

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**

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Designation date

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Site Reference Number

2. Date this sheet was completed/updated:

Designated: 05 January 1976 / updated 12 May 2005

3. Country:

UK (Wales)

4. Name of the Ramsar site:

Cors Fochno and Dyfi

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):

52 32 21 N 03 59 52 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: Aberystwyth

Cors Fochno and Dyfi Ramsar site lies 10 km north of Aberystwyth on the coast of Cardigan Bay in mid Wales.

Administrative region: Ceredigion; Gwynedd; Powys

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

Min. -1
Max. 10
Mean 1

9. Area (hectares): 2508,00

(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.

A bar-built estuarine complex, comprising the Dyfi estuary, two calcareous dune systems, and a large raised mire. The Dyfi is one of the best examples in north-west Europe of a small, drying, nutrient-poor estuary, which has been relatively unaffected by industrial development. A wide range of estuarine habitats are present, including rare transitions to peatland. Cors Fochno is of international importance being the type locality for estuarine raised mire and one of the largest active raised mires in the United Kingdom. The geomorphology, flora and invertebrate faunas are of national importance. The site supports the only regular wintering flock of Greenland white-fronted geese in England and Wales, and is a key site in Wales for breeding waders. The site supports significant tourist trade, recreational and educational usage.

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).

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Secretariat comment: The RIS provides information requiring the application of Criteria 2 and 4. These need 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 1

The site contains the largest expanse of primary raised mire in lowland Britain; the largest estuarine raised mire, and third-largest `active` raised mire in Britain. Habitats Directive Annex I features present on the SAC include:

- H7110 Active raised bogs
- H7120 Degraded raised bogs still capable of natural regeneration
- H7150 Depressions on peat substrates of the *Rhynchosporion*

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	acidic, neutral, shingle, sand, mud, peat, nutrient-poor, sedimentary, slate/shale, pebble
Geomorphology and landscape	lowland, coastal, shingle bar, intertidal sediments (including sandflat/mudflat), open coast (including bay), estuary, pools
Nutrient status	mesotrophic, oligotrophic

pH	acidic, circumneutral, strongly acidic
Salinity	brackish / mixosaline, fresh, saline / euhaline
Soil	mainly mineral, mainly organic
Water permanence	usually permanent, usually seasonal / intermittent
Summary of main climatic features	Annual averages (Trawscoed, 1971–2000) (www.metoffice.com/climate/uk/averages/19712000/sites/trawscoed.html) Max. daily temperature: 13.5° C Min. daily temperature: 5.9° C Days of air frost: 48.2 Rainfall: 1213.9 mm Days of rainfall \geq 1 mm: 169.2

General description of the Physical Features:

No information available

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 Dyfi estuarine complex is of outstanding physiographic interest. It includes sandbanks, mud-flats, saltmarsh, peatbogs, river channels and creeks, with an extensive sand dune complex across the mouth of the estuary.

Cors Fochno (also known as Borth Bog) lies on the south side of the Dyfi estuary and forms a component part of the Dyfi Biosphere Reserve. Although a substantial part of the former peatland complex has been taken for agriculture, the surviving core area supports the largest expanse of primary near-natural active raised bog in an estuarine context within the UK. Extensive areas of patterned mire support bog-mosses *Sphagnum* spp. with greater sundew *Drosera anglica*, white beak-sedge *Rhynchospora alba* and bog-rosemary *Andromeda polifolia*. The extensive cover of bog-myrtle *Myrica gale* and maritime margins with black bog-rush *Schoenus nigricans* are distinctive features of this site. Areas of domestic peat-cutting peripheral to the dome are now actively regenerating and support a significant area of active bog vegetation.

Degraded raised bog also occurs widely around the periphery of the active core. Included here are a range of vegetation types in which peat formation has been arrested as a consequence of intensive drainage followed in places by peat removal and/or agricultural management. The vegetation cover of these areas is varied and includes grazed and ungrazed *Molinia* – *Myrica* swards, reed *Phragmites* stands, rush *Juncus* pasture, wet woodland and scrub, drier areas of acid grassland and bracken *Pteridium aquilinum*, and improved grassland over archaic deep peat.

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, Sediment trapping, Recharge and discharge of groundwater, Flood water storage / desynchronisation of flood peaks

17. Wetland types

Marine/coastal wetland

Code	Name	% Area
E	Sand / shingle shores (including dune systems)	3.9
G	Tidal flats	48.7
H	Salt marshes	22
U	Peatlands (including peat bogs swamps, fens)	25.4

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 Dyfi estuary contains a particularly wide range of intertidal sediment types which support a good diversity of marine biotopes. The tidal flats are bordered by the most extensive saltmarshes in mid-Wales which include a notable expanse of SM18 *Juncus maritimus* saltmarsh and rare transitions to peatland. The shingle/sand spit of Ynyslas lying across the estuary mouth contains a wide range of dune communities including damp slacks. The estuarine raised mire of Cors Fochno contains one of the most extensive tracts of primary and 'active' raised bog in Britain, with abundant M18 *Sphagnum papillosum-Erica tetralix* community. The nationally scarce *Sphagnum pulchrum* is dominant in the bryophyte carpet. Extensive areas of modified mire support a wide range of peatland communities including *Sphagnum* bog-pools, *Myrica-Molinia* mire, *Phragmites* swamp, rush pasture and carr woodland. Of special note are areas of brackish mire with abundant *Schoenus nigricans*.

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.*

Nationally important species occurring on the site.

Lower Plants.

Pallavicinia lyellii, *Bryum calophyllum*, *Bryum warneum*, *Bryum marratii*, *Petalophyllum ralfsii* (Habitats Directive Annex II feature (S1395)).

- a) Dune slack & shingle bryophyte assemblage, including RDB species *Petalophyllum ralfsii* and *Bryum marratii*
- b) Dune fungal assemblage including around 10 Red list species
- c) Mire bryophyte assemblage including 3 nationally scarce Sphagna and RDB species

Pallavicinia lyellii

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.*

Species currently occurring at levels of national importance:**Species with peak counts in spring/autumn:**

Common greenshank, *Tringa nebularia*,
Europe/W Africa

8 individuals, representing an average of 1.3% of the GB population (5 year peak mean 1998/9-2002/3)

Species Information

Nationally important species occurring on this site.

Mammals

Otter *Lutra lutra* (Habitats Directive Annex II feature (S1355)) - strong resident population

Invertebrates.

Agroeca lusatica, *Baraohyma gowerense*, *Heliophanus dampfi*, *Biblioplectus tenebrosus*, *Eugraphe subrosea*, *Pachybrachius simile*, *Coenosia paludis*.

Dune invertebrate populations, including the spider *Agroeca dentigera* (only UK site), and 4 RDB species of aculeate Hymenoptera.

Mire invertebrate assemblage, including a number of RDB and nationally scarce species

Pectenogammarus planicrurus, nationally scarce.

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
 Transportation/navigation

22. Land tenure/ownership:

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

23. Current land (including water) use:

Activity	On-site	Off-site
Nature conservation	+	+
Tourism	+	+
Recreation	+	+
Current scientific research	+	
Commercial forestry		+
Fishing: commercial		+
Fishing: recreational/sport	+	
Gathering of shellfish	+	
Bait collection	+	
Grazing (unspecified)	+	+
Permanent pastoral agriculture	+	+
Hunting: recreational/sport	+	
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)	+	
Management agreement	+	
Site management statement/plan implemented	+	
Other	+	
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.

Monitoring of breeding curlew, lapwing, redshank and snipe populations, breeding bird assemblage; reptile assemblage; invertebrate assemblage; populations of rosy marsh moth, large heath butterfly, small red damselfly, bog bush cricket, *Heliophanus dampfi*, *Colletes cunicularis*.

Long-term changes in the invertebrate fauna of Ynyslas beach.
Fauna of Dyfi estuarine creeks and channels.

Environment.

Low nutrient status estuaries in Wales: an appraisal of their nutrient and ecological status.
The role of biogenic gas production in raised mire hydrology
The use of remote sensing in determining differing degrees of surface wetness in raised mires
Palaeoecological investigation of recent vegetational changes at Cors Fochno and Cors Caron raised mires

Cors Fochno/Dyfi: hydrological, coastal defence and SSSI boundary requirements (major research project into restoration of Cors Fochno estuarine raised mire).
Geophysical and geochronological assessment of the structure and development of coastal dunes.
Monitoring of water levels at Cors Fochno.

Flora.

Monitoring of saltmarsh and raised mire vegetation.
Dune bryophyte assemblage & population of *Petalophyllum ralfsii*.
Mire bryophyte assemblage & population of two rare Sphagna and *Pallavicinia lyellii* and charophytes.
Community ecology of dune annuals.

Completed.

Flora.

Monitoring of sand dune, saltmarsh and raised mire vegetation.

Fauna.

Invertebrates: effects of fire on cursorial fauna of raised mire 1987-96 (Fowles in prep).
Welsh peatlands invertebrate survey (Holmes *et al.* 1991).
Predators and lapwing study - RSPB/CCW
Aculeate Hymenoptera of Ynyslas dunes (Clee 2001)

Flora and Fauna.

Marine Nature Conservation Review Littoral survey of Dyfi estuary (Joint Nature Conservation Committee 1995).
Countryside Council for Wales (1997) CCW Marine Intertidal Phase 1 Study of biotopes in the Dyfi Estuary Monitoring planned 2005

28. Current conservation education:

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

Existing programmes: CCW and RSPB each operate an events programme of guided walks. CCW also run an educational play scheme for children and employ and train four Summer Wardens annually.

Interpretation/education facilities: CCW operate a seasonal centre at Ynyslas dunes with displays, audio visual show, and site interpretation publications and conservation shop. Interpretive panels are provided on the dunes. 6-7000 students visit per annum, c.2000 receiving introductory talks. RSPB run an educational service at Ynys-hir where c.1500 students a year are given guided tours. Ynys-hir also has a centre with interpretive displays and shop. Major research and educational use by University College of Wales, Aberystwyth (as well as other universities).

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.

Walking, dog walking and beach recreation is concentrated on the sandy beaches and dunes at Ynyslas and Aberdyfi. These activities are sustainable only with high levels of visitor/site management input. Birdwatching is the principal activity at RSPB Ynys-hir and also attracts people to Ynyslas and Aberleri.

Water-skiing, jet-skiing, sailing, wind-surfing, canoeing and angling all occur and are concentrated in the lower third of the estuary. Mainly April-September.

Game shooting takes place at Lodge Park. Wildfowling takes place on part of the NNR under the control of CCW and via a local management scheme. A coastal defence scheme for Aberdyfi-Towyn has been proposed involving an area of coastal set-back.

There are caravan parks adjacent to the site at Ynyslas and Borth and moorings at Aberdyfi and Aberleri. A small boat-building business is in operation at Aberleri. Aberdyfi beach car park is undergoing enlargement and there has recently been a harbour development/marina proposal for the town.

'Outward Bound Wales' have a centre at Aberdyfi, and there is a YHA hostel at Borth.

30. Jurisdiction:

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

Head, Countryside Division, Welsh Assembly Government, Cathays Park, Cardiff, CF1 3NQ

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 Safeguard Officer, International Designations, Countryside Council for Wales, Maes-y-Ffynnon, Penrhosgarnedd, Bangor, Gwynedd, LL57 2DW

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

- Bailey, MP (2003) Reserve focus – Cors Fochno (Borth Bog), west Wales. *British Wildlife*, **14**(3), 195-198
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- Brazier, DP, Holt, RHF, Murray, E & Nicholls, DM (1999) *Marine Nature Conservation Review Sector 10. Cardigan Bay and north Wales: area summaries*. Joint Nature Conservation Committee, Peterborough (Coasts and seas of the United Kingdom. MNCR series)
- Buck, AL (ed.) (1993) *An inventory of UK estuaries. Volume 2. South-west Britain*. Joint Nature Conservation Committee, Peterborough
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- Countryside Council for Wales (2004) *CCW Phase 1 Intertidal Survey dataset* (unpublished data).
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- Gibbons, B (1991) Reserve focus: Ynys-hir, Dyfed, Mid-Wales *British Wildlife*, **2**(2), 103-105
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- Jones, PS, Stevens, DP, Blackstock, TH, Burrows, CR & Howe, EA (eds.) (2003) *Priority habitats of Wales: a technical guide*. Countryside Council for Wales, Bangor
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- Moore, J (2002) An atlas of marine Biodiversity Action Plan species and habitats and Species of Conservation Concern in Wales. 2nd edn. *CCW Contract Science Report*, No. 509
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- Ratcliffe, DA (ed.) (1977) *A Nature Conservation Review. The selection of biological sites of national importance to nature conservation in Britain*. Cambridge University Press (for the Natural Environment Research Council and the Nature Conservancy Council), Cambridge (2 vols.)
- Stroud, DA, Chambers, D, Cook, S, Buxton, N, Fraser, B, Clement, P, Lewis, P, McLean, I, Baker, H & Whitehead, S (eds.) (2001) *The UK SPA network: its scope and content*. Joint Nature Conservation Committee, Peterborough (3 vols.)
www.jncc.gov.uk/UKSPA/default.htm
- Weighell, AJ, Donnelly, AP & Calder, K (eds.) (2000) *Directory of the Celtic coasts and seas*. Joint Nature Conservation Committee, Peterborough

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