

Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7, as amended by Resolution VIII.13 of the Conference of the Contracting Parties.

Note for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.
2. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers are strongly urged to provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of maps.

1. Name and address of the compiler of this form:**Joint Nature Conservation Committee**

Monkstone House

City Road

Peterborough

Cambridgeshire PE1 1JY

UK

Telephone/Fax: +44 (0)1733 – 562 626 / +44 (0)1733 – 555 948

Email: RIS@JNCC.gov.uk

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Designation date

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Site Reference Number

2. Date this sheet was completed/updated:

Designated: 30 November 1992 / updated 12 May 2005

3. Country:

UK (England/Scotland)

4. Name of the Ramsar site:

Upper Solway Flats and Marshes

5. Map of site included:Refer to Annex III of the *Explanatory Notes and Guidelines*, for detailed guidance on provision of suitable maps.**a) hard copy** (required for inclusion of site in the Ramsar List): yes -or- no **b) digital (electronic) format** (optional): Yes

6. Geographical coordinates (latitude/longitude):

54 54 20 N

03 25 27 W

7. General location:

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

Nearest town/city: Dumfries

The Firth divides north-west England from south-west Scotland.

Administrative region: Cumbria

8. Elevation (average and/or max. & min.) (metres):

Min. -3

Max. 7

Mean 0

9. Area (hectares): 43636.73

(2005 calculation, no boundary change)

10. Overview:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

The flats and marshes of the Upper Solway Firth form one of the largest continuous areas of intertidal habitat in Britain. The whole estuarine complex is a site of national and international importance for wintering wildfowl and wading birds and is a vital link in a chain of west coast estuaries used by migrating birds. The site is also noted for its populations of breeding birds, natterjack toad *Bufo calamita* and invertebrates. The geomorphology and vegetation of the estuarine saltmarshes or meres is also of international importance with broad transitions to mature 'upper-marsh' being particularly well represented. A number of rare plant species and geological exposures also occur within the site.

11. Ramsar Criteria:

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

2, 5, 6

Secretariat comment: The RIS provides information requiring the application of Criterion 4. This needs to be included in the next update.

12. Justification for the application of each Criterion listed in 11. above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Ramsar criterion 2

Supports over 10% of the British population of natterjack toad *Bufo calamita* (Habitats Directive Annex IV species (S1202))

Ramsar criterion 5

Assemblages of international importance:

Species with peak counts in winter:

135720 waterfowl (5 year peak mean 1998/99-2002/2003)

Ramsar criterion 6 – species/populations occurring at levels of international importance.

Qualifying Species/populations (as identified at designation):

Species with peak counts in winter:

Pink-footed goose , <i>Anser brachyrhynchus</i> , Greenland, Iceland (br),	4321 individuals, representing an average of 1.8% of the flyway population (5 year peak mean 1998/9-2002/3)
Barnacle goose , <i>Branta leucopsis</i> , Svalbard (br) SW Scotland (w)	13515 individuals, representing an average of 58.7% of the flyway population (5 year peak mean 1998/9-2002/3)
Northern pintail , <i>Anas acuta</i> , NW Europe (non-br), NW Europe (w)	4264 individuals, representing an average of 7.1% of the flyway population (5 year peak mean 1998/9-2002/3)
Red knot , <i>Calidris canutus islandica</i> , (w)	9370 individuals, representing an average of 2.1% of the flyway population (5 year peak mean 1998/9-2002/3)
Dunlin , <i>Calidris alpina alpina</i> , W Europe (non-br)	14807 individuals, representing an average of 1.1% of the flyway population (5 year peak mean 1998/9-2002/3)

Bar-tailed godwit , <i>Limosa lapponica lapponica</i> , Coastal W Europe & NW Africa (w)	1758 individuals, representing an average of 1.4% of the flyway population (5 year peak mean 1998/9-2002/3)
Eurasian curlew , <i>Numenius arquata arquata</i> , N. a. arquata Europe W Central & N Europe E to Urals (br)	6179 individuals, representing an average of 1.4% of the flyway population (5 year peak mean 1998/9-2002/3)
Common redshank , <i>Tringa totanus totanus</i> , E Atlantic (non-br)	3459 individuals, representing an average of 1.3% of the flyway population (5 year peak mean 1998/9-2002/3)

Species with peak counts in spring/autumn:

Ringed plover , <i>Charadrius hiaticula</i> , Europe/Northwest Africa (non-br)	1405 individuals, representing an average of 1.9% of the flyway population (5 year peak mean 1998/9-2002/3 - spring peak)
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Contemporary data and information on waterbird trends at this site and their regional (sub-national) and national contexts can be found in the Wetland Bird Survey report, which is updated annually. See www.bto.org/survey/webs/webs-alerts-index.htm.

Details of bird species occurring at levels of National importance are given in Section 20

13. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:

Atlantic

b) biogeographic regionalisation scheme (include reference citation):

Council Directive 92/43/EEC

14. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

Soil & geology	No information available
Geomorphology and landscape	No information available
Nutrient status	no information
pH	no information
Salinity	saline / euhaline
Soil	mainly mineral
Water permanence	usually permanent
Summary of main climatic features	Annual averages (Aspatria, 1971–2000) (www.metoffice.com/climate/uk/averages/19712000/sites/aspatria.html) Max. daily temperature: 12.5° C Min. daily temperature: 5.6° C Days of air frost: 49.4 Rainfall: 1002.5 mm Hrs. of sunshine: 1499.4

General description of the Physical Features:

The flats and marshes of the Upper Solway form one of the largest continuous areas of intertidal habitat in Britain. The geomorphology and vegetation of the estuarine saltmarshes or merses are of international importance, with broad transitions to mature 'upper-marsh' being particularly well represented.

15. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

The flats and marshes of the Upper Solway form one of the largest continuous areas of intertidal habitat in Britain. The geomorphology and vegetation of the estuarine saltmarshes or merses are of international importance, with broad transitions to mature 'upper-marsh' being particularly well represented.

16. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Shoreline stabilisation and dissipation of erosive forces

17. Wetland types

Marine/coastal wetland

Code	Name	% Area
E	Sand / shingle shores (including dune systems)	1
G	Tidal flats	93
H	Salt marshes	6

18. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site.

The most extensive areas of saltmarsh in the Solway are Rockcliffe and Burgh marshes towards the head of the estuary, the Caerlaverock and Kirkconnell Merse on the Scottish side and the marshes of Moricambe Bay in England. The saltmarsh vegetation reflects the age, substrate type and management of the marshes and shows a well represented sequence of communities from the shore moving inland.

The seaward edge is usually typified by pioneer species, notably *Puccinellia maritima* and some *Salicornia europaea*. Other pioneering plants include *Glaux maritima*. Above this there is a transition to a grassy saltmarsh dominated by *Festuca rubra*, *Armeria maritima* and *Juncus gerardii*. In places *Agrostis stolonifera*, *Plantago maritima*, *Triglochin maritima*, *Oenanthe lachenalii* and various sedges are prominent in this central marsh zone. A number of other salt-tolerant plants such as *Glaux maritima* and *Limonium vulgare* are more local in their distribution.

Towards the landward edge of the marshes the proportion of halophytes gradually decreases leaving a sward dominated by *Agrostis* and *Festuca* grasses with species such as *Leontodon autumnalis*, *Juncus effusus*, *Holcus lanatus* and *Trifolium repens*. Brackish water areas to the inland edge of the marshes support some extensive stands of *Phragmites australis* or pools with aquatic plants such as *Catabrosa aquatica* and *Butomus umbellatus*.

In other areas there are transitions to species-rich freshwater fen, in which *Filipendula ulmaria* and *Iris pseudacorus* are typical components, or to wind-pruned cliff-side oak woodland. In places there is development of scrub to the inland margins of the marshes; this mostly comprises of *Ulex europaeus*, often with *Ononis repens*, *O. spinosa* and *Rosa pimpinellifolia*.

The shingle and sand dune areas of Grune Point and Preston Merse support a typical range of plant species including *Eryngium maritimum*, *Geranium sanguineum* and *Coincya monensis* ssp. *monensis*.

The intertidal muds and sands support large numbers of invertebrates, vitally important for the wading birds of the estuary. The main species present include *Hediste diversicolor*, *Arenicola marina*, various bivalves such as *Macoma balthica*, snails e.g. *Hydrobia ulvae*, and the amphipod *Corophium volutator*. There are mussel scars in places.

19. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Assemblage.

The site is internationally important because it contains the following Habitats Directive Annex I features:

H1130	Estuaries
H1140	Mudflats and sandflats not covered by seawater at low tide
H1220	Perennial vegetation of stony banks
H1310	<i>Salicornia</i> and other annuals colonising mud and sand
H1330	Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)
H2130	Fixed dunes with herbaceous vegetation (“grey dunes”)

Nationally important species occurring on the site.

Higher plants.

Lychnis viscaria, *Hierochloe odorata*, *Centaureum littorale*, *Limonium humile*, *Zostera* sp.

20. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Birds

Species currently occurring at levels of national importance:

Species regularly supported during the breeding season:

Little tern, *Sterna albifrons albifrons*, W Europe 23 apparently occupied nests, representing an average of 1.1% of the GB population (Seabird 2000 Census)

Species with peak counts in spring/autumn:

Eurasian oystercatcher, <i>Haematopus ostralegus ostralegus</i> , Europe & NW Africa -wintering	56831 individuals, representing an average of 5.5% of the GB population (5 year peak mean 1998/9-2002/3)
Great cormorant, <i>Phalacrocorax carbo carbo</i> , NW Europe	597 individuals, representing an average of 2.5% of the GB population (5 year peak mean 1998/9-2002/3)
Common shelduck, <i>Tadorna tadorna</i> , NW Europe	2928 individuals, representing an average of 3.7% of the GB population (5 year peak mean 1998/9-2002/3)
Grey plover, <i>Pluvialis squatarola</i> , E Atlantic/W Africa -wintering	704 individuals, representing an average of 1.3% of the GB population (5 year peak mean 1998/9-2002/3)
Sanderling, <i>Calidris alba</i> , Eastern Atlantic	216 individuals, representing an average of 1% of the GB population (5 year peak mean 1998/9-2002/3)
Ruff, <i>Philomachus pugnax</i> , Europe/W Africa	22 individuals, representing an average of 3.1% of the GB population (5 year peak mean 1998/9-2002/3)

Whimbrel , <i>Numenius phaeopus</i> , Europe/Western Africa	42 individuals, representing an average of 1.4% of the GB population (5 year peak mean 1998/9-2002/3 - spring peak)
Common greenshank , <i>Tringa nebularia</i> , Europe/W Africa	33 individuals, representing an average of 5.5% of the GB population (5 year peak mean 1998/9-2002/3)
Mew gull , <i>Larus canus canus</i> , Europe to N Africa	7111 individuals, representing an average of 1.6% of the GB population (5 year peak mean 1998/9-2002/3)
Species with peak counts in winter:	
Whooper swan , <i>Cygnus cygnus</i> , Iceland/UK/Ireland	154 individuals, representing an average of 2.6% of the GB population (5 year peak mean 1998/9-2002/3)
Greater scaup , <i>Aythya marila marila</i> , W Europe (w)	1612 individuals, representing an average of 21.3% of the GB population (5 year peak mean 1998/9-2002/3)
Great crested grebe , <i>Podiceps cristatus cristatus</i> , NW Europe	180 individuals, representing an average of 1.1% of the GB population (5 year peak mean 1998/9-2002/3)
European golden plover , <i>Pluvialis apricaria apricaria</i> , P. a. altifrons Iceland & Faroes/E Atlantic	3910 individuals, representing an average of 1.5% of the GB population (5 year peak mean 1998/9-2002/3)

Species/populations identified subsequent to designation for possible future consideration under criterion 6.

Species regularly supported during the breeding season:

Lesser black-backed gull , <i>Larus fuscus graellsii</i> , W Europe/Mediterranean/W Africa	2402 apparently occupied nests, representing an average of 1.6% of the breeding population (Seabird 2000 Census)
Herring gull , <i>Larus argentatus argentatus</i> , NW Europe and Iceland/W Europe)	7211 apparently occupied nests, representing an average of 1.9% of the breeding population (Seabird 2000 Census)

Species Information

Nationally important species occurring on the site.

Amphibians.

- Bufo calamita* (Habitats Directive Annex IV species (S1202))
- Triturus cristatus*.(Habitats Directive Annex II species (S1166))

Fish.

- Petromyzon marinus* (Habitats Directive Annex IV species (S1095)),
- Lampetra fluviatilis* (Habitats Directive Annex IV species (S1099))

21. Social and cultural values:

e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

- Aesthetic
- Archaeological/historical site
- Environmental education/ interpretation
- Fisheries production
- Livestock grazing
- Non-consumptive recreation
- Scientific research
- Sport fishing
- Sport hunting
- Tourism

Traditional cultural
Transportation/navigation

22. Land tenure/ownership:

Ownership category	On-site	Off-site
Non-governmental organisation (NGO)	+	+
Local authority, municipality etc.	+	+
National/Crown Estate	+	
Private	+	+

23. Current land (including water) use:

Activity	On-site	Off-site
Nature conservation	+	
Tourism	+	+
Recreation	+	+
Current scientific research	+	
Commercial forestry		+
Cutting of vegetation (small-scale/subsistence)	+	
Fishing: commercial	+	
Fishing: recreational/sport	+	+
Gathering of shellfish	+	
Shell collection	+	
Bait collection	+	
Arable agriculture (unspecified)		+
Grazing (unspecified)	+	
Hunting: recreational/sport	+	
Industrial water supply	+	
Industry		+
Sewage treatment/disposal	+	
Harbour/port	+	
Flood control	+	
Oil/gas exploration		+
Transport route		+
Urban development		+
Non-urbanised settlements		+
Military activities		+

24. Factors adversely affecting the site’s ecological character, including changes in land (including water) use and development projects:

Explanation of reporting category:

1. Those factors that are still operating, but it is unclear if they are under control, as there is a lag in showing the management or regulatory regime to be successful.
2. Those factors that are not currently being managed, or where the regulatory regime appears to have been ineffective so far.

NA = Not Applicable because no factors have been reported.

Adverse Factor Category	Reporting Category	Description of the problem (Newly reported Factors only)	On-Site	Off-Site	Major Impact?
No factors reported	NA				

For category 2 factors only. What measures have been taken / are planned / regulatory processes invoked, to mitigate the effect of these factors?
Is the site subject to adverse ecological change? NO

25. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

Conservation measure	On-site	Off-site
Site/ Area of Special Scientific Interest (SSSI/ASSI)	+	
National Nature Reserve (NNR)	+	
Special Protection Area (SPA)	+	
Land owned by a non-governmental organisation for nature conservation	+	
Management agreement	+	
Site management statement/plan implemented	+	
Other	+	
Area of Outstanding National Beauty (AONB)	+	+
Special Area of Conservation (SAC)	+	

26. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

No information available

27. Current scientific research and facilities:

e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Contemporary.

Fauna.

Numbers of migratory and wintering wildfowl and waders are monitored annually as part of the national Wetland Birds Survey (WeBS) organised by the British Trust for Ornithology, Wildfowl & Wetlands Trust, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee.

Bird ringing: Long-term ringing studies are carried out by the Cumbria Bird Club

Breeding Birds: Numbers and success of breeding birds monitored annually on some of the voluntary conservation body reserves

Invertebrates (terrestrial): The statutory country nature conservation agencies English Nature and Scottish Natural Heritage hold national databases of invertebrate records, information used to produce the Invertebrate Site Registers. Additional information is held by Biological Records Centre at Tullie House Museum, Carlisle.

Monitoring of breeding colonies of natterjack toad is undertaken on an annual basis by SNH, English Nature, the British Herpetological Society and volunteers.

National otter surveys have been undertaken on both sides of the border and data is collected by the Vincent Wildlife Trust.

Defra and SEERAD have a responsibility for the collection of statistical data for fishing activity in their respective waters.

Environment.

Water quality and pollution of freshwater and coastal waters within the Solway Firth catchment is regulated by national and international regulations.

Completed.

Miscellaneous.

The following key reference includes a section on 'research and information sources' at the end of each chapter: Solway Firth Partnership (1996) *Solway Firth Review*.

28. Current conservation education:

e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

RSPB, WWT, NTS, the Hoddum & Kinmount Ranger Service and Solway Rural Initiative wardens lead guided walks, bird watching and other education events. SNH also leads guided walks and events at Caerlaverock NNR.

There are interpretation facilities at each of the non-governmental body reserves and at Caerlaverock NNR. The non-governmental organisation nature reserves on the Solway Firth are listed in the *Solway Firth Review*, June 1996.

29. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Activities, Facilities provided and Seasonality.

A review of the recreation and tourism facilities on the Solway Firth is included in the *Solway Firth Review* (June 1996), which lists the following activities: visiting castles, monuments and churches; hiking/hillwalking; fishing; swimming; visiting museums and galleries; golf; field and nature study; and other.

Visitor access and facilities are provided at Caerlaverock NNR; Wildfowl and Wetlands Trust, East Park Reserve, Caerlaverock; RSPB Mersehead; RSPB Campfield Marsh. There is also access to Scottish Wildlife Trust Reserves at Southwick Coast and Drummain's Reedbeds.

Land-based recreation.

Walking including dog walking, bathing and beach recreation is concentrated on the open coastal routes. In England this occurs to the south of Silloth and on some of the saltmarshes particularly Burgh Marsh. The Cumbria Coastal Way and Hadrian's Wall long distance footpaths follow the coast.

Birdwatchers tend to go where there is easy public access, particularly along the coastal roads, and to the RSPB and WWT reserves. There is a golf course adjacent to the site at Silloth, and there are four courses on the Scottish sections of coast. All summer the site is used for general recreation, and bird watching is also ongoing during the winter.

Water based recreation.

Power-boating, water-skiing, jet-skiing, windsurfing and canoeing are still uncommon on the estuary, however there is much windsurfing immediately to the south of the site boundary (mainly April to September).

There is some fishing, including traditional haaf netting.

Wildfowling and hunting.

In England wildfowling is mainly controlled by the estates and private land owners by private agreement with the South Solway Wildfowling's Association.

30. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.

Head, Natura 2000 and Ramsar Team, Department for Environment, Food and Rural Affairs,
European Wildlife Division, Zone 1/07, Temple Quay House, 2 The Square, Temple Quay,
Bristol, BS1 6EB

Scottish Executive, Environment and Rural Affairs Department

31. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Site Designations Manager, English Nature, Sites and Surveillance Team, Northminster House,
Northminster Road, Peterborough, PE1 1UA, UK / Scottish Natural Heritage, 2 Anderson Place,
Edinburgh, EH6 5NP

32. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see 13 above), list full reference citation for the scheme.

Site-relevant references

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- Buck, AL (ed.) (1993) *An inventory of UK estuaries. Volume 3. North-west Britain*. Joint Nature Conservation Committee, Peterborough
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- May, VJ & Hansom, JD (eds.) (2003) *Coastal geomorphology of Great Britain*. Joint Nature Conservation Committee, Peterborough (Geological Conservation Review Series, No. 28)
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- Mills, DJL (1998) Chapter 11. Liverpool Bay to the Solway (Rhôs-on-Sea to the Mull of Galloway) (MNCR Sector 11). In: *Benthic marine ecosystems of Great Britain and the north-east Atlantic*, ed. by K. Hiscock, 315-338. Joint Nature Conservation Committee, Peterborough. (Coasts and Seas of the United Kingdom. MNCR series)
- Musgrove, AJ, Langston, RHW, Baker, H & Ward, RM (eds.) (2003) *Estuarine waterbirds at low tide. The WeBS Low Tide Counts 1992-93 to 1998-99*. WSG/BTO/WWT/RSPB/JNCC, Thetford (International Wader Studies, No. 16)
- Musgrove, AJ, Pollitt, MS, Hall, C, Hearn, RD, Holloway, SJ, Marshall, PE, Robinson, JA & Cranswick, PA (2001) *The Wetland Bird Survey 1999-2000: wildfowl and wader counts*. British Trust for Ornithology, Wildfowl and Wetlands Trust, Royal Society for the Protection of Birds & Joint Nature Conservation Committee, Slimbridge.
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- Weighell, AJ, Donnelly, AP & Calder, K (eds.) (2000) *Directory of the Celtic coasts and seas*. Joint Nature Conservation Committee, Peterborough

Please return to: **Ramsar Secretariat, Rue Mauverney 28, CH-1196 Gland, Switzerland**
Telephone: +41 22 999 0170 • Fax: +41 22 999 0169 • email: ramsar@ramsar.org