function/ supporting process	**Hydrology/ flow**	Maintain water availability in feeding sites to provide areas of shallow water.	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. There has been a Water Level Management Plan (WLMP) in place since 2000 with a review in 2007. Internal water control structures mean that greater control over water levels in temporary pools can be achieved, but they need regular attention during the nesting season.	Environment Agency 2007 RSPB Management Plan, Nene Washes, 2015-19

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Supporting habitat (both within and outside the SPA): function/ supporting process	**Hydrology/ flow**	Maintain the hydrology of a waterbody used as a feeding site such that water levels reduce (or are reduced) 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. There has been a Water Level Management Plan (WLMP) in place since 2000 with a review in 2007. Internal water control structures mean that greater control over water levels in temporary pools can be achieved, but they need regular attention during the nesting season.	Environment Agency 2007 RSPB Management Plan, Nene Washes, 2015-19
Supporting habitat (both within and outside the SPA): function/ supporting process	**Water depth**	Maintain the availability of standing water of <0.2 m 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.	
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 breeding Garganey. Soluble reactive phosphorus < 0.1 mg/L-1 annual mean	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. Water quality data collected in 2015 shows that water quality in Moreton's Leam is marginally within acceptable limits for total phosphorus but is high for total nitrogen. Field drains are similar, but water quality is slightly worse; this could either be due to the influence of cattle grazing or to the release of nutrients from the sediment. Good	EA Nene Washes Management Statement for maintenance operations 2013-23. Environment Agency 2007 The Environment Agency routinely collects water quality data from Moreton's Leam, which can be found here. This attribute will be periodically monitored as part of Natural England's site condition

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			water quality is important for a diverse macrophyte assemblage. Breeding success can depend on summertime water levels in ditches. High summer retention levels in the ditches need to be achieved by March. A review of the Water Level Management Plan is underway, addressing concerns over summer water shortages and how to prevent the impacts of predicted increased winter flooding from affecting the breeding season.	assessments
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 nesting, roosting, foraging, feeding, moulting and/or loafing birds so that the breeding Garganey population 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 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, vibration, trampling, presence of people, animals and structures. Although visitor numbers aren't accurately measured, human disturbance should be low due to the remoteness of the site and lack of infrastructure. It is popular with bird watchers particularly from nearby counties. Anglers are able to use Moreton's Leam, but aren't thought to cause a disturbance problem. Public access is along a footpath on the South Barrier Bank; it is little used and far enough away from the centre of the washes to be unlikely to cause significant disturbance. Land management activities likely to cause disturbance are generally limited to the period between August and October.	RSPB Management Plan, Nene Washes, 2015-19, Section 1.4 Visitors and people engagement.
Supporting habitat (both within and outside the SPA): predation	**Predation**	Reduce predation of and disturbance to breeding Garganey 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	RSPB Management Plan, Nene Washes, 2015-19

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			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. Trees and scrub are removed or regularly coppiced to reduce avian predator perches. Anti-predator fencing surrounds much of the Low Wash to reduce terrestrial predation. Crow, fox and mink control are carried out within the SPA.	
Supporting habitat (both within and outside the SPA): structure	**Vegetation characteristics**	Maintain the overall heights of vegetation patches (20-60 cm) within nesting areas that are typically <50 m from the water's edge.	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.	RSPB Management Plan, Nene Washes, 2015-19
Version Control Advice last updated: N/A				
Variations from national feature-framework of integrity-guidance: N/A				

Table 8: 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)
Non-breeding population	**Population abundance**	Maintain the size of the non-breeding Shoveler population at a level which is above 110 individuals, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	See explanatory notes for this attribute in Table 1	SPA citation 1992. The most recent data about this feature on this SPA can be derived from WeBs data upon request: http://www.bto.org/volunteer-surveys/webs/data/submit-data-request
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/wintering 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. Shovelers are filter-feeders, most likely to be found on shallow water	
Supporting habitat (both within and outside the SPA): function/ supporting process	**Air quality**	Maintain concentrations and deposition of air pollutants at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).	See explanatory notes for this attribute in Table 1 No critical loads have been set for freshwater habitats used by wintering shoveler. This does not mean no effect of nitrogen or acid deposition. Nitrogen deposition will affect total nitrogen levels in the ditch water, which are known to be high enough to affect the species composition, but there are likely to be other sources with greater contributions.	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).
Supporting habitat (both within and outside the SPA): function/	**Connectivity with supporting habitats**	Maintain the safe passage of shoveler moving between roosting and feeding areas during the non-breeding period	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 will apply within the site boundary and where birds regularly move to and from off-site habitat where this is relevant.	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
supporting process			Shoveler require surface water on which to feed and roost	
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. Livestock grazing and hay cutting in summer to reduce grassland sward height and rank vegetation; partial winter flooding to maintain suitable conditions for wintering birds; water reduction in areas in spring/summer months for breeding birds whilst maintaining some areas of shallow flooding for feeding; flood defence operations and river channel management; minimising disturbance; control of some predators and corvids; removal and control of injurious weeds; removal of sediment in ditches to prevent the accumulation of silt and control invasive non-native species; control of access and recreational activities.	RSPB Management Plan, Nene Washes, 2015-19
Supporting habitat (both within and outside the SPA): function/ supporting process	**Food availability within supporting habitat**	Maintain the high cover/abundance of preferred food plants (seeds of aquatic and marginal vegetation).	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.	
Supporting habitat (both within and outside the SPA):	**Food availability within supporting habitat**	Maintain the distribution, abundance and availability of key prey items (small insects, crustaceans, molluscs 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	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
function/ supporting process			may adversely affect the population.	
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.	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.	
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. Soluble reactive phosphorus < 0.1 mg/L-1 annual mean	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. Water quality data collected in 2015 shows that water quality in Moreton's Leam is marginally within acceptable limits for total phosphorus but is high for total nitrogen. Field drains are similar, but water quality is slightly worse; this could either be due to the influence of cattle grazing or to the release of nutrients from the sediment. Good water quality is important for a diverse macrophyte assemblage. There is anecdotal evidence that floodwater is taking longer to drain from the washes, so that during periods of flood the water can be higher than is ideal for longer. This is being investigated	EA Nene Washes Management Statement for maintenance operations 2013-23. Environment Agency 2007 The Environment Agency routinely collects water quality data from Moreton's Leam, which can be found here. This attribute will be periodically monitored as part of Natural England's site condition assessments

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			through a review of the Water Level Management Plan, along with concerns over the likely increase in flood events which might lead to sub-optimal conditions for wintering birds.	
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 non-breeding Shoveler 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, vibration, trampling, presence of people, animals and structures. Although visitor numbers aren't accurately measured, human disturbance should be low due to the remoteness of the site and lack of infrastructure. It is popular with bird watchers particularly from nearby counties. Parts of the site are also used for wildfowling, angling and skating. Wildfowling causes disturbance to wintering birds until the end of January, particularly in the Low Wash and the High Wash. Land management activities likely to cause disturbance are generally limited to the period between August and October.	RSPB Management Plan, Nene Washes, 2015-19, Section 1.4 Visitors and people engagement.
Version Control Advice last updated: N/A				
Variations from national feature-framework of integrity-guidance: N/A				

Table 9: Supplementary Advice for Qualifying Features: A056. *Anas clypeata*; Northern shoveler (Breeding)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Breeding population	**Population abundance**	Maintain the size of the breeding Shoveler population at a level which is above 36 pairs, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	See explanatory notes for this attribute in Table 1.	SPA citation 1992. The RSPB carry out breeding bird surveys on the SPA land that they manage and elsewhere.
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 will apply to any supporting habitat which is known to occur outside the site boundary. Shoveler requires water with shallow margins and plenty of macrophytes for feeding. Nests are usually hidden in tall grass, but reed bed can also be used, and sometimes even more open conditions in shorter grassland.	RSPB Management Plan, Nene Washes, 2015-19
Supporting habitat (both within and outside the SPA): function/ supporting process	**Air quality**	Maintain concentrations and deposition of air pollutants at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).	See explanatory notes for this attribute in Table 1 Critical loads for both nitrogen deposition and acid deposition are exceeded on the grassland habitats used by breeding shoveler at the Nene Washes. Although levels of nitrogen and acid deposition are high enough to change the habitat (an increase in sward height and decrease in diversity), the species isn't thought to be sensitive to the changes and therefore no effect is assumed at current levels.	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).
Supporting habitat (both within and outside the SPA): function/	**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	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 can be	RSPB Management Plan, Nene Washes, 2015-19.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
supporting process		associated with the feature and its supporting habitats.	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. Livestock grazing and hay cutting in summer to reduce grassland sward height and rank vegetation; partial winter flooding to maintain suitable conditions for wintering birds; water reduction in areas in spring/summer months for breeding birds whilst maintaining some areas of shallow flooding for feeding; flood defence operations and river channel management; minimising disturbance; control of some predators and corvids; removal and control of injurious weeds; removal of sediment in ditches to prevent the accumulation of silt and control of invasive non-native species; control of access and recreational activities.	
Supporting habitat (both within and outside the SPA): function/ supporting process	**Food availability within supporting habitat**	Maintain high cover/abundance of preferred food plants (seeds of aquatic and marginal vegetation).	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.	
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 insects, crustaceans, molluscs) 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.	
Supporting habitat (both within and outside the SPA): function/	**Hydrology/ flow**	Maintain water availability in feeding sites to provide shallow surface water and damp field conditions.	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	RSPB Management Plan, Nene Washes, 2015-19 Environment Agency 2007

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
supporting process			may be required to fully inform conservation measures for this feature and/or the likelihood of impacts on this attribute. Internal water control structures mean that greater control over water levels in temporary pools can be achieved, but they need regular attention during the nesting season	
Supporting habitat (both within and outside the SPA): function/ supporting process	**Hydrology/ flow**	Maintain the hydrology of a waterbody used as a feeding site such that water levels reduce (or are reduced) 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. Internal water control structures mean that greater control over water levels in temporary pools can be achieved, but they need regular attention during the nesting season	RSPB Management Plan, Nene Washes, 2015-19 Environment Agency 2007
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.	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.	
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 breeding Shoveler. Soluble reactive phosphorus < 0.1 mg/L-1 annual mean	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. Water quality data collected in 2015 shows that water quality in	EA Nene Washes Management Statement for maintenance operations 2013-23. Nene Washes Water Level Management Plan (WLMP) 2007 The Environment Agency routinely collects water quality data from Moreton's Leam, which can be found here. This attribute will be periodically monitored as part of Natural

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			Moreton's Leam is marginally within acceptable limits for total phosphorus but is high for total nitrogen. Field drains are similar, but water quality is slightly worse; this could either be due to the influence of cattle grazing or to the release of nutrients from the sediment. Good water quality is important for a diverse macrophyte assemblage. A review of the Water Level Management Plan is underway, addressing concerns over summer water shortages and how to prevent the impacts of predicted increased winter flooding from affecting the breeding season.	England's site condition assessments
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 nesting, roosting, foraging, feeding, moulting and/or loafing birds so that the breeding Shoveler population 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 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, vibration, trampling, presence of people, animals and structures. Although visitor numbers aren't accurately measured, human disturbance should be low due to the remoteness of the site and lack of infrastructure. It is popular with bird watchers particularly from nearby counties. Anglers are able to use Moreton's Leam, but aren't thought to cause a disturbance problem. Public access is along a footpath on the South Barrier Bank; it is little used and far enough away from the centre of the washes to be unlikely to cause significant disturbance. Land management activities likely to cause disturbance are generally limited to the period between August and October.	RSPB Management Plan, Nene Washes, 2015-19, Section 1.4 Visitors and people engagement.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Supporting habitat (both within and outside the SPA): predation	**Predation**	Reduce the predation of and disturbance to breeding Shoveler 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. Trees and scrub are removed or regularly coppiced to reduce avian predator perches. Anti-predator fencing surrounds much of the Low Wash to reduce terrestrial predation. Crow, fox and mink control are carried out within the SPA.	RSPB Management Plan, Nene Washes, 2015-19
Supporting habitat (both within and outside the SPA): structure	**Vegetation characteristics**	Maintain the overall heights of vegetation patches (20-60 cm) within nesting areas.	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.	RSPB Management Plan, Nene Washes, 2015-19
Version Control Advice last updated: N/A				
Variations from national feature-framework of integrity-guidance: N/A				

Table 10: Supplementary Advice for Qualifying Features: A156a. *Limosa limosa limosa*; Black-tailed godwit (Breeding)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Breeding population	**Population abundance**	Maintain the size of the breeding Black-tailed godwit population at a level which is above 16 pairs, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	See explanatory notes for this attribute in Table 1. While the feature is currently in favourable condition, the population has been in decline for some time because breeding productivity is much lower than required to maintain the population. Notification occurred at a time when black-tailed godwit were new to the Nene Washes and numbers subsequently rose; the subsequent decline is thought to be particularly due to predation. 'Project godwit' is using head starting to boost population numbers and fencing to reduce predation.	SPA citation 1992. The most recent data about this feature on this SPA can be derived from WeBs data upon request: http://www.bto.org/volunteer-surveys/webs/data/submit-data-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 will apply to any supporting habitat which is known to occur outside the site boundary. Although they have bred in other areas of the site (historically in the Ring's End section), the black-tailed godwit population has nested only in a small number of fields in the Low Wash for many years. The intention is to restore March Farmers to habitat suitable for black-tailed godwit nesting. Breeding black-tailed godwit requires wet grassland with a short but variable sward with a mean height on April 1st of < 5 cm and shallow foods at the beginning of the nesting season Shallow spring floods on 15-20% of site on 1st Apr. Ground water table within 20 cm of surface over 50% area from April to June	RSPB Management Plan, Nene Washes, 2015-19
Supporting habitat (both within and outside	**Air quality**	Restore concentrations and deposition of air pollutants at or below the site-relevant Critical Load or Level values given for	See explanatory notes for this attribute in Table 1. Critical loads for both nitrogen deposition and acid deposition are exceeded on the grassland habitats used by breeding	More information about site-relevant Critical Loads and Levels for this SPA is available by using the 'search by site' tool on the Air

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
the SPA): function/ supporting process		this feature of the site on the Air Pollution Information System (www.apis.ac.uk).	black-tailed godwit at the Nene Washes. Levels of nitrogen and acid deposition are high enough to change the habitat, causing an increase in sward height and a decrease in diversity. APIS assesses the species as sensitive to these changes, and therefore a restore target has been set. While the feature is currently in favourable condition, the population has been in decline for some time because breeding productivity is much lower than required to maintain the population.	Pollution Information System (www.apis.ac.uk).
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 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. Livestock grazing and hay cutting in summer to reduce grassland sward height and rank vegetation; partial winter flooding to maintain suitable conditions for wintering birds; water reduction in areas in spring/summer months for breeding birds whilst maintaining some areas of shallow flooding for feeding; flood defence operations and river channel management; minimising disturbance; control of some predators and corvids; removal and control of injurious weeds; removal of sediment in ditches to prevent the accumulation of silt and control of invasive non-native species; control of access and recreational activities.	Natural England Site Improvement Plan, 2014 (SIP146) RSPB Management Plan, Nene Washes, 2015-19.
Supporting habitat (both within and outside the SPA): function/	**Food availability within supporting habitat**	Maintain an abundance of available prey (soil invertebrates, particularly earthworms, in the pre-breeding period, and increasingly above-ground invertebrates for the	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.	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
supporting process		chicks and as the summer progresses) at prey sizes preferred by Black-tailed godwit.		
Supporting habitat (both within and outside the SPA): function/ supporting process	**Grazing animals**	Maintain the density of livestock at suitable levels within breeding areas; typically no more than 0.75 livestock units per hectare between 01 April and 31 May.	Grazing by livestock is often necessary for the management of the site in order to maintain the structure of supporting habitats in a favourable condition. However, if livestock numbers are too high during the breeding season, nests may be inadvertently trampled by grazing animals and successful nesting/rearing is undermined. This feature is known to be particularly sensitive to livestock density. Sward height is managed through grazing the previous summer and through winter grazing of wildfowl. Cattle grazing usually doesn't occur at all until the middle of May.	RSPB Management Plan, Nene Washes, 2015-19
Supporting habitat (both within and outside the SPA): function/ supporting process	**Hydrology/ flow**	Maintain high groundwater tables to provide surface water and/or damp field conditions with typically 20-30% of the area soggy or flooded overall. Groundwater table to be within 20 cm of the surface over at least 50% of the area.	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. This requires carefully balancing the removal of floodwater from the site with retaining sufficient water through management of water control structures (and occasionally pumping water onto the site in dry winters)	RSPB Management Plan, Nene Washes, 2015-19
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	EA Nene Washes Management Statement for maintenance operations 2013-23. Nene Washes Water Level Management Plan (WLMP) 2007 The Environment Agency routinely collects water quality data from Moreton's Leam, which can be found here.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			stringent standards may be needed to support the SPA feature. Further site-specific investigations may be required to establish appropriate standards for the SPA. Water quality data collected in 2015 shows that water quality in Moreton's Leam is marginally within acceptable limits for total phosphorus but is high for total nitrogen. Field drains are similar, but water quality is slightly worse; this could either be due to the influence of cattle grazing or to the release of nutrients from the sediment. Good water quality is important for a diverse macrophyte assemblage. Breeding success can depend on summertime water levels in ditches. High summer retention levels in the ditches need to be achieved by March. A review of the Water Level Management Plan is underway, addressing concerns over summer water shortages and how to prevent the impacts of predicted increased winter flooding from affecting the breeding season.	This attribute will be periodically monitored as part of Natural England's site condition assessments
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 of nesting, roosting, foraging, feeding, moulting and/or loafing birds so that the breeding Black-tailed godwit 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, vibration, trampling, presence of people, animals and structures. Although visitor numbers aren't accurately measured, human disturbance should be low due to the remoteness of the site and lack of infrastructure. It is popular with bird watchers particularly from nearby counties. Anglers are able to use Moreton's Leam, but aren't thought to cause a disturbance	RSPB Management Plan, Nene Washes, 2015-19, Section 1.4 Visitors and people engagement.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			problem. Public access is along a footpath on the South Barrier Bank; it is little used and far enough away from the centre of the washes to be unlikely to cause significant disturbance. Land management activities likely to cause disturbance are generally limited to the period between August and October.	
Supporting habitat (both within and outside the SPA): predation	**Predation**	Reduce the predation of and disturbance to breeding Black-tailed godwit 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. As part of the 'Project Godwit', electric fencing was installed into areas of the Nene Washes favoured by the godwits in 2017, to attempt to exclude ground based predators and increase breeding success. Trees and scrub are removed or regularly coppiced to reduce avian predator perches. Crow, fox and mink control are carried out within the SPA	'Project Godwit' https://projectgodwit.org.uk/ RSPB Management Plan, Nene Washes, 2015-19.
Supporting habitat (both within and outside the SPA): structure	**Landform**	Maintain an abundance of sufficiently wet ditch/drain edges, scrapes and pools of shallow edge gradient (ideally a gradient of 1:10) and the availability of shallow water over the site as a whole (optimal profiles on >75% of waterbodies by area).	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.	
Supporting habitat	**Landscape**	Maintain the area of open and unobstructed terrain within and	This feature is known to favour large areas of open terrain, largely free of obstructions, in and around its roosting and	RSPB Management Plan, Nene Washes, 2015-19

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
(both within and outside the SPA): structure		around nesting, roosting and feeding sites, and no overall reduction in field size.	feeding areas. Often there is a need to maintain an unobstructed line of sight within feeding and 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. Open landscapes are maintained by RSPB by removing/pollarding large willow trees that may serve as perching places for avian predators within their land holdings. EA also have a tree and bush removal strategy within their maintenance plan to maintain bank stability where grass cover has become reduced, or they serve as cover for predators. Ditches, rather than fences or hedges, mark field boundaries and provide stock control.	EA Management Statement for maintenance operations 2013-23.
Supporting habitat (both within and outside the SPA): structure	**Vegetation characteristics**	Maintain the mix or heights of vegetation types within nesting areas The sward is managed to a height of approximately 5 cm or less on the 1st April, with occasional longer tussocks.	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. Sward height is managed through grazing the previous summer and through winter grazing of wildfowl. Cattle grazing usually doesn't occur at all until the middle of May.	RSPB Management Plan, Nene Washes, 2015-19
Version Control Advice last updated: N/A				
Variations from national feature-framework of integrity-guidance: N/A				

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