

Information Sheet on Ramsar Wetlands (RIS) – 2009-2012 version

1. Name and address of the compiler of this form:

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Designation date

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Site Reference Number

2. Date this sheet was completed/updated:

May 2012

May

3. Country:

Denmark

4. Name of the Ramsar site:

The precise name of the designated site in one of the three official languages (English, French or Spanish) of the Convention. Alternative names, including in local language(s), should be given in parentheses after the precise name.

Hirsholmene
(International No. 147; National No. 8)

5. Designation of new Ramsar site or update of existing site:

This RIS is for (tick one box only):

- a) Designation of a new Ramsar site ; or
b) Updated information on an existing Ramsar site

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area

The Ramsar site boundary and site area are unchanged:

or

If the site boundary has changed:

- i) the boundary has been delineated more accurately ; or

- ii) the boundary has been extended ; or
- iii) the boundary has been restricted**

and/or

If the site area has changed:

- i) the area has been measured more accurately ; or
- ii) the area has been extended or
- iii) the area has been reduced**

**** Important note:** If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

No major changes to the ecological character of the site are known.

7. Map of site:

Refer to Annex III of the *Explanatory Note and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:

i) a hard copy (required for inclusion of site in the Ramsar List): ;

ii) an electronic format (e.g. a JPEG or ArcView image) ; Denmark_ramsar8.pdf

iii) a GIS file providing geo-referenced site boundary vectors and attribute tables .

A comprehensive ESRI ArcView GIS 3.1 shapefile named DKRamsar_WGS84geo is submitted in conjunction with the Danish RIS 2008 update files. The shape is geo referenced and projected in datum WGS84. The shape is composed of five files:

- a. DKRamsar_WGS84geo.shp
- b. DKRamsar_WGS84geo.dbf
- c. DKRamsar_WGS84geo.shx
- d. DKRamsar_WGS84geo.sbn
- e. DKRamsar_WGS84geo.sbx

and is considered self-explanatory in its database fields.

b) Describe briefly the type of boundary delineation applied:

e.g. the boundary is the same as an existing protected area (nature reserve, national park, etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

All Danish Ramsar sites are also designated as Special Protection Areas for Birds (SPAs) under the EEC Birds Directive, and most of them as Special Areas of Conservation (SACs) under the EEC Habitats Directive, hence part of the Danish Natura 2000 network. Generally the delineation of the Ramsar-sites are identical to that of the SPAs, follow coastlines or lake shores, but also includes adjacent salt marshes.

8. Geographical coordinates (latitude/longitude, in degrees and minutes):

Provide the coordinates of the approximate centre of the site and/or the limits of the site. If the site is composed of more than one separate area, provide coordinates for each of these areas.

57°28'50" N, 10°34'25" E

9. General location:

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

Sea territory and islands immediate Northeast of the town of Frederikshavn, Nordjylland Region.

10. Elevation: (in metres: average and/or maximum & minimum)

0-9 m

11. Area: (in hectares)

3.714 hectares

12. General overview of the site:

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

The site is a sea territory with a group of small islands.

13. Ramsar Criteria:

Tick the box under 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). All Criteria which apply should be ticked.

1 • 2 • 3 • 4 • 5 • 6 • 7 • 8 • 9

14. Justification for the application of each Criterion listed in 13 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).

Criterion 2: The site is also an important breeding area for colonial waterbirds including several species listed in Annex 1 of the EEC Birds Directive, i.e. Sandwich Tern (*Sterna sandvicensis*), Arctic Tern (*Sterna paradisaea*) and Common Tern (*Sterna hirundo*).

The site also holds breeding and/or visiting populations of some species covered by Annex 2 of the EEC Habitats directive, i.e. Grey Seal (*Halichoerus grypus*)(nationally red-listed, VU, DMU 2007) and Common Seals (*Phoca vitulina*).

The butterfly Marsh fritillary *Euphydryas aurinia* – breeding near Strandby – is also on the Danish red list (CR, DMU 2007).

Criterion 4: Hirsholmene is an important breeding ground for Sandwich Tern (*Sterna sandvicensis*), Arctic Tern (*Sterna paradisaea*) and Common Tern (*Sterna hirundo*) and Black Guillemot (*Cepphus grylle*) as well as for breeding/resting seals and thus provide an important refuge during their respective reproductive cycles.

15. 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:

Continental

b) biogeographic regionalisation scheme (include reference citation):
Biogeographical Regions Europe, 2005, European Environment Agency

16. 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.

The site holds out the “bubbling reefs” which are submarine landscapes of carbonate-cemented rocks.

17. Physical features of the catchment area:

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

Marine areas.

18. Hydrological values:

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

No specific information.

19. Wetland Types

a) presence:

Circle or underline the applicable codes for the wetland types of the Ramsar “Classification System for Wetland Type” present in the Ramsar site. Descriptions of each wetland type code are provided in Annex I of the *Explanatory Notes & Guidelines*.

Marine/coastal: A • B • C • D • E • F • G • H • I • J • K • Zk(a)

Inland: L • M • N • O • P • Q • R • Sp • Ss • Tp • Ts • U • Va •
Vt • W • Xf • Xp • Y • Zg • Zk(b)

Human-made: 1 • 2 • 3 • 4 • 5 • 6 • 7 • 8 • 9 • Zk(c)

b) dominance:

List the wetland types identified in a) above in order of their dominance (by area) in the Ramsar site, starting with the wetland type with the largest area.

A, B, H, E, G

20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

A shallow coastal water with stony shoals, banks and several small stony islands.

21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14, 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.*

The “bubbling reefs” support a diverse ecosystem ranging from bacteria to macroalgae and anthozoans. The surrounding sea has a very high diversity of algae species and important “submerge algae forests”.

One of the most characteristic terrestrial plant species is a very large population of Wild Beet *Beta vulgaris* ssp *maritima*. The very rare and redlisted species Oysterplant *Martensia maritima* was once recorded at one of the islands, and is likely to appear here again since the habitat is unchanged. A total list of terrestrial plant species is published in Danish (Lægaard 2007).

22. 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.*

The site is a haul-out for Grey Seal (*Halichoerus grypus*) and Common Seals (*Phoca vitulina*).

The islands are amongst the most important breeding areas for several species of gulls and terns, holds the largest breeding population of Black Guillemot (*Cepphus grylle*) in Denmark, and is the largest and one of the few breeding sites for Rock Pipit (*Anthus spinoletta*) in the country.

Most recent published and unpublished breeding survey results (Bregnballe et al. 2008, Jensen et al. 2009), DCE/NOVANA programme data.

	2004	2005	2006	2007	2008	2009
Species				(minimum)#	0	
<i>Phalacrocorax carbo sinensis</i>	1882	2299	1818	1616	1694	1178
<i>Cygnus olor</i>				0	1	
<i>Anser anser</i> *				6	0	
<i>Anas platyrhynchos</i> *				8	3	
<i>Tadorna tadorna</i> *				0	1	
<i>Somateria molissima</i> *				60	15**	
<i>Mergus serrator</i> *				3	1	
<i>Rallus aquaticus</i>				0	5	
<i>Recurvirostra avosetta</i>	1					0
<i>Haematopus ostralegus</i>				14	21	
<i>Vanellus vanellus</i>				0	0	
<i>Tringa totanus</i>				0	1	
<i>Arenaria interpres</i>				2	0	
<i>Larus argentatus</i>				3370	6520	
<i>Larus marinus</i>				612	869	
<i>Larus fuscus</i>				390	872	
<i>Larus canus</i>				50	83	
<i>Larus ridibundus</i>				3690	2876	
<i>Sterna sandvicensis</i>	878	1285	800	976	1120	1992
<i>Sterna paradisaea</i>	42	74	35	38	55	0
<i>Sterna albifrons</i>		1				0
<i>Cepphus grylle</i>	662	771		860	1065	947,1
<i>Anthus spinoletta</i>				22	15	

One of the five islands, Deget, was not counted in 2007, numbers are thus minimum values.

* numbers for Anatidae probably generally underestimated, because counts were carried out at late spring (optimal count period for terns and gulls). ** probably 30 pairs in total

The site is a resting and feeding area, especially for seaducks.

Table giving the most recent information about staging waterbirds around Hirsholmene. Being an offshore site means that comprehensive surveys of the offshore parts only are carried out during country-wide aerial surveys, which are carried out at 3-4 year intervals (Petersen et al. 2006b, 2010). The remaining

records tabulated below data randomly reported by volunteer birders visiting the island and typing data into DOFbasen.

Migratory waterbirds: Table giving the most recent information about staging waterbirds in the Ramsar site. Published and unpublished data from the NOVANA programme of the Ministry of Environment and DCE, supplemented with data from the Birdlife Denmark citizen science portal DOFbasen on migratory species of national responsibility (for details see Miljø- og Energiministeriet, Skov- og Naturstyrelsen 1999), and selected migrant species (e.g. some raptors and *Charadrius morinellus*) covered by the EEC Birds Directive Annex 1. Numbers given are annual maxima of the species listed. Counting intensity varies over the years. Note: 0 does not necessarily mean the species was absent – rather not counted/reported. Averages are thus computed based on years with numbers reported. Offshore species (*) have been counted using transect surveys in 2004 and 2008. Numbers mentioned from 2004 are actual counted numbers, true numbers are probable 3-5 times higher (as demonstrated by Petersen et al. 2006b using spatial modelling for selected species). Numbers for 2008 have been spatially modelled (Petersen & Nielsen 2011).

Species \ Year	Annual Maxima						Average	
	2004	2005	2006	2007	2008	2009		
<i>Gavia stellata</i>	0	0	0	0	1	0	1	
<i>Phalacrocorax carbo</i>	105	800	0	1	343	1500	550	
<i>Platalea leucorodia</i>	1	0	0	0	0	0	1	
<i>Cygnus olor</i>	0	0	2	3	5	2	3	
<i>Cygnus cygnus</i>	1	0	0	0	1	0	1	
<i>Anser brachyrhynchus</i>	1	0	0	0	0	0	1	
<i>Anser anser</i>	25	6	55	40	91	72	48	
<i>Branta leucopsis</i>	0	0	1	0	1	0	1	
<i>Branta bernicla bernicla</i>	0	0	0	0	175	245	210	
<i>Branta bernicla brota</i>	0	0	0	4	0	0	4	
<i>Tadorna tadorna</i>	0	0	0	0	28	21	25	
<i>Anas penelope</i>	8	1	80	14	46	8	26	
<i>Anas crecca</i>	75	0	80	63	170	75	93	
<i>Anas platyrhynchos</i>	971	0	80	9	70	55	237	
<i>Anas acuta</i>	4	0	4	0	0	0	4	
<i>Anas clypeata</i>	0	0	20	2	0	4	9	
<i>Aythya ferina</i>	0	0	0	0	2	0	2	
<i>Aythya fuligula</i>	0	0	2	0	10	0	6	
<i>Somateria mollissima</i>	2388	4000	800	0	844	200	1646	*
<i>Clangula hyemalis</i>	0	0	0	0	0	0	0	*
<i>Melanitta nigra</i>	403	0	0	0	585	90	359	*
<i>Melanitta fusca</i>	0	1	0	0	45	1	16	*
<i>Bucephala clangula</i>	0	0	0	0	0	4	4	
<i>Mergus serrator</i>	36	20	0	18	126	10	42	
<i>Mergus merganser</i>	0	0	3	0	0	1	2	
<i>Circus cyaneus</i>	0	0	0	0	1	1	1	

<i>Falco columbarius</i>	0	0	0	0	1	0	1
<i>Falco peregrinus</i>	1	0	1	0	1	2	1
<i>Haematopus ostralegus</i>	2	0	0	0	7	0	5
<i>Recurvirostra avosetta</i>	0	0	0	1	0	2	2
<i>Pluvialis apricaria</i>	0	300	0	0	115	0	208
<i>Calidris canutus</i>	0	0	0	26	0	2	14
<i>Calidris alba</i>	0	0	20	15	25	25	21
<i>Calidris alpina</i>	120	0	200	8	20	2	70
<i>Limosa lapponica</i>	0	0	0	140	0	2	71
<i>Tringa totanus</i>	21	30	19	3	17	7	16
<i>Tringa nebularia</i>	0	2	0	8	3	2	4
<i>Larus ridibundus</i>	0	0	0	0	180	0	180
<i>Larus argentatus</i>	1022	0	0	0	1621	0	1322
<i>Larus marinus</i>	0	0	0	0	30	0	30

23. Social and cultural values:

a) Describe if the site has any general social and/or 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:

No specific information.

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning?

If Yes, tick the box and describe this importance under one or more of the following categories:

- i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:
- ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:
- iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:
- iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

24. Land tenure/ownership:

a) within the Ramsar site:

Territorial waters. Islands: The State represented by the Ministry of Environment.

b) in the surrounding area:

Territorial waters.

25. Current land (including water) use:

a) within the Ramsar site:

None. Only the main island, Hirsholm, is inhabited.
Fishery in the marine waters.

b) in the surroundings/catchment:

Fishery in the marine waters.

26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

a) within the Ramsar site:

Rats caused the breeding colony of Kittiwakes (*Rissa tridactyla*) to disappear in 1968. Since then the rats have been exterminated. Rabbits have been introduced.

At present the main factors adversely affecting the site's ecological character are eutrophication of marine areas due to discharge of nutrients, environmental harmful substances in the marine areas, risk of oil spill due to intense sailing traffic and ship-to-ship reloadings, overgrowing of open areas, and disturbance of breeding grounds by visitors and collecting from submerged limestone formation.

b) in the surrounding area:

High-speed ferries along the borders of the site formerly had negative impact by flooding the breeding sites of Black Guillemots, but the ferry traffic has now been regulated with success.

27. Conservation measures taken:

a) List national and/or international category and legal status of protected areas, including boundary relationships with the Ramsar site:

In particular, if the site is partly or wholly a World Heritage Site and/or a UNESCO Biosphere Reserve, please give the names of the site under these designations.

Scientific sanctuary since 1929. In 1995 the existing conservation regulations were revised by a new Ministerial Order pursuant to the Conservation of Nature Act. The area protected against hunting remains unchanged (500 hectares) and the total Conservation Area has been extended to cover approximately 2,000 hectares.

The whole Ramsar site is protected under EU legislation, and included in:

Natura 2000-site No. 4

Special Protection Area for Birds (SPA) No. 11, and

Special Area of Conservation (SAC) No.4

Several areas inside the Ramsar site are Wildlife reserves with restrictions on shooting and public access to breeding sites for colonial waterbirds.

b) If appropriate, list the IUCN (1994) protected areas category/ies which apply to the site (tick the box or boxes as appropriate):

Ia ; Ib ; II ; III ; IV ; V ; VI

c) Does an officially approved management plan exist; and is it being implemented?:

For all Danish Ramsar sites, being part of the Danish Natura 2000 network, conservation status base-line reports were finalised in 2006 by the former counties, and published by the regional Environment Centres of the Agency for Spatial and Environmental Planning in 2007. In 2011 Natura 2000 plans were issued by the Danish Ministry of Environment/Danish Nature Agency setting up site-specific nature goals and priorities for all Danish Natura 2000 sites, including all Danish Ramsar sites. Parallel to this initiative on Natura 2000 sites, river basin management plans were likewise issued by the Danish Ministry of the Environment/Danish Nature Agency for all Danish river basins in 2011, aimed at meeting demands from the EU Water Framework Directive, hence to improve water quality and ecological status in wetland catchments and coastal areas.

National Ramsar site No. 18 is covered by Natura 2000 plan No. 4 (Naturstyrelsen 2011a) and river basin management plan No. 1.1 (Naturstyrelsen 2011b).

d) Describe any other current management practices:

During the latest years Herring Gulls and Greater Black-backed Gulls have specialised in killing young and even adult birds of Sandwich Tern and Black-headed Gulls. A 5 year project on regulating the population of these two large gull species has been started in 2007 with success.

There is an ongoing management to control tree invasive alien species: Japanese Rose *Rosa rugosa*, Japanese Knotweed *Fallopia japonica* and Kæmpe-Balsamin *Impatiens glandulifera*.

28. Conservation measures proposed but not yet implemented:

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

During 2012 the Government and Municipalities will develop site-specific management action plans to meet the goals of the Natura 2000 and river basin management plans.

29. Current scientific research and facilities:

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

Important research area for marine biology and a reference area for more than 50 years.

The project on controlling predation by Great Black-backed Gull and Herring Gull is followed by The Danish Environmental Research Institute, and the area is used by various other scientists.

In 2003 Denmark launched the NOVANA programme. This programme forms the basis for future nature and water quality assessments in Denmark, and as such also supports the administration of the Ramsar site networks. NOVANA is an acronym that could be translated to English as NMWANA (**N**ew **M**onitoring programme for **W**ater quality and **N**ature), and aims at fulfilling the Danish obligations with regards to reporting conservation status of species and habitats covered by the EEC Birds and Habitats Directives annexes, as well as water quality and associated target species covered by the National 3rd Action Plan for the Aquatic Environment (Vandmiljøplan 3) as well as the EEC Water Framework Directive. The programme is described by Bijl et al. (2007). A first 'pre'-NOVANA assessment of the national conservation status of birds was published in 2003, and translated to English in 2006 (Pihl et al. 2006). National criteria for assessing favourable conservation status for the listed species and habitats were likewise published in 2003, and translated to English in 2007 (Søgaard et al. 2007), except for marine habitats, published solely in Danish (Dahl et al. 2005a). First assessments of reference conditions and development of Ecological Quality Objectives (EQOs) related to the Water Framework Directive were published in 2005-2006 (Dahl et al. 2005b, Petersen et al. 2006). Water bird monitoring programmes involves complete national mid-winter surveys every third year (e.g. Petersen et al. 2006b), and annual complete counts of selected species groups (e.g. swans, geese, dabbling ducks, rare breeding birds, e.g. e.g. Søgaard et al. 2006, 2007). The dabbling duck monitoring programme is built upon the much more comprehensive reserve monitoring programme from 1994-2001 (Clausen et al. 2004). Annual assessments of water quality are also available (latest summary report, Nordemann Jensen et al. 2010).

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

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

There is a visitors nature center on the island of Hirsholmen, and an information booklet gives information about the nature of the islands.

31. Current recreation and tourism:

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

Many tourists visit the island of Hirsholm in summer by private boats or the small "ferry". The local unit of the Forest and Nature Agency arrange a number of public guided tours to the island and gives information at a website:

http://www.naturstyrelsen.dk/Lokalt/Vendsyssel/Nyheder_fra_Vendsyssel/Nyfaergetilhirsholmene.htm

32. Jurisdiction:

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

National legislation on Nature Conservation and Hunting regulations, as well as national administration of the Ramsar Convention and EEC Birds and Habitats Directives: *Ministry of the Environment*.

National legislation on Agriculture and Fisheries: *Ministry of Food, Agriculture and Fisheries*.

Local administration and implementation of Nature Conservation: Municipalities listed below under point 33.

33. 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.

Municipality

Frederikshavn Kommune

Rådhus Allé 100

9900 Frederikshavn

Tel: +45 98455000

E-mail: post@frederikshavn.dk

Local unit of the Nature Agency

Naturstyrelsen Vendsyssel

Sct. Laurantiivej 148

9990 Skagen

Tel: +45 72543000

E-mail: vsy@nst.dk

34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see 15 above), list full reference citation for the scheme.

Bijl, L. van der, Boutrup, S. & Nordemann Jensen, P. (ed.) (2007): NOVANA. Det nationale program for overvågning af vandmiljøet og naturen. Programbeskrivelse 2007-09 - del 2. Danmarks Miljøundersøgelser, Aarhus Universitet. - Faglig rapport fra DMU 615: 120 pp. <http://www2.dmu.dk/Pub/FR615.pdf>

Bregnballe, T., Gregersen, J., Andersen-Harild, P. & Pedersen, K.T. 2008: Ynglefugle på Hirsholmene i 2007. Skov- og Naturstyrelsen, Vendsyssel.

Dahl, K., Petersen, J.K., Josefson, A.B., Dahllöf, I. & Søgaard, B. (2005a): Kriterier for gunstig bevaringsstatus for EF-habitatdirektivets 8 marine naturtyper. Danmarks Miljøundersøgelser. - Faglig rapport fra DMU 549: 39 pp. http://www2.dmu.dk/1_viden/2_Publikationer/3_fagrapporter/rapporter/FR549.PDF

Dahl, K.(ed.), Andersen, J.H.(ed.), Riemann, B.(ed.), Carstensen, J., Christiansen, T., Krause-Jensen, D., Josefson, A.B., Larsen, M.M., Petersen, J.K., Rasmussen, M.B. & Strand, J. (2005): Redskaber til vurdering af miljø- og naturkvalitet i de danske farvande. Typeinddeling, udvalgte indikatorer og eksempler på klassifikation. Danmarks Miljøundersøgelser. - Faglig rapport fra DMU 535: 158 pp.

DMU (2007). *Den danske rødliste / Fagdatacenter for Biodiversitet og Terrestrisk Natur (B-FDC)*. - *Danmarks Miljøundersøgelser*, [2004]. <http://redlist.dmu.dk>. Accessed 1 March 2008.

- Grell, M.B. (1998): Fuglenes Danmark. – Dansk Ornitologisk Forening, Gads Forlag, Copenhagen. 825 pp.
- IUCN (2007): 2007 IUCN Red List of Threatened Species. <http://www.iucnredlist.org/> Accessed 5 March 2008.
- Jensen, B.H., Gregersen, J., Pedersen, K.T. & Bregnballe, T. 2009: Ynglefugle på Hirsholmene i 2008, Skov- og Naturstyrelsen, Vendsyssel.
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