



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

**Lower Derwent Valley
Special Protection Area (SPA)
Site Code: UK9006092**



Wheldrake inges (January 2014)

Date of Publication: 21 March 2019

About this document

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

The site also overlaps with the Lower Derwent Valley Special Area of Conservation (SAC) and the River Derwent SAC. Conservation Objectives and Supplementary Advice relating to these sites (where available) can be found here: [Lower Derwent Valley SAC](#) & [River Derwent SAC](#)

This advice replaces a draft version dated 25 January 2019 following the receipt of comments from the site's stakeholders.

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.

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.

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	Lower Derwent Valley Special Protection Area (SPA)
Location	North Yorkshire, East Riding of Yorkshire, City Of York
Site Map	The designated boundary of this site can be viewed here on the MAGIC website
Designation Date	January 1993
Qualifying Features	A037 <i>Cygnus columbianus bewickii</i> ; Bewick's swan (Non-breeding). A140 <i>Pluvialis apricaria</i> ; European golden plover (Non-breeding) A151 <i>Philomachus pugnax</i> ; Ruff (Non-breeding) A056; <i>Anas clypeata</i> Northern Shoveler (breeding) A050 <i>Anas penelope</i> ; Eurasian wigeon (Non-breeding) A052 <i>Anas crecca</i> ; Eurasian teal (Non-breeding) Waterbird assemblage
Designation Area	1,089.4 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)	Derwent Ings SSSI, Melbourne and Thornton Ings SSSI, Brighton Meadows SSSI, Newton Mask SSSI, River Derwent SSSI
Relationship with other European or International Site designations	The site overlaps with the Lower Derwent Valley SAC/Ramsar site and the River Derwent SAC

Site background and geography

Situated to the south of York, the Lower Derwent Valley is one of the largest areas of traditionally managed flood plain meadows in England. The Valley, running north-south along the course of the River Derwent for approximately 10 miles falls within both the [Vale of York](#) and [Humberhead Levels](#) National Character Areas.

The meadows are known locally as Ings (a word of Nordic origin referring to low lying wet meadow or pasture) and support a wealth of wildflowers in the spring and early summer. They also support a rich breeding bird community together with important populations of dragonflies and other invertebrates and otter. During the winter months these same grassland are partially flooded and support internationally important populations of waterfowl.

Many of the meadows are divided into historic strip ownership and have been cut for hay meadows for centuries, with the aftermath being grazed by cattle and/or sheep, and the open floodplain is recognised as an important landscape.

In addition to the open grassland the Valley also supports several pockets of alder woodland conservation importance.

The site includes both the River itself and adjacent floodplain habitat.

Just under half the site is managed as a National Nature Reserve by Natural England and partner organisations, (the Carstairs Countryside Trust and Yorkshire Wildlife Trust).

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:

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

When the site was classified in 1993 the Lower Derwent Valley supported 70 birds (mean peak count 1986/87-1990/91). Since this time numbers have declined in line with national trends and the mean winter count for the period (2012/13-16/17) has been 2 birds. The Annual Report of the Wetland Bird Survey 2013/14 (Holt *et al.* 2015) reported that the Bewick's Swan index had fallen to its lowest point for 40 years. It is considered that part of this decline can be attributed to birds increasingly short stopping in the Low Countries and elsewhere in Europe (BTO 2013) partly as a result of climate change.

Historically birds were associated with Bubwith Ings, Aughton Ings and North Duffield Carrs where they were known to feed on soft meadow grasses of the Ings meadows and adjacent farmland particularly around Aughton and North Duffield.

A140 European golden plover *Pluvialis apricaria*; (Non-breeding)

The Lower Derwent Valley has long been known to support large numbers of golden plover, and the species was described as "a regular winter visitor, sometimes arriving in large flocks" as long ago as 1912 (Smith 1912). A 5 year average of 4120 (1986/87-1990/91) is quoted in the SPA Departmental Brief (English Nature 1993). Counts of 4620 (1989), and 3000+ and 4000+ in 1990 were also reported by Ralston (2005). 5 year annual peak counts between 1992/93 (Year of designation) and 1996/97 ranged from-to 3000-8900 with 5 year average 5400.

Birds are found throughout the site and surrounding farmland. Birds will however leave the site for the Humber Estuary and other coastal sites in periods of severe (cold) weather.

A151 Ruff *Philomachus pugnax*; (Non-breeding)

The site supports nationally important of wintering and spring passage ruff. The SPA Departmental Brief quoted the mean peak wintering number for the period 1986/87-1990/91 as 50 birds representing 3.5% of the British population. At the time of designation the site also supported up to 100 birds during the spring migration. Five year annual peak winter counts between 1992/93 (Year of designation) and 1996/97 ranged from 81-189 with 5 year average 122. Recent numbers are slightly below this number, the five year average for the period 2012/13-2016/17 being 78. However numbers remain within known historic fluctuations for this species with a peak count of 131 reported in 2014/15 (Frost *et al.* 2018).

Birds are widely distributed across the area being found wherever flooding conditions are suitable. Spring passage of birds from African wintering grounds begins in late February with most movement in March and April (Goodall 2005). Consequently counts from this period may include both wintering and passage birds.

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

During the breeding season the SPA regularly supports:

A056; Northern Shoveler *Anas clypeata*; (breeding)

The site supports nationally important numbers of breeding shoveler and when the site was classified in 1993 a mean figure of 50 pairs was provided for the 1981-1990 period, which at the time represented 3% of breeding British population. There is little information available as to the natural fluctuations in breeding numbers from this time. The population appears to have remained stable since this time with the latest 5 year mean (2014-18) being 47 breeding pairs (confirmed and probable) (Natural England 2014-18).

Birds tend to be concentrated around North Duffield Carrs, Bank Island and Wheldrake where winter flood water tends to remain into early spring. Here the mosaic of wet grassland and fen vegetation in close proximity to a network of dykes ditches and pools provide ideal habitat for the species.

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

As with golden plover the site has long been known to support significant numbers of wigeon with Smith (1912) describing them as a “*common winter visitor*” and describing “*vast flocks in the Derwent valley*”. Today the site supports internationally important numbers of wintering wigeon. Annual peak counts between 1986/87-1990/91 ranged from 5,000 – 11,500 with 5 average of 7370 (Frost *et al.* 2018). The SPA Departmental Brief quoted a 5 year mean of 7790 representing 3% of the United Kingdom population and 1% of the north-west European population. Since its classification as a SPA numbers have steadily increased with the five year (2012-17) peak mean being 11,770 (Frost *et al.* 2018).

The birds are widely distributed across the site where they feed on the seasonally flooded grasslands. It has been suggested (Goodall 2005) that the distribution can be correlated with the extent of flooding. Birds also favour areas less likely to be disturbed. Certain sites are however important in all years, most notably Wheldrake Ings.

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

Again Smith (1912) refers to the presence of flocks of teal. The site supports internationally important numbers of wintering teal. Annual peak counts between 1986/87 – 1990/91 ranged from 3,300 - 5,700 with a five year average of 3,974 (Austin *et al.* 2014). The Departmental Brief at the time of SPA classification quoted a 5 year mean of 4040, representing 1% of the north-west European population. The peak figure of 5,700 during this period quoted in Departmental Brief occurred in 1990/91. Since its classification as a SPA numbers have increased with the five year (2012-17) peak mean being 7459 and a peak count of 10,000 in 2016/17. As with wigeon, birds are widely distributed across the site where they feed amongst vegetation such as reed canary grass, it has however been suggested by Goodall (2005) that Melbourne and Thornton Ings, Ellerton Ings and Bubwith Ings are particularly important.

- **Qualifying assemblage of species (Article 4.2)**

Waterbird assemblage

The site qualifies under Article 4.2 by regularly supporting over 20,000 wintering waterfowl. In the five year period 1986/87-1990/91 the site held a mean peak of 27,580 birds comprising 17,415 wildfowl and 10,165 waders (English Nature 1993). These large numbers of birds being supported by the rich food resources of the floodplain meadows associated with the site. Since designation wintering numbers have increased with mean peak counts for the period 2012/13-2016/17 being 33,885 (Frost *et al.* 2018). The site remains one of the most important inland sites for wintering waterfowl in the United Kingdom.

Birds are widely distributed across the site, the relative distribution of wildfowl and waders being dependent upon the flood conditions present in any given winter.

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
<i>Bewick's Swan</i>	<i>Non Breeding</i>	<i>Winter</i>													<i>Frost, T.M., Austin, G.E., Calbrade, N.A., Mellan, H.J., Hearn, R.D., Stroud, D.A., Wotton, S.R. and Balmer, D.E. 2018. Waterbirds in the UK 2016/17: The Wetland Bird Survey. BTO/RSPB/JNCC. Thetford.</i> <i>Ralston, C.S.(2005): Birds of the Lower Derwent valley; A historic review 1850-2002 (English Nature)</i>
<i>Eurasian Wigeon</i>	<i>Non Breeding</i>	<i>Winter</i>													
<i>Eurasian teal</i>	<i>Non Breeding</i>	<i>Winter</i>													
<i>European Golden Plover</i>	<i>Non Breeding</i>	<i>Winter</i>													
<i>Northern Shoveler</i>	<i>Breeding</i>	<i>Summer</i>													
<i>Ruff</i>	<i>Non Breeding/ passage</i>	<i>Winter/ Spring Passage</i>													
<i>Waterbird Assemblage</i>	<i>Non Breeding</i>														

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 population to a level which is at or above that present at designation 70 birds: (English Nature 1993) in so far as natural fluctuations associated with changes in population distribution allow.	<p>General: 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.</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 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</p>	<p>English Nature (1993): Departmental Brief, Lower Derwent Valley Proposed Special Protection Area and Ramsar Site 628A</p> <p>BTO/RSPB/JNCC (2013): Waterbirds in the UK 2011/12: The annual report of the Wetland Bird Survey</p> <p>Holt, C. A., Austin G.E., Calbrade, N.A., Mellan, H.J., Hearn, R.D., Stroud, D.A., Wotton, S.R. & Musgrove, A.J. (2015). Waterbirds in the UK 2013/14: The Wetland Bird Survey. BTO, RSPB and JNCC in association with WWT. British Trust for Ornithology, Thetford.</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>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 stated are the best available.</p> <p>Numbers of Bewick's Swans over wintering in the Lower Derwent Valley are now very small, and the decline in the species reflects national declines reported by BTO. The Annual Report of the Wetland Bird Survey 2013/14 (Holt <i>et al.</i> 2015) reported that the Bewick's Swan index had fallen to its lowest point for 40 years. It is considered that part of this decline can be attributed to birds increasingly short stopping in the Low Countries and elsewhere in Europe (BTO 2013) partly as a result of climate change.</p> <p>The objective should be to provide appropriate conditions for the birds should shifts in population size and distribution at a national and international level be reversed.</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 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)</p> <p>Wet grassland (which will be partially inundated during winter months) c.709ha Inland water bodies</p>	<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. 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.</p> <p>Birds are known to winter close to water on permanent pasture, winter cereal, root crops or flooded meadows. It is important that these habitats are present so that suitable conditions exist for the species should numbers increase to historic level.</p>	<p>Information on historic distribution of birds available in</p> <p>Ralston, C.S.(2005): Birds of the Lower Derwent valley; A historic review 1850-2002 (English Nature)</p> <p>Goodall (2005): review of the Importance of the Lower Derwent valley for Birds (Ecological services Ltd) - A report to the Environment Agency.</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		(Standing/Running water) c. 109ha Fens & associated habitats c.262ha.	<p>Appropriate habitat is particularly important at sites historically known to support birds, notably North Duffield Carrs and Ings, Aughton Ings and Bubwith Ings, together with surrounding arable farmland.</p> <p>The Lower Derwent Valley provides a mosaic of habitats; including; periodically flooded wet grassland, fens, marsh and swamp vegetation together with standing and flowing open water. The relative abundance of these communities will vary according to the season however estimated extent of communities based upon JNCC standard Natura 2000 Data form:</p>	
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).	<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 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. 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.</p> <p>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>	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 safe passage of birds 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.	
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.	<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 (including River Restoration Plan (Royal Haskoning 2010), the Views about Management Statement for the underpinning SSSI and/or management agreements.</p> <p>In order to provide appropriate habitat for Bewick's Swan it is essential that the historic, traditional management of the Ings meadows be continued. This should include the taking of an annual hay crop with aftermath grazing. Land adjacent to the designated site should remain within the arable farmed landscape, providing feeding opportunities for any visiting birds</p>	<p>Chalk, L. Leighton, E. & Bentley, M on behalf of Lower Derwent Valley Project Partners (2005). The Sustainable Management of the Lower Derwent Valley, Yorkshire. Lower Derwent Valley Management Plan 2005-2010 (<i>Available from Natural England on request</i>).</p> <p>Natural England NNR Management Plan (in prep.) available from Natural England on request</p> <p>Information on historic distribution of birds available in:</p> <p>Ralston, C.S.(2005): Birds of the Lower Derwent Valley; A historic review 1850-2002 (English Nature) and</p> <p>Goodall, A. (2005): Review of the Importance of the Lower Derwent valley for Birds (Ecological services Ltd) - A report for the Environment Agency.</p> <p>Royal Haskoning, (2010). River Derwent SSSI Restoration Plan</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
				and Technical Report for Natural England and the Environment Agency. Accessed at: http://www.therrc.co.uk/DesignatedRivers/Yorks_Derwent_Restoration_Plan.pdf http://www.therrc.co.uk/DesignatedRivers/Yorks_Derwent_Technical_Report.pdf
Supporting habitat (both within and outside the SPA): function/supporting process	Food availability within supporting habitat	Maintain and Restore 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. Adjacent farmland traditionally provided feeding areas particularly adjacent arable land. Historically a local farmer provided supplementary food in the form of potatoes.	
Supporting habitat (both within and outside the SPA): function/supporting process	Food availability within supporting habitat	Maintain cover/abundance of preferred food plants (e.g. <i>Lolium perenne</i> , <i>Glyceria fluitans</i> , <i>Phleum pratense</i> , <i>Rorippa amphibia</i> , <i>Alopecurus geniculatus</i>).	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 hydrological processes to ensure water availability in feeding sites, with visible areas of standing 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.	.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>Flooding within the SPA is difficult to control as it is largely a gravity fed system with few water control structures. The site is therefore largely at the vagaries of climatic and river conditions. Consequently factors in the wider River Derwent catchment may have a significant influence on conditions within the SPA.</p> <p>Proactive water level management is only possible on Wheldrake Ings and to a lesser extent North Duffield Carrs. At Wheldake Ings water is allowed to gradually drain from the site in accordance with agreed protocols. Further information form Natural England on request.</p>	
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).	<p>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 roost. Changes in water area, and associated marginal habitat, can adversely affect the suitability of supporting open water habitat.</p> <p>Permanent large waterbodies are largely absent from the site. Birds historically being associated with the large expanse of open water provided by the flooded meadows and grasslands during the winter months.</p> <p>Flooding within the SPA is difficult to control as it is largely a gravity fed system with few water control structures. The site is therefore largely at the vagaries of climatic and river conditions. Consequently factors in the wider River Derwent catchment may have a significant influence on conditions within the SPA.</p>	
Supporting habitat (both within and outside the SPA): function/ supporting process	Water depth	Maintain the availability of standing water of <1 m deep, over at least 50% of the total standing water area.	<p>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.</p> <p>Permanent large waterbodies are largely absent from the site. Birds historically associated with the large expanse of open water provided by the flooded meadows and grasslands during the winter months.</p>	

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			<p>Flooding within the SPA is difficult to control as it is largely a gravity fed system with few water control structures. The site is therefore largely at the vagaries of climatic and river conditions. Consequently factors in the wider River Derwent catchment may have a significant influence on conditions within the SPA.</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 maintained and 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 breeding, rearing, 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> <p>Flooding within the SPA is difficult to control as it is largely a gravity fed system with few water control structures. The site is therefore largely at the vagaries of climatic and river conditions. Consequently factors in the wider River Derwent catchment may have a significant influence on conditions within the SPA.</p> <p>Reference should be made to water quality targets provided in the River Derwent Conservation Objectives: Supplementary Advice and referenced in the River Derwent SSSI and Pocklington Canal SSSI Diffuse Water Pollution Plan (DWP) Natural England and Environment Agency 2014).</p>	<p>European Site Conservation Objectives: Supplementary Advice on Conserving and Restoring Site Features River Derwent Special Area of Conservation (SAC) Site Code: UK0030253 http://publications.naturalengland.org.uk/publication/4824082210095104</p> <p>NATURAL ENGLAND & THE ENVIRONMENT AGENCY 2014. Diffuse Water Pollution Plan for River Derwent SSSI and Pocklington Canal SSSI.</p>
<p>Supporting habitat (both within and outside the SPA): minimising disturbance</p>	<p>Minimising disturbance caused by human activity</p>	<p>Restrict the frequency, duration and/or intensity of disturbance within close proximity or affecting historic roosting, foraging, feeding, moulting and/or loafing sites so that the feature is not significantly</p>	<p>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</p>	<p>Natural England (2014) Site Improvement Plan: Lower Derwent Valley (SIP058). http://publications.naturalengland.org.uk/publication/5916047525806080</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		disturbed should birds return.	<p>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.</p> <p>Disturbance associated with human activity may take a variety of forms including noise, light, sound, vibration, trampling, presence of people, animals and structures.</p> <p>The Lower Derwent Valley Site Improvement Plan highlights that public access along public and non-public rights of way (particularly flood banks) is causing increasing disturbance to birds. It is thought that much of this originates from adjacent villages as opposed to visitors from further afield. Seasonal flooding can restrict some access by recreational users on foot however it can increase other activities e.g. canoeing and kite surfing.</p>	
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	<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 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.</p> <p>Planning proposals coming forward will need to take into account these landscape requirements. Supplementary Planning Guidance has been produced by the East Riding of Yorkshire Council in collaboration with other Local Authorities in relation to the Lower Derwent Valley (ERYC 2017).</p>	<p>East Riding of Yorkshire Council (2017) Lower Derwent Valley Supplementary Planning Document.</p> <p>https://www.eastriding.gov.uk/environment/planning-and-building-control/planning-policy/supplementary-planning-documents/</p>
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 for feeding	<p>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.</p>	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			In order to provide appropriate habitat for Bewick's Swan it is essential that the historic, traditional management of the ings meadows be continued. This should include the taking of an annual hay crop with aftermath grazing resulting in a relative short sward at the start of the winter period.	
Version Control Advice last updated: 21 March 2019 following stakeholder feedback. Additional information added to explanatory notes for Hydrology/ flow, water depth, water quality/ quantity and Water area attributes highlighting how factors within wider Derwent basin may affect the SPA. Clarification in explanatory notes for Minimising disturbance caused by human activity attribute around impacts on seasonal flooding on recreational use of the SPA.				
Variations from national feature-framework of integrity-guidance: Removal of food availability requirements attribute as considered not relevant to habitats present.				

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 population at a level which is above 7790 individuals (population at time of designation (English Nature 1993), whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	See general explanatory notes for this attribute in Table 1. The Departmental Brief at the time of SPA classification quoted a 5 year mean of 7790 representing 3% of the United Kingdom population and 1% of the north-west European population. Since its classification as a SPA numbers have steadily increased with the five year (2012-17) peak mean being 11,770 (Frost <i>et al.</i> 2018).	English Nature (1993): Departmental Brief, Lower Derwent Valley Proposed Special Protection Area and Ramsar Site 628A Frost, T.M., Austin, G.E., Calbrade, N.A., Mellan, H.J., Hearn, R.D., Stroud, D.A., Wotton, S.R. and Balmer, D.E. 2018. Waterbirds in the UK 2016/17: The Wetland Bird Survey. BTO/RSPB/JNCC. Thetford.
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) Estimated extent of communities based upon JNCC standard Natura 2000 Data form: Wet grassland (which will be partially inundated during winter months) c.709ha Inland water bodies (Standing/Running water) c. 109ha Fens & associated habitats c.262ha	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. Wigeon are widely distributed across the site during the winter months. Goodall (2005) suggests that bird distribution correlates with the extent of flooding with certain areas becoming more important in dryer years e.g. Bank Island. Extent areas are estimates made at the time the Natura 2000 data form was being compiled in the late 1990s. Although more detailed NVC surveys exist for the parts of the SPA these do not cover areas within the River Derwent SSSI. Consequently Natura 2000 data form data http://jncc.defra.gov.uk/pdf/SPA/UK9006092.pdf should be used until more detailed information is available.	Goodall, A. (2005): Review of the Importance of the Lower Derwent valley for Birds (Ecological services Ltd) - A report the Environment Agency.

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 explanatory text for this attribute 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).
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 breeding success and to the adult fitness and survival. This target will apply within the site boundary and where birds regularly move to and from off-site habitat where this is relevant.	
Supporting habitat (both within and outside the SPA): function/supporting process	Connectivity with supporting habitats	Maintain the safe passage of birds 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.	
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 the structure, function and/or the supporting processes associated with the 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 including River Restoration Plan (Royal Haskoning 2010), the Views about Management Statement for the underpinning SSSI and/or management agreements.</p> <p>Conservation measures and management for this feature will</p>	<p>Natural England "Views about Management" can be found at http://www.sssi.naturalengland.org.uk/Special/sssi/vam/VAM%201002114.pdf</p> <p>Additional information relating to the management of the site can be found within;</p> <p>Chalk, L. Leighton, E. & Bentley, M on behalf of Lower Derwent Valley Project Partners (2005). The Sustainable Management of the Lower Derwent Valley,</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			typically include hay cutting and grazing, scrub management, weed control and recreational access/vegetation management. Also covered is maintenance of surface drainage features such as grips gutters and foot drains. Retention of suitable land use infrastructure patterns to enable site management e.g. pastoral livestock farming.	Yorkshire. Lower Derwent Valley Management Plan 2005-2010 (available from Natural England on request). Natural England NNR Management Plan (in prep.) available from Natural England on request.
Supporting habitat (both within and outside the SPA): function/ supporting process	Food availability within supporting habitat	Maintain high cover/abundance of preferred food plants (e.g. <i>Polygonum</i> , <i>Eleocharis</i> , <i>Rumex</i> , <i>Ranunculus</i>).	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. <i>Agrostis stolonifera</i>).	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	Water depth	Maintain the availability of standing water of optimal depth, typically <0.3 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. Permanent large waterbodies are largely absent from the site. Birds historically associated with the large expanse of open water provided by the flooded meadows and grasslands. The largest permanent waterbody is associated with Wheldrake Ings.	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>Flooding within the SPA is difficult to control as it is largely a gravity fed system with few water control structures. The site is therefore largely at the vagaries of climatic and river conditions. Consequently factors in the wider River Derwent catchment may have a significant influence on conditions within the SPA.</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 maintained 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 breeding, rearing, 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> <p>Flooding within the SPA is difficult to control as it is largely a gravity fed system with few water control structures. The site is therefore largely at the vagaries of climatic and river conditions. Consequently factors in the wider River Derwent catchment may have a significant influence on conditions within the SPA.</p> <p>Reference should be made to water quality targets provided in the River Derwent Conservation Objectives: Supplementary Advice and referenced in the River Derwent SSSI and Pocklington Canal SSSI Diffuse Water Pollution Plan (DWP) Natural England and Environment Agency 2014).</p>	<p>European Site Conservation Objectives: Supplementary Advice on Conserving and Restoring Site Features River Derwent Special Area of Conservation (SAC) Site Code: UK0030253 http://publications.naturalengland.org.uk/publication/4824082210095104</p> <p>NATURAL ENGLAND & THE ENVIRONMENT AGENCY 2014. Diffuse Water Pollution Plan for River Derwent SSSI and Pocklington Canal SSSI.</p>
<p>Supporting habitat (both within and outside the SPA): minimising disturbance</p>	<p>Minimising disturbance caused by human activity</p>	<p>Reduce the frequency, duration and/or intensity of disturbance affecting, roosting, foraging, feeding, birds so that the feature is not significantly disturbed</p>	<p>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</p>	<p>Natural England (2014) Site Improvement Plan: Lower Derwent Valley (SIP058). http://publications.naturalengland.org.uk/publication/5916047525806080</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>(both within or outside the designated site boundary where appropriate). This may undermine successful nesting, rearing, feeding and/or roosting, and/or may reduce the availability of suitable habitat as birds are displaced and their distribution within the site contracts.</p> <p>Disturbance associated with human activity may take a variety of forms including noise, light, sound, vibration, trampling, and presence of people, animals and structures.</p> <p>The Lower Derwent Valley Site Improvement Plan highlights that recreational activities, public access along public and non-public rights of way (particularly flood banks) is causing increasing disturbance to birds. It is thought that much of this originates from adjacent villages as opposed to visitors from further afield. Seasonal flooding can restrict some access by recreational users on foot however it can increase other activities e.g. canoeing and kite surfing.</p>	
Supporting habitat (both within and outside the SPA): structure	Landscape	Maintain open and unobstructed terrain within and around feeding and roosting areas.	<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 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.</p> <p>Planning proposals coming forward will need to take into account these landscape requirements. Supplementary Planning Guidance has been produced by the East Riding of Yorkshire Council in collaboration with other Local Authorities in relation to the Lower Derwent Valley (ERYC 2017).</p>	<p>East Riding of Yorkshire Council (2017) Lower Derwent Valley Supplementary Planning Document. https://www.eastriding.gov.uk/environment/planning-and-building-control/planning-policy/supplementary-planning-documents/</p>
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 for feeding.	<p>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</p>	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>modify these characteristics may adversely affect the feature.</p> <p>In order to provide appropriate habitat for wigeon it is essential that the historic, traditional management of the ings meadows be continued. This should include the taking of an annual hay crop with aftermath grazing resulting in a relative short sward at the start of the winter period.</p> <p>Short grassland on River Derwent flood banks is also important.</p>	
<p>Version Control Advice last updated: 21 March 2019 following stakeholder feedback. Additional information added to explanatory notes for Water depth and water quality/ quantity attributes highlighting how factors within wider Derwent basin may affect the SPA. Clarification in explanatory notes for Minimising disturbance caused by human activity attribute around impacts on seasonal flooding on recreational use of the SPA.</p>				
<p>Variations from national feature-framework of integrity-guidance: Removal of habitat references attribute as not present within site and reference to breeding populations.</p>				

Table 3: 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)
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 the feature for all necessary stages of the non-breeding/wintering period (moulting, roosting, loafing, and feeding).</p> <p>Estimated extent of habitats based upon JNCC standard Natura 2000 Data form:</p> <p>Wet grassland (which will be partially inundated during winter months) c.709ha Inland water bodies (Standing/Running water) c. 109ha Fens & associated habitats c.262ha</p>	<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. 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</p> <p>As with wigeon, birds are widely distributed across the site where they feed amongst vegetation such as reed canary grass. It has been suggested by Goodall (2005) that Melbourne and Thornton Ings, Ellerton Ings and Bubwith Ings are particularly important, where shallow flooding and dense stands of emergent vegetation provide ideal wintering conditions.</p>	<p>Goodall (2005): review of the Importance of the Lower Derwent Valley for Birds (Ecological services Ltd) - A report to the Environment Agency.</p>
Supporting habitat (both within and outside the SPA): function/ supporting process	Water quality/ quantity	<p>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 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 breeding, rearing, 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>	<p>European Site Conservation Objectives: Supplementary Advice on Conserving and Restoring Site Features River Derwent Special Area of Conservation (SAC) Site Code: UK0030253 http://publications.naturalengland.org.uk/publication/4824082210095104 NATURAL ENGLAND & THE ENVIRONMENT AGENCY 2014. Diffuse Water Pollution Plan for</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>Flooding within the SPA is difficult to control as it is largely a gravity fed system with few water control structures. The site is therefore largely at the vagaries of climatic and river conditions. Consequently factors in the wider River Derwent catchment may have a significant influence on conditions within the SPA.</p> <p>Reference should be made to water quality targets provided in the River Derwent Conservation Objectives: Supplementary Advice and referenced in the River Derwent SSSI and Pocklington Canal SSSI Diffuse Water Pollution Plan (DWP) Natural England and Environment Agency 2014).</p>	River Derwent SSSI and Pocklington Canal SSSI.
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.	<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>Conservation measures and management for this feature will typically include hay cutting and grazing, scrub management, weed control and recreational access/vegetation management. Also covered is maintenance of surface drainage features such as grips gutters and foot drains. Retention of suitable land use infrastructure patterns to enable site management e.g. pastoral livestock farming.</p> <p>Further details about the necessary conservation measures for this site will can be found within, where applicable, supporting documents such as Lower Derwent Valley Natura 2000 Site Improvement Plan, and Lower Derwent Valley Management Plan 2005-2010. NNR Plan reference.</p> <p>Considerable areas of the site are managed under agri-environment scheme agreement between Natural England and individual private owners.</p>	<p>NATURAL ENGLAND (2014), Site Improvement Plan: Lower Derwent Valley (SIP058)</p> <p>Natural England “Views about Management” can be found at http://www.sssi.naturalengland.org.uk/Special/sssi/vam/VAM%201002114.pdf</p> <p>Additional information relating to the management of the site can be found within;</p> <p>Chalk, L. Leighton, E. & Bentley, M on behalf of Lower Derwent Valley Project Partners (2005). The Sustainable Management of the Lower Derwent Valley, Yorkshire. Lower Derwent Valley Management Plan 2005-2010 (<i>Available from Natural England on request</i>).</p> <p>Natural England NNR Management Plan (in prep.)</p>

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 explanatory notes for this attribute 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 at a level which is above 4040 individuals (population at time of designation English Nature 1993) whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	See general explanatory notes for this attribute in Table 1. Teal The Departmental Brief at the time of SPA classification quoted a 5 year mean of 4040, representing 1% of the north-west European population. The peak figure of 5,700 during this period quoted in Departmental Brief occurring in 1990/91. Since is classification as a SPA numbers have increased with the five year (2012-17) peak mean being 7459 and a peak count of 10,000 in 2016/17 (Frost <i>et al.</i> 2018).	English Nature (1993): Departmental Brief, Lower Derwent Valley Proposed Special Protection Area and Ramsar Site 628A Frost, T.M., Austin, G.E., Calbrade, N.A., Mellan, H.J., Hearn, R.D., Stroud, D.A., Wotton, S.R. and Balmer, D.E. 2018. Waterbirds in the UK 2016/17: The Wetland Bird Survey. BTO/RSPB/JNCC. Thetford.
Supporting habitat (both within and outside the SPA): minimising disturbance	Minimising disturbance caused by human activity	Reduce the frequency, duration and/or intensity of disturbance affecting, roosting, foraging, feeding, 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, abandonment of nest sites and desertion of supporting habitat (both within or outside the designated site boundary where appropriate). This may undermine successful nesting, rearing, feeding and/or roosting, and/or may reduce the availability of suitable habitat as birds are displaced and their distribution within the site contracts. Disturbance associated with human activity may take a variety of forms including noise, light, sound, vibration, trampling, and presence of people, animals and structures.	Natural England (2014) Site Improvement Plan: Lower Derwent Valley (SIP058). http://publications.naturalengland.org.uk/publication/5916047525806080

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>The Lower Derwent Valley Site Improvement Plan highlights that recreational activities, public access along public and non-public rights of way (particularly flood banks) is causing increasing disturbance to birds. It is thought that much of this originates from adjacent villages as opposed to visitors from further afield. Seasonal flooding can restrict some access by recreational users on foot however it can increase other activities e.g. canoeing and kite surfing.</p>	
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, over at least 50% of the total standing water area.	<p>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. Permanent large waterbodies are largely absent from the site. Birds historically associated with the large expanse of open, shallow water provided by the flooded meadows and grasslands during the winter months.</p> <p>Flooding within the SPA is difficult to control as it is largely a gravity fed system with few water control structures. The site is therefore largely at the vagaries of climatic and river conditions. Consequently factors in the wider River Derwent catchment may have a significant influence on conditions within the SPA.</p>	
Supporting habitat (both within and outside the SPA): function/ supporting process	Connectivity with supporting habitats	Maintain the safe passage of birds 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.	
Supporting habitat (both within and outside the SPA):	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	

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	Food availability within supporting habitat	Maintain the cover/abundance of preferred food plants (e.g. <i>Polygonum</i> , <i>Eleocharis</i> , <i>Rumex</i> , <i>Ranunculus</i>).	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: 21 March 2019 following stakeholder feedback. Additional information added to explanatory notes for Water depth and water quality/ quantity attributes highlighting how factors within wider Derwent basin may affect the SPA. Clarification in explanatory notes for Minimising disturbance caused by human activity attribute around impacts on seasonal flooding on recreational use of the SPA.				
Variations from national feature-framework of integrity-guidance: Removal of some food availability attributes considered not relevant to site.				

Table 4: 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 population at a level which is above 50 pairs (English nature 1993), whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	See general text in explanatory notes for this attribute in Table 1. Northern Shoveler The Departmental Brief at the time of SPA classification 1993 quoted a mean figure of 50 pairs for the 1981-1990 period, which at the time represented 3% of breeding British population. There is little information available as to the natural fluctuations in breeding numbers from this time. The population however appears to have remained stable over this period and the latest 5 year mean (2012-17) was 47 breeding pairs (confirmed and probable) Ralston 2013-17).	English Nature (1993): Departmental Brief, Lower Derwent Valley Proposed Special Protection Area and Ramsar Site 628A Ralston, C. (2012-2017) Rare Breeding Bird Panel Records Natural England files Tate, D. (2009-2014) Breeding Bird surveys of Lower Derwent Valley conducted 2009-2014
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): Estimated extent of habitats within SPA based upon JNCC standard Natura 2000 Data form: Wet grassland (which will be partially inundated during winter months) c.709ha Inland water bodies (Standing/Running water) c. 109ha Fens & associated habitats c.262ha	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. Breeding birds are found on "wetter" ings, with Wheldrake Ings and North Duffield Carrs being key sites. Here the extensive network of ditches and pools associated with "marshy grassland provides ideal habitat.	
Supporting habitat (both within and outside	Air quality	Maintain concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values	See explanatory notes for this attribute 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

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
the SPA): function/ supporting process		given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).		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.	<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>Conservation measures and management for this feature will typically include hay cutting and grazing, scrub management, weed control and recreational access/vegetation management. Also covered is maintenance of surface drainage features such as grips gutters and foot drains. Retention of suitable land use infrastructure patterns to enable site management e.g. pastoral livestock farming.</p> <p>Further details about the necessary conservation measures for this site will can be found within, where applicable, supporting documents such as Lower Derwent Valley Natura 2000 Site Improvement Plan, and Lower Derwent Valley Management Plan 2005-2010. NNR Plan reference.</p> <p>Considerable areas of the site are managed under agri-environment scheme agreement between Natural England and individual private owners.</p>	<p>NATURAL ENGLAND (2014), Site Improvement Plan: Lower Derwent Valley (SIP058)</p> <p>Natural England “Views about Management” can be found at http://www.sssi.naturalengland.org.uk/Special/sssi/vam/VAM%201002114.pdf</p> <p>Additional information relating to the management of the site can be found within;</p> <p>Chalk, L. Leighton, E. & Bentley, M on behalf of Lower Derwent Valley Project Partners (2005). The Sustainable Management of the Lower Derwent Valley, Yorkshire. Lower Derwent Valley Management Plan 2005-2010 (<i>Available from Natural England on request</i>).</p> <p>Natural England NNR Management Plan (in prep.)</p>
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.	

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 high cover/abundance of preferred food plants (e.g. <i>Scirpus</i> , <i>Eleocharis</i> , <i>Carex</i> , <i>Potamogeton</i> , <i>Glyceria</i> , surface plankton).	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 (e.g. <i>Hydrobia</i> , <i>crustaceans</i> , <i>caddisflies</i> , <i>diptera</i> , <i>beetles</i>) 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	Hydrology/ flow	Maintain water availability in feeding sites to provide shallow surface water and damp field conditions.	<p>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.</p> <p>Flooding within the SPA is difficult to control as it is largely a gravity fed system with few water control structures. The site is therefore largely at the vagaries of climatic and river conditions. Consequently factors in the wider River Derwent catchment may have a significant influence on conditions within the SPA. Proactive water level management is only possible on Wheldrake Ings and to a lesser extent North Duffield Carrs. At Wheldrake Ings water is allowed to gradually drain from the site in accordance with agreed protocols. Further information from Natural England on request.</p>	
Supporting habitat (both within and outside	Hydrology/ flow	Maintain the hydrology of a waterbody used as a feeding site such that water levels reduce (or are reduced) from	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,	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
the SPA): function/ supporting process		the time of mean hatch date to the end of the breeding season.	<p>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.</p> <p>Flooding within the SPA is difficult to control as it is largely a gravity fed system with few water control structures. The site is therefore largely at the vagaries of climatic and river conditions. Consequently factors in the wider River Derwent catchment may have a significant influence on conditions within the SPA. Proactive water level management is only possible on Wheldrake Ings and to a lesser extent North Duffield Carrs. At Wheldrake Ings water is allowed to gradually drain from the site in accordance with agreed protocols. Further information from Natural England on request.</p>	
Supporting habitat (both within and outside the SPA): function/ supporting process	Water depth	Maintain the availability of standing water at optimal depth, typically <0.3 m deep, over at least 50% of the total standing water area.	<p>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.</p> <p>Flooding within the SPA is difficult to control as it is largely a gravity fed system with few water control structures. The site is therefore largely at the vagaries of climatic and river conditions. Consequently factors in the wider River Derwent catchment may have a significant influence on conditions within the SPA. Permanent large waterbodies are largely absent from the site, with Wheldrake Ings providing the largest single expanse of permanent water.</p>	
Supporting habitat (both within and outside the SPA): function/ supporting	Water quality/ quantity	Where the supporting habitats of the SPA feature are dependent on surface water, maintain water quality and quantity at 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.	European Site Conservation Objectives: Supplementary Advice on Conserving and Restoring Site Features River Derwent Special Area of Conservation (SAC)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
process			<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> <p>Flooding within the SPA is difficult to control as it is largely a gravity fed system with few water control structures. The site is therefore largely at the vagaries of climatic and river conditions. Consequently factors in the wider River Derwent catchment may have a significant influence on conditions within the SPA.</p> <p>Reference should be made to water quality targets provided in the River Derwent Conservation Objectives: Supplementary Advice and referenced in the River Derwent SSSI and Pocklington Canal SSSI Diffuse Water Pollution Plan (DWP) Natural England and Environment Agency 2014).</p>	<p>Site Code: UK0030253 http://publications.naturalengland.org.uk/publication/4824082210095104</p> <p>NATURAL ENGLAND & THE ENVIRONMENT AGENCY 2014. Diffuse Water Pollution Plan for River Derwent SSSI and Pocklington Canal SSSI.</p>
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, birds so that the feature is not significantly disturbed	<p>The nature, scale, timing and duration of some human activities can result in the disturbance of birds at a level that may substantially affect their behaviour, and consequently affect the long-term viability of the population. Such disturbing effects can for example result in changes to feeding or roosting behaviour, increases in energy expenditure due to increased flight, abandonment of nest sites and desertion of supporting habitat (both within or outside the designated site boundary where appropriate). This may undermine successful nesting, rearing, feeding and/or roosting, and/or may reduce the availability of suitable habitat as birds are displaced and their distribution within the site contracts.</p> <p>Disturbance associated with human activity may take a variety of forms including noise, light, sound, vibration, trampling, and presence of people, animals and structures. The Lower Derwent Valley Site Improvement Plan highlights that recreational activities, public access along public and non-public rights of way (particularly flood banks) is causing</p>	<p>Natural England (2014) Site Improvement Plan: Lower Derwent Valley (SIP058). http://publications.naturalengland.org.uk/publication/5916047525806080</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			increasing disturbance to birds. It is thought that much of this originates from adjacent villages as opposed to visitors from further afield. Seasonal flooding can restrict some access by recreational users on foot however it can increase other activities e.g. canoeing and kite surfing.	
Supporting habitat (both within and outside the SPA): predation	Predation	Reduce predation and disturbance caused by native and non-native predators.	<p>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.</p> <p>A review of the effect of predation on breeding waders was undertaken by Tate (2017)</p>	Tate, D, D. Tect (2017) A Review of the Breeding Waders in the Lower Derwent Valley
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. In order to provide appropriate habitat for shoveler it is essential that the historic, traditional management of the ings meadows be continued. This should include the taking of an annual hay crop with aftermath grazing and sympathetic ditch management.	
<p>Version Control Advice last updated: 21 March 2019 following stakeholder feedback. Additional information added to explanatory notes for Hydrology/ flow, water depth, water quality/ quantity and Water area attributes highlighting how factors within wider Derwent basin may affect the SPA. Clarification in explanatory notes for Minimising disturbance caused by human activity attribute around impacts on seasonal flooding on recreational use of the SPA.</p> <p>Variations from national feature-framework of integrity-guidance: N/A</p>				

Table 5: 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)
Non-breeding population	Population abundance	Maintain the size of the non-breeding population at a level which is above 4,120 individuals (population at time of designation - English Nature 1993), whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	See general explanatory notes for this attribute in Table 1. Golden Plover The Departmental Brief at the time of SPA classification 1993 quoted a mean figure of 4,120 for the 1986/87-1990/91 period, which at the time represented 2% of British population. Peak mean for this period being 6050. Counts of 4620 (1989), and 3000+ and 4000+ in 1990 were also reported by Ralston (2005). 5 year annual peak counts between 1992/93 (Year of designation) and 1996/97 ranged from to 3000-8900 with 5 year average 5400.	English Nature (1993): Departmental Brief, Lower Derwent Valley Proposed Special Protection Area and Ramsar Site 628A Ralston, C.S. (2005): Birds of the Lower Derwent valley; A historic review 1850-2002 (English Nature)
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) Estimated extent of habitats based upon JNCC standard Natura 2000 Data form: Wet grassland (which will be partially inundated during winter months) c.709ha Inland water bodies (Standing/Running water) c. 109ha Fens & associated habitats c.262ha	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 Birds are known use arable land adjacent to the SPA both for roosting and feeding and it is important that these habitats are maintained.	Goodall (2005): review of the Importance of the Lower Derwent Valley for Birds (Ecological services Ltd) - A report to the Environment Agency.
Supporting habitat (both within and outside the SPA):	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	See explanatory notes for this attribute 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

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
function/ supporting process		on the Air Pollution Information System (www.apis.ac.uk).		(www.apis.ac.uk).
Supporting habitat (both within and outside the SPA): function/ supporting process	Connectivity with supporting habitats	Maintain the safe passage of birds 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.	
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.	<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>Conservation measures and management for this feature will typically include hay cutting and grazing, scrub management, weed control and recreational access/vegetation management. Also covered is maintenance of surface drainage features such as grips gutters and foot drains. Retention of suitable land use infrastructure patterns to enable site management e.g. pastoral livestock farming.</p> <p>Further details about the necessary conservation measures for this site will can be found within, where applicable, supporting documents such as Lower Derwent Valley Natura 2000 Site Improvement Plan, and Lower Derwent Valley Management Plan 2005-2010 and National Nature Reserve Management Plan.</p> <p>Considerable areas of the site are managed under agri-environment scheme agreement between Natural England and individual private owners.</p>	<p>Natural England (2014), Site Improvement Plan: Lower Derwent Valley (SIP058)</p> <p>Natural England “Views about Management” can be found at http://www.sssi.naturalengland.org.uk/Special/sssi/vam/VAM%201002114.pdf</p> <p>Additional information relating to the management of the site can be found within;</p> <p>Chalk, L. Leighton, E. & Bentley, M on behalf of Lower Derwent Valley Project Partners (2005). The Sustainable Management of the Lower Derwent Valley, Yorkshire. Lower Derwent Valley Management Plan 2005-2010 (Available from Natural England on request).</p> <p>Natural England NNR Management Plan (in prep.)</p>
Supporting habitat	Food availability	Maintain availability of key prey items (e.g. earthworm,	The availability of an abundant food supply is critically important for successful breeding, adult fitness and survival	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
(both within and outside the SPA): function/ supporting process	within supporting habitat	leatherjackets, beetles, spiders) at preferred prey sizes.	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 and Maintain the area of soggy or flooded land overall.	<p>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.</p> <p>Flooding within the SPA is difficult to control as it is largely a gravity fed system with few water control structures. The site is therefore largely at the vagaries of climatic and river conditions. Consequently factors in the wider River Derwent catchment may have a significant influence on conditions within the SPA. Proactive water level management is only possible on Wheldrake Ings and to a lesser extent North Duffield Carrs. At Wheldrake Ings water is allowed to gradually drain from the site in accordance with agreed protocols. Further information from Natural England on request.</p>	
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 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 breeding, rearing, 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</p>	<p>European Site Conservation Objectives: Supplementary Advice on Conserving and Restoring Site Features River Derwent Special Area of Conservation (SAC) Site Code: UK0030253 http://publications.naturalengland.org.uk/publication/4824082210095104</p> <p>NATURAL ENGLAND & THE ENVIRONMENT AGENCY 2014.</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>appropriate standards for the SPA.</p> <p>Flooding within the SPA is difficult to control as it is largely a gravity fed system with few water control structures. The site is therefore largely at the vagaries of climatic and river conditions. Consequently factors in the wider River Derwent catchment may have a significant influence on conditions within the SPA.</p> <p>Reference should be made to water quality targets provided in the River Derwent Conservation Objectives: Supplementary Advice and referenced in the River Derwent SSSI and Pocklington Canal SSSI Diffuse Water Pollution Plan (DWP) Natural England and Environment Agency 2014).</p>	Diffuse Water Pollution Plan for River Derwent SSSI and Pocklington Canal SSSI.
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 feature is not significantly disturbed	<p>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.</p> <p>Disturbance associated with human activity may take a variety of forms including noise, light, sound, vibration, trampling, and presence of people, animals and structures.</p> <p>The Lower Derwent Valley Site Improvement Plan highlights that recreational activities, public access along public and non-public rights of way (particularly flood banks) is causing increasing disturbance to birds. It is thought that much of this originates from adjacent villages as opposed to visitors from further afield. Seasonal flooding can restrict some access by recreational users on foot however it can increase other activities e.g. canoeing and kite surfing.</p>	Natural England (2014) Site Improvement Plan: Lower Derwent Valley (SIP058). http://publications.naturalengland.org.uk/publication/5916047525806080

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Supporting habitat (both within and outside the SPA): structure	Landscape	Maintain open and unobstructed terrain within and around, roosting and feeding sites, and no overall reduction in field size.	<p>This feature is known to favour large areas of open terrain, largely free of obstructions, in and around its nesting, roosting and feeding areas. Often there is a need to maintain an unobstructed line of sight within nesting, feeding or roosting habitat to detect approaching predators, or to ensure visibility of displaying behaviour. An open landscape may also be required to facilitate movement of birds between the SPA and any off-site supporting habitat.</p> <p>Surrounding arable farmland will be particularly important for this species.</p> <p>Planning proposals coming forward will need to take into account these landscape requirements. Supplementary Planning Guidance has been produced by the East Riding of Yorkshire Council in collaboration with other Local Authorities in relation to the Lower Derwent Valley (ERYC 2017).</p>	<p>East Riding of Yorkshire Council (2017) Lower Derwent Valley Supplementary Planning Document. https://www.eastriding.gov.uk/environment/planning-and-building-control/planning-policy/supplementary-planning-documents/</p>
Supporting habitat (both within and outside the SPA): structure	Vegetation characteristics	Maintain the extent and distribution of predominantly short (<10 cm) grassland swards or adjacent arable fields in areas used for feeding is ed.	<p>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.</p> <p>Birds are known use arable land adjacent to the SPA both for roosting and feeding and it is important that these habitats are maintained.</p>	
Supporting habitat (both within and outside the SPA): structure	Vegetation characteristics	Maintain the vegetation structure of key roost sites to that dominated by bare ground or a short sparsely-vegetated sward.	<p>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.</p>	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			Birds are known use arable land adjacent to the SPA both for roosting and feeding and it is important that these habitats are maintained.	
Version Control Advice last updated: 21 March 2019 following stakeholder feedback. Additional information added to explanatory notes for Hydrology/ flow and water quality/ quantity attributes highlighting how factors within wider Derwent basin may affect the SPA. Clarification in explanatory notes for Minimising disturbance caused by human activity attribute around impacts on seasonal flooding on recreational use of the SPA.				
Variations from national feature-framework of integrity-guidance: N/A				

Table 6: Supplementary Advice for Qualifying Features: A151. *Philomachus pugnax*; Ruff (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 population at a level which is above 50 individuals (wintering)/100 (passage) [population at time of designation English Nature 1993] which is above whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	<p>See general explanatory notes for this attribute in Table 1</p> <p>Ruff The Departmental Brief at the time of SPA classification 1993 quoted a winter mean figure 50 for the 1986/87-1990/91 period, which at the time represented 3.5% of British population. Peak mean for this period being 86. A figure 100 passage birds is stated on the SPA citation. Five year annual peak winter counts between 1992/93 (Year of designation) and 1996/97 ranged from to 81-189 with 5 year average 122 (Frost <i>et al.</i> 2018).</p> <p>Birds are widely distributed across the area being found wherever flooding conditions are suitable. Spring passage of birds from African wintering grounds begins in late February with most movement in March and April (Goodall 2005). Consequently counts from this period may include both wintering and passage birds.</p>	<p>English Nature 1993: Departmental Brief, Lower Derwent Valley Proposed Special Protection Area and Ramsar Site 628A.</p> <p>Goodall (2005): review of the Importance of the Lower Derwent Valley for Birds (Ecological services Ltd) - A report the Environment Agency</p> <p>Frost, T.M., Austin, G.E., Calbrade, N.A., Mellan, H.J., Hearn, R.D., Stroud, D.A., Wotton, S.R. and Balmer, D.E. 2018. Waterbirds in the UK 2016/17: The Wetland Bird Survey. BTO/RSPB/JNCC. Thetford.</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 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)</p> <p>Wet grassland (which will be partially inundated during winter months) c.709ha Inland water bodies (Standing/Running water) c. 109ha Fens & associated habitats</p>	<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. 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.</p> <p>The Lower Derwent Valley provides a mosaic of habitats; including; periodically flooded wet grassland, fens, marsh and swamp vegetation together with standing and flowing open water. The relative abundance of these communities will vary according to the season however estimated extent of communities based upon JNCC standard Natura 2000 Data form.</p>	<p>Goodall (2005): review of the Importance of the Lower Derwent Valley for Birds (Ecological services Ltd) - A report the Environment Agency</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		c.262ha	Goodall (2005) states that wintering ruff are widely distributed across the site wherever flooding and consequently feeding conditions are suitable. Like golden plover, during cold weather birds will leave the area in preference for coastal areas.	
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 explanatory notes for this attribute 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).
Supporting habitat (both within and outside the SPA): function/supporting process	Connectivity with supporting habitats	Maintain the safe passage of birds 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.	
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 the structure, function and/or the supporting processes associated with the 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>Conservation measures and management for this feature will typically include hay cutting and grazing, scrub management, weed control and recreational access/vegetation management. Also covered is maintenance of surface drainage features such as grips gutters and foot drains. Retention of suitable land use infrastructure patterns to enable site management e.g. pastoral livestock farming.</p> <p>Further details about the necessary conservation measures for this site will can be found within, where applicable, supporting documents such as Lower Derwent Valley Natura 2000 Site Improvement Plan, and Lower Derwent Valley Management</p>	<p>NATURAL ENGLAND, 2014. Site Improvement Plan: Lower Derwent Valley (SIP058)</p> <p>Natural England "Views about Management" can be found at http://www.sssi.naturalengland.org.uk/Special/sssi/vam/VAM%201002114.pdf</p> <p>Additional information relating to the management of the site can be found within;</p> <p>Chalk, L. Leighton, E. & Bentley, M on behalf of Lower Derwent Valley Project Partners (2005). The Sustainable Management of</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>Plan 2005-2010 and National Nature Reserve Management Plan.</p> <p>Considerable areas of the site are managed under agri-environment scheme agreement between Natural England and individual private owners.</p>	<p>the Lower Derwent Valley, Yorkshire. Lower Derwent Valley Management Plan 2005-2010 (<i>Available from Natural England on request</i>).</p> <p>Natural England NNR Management Plan (in prep.)</p>
Supporting habitat (both within and outside the SPA): function/supporting process	Food availability within supporting habitat	Maintain availability of key prey species (e.g. dipteran flies, beetles, earthworms) 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 the availability of key prey species (e.g. Caddis flies, crustaceans, molluscs and worms) of 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	Water depth	Maintain the availability of water at optimal depths, typically 1-3 cm deep, over at least 50% of the total water area.	<p>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.</p> <p>Flooding within the SPA is difficult to control as it is largely a gravity fed system with few water control structures. The site is therefore largely at the vagaries of climatic and river conditions. Consequently factors in the wider River Derwent catchment may have a significant influence on conditions within the SPA. Proactive water level management is only possible on</p>	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			Wheldrake Ings and to a lesser extent North Duffield Carrs. At Wheldrake Ings water is allowed to gradually drain from the site in accordance with agreed protocols. Further information from Natural England on request.	
Supporting habitat (both within and outside the SPA): function/supporting process	Water quality/quantity	Where the supporting habitats of the SPA feature are dependent on surface water ensure water quality and quantity is maintained to a standard which provides the necessary conditions to support the 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 breeding, rearing, 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> <p>Flooding within the SPA is difficult to control as it is largely a gravity fed system with few water control structures. The site is therefore largely at the vagaries of climatic and river conditions. Consequently factors in the Wider River Derwent Catchments may have a significant influence on conditions within the SPA. Reference should be made to water quality targets provided in the River Derwent SAC Conservation Objectives supplementary advice and referenced in the River Derwent SSSI and Pocklington Canal SSSI Diffuse Water Pollution Plan (DWP) Natural England and Environment Agency 2014).</p>	<p>European Site Conservation Objectives: Supplementary Advice on Conserving and Restoring Site Features River Derwent Special Area of Conservation (SAC) Site Code: UK0030253 http://publications.naturalengland.org.uk/publication/4824082210095104</p> <p>NATURAL ENGLAND & THE ENVIRONMENT AGENCY 2014. Diffuse Water Pollution Plan for River Derwent SSSI and Pocklington Canal SSSI.</p>
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 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	<p>Natural England (2014) Site Improvement Plan: Lower Derwent Valley (SIP058). http://publications.naturalengland.org.uk/publication/5916047525806080</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>reduce the availability of suitable habitat as birds are displaced and their distribution within the site contracts. Disturbance associated with human activity may take a variety of forms including noise, light, sound, vibration, trampling, and presence of people, animals and structures.</p> <p>Recreational disturbance is thought to be an issue. Although seasonal flooding can restrict some access by recreational users on foot it can increase other activities e.g. canoeing and kite surfing. Walking (particularly with dogs) along footpaths associated with river flood banks and on ings meadows can also result in disturbance. It is thought that much of this originates from adjacent villages as opposed to visitors from further afield. Although seasonal flooding can restrict some access by recreational users on foot it can increase other activities e.g. canoeing and kite surfing.</p>	
Supporting habitat (both within and outside the SPA): structure	Landscape	Maintain open and unobstructed terrain within and around nesting, roosting and feeding areas	<p>This feature is known to favour large areas of open terrain, largely free of obstructions, in and around its nesting, roosting and feeding areas. Often there is a need to maintain an unobstructed line of sight within nesting, feeding or roosting habitat to detect approaching predators, or to ensure visibility of displaying behaviour. An open landscape may also be required to facilitate movement of birds between the SPA and any off-site supporting habitat.</p> <p>Planning proposals coming forward will need to take into account these landscape requirements. Supplementary Planning Guidance has been produced by the East Riding of Yorkshire Council in collaboration with other Local Authorities in relation to the Lower Derwent Valley (ERYC 2017).</p>	<p>East Riding of Yorkshire Council (2017) Lower Derwent Valley Supplementary Planning Document. https://www.eastriding.gov.uk/environment/planning-and-building-control/planning-policy/supplementary-planning-documents/</p>
Supporting habitat (both within and outside the SPA): structure	Vegetation characteristics	Maintain a vegetation structure of key roost sites dominated by bare ground or a short sparsely-vegetated sward.	<p>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.</p>	

Version Control Advice last updated: **21 March 2019** following stakeholder feedback. Additional information added to explanatory notes for **Water depth** and **Water**

Attributes	Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
<p>quality/ quantity attributes highlighting how factors within wider Derwent basin may affect the SPA. Clarification in explanatory notes for Minimising disturbance caused by human activity attribute around impacts on seasonal flooding on recreational use of the SPA.</p>			
<p>Variations from national feature-framework of integrity-guidance: N/A</p>			

Table 7: Supplementary Advice for Qualifying Features: Waterbird assemblage

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Assemblage of species	Assemblage abundance	Maintain the overall abundance of the non-breeding assemblage at a level which is above 27,580 individuals (5 year peak mean at time of designation – English Nature 1993) whilst avoiding deterioration from its current level as indicated by the latest mean peak count of 33,885 (Frost <i>et al.</i> 2018) .	<p>See general explanatory notes for this attribute in Table 1.</p> <p>Target figure derived from SPA citation and 1993 Departmental Brief (English nature 1993)</p> <p>At time of drafting this advice wintering numbers are higher than at time of designation with mean peak counts for the period 2012/13-2016/17 being 33,885 (Frost <i>et al.</i> 2018).</p> <p>The site remains one of the most important inland sites for wintering waterfowl in the United Kingdom.</p>	<p>The most recent data about this feature on this SPA can be found at. BTO WeBS data at Frost, T.M., Austin, G.E., Calbrade, N.A., Mellan, H.J., Hearn, R.D., Stroud, D.A., Wotton, S.R. and Balmer, D.E. 2018. Waterbirds in the UK 2016/17: The Wetland Bird Survey. BTO/RSPB/JNCC. Thetford.</p> <p>English Nature (1993) Departmental Brief: Lower Derwent Valley; Proposed Special Protection Area and Ramsar Site</p>
Assemblage of species	Diversity of species	Maintain the species diversity of the bird 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. 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</p>	<p>Goodall (2005): review of the Importance of the Lower Derwent Valley for Birds (Ecological services Ltd) - A report the Environment Agency</p> <p>Frost, T.M., Austin, G.E., Calbrade, N.A., Mellan, H.J., Hearn, R.D., Stroud, D.A., Wotton, S.R. and Balmer, D.E. 2018. Waterbirds in the UK 2016/17: The Wetland Bird Survey. BTO/RSPB/JNCC. Thetford.</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>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. 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>	
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, and feeding) of the non-breeding period.</p> <p>Wet grassland (which will be partially inundated during winter months) c.709ha Inland water bodies (Standing/Running water) c. 109ha Fens & associated habitats c.262ha</p>	<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. 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 principal habitats known or likely to support the assemblage feature at this SPA are as outlined on the JNCC standard Natura 2000 data form.</p> <p>The Lower Derwent Valley provides a mosaic of habitats; including; periodically flooded wet grassland, fens, marsh and swamp vegetation together with standing and flowing open water. The relative abundance of these communities will vary according to the season, however estimated extent of communities based upon JNCC standard Natura 2000 Data form</p>	JNCC Natura 2000 data form at: http://jncc.defra.gov.uk/pdf/SPA/U/K9006092.pdf
Supporting habitat (both within and outside the	Air quality	Maintain concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for	See explanatory notes for this attribute 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

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
SPA): function/ supporting process		this feature of the site on the Air Pollution Information System (www.apis.ac.uk).		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.	<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>Conservation measures and management for this feature will typically include hay cutting and grazing, scrub management, weed control and recreational access/vegetation management. Also covered is maintenance of surface drainage features such as grips gutters and foot drains. Retention of suitable land use infrastructure patterns to enable site management e.g. pastoral livestock farming.</p> <p>Further details about the necessary conservation measures for this site can be found within, where applicable, supporting documents such as Lower Derwent Valley Natura 2000 Site Improvement Plan, Lower Derwent Valley Management Plan 2005-2010 and National Nature Reserve Management Plan.</p> <p>Considerable areas of the site are managed under agri-environment scheme agreement between Natural England and individual private owners.</p>	<p>NATURAL ENGLAND, 2014. Site Improvement Plan: Lower Derwent Valley (SIP058)</p> <p>Natural England "Views about Management" can be found at http://www.sssi.naturalengland.org.uk/Special/sssi/vam/VAM%201002114.pdf</p> <p>Additional information relating to the management of the site can be found within;</p> <p>Chalk, L. Leighton, E. & Bentley, M on behalf of Lower Derwent Valley Project Partners (2005). The Sustainable Management of the Lower Derwent Valley, Yorkshire. Lower Derwent Valley Management Plan 2005-2010 (<i>Available from Natural England on request</i>).</p> <p>Natural England NNR Management Plan (in prep.)</p>
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 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 breeding, rearing, feeding and roosting habitats.</p> <p>Typically, meeting the surface water and groundwater</p>	<p>European Site Conservation Objectives: Supplementary Advice on Conserving and Restoring Site Features River Derwent Special Area of Conservation (SAC) Site Code: UK0030253 http://publications.naturalengland.</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>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> <p>Apart for the River Derwent, permanent waterbodies are largely absent from the site. Birds are however associated with the large expanses of open water provided by the flooded meadows and grasslands. The largest permanent waterbody (other than the river) is found at Wheldrake Ings.</p> <p>Flooding within the SPA is difficult to control as it is largely a gravity fed system with few water control structures. The site is therefore largely at the vagaries of climatic and river conditions. Consequently factors in the wider River Derwent catchment may have a significant influence on conditions within the SPA. Reference should be made to water quality targets provided in the River Derwent SAC Conservation Objectives; Supplementary Advice and referenced in the River Derwent SSSI and Pocklington Canal SSSI Diffuse Water Pollution Plan (DWP) Natural England and Environment Agency 2014).</p>	<p>org.uk/publication/4824082210095104</p> <p>NATURAL ENGLAND & THE ENVIRONMENT AGENCY 2014. Diffuse Water Pollution Plan for River Derwent SSSI and Pocklington Canal SSSI.</p>
Supporting habitat (both within and outside the SPA): minimising disturbance	Minimising disturbance caused by human activity	Restrict the frequency, duration and/or intensity of disturbance affecting moulting, loafing, feeding and/or roosting birds so that the assemblage feature is not significantly disturbed	<p>The nature, scale, timing and duration of some human activities can result in the disturbance of birds at a level which may significantly affect their behaviour, and consequently impact on the long-term viability of their population.</p> <p>Such disturbing effects can for example result in changes to feeding or roosting behaviour, increased energy expenditure due to more frequent flights, disrupted incubation of eggs and desertion of supporting habitat (both within or outside the designated site boundary where appropriate).</p> <p>Anthropogenic disturbance of birds may in effect reduce the availability to the birds of suitable habitat through temporary or long-lasting displacement of birds from affected areas and may result in their redistribution within the site or displacement from it.</p>	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>Disturbance associated with human activity may take a variety of forms including noise, light, sound, vibration, trampling, and presence of people, animals and structures.</p> <p>The Lower Derwent Valley Site Improvement Plan highlights that recreational activities, public access along public and non-public rights of way (particularly flood banks) is causing increasing disturbance to birds. It is thought that much of this originates from adjacent villages as opposed to visitors from further afield. Seasonal flooding can restrict some access by recreational users on foot however it can increase other activities e.g. canoeing and kite surfing.</p>	
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> <p>Wet grassland (which will be partially inundated during winter months) c.709ha Inland water bodies (Standing/Running water) c. 109ha Fens & associated habitats c.262ha</p>	<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. 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. 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> <p>In addition to habitats within the site boundary it is recognised that the surrounding farmed landscape is vital for many birds using the SPA, which use surrounding fields for feeding and roosting.</p> <p>The Lower Derwent Valley provides a mosaic of habitats; including; periodically flooded wet grassland, fens, marsh and</p>	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			swamp vegetation together with standing and flowing open water. The relative abundance of these communities will vary according to the season however estimated extent of communities based upon JNCC standard Natura 2000 Data form.	
Version Control Advice last updated: 21 March 2019 following stakeholder feedback. Additional information added to explanatory notes for Water quality/ quantity attributes highlighting how factors within wider Derwent basin may affect the SPA. Clarification in explanatory notes for Minimising disturbance caused by human activity attribute around impacts on seasonal flooding on recreational use of the SPA.				
Variations from national feature-framework of integrity-guidance: N/A				

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