



European Site Conservation Objectives: Supplementary Advice on Conserving and Restoring Site Features

**Upper Nene Valley Gravel Pits Special Protection Area (SPA)
Site Code: UK9020296**



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About this document

This document provides Natural England's supplementary advice for the European Site Conservation Objectives relating to the Upper Nene Valley Gravel Pits SPA. This advice should therefore be read together with the SPA Conservation Objectives available [here](#).

This supplementary advice replaces a previous draft version dated 1 February 2016.

You should use the SPA 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	Upper Nene Valley Gravel Pits Special Protection Area (SPA)
Location	Northamptonshire
Site Maps	The designated boundary of this site can be viewed here on the MAGIC website
Designation Date	7 April 2011
Qualifying Features	See section below
Designation Area	1,357.67 hectares
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)	Upper Nene Valley Gravel Pits SSSI
Relationship with other European or International Site designations	The boundary of this SPA coincides with that of Upper Nene Valley Gravel Pits Ramsar site

Site background and geography

Located within the Northamptonshire Vales National Character Area, the cluster of disused sand and gravel pits which make up the SPA extends for approximately 35 kilometres along the alluvial deposits of the River Nene floodplain from Clifford Hill on the southern outskirts of Northampton, downstream to Thorpe Waterville north of Thrapston.

They form an extensive series of shallow and deep open waters which occur in association with a wide range of marginal features, such as sparsely-vegetated islands, gravel bars and shorelines, and habitats including reed-swamp, marsh, wet ditches, rush pasture, rough grassland and scattered scrub.

This range of habitat and the varied topography of the lagoons provide valuable resting and feeding conditions for major inland concentrations of wintering water birds, especially ducks and waders.

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 (Article 4.1)

During the non-breeding season the SPA regularly supports:

- **A021 Great Bittern *Botaurus stellaris***

The site supports internationally numbers of bittern during the winter months and when the SPA was classified in 2011 this represented 2.0% of the total British wintering population.

The population fluctuates from year to year depending on continental weather conditions, in cold winters more bitterns over-winter within the Valley, escaping colder conditions in Europe, the overall trend however is stable since the SPA classification with a 5 year peak mean of 2 individuals (WeBS data from BTO).

When present in the SPA, Bitterns tend to roost at 3 main locations (Titchmarsh, Grendon, and Stanwick) where there are dense stands of common reed *Phragmites australis* present. During the day birds feed at various locations within the valley, both within and outside of the SPA boundary.

- **A140 Golden Plover *Pluvialis apricaria***

The site supports internationally numbers of golden plover during the winter months and when the SPA was classified this represented 2.3% of the NW European population.

Numbers fluctuate from year to year depending on weather conditions in the UK and Europe; during periods of cold weather in continental Europe, larger numbers of golden plover visit the SPA. However during periods of extreme cold within central England the birds move further south and west.

Whilst there is natural fluctuation within the population year to year, the population trend on the site has been downwards since the classification of the SPA; this is thought to be due to increased levels of recreational disturbance at the key roosting site of Northamptonshire Washlands.

Golden Plover use the SPA for roosting and loafing, favouring three main roost locations at Stanwick, Earls Barton (Summer Leys) and Northamptonshire Washlands. Birds feed on the surrounding agricultural land often flying many kilometres to feed. It is not currently known where their preferred feeding grounds are and whether they remain faithful to specific fields or select fields based on crop type / food availability.

Qualifying individual species not listed in Annex I of the Wild Birds Directive (Article 4.2)

During the non-breeding season the SPA regularly supports:

- **A051 Gadwall *Anas strepera***

This site supports internationally numbers of gadwall during the non-breeding period and when the SPA was classified in 2011 this represented 2% of the NW Europe population.

The population within the SPA has remained stable since classification although there have been significant changes in distribution within the SPA for reasons which are not yet clear.

Numbers of Gadwall begin to build in August with birds undergoing their post-breeding moult with peak numbers arriving from October onwards. Birds are distributed across evenly across the SPA and will be feeding on lakes which have a good supply of their preferred food sources – aquatic plants, seeds and invertebrates.

Qualifying assemblage of species (Article 4.2)

During the non-breeding season the SPA regularly supports;

- **An assemblage of waterfowl species numbering more than 20,000 birds.**

The main component species of this non-breeding waterfowl assemblage which are not already covered in the preceding sections and which are present in either nationally important numbers or comprise 2,000 or more individuals are:

Wigeon *Anas penelope*: Require areas of short grassland for feeding and easy access to water – when birds are disturbed whilst feeding on grasslands they will prefer to walk into nearby waterbodies rather than flying. Wigeon can be very sensitive to disturbance and their tendency to feed on grassland leads to increased disturbance from walkers and dogs compared to other species. Key areas of the SPA are Northamptonshire Washlands, Earls Barton, Stanwick, and Ditchford West

Mallard *Anas platyrhynchos*: Evenly distributed across the SPA

Northern Shoveler *Anas clypeata*: Numbers often peak earlier in the non-breeding season as birds pass through on migration to Africa. Numbers begin to build from August and may peak in November. Distribution is localised across the valley, whilst shoveler are found within each of the lake complexes within the SPA, their distribution may be restricted to 1-2 lakes within a complex, often smaller and more sheltered lakes; disturbance to these lakes can cause a disproportionate impact.

Pochard *Aythya ferina*: Distributed across the SPA favouring larger and deeper lakes

Tufted Duck *Aythya fuligula*: Distributed evenly across the SPA

Great-crested Grebe *Podiceps cristatus*: Distributed evenly across the SPA

Mute Swan *Cygnus olor*: Distributed evenly across the SPA, often found feeding on adjacent arable fields. Large numbers congregate outside the SPA at Wellingborough Embankment where they are often fed.

Great cormorant *Phalacrocorax carbo*: Birds roost at 2-3 key locations within the SPA where there are concentrations of mature trees as roost perches – Thrapston / Titchmarsh; Ringstead; Ditchford. Birds fly out to feed in the morning, often favouring areas where fish are easy to catch, returning to roost sites during the evening; cormorants have been shown to travel the length of the Valley and there is likely to be an interchange between other non-breeding populations. Presence of birds on a lake does not indicate that they are feeding at that location; in many cases they will feed at one location and then fly and short distance to an undisturbed lake to loaf and preen.

Lapwing *Vanellus vanellus*: Distribution similar to golden plover

Coot *Fulica atra*: Evenly spread across the SPA

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(s)	Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Site-specific references where available
Bittern	Non-breeding	Passage / Winter													Based on Wetland Bird Survey data gathered for the SPA
Gadwall	Non-breeding	Passage / Winter													
Golden Plover	Non-breeding	Passage / Winter													
Water bird assemblage	Non-breeding	Passage / Winter													

Guide to terms:

Breeding – present on a site during the normal breeding period for that species

Non-breeding - present on a site outside of the normal breeding period for that species (includes both 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 will include the months of July – October inclusive (autumn passage) and March – April inclusive (spring passage).

Winter - the period generally from November to February inclusive.

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

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
<p>Supporting habitat (both within and outside the SPA): extent and distribution</p>	<p>Extent and distribution of supporting non-breeding habitat</p>	<p>Maintain the extent and distribution of suitable habitat (either within or outside the site boundary) which supports Bittern for all necessary stages of the non-breeding/wintering period (moulting, roosting, loafing, feeding);</p> <ul style="list-style-type: none"> At least 9ha of wet reed-bed should be maintained within the SPA to provide suitable roosting habitats for bittern. Maintain 676ha of wetland habitats (Open water & marginal fen, swamp and marsh communities) which provide feeding opportunities across the whole of the SPA. 	<p>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 of bittern.</p> <p>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 (or 'functionally-linked land').</p> <p>Within the Upper Nene Valley Gravel Pits, bittern roost at a limited number of locations where small reed-beds are present and feed along ditches, lake edges and other wetland habitats along the river valley.</p>	<p>ENGLISH NATURE, 2000. Aerial photographs of Upper Nene Valley Gravel Pits.</p>
<p>Supporting habitat (both within and outside the SPA): function/ supporting process</p>	<p>Water quality/quantity</p>	<p>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</p>	<p>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 feeding and roosting habitats.</p> <p>Typically, meeting the surface water and groundwater environmental standards set out by the Water Framework Directive (WFD 2000/60/EC) will also be</p>	<p>NATURAL ENGLAND, 2015. Site Improvement Plan: Upper Nene Valley Gravel Pits (SIP254)</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>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.</p> <p>It is essential that the existing main reedbeds within the SPA at Grendon, Titchmarsh, and Stanwick receive a sufficient quantity of water to enable desired water levels to be maintained to prevent the reedbeds drying out.</p> <p>Additionally the amount of time that flood storage area at Northamptonshire Washlands is utilised and inundated may reduce the availability of grassland for lapwing, wigeon and golden plover.</p>	
Supporting habitat (both within and outside the SPA): function/supporting process	Conservation measures	Restore 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 Bittern and its supporting habitats.	<p>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.</p> <p>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.</p> <p>At this SPA, it may be necessary to introduce water control structures to achieve desired water levels to prevent the reed-beds from drying out and increasing levels of scrub encroachment. A programme of rotational cutting of reed should also be undertaken where appropriate to stimulate reed growth and control scrub encroachment.</p>	NATURAL ENGLAND, 2015. Site Improvement Plan: Upper Nene Valley Gravel Pits (SIP254)
	Air quality	Maintain concentrations and deposition of air pollutants to 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).	<p>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.</p> <p>Critical Loads and Levels are thresholds below which such harmful effects on</p>	More information about site-relevant Critical Loads and Levels for this SPA is available by using the

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>sensitive UK habitats will not occur to a noteworthy level, according to current levels of scientific understanding. There are critical levels for ammonia (NH₃), oxides of nitrogen (NO_x) and sulphur dioxide (SO₂), and critical loads for nutrient nitrogen deposition and acid deposition.</p> <p>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.</p> <p>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.</p>	'search by site' tool on the Air Pollution Information System (www.apis.ac.uk).
Non-breeding population	Population abundance	Maintain the abundance of the non-breeding Great Bittern population at a level which is consistently above an average of 2 individuals (5 year peak mean count), whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	<p>This will sustain the site's population and contribute to a viable local, national and bio-geographic population.</p> <p>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. 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.</p> <p>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</p>	SPA Citation (April 2011)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>levels in future should also be taken into account.</p> <p>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 or estimated to inform judgements of likely impacts on abundance targets.</p> <p>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 stated are the best available.</p> <p>Numbers of bittern within the Upper Nene Valley Gravel Pits SPA fluctuate from year to year; with greater numbers present during cold winters when continental birds migrate to the UK.</p>	
Supporting habitat (both within and outside the SPA): structure	Vegetation characteristics	Maintain the cover of scrub-free areas of reed-bed, with common reed <i>Phragmites australis</i> at or above 90% cover and with a diverse age structure (typically at least 30% of the reed-bed should be uncut with the remainder <7 years old with <20% cut in any year).	<p>The height, cover, variation and composition of vegetation are often important characteristics of habitats supporting this feature which enables successful /feeding/concealment/roosting.</p> <p>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.</p>	
Supporting habitat (both within and outside	Minimising disturbance caused by human activity	Reduce the frequency, duration and/or intensity of disturbance affecting roosting, foraging, feeding and/or loafing birds so	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.	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
the SPA): minimising disturbance		that the Bittern feature is not significantly disturbed	Such disturbing effects can for example result in changes to feeding or roosting behaviour, increases in energy expenditure due to increased flight, abandonment of nest sites and desertion of supporting habitat (both within or outside the designated site boundary where appropriate). This may undermine successful feeding and/or roosting, and/or may reduce the availability of suitable habitat as birds are displaced and their distribution within the site contracts. Disturbance associated with human activity may take a variety of forms including noise, light, sound, vibration, trampling, presence of people, animals and structures.	
Supporting habitat (both within and outside the SPA): structure	Landform	Maintain the extent of wet ditches and/or pools with suitable profiles (typically, with a deep central channel of 1.5-2.5 m deep and one or more 1 m deep with 5 m wide shallow margins).	The physical topography and landform of a site will strongly influence the quality and extent of supporting habitats used by this feature for nesting/rearing, feeding and/or roosting as appropriate. This will also influence the interactions with underlying supporting processes on which the supporting habitat may rely. Any changes or modifications to site topography may adversely affect the ability of the supporting habitats to support and sustain this feature.	
Supporting habitat (both within and outside the SPA): function/ supporting process	Connectivity with supporting habitats	Maintain the safe passage of Bitterns moving between roosting and feeding areas	The ability of the feature to safely and successfully move to and from feeding and roosting areas is critical to their fitness and survival during their non-breeding season. This target will apply both within the site boundary and where birds regularly move to and from off-site habitat where this is relevant. At this SPA, bitterns will need to move safely to and from supporting habitat between individual lagoons and above/across land outside the SPA.	
	Water area	Maintain the number of open waterbodies of optimal size (>0.5 ha), and the percentage cover of pools overall, with shallow water extending at least 30 m landward into surrounding dense vegetation.	This feature depends on the presence and continuity of open water habitat; often requiring water bodies of a particular size to in order to successfully feed and/or roost. Changes in water area, and associated marginal habitat, can adversely affect the suitability of supporting open water habitat.	
Supporting habitat (both within and outside	Landscape	Maintain an open and unobstructed terrain which provides safe passage for birds moving between roosting and	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 or roosting habitat to detect approaching predators, or to ensure visibility of displaying behaviour.	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
the SPA): structure		feeding areas across the site.	An open landscape may also be required to facilitate safe movement of birds between the SPA and any off-site supporting habitat.	
Supporting habitat (both within and outside the SPA): function/ supporting process	Water depth	Maintain the overall depth of swamp and marginal water between 30 – 100cms, and/or within pools and dykes at typically 200-400 cm deep.	This feature is known to require extensive areas of water in which to feed. Birds such as bitterns 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.	
	Food availability within supporting habitat	Maintain the distribution, abundance and availability of key prey items favoured by Great Bittern (e.g. eel, rudd, roach, frogs, toads) at preferred prey sizes (e.g. roach of 6-35 cm).	The availability of an abundant food supply is critically important for successful 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 Great Bittern population.	
Version Control Advice last updated: n/a				
Variations from national feature-framework of integrity-guidance: The following attributes have not been applied to the Supplementary Advice for Bittern within Upper Nene Valley Gravel Pits SPA <ul style="list-style-type: none"> • “Salinity” – This attribute is not applicable as the Upper Nene Valley Gravel Pits SPA is a wholly freshwater system. 				

Table 2: Supplementary Advice for Qualifying Features: A051 *Anas strepera*; Gadwall (Non-breeding)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Supporting habitat (both within and outside the SPA): extent and distribution	Extent and distribution of supporting non-breeding habitat	<p>Maintain the extent and distribution of suitable habitat (either within or outside the site boundary) which supports Gadwall for all necessary stages of the non-breeding/wintering period (moulting, roosting, loafing, feeding);</p> <ul style="list-style-type: none"> Mosaic of standing open water / marginal wetland vegetation: 676ha 	<p>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.</p> <p>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.</p>	ENGLISH NATURE, 2000. Aerial photographs.
	Water quality/quantity	Where the supporting habitats of the SPA feature are dependent on surface water ensure water quality and quantity is maintained to a standard which provides the necessary conditions to support Gadwall	<p>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 feeding and roosting habitats.</p> <p>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.</p>	
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 Gadwall feature and its supporting habitats.	<p>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.</p> <p>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.</p>	NATURAL ENGLAND, 2015. Site Improvement Plan: Upper Nene Valley Gravel Pits (SIP254)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Supporting habitat (both within and outside the SPA): function/supporting process	Air quality	Maintain concentrations and deposition of air pollutants to 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 air quality attribute above in Table 1.	More information about site-relevant Critical Loads and Levels for this SPA is available by using the 'search by site' tool on the Air Pollution Information System (www.apis.ac.uk).
Non-breeding population	Population abundance	Maintain the size of the non-breeding population of Gadwall at a level which is above an average of 773 individuals (5 year peak mean) whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	See the Supporting and Explanatory Notes for this attribute in Table 1. The population of Gadwall within the SPA has shown a slight (3%) decline between the periods 1999-2004 and 2006-2011, some of this apparent decline may be as a result of incomplete WeBS coverage during the later period, however there has been also been a significant redistribution of gadwall within the SPA with declines noted at Northamptonshire Washlands (34% decline) and Thrapston Gravel Pits (83% decline), this has been balanced by increased counts at Ditchford, Stanwick & Ringstead; this change in distribution needs to be further investigated.	SPA Citation (April 2011)
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 foraging and/or roosting birds so that the 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, abandonment of nest sites and desertion of supporting habitat (both within or outside the designated site boundary where appropriate). This may undermine successful feeding and/or roosting (as appropriate), 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. The introduction of activities into previously undisturbed areas of this SPA is also considered likely to affect the feature. Because of the uncertainty	NORTHAMPTONSHIRE COUNTY COUNCIL, 2015. Draft Upper Nene Valley Gravel Pits SPA Supplementary Planning Document. Accessed at http://www.nnjpu.org.uk/docs/UNVGP%20SPD_draft(1).pdf LILEY, D., FLOYD, L., CRUICKSHANKS, K. & FEARNLEY, H. 2014. Visitor Access Study of the Upper Nene Valley Gravel Pits SPA. Footprint

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>around disturbance thresholds, Natural England will take a precautionary view that any increase in visitor numbers to the SPA may affect the feature and the risk of adverse effects on this feature may need mitigation. Mitigation will need to be tailored to a specific site but will generally include four broad themes:</p> <ul style="list-style-type: none"> • Provision of off-site accessible green space, • Habitat management within the SPA • Access management within / adjacent to SPA • Education / Information / Interpretation <p>A draft Supplementary Planning Document has been produced for the SPA (NCC,2015). This was consulted on in early 2015 and is now with the individual local authorities for adoption, This document provides more information around issues associated with recreational disturbance and possible survey methodologies.</p>	<p>Ecology. Unpublished report for the NIA partnership. Accessed at http://www.nenevalley.nia.org/wp-content/uploads/2014/08/Footprint-Ecology-Upper-Nene-Valley-Gravel-Pits-SPA-Visitor-Survey-screenres.pdf</p>
Supporting habitat (both within and outside the SPA): function/supporting process	Water depth	Maintain the availability of standing water of optimal depth for Gadwall, typically <0.25 m deep, over at least 50% of the total standing water area.	This feature is known to require extensive areas of open 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.	
	Food availability within supporting habitat	Restore a high cover/abundance of food plants preferred by Gadwall (e.g. floating sweet-grass <i>Glyceria fluitans</i> , creeping bent-grass <i>Agrostis stolonifera</i> , stoneworts <i>Chara spp</i> , pondweeds <i>Potamogeton spp.</i> , hornworts <i>Ceratophyllum spp.</i>)	<p>The availability of an abundant food supply is critically important for successful adult fitness and survival and the overall sustainability of the Gadwall 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.</p> <p>Weed-cutting activities within the lakes may affect the availability of key food plants and should be carefully monitored.</p>	
Version Control				
Advice last updated: 24/3/2017 – explanatory notes of the ‘minimising disturbance’ attribute updated following stakeholder invitation-to-comment exercise.				
Variations from national feature-framework of integrity-guidance: None				

Table 3: Supplementary Advice for Qualifying Features: A140 *Pluvialis apricaria*; European golden plover (Non-breeding)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Supporting habitat (both within and outside the SPA): extent and distribution	Extent and distribution of supporting non-breeding habitat	<p>Maintain the extent and distribution of suitable habitat (either within or outside the site boundary) which supports European Golden Plover for all necessary stages of the non-breeding/wintering period (moulting, roosting, loafing, feeding);</p> <ul style="list-style-type: none"> Grassland roosting / loafing areas: 143ha at 3 specific locations (see supporting information) Feeding areas: Unknown extent 	<p>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.</p> <p>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 ('functionally-linked land').</p> <p>Within the SPA, the majority of European golden plover currently roost and loaf on grassland at three locations: Northamptonshire Washlands; Summer Leys and Stanwick Lakes.</p> <p>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.</p>	<p>BRAYSHAW, R.S.2004 Biodiversity Survey and Conservation Assessment of the Upper Nene Valley Gravel Pits. Report to English Nature.</p> <p>ENGLISH NATURE, 2000. Aerial photographs of Upper Nene Valley Gravel Pits SSSI.</p>
Supporting habitat (both within and outside the SPA): function/ supporting process	Conservation measures	<p>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 European Golden Plover feature and its supporting habitats.</p>	<p>See corresponding attribute in Table 1.</p> <p>Ensure grazing management is undertaken in the three main roost areas to provide suitable loafing habitats.</p> <p>The main roost area at Northamptonshire Washlands is used as a flood storage area. Increased frequency of flooding during the winter will reduce the ability of the roost area to support the necessary bird populations. If the frequency and duration of winter flooding increases above the mean levels at the time of notification then the provision of suitable alternative roosting habitat may be necessary.</p>	
Supporting habitat (both within and outside the SPA): function/ supporting process	Water quantity	<p>Where the supporting habitats of the SPA feature are dependent on surface water, maintain water quality and quantity is maintained to a standard which provides the necessary conditions to support European Golden Plover</p>	<p>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.</p> <p>A key roosting site for golden plover within the SPA is the flood storage area at Northamptonshire Washlands. During periods of high river flow when the Washlands are flooded, the grassland is unavailable to roosting golden plover, wigeon and lapwing.</p>	<p>NATURAL ENGLAND, 2015. Site Improvement Plan: Upper Nene Valley Gravel Pits (SIP254)</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			If future changes to flooding patterns leads to a significant increase in the duration of time this land is unavailable due to flooding then compensatory habitat may be required.	
Non-breeding population	Population abundance	Restore the size of the non-breeding European Golden Plover population to a level which is above an average of 5790 individuals (5 year peak mean) whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	<p>See Supporting and Explanatory Notes for the corresponding attribute in Table 1.</p> <p>A restoration objective has been chosen as the golden plover population within the SPA has shown a 10% decline between the 1999-2004 and 2006-2011 period. This has been attributed to declines in habitat suitability at Irthlingborough Lakes & Meadows and significant levels of recreational disturbance at Northamptonshire Washlands</p> <p>Populations of golden plover fluctuate within the Upper Nene Valley Gravel Pits SPA. Fluctuations which are a result of climatic conditions e.g. mild / very cold winter are acceptable. Fluctuations which are as a result of impacts from recreational disturbance are not acceptable.</p>	
Supporting habitat (both within and outside the SPA): structure	Vegetation characteristics	Maintain areas of arable land and predominantly short (<10 cm) grassland swards in areas used by European Golden Plover for feeding	<p>The height, cover, variation and composition of vegetation are often important characteristics of habitats supporting this feature and which enable successful concealment/roosting.</p> <p>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.</p> <p>Golden Plover using the Upper Nene Valley Gravel Pits SPA generally feed on arable land outside of the SPA. The extent and distribution of feeding areas of golden plover outside of the SPA is currently unknown.</p> <p>Further surveys are required to determine this extent and distribution and identify determining factors in the choice of off-site habitat use.</p>	
			<p>The height, cover, variation and composition of vegetation are often important characteristics of habitats supporting this feature and which enable successful concealment/roosting. Many bird species will have specific requirements that conservation measures will aim to maintain, for</p>	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>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.</p> <p>Within the three main roosting areas within the SPA;</p> <ul style="list-style-type: none"> Grassland and marsh vegetation should be kept to <5cm from October to March. Scrub and trees are no more than scattered and all less than 1.5m high There is >25% cover of the grasses <i>Lolium perenne</i>, <i>Glyceria fluitans</i>, <i>Agrostis stolonifera</i>, <i>Alopecurus geniculatus</i> and <i>Trifolium pratense</i> 	
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 foraging and/or roosting birds so that the European Golden Plover feature is not significantly disturbed	<p>See 'minimising disturbance' attribute above in Table 1.</p> <p>Recreational disturbance is currently a significant issue at Northamptonshire Washlands within the SPA due to informal recreational use. Users who remain on the permissive footpath and right of way around the Flood Embankment and keep their dogs under control are shown to have minimal impact on the golden plover on the grassland in the base of the flood storage area. Those users who enter the private land within the flood storage area are shown to cause significant levels of disturbance</p>	BRAYSHAW, R.S. & ENVIRON, 2010. Survey Work to Support the Appropriate Assessment for the West Northamptonshire Joint Core Strategy Element 2: Field Surveys (Recreational, Disturbance and Bird Behaviour) Available here : Report + Annexes
Supporting habitat (both within and outside the SPA): structure	Landscape	Maintain field sizes and open and unobstructed terrain within and around European Golden Plover roosting and feeding sites	<p>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 or roosting habitat to detect approaching predators, or to ensure visibility of displaying behaviour. An open landscape may also be required to facilitate movement of birds between the SPA and any off-site supporting habitat.</p> <p>At the three main roosting areas for Golden Plover within the SPA, there should be no increase in obstructions to existing bird sightlines. This is</p>	WEST NORTHAMPTONSHIRE DISTRICT COUNCIL 2012. West Northamptonshire Pre-Submission Joint Core Strategy

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>particularly relevant at the Northamptonshire Washlands part of the SPA which is adjacent to a developed area.</p> <p>In relation to Northamptonshire Washlands Policy BN4 of the draft West Northamptonshire Joint Core Strategy states “<i>In order to protect sightlines for birds including within the Special Protection Area and Ramsar site designations, new development within a 250m zone of the SPA area shown in Fig 7 of the Joint Core Strategy must undertake an assessment to demonstrate that it will not have a significant adverse effect on birds within the Clifford Hill Basin, or, if directly adjacent to the existing buildings should reflect surrounding building heights</i>” .</p>	
Supporting habitat (both within and outside the SPA): function/ supporting process	Connectivity with supporting habitats	Maintain the safe passage of European Golden Plover 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.	
	Food availability within supporting habitat	Maintain availability of key prey items favoured by Golden Plover (e.g. earthworm, leatherjackets, beetles, spiders) at preferred prey sizes.	The availability of an abundant food supply is critically important for successful 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:				
<p>The following attributes have not been applied as they do not influence how Golden Plover use the SPA or influence the numbers using the SPA each year</p> <ul style="list-style-type: none"> • Water Quality • Air Quality • Hydrology / Flow 				

Table 4: Supplementary Advice for Qualifying Features: Assemblage of >20,000 Water birds (Non-Breeding)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Supporting habitat (both within and outside the SPA): function/supporting process	Water quality/quantity	Where the supporting habitats of the SPA feature are dependent on surface water, ensure water quality and quantity is maintained to a standard which provides the necessary conditions to support the assemblage feature	<p>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 feeding and roosting habitats used during the non-breeding season.</p> <p>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.</p>	
Assemblage of species	Diversity of species	Restore the species diversity of the assemblage	<p>This will ensure the bird assemblage reflects the diversity of species the SPA supports. Assemblage diversity is a product of species richness (the number of different species present), abundance (population size of each assemblage component species) and relative 'importance' (an assessment of the conservation status of each assemblage component, described below).</p> <p>Each component makes a different contribution to the diversity of the assemblage, and changes to some components may be considered to affect diversity more than others. Negative changes to small numbers of relatively important assemblage components may have a similar overall effect to negative changes in larger numbers of less important components.</p> <p>To meet the target, the populations of each of the 'main component' assemblage species to be maintained or restored are i) those present in nationally important numbers ($\geq 1\%$ GB population); ii) migratory species present in internationally important numbers ($\geq 1\%$ biogeographic population); iii) those species comprising $\geq 2,000$ individuals ($\geq 10\%$ of the minimum qualifying threshold for an internationally-important assemblage); and iv) 'named components' otherwise listed on the SPA citation.</p> <p>In addition to the main components, other components should be considered as these contribute collectively to the assemblage diversity, in particular proportionally abundant populations of species of conservation importance.</p>	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>Examples are those 'red-listed' as Birds of Conservation Concern and/or those listed on Sections 41/42 of the Natural Environment and Rural Communities Act 2006.</p> <p>The species composition of an assemblage may change over time. However, to meet this target, the total number of all native waterbird species contributing to the assemblage species richness should not decline significantly.</p> <p>The main component species of the assemblage feature of this SPA are listed on page 5 of this advice.</p>	
Supporting habitat (both within and outside the SPA): extent and distribution	Extent and distribution of supporting non-breeding habitat	<p>Maintain the extent and distribution of habitats which support the assemblage feature during all necessary stages (moulting, roosting, loafing, feeding) of the non-breeding period at;</p> <p>Open water & marginal fen, swamp and marsh communities 676ha Grassland Feeding areas 143ha Other grassland areas 232ha Reedbed 9ha Mixed successional habitats 240ha+</p>	<p>Conserving or restoring the extent and range of supporting habitats will be key to maintaining the site's ability and capacity to support the SPA assemblage feature.</p> <p>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.</p> <p>The principal habitats known or likely to support the assemblage feature at this SPA are:</p> <ul style="list-style-type: none"> • Open water & marginal fen, swamp and marsh communities • Grassland feeding areas (predominantly wigeon & golden plover habitats) • Other grassland areas • Reedbed • Mixed successional habitats 	ENGLISH NATURE, 2000. Aerial photographs of Upper Nene Valley Gravel Pits SSSI.
Supporting habitat (both within and outside the SPA): minimising	Minimising disturbance caused by human activity	Reduce the frequency, duration and/or intensity of disturbance affecting moulting, loafing, feeding and/or roosting birds so that the assemblage feature is not significantly disturbed	See 'minimising disturbance' attribute above in Table 2.	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
disturbance				
Supporting habitat (both within and outside the SPA): structure/function	Quality of supporting non-breeding habitat	<p>Maintain the structure, function and availability of the following habitats which support the main component species of the assemblage feature for all stages (moulting, roosting, loafing, feeding) of the non-breeding period;</p> <ul style="list-style-type: none"> • Open water & marginal fen, swamp and marsh communities • Short-sward grassland (predominantly for wigeon & golden plover) • Other grassland areas • Reedbed • Mixed successional habitats 	<p>The site's ability to support and sustain an assemblage comprising a very large number of birds (in excess of 20,000) made up of a diverse mix of species will be reliant on the overall quality and diversity of the habitats that support them.</p> <p>The feeding and roosting habitats which support the assemblage will occur within, and in some cases outside, the site boundary. This target is applicable to both circumstances.</p> <p>Due to the large number of species and natural fluctuations in the overall composition of an assemblage, it is not practical to provide specific targets relating to each supporting habitat relevant to the assemblage.</p> <p>Generally speaking, the specific attributes of each supporting habitat may include vegetation characteristics and structure, water depth, food availability, connectivity between nesting, roosting and feeding areas both within and outside the SPA. Further advice will be provided by Natural England on a case by case basis.</p>	
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 assemblage feature and its supporting habitats.	<p>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.</p> <p>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.</p>	NATURAL ENGLAND, 2015. Site Improvement Plan: Upper Nene Valley Gravel Pits (SIP254)
	Air quality	Maintain concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information	See 'air quality' attribute above in Table 1.	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		System (www.apis.ac.uk) .		
Assemblage of species	Assemblage abundance	Restore the overall abundance of the non-breeding assemblage to a level which is above an average of 23,281 individuals (5 year peak mean) whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	<p>This will sustain the assemblage feature and contribute to viable local, national and bio-geographic populations of its component species.</p> <p>Assemblage abundance is the annual sum of peak counts of each assemblage component species (at any time of year, though peaks tend to occur in the non-breeding season), unless otherwise stated. Five year peak means are the average of these annual peak sums for the relevant period. An assemblage component is any waterbird using the site.</p> <p>Due to the dynamic nature of assemblage component populations, this target may be subject to periodic review. However, the target assemblage abundance is considered to be the minimum standard for conservation or restoration measures and therefore where at any time the assemblage abundance is greater than the target value given, any measure or impact assessment should take account of the greater abundance. This meets with the obligation to avoid deterioration of a European site or significant disturbance of the species for which the site is classified, and seeks to avoid plans or projects giving rise to the risk of such deterioration or disturbance.</p>	<p>See SPA Citation</p> <p>BRAYSHAW, S. 2004 Biodiversity Survey and Conservation Assessment of the Upper Nene Valley Gravel Pits.</p>
Version Control				
Advice last updated: N/A				
Variations from national feature-framework of integrity-guidance: None				