HELCOM Red List of Species and Habitats/Biotopes:

Red List of Baltic Breeding Birds

Version November 2011

To be integrated by early 2013 into the HELCOM Red List of Baltic Sea Species currently under preparation

Helsinki Commission

Baltic Marine Environment Protection Commission

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For further information see: Appendix 1

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Preface

This document includes the HELCOM Red List of Baltic Breeding Birds, which has been compiled by the expert team on waterbirds lead by Mr. Christof Herrmann, Germany. It is the first of five parts: macrophytes, benthic invertebrates, fish and lamprey species, breeding and wintering birds and marine mammals that togheter will constitute the HELCOM Red List of Baltic Sea Species. This document is to be integrated into the final Red List of Baltic Sea Species together with the others parts and will be published by early 2013. This is a provisional document and until its integaration into the final Red List changes can be made. This duly noted, the only currently foreseeable additions to the Red List of Baltic Breeding Birds are the proposals for actions to conserve the species which will be added to the Species Informations Sheets. In addition, a second part of the Baltic Bird Species section of the Red List (namely Baltic Wintering Birds) is under construction. This list of threathened Baltic breeding birds will be merged with the list of threatened Baltic wintering birds when the latter is completed, thus forming one comprenesive list of threatened birdspecies in the Baltic Sea. No information will be lost when the lists will be merged.

The threat assessments in the Red List have been made using the methods, categories, and criteria as described in the "IUCN Red List Categories and Criteria", Version 3.1 (IUCN 2001). For the category *Near Threatened,* the modifications proposed by Gärdenfors (2008) are applied. A much more indepth explanation of the assessment method will be added to the final Red List including explanations for the categories and criteria as well as the difference between the common IUCN assessments and the regional IUCN assessment used by HELCOM. Presently more information can be found at the following links:

http://intranet.iucn.org/webfiles/doc/SSC/RedList/redlistcatsenglish.pdf

http://intranet.iucn.org/webfiles/doc/SSC/RedList/RedListGuidelines.pdf

http://iucn.org/about/work/programmes/species/red_list/resources/technical_documents/guidelines_application/

The "Red List of Baltic Breeding Birds" represents the first attempt to assess the extinction risk of 54 bird taxa (species and subspecies) from a regional (biogeographic) view. For those species, which are classified to any threat category from *Near Threatened* to *Regionally Extinct* detailed information about population size, distribution, trends, habitat requirements and threats is given. This information can be found on the Species Information Sheets in this document.
In order to maximize the usefulness and fill the hight demand for this Red List it was decided that the Red List of Baltic Breeding Birds is to be published already at an earlier stage as it was completed before the other sections.
With this background, it is hoped that the "Red List of Baltic Breeding Birds" will become a useful instrument and information background for decision makers, regional planners, conservationists and any other people involved or interested in the conservation of biodiversity in the Baltic Sea

Content

1. Introduction

The “Red List of Baltic Breeding Birds” is a result of the HELCOM Red List project, which was proposed by HELCOM HABITAT 10/2008 and agreed on by HELCOM HOD 26/2008. The project was initiated in 2009 and it aims at producing a comprehensive Red List of Baltic Sea species and updating the Red Lists of Baltic Sea habitats/biotopes and biotope complexes by 2013, as agreed in the Baltic Sea Action Plan.

Within the HELCOM Red List project, the following species groups are assessed according to IUCN criteria: macrophytes, benthic invertebrates, birds, fish and lamprey species and marine mammals. With regard to fish and lamprey species, the new Red List will update the existing HELCOM Red List (BSEP No. 109). The underwater part of the HELCOM Red List of Baltic Sea biotopes and biotope complexes (BSEP No. 75) will also be updated. This includes adopting harmonized and appropriate criteria for the threat assessments of biotopes.

The “Red List of Baltic Breeding Birds” represents the first attempt to assess the extinction risk of 57 bird taxa (species and subspecies) from a regional (biogeographic) view. For those species, which meet the criteria for a threat category from *Near Threatened* to *Regionally Extinct,* detailed information about population size, distribution, trends, habitat requirements and threats is given. With this background, it is expected that the “Red List of Baltic Breeding Birds” will become a useful instrument and information background for decision makers, regional planners, conservationists and any other people involved or interested in the conservation of biodiversity in the Baltic Sea area.

2. Methodology

2.1 Assessment criteria

The Red List assessment is based on the methods, categories, and criteria as described in the “IUCN Red List Categories and Criteria”, Version 3.1 (IUCN 2001). For the category *Near Threatened,* the modifications proposed by Gärdenfors (2008) are applied.

2.2 Working procedure

The elaboration of the “Red List of Baltic Breeding Birds” was undertaken by an Expert Team which has been nominated by the Contracting Parties of the Helsinki Convention. Mr. Christof Herrmann (Germany) was nominated as the Chair of the Expert Team. Additional experts have been involved by the national experts or the Chair of the Expert Team, as appropriate.

The first meeting of the Expert Team (at that time still incomplete) took place on 21-22 October, 2009, in Bonn, Germany. At this meeting, several methodological issues were agreed (*e.g.*, criteria for the selection of species to be included in the Red List, reference area for the assessment), and the first list of species was elaborated.

On 1 March, 2010, a request for detailed species information (population size and trends) of those bird species selected for the Red List assessment was circulated to the national experts. The information submitted in response to this request as well as information from published sources formed the basis for the elaboration of the first draft of the assessment.

The first draft of the Red List of Baltic Breeding Birds was submitted as document 4/9 to the 13th Meeting of the HELCOM Nature Protection and Biodiversity Group (HELCOM HABITAT

13), which was held in Copenhagen, Denmark, from 24-27 May 2011. The Meeting agreed in principle on the publication of the Red List of Baltic Breeding Birds, invited the Contracting Parties to send further comments on the draft by e-mail directly to the Chair of the Expert Team, Mr. Christof Herrmann, by the end of June 2011, and asked the bird experts to finalize the Red List. The Meeting recommended that the HELCOM HOD meeting in December 2011 should endorse the publishing of the list on the HELCOM website (see minutes of the 13th meeting of HELCOM HABITAT).

On the basis of comments and additional information received from the Contracting Parties after HELCOM HABITAT 13, the Red List was finalized, and the final draft submitted to the HELCOM secretariat.

2.3 Species selection

The HELCOM "Red List of Baltic Breeding Birds" gives a threat assessment for species breeding in the Baltic Sea area with a distinct relationship to the marine or coastal environment. For the selection of species, the following criteria were applied:

a) "True" marine or coastal bird species, *i.e.* species which breed exclusively at the coast or only exceptionally inland (*e.g.* Sandwich Tern - *Sterna sandvicensis*, turnstone - *Arenaria interpres*, Eider - *Somateria mollissima*);

b) Species, which breed mainly at the coast, or reach higher densities, or form larger colonies at the coast compared to the inland (*e.g.,* Cormorant - *Phalacrocorax carbo sinensis*, White-tailed Eagle - *Haliaeetus albicilla*);

c) Species, which are characteristic inhabitants of typical coastal habitats such as coastal bays, salt meadows, dunes, skerries (*e.g.*, Lapwing - *Vanellus vanellus*, Meadow Pipit – *Anthus pratensis*, Northern Shoveler – *Anas clypeata*, Osprey – *Pandion haliaetus*).

Species, for which one of the criteria b) or c) is true for only some Baltic regions, are included in the assessment. For example, the Osprey *(Pandion haliaetus)* is a typical breeding bird of coastal habitats in the Swedish and Finnish archipelagos, but in Germany it only breeds in inland lake areas; the Little Tern *(Sternula albifrons)* breeds almost exclusively on the coast in most Baltic countries, whereas in Poland it is mainly found on sandy and gravely river banks.

Different subspecies are separately assessed. This applies to the two subspecies of the Lesser Black-backed Gull breeding in the Baltic Sea area (*Larus fuscus fuscus* and *L. fuscus intermedius*), but also to the Dunlin (*Calidris alpina alpina* and *C. alpina schinzii*) and Ringed Plover (*Charadrius hiaticula hiaticula* and *Ch. hiaticula tundra*e). In the latter cases, only the subspecies *Calidris alpina schinzii* and *Charadrius hiaticula hiaticula*, respectively, have been included in the assessment, since the other subspecies do not breed at the Baltic Sea coast.

2.4 Reference area for the assessment

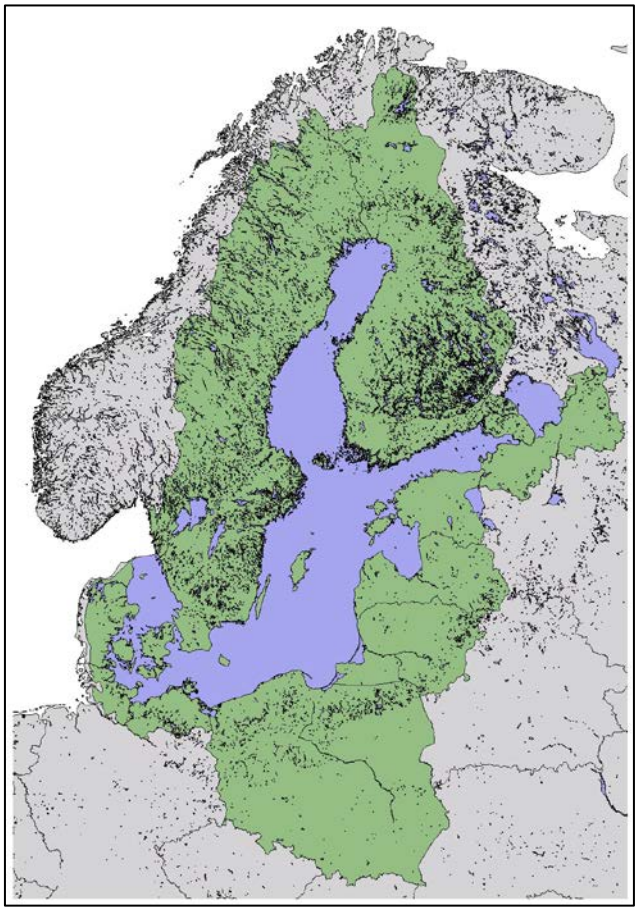
The reference area for the assessment is the entire territory of the Baltic Sea riparian states. However, for Denmark and Germany / Schleswig-Holstein the coastal zone of the North Sea has been excluded. In the case of Germany, only the Baltic Federal states Schleswig-Holstein and Mecklenburg-Western Pomerania have been considered, and for Russia only St Petersburg and Kaliningrad regions (Map 1).

The border towards the North Sea is given by the border of the Helsinki Convention area, *i.e.* between Kattegat and Skagerrak.

The arguments why the entire national (or, in case of Germany and Russia, regional) territories have been used for the assessment are:

- Population monitoring data are usually available on a national or regional scale; in most cases it is difficult or even impossible to separate “coastal” from “inland” numbers of breeding birds.
- Coastal and inland breeders are usually forming one population, *i.e.* there is no (genetic) separation.
- A distinction between “coastal” and “inland” breeders for most species would not change the results of the assessment (despite the fact that population trends may differ between coastal and inland areas).

For species with spatially segregated, well distinguishable populations at the Baltic coast and in the northern Tundra areas of Fennoscandia, besides the assessment for the total population within the reference area, sub-regional assessments for the Baltic coastal populations are given. This is the case for the coastal population of the Greater Scaup (*Aythya marila*), the Ruff (*Philomachus pugnax*) in the southern Baltic (south of 60° Lat.), and the Bothnian Bay population of Temminck’s Stint (*Calidris temminckii).*



Map 1: Assessment area of the HELCOM Red List of Baltic Breeding Birds.

2.5 Generation length

Generation length is the average age of parents of the current cohort (*i.e.*, newborn individuals in the population). It therefore reflects the turnover rate of breeding individuals in a population. Generation length is greater than the age at first breeding and less than the age of the oldest breeding individual, except in taxa that breed only once. Where generation length varies under threat, the more natural, *i.e.* pre-disturbance, generation length should be used (IUCN 2001).

Generation length may be estimated in a number of ways, which are described in the "*Guidelines for Using the IUCN Red List Categories and Criteria, Version 8.1*" (IUCN 2010). For the HELCOM Red List Assessment of Breeding Birds, method no. 5 of the guidelines has been applied:

Generation length = age of first reproduction + *z x* (length of the reproductive period), where *z* is usually <0.5, depending on survivorship and the relative fecundity of young vs. old individuals in the population.

For the calculation of the age of first reproduction and the length of the reproductive period, data from Cramp & Simmons (1977, 1983) and Cramp & Brooks (1985) have been used. The value for z was set to 0.25, which gives a fairly good estimate for most species.

2.6 Data and information sources

The background data for the Red List assessment have been obtained from several sources:

Published documents

Several recent, comprehensive publications of population numbers and trends for birds have been used for the assessment, *e.g.*:

a) European reports:

BirdLife International (2004): Birds in Europe. Population Estimates, Trends and Conservation Status. Cambridge, UK: BirdLife Conservation Series 12, 147.

BirdLife International (2006): European Bird Database. Wageningen, The Netherlands.

Thorup, O. (2006): Breeding waders in Europe 2000. International wader Studies 14, International wader Study Group, UK.

European Commission: Management Plans for Velvet Scoter and Black-tailed Godwit (2007a,b); Redshank, Lapwing, and Greater Scaup (2009a,b,c).

b) National reports and other publications:

Sweden:

Tjernberg, M. & M. Svensson (eds.) 2007: Artfakta – Rödlistade ryggradsdjur i Sverige [Swedish Red Data Book of Vertebrates]. ArtDatabanken, SLU, Uppsala.

Ottosson, U., R. Ottvall, J. Elmberg, M. Green, R. Gustafsson, F. Haas, N. Holmqvist, Å. Lindström, L. Nilsson, M. Svensson, S. Svensson & M. Tjernberg (in prep.): Fåglarnas antal i Sverige – i ditt län och landskap.

Ottvall, R., L. Edenius, J. Elmberg, H. Engström, M. Green, N. Holmqvist, Å. Lindström, T.

Pärt & M. Tjernberg (2009): Population trends for Swedish breeding birds. Ornis Svecica 19: 117-192

SOF (2002): Sveriges fåglar. 3rd ed., Stockholm.

Finland

Valkama, J., V. Vepsäläinen & A. Lehikoinen (2011): Suomen III Lintuatlas. Luonnontieteellinen keskusmuseo ja ympäristöministeriö. http://atlas3.lintuatlas.fi (3rd Finnish Bird Atlas).

Väisänen, R.A., E. Lammi & P. Koskimies (1998): Muuttuva pesimälinnusto. Otava. (The second Finnish Bird Atlas Survey.)

Estonia

Elts, J., A. Kuresoo, E. Leibak, A. Leito V. Lilleleth, L. Luigujõe, A. Lõhmus, E. Mägi & M. Ots (2003): Status and Numbers of Estonian Birds, 1998-2002. Hirundo 16, 58-83.

Elts, J., A. Kuresoo, E. Leibak, A. Leito V. Lilleleth, L. Luigujõe, E. Mägi, R. Nellis, R. Nellis & M. Ots (2009): Status and Numbers of Estonian Birds, 2003-2008. Hirundo 22, 3-31.

Estonian Ornithological Society (in prep.): Estonian breeding bird atlas 2003-2009. http://www.eoy.ee/atlas/; last seen September 12, 2011.

Latvia

Latvian Ornithological Society: Latvian breeding bird atlas 2000-2004. http://www.lob.lv/lv/atlants/; last seen September 12, 2011.

Lithuania

Kurlavičius, P. (2006): Lithuanian Breeding Bird Atlas. Lithuanian Ornithological Society. Publishers Lututė.

Poland

Tomiałojć, L. & T. Stawarczyk (2003): Awifauna Polski. Rozmieszczenie, liczebność i zmiany. - The Avifauna of Poland. Distribution, Numbers and Trends. Vol. I & II, Wroclaw.

Sikora, A., Z. Rohde, M. Gromadski, G. Neubauer & P. Chylarecki (2007): The Atlas of Breeding Birds in Poland 1985-2004. Bogucki Wydawnictwo Naukowe, Poznan.

Germany

Berndt, R.K., B. Koop & B. Struwe-Juhl (2002): Vogelwelt Schleswig-Holsteins, Volume 5, Brutvogelatlas. Wachholtz Verlag, Neumünster.

Knief, W., R.K. Berndt, B. Hälterlein, K. Jeromin, J.J. Kieckbusch & B. Koop (2010): Die Brutvögel Schleswig-Holsteins – Rote Liste. Ministerium für Landwirtschaft, Umwelt und ländliche Räume des Landes Schleswig-Holstein, Kiel.

Eichstädt, W., W. Scheller, D. Sellin, W. Starke & K.D. Stegemann (2006): Atlas der Brutvögel in Mecklenburg-Vorpommern. Steffen Verlag.

Denmark

Grell, M.B. (1998): Fuglenes Danmark. Dansk Orn. Foren. Gads Forlag.

Grell, M.B, H. Heldbjerg, B. Rasmussen, M. Stabell, J. Tofft & T. Vikstrøm (2004): Truede og sjældne ynglefugle i Danmark 1998-2003. Dansk Orn. Foren. Tidsskr. 98: 45-100.

Nyegaard, T. & M.B. Grell (2005-2009): Truede og sjældne ynglefugle i Danmark (reports for the years 2004-2008). Dansk Orn. Foren. Tidsskr.

Nyegaard, T. & M. Willemoes (2010): Truede og sjældne ynglefugle i Danmark 2009. Report nr. 12 for the DOF Working Group Truede og Sjældne Ynglefugle (DATSY): 1-24.

Eskildsen, A. & T. Vikstrøm (2011): Truede og sjældne ynglefugle i Danmark 2010. Dansk Orn. Foren. Tidsskr.

Besides these general and comprehensive publications, numerous additional references have been viewed.

Information submitted by national experts

A request for information (population numbers and trends) was circulated to the nominated members of the HELCOM Red List waterbird team and other experts in March 2010. These experts gathered the required data from different sources and submitted them by June 2010 to the Chair of the waterbird expert team. Additional data and information were submitted in 2011 in the context of the revision of the first draft after HELCOM HABITAT 13.

2.7 Distribution maps

The distribution maps show the breeding range or breeding places of the birds in question during the period 2000-2010. They are based on published national atlas or avifauna maps. The references are given in section 2.6.

3. Results

According to the criteria described in section 2.3, 56 species have been included in the Red List assessment. One species – the Lesser Black-backed Gull – occurs with two subspecies in the Baltic Sea area (*Larus fuscus fuscus* and *L. f. intermedius*), which have been assessed separately. Hence, a total of 57 taxa has been analysed in the assessment. The species, their Red List classification, and the countries where they are occurring as breeding birds are shown in Table 1.

Table 1: List of taxa (species and subspecies) which have been included in the Red List assessment, category given and their occurrence in the Baltic Sea states (excluding the North Sea coast of Denmark and Schleswig-Holstein, see Map 1).

			Range										
No	Species	Red List Category	SE	FI	RU/ PET	RU/ KAL	EST	LV	LT	PL	DE/ MV	DE/ SH	DK
1	*Podiceps auritus* (Linnaeus, 1758)	VU	X	X	X	-	X	X	X	(0)	-	(X)	(X)
2	*Podiceps cristatus* (Linnaeus, 1758)	LC	X	X	X	X	X	X	X	X	X	X	X
3	*Phalacrocorax carbo sinensis* (Blumenbach, 1798)	LC	X	X	X	X	X	X	X	X	X	X	X
4	*Cygnus olor* (J.F. Gmelin, 1789)	LC	X	X	X	X	X	X	X	X	X	X	X
5	*Anser anser* (Linnaeus, 1758)	LC	X	X	X	X	X	X	X	X	X	X	X
6	*Branta leucopsis* (Bechstein, 1803)	LC	X	X	X	-	X	-	-	-	-	X	X
7	*Tadorna tadorna* (Linnaeus, 1758)	LC	X	X	X	X	X	X	X	X	X	X	X
8	*Anas strepera* (Linnaeus, 1758)	LC	X	X	X	X	X	X	X	X	X	X	X
9	*Anas platyrhynchos* (Linnaeus, 1758)	LC	X	X	X	X	X	X	X	X	X	X	X
10	*Anas clypeata* (Linnaeus, 1758)	LC	X	X	X	X	X	X	X	X	X	X	X
11	*Aythya fuligula* (Linnaeus, 1758)	NT	X	X	X	X	X	X	X	X	X	X	X
12	*Aythya marila* (Linnaeus, 1761)	VU[1]	X	X	X	-	X	-	(X)	(X)	-	(X)	(X)
13	*Somateria mollissima* (Linnaeus, 1758)	VU	X	X	X	-	X	-	-	(0)	X	X	X
14	*Melanitta fusca* (Linnaeus, 1758)	VU	X	X	X	-	X	-	-	-	-	-	-
15	*Bucephala clangula* (Linnaeus, 1758)	LC	X	X	X	X	X	X	X	X	X	X	X
16	*Mergus albellus* (Linnaeus, 1758)	LC	X	X	(0)	-	-	-	-	-	-	-	-
17	*Mergus serrator* (Linnaeus, 1758)	LC	X	X	X	X	X	X	X	X	X	X	X
18	*Mergus Merganser* (Linnaeus, 1758)	LC	X	X	X	X	X	X	X	X	X	X	X
19	*Haliaeetus albicilla* (Linnaeus, 1758)	LC	X	X	X	X	X	X	X	X	X	X	X
20	*Pandion haliaetus* (Linnaeus, 1758)	LC	X	X	X	X	X	X	X	X	X	0	X
			Range										

[1] The category *Vulnerable* applies to the total population of the Baltic Sea riparian states. Considering only the coastal population Bay, the species would classify for *Endangered*.

No	Species	Red List Category	SE	FI	RU/ PET	RU/ KAL	EST	LV	LT	PL	DE/ MV	DE/ SH	DK
21	*Haematopus ostralegus* (Linnaeus, 1758)	LC	X	X	X	X	X	X	X	X	X	X	X
22	*Recurvirostra avosetta* (Linnaeus, 1758)	LC	X	-	-	X	X	-	X	X	X	X	X
23	*Charadrius hiaticula hiaticula* (Linnaeus, 1758)	NT	X	X	X	X	X	X	X	X	X	X	X
24	*Charadrius alexandrinus* (Linnaeus, 1758)	CR	0(X)	-	-	-	-	-	-	(0)	0(X)	0	0
25	*Vanellus vanellus* (Linnaeus, 1758)	NT	X	X	X	X	X	X	X	X	X	X	X
26	*Calidris temminckii* (Leisler, 1812)	NT[2]	X	X	-	-	(X)	-	-	-	-	-	-
27	*Calidris alpina schinzii* (Linnaeus, 1758)	EN	X	X	X	0	X	X	X	0 (X)	X	0	X
28	*Philomachus pugnax* (Linnaeus, 1758)	VU[3]	X	X	X	(X)	X	X	X	X	X	0	X
29	*Limosa limosa* (Linnaeus, 1758)	NT	X	X	X	X	X	X	X	X	X	X	X
30	*Tringa totanus* (Linnaeus, 1758)	NT	X	X	X	X	X	X	X	X	X	X	X
31	*Xenus cinereus* (Latham, 1790)	EN	-	X	X	-	-	X	-	-	-	-	-
32	*Actitis hypoleucos* (Linnaeus, 1758)	NT	X	X	X	X	X	X	X	X	X	(X)	X
33	*Arenaria interpres* (Linnaeus, 1758)	VU	X	X	X	-	X	-	-	-	0	0	X
34	*Stercorarius parasiticus* (Linnaeus, 1758)	LC	X	X	-	-	-	-	-	-	-	-	-
35	*Larus melanocephalus* (Temm., 1820)	EN	(X)	-	-	-	(0)	-	-	X	X	X	X
36	*Larus minutus* (Pallas, 1776)	LC	X	X	X	X	X	X	X	X	(X)	-	X
37	*Larus ridibundus* (Linnaeus, 1766)	LC	X	X	X	X	X	X	X	X	X	X	X
38	*Larus canus* (Linnaeus, 1758)	LC	X	X	X	X	X	X	X	X	X	X	X
39	*Larus argentatus* (Pontoppidan, 1763)	LC	X	X	X	X	X	X	X	X	X	X	X
40	*Larus marinus* (Linnaeus, 1758)	LC	X	X	X	-	X	X	-	-	X	X	X
41	*Larus fuscus intermedius* (Schiøler, 1922)	LC	X	-	-	-	-	-	-	-	-	X	X
			Range										

[2] The category *Near Threatened* applies to the total population of the Baltic Sea riparian states. Considering only the coastal population of the Bothnian Bay, the species would classify for *Vulnerable.*

[3] The category *Vulnerable* applies to the total population of the Baltic Sea riparian states and is determined by the trends of the northern (tundra) population (SE, FI, RU/PET). In the southern parts of the Baltic Sea area (south of 60° Lat.), the species would classify for *Endangered*.

No	Species	Red List Category	SE	FI	RU/ PET	RU/ KAL	EST	LV	LT	PL	DE/ MV	DE/ SH	DK
42	*Larus fuscus fuscus* (Linnaeus, 1758)	VU	X	X	X	-	X	-	-	(X)	X(?)	-	-
43	*Rissa tridactyla* (Linnaeus, 1758)	EN	X	-	-	-	-	-	-	-	-	-	0(X)
44	*Gelochelidon nilotica* (Gmel., 1789)	RE	-	-	-	-	-	-	-	-	0	-	0
45	*Sternula albifrons* (Pallas, 1764)	LC	X	X	X	X	X	X	X	X	X	X	X
46	*Hydroprogne caspia* (Pallas, 1770)	VU	X	X	X	-	X	-	(0)	(0)	(X)	-	(X)
47	*Sterna paradisaea* (Pontoppidan, 1763)	LC	X	X	X	-	X	X	-	0	X	X	X
48	*Sterna hirundo* (Linnaeus, 1758)	LC	X	X	X	X	X	X	X	X	X	X	X
49	*Sterna sandvicensis* (Latham, 1787)	LC	X	-	-	-	X	-	-	X	X	0(X)	X
50	*Uria aalge* (Pontoppidan, 1763)	LC	X	X	(X)[4]	-	-	-	-	-	-	-	X
51	*Alca torda* (Linnaeus, 1758)	LC	X	X	X	-	X	-	-	-	-	-	X
52	*Cepphus grylle* (Linnaeus, 1758)	LC	X	X	X	-	X	-	-	-	-	-	X
53	*Riparia riparia* (Linnaeus, 1758)	LC	X	X	X	X	X	X	X	X	X	X	X
54	*Anthus petrosus* (Montagu, 1798)	LC	X	X	-	-	X	-	-	-	-	-	X
55	*Anthus pratensis* (Linnaeus, 1758)	LC	X	X	X	X	X	X	X	X	X	X	X
56	*Motacilla alba* (Linnaeus, 1758)	LC	X	X	X	X	X	X	X	X	X	X	X
57	*Oenanthe oenanthe* (Linnaeus, 1758)	NT	X	X	X	X	X	X	X	X	X	X	X

Symbols	
X	breeding
(X)	sporadic breeding (only occasional breeding records)
0	extinct (breeding in the past, but no actual breeding records)
(0)	sporadic breeder in the past, no breeding records during the last 3 generations or 10 years
0(X)	extinct as a regular breeder, but sporadic breeding records during the last 3 generations or 10 years
-	no breeding bird

[4] First breeding in 2010, Vysotsky *et al.* 2010.

Table 2 lists the species according to their Red List category. One species – the Gull-billed Tern, has been a regular breeding bird in the past, but nowadays has to be considered as *Regionally Extinct* (RE). The category *Critically Endangered* (CR) also comprises of one species – the Kentish Plover, which formerly has been a regular breeder in Denmark, Sweden and Germany, but after 2000 has only bred in single pairs in Sweden and Germany (Mecklenburg-Western Pomerania). The category *Endangered* (EN) comprises of 4 species (Dunlin, Terek Sandpiper, Mediterranean Gull and Black-legged Kittiwake). Eight taxa classify for the category *Vulnerable* (VU). The category *Near Threatened* (NT) comprises 8 taxa, and the category *Least Concern* (LC) 35.

Table 2: List of species according to Red List categories (total assessment, without consideration of sub-populations).

No	Scientific Name	English name
RE	*Gelochelidon nilotica* (Gmel., 1789)	Gull-billed Tern
CR	*Charadrius alexandrinus* (Linnaeus, 1758)	Kentish Plover
EN	*Calidris alpina schinzii* (Linnaeus, 1758)	Dunlin
	Xenus cinereus (Latham, 1790)	Terek Sandpiper
	Larus melanocephalus (Temm. 1820)	Mediterranean Gull
	Rissa tridactyla (Linnaeus, 1758)	Black-legged Kittiwake
VU	*Podiceps auritus* (Linnaeus, 1758)	Slavonian Grebe
	Aythya marila (Linnaeus, 1761)	Greater Scaup
	Somateria mollissima (Linnaeus, 1758)	Common Eider
	Melanitta fusca (Linnaeus, 1758)	Velvet Scoter
	Philomachus pugnax (Linnaeus, 1758)	Ruff
	Arenaria interpres (Linnaeus, 1758)	Turnstone
	Larus fuscus fuscus (Linnaeus, 1758)	Lesser Black-backed Gull
	Hydroprogne caspia (Pallas, 1770)	Caspian Tern
NT	*Aythya fuligula* (Linnaeus, 1758)	Tufted Duck
	Charadrius hiaticula hiaticula (Linnaeus, 1758)	Ringed Plover
	Vanellus vanellus (Linnaeus, 1758)	Lapwing
	Calidris temminckii (Leisler, 1812)	Temminck's Stint
	Limosa limosa (Linnaeus, 1758)	Black-tailed Godwit
	Tringa totanus (Linnaeus, 1758)	Redshank
	Actitis hypoleucos (Linnaeus, 1758)	Common Sandpiper
	Oenanthe oenanthe (Linnaeus, 1758)	Northern Wheatear
LC	*Podiceps cristatus* (Linnaeus, 1758)	Crested Grebe
	Phalacrocorax carbo sinensis (Blumenbach, 1798)	Great Cormorant
	Cygnus olor (J.F. Gmelin, 1789)	Mute Swan
	Anser anser (Linnaeus, 1758)	Greylag Goose
	Branta leucopsis (Bechstein, 1803)	Barnacle Goose
	Tadorna tadorna (Linnaeus, 1758)	Common Shelduck
	Anas strepera (Linnaeus, 1758)	Gadwall
	Anas platyrhynchos (Linnaeus, 1758)	Mallard
	Anas clypeata (Linnaeus, 1758)	Northern Shoveler
	Bucephala clangula (Linnaeus, 1758)	Goldeneye
	Mergus albellus (Linnaeus, 1758)	Smew
	Mergus serrator (Linnaeus, 1758)	Red-breasted Merganser
	Mergus merganser (Linnaeus, 1758)	Goosander
	Haliaeetus albicilla (Linnaeus, 1758)	White-tailed Sea Eagle

	Pandion haliaetus (Linnaeus, 1758)	Osprey
	Haematopus ostralegus (Linnaeus, 1758)	Oystercatcher
	Recurvirostra avosetta (Linnaeus, 1758)	Avocet
	Stercorarius parasiticus (Linnaeus, 1758)	Parasitic Jaeger
	Larus minutus (Pallas, 1776)	Little Gull
	Larus ridibundus (Linnaeus, 1766)	Black-headed Gull
	Larus canus (Linnaeus, 1758)	Common Gull, Mew Gull
	Larus argentatus (Pontoppidan, 1763)	Herring Gull
	Larus marinus (Linnaeus, 1758)	Great Black-backed Gull
	Larus fuscus intermedius (Schiøler, 1922)	Lesser Black-backed Gull
	Sternula albifrons (Pallas, 1764)	Little Tern
	Sterna paradisaea (Pontoppidan, 1763)	Arctic Tern
	Sterna hirundo (Linnaeus, 1758)	Common Tern
	Sterna sandvicensis (Latham, 1787)	Sandwich Tern
	Uria aalge (Pontoppidan, 1763)	Common Guillemot; Common Murre
	Alca torda (Linnaeus, 1758)	Razorbill
	Cepphus grylle (Linnaeus, 1758)	Black Guillemot
	Riparia riparia (Linnaeus, 1758)	Sand Martin
	Anthus petrosus (Montagu, 1798)	Rock Pipit
	Anthus pratensis (Linnaeus, 1758)	Meadow Pipit
	Motacilla alba (Linnaeus, 1758)	White Wagtail

Figure 1 shows the percentages of the Red List categories. 24.6% of the species classify for one of the threat categories from *Regionally Extinct* to *Vulnerable*, 14,0% are *Near Threatened*, and 61.4% are *Least Concern*.

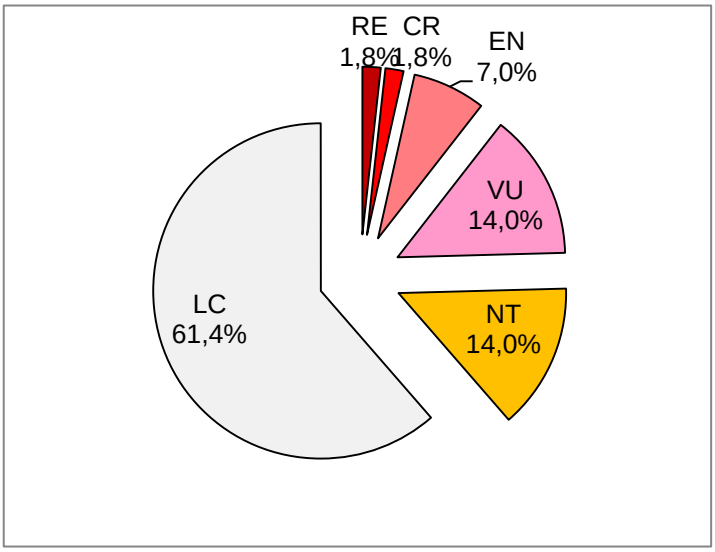


Figure 1: Relative proportions of the Red List categories. The sub-regional assessments of Ruff, Greater Scaup and Temminck's Stint (see Table 3) are not included in the sample.

For three species, in addition to the total assessment separate assessments for Baltic coastal sub-populations have been made (see section 2.4). These assessments for sub-populations refer to Greater Scaup (Baltic coastal population), Ruff (Baltic population south of 60°Lat.), and Temminck's Stint (Bothnian Bay population). In all cases, the sub-populations classify for higher threat categories than the total population (Table 3).

Table 3: Assessment of Baltic coastal sub-populations for three species (see section 2.4).

No	Scientific Name	English name	Criteria
EN	*Aythya marila* (Linnaeus, 1761) (Baltic coastal population)	Greater Scaup	A2abcd; C1
	Philomachus pugnax (Linnaeus, 1758) (southern Baltic population – south of 60° Lat.)	Ruff	A2abcde; C1
VU	*Calidris temminckii* (Leisler, 1812) (Bothnian Bay population)	Temminck's Stint	A2a,c; C1; D

4. Most prominent threat factors

4.1 Habitat destruction

Habitat destruction or deterioration is an important factor for the decline of species. Destruction of both breeding habitats and resting or wintering sites may have an impact on bird populations.

Ditching of coastal meadows (Di)

In the Baltic Sea area, especially coastal meadows – important breeding sites for waders and ducks – have been largely destroyed in the past for land reclamation purposes. In Mecklenburg-Western Pomerania, for instance, about 36,800 hectares (ha) of coastal meadows have been dyked and drained during the 20th century, and only 6,600 exposed to a natural flood regime have remained (Holz *et al.* 1996; Herrmann & Holz 1997). These land reclamation projects have started already in the 19th century and culminated in the 1950s-1970s. However, during the last two decades these kinds of activities have almost ceased. More recently, some of the formerly dyked areas have been restored, and more restoration projects are under preparation. Nevertheless, the extension of coastal meadows with natural flood regime is still much reduced compared to the past, which means reduced habitat availability for many coastal bird species.

Overgrowth of open areas (OGr)

Abandonment of coastal meadows and short-grazed grasslands has long been a problem in several Baltic regions. Economically, the grazing of these meadows is not profitable anymore, but with the abandonment these areas, they loose their habitat suitability for grassland-breeding birds (Haartman 1975, Larsson 1976, Król 1986). Incentive programmes are needed in order to maintain a management regime according to nature conservation requirements.

Overgrowth as a natural process concerns also maritime islands with no history as pastures. Habitats for terns and waders are diminishing due to overgrowth in the outer zones of the South-South West archipelagos, where shores are steep and less exposed to land uplift effects.

Agricultural intensification / Changes in arable land (Am)

Agricultural intensification and conversion of grassland to arable land (*e.g*., for the production of bio-energy crops) cause habitat loss in terms of quality and extension for species that breed at high proportions on agricultural land. Agricultural intensification is considered to be the main factor affecting the habitat of the Lapwing *(Vanellus vanellus)* across most of its range. The consequences are an insufficient production of fledglings, due to an increased clutch failure rate, reduced possibilities of re-nesting, and poor chick survival.

The intensification of grassland management – increased fertilization, followed by higher cattle densities – has a strongly negative impact on breeding birds. In the Netherlands, economically recommended grassland management practices have been shown to have a devastating effect on nest survival (Beintema & Müskens 1981, 1987).

Extra-regional threats (ERT)

Besides the breeding habitats, also the feeding and resting habitats during the migration and wintering period are of importance for the population status of a species. Loss of habitat quality in the traditional staging areas in the Netherlands are suggested to be the reason for the large-scale population re-distribution of the Ruff (*Philomachus pugnax)* towards the east, resulting in a strong population decline in its European and Russian European Arctic breeding range (Rakhimberdiev *et al.* 2011). Losses of feeding opportunities in some wintering areas are considered to be a problem for the Greater Scaup *(Aythya marila)* (EU Commission 2009c). Over-harvesting of mussels and cockles in the Dutch Wadden Sea has been shown to have a strong impact on the distribution of Eider *(Somateria molissima)* (Piersma & Camphuysen 2001, Reneerkens *et al*. 2005), and may also lead to degradation of feeding opportunities for other benthos-feeding ducks. The over-harvesting of the bivalve *Spisula subtruncata* in the Dutch North Sea may be significant as well. Eutrophication causes a decline in the extension of sea grass (*Zostera* spp.) beds, an important feeding habitat for ducks in spring during the spawning season of Herring in the western Baltic Sea.

Mining and quarrying / sediment extraction (M)

Offshore extraction of sand and gravel in the Baltic Sea is usually carried out in shallow waters and might result in a (temporary) reduction of feeding grounds (EU Commission 2009c).

4.2 By-catch (Bc)

Several studies from different parts of the Baltic Sea have shown that set net (gillnet) fishery causes the death of tens of thousands of birds every year. A comprehensive overview of the by-catch problem has recently been given by Žydelis *et al.* (2009). The by-catch problem is of special relevance where gillnet fishery is practised in areas with high concentrations of resting, moulting or wintering seabirds. The overlap of gillnet fishing and high concentrations of birds usually occurs only during certain periods of the year (*e.g.* wintering, autumn and spring migration, moulting time).

By-catch studies have been undertaken in German coastal waters off Schleswig-Holstein (Kirchhoff 1982) and in the Pomeranian Bay of Usedom (Schirmeister 1993, 2003, I.L.N. & IfAÖ 2005). A more recent study has been performed on behalf of the German Federal Agency for Nature Conservation (Bellebaum 2011). In Poland, data have been collected from the Pomeranian Bay (Kowalski & Manikowski 1982), Gdansk Bay (Stempniewicz 1994), and Bay of Puck (Kieś & Tomek 1990). In Lithuania and Latvia, by-catch studies have been published by Dagys & Žydelis (2002) and Urtāns & Priednieks (1999, 2000), respectively. For Finland, Hario (1998) has analysed the incidental take of seabirds by fisheries, and from Sweden there are data available from Oldén *et al.* (1988) and Lunneryd *et al.* (2004). These

studies show that both piscivorous birds (Divers, Grebes, Mergansers, Auks, Cormorants) and benthophagic ducks may get entangled and die in fishing gear.

The bird losses in fishing gear may be of considerable magnitude. For the territorial waters of the German Federal State Mecklenburg-Western Pomerania and the adjacent German Exclusive Economic Zone Bellebaum (2011) estimated a by-catch of 17,000-20,000 seabirds per winter season (November-May). His results suggest that for the flyway population of Long-tailed Duck (*Clangula hyemalis*) and Greater Scaup mortality from by-catch and other human impacts (oiling, hunting) may reach a level which might be not sustainable. Hence, by-catch is probably a significant factor which contributes to the current decline of the two species.

At the southern coast of the Baltic Sea (Germany, Poland, Lithuania and Latvia), the Long-tailed Duck is the most numerous species caught in gillnets, followed by Black Scoter (*Melanitta nigra*), Velvet Scoter (*Melanitta fusca)* and Red-throated Diver (*Gavia stellata*). In some areas*,* Eider, Greater Scaup, Common Guillemot (*Uria aalge*) and Cormorants (*Phalacrocorax carbo*) are also found in gillnets in high numbers. In the coastal waters of Lithuania, losses of Steller's Eiders (*Polysticta stelleri)* need special consideration. In Finland, especially Eider, Black Guillemot (*Cepphus grylle)*, Razorbill (*Alca torda*) and Red-throated and Black-throated divers (*Gavia stellata* and *G. arctica*) are the most affected species. In the Swedish Kattegat, the studies of Oldén *et al.* (1988) revealed that 90-95% of the birds found in fishing gear were Common Guillemots. The most recent Swedish by-catch study covering the Swedish fishery as a whole (Lunneryd *et al.* 2004) showed that the Cormorant was the dominating species, followed by Eider, Common Guillemot, Merganser (*Mergus serrator)*, and Long-tailed Duck. The specific threat to be caught and drowned in fishing gear is higher for piscivorous species than for benthophagic ducks, though total numbers of the latter group in most areas are higher because of higher population numbers.

By-catch of Common Guillemot in gillnets appears to be the single most serious threat to the population and may have contributed to the observed decrease in adult survival rates. The highest mortality was caused by gillnets set for cod fishing. The by-catch rates for this species have increased from 1972 to 1999, due to increased fishing efforts for cod (Österblom *et al.* 2002).

The list of seabirds with high by-catch rates includes several species which are threatened according to the HELCOM Red List: Slavonian Grebe (*Podiceps autitus*), Tufted Duck (*Aythya fuligula*), Greater Scaup, Velvet Scoter and Eider are quite often found in fishing gear. Several of these species are not only affected by fishing in the Baltic Sea area, but also in the wintering areas along the North Sea/Atlantic coast.

For wintering Greater Scaups, by-catch is considered an important problem off the Latvian, Lithuanian, Polish and German coasts as well as in Dutch waters (Grimm 1985, Stempniewicz 1994, Van Eerden *et al*. 1999, Dagys & Žydelis 2002). In Poland, Stempniewicz (1994) estimated that more than 1,300 Greater Scaups drown in nets annually in the Gulf of Gdańsk, resulting in a mortality of 10.6% of the maximum resting number recorded. On the German Baltic coast, gillnet fishery is practiced on important nocturnal feeding sites. Grimm (1985) estimated that up to 8% of c. 35,000 Greater Scaups staging in the Wismar Bight drown in gillnets each winter. In the Dutch Ijsselmeer a similar mortality of 9.4% to 10-20% per year, involving probably 11,600 Greater Scaups/year, was estimated from data from 1978-1990 by Van Eerden *et al.* (1999). This means that annual by-catch may cause losses of 5-10% of the total population, a proportion which may have a negative impact on population level.

By-catch appears to be an important problem also for wintering Velvet Scoters off the Latvian, Lithuanian, Polish coasts (Stempniewicz 1994, Dagys & Žydelis 2002, Žydelis *et al.* 2006). The scale of the problem is not yet fully clear since the available studies usually only cover limited time spans. However, the intensity of gill-net fishery on the main wintering grounds of Velvet Scoters in these countries suggests that the problem may be of significant

magnitude. For instance, Stempniewicz (1994) estimated that more than 3,000 Velvet Scoters were caugt and drowned in one winter in the Gulf of Gdansk. Dagys & Žydelis (2002) estimated that off Lithuania, 0.15 Velvet Scoters were entangled per 1000 m of net per day, and 11% of all birds drowned were Velvet Scoters. Durinck *et al.* (1993) reported that in Denmark several hundred birds may die in one catch.

Mortality due to by-catch in fishing nets is seen as one reason for the decline in the Finnish inland population of Velvet Scoters after the introduction of monofilament fishing nets in the remote breeding lakes in the north. Fishing still goes on in these lakes, possibly constituting the main factor preventing the recovery of this population (Hario 2000).

The available studies mainly investigate bird by-catch in near-coastal waters. Information about the by-catch on fishing grounds further offshore is scarce, though it is known that high densities of birds and high fishing intensity seasonally may overlap also in these areas. The total ban of driftnets within the EU in 2008 has probably contributed to reduce the by-catch, but shifting the effort to long-lining in salmon fishing may be leading to the opposite effect, especially in the southern Baltic Sea.

4.3 Hazardous substances (Contaminant pollution, CP)

Among the hazardous substances released to the environment, especially organochlorines DDT and PCB have had a severe impact on birds. PCB has affected birds by direct intoxication (Koeman *et al.* 1973), whereas DDT, or better its metabolite DDE, has caused reproductive failures especially in top-predators. DDT was originally used as an insecticide, but it also affects vertebrates as well as invertebrates other than those originally targeted. Owing to its persistence, DDT bio-accumulates and biomagnifies in food webs. The decline of White-tailed Sea Eagle (*Haliaeetus albicilla*) and other predatory birds several decades ago was associated with DDT and its metabolites, especially DDE. Piscivorous seabirds and terrestrial predatory birds were especially affected due to their position in the upper levels of the food chain. Following the bans on DDT and PCB during the 1970s around the Baltic Sea, the concentrations of DDE and PCB in biota declined considerably (HELCOM 2010a). The reproduction success of White-tailed Sea Eagles started to recover in the 1980s, and since the mid-1990s it has largely recovered back to pre-1950 levels (Helander *et al.* 2011).

The only African migrant among the Baltic Gulls, the nominated Lesser Black-backed Gull (*Larus fuscus fuscus*), has recently shown declining hepatic levels of DDE, HCB, β-HCH and *trans*-nonachlor (organochlorine pesticides), while the concentrations of PCBs are still comparatively high in the Gulf of Finland (Hario & Nuutinen 2011). The source of the PCBs is supposed to be the staple food of the species, the Baltic herring (*Clupea harengus*). Concurrently, the fledging rate of the Lesser Black-backed Gulls in the Gulf of Finland has increased from 0.02 in the 1990s to 0.52 in the 2000s, a figure probably sufficient to sustain the population (Hario *et al.* 2004).

Currently, lead contamination from hunting bullets via prey animals poses a severe threat to White-tailed Sea Eagles, other birds of prey and scavenging species (Herrmann *et al.* 2011). Metals and trace elements in Eiders have been found to be high in the Gulf of Finland, with levels increasing from west to east along the Gulf (Franson *et al*. 2000a, 2002) Also, acute lead poisoning due to ingested lead shots has been diagnosed in Finnish Eiders, but the source areas of lead shots are unknown for birds sampled soon upon arrival from spring migration (Hollmén *et al*. 1998, Franson *et al.* 2000b). All in all, exposure to lead and selenium should be considered among the potential factors for the current decline of the Eider in the Baltic Sea.

4.4 Plastic waste (Litter, L)

Plastic waste is a threat to seabirds since they may use it as nesting material with the consequence that chicks may get entangled and die (*e.g.,* in plastic remnants of lost fishing gear, plastic threads of packing material). Furthermore, plastic particles are ingested by several species or fed to the chicks (Heckroth & Hartwig 2005).

4.5 Oil spills (O)

Surveillance data clearly show that the efforts to reduce oil contamination in the Baltic Sea have been effective and the numbers of oil spills are largely declining. Nevertheless, chronic oiling is still an important mortality factor for seabirds, especially seaducks, Auks and Divers.

Weekly winter surveys of oiled birds at southern Gotland between 1996/97 and 2006/07 have shown that in the central Baltic Sea several tens of thousands of Long-tailed Ducks are killed by oil each year (Larsson & Tydén 2005, Larsson 2007). Furthermore, analyses of close to 1000 Long-tailed Ducks that had drowned in fish nets at Hoburgs Bank showed that about 12% of the birds had oil in the plumage (Larsson & Tydén 2005). A study from the Lithuanian coast by Žydelis *et al.* (2006) on beached birds during the period 1992/93 to 2002/03 also revealed high oiling rates. However, a clear relationship between the volume of the Long-tailed Duck passage in the Gulf of Finland during 1988-2007 and the numbers of registered oil spills in the Baltic, or any parallel long-term trends, could not be found (Hario *et al.* 2009).

Oil pollution is considered to be the main threat to the Velvet Scoter (EU Commission 2009c). The habit of congregating during moult and on wintering sites makes the species extremely vulnerable to oil spills. An estimated 7200 Velvet Scoters were killed in an oil spill incident in March 1972 in the Danish Kattegat, which contaminated another 23.000 diving ducks (Joensen & Hansen 1977). Oil transportation is increasing off the Curonian Spit, the main Lithuanian wintering site for Velvet Scoters, where up to 20.000-50.000 birds gather and numbers even may exceed 100.000 during cold spells (Vaitkus 2001).

In addition to the direct mortality caused by heavy plumage contamination from oil spills, it has also been found that bird fatalities occur from haemolytic anaemia caused by oil ingestion from preening or oil-polluted food or water (Yamoto *et al.* 1996). In November-December 2007, about 150 seaducks (mainly Velvet Scoters) were found dead on the islands Greifswalder Oie and Ruden (Greifswald Lagoon, Mecklenburg-Western Pomerania). Though there was no visible oil contamination of the plumage, laboratory analysis revealed oil ingestion, which obviously was the reason for death.

4.6 Predators and invasive species (N for native predatory species, A for invasive species)

The presence of predatory mammals may not only have an impact on the reproduction success of ground-breeding birds (such as waders, ducks, gulls and terns), but also lead directly to the abandonment of breeding places. During the last decades, the presence and densities of predatory mammals have increased in almost all regions of the Baltic due to the following reasons:

- In Germany, rabies has been eliminated during the mid-1990s, with the consequence that the population of Red Fox (*Vulpes vulpes*) increased considerably; for some regions, a tenfold increase of Fox numbers has been observed (Bellebaum 2003).
- Invasive species, such as the feral American Mink (*Mustela vison*) and the Raccoon Dog (*Nyctereutes procyonoides*) have spread all over the Baltic Sea area. Especially the feral Mink seems to cause severe problems for ground-breeding coastal birds (Andersson 1992; Nordström *et al.* 2003).

The increase of predatory mammals and the invasion of introduced species are currently considered to be one of the most severe problems for coastal bird conservation (Langgemach & Bellebaum 2005; Kube *et al.* 2005; Herrmann 2010).

In western Poland, grassland waders (Lapwing, Common Snipe (*Gallinago gallinago)*, Black-tailed Godwit (*Limosa limosa)*, Curlew (*Numenius arquata)* and Redshank (*Tringa totanus)*) have declined dramatically during recent years. Low breeding success caused by enhanced predation (particulary Red Fox and Corvids) is seen as the main reason for this trend (Ławicki *et al.* 2011).

The presence of feral American Minks has caused substantial decreases of breeding bird numbers in those areas where it reaches high densities (*e.g.*, Stockholm archipelago). In a nine-year experimental study, Nordström *et al*. (2002) removed all Minks from two large archipelago areas in the south west of Finland, this leading to a marked increase in breeding numbers of smaller waterfowl, gulls and terns whereas there was no effect on numbers of larger species, such as Mute Swan (*Cygnus olor*), Greylag Goose (*Anser anser*), Goosander and Common Eider. In another study, Mink predation was found to be the most important mortality factor in Black Guillemots breeding in the Gulf of Finland (Hario 2002).

Other invasive species that cause negative impacts on birds are certain phytoplankton species, brought into the Baltic with the ballast water of tankers. Among these are toxin-producing dinoflagellates. The toxins accumulate in molluscs and fish, and may end up in seabirds. The periodic blooms of these dinoflagellates are known as “red tides”. Paralytic Shellfish Poisoning (PSP) via neurotoxins has been implicated as the major cause for large-scale mortalities of breeding Common Guillemots and Razorbills in the Gulf of Finland in four major incidents (in 1992, 2000, 2006 and 2010, Hario *et al.* 1993).

4.7 Hunting (H)

The harvesting of migratory waterbirds continues on a large scale in many European countries despite the Agreement on Conservation of African-Eurasian Migratory Waterbirds (AEWA) and increasing calls in several countries and on EU level to ensure that the take is “sustainable”. However, there is neither consensus in Europe concerning an operational definition of “sustainable harvesting” nor consensus concerning the criteria that should be applied in determining sustainability (Bregnballe *et al.* 2006).

According to the EU Birds Directive, hunting may be allowed in the Member States if a species is listed in Annex II. This annex is divided into two sections: Species included in section A can be hunted in all EU countries, species of Annex B only in those countries for which they are listed.

Of the bird species included in this assessment, two are listed in Annex II A of the Birds Directive (Northern Shoveler, Tufted Duck), and 10 in Annex II B (Greater Scaup, Common Eider,Velvet Scoter, Red-breasted Merganser, Goosander, Lapwing, Ruff, Black-tailed Godwit, Lesser Black-backed Gull).

Bag statistics are available for some species and may illustrate the scale of the problem:

The Greater Scaup has a population of >120.000 wintering birds and an estimated annual bag of *c.* 2.000 in the EU, or about 2.500 including crippling (Mooij 2005). In Denmark, which used to have one of the largest documented takes, the annual bag has declined significantly. In the late 1960s, the average bag was c. 7.000 (with considerable annual variation), while in the second half of the 1990s it was down to less than 1.000 (Bregnballe *et al*. 2003). In the 2002/2003 hunting season the take was estimated at less than 300 birds (Clausager 2004). This hunting bag does not constitute a significant threat to the north-western European winter population of the Greater Scaup. However, for a strongly declining species, mortality from hunting is likely to be a significant additive factor (EU Commission 2009c). This applies especially to the small Baltic breeding population of the Greater Scaup.

The Eider bag in the Baltic Sea area increased during the 1960s and 1970s and reached a maximum of 200.000-250.000 birds during the mid-1970s and 1980s. Since the beginning of the 1990s, a strong decline is observed to currently 70.000-80.000 birds being shot annually (Figure 2). The strong hunting pressure in the 1980s did not prevent the population from growing, though it possibly contributed to the subsequent decline of population growth rates.

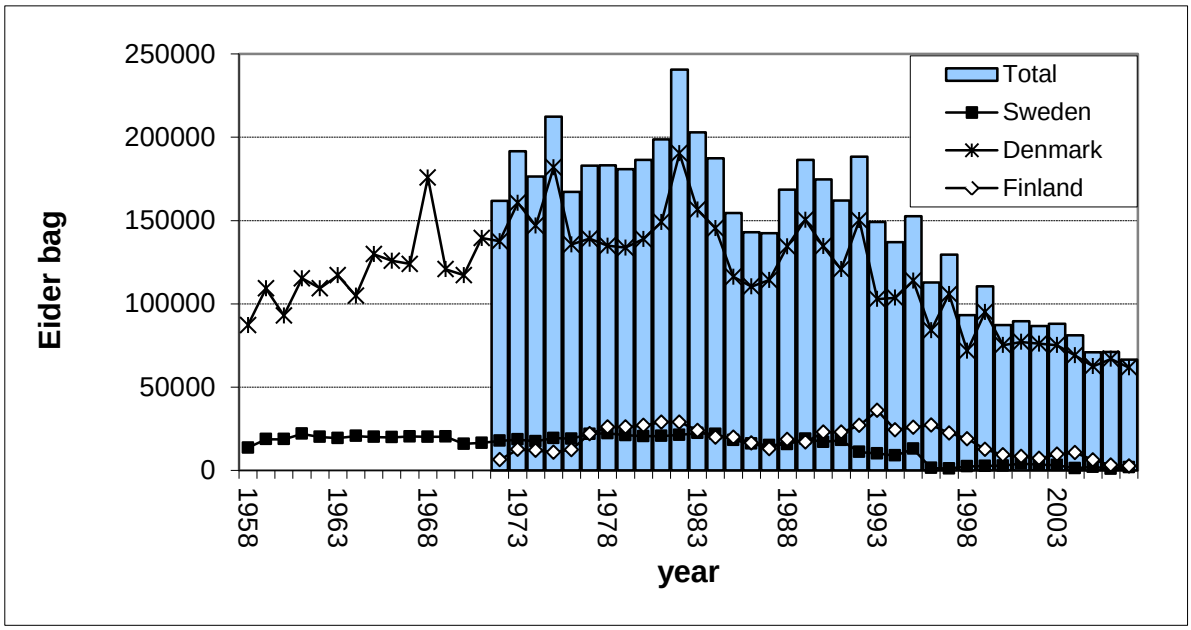


Figure 2: The development of the Eider bag in Denmark, Finland and Sweden. The Finnish data do not include the Åland Islands. Data were provided by the Danish National Environmental Research Institute, Finnish Game and Fisheries Research Institute, and the Swedish Association for Hunting and Wildlife Management.

Until 2006, spring hunting of male Velvet Scoters was traditional on the Åland Islands, an autonomous region of Finland with its own hunting legislation. Annual quotas were defined by the Åland Government's hunting administration. In May 2000 the quota was set to 6.700 males, but only 4.275 males were taken (EU Commission 2007a). In 2004 the quota was reduced to 3.000 males and a bag of 1.830 males was taken (Hario, unpubl.). The spring hunting in Åland might have had an impact on the local or even the Baltic breeding population; considering the location and timing of the spring shoot in Åland it is likely that most, if not all, males taken are part of the Baltic breeding population (EU Commission 2007a). In 2006, following EU legislation, the spring shoot on Velvet Scoter was ceased. However, in 2011, the Åland Islands resumed the spring shoot on Common Eider males.

There have been recent declines in the annual bags of Velvet Scoters in Denmark and Sweden. In Denmark, the bag was *c*.10.000 during the mid-1960s, falling to 1.600-1.800 in 2001-2003 (Madsen *et al*. 1996, Clausager 2004). In Sweden, the annual bag reported by Tucker (1996) was 1.500-2.000. Then it declined to less than 100 birds (EU Commission 2007a), and was eventually stopped in 2009. With a population of 500.000 – 1.0 million birds an estimated annual bag of *c*. 5.000 birds in the EU does not constitute a significant threat to the north-western European/west Siberian population (EU Commission 2007a).

The annual hunting bag of the Lapwing in the EU Member States is *c*. 480.000, although recent unpublished data give lower figures (EU Commission 2009b). To produce an estimate of the total hunting mortality affecting the European Lapwings, an unknown number of the Lapwings harvested in Russia and other East European countries, and probably also a small number of birds shot in northern Africa, must be added to this figure. Most of the hunting occurs in France, Italy, Greece, and probably Spain. However, because of the Lapwing's extensive migration movements and populations mixing up at moulting and wintering sites,

hunting in these countries is likely to involve birds originating from the whole range of the species (Trolliet 2000).

Within the EU territory, the Black-tailed Godwit is hunted only in France. The bagged birds are likely predominantly belonging to the western European populations, including the Baltic breeding birds. An annual take of 6.000 – 8.000 birds of the 215.000 Black-tailed Godwits migrating or resting in Western Europe equals 2.8 – 3.7%. To this the "cripple loss" should be added, which has been estimated at 25% of the bag size (Mooij 2005). For a slow reproducing species, such as the Black-tailed Godwit, this is a relatively small, but still significant additional mortality. It specifically affects the Western European population, which is already weakened by other factors, such as poor reproduction due to deteriorating breeding habitats (EU Commission 2007b).

Within the EU, the Redshank is currently hunted only in France. The estimated bag is 5.000 – 8.000. The impact of hunting on this species is considered to be low. However, there remains an urgent need to quantify the extent of the current hunting bag in France, the effects of crippling, and the numbers and distribution of the birds involved in this hunt (EU Commission 2009a).

A recent Danish study (Bregnballe *et al.* 2006) assessed the sustainability of the hunting bag of waterfowl in Denmark, where hunting of migratory waterbirds has a strong tradition and *c.* 700.000 birds are killed annually. For most of the 29 species with an open hunting season the take was assessed as "sustainable" or "probably sustainable", but in a few cases as "uncertain" (Common Eider) or even "not sustainable" (Baltic population of the nominate Lesser Black-backed Gull *Larus f. fuscus*). The authors emphasize the difficulty to give a reliable assessment for the whole flyway since bag statistics are not available for all countries. Furthermore, vulnerability to hunting may differ between sub-populations of a species, but bag statistics do not allow assessments of impacts on sub-population level.

4.8 Offshore constructions, especially wind farms (Co)

In the Baltic Sea area, offshore wind farms have already been built in Denmark, Sweden and Germany. More projects are under development in these three countries, but also in Finnish waters of the Bothnian Bay. Over the entire Baltic Sea region, there are plans for 29 new offshore wind farms to be completed by 2020, and another 25 between 2020 and 2030. Since many seabirds avoid wind farm areas, these constructions may result in habitat losses (Fox *et al*. 2006). The displacement from favourable feeding habitats, however, may bear marked effects on seabird fecundity, especially in the Bothnian Bay, an important reproduction area. Beside habitat loss, wind rotors pose a mortality risk to birds. Of the species assessed in the Red List, the White-tailed Sea Eagle is known to be vulnerable to wind farm mortality, since this species does not avoid wind rotors. According to the investigations of the Leibniz Institute Berlin (Herrmann *et al.* 2011), wind power collisions are responsible for about 4% of the mortality of the species in Germany.

Both possible impacts of wind farms – habitat loss and collision risk – depend much on the specific site and can be reduced by appropriate site selection. The same precaution applies to other man-made constructions, such as energy cables and pipelines that may cut off the shoreline from preferred feeding habitats of many archipelago bird species.

4.9 Epidemics / Diseases (Ep)

The outbreak of epidemic diseases is a factor which may have an impact on animal populations. In the Baltic Sea, outbreaks of avian cholera (caused by the bacteria *Pasteurella multocida*) in 1996, 1998 and 2001 affected local Eider populations in Sweden and Denmark. A minor epizootic was also evident in 1998 in the largest Common Guillemot colony in Sweden (Österblom *et al.* 2004).

Avian cholera has been rare in the Baltic Sea region and epizootics similar in magnitude to those of North America have not been recorded so far. Instead, prevailing die-offs of coastal birds in Sweden, especially those of Herring Gulls and Eiders, have been linked to thiamine deficiency leading to an idiopathic paralytic disease (Balk *et al*. 2009). This disease has been postulated as the possible cause for bird population declines over larger areas in northern Europe. However, the pathogen ultimately affecting the paralytic disease is not known. This disease syndrome is also different from what has been described on Paralytic Shellfish Poisoning incidents in Baltic marine birds.

Intestinal acanthocephalan parasite infestation is high among Eiders and may have an impact in association with other predisposing factors, such as impaired feeding ability or virus infections (Desholm *et al.* 2002).

5. Conservation measures

5.1 General protection of bird species according to the provisions of the EU Birds Directive

The general protection and conservation provisions of the EU Birds Directive (Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds; this is the codified version of Directive 79/409/EEC) are forming the legal background for the national legislation of all Contracting Parties to the Helsinki Convention, except Russia.

The Birds Directive establishes a general scheme for the protection of all bird species. The following actions are prohibited:

- to deliberately kill or capture the bird species covered by the Directive, *i.e.* all bird species naturally living in the wild within the European territory of the Member States. However, the Directive authorises the hunting of certain species on condition that the methods used comply with certain principles (wise use and balanced control, hunting outside the period of migration or reproduction, prohibition of large-scale or non-selective killing or catching methods);
- to destroy, damage or collect their nests and eggs;
- to disturb them deliberately;
- to detain them.

Apart from a number of exceptions, in particular for certain species that may be hunted, the following are not permitted either: the sale, transport for sale, detention for sale and offering for sale of live and dead birds or of any part of a bird or any product produced from it.

5.2 Hunting regulations

Species which are listed in Annex II of the EU Birds Directive may be hunted in those Member States for which they are listed. However, Member States are not obliged to permit hunting of these species by their national legislation. National conservation provisions may be stricter than the corresponding EU regulations.

For instance, the Lapwing is listed in Annex IIB for eight countries of the European Union. However, in three of them (Belgium, Denmark and Ireland), the Lapwing does currently not have an open hunting season (EU Commission 2009b).

In Finland (with the exception of Åland, which has its own hunting legislation), the Velvet Scoter (which is listed in Annex II for Finland) became protected in 1993 (EU Commission

2007a). Spring hunting of the Velvet Scoter in Åland was stopped in 2006. In Sweden, hunting of this species was stopped in 2009.

5.3 Protected areas

Bird sanctuaries have been established in the Baltic Sea area starting already at the end of the 19th and/or beginning of the 20th century (*e.g.*, Målkläppen on Falsterbo in Sweden in 1899; Werderinseln & Bock in Germany in 1909; island Langenwerder in Germany in 1910; some parts of the island Hiddensee in Germany in 1910, Vilsandi in Estonia in 1910 and Nothamn in Finland in 1913).

Picture 1. Langenwerder – one of the oldest bird sanctuaries of the Baltic Sea (since 1909-1910).

During the course of the 20th century, the number of protected breeding areas, but also resting and feeding sites during migration, has been increasing continuously in all countries. When the "Convention on Wetlands of International Importance especially as Waterfowl Habitat" (Ramsar Convention), from 2 February 1971, entered into force in 1975, a considerable number of Baltic Sea coastal areas was notified as "Wetlands of International Importance" according to the convention.

A next important step towards a comprehensive system of protected areas for bird conservation was set by the EU Birds Directive. According to Article 4 of the Directive, Member States are obliged to establish "Special Protected Areas" (SPA) for those species which are listed in Annex I of the Directive, but also for regularly occurring migratory species not listed in Annex I. The designation of SPAs was, at the beginning, only an obligation for Denmark and the western part of Germany (Schleswig-Holstein; Mecklenburg-Western

Pomerania belonged to the GDR and was not subject to EU law before 1990). However, when Sweden and Finland joined the EU in 1995, and Estonia, Latvia, Lithuania and Poland in 2004, these countries also designated SPAs. These SPAs, together with the Special Areas for Conservation (SAC) according to the Habitat Directive, nowadays form an ample network of Natura 2000 sites, covering the entire Baltic Sea area except for Russia.

HELCOM has also initiated to establish a comprehensive network of marine protected areas in 1994 with the adoption of Recommendation 15/5. The aim of this Recommendation was to establish a system of Coastal and Marine Baltic Sea Protected Areas (BSPAs). Many of the marine and coastal Natura 2000 sites of the Baltic Sea were included in the BSPA system. A comprehensive analysis of the ecological coherence of the network of the BSPA system is given by HELCOM (BSEP 124B, 2010). The BSPA network today covers 10,3% of the Baltic Sea area.

As a consequence of these conservation efforts, almost all important breeding sites of marine and coastal birds as well as the important resting and wintering sites of migratory birds are nowadays designated as protected areas and managed according to national legislation, the provisions of the EU Birds and Habitat Directives, and/or as BSPAs.

5.4 Habitat restoration and management

Habitat loss is a prominent threat factor for coastal and marine bird species. In previous times, land reclamation (especially dyking and drainage of coastal wetlands), alterations of coastal dynamics by coastal defence measures and occupation of areas for tourism and recreational purposes have been major reasons for habitat loss. In recent times, overgrowth of coastal meadows due to decresed grazing has also become a significant factor in several countries (*e.g.* Sweden, Finland, Estonia). Hence, restoration of lost habitats as well as appropriate management of still existing habitats are major challenges for bird conservation in the Baltic Sea area.

In Germany, dyking and drainage with the purpose to intensify agricultural production has been a major reason of loss of coastal wetlands, especially for meadow-breeding birds (e.g. Dunlin, Ruff, Redshank, Lapwing). Starting in 1992/93 with the restoration of Karrendorf meadows, a grassland of *c*. 350 hectares 10 km north of the city of Greifswald (Herrmann & Holz 1994; Holz *et al.* 1996), several restoration projects have been carried out. The largest restored areas are found by the mouth of the river Peene to the Odra Lagoon, covering a total of about 1.400 hectares. Starting in 2014, the restoration of 1.550 hectares of currently dyked meadows on the peninsula Zingst (National Park Vorpommersche Boddenlandschaft) is planned as compensation measure for the construction of a new dyke across the peninsula for coastal defence purposes.

Picture 2. Karrendorf and Koos meadows, a nature reserve 10 km north of the city of Greifswald. Karrendorf meadows are an example of coastal wetland restoration (restored in 1992/93). It is a complex of salt meadows and reeds, forming an important breeding site for waders and ducks, but also an important resting and staging site for waders, geese, ducks, Swans etc.

The LIFE Project BaltCoast is a recent project to restore and manage coastal bird habitats which assembles 34 project sites in 5 countries around the Baltic Sea (Germany, Denmark, Sweden, Estonia and Lithuania). The project is being executed between May 2005 and December 2012. The sites selected for the project represent a variety of small, medium and large size coastal meadows characteristic for the Baltic Sea.

Grazing will be the main tool for a sustainable long term management of the project sites. Especially the winter grazing or grazing periods including the time of early spring and late autumn have positive impacts on vegetation and site structure. The optimal vegetation will offer good living conditions for birds and other animals.

One main aim of the project is to achive natural water conditions. Planned actions include the restoration of a natural hydrology of lagoons and salt meadows by blocking drainages and reducing unnatural lagoon discharge. Water bodies will be improved by dredging accumulated mud and removing dense reed. Detailed information is given on the web site http://www.life-baltcoast.eu/.

A similar EU LIFE project, with similar aims and activities, was conducted in Finland between 2003–2007 for 12 important wetlands along the Gulf of Finland migratory flyway.

5.5 Management of predatory mammals

Predatory mammals such as Foxes, Minks, Raccoons, Raccoon Dogs and Wild Boars may reduce reproduction success or even cause complete reproductive failure of ground-breeding coastal birds. Bird colonies may even become abandoned if predatory mammals are present or have access. During the last decades, the impact of predatory mammals on coastal birds has increased in many regions of the Baltic Sea.

In order to reduce the impact of predatory mammals, a control programme has been established in Mecklenburg-Western Pomerania in 2006. The aim of this control programme is to keep bird islands and islets as well as breeding sites situated on peninsulas free of predatory mammals, applying different methods (e.g. hunting, traps, and electric fences). The results have been quite positive. However, it is very difficult to control predatory mammals on breeding sites on mainland coasts due to rapid immigrating of individuals from surrounding areas (Herrmann 2010).

In Finland and Sweden, a shared EU-funded project aiming at developing joint methods for monitoring seabirds was launched in 2004–2006 in the Kvarken area (the Quark, Bay of Bothnia). The Quarken Archipelago together with the High Coast in Sweden forms an area of unique entity and is a UNESCO World Natural Heritage Site.An important aspect of the project is the eradication of invasive species, such as Minks and Raccoon Dogs. The project is implemented through a partnership comprising governmental agencies from both countries, national park authorities, local hunters and ornithologists.

5.6 Hazardous substances and oil spills (HELCOM strategies and activities)

The 1974 Helsinki Convention banned the use of DDT and its derivatives DDE and DDD for all final uses except drugs, PCBs and polychlorinated terphenyls (PCTs) for almost all uses. The Convention, however, allowed other “noxious” substances and materials listed in Annex II to be introduced into the marine environment of the Baltic Sea area prior to special permits given by appropriate national authorities.

Article 5 of the revised Helsinki Convention of 1992 provides that the Contracting Parties undertake all measures to prevent and eliminate pollution of the marine environment of the Baltic Sea area caused by harmful substances from all sources. Annex I of the Convention sets criteria for the identification and evaluation of harmful substances that cause pollution. The Annex also provides a list of substances for which the Contracting Parties should give priority when taking preventive measures. Article 6 together with Annex III of the 1992 Helsinki Convention prescribes principles and obligations concerning pollution from land-based sources.

HELCOM’s overall objective (the HELCOM Strategy) was defined in HELCOM Recommendation 19/5 from March 1998. The overall objective is to prevent pollution of the

Convention Area by continuously reducing discharges, emissions and losses of hazardous substances towards the target of their cessation by the year 2020, with the ultimate aim of achieving concentrations in the environment near background levels for naturally occurring substances and close to zero for man-made synthetic substances. The objective defines substances as hazardous if they are toxic, persistent and bio-accumulating (PBT-substances), or very persistent and very bio-accumulating (vPvB). Moreover, substances that affect hormonal and immune systems are also considered as hazardous and are of equal concern. The HELCOM Strategy with regard to hazardous substances lists substances of concern, from which HELCOM has selected 42 for immediate priority action. That list has been further condensed and the HELCOM Baltic Sea Action Plan focuses on 11 substances of specific concern for the Baltic Sea (HELCOM 2010a).

Illegal oil discharges as well as shipping accidents resulting in oil spills are still a major threat to the Baltic Sea environment, including birds. Any discharge into the Baltic Sea of oil, or diluted mixtures containing oil in any form including crude oil, fuel oil, oil sludge, or refined products, is prohibited according to the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78).

The 1992 Helsinki Convention requires the ships to deliver the oil to a reception facility before leaving the port. The delivery is encouraged by a no-special-fee system, *i.e.* the costs have to be covered by general harbour fees or general environmental fees, but no special fee for the delivery.

The 1992 Helsinki Convention obliges the Contracting Parties to conduct aerial surveillance for detecting suspected offenders of anti-pollution regulations at sea. All coastal states should endeavour to fly - as a minimum - twice per week over regular traffic zones including approaches to major sea ports as well as in regions with regular offshore activities. Other regions with sporadic traffic and fishing activities should be covered once per week. Coordinated Extended Pollution Control Flights (CEPCO), which constitutes continuous surveillance of specific areas in the Baltic Sea for 24 or more hours, should be carried out twice a year.

Deliberate illegal oil discharges from ships are regularly surveyed within the Baltic Sea since 1988. As from 1999 the number of observed illegal oil discharges is gradually decreasing. The decrease in the number of observed illegal discharges, despite rapidly growing density of shipping, increased frequency of the surveillance flights and improved usage of remote sensing equipment, illustrates the positive results of the complex set of measures implemented by the Contracting Parties to the Helsinki Convention (HELCOM Response 2009).

6. Conclusions and recommendations

Red Lists give an assessment of the extinction risk of species for a defined area. The HELCOM Red List of Baltic Breeding Birds assessed 56 taxa with a clear relation to the marine and coastal environment. Of these taxa, 37,5% classify for a threat category (*Regionally Extinct* to *Near Threatened*); 62,5% are not threatened (*Least Concern*).

The classification of species to Red List threat categories helps to identify those species which need special attention or conservation efforts. For this reason, Red Lists are valuable tools for all sectors or people concerned with conservation aspects, such as conservationists, infrastructure planners, politicians, decision makers or lawyers; furthermore, they are also important information sources for the interested public.

However, changes in the range or abundance of species are usually the result of complex interactions of different (natural and anthropogenic) factors. It has to be recognized that permanent change is a basic character of the living nature. During the 20th century, several species have expanded their range into the Baltic Sea, *e.g.* Herring Gull, Sandwich Tern and

Barnacle Goose. One species, the Gull-billed Tern, has disappeared from the Baltic, while Ruff and Dunlin have lost much of their former range. Other species have shown strong long-term fluctuations, *e.g.* the Black-headed Gull and Common Gull, which reached population peaks at the beginning of the 1980s and have declined thereafter. Hence, changes in range or abundance of species as such do not indicate the need for conservation action. The conclusion whether actions are required has to be drawn in the context of the factors which are responsible for an observed population status or development. Nature conservation efforts are needed if negative trends can be attributed to threat factors of anthropogenic origin (either of direct anthropogenic origin such as hazardous substances, or indirect anthropogenic origin, such as increased predation as a consequence of rabies vaccination). For this reason, the HELCOM Red Lists of Baltic Breeding Birds has directed a strong focus on the identification and description of threat factors.

Major threat factors for coastal bird breeding habitats are loss or deterioration, *e.g.* due to abandonment or inappropriate management. Especially grazing is very important for the management of coastal meadows as habitats for waders and ducks. Since traditional grazing regimes are nowadays quite often not profitable, special incentive programmes are required.

Increased predation by mammals has a strong impact on the breeding success of coastal birds in many parts of the Baltic Sea. Since a general control of predatory mammals usually seems not to be possible, predation control efforts should concentrate on the most important breeding sites.

Oil spills are still a significant factor for bird mortality on sea, especially seaducks, grebes, auks and divers. Though the amount of oil discharged to the Baltic has decreased considerably during the last decades, further efforts are needed, especially to reduce the numbers of small discharges. The safety of shipping is another important issue, especially in the light of increasing ship traffic and oil transport on the Baltic Sea.

The main impact of fishery on birds is related to gillnet fishery. To reduce bird losses in gillnets, alternative safe fishing methods (*e.g.,* fish traps) should be developed. Furthermore, areas with high bird concentrations should temporarily (during the wintering and migration period) be closed for gillnet fishery. However, quite often satisfactory solutions are not easily available. For instance, the spring herring fishery is of essential importance for German coastal fishermen – but it overlaps spatially and temporally with high concentrations of wintering and migrating seabirds.

Hunting is obviously not the main reason for negative trends of those bird species which are game birds in some of the European countries. However, it may put an additional pressure on the populations and contribute to their decline. Hence, for declining and threatened species a hunting ban should be strived for.

Finally, it should be mentioned that some negative anthropogenic impacts on the marine environment may have positive effects on birds: Eutrophication, for instance, may enhance the biomass production of bivalves, which are the food base for diving ducks; overfishing of cod may result in a positive development of sprat stocks, improving the food availability for divers and auks. Hence, conservation and restoration efforts for the Baltic Sea, as for instance agreed upon in the HELCOM Baltic Sea Action Plan (BSAP, HELCOM 2007), could cause declines in numbers of wintering and resting seabirds. However, such impacts have to be accepted.

Conflicts between birds and offshore installations *(e.g.*, wind parks) should be minimized by adequate site selection. More research is needed in order to improve the knowledge about bird behaviour on sea and the impacts of offshore installations.

The assessment of the conservation status and population development of birds requires a sound data basis. Hence, bird monitoring programmes should be established in all countries around the Baltic Sea, covering

- Population numbers and distribution of breeding birds;
- Conservation and management status of breeding sites;
- Numbers and distribution of wintering and migrating birds;
- Surveillance of anthropogenic mortality (especially hunting, oiling, by-catch).

The Red List of Baltic Breeding Birds should be updated after a period of not more than 10-15 years.

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8. Species Information Sheets

Abbreviations and symbols

Red List Categories	
RE	Regionally Extinct
CR	Critically Endangered
EN	Endangered
VU	Vulnerable
NT	Near Threatened
LC	Least Concern

Population trends	
0	Stable
-	Decreasing
--	Strongly decreasing
+	Increasing
++	Strongly increasing
F	Fluctuating
(0), (-), (+)	Probably stable, (probably) slightly decreasing / slightly increasing
?	unknown

Threat factors	
E	Eutrophication (in relevant cases detrimental effects should be defined in more detail, *e.g.*: anoxia and hypoxia; excessive growth of algae; reduction in water transparency; siltation)
CP	Contaminant pollution
Ac	Acidification (both inland and marine waters)
L	Litter (plastic waste, ghost nets etc.)
O	Oil spills (incl. oil accidents and small spills)
Co	Construction (*e.g.* wind power farms, gas pipelines, bridges, dredging, ports, coastal defence barriers, also terrestrial construction: vacation homes *etc.*).
T	Water traffic (physical impact due to traffic, *e.g.* erosion caused by anchoring, boat wakes and other vessel effects, also noise).
M	Mining and quarrying (extraction of bottom substrates)
F	Fishing (both commercial and recreational fishing), except by-catch
Bc	By-catch
H	Hunting
D	Physical disturbance (*e.g.* disturbance due to tourism on bird colonies)
A	Alien species (competition, predation, hybridization, diseases, ecosystem changes by introduced species)
Cc	Climate change
N	Native species (*e.g.,* predators, especially if promoted by human activities, such as rabies vaccination for Foxes, improved food availability for Gulls due to fishery and refuse disposal)
Ep	Epidemics / diseases

RFT	Random threat factors (used only for species or habitat types that are very rare)
ERT	Extra-regional threats (*e.g.*, fishing, hunting or habitat changes affecting migratory species outside the Baltic Sea marine area)
EF	Extreme fluctuations in the population size
OGr	Overgrowth of open areas (*e.g..* coastal meadows become overgrown due to lack of management)
Am	Changes in agricultural management (intensification, conversion of grassland to cropland etc.)
Fo	Forestry (*e.g.* forest management activities that reduce amount of suitable nest trees for large birds of prey)
Di	Ditching (*e.g.* ditching and draining of mires and coastal meadows)
OT	Other threat factors

English name	Scientific name
Slavonian Grebe / Horned Grebe	***Podiceps auritus***
Taxonomical group Aves / Podicepediformes / Podicepedidae	Species authority Linnaeus, 1758
Description of major threats: CP; N; A; ERT; Bc; Ac	Threats in the future: CP; N; A; ERT; Bc; Ac
IUCN Criteria: A2abce	**Assessment justification:** **VU**
European IUCN Red List Category -	Annex I EU Bird Directive yes
Generation length 5 years	Annex II EU Bird Directive no

Range description and general trends: The Slavonian Grebe breeds in northern Europe. The European breeding population counts <11,000 bp; the largest populations are found in Finland, Russia, Norway, Sweden and Estonia.

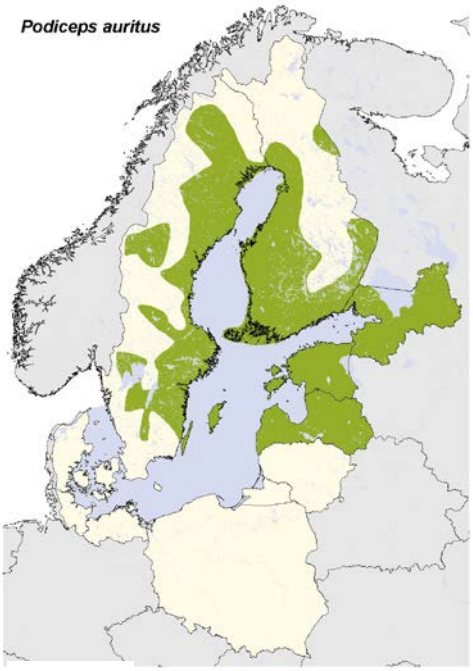
Distribution and status in the Baltic Sea region: The Slavonian Grebe mainly breeds in Finland, Sweden, Estonia and the St Petersburg Region of Russia. The Finnish and Swedish populations have been declining recently.

The total **Swedish** population has been estimated at 1,900-2,500 bp during the inventories of 1969 and 1972. However, this population has almost halved by 1996 (Tjernberg & Svensson 2007). The decline during 1990-2000 was estimated at 20-29% (BirdLife International 2004), but after that only a small reduction has been noted (around 5% during the period 1995-2010). The current population is estimated at 1,000-1,400 bp, of which 45 pairs are breeding at the coast.

In **Finland**, the decline was about 30% from 1990 to 2000 (BirdLife International 2004), but has exceeded 50% since then. In Finland and Sweden, the population declines concerns mainly the inland population, whereas coastal populations are thriving and expanding.

In the **St Petersburg Region** of Russia, the population was estimated at 200-600 bp in 2009/2010. The short-term trend seems to be positive, the long-term trend, however, is unknown.

Picture 3. Slavonian Grebe



Map 2.

The **Estonian** population has declined from the 1970s until the 1990s, but this trend obviously has levelled off. For 1998-2002 and 2003-2008 the population was estimated at 200-400 bp (Elts *et al.* 2003; 2009).

In the southern Baltic, the Slavonian Grebe is a sporadic breeder. **Latvia** holds some tens of pairs with possibly a declining trend (BirdLife International 2004). In **Lithuania**, the only confirmed breeding dates to 1997. However, observations during the breeding season (mainly on commercial fishponds in different parts of the country, especially in Varena, Kelme, Salcininkai and Vilnius districts) suggest regular breeding. The population is estimated at 1-10 bp (Kurlavičius 2006).

In **Poland**, the Slavonian Grebe appears occasionally as a sporadic breeder in the north-east of the country. Single pairs bred in 1972 near Augustów, and in 1981, 1985 and 1988 near Białystok. Sightings during the breeding season, but without confirmation of nesting, have been reported from Siedlce (1995) and near Toruń (1996; Tomiałojć & Stawarczyk 2003; Sikora *et al.* 2007).

In **Germany, Schleswig-Holstein**, the Slavonian Grebe bred for the first time in 1981; during the 1980s and 1990s single pairs have been breeding in most years (Berndt *et al.* 2002). The last successful breeding record dates to 1999, the last sighting during the breeding season to 2004 (Berndt 2007; Koop *et al.* 2009). From Mecklenburg-Western Pomerania, no breeding has been reported so far.

In **Denmark**, breeding was suspected in 2000 and 2001 (2 and 1 bp, respectively), but there was no proven record (Grell *et al.* 2004), and no signs of possible breeding during the following years.

Table 4: Population numbers of the Slavonian Grebe in the Baltic Sea area.

Country	**Breeding pairs**		**Short-term population trend (10 years)**	**Long-term population trend (50 years)**
	Population number	**Year**		
Sweden	1,000-1,400	2010	(-)	-
Finland	1,500	2008-2009	-	?
Russia, PET	200-600	2009-2010	+	?
Estonia	200-400	2003-2008	(0)	-
Latvia	20-50	1990-2000	?	(+)?
Lithuania	1-10	1999-2001	0	+
Poland	Sporadic, single pairs			
Germany, SH	Sporadic, single pairs			
Denmark	Sporadic, single pairs			
Baltic Sea	**2,900-4,000**			

Ecology and Habitat: The Slavonian Grebe inhabits shallow waters with luxuriant emergent and submerged vegetation and with small open water areas. Most of these environments are heavily eutrophicated. Besides small inland lakes and pools, brackish bays and lagoon-like areas along the Baltic coast are also used.

Oligotrophic and dystrophic lakes are less preferred, and the clutch size tends to be smaller there, probably due to food shortage (Ulfvens 1988). In the Quark of Finland, the reproduction rate is found to be higher in coastal environments compared to inland waterbodies (well-grown brood size 2.9 vs. 1.5; Ulfvens 1989). In coastal areas, winter losses (locally up to 50%) are rapidly compensated (within 4-5 years, Ulfvens 1989), whereas the decreasing trend tends to be more persistent in lake areas.

Description of major threats: The reasons behind the decline are probably related, *inter alia*, to food competition with fishes (Andersson 1982, Douhan 1998, Stedman 2000), hazards in wintering areas, and in inland waters also to water acidification. Predation by invasive predatory mammals (*e.g.* Mink, Raccoon Dog) and by-catch probably also play a role. These factors are expected to affect the Slavonian Grebe population also in the future.

Picture 4. Example habitat. The Slavonian Grebe inhabits shallow waters with luxuriant emergent and submerged vegetation and with small open water areas, such as this one in the Quark, known to be the breeding site of several pairs.

Assessment justification: Within the last 15 years the declining trend of the Slavonian Grebe has been strong, especially in Finland (>50%). In Sweden, only a slight decline has been observed; however, the overall decline is estimated to exceed 30% during 3 generations (15 years) in the main breeding areas. The species is classified as *Vulnerable* (VU) according to criterion A2abce.

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English name	Scientific name
Tufted Duck	***Aythya fuligula***
Taxonomical group Aves / Anseriformes / Anatidae	Species authority Linnaeus, 1758
Description of major threats: OT*, D, A, Bc	Threats in the future: OT, D, A, Bc
IUCN Criteria: A2ab	**Assessment justification:** **NT**
European IUCN Red List Category -	Annex I EU Bird Directive no
Generation length 5 years	Annex II EU Bird Directive II A

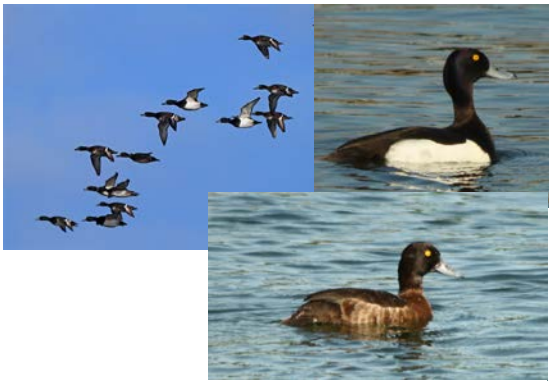
*Declining numbers of colonies of *L. ridibundus*

Range description and general trends: The Tufted Duck is a widespread breeder across much of Europe. The European population counts >730,000 bp. Although the species was stable or increased in much of its range during 1990-2000, there were declines in north-eastern Europe, including the north-eastern Baltic Sea.

Distribution and status in the Baltic Sea region: The size of the breeding population is much smaller in the western Baltic Sea area than in the north-eastern parts of the region.

The **Swedish** population has been stable both in short-term and long-term (Ottvall *et al.* 2009). It is currently estimated at 73,000-94,000 bp and is considered as "secure" (Ottosson *et al*., in prep.). However, there are considerable regional differences. In the coastal parts of the Baltic Sea it has obviously declined. For example, it decreased by 71% in the Stockholm archipelago 1975-2000 (from 5,800 to 1,700 pairs). Also in Västerbotten it has decreased since the beginning of the 1990s.

Finland hosts a large population of about 50,000 bp. It has been increasing in the past, but now it is strongly declining with about 5.4% annually. The decline has been estimated at 50% during the latest 10 years. In the archipelagos, the decline has been 50% as well. Currently, there are 11,000 bp in the archipelagos, *i.e.* one fifth of the total population.



Pictures: 5 (above left), 6 (above right), 7 (below right)

Map 3.

In Russia, the Tufted Duck breeds with only few (60-80) pairs in the **Kaliningrad Region**, but is quite numerous in the **St Petersburg Region**. The trend is declining in Kaliningrad, but seems to be about stable in St Petersburg.

The **Estonian** population was estimated at 4,000-6,000 bp in 2003-2008, with a declining trend between 1991-2008 (Elts *et al.* 2009).

In **Latvia**, the Tufted Duck was increasing until the late 1980s, but has been decreasing since then. The current population amounts to 700-800 bp (A. Mednis, *pers. comm*.).

In **Poland**, the Tufted Duck is nowadays a widespread, but sparse breeder of the lowlands. It is more common in northern Poland, especially Pomerania. Significant populations are also found in Wielkopolska, Silesia and Małopolska. The highest densities are found on lakes and fishponds, especially near to or within Gull colonies. It is missing in the mountains; the highest known breeding place is at 500 m altitude. Since the late 19th century it has shown an increase and expansion to the south, recently also to the south-east (Tomiałojć & Stawarczyk 2003). Locally, a declining trend due to the decline of Black-headed Gull colonies has been observed (Sikora *et al.* 2007). The total Polish population was estimated to 15,000-25,000 bp during the period 1990-2000 (BirdLife International 2004).

In Germany, **Mecklenburg-Vorpommern**, the population of the Tufted Duck has increased during the 1970s and 1980s, but declined after 1994. It was estimated at 450 pairs in 1978-1982, 400-600 bp in 1994, but only 300-350 in 1998 (Zimmermann 2006). The main breeding areas are the coastal bird colonies, but the species is also found in inland lake areas.

The species colonised **Schleswig-Holstein** mainly during the 20th century. During 1980-1990, the numbers of breeding pairs increased from *c.* 2,600 to 3,200 (Berndt *et al.* 2002). The actual total population (including North Sea) counts *c.* 5,000 bp. The species is present in almost all suitable habitats. The highest breeding pair numbers are recorded in the inland lake areas (c. 3,300 bp), but it is also quite abundant at the Baltic coast (c. 500 bp; 2005-2009).

The **Danish** population counts about 1,000-2,000 bp and has been increasing.

Table 5: Population numbers of the Tufted Duck in the Baltic Sea area.

Country	**Breeding pairs**		**Short-term population trend (10 years)**	**Long-term population trend (50 years)**
	Population number	**Year**		
Sweden	73,000-94,000	2010	0	0
Finland	50,000	2009	-	+
Russia, PET	5,000-10,000	2009	0	0
Russia, KAL	60-80	2000-2004	-	F
Estonia	4,000-6,000	2003-2008	-	+
Latvia	700-800	2009	-	+
Lithuania	4,000-6,000	1999-2001	-	+
Poland	15,000-25,000	1990-2000	(+)	+
Germany, SH	3,800	2005-2009	+	+
Germany, MV	300-350	1998	-	+
Denmark	1,000-2,000	2000	(+)	+
Baltic Sea	**157,000-198,000**			

Ecology and Habitat: The breeding habitats are marshes, lakes, fishponds and other water surfaces with rich vegetation to conceal the nest. The highest densities are found in the vicinity or within gull and tern colonies. In the vast archipelagos of the northern Baltic Sea, the association with terns and gulls is even more pronounced, especially in the outer zones (Hildén 1964). The Tufted Duck is only weakly marine (Numers 1995); yet, it is nevertheless the second numerous Anatidae over the entire Baltic (after the Common Eider). It feeds mainly by diving, but may also dabble. Food consists of bivalves, aquatic insects and plants.

Picture 8. Example habitat. The Tufted duck preferes water surfaces surrounded by rich vegetation to conceal the nest.

Descriptions of major threats: The strong decline in Finland, but also in other areas, is supposed to be related to the declining numbers of *L. ridibundus*, but also human disturbances and the increase of the American Mink have negative effects on the population. There is only little evidence for by-catch in the northern Baltic, and losses are also comparatively low in the southern Baltic (Stempniewicz 1994). However, this is an everlasting threat during severe ice winters when large bird congregations occur in restricted areas.

Assessment justification: The Tufted Duck has been increasing and expanding its range during much of the 20th century. However, starting from the late 1980s and during the 1990s, a declining trend has been observed in many parts of the Baltic Sea area. Since the Tufted Duck is widespread and numerous, it is difficult to get precise population figures. The available data indicate, from a Baltic-wide view, a declining trend with a population size reduction of >15% within 15 years, which categorizes the species as *Near Threatened* (NT) according to criterion A2ab. In Finland, the estimated population decline has been even *c.* 50% within the last 10 years, both inland and in the archipelagos. However, the threshold for the category *Vulnerable* is most likely not reached for the whole Baltic.

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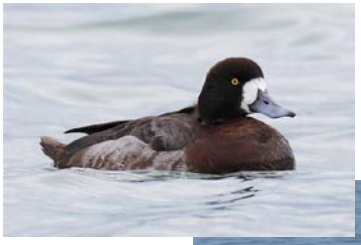
English name	Scientific name
Greater Scaup	***Aythya marila***
Taxonomical group Aves / Anseriformes / Anatidae	Species authority Linnaeus, 1761
Description of major threats: N, A, O, ERT, Bc, F, M, H	Threats in the future: N, A, ERT, Bc, F, M, H
IUCN Criteria: A2abcd (C1[5])	**Assessment justification:** **VU**
European IUCN Red List Category EN (A2b)	Annex I EU Bird Directive no
Generation length 5 years	Annex II EU Bird Directive II B (BE, DK, DE, EL, FR, IE, LV, NL, RO, UK)

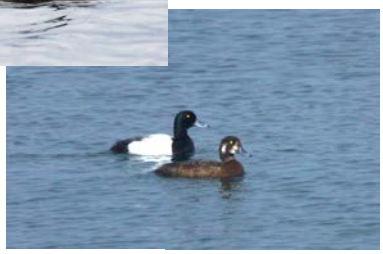
Range description and general trends: The Greater Scaup breeds at high latitudes across northern Eurasia and North America. The nominate subspecies occurs in western Eurasia where it breeds in Iceland, Scandinavia and northern Russia east to the Lena River, and along the Baltic coasts in Sweden, Finland, and Estonia. This European breeding population constitutes 25-49% of the global population.

The EU breeding population counts 1,400-2,400 pairs and is small compared to the European population (180,000-190,000 pairs). The European winter population amounts >120,000.

The breeding population in Europe and the EU underwent a large decline during 1970-2000. Between 1990 and 2000, the key winter populations in Europe underwent a very large decline (>50%), and the Scaup is now evaluated as “endangered” (European Commission 2009c).

Distribution and status in the Baltic Sea region: The Swedish and Finnish breeding populations count about 1.400-2.400 bp, of which 650-700 are breeding in Baltic coastal areas and the remainder in mountain areas of north-western Sweden and in Finnish Lapland. The population has been declining since at least 1970.





Pictures: 9 (above) & 10 (below)

Map 4.

[5] C1 applies if only the Baltic coastal population is considered.

Sweden hosts a population of 900-1.900 bp. The birds are mainly found in the north-west on mountain lakes surrounded by birch forest. About 200 pairs (Ottosson *et al.* in prep.) breed along the coast of the Baltic Sea from Gotland northwards with a concentration at the Quark (county of Västerbotten; Haldin 1997, Tjernberg & Svensson 2007). The Swedish population has been declining strongly over the last 100 years, particularly in the southern part of its range (SOF 1990). In the Stockholm archipelago, a 50% reduction in breeding numbers was observed between 1937-38 and 1974-76. In 1974-76, the population counted still 100 bp, but now it is completely extinct (Eklund 2009). Tjernberg & Svensson (2007) estimate the recent decline of the Swedish population to at least 10% during the last 20 years.

In **Finland**, the Greater Scaup breeds mainly along the Baltic coast; the northernmost Lapland holds only about 50 pairs. The bulk of the population nests in a relatively small area immediately south of the Quark, Bothnian Bay, one of the few regions with densities comparable to the main breeding areas in the Russian tundra (Haldin 1997). The Finnish breeding population was still 900-1.100 bp during 1995-98, but was estimated at only 500 bp in 2009. The smaller local populations in the southern Bay of Bothnia have undergone large declines during the last ten years, and several were extinct by 2006 (Hario & Rintala 2007). Also the population in the Quark declined by 40% from the 1950s to the 1980s (Hildén *et al.* 1995), but during the 1990s it kept relatively constant. An up-to-date inventory in the Quark is urgently needed. In all, the recent decline of the Finnish population has been estimated at 47% in 10 years.

The **St. Petersburg Region of Russia** hosts a small population of 1-5 bp, whereas in the Kaliningrad region the Greater Scaup is not a breeding bird.

The Greater Scaup has been a regular breeder since the 1950s in **Estonia** with a small population of some 50 pairs in the 1990s (Haldin 1997, Snow & Perrins 1998, BirdLife International 2006). This population declined strongly during the periods 1971-1991 and 1991-2008 (decline >50% in each period) to only 1-10 bp in 2003-2008 (Elts *et al.* 2009).

In **Poland***,* the Greater Scaup is only an exceptional breeder (Tomiałojć & Stawarczyk 2003).

A small population has recently established in **Germany / Schleswig-Holstein**. The first breeding record dates to 1981 from the Hauke-Haien-Koog/North Sea. The first breeding at the Baltic Sea was recorded in 1990 (Oehe-Schleimünde). During the 1990s, the breeding pair number was about 5 bp, of which the majority bred at the North Sea (Berndt *et al.* 2002). In more recent times, single pairs have been observed occasionally (Knief *et al.* 2010). In 2011, a female with pulli has been seen in the Plön lake area.

From **Denmark**, single broods have been reported starting from 1988 (Grell 1998).

Table 6: Population numbers of the Greater Scaup in the Baltic Sea area.

Country	Breeding pairs		Short-term population trend (10 years)	Long-term population trend (50 years)
	Population number	year		
Sweden	900-1900	2010	-	-
Finland	500	2009	--	--
Russia, PET	1-5	2009	0	0
Estonia	1-10	2003-2008	--	--
Poland	Sporadic, single pairs	End of the 1990s		
Germany, SH	Sporadic, single pairs	Since 1981		
Denmark	Sporadic, single pairs	Since 1988		
Baltic Sea	**1,400-2,400**			

Ecology and Habitat: In Fennoscandia, Greater Scaups breed in two rather different habitats: on mountain lakes in the upland birch region (Haapanen & Nilsson 1979), and on small islands and skerries in the outer archipelago of the Baltic Sea. In Finland it almost exclusively breeds on small islands along the Baltic coast. The Greater Scaup is not colonial, but in dense breeding areas nests are sometimes within distances of *c.* 1 m (Snow & Perrins 1998).

Picture 11. Example habitat. In the Baltic Sea the greater Scaup prefers small islands and skerries in the outer archipelago. The archipelagos of Rönnskär (above) and Berögaddarna are especieally productive nurseries.

Description of major threats: The reasons for the decline are not well known, but several possible factors have been identified.

Drowning in fishing nets is a problem both in breeding and wintering areas. In the wintering areas, degradation of feeding opportunities through intensive shell fisheries, offshore sand and gravel extraction, and contamination in connection with oil pollution are believed to be important. The hunting take-off within the EU constitutes only 2% of the European wintering population (European Commission 2009c). However, according to ring recoveries, hunting affects the tiny Baltic breeding population. A further cut of unknown magnitude may be the share of Scaups bagged as Tufted Ducks in countries with no open season for the species. Fledgling production is currently low, leading to insufficient recruitment rates. In Finland, especially the predation on ducklings by large gulls has been identified as a major problem.

Assessment justification: Since the data for the population development in Sweden are of rather low quality, the Red List assessment of the Greater Scaup in the Baltic Sea area includes a certain level of uncertainty. However, it is likely that the population size reduction exceeds 30% over the last 15 years. The factors responsible for the negative trend have not ceased. It is expected that the number of reproductive individuals remains low and the Greater Scaup is assessed as *Vulnerable* (VU) according to criterion A2abcd.

If only the breeding population of the Baltic coastal areas is considered, the species fulfils the criteria for *Endangered* (EN) according to criteria A2abcd; C1.

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English name	Scientific name
Common Eider	***Somateria mollissima***
Taxonomical group Aves / Anseriformes / Anatidae	Species authority Linnaeus, 1758
Description of major threats: Ep, N, A, CP, Cc, Bc, O, H	Threats in the future: Ep, N, A, CP, Cc, Bc. O, H
IUCN Criteria: A2abe	**Assessment justification:** **VU**
European IUCN Red List Category -	Annex I EU Bird Directive no
Generation length 7 years	Annex II EU Bird Directive II B (DK, EE, FR, IE, FI, SE)

Range description and general trends: The Eider breeds in coastal areas of north-west and northern Europe. The population has increased almost throughout the 20th century until the 1990s. Simultaneously, the species has also extended its breeding range southwards along the European Atlantic coast. However, since the mid-1990s a considerable decline of the breeding population has been observed in the northern Baltic (Finland, Sweden, Estonia) as well as for the wintering Baltic/Wadden Sea flyway population.

Pictures: 12 (above) & 13 (below)

Distribution and status in the Baltic Sea region:

The ***Swedish*** breeding population was estimated at 170.000 breeding females in 1973 and increased to 270.000 in 1983-1984 (Desholm *et al.* 2002). Since the end of the 1990s, the population has been declining. Currently, it is estimated at 120.000-200.000 bf[6]. Within the last 20 years the decline has been estimated to 25%.

In ***Finland***, the Eider was few in numbers in the 1910s and 1920s, but in the late 1930s the population was already estimated at 12.000 pairs. During World War II it collapsed due to intensified hunting, egg collection, oil disasters as well as severe winters. After the war the population started to grow again with high growth rates.

Map. 5

[6] These numbers include 23,000 bf breeding in Bohuslän, Skagerrak, which does not belong to the Helsinki convention area.

The increase was most rapid during the 1970s and 1980s, averaging 7-10% per year. In 2001, the total Finnish population was estimated at 150.000-180.000 breeding females, of which about 150,000 bred in the south-western archipelago, 10.000-20.000 in the Gulf of Finland, and less than 10.000 in the Bay of Bothnia. During the late 1980s and 1990s, no further increase occurred in the Gulf of Finland, and since the mid-1990s the entire Finnish population is estimated to decline. For 2010, the population number was estimated at 103.000 breeding females, and the recent decline (2000-2010) to 2.3% p.a.

In the ***St Petersburg region of Russia*** the species recovered during the 1970-90s. However, the population is still small and is estimated at 200 breeding females on the islands of the eastern part of the Gulf of Finland (A. Kondratyev, *in litt*.). At Lake Ladoga, the Eider breeds in the Valaam archipelago and on small islands in the northern part of the lake. However, these areas belong to Karelia, not to St Petersburg region.

In ***Estonia***, the Eider is the second numerous Duck species, breeding all over the archipelago. The population increased from the beginning of the century until 1940. During World War II and the post-war period the population decreased, but started to recover and expand its range in the mid-1950s. In the mid-1960s, the population was estimated at 3.000-3.500 breeding females, until the beginning of the 1980s it had increased to about 8.000, and *c.* 15.000 in 1995. However, after this peak it decreased to 12.000 in 2001 (Desholm *at al.* 2002, Elts *et al.* 2003; Figure 3), and 3.000-7.000 breeding females in 2003-2008 (Elts *et al.* 2009).

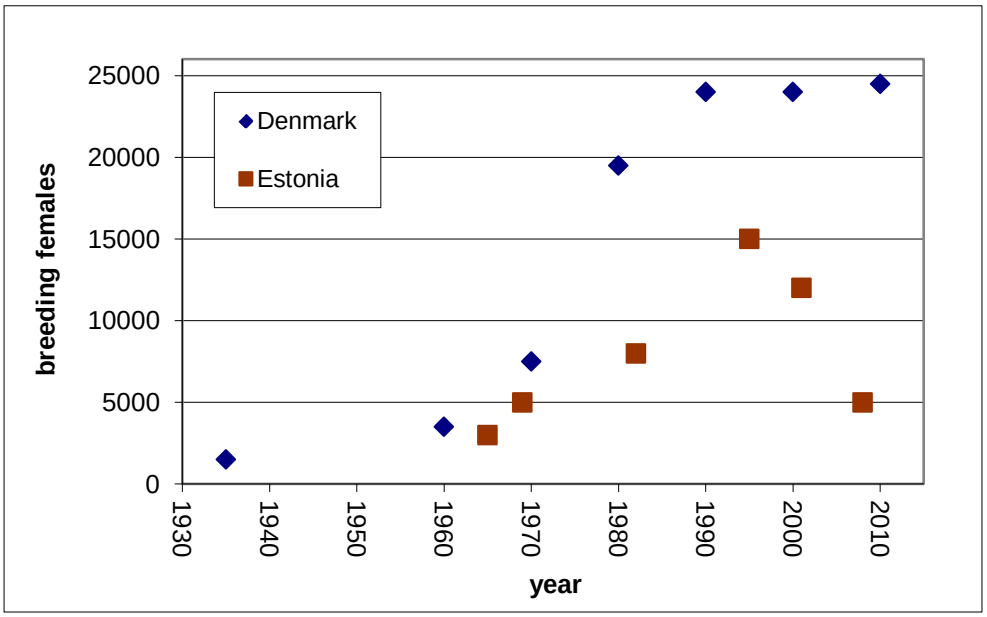

Figure 3: The development of the Eider population in Denmark and Estonia during the 20th century. Data from Desholm *et al.* (2002) and Christensen & Bregnballe (in press.).

In the **Kaliningrad region of Russia, Lithuania** and **Latvia** the Eider has not yet been recorded as a breeding bird.

In ***Poland***, the breeding of Eiders is exceptional, there has been only one breeding record near Gdańsk in 1997 (Tomiałojć & Stawarczyk 2003).

In ***Germany***, the Eider mainly breeds at the North Sea (1.100-1.300 bf in 2005, Südbeck *et al.* 2009). The German Baltic Sea coast was not colonized before 1985. Since then, the Eider breeds regularly there with increasing numbers in both Baltic coastal federal states, Mecklenburg-Western Pomerania and Schleswig-Holstein. In 2011, the population in Mecklenburg-Western Pomerania was 85-100 bf.

In ***Denmark***, the Eider has shown a long-term increase during the 20th century. The breeding population was about 1.200-1.500 nesting females around 1935, 3.000-3.500 around 1960, 19.000-20.000 around 1980, and 23.000-25.000 around 1990. The annual growth rate was as high as 8-10% during the period 1960-1980, but slowed down to 2-3% in 1980-1990 (Lyngs 2000). During the 1990s until 2010, the population was about stagnant, giving an estimate of 24.000-25.000 breeding females in 2010 (Christensen & Bregnballe 2011; Figure 3). However, the stability of total numbers does not reflect a stable situation, since some old, large colonies decreased considerably, whereas increases occurred on a number of small and newly established breeding sites. On Ertholmene (Bornholm), for instance, one of the largest and oldest Eider colonies in Denmark, the number of nesting females dropped down from 3.000 in 1992 to 1.650 in 2007 (http://www.chnf.dk/lister/yffugle_chroe.html).

Between 1990 and 2000, the Baltic/Wadden Sea flyway population has undergone a considerable decline. In the Danish waters, the second most important wintering area of the flyway population, the number of wintering birds has declined from *c.* 800.000 to 370.000 during this time. Mid-winter counts suggest that the total population could have fallen from *c.* 1.2 million birds in 1991 to *c*. 760.000 in 2000, which means a reduction of 36% (Desholm *et al.* 2002)[7]. However, although reductions in breeding numbers are evident for some sites, the decline of the breeding population along the flyway seems to be less pronounced compared to the winter population. Shortcomings of the monitoring of breeding and wintering numbers, as well as an unknown buffering effect of non-breeders (*i.e.* earlier debut breeding attempt of subadults) are probably the reasons for the difference (Desholm *et al.* 2002). However, Finnish ringing data indicate no age-related buffering effect, whereas there was a true shortcoming of subadults in the south due to exceedingly small cohorts on the northern breeding grounds preceding the low winter counts in Denmark (Hario & Rintala 2009).

Table 7: Population numbers of the Common Eider in the Baltic Sea area.

Country	**Breeding pairs**		**Short-term population trend (10 years)**	**Long-term population trend (50 years)**
	Population number	**Year**		
Sweden	120,000-200,000[8]	2010	-	+
Finland	103,000	2010	-	+
Russia, PET	200	2010	?	+
Estonia	3,000-7,000	2003-2008	-	+
Poland	One breeding record	1997		
Germany, SH	70	2005-2009	+	+
Germany, MV	85-100	2011	+	+
Denmark	24,000-25,000	2010	0	+
Baltic Sea	**250,000-335,000**			

[7] It has to be mentioned that these population numbers are probably underestimated, since they reflect the counted numbers without any attempt to correct for birds which have not been seen. Noer *et al.* (1995) estimate a population size of 1.5-2.0 million birds in 1990. However, the estimated decrease of c. 30%, giving a total population of about 1.0-1.2 million birds in 2000, seems to be realistic (H. Noer, *pers. comm*.).

[8] Numbers include birds breeding in in Bohuslän, Skagerrak.

Ecology and Habitat: The Eider is the most numerous and widespread duck in the Baltic archipelagos. It inhabits a wide range of island types along the entire zonation. In Finland, it takes an intermediate position in maritimity among breeding species in the vast South Western Archipelago (Numers 1995), being a generalist rather than a strictly marine species. However, its distribution is basically dependent on the occurrence of the Blue Mussel (*Mytilus trossulus*), although also other bivalves may serve as basic food resource. Females show a high degree of natal philopatry, whereas males disperse widely. The Eider breeds colonially, often with larids, although true association may be weak (Hildén 1964). The northern Baltic population is strictly migratory, but overwintering takes place within the Baltic range.

Example habitats. The Eider duck favors nesting in the outer archipelago close to cover in the form of e.g. low vegetation. Right (picture 14): typical nesting site in the Finish Quark, left (picture 15): typical nesting site in the Gulf of Finland/Archipelago Sea.

Description of major threats: There are several factors known to have an impact on the species. The significance of these factors for the observed decline is not well understood, but at least the more frequently occurring diseases (*e.g.*, Avian Cholera, caused by the bacteria *Pasteurella multocida;* viral infections; intestinal infections with acanthocephalan parasites), contaminants, thiamine deficiency, and increased predation by White-tailed Sea Eagles have a negative impact. Climate change probably also has an increasing effect through decreasing salinity in the Baltic Sea, which affects food availability (bivalves). However, Baltic winter climate has not shown an impact on adult mortality so far, *i.e.* there is no association between the North Atlantic Oscillation (NAO) index and the annual variation in female survival of the Gulf of Finland birds (Hario & Rintala 2009). Fledgling production bears the highest population regulatory effect in a 48-year-long time series in the Gulf of Finland, whereas female survival only explains 2% of the population growth rate (Hario & Rintala 2006). In 1996 and 1999, viral infections have caused mass mortality among ducklings within the first weeks after hatching. Similar mortalities have occurred in accelerating pace since then, but the causes have not always been identified. Yet, high duckling mortality decreases the subsequent recruitment rate so that it cannot compensate the normal adult mortality (10-15%). This is consistent with the life history pattern of typical *K*-selected species, in which selection pressures tend to minimize the variation in traits bearing the greatest repercussions on fitness (such as adult survival). Alas, enhancing duckling survival in the Baltic environment is far more difficult to cope than managing adult population (*e.g.* by tuning hunting practices).

Assessment justification: The Baltic Eider population has been declining since the 1990s. In the most important breeding areas, the declines have been estimated at 25% in 20 years in Sweden, and 39% in 15 years in Finland, respectively. The overall decline within three generations (21 years) is assumed to exceed 30%. The reasons for the decline have not ceased. Hence, the species is classified as *Vulnerable* (VU) according to criterion A2abe.

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English name	Scientific name
Velvet Scoter / White-winged Scoter	***Melanitta fusca***
Taxonomical group Aves / Anseriformes / Anatidae	Species authority Linnaeus, 1758
Description of major threats: H, O, ERT, N, Bc, E, D	Threats in the future: H, O, ERT, N, Bc, E, D
IUCN Criteria: A2b	**Assessment justification:** **VU**
European IUCN Red List Category -	Annex I EU Bird Directive no
Generation length 7 years	Annex II EU Bird Directive II B (DK, DE, FR, IE, LV, FI, SE, UK)

Range description and general trends: The Velvet Scoter has an extensive Holarctic distribution, breeding across the higher middle latitudes of North America and Eurasia. Only the nominate form occurs in the Western Palearctic, with a breeding range that extends from Norway to east of the Yenisey River (85°E). There are also breeding populations along the Baltic coasts of Sweden, Finland, Russia and Estonia, with a tiny, isolated population in the Caucasus and Turkey. In Fennoscandia the population is mostly coastal, only Finland and Sweden having small inland populations. In Norway the population breeds entirely inland. The European population counts 85.000-100.000 bp and was stable during 1970-1990. The Baltic population represents about 25% of the European one (BirdLife International 2004; European Commission 2007a).

The population in Russia suffered declines of 20-29% during 1990-2000, and those in Sweden of even >50% during 1980-2010. In Finland and Estonia, the species also has decreased.

Distribution and status in the Baltic Sea region:

In ***Sweden***, there are two geographically separate breeding populations. Most Velvet Scoters breed on the Baltic coast (*c*. 8,800), while a smaller population (about 1,200 bp) is found in mountain areas (Ottosson *et al.,* in prep.). A substantial decrease was reported from the 1940s to the 1990s for the south-east coast (Curry-Lindahl *et al.* 1970; Svensson *et al*. 1999).

Picture 16.

Map 6.

In the Stockholm archipelago area, a decline of 89% of the breeding population was recorded between 1975 and 2000 to 2003 (European Commission 2007a). Along the northern part of the east coast the species has increased during the last few decades (Svensson *et al.* 1999). For the entire Swedish coastal population, a decline of 50-79% during the last 30 years, 20-40% during the last 20 years (3 generations), and 10-19 % during the last 10 years has been noted. A new inventory in the mountain area shows that the population has decreased with about 50 % during last 30 years. At present, the total Swedish breeding population is estimated at 8.000-12.000 bp.

In ***Finland,*** the Velvet Scoter breeds inland and along the coast with a particularly large population in the Åland Archipelago. The inland population is confined to the north and northeast being sparsely distributed only in the lake areas (Hario 2000). During the middle of the twentieth century a marked decline was reported due to hunting. In the early 1990s about 1,000 pairs were believed to breed inland (Väisänen *et al*. 1998). A census of the Finnish coastal breeding population during 1997 estimated 13,000 pairs with about 6,000-7,000 pairs occupying the Åland Islands and most of the others breeding on the mid-Bothnian coast (Hario 2000). The census showed the Finnish coastal population having stabilized at a low level following a period of continuous decrease in numbers and range from the 1960s to the early 1990s (Hario 2000). The size of Åland population estimates has been subject to some controversy. Earlier estimates by the Provincial Government were of 60,000-70,000 pairs (Tucker 1996). Survey work (during 1986-1989) for the second Finnish breeding atlas, however, gave a maximum of 8.000 pairs for the entire south-west archipelago of Finland, which includes Åland, with 1.000-5.000 pairs elsewhere on the coast. In 1999-2001, the breeding population in Finland was estimated at 14.000–16.000 pairs (BirdLife International 2004). An almost similar figure for Finland of 12.000-15.000 pairs in the mid-1990s is given by Koskimies (1997). For 2009, the population was estimated at 10.000 bp.

The ***St Petersburg*** region of **Russia** hosts a small population of *c.* 10 bp, perhaps slightly more, with a negative short-term trend.

The ***Estonian*** population was estimated at *c.*1.000 pairs during the mid-1980s (Berndt & Hario 1997). This estimate is not very different from that of *c.*1.100 pairs made by Onno (1965, cited in Cramp & Simmons 1977) who thought the population to be steadily decreasing. Surveys in the early 1990s resulted in an estimate of less than 500 pairs with some areas suffering significant reductions. For 1998, the Estonian population was estimated at 500–900 bp (BirdLife International 2004). The latest numbers given by Elts *et al.* (2009) are 400-700 bp.

Table 8: Population numbers of the Velvet Scoter in the Baltic Sea area.

Country	**Breeding pairs**		**Short-term population trend (10 years)**	**Long-term population trend (50 years)**
	Population number	**Year**		
Sweden	8,000-12,000	2010	-	-
Finland	10,000	2009	-	-
Russia, PET	10	2009	-	0
Estonia	400-700	2003-2008	(+)	-
Baltic Sea	**18,400-22,700**			

Ecology and habitat: The Velvet Scoter is a seaDuck, *i.e.* a diving Duck species that outside the breeding season inhabits marine environments.

Velvet Scoters mainly breed in boreal and montane habitats in the upper middle latitudes. There is a frequent association with trees and shrubs during breeding both at inland lakes, pools and rivers within wooded tundra and taiga zones in the continental interior, and on wooded shores and islands of the Baltic (Cramp & Simmons 1977). Nests are well dispersed at concealed sites close to either fresh or brackish water.

In Sweden and Finland, the largest numbers are found in coastal archipelagos where the Velvet Scoter prefers clear water. Inland they breed scattered among mountain lakes of the north and on boreal coniferous forest lakes in Kuusamo district of north-eastern Finland. In Finland, many islands of the coastal archipelagos are less than 5 ha and densities of 2.5 breeding pairs per ha have been found (M. Hario, *unpubl.*). Although the species is not colonial, birds on islets can exceptionally breed in aggregations with distances between nests as close as 3 m (Cramp & Simmons 1977). In some coastal areas, as a means to reduce egg depredation, Velvet Scoters nest in association with gull (Laridae) and tern (Sternidae) colonies.

Picture 17. Example habitat. In Finland many islands, such as this one outside of Panike, are less than 5 ha but densities of 2.5 breeding pairs per ha can be found.

Wintering birds in the Baltic are usually found in shallow offshore waters. Surveys in the Baltic Sea area recorded approximately 85% of the Velvet Scoters in areas where water depth was between 10 and 30 m (Durinck *et al*. 1994). A study of Velvet Scoters wintering along the Lithuanian coast demonstrated a preference for marine areas with sandy substrates at depths between 2 and 30 m (Žydelis 2000).

Description of major threats: The reasons behind the observed declines include hunting, oiling in the wintering areas, drowning in fishing gear, human disturbances, and at least in the north also eutrophication and predation by gulls. Yet, no new analysis of the vital rates of the species has been conducted since the pioneering work of Koskimies (1957a,b) in the Gulf of Finland. Hence, the mechanisms of the present-day decline – whether due to increased mortality or decreased natality – are unclear. Traditionally, the Velvet Scoter has been seen as poorly adapted to the marine milieu due to its loose parent-offspring relationships. Yet, females show anti-predator tools that equal those of the Eider, and in some years the fledgling production in the Finnish archipelago is very good (Hario 2008). In most years, however, the breeding success is poor in the outer archipelago, but it can be reasonable good in the vast inner zones of SW Finland and Åland archipelagos.

Assessment justification: In the long term, the Baltic population of the Velvet Scoter has declined considerably. In Sweden, the decline was c. 30 % during the last 20 years (3 generations). For Finland, the 2010 TRIM estimates of the Ntl. Archipelago Bird Census gave an annual mean decrease of 3.7% since the mid-1990s. In Estonia, however, stabilization seems to have happened. The species is categorized as *Vulnerable* (VU) according to criterion A2b.

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English name	Scientific name
Ringed Plover	***Charadrius hiaticula hiaticula***
Taxonomical group Aves / Charadriiformes / Charadriidae	Species authority Linnaeus, 1758
Description of major threats: OGr, Am, D, A, N, Co	Threats in the future: OGr, Am, D, A, N, Co
IUCN Criteria A2bc	**Assessment justification:** **NT**
European IUCN Red List Category -	Annex I EU Bird Directive no
Generation length 6 years	Annex II EU Bird Directive no

Range description and general trends: The Ringed Plover is a widespread breeder in northern Europe. The European breeding population counts >120.000 bp. It was stable during the period 1970-1990, but in some countries the population was declining during the period 1990-2000 (BirdLife International 2004). In the Baltic Sea area, the Ringed Plover occurs with two subspecies: *Ch. hiaticula hiaticula,* which breeds mainly along the coasts all around the Baltic (but also along larger, unregulated rivers), and *Ch. hiaticula tundrae,* which breeds in the Swedish mountain and Finnish inland (north-east Finland and Lapland) areas.

Picture 18.

Distribution and status in the Baltic Sea region: Sweden hosts by far the largest population of the Ringed Plover in the Baltic Sea area. The total is estimated at 15.000 bp. The larger proportion (*c.* 12.100 bp) breeds in the mountains and belongs to the subspecies *Ch. hiaticula tundrae*, which is not included in this assessment. The subspecies *Ch. hiaticula hiaticula* breeds along the entire coast from the Finnish border to northern Halland; it is estimated at 3.200 pairs. According to Ottvall *et al.* (2009) the population has been stable during the last 10- and 30-year periods. However, this assessment does not distinguish between the two subspecies.

Map 6.

In **Finland**, the recent data indicate a decline of 47% during 10 years, but these data are regarded as uncertain and biased. The current decline appears to concern only the inland populations of north-east Finland and Lapland, which belong to the subspecies *Ch. h. tundrae*. The coastal population of *Ch. h.*

hiaticula is estimated at *c.* 1.100 bp in 2010 and considered as stable.

In **Estonia**, a strongly negative trend has been observed during 1991-2008, the population declined by more than 50% (Elts *et al.* 2009).

Lithuania, Latvia and Baltic **Russia** only host small numbers of Ringed Plovers. The breeding sites are usually coastal; however, inland breeding occasionally may occur (Vysotsky & Kondratiev 1999). The recent trend seems to be about stable.

In **Poland**, the Ringed Plover is a scarce breeder (350-400 bp), mostly along the coast and large to medium-sized rivers, where currently *c.* 80% of the population are found. During the last 20 years, a marked decline in both coastal and inland breeding areas has been observed (Sikora *et al.* 2007). At the coast, breeding pair numbers declined from 160-200 bp during the 1970s to 60-70 bp in the 1990s. The strongest population is found in the middle section of Vistula River, but the species also breeds along the Bug, Pilica and Narew rivers (Tomiałojć & Stawarczyk 2003).

In **Germany**, **Mecklenburg-Western Pomerania**, the Ringed Plover is a scattered, but widespread breeder on beaches, sand banks, coastal spits, dump sites for dredging material and near-coastal and inland crop land (maize, summer grain, beets and potatoes; Holz & Herrmann 1982, Holz 1987), which makes it difficult to get reliable population figures. However, it seems that outside coastal bird sanctuaries with strict control of predatory mammals the Ringed Plover has declined largely, especially during the 1990s. The country-wide bird inventories indicate a decline of 50% between 1978-82 and 1994-1998 (Nehls 2006). The trend after 2000 is only known for the bird sanctuaries, where the population has been about stable. In **Schleswig-Holstein**, the Ringed Plover breeds with about 640 bp; 220 of them are breeding at the Baltic coast. The Baltic breeding population has been about stable since the mid-1980s.

Based on Wadden Sea counts (*e.g.*, Thorup 2007) and the project Fuglenes Danmark (Grell 1998), an estimate of the **Danish** total population was prepared for the WSG project Breeding waders in Europe 2000 by Thorup (2006). For 1993-1997, a total of 1,900-2,500 bp have been estimated for Denmark, 850-1.600 bp of them breeding in the Baltic region.

There are not many population data available for trend estimates at the Danish Baltic coast. At Læsø, there was a 28% increase from 90 pairs in 1973 (Møller 1975) to 115 pairs in 1996 (P.A.F. Rasmussen 1996, unpublished). On Saltholm, the breeding number dropped from 35 pairs in 1976 (Jensen 1987) to 10 pairs in 2006 (M. Jørgensen 2007 unpubl.), and on the 32 coastal meadows most important for breeding meadowbirds in the former Storstrøms Amt, the number of breeding Ringed Plovers dropped by 50% - from 82 pairs to 41 pairs – between the late 1980s and 2003 (Jørgensen 1989, 2006).

The general trend in Denmark is obviously strongly declining. In the Danish Wadden Sea, census programmes covering the whole area showed a decline of 52% from 1996-1997 to 2006-2007, from 279 to 135 pairs (Thorup 2007). If a 50% decline is assumed for the last 15-20 years for all areas – and the relatively poor data could support this – the Danish total may be as low as approximately 1,000 pairs in 2010, with perhaps 500-650 pairs in the Baltic region.

Table 9: Population numbers of the Ringed Plover in the Baltic Sea area.

Country	Breeding pairs		Short-term population trend (10 years)	Long-term population trend (50 years)
	Population number	Year		
Sweden	3,200	2010	0	0
Finland	1,100	2009	0	-
Russia KAL	7-12	2003-2009	f	-
Russia PET	10-20	2009	?	?
Estonia	1,000-2,000	2003-2008	--	-
Latvia	20-30	2009	-	0/-
Lithuania	30-50	1999-2001	0	0
Poland	350-400	2003	-	-
Germany SH	220	2005-2009	0	-
Germany MV	220-240	1994-1998	-	-
Denmark	500-650	2010	-	-
Baltic Sea	**6,650-7,900**			

Ecology and habitat: The Ringed Plover inhabits open, bare or sparsely vegetated habitats of early stages of succession (coastal islets, sandy spits and ridges, beaches, river banks) or with a transitional character, especially man-made gravel-pits, reclaimed land, roadsides and pastures. It also breeds on agricultural land, as long as the vegetation is low (summer grains, potatoes, maize, beets, Holz 1987). In Denmark, the species uses three different breeding habitats: 1) sandy beaches, 2) spring sown fields in cultivated land, and 3) short grazed coastal meadows.

Picture 19. Example habitat. Sandy beaches and ridges of the lagoon coasts are breeding habitats for the ringed plover (*Charadrius hiaticula*).

In 1993-1997 the numbers of breeding pairs in these habitats were estimated at: Sandy beaches: 450-950 pairs; cultivated fields: 140-220 pairs; coastal meadows (including mixed meadow-coastal lagoon-sandy beach habitats): 1.100-1.500 pairs.

Description of major threats: Overgrowth of open habitats, human disturbance by increased numbers of visitors on the coast, increased predation, and construction projects destroying suitable habitats are probably among the main reasons for the declines. With regard to the fraction of the population that breeds on cultivated land, also changes in agricultural practises are obviously important, especially a large-scale shift from spring-sown to autumn-sown crops. Better drainage and fewer left-over small wet patches in the fields probably also have a negative impact on breeding site availability.

In the coastal environment, the breeding success is low in many areas, due to disturbances and high predation rates. Predation plays a major role in Germany, where the Fox population has increased considerably due to rabies eradication during the 1990s.

Assessment justification: Since the Ringed Plover is a scattered breeding bird, it is difficult to obtain precise population numbers. However, a considerable decline during the past decades is obvious for many parts of the Baltic region. Though the decline seems to have slowed down or stopped in several countries (*e.g.,* Germany, Poland) it is continuing in other countries with strong populations (Estonia, Denmark). However, the trends are not uniform.

In the Stockholm Archipelago the species has increased by 25% from 1975 to 2000. Also in Finland, the population in the archipelago (totalling now 1.100 pairs) has been increasing by 1.9% per year since the late-1980s.

The general figures indicate that the Ringed Plover qualifies for the category *Near Threatened* (NT) according to criterion A2bc.

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English name	Scientific name
Kentish Plover	***Charadrius alexandrinus***
Taxonomical group Aves / Charadriiformes / Charadriidae	Species authority Linnaeus, 1758
Description of major threats: D, OGr, A, N	Threats in the future: D, OGr, A, N
IUCN Criteria: D	**Assessment justification:** **CR**
European IUCN Red List Category -	Annex I EU Bird Directive yes
Generation length 6 years	Annex II EU Bird Directive no

Range description and general trends: The Kentish Plover is a widespread breeder in coastal areas of western and southern Europe. The north-western European population is small and amounts not more than 1.300 bp. It has been declining for several decades (Berndt *et al.* 2002, Thorup 2006). At the Wadden Sea coast of Schleswig-Holstein, the Kentish Plover has been declining from 600 bp in 1993 to 200 bp in 1999 (Berndt *et al.* 2002). In the Danish Wadden Sea – in particular on the beaches of the islands Fanø and Rømø – the population has fluctuated without a clear trend since the first countrywide survey in 1969 (Dybbro 1970); the breeding pair numbers were 36-120 during the period 1998-2010 (Nyegaard & Grell 2005-2009, Nyegaard & Willemoes 2010, Thorup & Laursen 2010).

Picture 20.

The range of the north-western European population covers the western Baltic, where the numbers of breeding pairs probably always have been rather low. However, in the 20th century the Baltic Sea breeding population declined further and after 2000 only a few breeding attempts have been recorded in the HELCOM area.

Map 7.

Distribution and status in the Baltic Sea region: In **Sweden**, during the 20th century the Kentish Plover was breeding in low numbers on different sites of the west coast (Skälderviken, Halmstad, Landskrona), but also on Öland (1947-1949). During the 1990s, south-west Scania was the main breeding area with 2-4 bp between 1996 and 1999 and

1 bp in 2000-2001. In 2004 a breeding attempt was recorded in the southwest part of Scania and the two following years (2005 and 2006) saw succesfull breeding.There have also been breeding attempts in 1992 and 1997 in Halland (Swedish west coast). On Öland, one pair bred successfully in 2008 and 2011; in 2010 a breeding attempt was recorded (ArtDatabanken 2010).

For **Poland**, one single breeding record has been reported in 1992 from the Vistula mouth (Tomiałojć & Stawarczyk 2003).

In **Germany**, the species disappeared from the Baltic coast of Schleswig-Holstein already around 1930. In Mecklenburg-Western Pomerania it was a rare breeding bird on some sites of the coast between Wismar Bight and the island Hiddensee until 1928. During the second half of the 20th century only a few breeding attempts have been recorded: 1975 and 1979 on the sandy spit Bessin (island Hiddensee, Stübs 1987), and from 2000-2003 on sandy banks of the Bock region south of Hiddensee with the following records: 2000 – 2 pairs with territorial behaviour; 2001 – 2 clutches found; 2003 – 1 clutch found (Eichstädt 2006).

In **Denmark**, a countrywide survey of Kentish Plover was performed in 1969 (Dybbro 1970). Additional data were collected during the first Danish Atlas 1971-1974 (Dybbro 1976), and most (former) breeding sites in the Danish Baltic were surveyed 1993-1996 (Grell 1998). A Wadden Sea programme surveys the entire Wadden Sea population annually since 1996 (Thorup 2010 and unpublished).

In 1969, 48 pairs were found in the Baltic Denmark on sandy beaches in northeast Jylland, Læsø and around Sjælland. Dybbro (1976) describes a rapid decline during the period 1955-1975 in all regions of Denmark except the Wadden Sea. The last breeding in the Baltic took apparently place in the late 1970s or early 1980s. Since the mid 1990s the only area with breeding Kentish Plovers in Denmark is the Wadden Sea.

Ecology and Habitat: The species breeds on sandy coasts and brackish inland lakes on sites with sparse vegetation. It nests in a ground scrape and lays three to four eggs.

Description of major threats: Undoubtedly, the main reason for the decline is the increase of disturbances of the breeding sites by visitors. Visitors prevent that Kentish Plovers can use their antipredator strategies, *e.g.* by choosing different breeding sites from year to year and to establish territories and nests furthest away from areas frequently visited by mammalian predators.

Assessment justification: The Kentish Plover has bred regularly in the Baltic Sea area in former times, but after a long-term decline it has become a very rare breeder during the last decade. There have been no breeding records in 2002, 2007, 2009; however, it is assumed that the species still breeds regularely with 1-2 breeding pairs. It classifies as *Critically Endangered (*CR) according to the criterion D.

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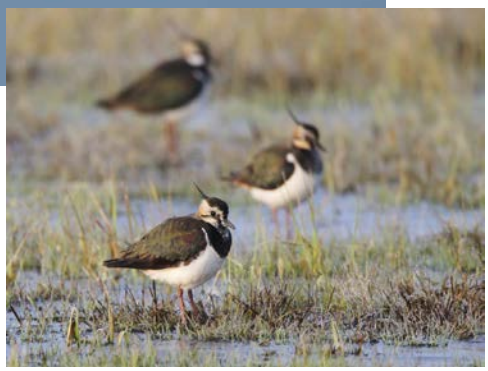
English name	Scientific name
Lapwing	***Vanellus vanellus***
Taxonomical group Aves / Charadriiformes / Charadriidae	Species authority Linnaeus, 1758
Description of major threats: Di, Am, N, A, H	Threats in the future: Di, Am, N, A, H
IUCN Criteria: A2bc	**Assessment justification:** **NT**
European IUCN Red List Category VU (A2b; A3b,c)	Annex I EU Bird Directive no
Generation length 5 years	Annex II EU Bird Directive II B (BE, DK, EL, ES, FR, IE, IT, MT)

Range description and general trends: The Lapwing has a wide breeding range from the Atlantic to the Pacific Ocean between 35º and 70º of northern latitude. The global population is concentrated in Europe, where the species now has an unfavorable conservation status. Its European breeding population was probably fairly stable until around 1990, but since then the species has suffered significant declines across most of Europe and underwent a large decline (>30%) overall during 1990-2000. Consequently, on the European level, it is now evaluated as vulnerable. The European population of the Lapwing is estimated at 1.7 to 2.8 million breeding pairs. The available demographic data indicate that the ongoing population decline is mainly caused by an insufficient production of fledglings, due to an increased clutch failure rate, reduced possibilities of re-nesting and poor chick survival, as a consequence of agricultural intensification and change in land use.



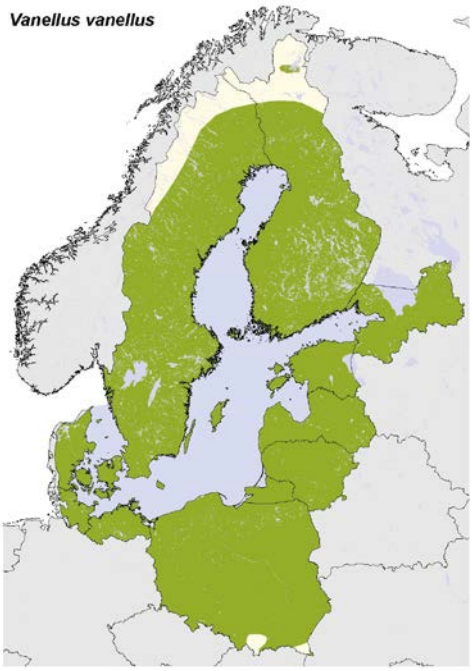
Pictures: 21 (above) & 22 (below)

According to data from the European Bird Census Council covering 21 countries, the European population underwent a decline of nearly 30% during the period 1990-2008 (Vorisek 2008). Since 1970, declines of the breeding populations have been reported from all European countries holding more than 50,000 bp: Finland (1970-1990), Sweden (1970-1990), Norway (1970-2000), UK (1970-2000), Germany (1970-2000), Hungary (1970-2000), Netherlands (1990-2000), Russia (1990-2000), Belarus (1990-2000), Poland (1990-2000) and Ukraine (1990-2000). The important Dutch population has decreased a further 2% per year since 2000.

Distribution and status in the Baltic Sea region: In **Finland** and **Sweden**, the Lapwing has declined during the period 1970-1990; however, since the 1990s the populations have been increasing rapidly, being currently 40% (Finland) and 10-19% (Sweden) larger than 10 years ago and possibly exceeding the level of the 1980s.

In **Estonia**, the Lapwing has suffered a strong decline (>50%) during the period 1971-1990, but is increasing since the late 1990s. For the period 1998-2002, Elts *et al.* (2003) give a population number of 25.000-40.000 bp, which has increased to 40.000-60.000 bp in 2003-2008 (Elts *et al.* 2009).

In the Kaliningrad Region of **Russia**, the breeding population of the Lapwing is estimated at 2.500-3.000 bp, with a declining trend in recent years. In the St. Petersburg Region of Russia it is a common breeding bird with seemingly increasing trend in the short and long term.



Map 8.

In **Poland**, the Lapwing is a widespread breeder in the lowland and on the foothills of the mountains. It is found all over the country up to altitudes of 900 m. It is most numerous in the eastern river valleys (*e.g.*, Biebrza, Narew, Bug and Nida; Tomiałojć & Stawarczyk 2003; Sikora *et al.* 2007). Surveys in western Poland during the periods 1980-1990 and 2000-2010 revealed a decrease of the species by 66.1% in this region (Ławicki *et al.* 2011). According to data from the Polish common Bird Census, the decline of the species for the whoe country was 34% between 2000 and 2004.

In **Germany**, **Mecklenburg-Western Pomerania**, the population has declined from 6.000-8.000 bp in 1978-1982 to 2.500-3.000 in 1994-1998, which means a decline of about 60% within 3 generations (Prill & Stegemann 2006). The negative trend has continued since then. A major reason for this trend wasthe eradication of rabies during the 1990s. Currently, only the bird sanctuaries on coastal islands with strict management of predatory mammals still host stable breeding pair numbers (Herrmann 2010).

In **Schleswig-Holstein**, the Lapwing breeds on grassland and arable land, but reaches especially high densities on the salt marshes of the North Sea coast. The total population counts *c.* 12.500 bp, of which 3.800 bp are breeding in the eastern inland parts of Schleswig-Holstein and close to the Baltic Sea. Declining trends have been reported already at the end of the 19th century. Studies on breeding pair densities on marsh- and grassland indicate a strong decline especially during the 1980s and 1990s. The negative trend seems to continue until now. Changes in agricultural management practices and predatory mammals are seen as main factors (Berndt *et al.* 2002).

In **Denmark**, only few counts of breeding Lapwings are performed on important bird breeding sites – in particular coastal meadows - outside DOF (Danish Ornithological Society) project periods. During the last project 'Fuglenes Danmark' in 1993-1996 (Grell 1998), together with the Wadden Sea programme (Thorup & Laursen 2008) and annual counts at Tipperne and Vejlerne, 9.900-11.700 pairs were counted at 'bird sites'. In the same period (1995-1999), Thorup (2006 and unpublished) estimated 30.000-41.500 pairs on cultivated land, based on a rather small sample of agricultural areas in different parts of Denmark.

Data from the rather few sites with frequent counts of Lapwings show that the species is doing quite well on coastal meadow sites with a proper meadow habitat management. This is the case in Baltic Denmark as well as in North Sea Denmark. However, a number of small coastal sites are not managed well, and overgrowing, drainage and fragmentation of open meadows is a problem in many regions in the Danish Baltic. For instance, on 32 coastal meadow sites in the former Storstrøms Amt the number of breeding Lapwings declined by 42% between the late 1980es and 2003, whereas numbers increased significantly on those sites where particular management effort took place (Jørgensen 2006). In the same period, breeding numbers increased markedly on Læsø (P.A.F. Rasmussen 1996 unpublished) and Saltholm (Jensen 1987, Mortensen & Hansen 1999, M. Jørgensen 2006, unpubl.).

The Danish point count programme basically reflects trends away from the coastal meadows. If 1978 is set at index 100, the index in 1988 was at 116, 1998 at 75 and 2008 at 66 (Heldbjerg & Eskildsen 2010). It is unknown whether trends are different in the North Sea and the Baltic part of Denmark.

A rough subdivision of the Danish breeders in the late 1990es into Baltic and North Sea populations would be that half of the birds breeding on coastal meadows and half of the farmland Lapwings are Baltic, giving some 22.000 pairs in the Danish Baltic Sea areas. Since then the numbers may have declined by 10-15%, giving a 2010 total of some 19.000-20.000 pairs in the Baltic. The earliest point count index is from 1976 and is 3.7 times higher than the latest from 2009 (Heldbjerg & Eskildsen 2010). The numbers in coastal meadows were perhaps 25-50% higher in the mid 1970es, and the Baltic Danish total would then have been in the magnitude of 50.000-60.000 pairs.

Table 10: Population numbers of the Lapwing in the Baltic Sea area.

Country	**Breeding pairs**		**Short-term population trend (10 years)**	**Long-term population trend (50 years)**
	Population number	**Year**		
Sweden	48,000-77,000	2010	+	-
Finland	90,000	2006-2009	+	-
Estonia	40,000-60,000	2003-2008	+	-
Russia PET	abundant	2010	+	+
Russia KAL	2,500-3,000	2010	-	f
Latvia	12,000-15,000	1990-2000	-	-
Lithuania	18,000-20,000	1999-2001	-	-
Poland	100,000-150,000	2000-2002	-	-
Germany SH	3,800	2005-2009	-	-
Germany MV	2,500-3,000	1994-1998	-	-
Denmark	19,000-20,000	2010	-	-
Baltic Sea	**340,000-440,000**			

Ecology and habitat: Originally, the species bred in grassy habitats (steppes, open grassland, peat bogs, moorland) where the structure of the vegetation remained short due to natural conditions. Natural sites still occupied are coastal marshes, fens, bogs, moors and upland grasslands (up to 800-1000 m). Forest clearance and the expansion of livestock rearing considerably increased the availability of suitable areas, and Lapwings are now widely distributed in semi-natural habitats such as meadows and pastures (Cramp & Simmons 1983). Vegetation heights below 15 cm are strongly preferred (Lister 1964, Flodin *et al*. 1990). Winter flooding improves conditions for breeding Lapwings by keeping the sward short and open and by creating suitable, wet feeding areas (Ausden *et al*. 2001).

Picture 23. Example habitat. Karrendorf meadows are an example of coastal wetland restoration (restored in 1992/93). As a result of grazing the vegetation height is kept low and the land open providing the lapwing with suitable habitat.

Lapwings nest in high abundances on arable land, where spring-sown fields offer suitable breeding conditions for a short period. Proximity of good feeding areas for the chicks is essential; such feeding areas may be found on the fields or meadows used for grazing or on adjacent grassland (Galbraith 1988, 1989).

Outside the breeding season the species frequents a wide variety of habitats, such as cultivated fields, wide expanses of grassland, lake or river margins, estuaries *etc*. Lapwings seemingly prefer cultivated areas for feeding, but also grasslands and mudflats are used.

Description of major threats: The main reasons are obviously both agricultural intensification, in particular a large-scale shift from spring-sown to autumn-sown crops in the southern Baltic, and an increase of abundance of predatory mammals. Autumn-sown crops are not suitable for breeding, since the vegetation at the beginning of the breeding season is too high. Better drainage, leading to fewer left-over small wet patches in the fields, is also reducing the breeding opportunities on arable land.

Assessment justification: The Lapwing has suffered heavy declines during the period 1970-1990. However, since then the declines seem to have slowed down or the population even has stabilized in several Baltic countries with large populations. For Estonia, Finland, Sweden and the St. Petersburg Region of Russia, even increases are reported (Elts *et al.* 2003, 2009; Lindström *et al.* 2011). Hence, considering the recent trends, the decline during the last 3 generations (15 years) is, from a whole-Baltic perspective, obviously <30%, *i.e.* the criteria for *Vulnerable* (VU) are not reached. The species is classified as *Near Threatened* (NT) according to criterion A2bc.

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English name	Scientific name
Temminck's Stint	***Calidris temminckii***
Taxonomical group Aves / Charadriiformes / Scolopacidae	Species authority Leisler, 1812
Description of major threats: Co, N, A, D, OT	Threats in the future: Co, N, A, D, OT
IUCN Criteria: A2a-c	**Assessment justification:** **NT**
European IUCN Red List Category -	Annex I EU Bird Directive no
Generation length 6 years	Annex II EU Bird Directive no

Range description and general trends: The Temminck's Stint mainly breeds in Fennoscandia and Arctic Russia. The European breeding population is probably very large (85.000-420.000 bp). Russia and Norway are hosting the largest numbers of breeding pairs, followed by Sweden and Finland. In Estonia, the species is an occasional breeder, and a few breeding pairs are also found in Scotland (BirdLife International 2004).

Picture 24.

Distribution and status in the Baltic Sea region: In Fennoscandia, the core breeding area is in Lapland and the Scandes, but there is also a small population along the coast of the Bothnian Bay, both on the Swedish and Finnish side. The **Swedish** Bothnian Bay population counts currently *c*. 60 bp; the trend of the Swedish inland population is unknown.

The **Finnish** Bothnian Bay population declined from 500 bp in the 1970s to 170–200 pairs in the late 1980s (Rönkä 1996), and subsequently to currently 100 bp. The Finnish Lapland population has been declining, possibly by 50% during the period 1990-2000. Currently, the breeding range of the Finnish Lappish population has retreated to the uppermost north, this probably resulting in lower recruitment from this core area to the peripheral Bothnian Bay population. DNA studies indicate a gene flow between these two subpopulations (Rönkä 2004).

In **Estonia**, the Temminck is only a sporadic breeder.

Map. 9

Table 11: Population numbers of Temminck's Stint in the Baltic Sea area.

Country	Breeding pairs		Short-term population trend (10 years)	Long-term population trend (50 years)
	Population number	Year		
Sweden	5,400 – 9,600	2010	0	-
Finland	1,000-2,000	2006-2009	-	?
Estonia	Sporadic breeder	2003-2008		
Baltic Sea	**6,400-11,600**			

Ecology and habitat: The Bothnian Bay breeding areas are characterized by flat, low-leveled coastal plains and islands covered by wave-washed moraine. Natural habitats consist of sandy and gravelly meadows and heaths with sparse and low vegetation and extensive dunes (Rönkä 1996). Man-made habitats include industrial landfills and harbour yards, also sparsely vegetated fields around fishing huts and summer cottages. Loose colonies can be formed, but the numbers are currently low. In a sample of 48 nest sites, only three sites were occupied by more than five pairs, most had 1-4 pairs and the largest one had 20 pairs (Rönkä 1996). New potential sites are formed permanently by land uplift, while established sites become unsuitable due to rapid succession of the vegetation. Rapid colonization and disappearance is typical for the species. There is no tide in the Bothnian Bay, but abruptly rising sea water (up to 200 cm) regularly destroys nests. Flooding losses are accelerated by the narrowing of shorelines due to the termination of grazing. Overgrowth also hampers anti-predator behaviour of nesting adults, with the result of increasing nest predation (Koivula & Rönkä 1998).

Pictures 25 (above) & 26 (below): Example habitats. Two types of natural habitat found in the Bothnian Bay: flat, low-leveled coastal plains and islands covered by wave-washed moraine and sandy and gravelly meadows.

Description of major threats: Nothing is known about the reasons for the decline of the northern Lappish population.The basic reason for the population low in the Bothnian Bay is nest predation leading to lesser recruitment and to a higher rate of site shifting by those birds which face nest losses. The gene flow from Lapland into the Bothnian Bay population is currently low, compared to the observed immigration. This is due to immigrants becoming emigrants as soon as they fail in breeding, while the locals tend to remain philopatric regardless of the breeding result (Pakanen *et al.* 2010). This emphasizes the need for measures to protect nests from predation and to restore habitats to attract protective species like Terns and larger waders to set among the Temminck's Stints. Already in the 1960s, the

hatching result was found to decrease from the “natural” 58% to 33% due to increasing predation rates (Hildén 1978). In experimental studies, fenced nests deterred avian predators effectively, such as common Gulls, resulting in a hatching rate of 3-4 chicks, whereas they cannot resist mammalian predators such as Raccoon Dogs, which can devastate the entire local population within one season (Rönkä 2004).

Assessment justification: The population of the Finnish breeding areas has suffered strong declines during recent times, whereas there are no strong indications for a decrease in Sweden. The total population of the Baltic Sea countries classifies probably as *Near Threatened* (NT) according to criterion A2a-c.

However, considering the Bothnian Bay population separately, the species meets the criteria for *Vulnerable* (VU) according to A2a,c and D.

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English name	Scientific name
Southern Dunlin	***Calidris alpina schinzii***
Taxonomical group Aves / Charadriiformes / Scolopacidae	Species authority Linnaeus, 1758
Description of major threats: OGr, Di, Cc, OT	Threats in the future: OGr, Cc, OT
IUCN Criteria: A2ace, C1	**Assessment justification: EN**
European IUCN Red List Category -	Annex I EU Bird Directive yes
Generation length 7 years	Annex II EU Bird Directive no

Note: *Different to other species, the figures and numbers given here for the Dunlin include the North Sea breeding sites of Denmark and Schleswig Holstein. Since the Dunlin has disappeared as a regular breeding bird from the southern North Sea, these breeding sites have to be considered as part of the Baltic range of the species.*

Picture 27.

Range description and general trends: The southern sub-species of the Dunlin, *Calidris alpina schinzii*, colonises south-eastern Greenland, Iceland, the Faeroe islands, Great Britain and Ireland, southern Norway, and the Baltic. In the southern North Sea (Belgium, Netherlands and Germany), the Dunlin has been a breeding bird in the past, but in recent times breeding records are few and irregular.

Distribution and status in the Baltic Sea region: At the beginning of the 20th century, the Dunlin was still a widespread and common bird in most parts of the Baltic (Boie 1822, Fromholz 1913, Thorup 1997). However, already at the end of the 19th /beginning of the 20th century the Dunlin has been declining in the southern Baltic (Wüstnei & Clodius 1900), and this decline has continued during the whole 20th century. Since the mid-1990s, the negative trend has even accelerated.

During the 20th century, the **Swedish** population has been declining rapidly. In the south-Swedish province of Scania, the population amounted still 425 pairs in 1930, but dropped down to only 100 pairs in 1994, and 55 in 2004 (Tjernberg & Svensson 2007). The population decline in Sweden reached the magnitude of 50-60 % during the period 2000-2010. The total number of breeding pairs in 2010 was estimated at 75-125 bp.

Map. 10

In **Finland**, the Southern Dunlin has never been numerous. The first documented breedings date back to the 1880s. In the 1960s, the Dunlin was still considered increasing, with a country total of 150-200 bp (Soikkeli 1964; Perttula 1998). New breeding sites were still found in the mid-1980s when the population peaked at 200 pairs. However, until the early 1990s the population had declined to 100 bp. In 1999 the number of confirmed breeding pairs was 71, and in recent years (2003-2009) about constant between 50 and 60 bp.

The only area with a continuous monitoring was in the Pori region (SW Finland), where the breeding pair numbers were 4-5 in 1947, 14 in 1955, and 60-70 in 1963. After the 1960s the population in this area started to decrease, and until the late 1980s it had dropped down to 26 bp. In the Vaasa region (Kvarken), also many breeding sites have been abandoned in the 1980s and early 1990s. In the northernmost breeding area in the Oulu region the breeding pair numbers still increased until the 1990s. After 2000 some more sites in Finland have been abandoned. The only sites with stable a population or even slight increase are situated in North Ostrobothnia (Oulu region). After 1990s the total number of Dunlins in the Oulu region has been unchanged, but the number of breeding sites has decreased.

In the **St Petersburg** region of **Russia** the Dunlin is obviously still a rare or sporadic breeder. In 2008, a nest was found on the shore of Kurgalsky peninsula (Fedorov 2009). In 2010, an adult bird with typical breeding behaviour was seen on a small islet near Sescar Island. In the **Kaliningrad** region, the species was known as a breeding bird until 2001 (1989-93: 4-5 bp; 1996-99: 3 pairs; 2001: 2 pairs). After that year, no further breeding could be confirmed (Grishanov & Lykov 2008).

Estonia holds 200-250 pairs, with a decreasing trend prevailing since the 1970s and accelerating since the 1990s (Elts *et al.* 2009).

There are no confirmed breeding records of the Dunlin in **Latvia** from recent times. During the elaboration of the second Latvian Breeding Bird Atlas 2000-2004 (in preparation, results are available online: http://www.lob.lv/lv/atlants/sugu_kartes.php?kods=caalp) breeding of Dunlins has been suspected for 3 sites: Ainazi and Randu plavas, Teich bog and Daugavgriiva. The population is estimated at 0-7 bp.

The **Lithuanian** population has never been very large; the maximum number reported was 25-30 pairs in 1996-1998 (Thorup 2006). In 2011, the former coastal breeding sites in have been surveyed. No breeding was recorded, and most of the sites were abandoned and overgrown (Thorup *et al.* submitted).

In **Poland**, the population was about 80-100 bp in the mid-1980s, but plummeted down to about 20 bp around 2000 (Tomiałojć & Stawarczyk 2003). Between 1986 and 1993, breeding was confirmed for 3 sites, and suspected for another 8-10 sites. In 1996-1998, the Dunlin bred in the delta of the Świna river, at Lake Łebsko, at the mouth of the Reda River and in the Biebrza marshes. After 2000, only 2 breeding sites remained: Świna Delta and Reda River mouth (Sikora *et al*. 2007). In 2007, nine former breeding sites along the sea shore and the Biebrza marshes have been monitored without any breeding record (Sikora *et al.* 2008). However, some birds have been observed in May 2007 in the Świna Delta, and in May 2008 in the Beka Nature Reserve, suggesting that breeding of the species might still be possible.

In **Mecklenburg-Western Pomerania, Germany**, there are many sources confirming a high abundance of the species in coastal areas at the beginning of the 20th century (*e.g.,* Fromholz 1913). In the mid-1960s the population was still estimated at about 250 bp. Probably as a direct consequence of considerable habitat losses due to land reclamation projects in coastal areas at the end of the 1960s, it declined to about 90-120 bp at the beginning of the 1970s (Nehls 1987). It maintained a level of 70-80 bp until the beginning of the 1990s, but then the population started to decline rapidly and is nowadays with only 7-9 bp close to extinction (Figure 4). However, during the last years (2005-2011) the population remained stable on this low level.

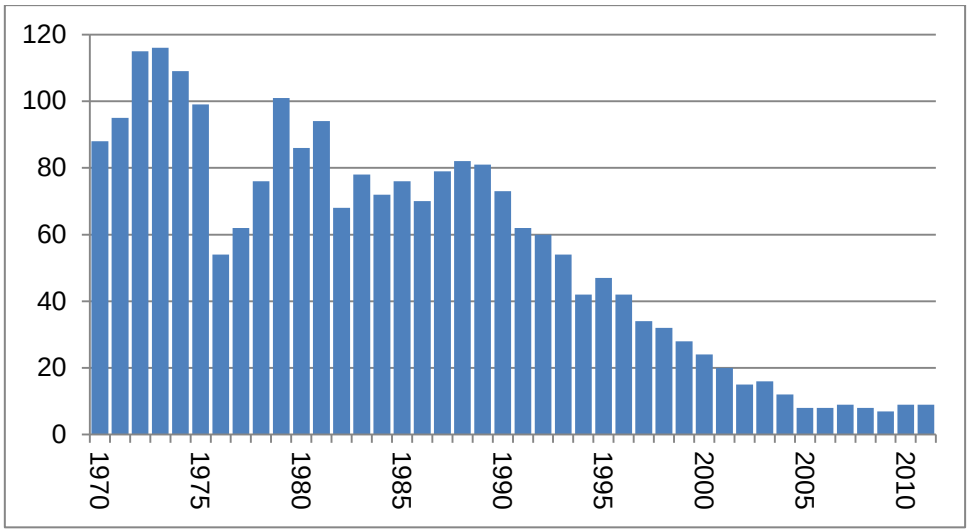

Figure 4: The breeding population of the Southern Dunlin in Mecklenburg-Western Pomerania 1970-2011.

At the Baltic coast of **Schleswig-Holstein**, the Dunlin has been a widespread breeder in the past (*e.g.,* Boie 1822), but disappeared during the 1990s. However, at the North Sea coast it re-established as a breeding bird in 2007 in Rickelsbüller Koog close to the Danish border. In this area (Rickelsbüller and the adjacent Margrethe Koog), the Dunlin had already disappeared in 1996. The number of breeding pairs was 1 bp in 2007, 2 bp in 2008, 5 bp in 2009 and 4 bp in 2010. The return of the Dunlin to the Rickelsbüller Koog is probably related to dispersal or interchange of birds from the Danish breeding site Rømø (distance *c.* 25 km).

The **Danish** breeding population at the beginning of the 20th century was estimated at 50.000-100.000 bp (Thorup 1997). It plummeted down to less than 1.000 bp at the beginning of the 1960s, but was about stable between 1970 and 1990. Starting at the beginning of the 1990s, the population declined rapidly to 170-180 bp currently, perhaps showing a slight recovery 2008-2011. The population development during the last 5 decades is shown in Table 12 (Thorup *et al.,* in prep.).

Table 12: Population development of the Dunlin in Denmark.

	1964	**1970**	**1990**	**2011**
Baltic[9]	596	504	379	88
North Sea	243	240	359	86
Denmark total	**839**	**744**	**738**	**174**

The total Baltic population was estimated at about 1.380-1.660 bp for the period 1994-1998 (HELCOM 2002, amended), 1.110-1.360 bp in 2002 (Thorup 2006), and 500-640 bp in 2007-2011 (Table 13).

[9] Includes the Helsinki Convention area, *i.e.* the Limfjord and adjacent waters (Venø Bugt, Kås Bredning, but not Nissum Bredning).

Table 13: Population numbers of the Dunlin in the Baltic Sea area 1994-1998 and 2007-2011. Data for 1994-1998 according to HELCOM (2002, amended). For Denmark and Schleswig-Holstein, the numbers include the breeding pairs at the North Sea coast.

Country	Breeding pairs		Short-term population trend (10 years)	Long-term population trend (50 years)
	1994-1998	2007-2011		
Denmark	450[10]	170-180 (2011)	-	--
Estonia	400-500	200-250	--	-
Finland	100	50-55	0	-
Germany - SH	12-15	1-5	-	--
Germany - MV	32-47	7-9	--	--
Latvia	2-5	0-7 (2000-2004)	?	--
Lithuania	5-50	0-3 (2011)	--	--
Poland	30-40	0	--	--
Russia, KAL	5-8	0		--
Russia, PET	20-30	1-5 (2008)	--	--
Sweden	325-410	75-125 (2010)	--	--
Baltic Sea	**1,380-1,660**	**500-640**		

Ecology and habitat: The Southern Dunlin is a characteristic bird of grazed coastal meadows, but small numbers also breed in peat bogs. Nowadays, the breeding sites are almost exclusively found in coastal areas, whereas in the past the species was also common in the inland.

Picture 28. Example habitat. Habitat of *C. alpina. schinzii* in Kurgulsky peninsula. The person is standing near to the nest.

Description of major threats: Habitat loss due to land reclamation, drainage and conversion to arable land has been considered as reasons for the population decline in the past. However, habitat loss cannot explain the full scope of decline (Blomquist *et al.* 2010).

Changes of the characteristics of the remaining habitats (*e.g.*, due to changes in management / grazing practices; changes in hydrology; abandonment of meadows) seem to be the key factors of the most recent declines. Although a too low grazing pressure on coastal meadows is apparently the main problem, overgrazing by cattle may also play a role (Beintema & Müskens 1987, Baines 1990). On Gotland (Sweden), high numbers of grazing Barnacle Geese may have a negative impact on otherwise suitable habitats.

Predation, especially by predatory mammals (red Fox, Raccoon Dog and american Mink) is another important factor (Ottvall 2005). The increase of predatory mammals and the invasion of introduced species are currently considered to be some of the most severe problems for coastal bird conservation (Langgemach & Bellebaum 2005; Kube *et al.* 2005). In Germany, since the mid-1990s coastal birds have largely declined in all areas with free access for predatory mammals (Herrmann 2010), and the Dunlin even has completely disappeared from

[10] According to Grell (1998)

these areas. The last stable breeding site is the island Kirr, where predatory mammals are controlled.

Beside the mammalian predators also some avian predators have increased considerably in recent times. The marsh harrier (*Circus aeruginosus*) has increased since the 1970s in much of its European range (Hagemeijer & Blair 1997). Within the distribution area of the Baltic Dunlin, 5-10 fold increases have been observed. At some breeding sites (*e.g.*, Tipperne, DK), the marsh harrier is probably the singlemost important predator for breeding Dunlins. Another predator with strong population increase in recent times is the peregrine falcon (*Falco peregrinus*).

However, the factors affecting the breeding success und recruitment rate are obviously quite complex. Field studies in southwest Sweden (Pauliny *et al.* 2008) showed that protection measures against predators increased the hatching success, but not the fledgling success and recruitment rate. Weather conditions, food availability, chick predation and genetic effects are other factors affecting hatching and survival after hatching.

According to recent research results, genetic effects (inbreeding depressions) pose a threat to small and isolated populations of the Dunlin. Blomquist *et al.* (2010) combined long-term population and fitness data of a metapopulation of southern Dunlins breeding on coastal pastures in SW Sweden with two types of molecular markers. The decline of the population was associated with increased inbreeding and loss of genetic diversity (assessed as loss of allelic heterozygosity at 7 microsatellite loci). The loss of genetic diversity resulted in a reduced embryonic survival and probably also a reduced fitness and survival after hatching. However, it has to be emphasized that these results have been derived from a small and isolated population; they probably only apply for such situations. Comprehensive investigations for larger populations in SW Sweden, on Öland, in Estonia and Finland are currently done by the Universities of Göteborg and Oulu, but the results are not yet published. However, as a consequence of the general declining trend in the Baltic Sea area isolation of breeding populations is becoming an increasing phenomenon. For instance, there is currently not one single larger population along the entire southern coast of the Baltic Sea from Germany to Latvia! Hence, the genetic effects may gain increasing importance on the level of the whole Baltic population in the future, if the rate of decline of the last decade continues.

It is still poorly understood, how general weather patterns and climate change have contributed to the population development. A considerable population increase on the well managed sites in the 1980s and a very rapid decline between 1990 and 2005 in most populations may partly be attributed to climate factors. However, since most Dunlin breeding sites are managed, unfavourable climate effects at the presently seen scale can be counteracted by appropriate adjustments of management and land use (*e.g.,* water retention, grazing intensity).

In many Danish sites improper habitat management is still a major issue with fragmentation, drainage and over- or undergrazing being crucial factors affecting the population. But there are probably also other problems. It is worth to mention that in the four most important Danish breeding sites for the species where meadow management is adapted particularly to the demands of Baltic Dunlins – Tipperne and Agger Tange in the North Sea part, Bygholm Vejle and Læsø in the Baltic part – the number of breeding Dunlins was higher in 2010 than in 1970!

In Mecklenburg-Western Pomerania, the area of coastal meadows with a natural flood regime has increased after 1990 due to restoration projects. In Denmark, Sweden and Lithuania, *Life* projects with the aim to restore or improve habitats for Dunlin, Ruff and other waders have been implemented or are under implementation. In Poland, a special project aiming on restoration of breeding habitats for the Dunlin is implemented by the Polish Society for the Protection of Birds in the Beka Nature Reserve. However, to become effective, restoration programmes need to be carried on for years, and even then their ability to re-

establish populations seems controversial when immediate results are wanted. Yet, at sites still inhabited by the Dunlin, results have been encouraging. In Finland, the population decline has recently halted, which has been attributed to habitat restoration measures. However, on Öland, Sweden, the supply of suitable breeding habitats has not changed during the last two decades when the population was declining.

Since predation of nests and chicks may affect the breeding success and eventually the viability of a population, conservation measures for the remaining breeding sites should also include a management of predatory mammals. Since fragmentation of the landscape favours generalist predators, appropriate habitat management that avoids fragmentation is another element of conservation for the breeding sites.

The main wintering areas of the Baltic Dunlin are the estuaries of N and NW Africa (Mauritania, Tunisia, Morocco), which it shares with other Dunlin populations of the subspecies *C. alpina schinzii* and *C. alpina arctica* breeding in Greenland and Svalbard, Iceland, Faeroe Islands, Ireland and Great Britain. Furthermore, there are also mid-winter ringing recoveries from southern France (both Atlantic and Mediterranean coasts), indicating that a certain proportion of the population winters in south-west Europe (France, Iberian Peninsula). The autumn migration follows the Wadden Sea and the Atlantic coasts of southern Britain and France (especially the Channel and the Bay of Biscay). Also during spring migration the Bay of Biscay is the staging site with most recoveries. Ringing recoveries from the Mediterranian Sea mainly date from the period 21 February – April, indicating that the Mediterranian coast is mainly frequented during spring migration. Especially the Gulf of Lion is obviously an important staging area (Thorup *et al.* 2009). Factors affecting the birds in their staging and wintering areas may play a role for the development of the Baltic Dunlin population, but knowledge on this aspect is scarce.

Assessment justification: The reduction of population size of the Dunlin during the last 15 years (3 generations) has been >50%. The reasons for the decline are not well understood and possibly not reversible. Hence, the species has to be classified as *Endangered* (EN) according to criterion A2ace.

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English name	Scientific name
Ruff	***Philomachus pugnax***
Taxonomical group Aves / Charadriiformes / Scolopacidae	Species authority Linnaeus, 1758
Description of major threats: ERT, OGr, Di, Cc, H, N, A	Threats in the future: ERT, OGr, Cc, H, N, A
IUCN Criteria: A2abcde	**Assessment justification:** **VU**
European IUCN Red List Category -	Annex I EU Bird Directive yes
Generation length 4 years	Annex II EU Bird Directive II B (FR, IT, MT)

Range description and general trends: The Ruff is a widespread breeder in much of northern Europe. The European breeding population amounts more than 200.000 reproductive females. Russia, northern Finland and Sweden are hosting the key populations. In Western Europe, the range of the species reaches to France and the UK.

The Ruff is declining in all parts of Europe, but the decline is especially dramatic in the western and southern areas of the range of the species, where it currently is close to extinction (BirdLife International 2004). There is obviously a strong and rapid redistribution of the range towards the east (Rakhimberdiev *et al.* 2011). The Ruff is also declining in its northern European core areas. In Norway, only 1.100-1.850 nesting females have been estimated in 2009, which means a reduction of 80% compared to the population numbers of 1990. The breeding range also has been reduced (Øien & Aarvak 2010). A similar trend has been observed in European Russia (Rakhimberdiev *et al.* 2011).

Distribution and status in the Baltic Sea region: Despite the declining trend, the ***northern parts*** of the assessment area (north of 60° Lat.) still host considerable population numbers. The **Swedish** population counts about 16.000-35.000 breeding females in the northern Tundra areas, but also a few (*c.* 15 bf) at the northern Baltic coasts (Norrbotten änd Västerbotten). In **Finland**, the total population is about 5.000-8.000 breeding females; it has suffered a decline of 47% within 10 years.

Pictures: 29 (above left), 30 (above right) & 31 (below)

Map 11.

Not more than 500 females are breeding in coastal areas. Both the coastal and Tundra populations are declining. In the **St. Petersburg** region, a population minimum has been observed in the 1980s, but during the last 10 years the number of reproductive females is slowly increasing. However, there are considerable annual fluctuations.

In the ***southern parts of the Baltic*** (south of 60° Lat.), the decline of the Ruff is dramatic. During the 19th and at the beginning of the 20th century the species was still a widespread and common breeding bird on coastal meadows and marshlands. However, during the whole 20th century the Ruff has suffered a continuous decline and has disappeared or almost disappeared from many parts of its former range.

The southern **Swedish** population is small: Gotland 10-15 reproductive females in 2006, (111 in 2001), Öland 12 in 2008 (278 in 1988) and Skåne *c.* 5 (*c*. 50 in 1998), giving a total of *c.* 35 reproductive females. The decline in the southern Swedish areas is dramatic: on Öland, for instance, the population has reduced by 95% between 1988 and 2008 (Tjernberg & Svensson 2007; Ottvall *et al.* 2009).

In the Kaliningrad region of **Russia**, the Ruff is currently a rare, probably not permanent breeder.

The **Lithuanian** Breeding Bird Atlas (Kurlavičius 2006) gives an estimate of 100-200 bf for the period 1995-2000. However, the current estimate is *c.* 100 bf only. The Nemunas Delta is the last permanent, stable breeding area in Lithuania.

In **Poland**, the breeding distribution of the Ruff is more inland than coastal. Once it was a widespread breeder, mainly in the northern part of the country. The Biebrza Marshes have been probably the most important breeding place. In the 1970s and early 1980s the Polish population counted still 300-400 reproducing females, but this population declined rapidly to 150-200 during the mid-1980s and <50 in 1997/98 (Tomiałojć & Stawarczyk 2003; Sikora *et al.* 2007). After 2000, there have been only two confirmed breeding records around Zagórów (Warta river valley, central Poland).

In **Germany**, the trend is strongly negative. The species probably got extinct at the end of the 1990s at the Baltic coast of Schleswig-Holstein and declined in Mecklenburg-Western Pomerania from 60-70 in the 1980s to 1-2 in recent years. The trend of the population development as shown in Figure 5 for Mecklenburg-Western Pomerania is probably representative for the whole southern Baltic.

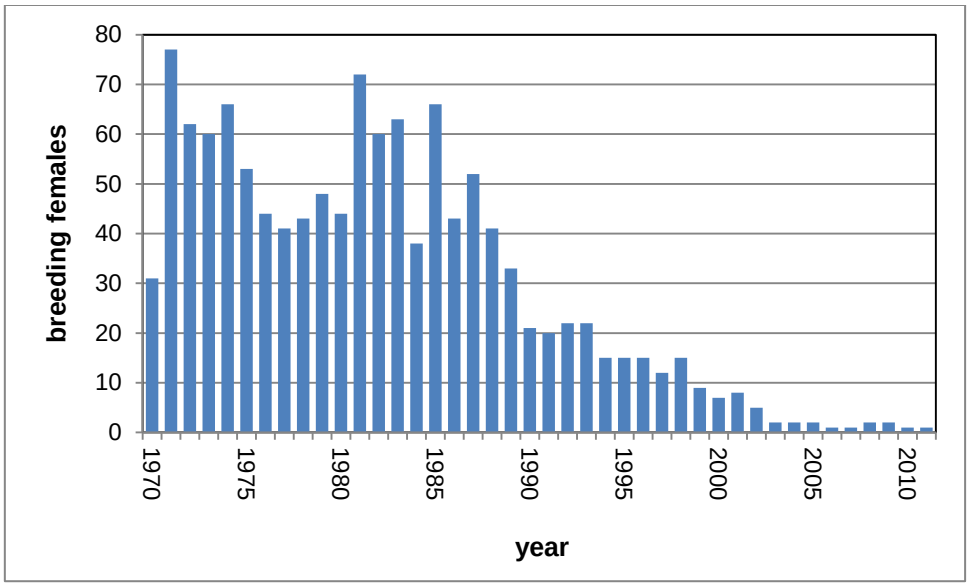

Figure 5: Population development of the Ruff in Mecklenburg-Western Pomerania 1970-2011.

The **Danish** population has been continuously declining during the last 5 decades, and an extremely rapid decline has been observed since the mid-1990s (Sørensen 2011, Thorup 2004 and unpublished):

Table 14: The population development of the Ruff in Denmark.

	1964-1972	**1986-1988**	**2009-2010**
Baltic	594	303	20
North Sea	661	567	43
Denmark total	1,255	870	63

Table 15: The current population of the Ruff in the southern Baltic Sea area (south of 60° Lat.). The total figure even could be an overestimation, since there are no actual data available for Latvia.

Country	**Breeding pairs**		**Short-term population trend (10 years)**	**Long-term population trend (50 years)**
	Population number (breeding females)	**Year**		
Sweden (southern Baltic coasts)	35	2010	--	--
Estonia	20-50	2003-2008	-	--
Latvia	50-200	1990-2000	--	--
Lithuania	100	2006	?	--
Russia, KAL	0-2	2009	?	-
Poland	0-2	2000-2010	--	--
Germany - SH	0	2009		--
Germany - MV	1-2	2003-2011	--	--
Denmark	20	2009-2010	--	--
Southern Baltic	**225-410**			

Ecology and Habitat: The Ruff breeds on marshlands and coastal meadows, and, in the archipelagos of the northern Baltic, on grassy treeless islets. The nest is a shallow ground scrape, lined with grass leaves and stems, and concealed with marsh plants or grass. Nesting is solitary, although several females may lay in the vicinity of a mating area (lek). Males display during the breeding season at a lek in a traditional open grassy arena. Territorial males are very site-faithful; 90% return to the same lekking site in the subsequent seasons, the most dominant males being the most likely to reappear (Widemo 1997). Ruffs show a high level of polyandry, *i.e.* the females are mating with different males. More than half of female Ruffs mate with, and have clutches fertilised by,

Picture 32. Example habitat. Nyord Enge Nature Reserve, Møn, Denmark represents an extended complex of salt meadows; it is an important breeding site for waders, including the ruff.

more than one male. Males do neither incubate nor support the rearing of chicks.

Description of major threats: The reasons for the decline are not well understood, but habitat deterioration by intensified use of meadows, overgrowth of open habitats and ditching of mires, predation and hunting have been suggested. In Denmark, several breeding sites were lost due to embankment and hydrology control projects during the 1960s, and large areas of former Ruff breeding habitat were converted into cultivated fields. However, Ruffs did extremely well in the 1980s in the remaining areas, whereas in the last 10-15 years they have declined dramatically. It is still not well understood why Ruffs (and most other meadowbirds) did so well in the 1980s. The recent declines are primarily due to bad habitat management in many of the previously best Danish breeding areas, together with the general decline of the European breeding population. Recent findings give evidence for a large-scale population shift of the Ruff from the European and Russian European Arctic breeding sites towards the east, which has been attributed to a loss of habitat quality in the main staging sites in the Netherlands (Rakhimberdiev *et al.* 2011).

The vast majority of Eurasian Ruffs winter in West African floodplains, where large numbers are captured and shot. Total catch has varied between 10 and 60% of the wintering stock, with the highest rate in dry years. However, catch variation due to deflooding cannot explain the steep decline throughout the 20th century (Zwarts *et al.* 2009), whereas heavy bias against females in the catch presumably is a contributing factor.

Assessment justification: The reduction of population size of the total Baltic population of the Ruff during the last 10 years has been probably >30%. The species has to be classified as *Vulnerable* (VU) according to criterion A2abcd.

Considering only the southern parts of the Baltic range, the decline has been even more dramatic and exceeds 50% of the population size during the last 3 generations. Hence, the population of this area even meets the criteria for *Endangered* (EN A2abcde, C1).

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English name	Scientific name
Black-tailed Godwit	***Limosa limosa***
Taxonomical group Aves / Charadriiformes / Scolopacidae	Species authority (Linnaeus, 1758) Brisson,1760
Description of major threats: OGr, Di, N, A, H	Threats in the future: OGr, N, A, H
IUCN Criteria: A2ac	**Assessment justification:** **NT**
European IUCN Red List Category VU (A2b)	Annex I EU Bird Directive yes
Generation length 6 years	Annex II EU Bird Directive II B (DK, FR)

Range description and general trends: The Black-tailed Godwit is a widespread, but patchily distributed breeder in whole Europe. Most of the European breeding population belongs to the nominate race *L. limosa limosa.* The northern populations in Norway, Iceland and Scotland are of the form *islandica.* The key populations of the nominate form are found in the Wadden Sea (Netherlands, Germany), Russia, Belarus and Poland. The entire European population counts >99,000 bp; the population in the Baltic Sea area represents <10% of the European total.

The nominate Black-tailed Godwit has undergone a considerable decline across much of its European range, and this trend is also true for most parts of the Baltic Sea area. However, in the northern parts of the Baltic range (Finland, Russia/PET) it seems to be slowly increasing.

Pictures: 33 (left) & 34 (right)

Distribution and status in the Baltic Sea region: In **Sweden**, the Black-tailed Godwit breeds only in the southern parts of the country, namely on Gotland, Öland and in Scania, but also on the west coast (Halland). First breedings were recorded in 1835 on Gotland and in 1856 on Öland. On these islands, the species gained a stronghold for a short period at the end of the 19th century, being seemingly abundant at that time. However, short time later a rapid decline took place and at the beginning of the 1900s only a few pairs had remained on Öland. Gotland was reoccupied in 1933 and the species

Map. 12

started to expand. The Swedish breeding population was still low in the 1960s (150-175 bp), but then increased to 350-375 bp in 1980 and was about 350 bp during the 1990s (50 bp on Gotland, 50-60 in Scania, 240 on Öland). Since then, it has decreased rapidly to 250 bp in 2000 and to less than 100 bp at present.

In **Finland**, the species is rare, but slowly increasing. The main breeding sites are found in the Oulu area; some sites are scattered over southern Finland. The species does not breed in northern Finland.

In **Russia**/PET the population is characterised by considerable fluctuations, however, the short term trend seems to be increasing. During the breeding season, the species may be found all over the region, but there are only few places with confirmed breeding records.

Poland hosts by far the largest breeding population of the Black-tailed Godwit in the Baltic Sea area. The species is a widespread breeder in the lowland with a highly patchy distribution. Important breeding areas are mainly found in the central and eastern provinces; the species is scarce in other regions. The largest breeding populations are found in Tyśmienica valley (630-670 bp), the Biebrza Marshes (600 bp), and the Bug valley (490-560 bp; Sikora *et al.* 2007). There is a slight expansion towards the south (Tomiałojć & Stawarczyk 2003). During the last 20 years, the population has strongly declined. In western Poland, surveys during the periods 1980-1990 and 2000-2010 revealed a decrease of 84.6% (Ławicki *et al.* 2011)! Previous estimates of 6.500-7.000 bp for the entire Polish breeding population are probably too high, the number of 5.000-6.000 bp seems to be more realistic (Sikora *et al.* 2007; Wilk *et al.* 2010).

At the **German** Baltic coast the breeding population of the Black-tailed Godwit currently counts about 60 bp in Mecklenburg-Western-Pomerania and only 2 bp in Schleswig-Holstein. The long-term population development has been characterised by strong fluctuations, which are well documented for Mecklenburg-Western Pomerania (Prill 1972). There are only few reported breeding records for this region from the 19th century; the species obviously was not a regular breeder at that time. The population increased rapidly at the beginning of the 20th century to >100 bp around 1910, but then declined again to a few breeding pairs during the 1940s. The development starting at the end of the 1950s until 2011 is shown in Figure 6.

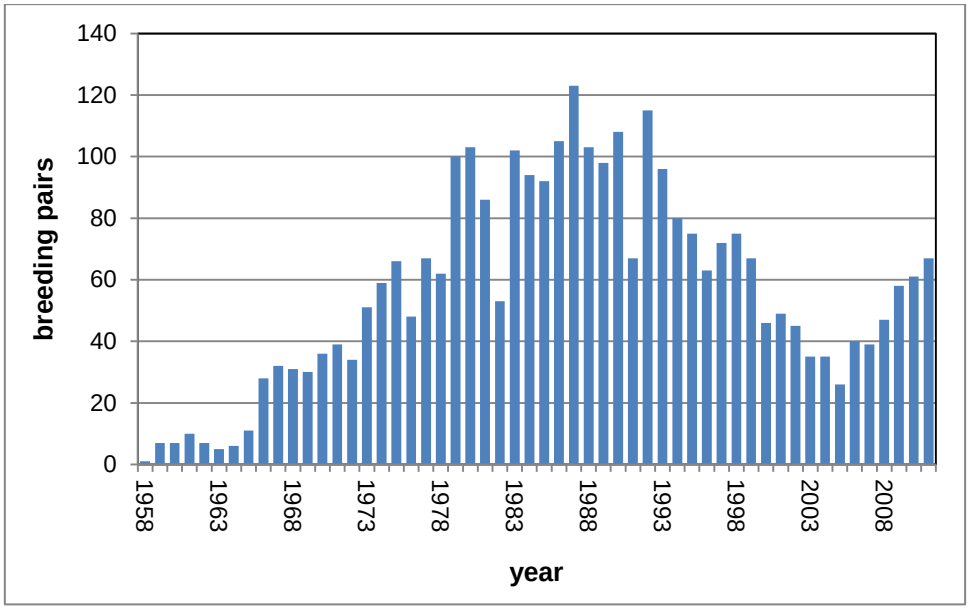

Figure 6: Long-term development of the breeding population of the Black-tailed Godwit in Mecklenburg-Western Pomerania, illustrating considerable fluctuations.

The Baltic **Danish** population of Black-tailed Godwit has never been very large (Clausen 2011, Thorup 2004 and unpublished):

Table 16: The population development of the Black-tailed Godwit in Denmark.

	1970 (1964-1972)	**1980 (1977-1982)**	**2009/10 (2006-2010)**
Baltic	135	198	150
North Sea	512	727	393
Denmark total	647	925	543

A few sites lost their Black-tailed Godwits during pump-drainage projects. Improved management with extensive hay making on the island of Saltholm was followed by a marked increase of the population. Also at Borreby Mose an improved management resulted in more breeding Black-tailed Godwits.

Table 17: Population numbers of the Black-tailed Godwit in the Baltic Sea area.

Country	**Breeding pairs**		**Short-term population trend (10 years)**	**Long-term population trend (50 years)**
	Population number	**Year**		
Sweden	50-100	2010	-	F
Finland	70-90	2009	+	+
Russia, PET	100-200	2009	+ (F)	+ (F)
Russia, KAL	15-20	2003-2009	-	-
Estonia	500-700	2003-2008	-	-
Latvia	80-100	1990-2000	?	-
Lithuania	300-450	1999-2001	-	-
Poland	5,000-6,000	1990-2004	-	-
Germany - SH	2	2010	-	-
Germany - MV	67	2011	+	F
Denmark	150	2009-2010	0	-
Baltic Sea	**6,330-7,870**			

Ecology and Habitat: The original breeding habitats are river valley fens, floods at the edges of large lakes, raised bogs and moorlands. The majority of the European population now uses habitats such as wet grasslands, coastal salt marshes, pastures, or wet areas near fishponds. Cropland may also be used for breeding (Tucker & Heath 1995).

Description of major threats: In Poland, which hosts by far the largest proportion of the Baltic breeding population, drainage, land

Picture 35. Example habitat. The island Kirr. The island Kirr is the main breeding place of the Black-tailed Godwit on the German Baltic coast.

reclamation, river regulation and low breeding success due to high predation pressure by Red Foxes and corvids are seen as the main factors for the decline of the species (Ławicki *et al.* 2011).

Habitat changes and increased predation by predatory mammals, especially Foxes, are the reasons for the abandonment of breeding sites in Germany. However, management of predatory mammals on coastal islands resulted in an increase of breeding pair numbers in recent times. The Black-tailed Godwit is hunted in France, with a total bag of 6.000-8.000 birds. Though hunting is not the main factor for the decline, it probably puts an additional pressure on a population which is already weakened by other factors (EU Commission 2007b).

Assessment justification: The observed decline over 3 generations (18 years) exceeds, for the whole Baltic, >15%, but does not reach 30%. Hence the species meets the criteria A2a(c?) under *Near Threatened* (NT).

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English name	Scientific name
Redshank	***Tringa totanus***
Taxonomical group Aves / Charadriiformes / Scolopacidae	Species authority Linnaeus, 1758
Description of major threats: OGr, Di, N, A, H	Threats in the future: OGr, Di, N, A, H
IUCN Criteria: A2ae	**Assessment justification:** **NT**
European IUCN Red List Category -	Annex I EU Bird Directive yes
Generation length 6 years	Annex II EU Bird Directive II B (DK, FR, IT)

Range description and general trends: The Redshank is a widespread breeder across much of Europe. The European breeding population counts >280.000 bp, of which about 10-15% are breeding in the Baltic Sea area. The species has undergone a moderate decline across much of its European range, and this trend is also true for the Baltic Sea area.

Distribution and status in the Baltic Sea region: The **Swedish** population counts about 15.000-25.000 bp, of which 11.400 are found in the mountain area and 7.500 bp at the Baltic coast. Another 400 bp breed at the Swedish Skagerrak coast (province of Bohuslän), outside the Baltic Sea area. On the Baltic Sea coast however the population has suffered a decline during the last 30 years and this decline is belived to have continued also into the 21 century.

In **Finland**, the species occurs along the coasts and scattered in the inland. The population has been declining during recent decades, the overall decline being about 26% in the last 10 years. With -22% the trend has been similar in the archipelago.

In **Russia**/PET the population is characterised by considerable fluctuations, however, the short term trend seems to be increasing. In appropriate habitas, the species may be found all over the region, but it is more common in the south-western parts.

In **Poland**, the Redshank is a widespread, but usually scarce breeder in the lowland with highly patchy distribution. The species prefers flooded meadows and pastures along rivers

Pictures: 36 (above) & 37 (below)

Map 13.

with muddy banks. It is most numerous in central and eastern Poland. Important breeding areas are the Biebrza (240 bp), Narew (326 bp) and lower Bug valleys.

In western Poland, the Ujście Warty National Park hosts a larger population (80 bp), in southern Poland the Nida river valley (112-131 bp). The recent population trend is negative. Surveys in western Poland during the periods 1980-1990 and 2000-2010 revealed a decrease of the species by 57.8% (Ławicki *et al.* 2011). The total Polish population is estimated at 2.000-2.500 bp (Sikora *et al.* 2007).

At the **German** Baltic coast the breeding population of the Redshank counts 400–470 bp. In former times, the Redshank was also a widespread breeder on inland meadows, but got much reduced in these areas.

Redshanks are widespread in coastal meadows along all Baltic coasts of **Denmark**, but survey data are sparse. Based on data from 'Fuglenes Danmark' (Grell 1998) and unpublished information, Thorup (2006) estimated the Danish total population in the 1990s at 12.000-15.000 bp, of which 6.000-7.000 bp were breeding in the Baltic Sea area. Since then the population has apparently been stable or slightly declining. Between the two Danish Bird Atlases 1971-1974 and 1993-1996, the Redshank disappeared from several inland squares (Grell 1998), but the magnitude of the decline in numbers is difficult to estimate. In 32 coastal meadows in the former Storstrøms Amt the number declined with 19% from the late 1980s to 2003 (Jørgensen 2006), whereas numbers were increasing on Læsø from 1973 to 1996 (Møller 1975, Rasmussen 1996 unpublished) and Saltholm from 1976 to 1999 (Mortensen & Hansen 1999).

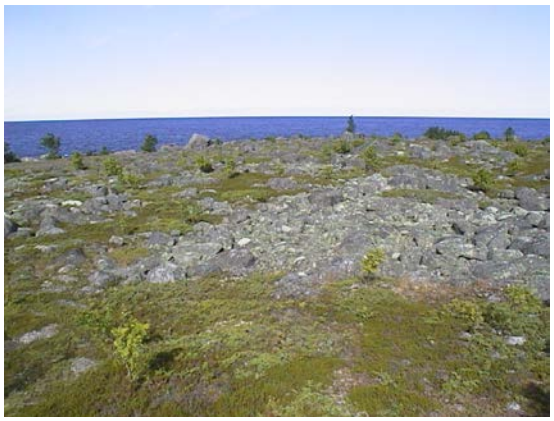
Table 18: Population numbers of the Redshank in the Baltic Sea area.

Country	**Breeding pairs**		**Short-term population trend (10 years)**	**Long-term population trend (50 years)**
	Population number	**year**		
Sweden[11]	15,000-25,000	2010	0	-
Finland	5,200	2009	-	+
Russia, PET	250-500	2009	+ (F)	?
Russia, KAL	50-60	2003-2009	-	-
Estonia	5,000-7,000	2003-2008	-	-
Latvia	300-700	1990-2000	-	?
Lithuania	600-800	1999-2001	-	-
Poland	2,000-2,500	1995-2002	-	?
Germany – SH	220	2005-2009	-	-
Germany – MV	160-250	2005-2009	0	-
Denmark	6,000-7,000	1990s	0 (or slightly -)	?
Baltic Sea	**35,000-49,000**			

[11] This numbers include *c.* 400 bp breeding in Bohuslän, outside the Baltic Sea area.

Ecology and Habitat: The Redshank breeds on marshland, including salt marshes, usually formed by grazing. It is not an exclusively coastal bird, but the highest abundances in the southern Baltic and at the North Sea are reached on coastal grasslands. In the northern archipelagos, the species frequents all zones fairly evenly, typically occurring on rocks and skerries with patchy grass vegetation. It associates with small larids to a greater extent than expected merely from habitat distribution, whereas larger Gulls seem to repel Redshanks (Numers 1995).

Picture 38. Example habitat. A complex of salt meadows and reeds, forming an important breeding site for waders such as the Redshank.



Picture 39. Example habitat. In the northern archipelagos, the species frequents all zones fairly evenly, typically occurring on rocks and skerries with patchy grass vegetation.

Description of major threats: The reasons for the decline relate to overgrowth of suitable coastal habitats and to increased predation. At the German Baltic coast, the long-term trend has been declining, with habitat loss obviously being a main factor. However, increased predation by mammals has been an important factor in recent times. There is a clear trend of decline of Redshank numbers on coastal meadows with unlimited access of predatory mammals, whereas the numbers on islands from which the predatory mammals are removed has been about constant (Herrmann 2010). In the northern Baltic, it is also suggested that the Redshank suffers from increased predation pressure even on small islets after the expansion of larger Gulls and corvids there (*e.g.* increase of the raven *C. corax* in the archipelago).

Assessment justification: The overall observed decline in the Baltic Sea area over 3 generations (18 years) exceeds 15 %, but is <20%, and the species meets the criteria A2a(c?) under *Near Threatened* (NT).

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English name	Scientific name
Terek Sandpiper	***Xenus cinereus***
Taxonomical group Aves / Charadriiformes / Scolopacidae	Species authority Güldenstädt, 1775
Description of major threats: Co, D, A, RFT	Threats in the future: Co, D, A, RFT
IUCN Criteria: D1	**Assessment justification:** **EN**
European IUCN Red List Category -	Annex I EU Bird Directive yes
Generation length 5 years	Annex II EU Bird Directive no

Range description and general trends: The Terek Sandpiper mainly breeds in central and northern Russia, however, its range stretches also patchily into Belorussia, the Ukraine, Finland and Latvia. The European breeding population is estimated at 15.000-81.000 bp, representing about a quarter of the global population.

Picture 40.

Distribution and status in the Baltic Sea region: In the Baltic Sea area, there are only few breeding places with a low number of breeding pairs in Finland, St Petersburg Region of Russia and Latvia.

In **Finland**, the Terek Sandpiper has been breeding since the 19th century, but has always been scarce despite temporal fluctuations on its resorts on the islets of the Bothnian Bay. Finnish numbers peaked at *c.* 30 bp in the 1980s. Currently, there are 5-10 bp.

In the **St Petersburg** region of **Russia**, the general trend seems to be increasing, despite considerable fluctuations. The total number of breeding pairs is estimated at 20-60.

In **Latvia**, the Terek Sandpiper is a very rare bird. Nesting was first confirmed in 1980; the only nesting place is Nagli fishponds (eastern part of Latvia, now part of NATURA 2000 site Lubaans). Outside this place there have been not more than 10 observations during last 30 years. The breeding population is 1-2, maximum 5 pairs.

Map.14

Table 19: Population number of the Terek Sandpiper in the Baltic Sea area.

Country	Breeding pairs		Short-term population trend (10 years)	Long-term population trend (50 years)
	Population numbers	Year		
Finland	5-10		0	-
Latvia	1-2		0	0
Russia, PET	20-60	2010	+	+
Baltic Sea	**30-70**			

Ecology and Habitat: The Finnish breeding sites are mainly anthropogenic habitats around industrial resorts and harbours. Most territories have been found on landfills and pulp sinks of wood processing plants with ample bark and wood-residue bottom layer and muddy shores (Ojanen & Rauhala 1997). Older locations are often sparsely vegetated, vaguely reminiscent of the species original habitats on Siberian marshy riverbanks. Even sites of more natural state in the Bothnian Bay tend to have plenty of driftwood and debris on the shore.

Picture 41. Example habitat. Beach in its natural statet covered by driftwood and debris in the Bothnian Bay

The known breeding sites in St Petersburg Region at the first glance look quite different, but it is always a combination of several components: shallow waters with somewhat fluctuating water levels, sandy or gravely shores or river banks, and meadows with low vegetation.

Description of major threats: Unlike most other threatened waders in the Baltic region, the Terek Sandpiper it is not predominantly a pasture-dweller. Although there are no habitat losses, the species has not markedly increased in Finland. The breeding success is not well known, but there are indications of increased nest predation due to the overall increase of common Gulls, crows and mammalian predators. Unpredictable changes in the availability of anthropogenic habitats in the wood processing industry can create stochasticity that can drive small range populations to extinction within a short period of time. There are also former indications of illegal egg collection at the breeding sites. According to ring recoveries, the Finnish birds take a south-western migration route via southern France (Camargue; Glutz v. Blotzheim *et al.* 1977, Martin 1983), possibly overwintering in western Africa (Lake Tchad, coasts of Nigeria, Gaboon, northern Angola). These are areas of unstable environments, desertification and land degradation. However, the exact wintering areas of the Baltic Terek Sandpipers are not yet known.

Assessment justification: The Baltic breeding population has to be assessed as *Endangered* (EN) because of its small population size (criterion D). However, the Baltic breeding sites are representing the outermost margins of the range of the species. In its total range the species is evaluated as “secure” (BirdLife International 2004).

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English name	Scientific name
Common Sandpiper	***Actitis hypoleucos***
Taxonomical group Aves / Charadriiformes / Scolopacidae	Species authority Linnaeus, 1758
Description of major threats: A, D, OGr, ERT (?)	Threats in the future: A, D, OGr, ERT (?)
IUCN Criteria: A2ab	**Assessment justification:** **NT**
European IUCN Red List Category -	Annex I EU Bird Directive no
Generation length 5 years	Annex II EU Bird Directive no

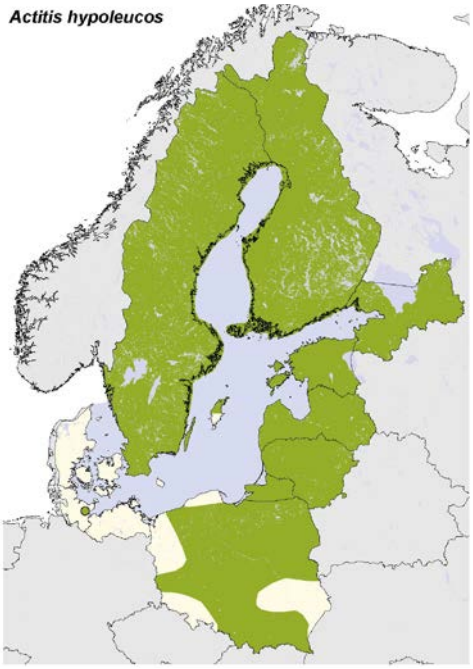
Range description and general trends: The Common Sandpiper is a widespread breeding bird across much of Europe. The European breeding population counts >720.000 bp. Although the population has been stable in much of its range, it has suffered significant declines in some of the key areas, especially Sweden and Finland.

Distribution and status in the Baltic Sea region: In the western Baltic (Denmark, German Federal states Schleswig-Holstein and Mecklenburg-Western Pomerania) the Common Sandpiper is only a sporadic and rare breeder. The largest populations are found in the eastern and northern parts of the Baltic Sea (Estonia, Russia, Finland, Sweden), where the species inhabits inland waters as well as the coast.

In **Sweden**, the Common Sandpiper has suffered a long-term decline. According to Ottvall *et al.* (2009), the species has declined by 30-49% during the last 30 years, and 10-19% during the last 10 years.

Finland hosts by far the largest number of breeding pairs in the Baltic Sea area. According to BirdLife International (2004), the species was declining during 1990-2000 by *c.* 20%, and by 2009 the decline amounts to 33% for the previous 15 years. The decline was revealed by line transect censuses (an annual mean decrease of 1.4% during 1975-2008), but is supported by the Archipelago Bird Census scheme as well, based on nest counts (decreased by 1.8% per annum in 1986–2010, being now 1,800 bp).

Pictures: 42 (above) & 43 (below)



Map 15.

In **Russia, Estonia**, **Latvia** and **Lithuania**, the Common Sandpiper is a common breeding bird with several thousand pairs. The populations in Russia, Estonia and Latvia seem to be stable, whereas for Lithuania the trend is unknown.

In **Poland**, the Common Sandpiper is a widespread, but scarce breeder. The largest populations are recorded in the lower parts of the Narew (100 bp), Pilica (90 bp) and Bug (70 bp). In the Przemyśl region the species has been recorded with densities of up to 6-16 bp / 10 km river. The highest breeding sites are found in the Tatra Mountains at 1200 m altitude (Sikora *et al.* 2007). There is no clear evidence for a recent decrease, but on a long run it must have declined (Tomiałojć & Stawarczyk 2003).

In the south-western Baltic (**Germany, Denmark**), true breeding records are rare, the Common Sandpiper is obviously a rare, probably only sporadic breeder.

Table 20: Population numbers of the Common Sandpiper in the Baltic Sea area.

Country	**Breeding pairs**		**Short-term population trend (10 years)**	**Long-term population trend (50 years)**
	Population number	**Year**		
Sweden	77,000-144,000	2010	-	-
Finland	100,000-200,000	2009	-	?
Russia, PET	common	2010	0	0
Russia, KAL	200-300	2010	0	0
Estonia	5,000-10,000	2003-2008	0	0
Latvia	3,500-5,000	1990-2000	0	0
Lithuania	1,500-2,000	1999-2001	?	?
Poland	1,000-2,000	1995-2002	?	-
Germany - SH	Sporadic, single pairs			
Germany - MV	Probably sporadic, single pairs			
Denmark	Sporadic, single pairs			
Baltic Sea	**189,000-363,000**			

Ecology and Habitat: In Finland, the Common Sandpiper is still the most abundant wader and found in all kinds of freshwater habitats throughout the country. Along the shores of the Baltic brackish waters it is common in the inner archipelagos, but is scarce or lacking in the barren outer archipelago. There is no apparent change in the overall distribution in the country.

Description of major threats: Factors leading to the decline of the Baltic population of Common Sandpiper are largely unknown. There are no such habitat losses that could explain the numeric decline of the widespread species, and no systematic contraction in range can be seen either. Overgrowth in inner archipelagos may play a role, and locally the species might have suffered from waterway regulations. The increase of mammalian and avian predators probably bears an effect on breeding results. Yet, there are no population studies that could cast light on the possible long-term fluctuations of the species. European birds overwinter south of the Sahara, where birds can face the problems of vanishing marshlands and the increasing threat of being captured.

Assessment justification: Since Sweden and Finland host about 90% of the breeding population of the assessment area, the trend in these two countries is decisive for the Red List classification. The decline obviously exceeds 15% during the time span of 3 generations

(15 years), but obviously does not reach 30%. Hence, the species classifies as *Near Threatened* (NT) according to criteria A2ab.

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English name	Scientific name
Ruddy Turnstone	***Arenaria interpres***
Taxonomical group Aves / Charadriiformes / Scolopacidae	Species authority Linnaeus, 1758
Description of major threats: ERT,A, N, OGr	Threats in the future: ERT, A, N, OGr
IUCN Criteria: A2abce + 3ce + 4abce	**Assessment justification:** **VU**
European IUCN Red List Category -	Annex I EU Bird Directive no
Generation length 5 years	Annex II EU Bird Directive no

Range description and general trends: The ruddy turnstone breeds in coastal areas of northern Europe. The European population is estimated at 34.000-81.000 bp, of which the Baltic Sea area hosts only a small proportion of 4.450-5.200 bp. The highest numbers of breeding pairs are found in Sweden and Finland.

Picture 44.

Distribution and status in the Baltic Sea region: In **Sweden**, the Turnstone has disappeared from the west coast in 1995. Currently it breeds on the east coast between Blekinge and Norrbotten, but also at lake Vänern, although the lake-dwelling population has always been small (0-12 pairs during the last 20 years). The overall population trend is strongly negative, although the main strongholds in the Västerbotten county slightly increased during the past 20 years, harbouring now 600 pairs. There are still 150-250 pairs on Gotland. A remarkable decline took place in the Stockholm–Uppsala archipelago, from 1.600 bp in mid-1970s to less than 500 currently. The total Swedish population numbers 1.500-2.200 bp, which is only 50% of amount from 20 years ago.

In **Finland**, the ruddy turnstone breeds along the coasts of the Gulf of Finland, the Bothnian Sea and the Bothnian Bay. Since the 1980s, a decline of 47% has been observed and in the last 15 years the decline has been estimated at 30%.

In the **Russian** Baltic Sea area the species only breeds in St. Petersburg region with few (5-10) pairs. The short-term trend seems to be negative, the long-term trend is unknown.

Map 16.

The **Estonian** population amounted 100-150 bp during the period 2003-2008. It has suffered a strong decrease (>50%) during the period 1971-1990 and a moderate decline (10-50%) between 1991-2008 (Elts *et al.* 2009).

At the **German** Baltic coast, the ruddy turnstone disappeared as a breeding bird from Schleswig-Holstein already before 1900 (Berndt *et al.* 2002). In Mecklenburg-Western Pomerania, it was a breeding bird during the 19th century and at the beginning of the 20th century in small numbers in the Wismar Bight and on the islands west of Rügen (Hiddensee, Heuwiese). The last breeding record dates from 1918 from the southern parts of Hiddensee (Schulz 1947).

In **Denmark**, the main breeding site is the island Læsø in the northern Kattegat. However, occasionally the ruddy turnstone may also breed on other locations, as for instance on Saltholm in 2009. Until the mid 1990s, Turnstones also bred regularly on small islands around Fyn (Møller 1975, Sørensen 1995, Rasmussen 2010). The Danish breeding pair numbers were 38-39 in 1974, 40 in 1990, 36 in 1996, 37-41 in 2000, 51 in 2006, 48-49 in 2007, and 36-38 in 2009 (Grell 2001; Nyegaard & Grell 2007, 2008; Nyegaard & Willemoes 2010).

Table 21: Population numbers of the ruddy turnstone in the Baltic Sea area.

Country	Breeding pairs		Short-term population trend (10 years)	Long-term population trend (50 years)
	Population number	Year		
Sweden	1,500-2,200	2010	-	-
Finland	2,800	2010	-	+
Russia - PET	5-10	2009	-	?
Estonia	100-150	2003-2008	-	-
Germany - SH	0	extinct		
Germany - MV	0	extinct		
Denmark	36-38	2009	0	0
Baltic Sea	**4,450-5,200**			

Ecology and Habitat: The Turnstone used to be the most numerous wader species in the northern Baltic archipelagos, but has recently lost this position to the oystercatcher in many places. With an arctic overall distribution, the Turnstone inhabits the barren, treeless parts of the outer archipelago and is completely lacking at the mainland shores. It associates with Terns and smaller Gulls at the breeding sites, reaching highest densities in their colonies, at best 10–20 pairs on small islets of less than 5 hectares (Vuolanto 1968). The species breeds also solitarily.

Picture 45. Example habitat. Turnstone inhabits the barren, treeless parts of the outer archipelago and is completely lacking at the mainland shores.

Description of major threats: The decline of the turnstone in the Baltic Sea area is most obvious in the southern part of its breeding range and in the inner zones of the archipelagos. These are areas of the highest rate of overgrowth and also of the highest rate of mammalian predation. Also land uplift is lowest in the south, giving less compensation for the overgrowth of breeding sites and creating less new breeding habitats. Possibly also the predation by

crows (including the raven) is heavier in the south. These can be factors that have produced the pronounced dichotomy according to zonation in its current distribution. The turnstone is a cosmopolitan migrant in tropical and subtropical coasts where it spends 3-6 years before becoming sexually mature (Vuolanto 1968). Yet, nothing is known about subadult and adult mortality and overwintering success.

Assessment justification: The species has to be classified, according to the observed decline during the last 3 generations and the expected continuation of this trend, as *Vulnerable* (VU) according to the criteria A2abce + 3ce + 4abce.

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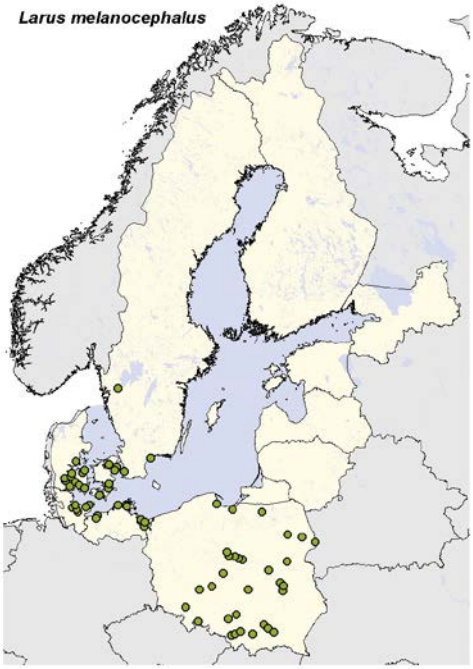
English name **Mediterranean Gull**	Scientific name ***Larus melanocephalus***	
Taxonomical group Aves / Charadriiformes /Laridae	Species authority (Temminck, 1820)	
Reasons for being threatened: RFT, A, N	Threats in the future: RFT, A, N	
IUCN Criteria: D	**HELCOM Red List Category:**	EN
European IUCN Red List Category -	Annex I EU Bird Directive yes	
Generation length 6 years	Annex II EU Bird Directive no	

Range description and general trends: The Mediterranean Gull has a widespread, but patchy distribution in Europe. The range of the species is almost restricted to this continent, but it expands also to central Turkey. The total population is large (>120,000 bp) and increased during 1970-1990, in much of its range also during 1990-2000. The main breeding areas are the Mediterranean and the Black Sea (BirdLife International 2004). During the 20th century, the species expanded its range. Since 1970, it is a regular breeder in The Netherlands and Belgium with increasing population numbers (Meininger & Flamant 1998). Around 2000, the western European population (France, Belgium, The Netherlands, Germany, UK) counted already almost 5,000 bp (BirdLife International 2004). The colonization of the Baltic started in 1951, when the first breeding of a Mediterranean Gull was recorded on the island Langenwerder, Mecklenburg-Western Pomerania.

Population development in the Baltic Sea area: The Mediterranean Gull has expanded its range to the Baltic Sea area during the second half of the 20th century. It colonized Denmark, Germany and Poland, and bred in single cases in Sweden and Estonia. The population increased slowly, but remained small with still < 100 bp.

In **Sweden**, several breeding or breeding attempts with Black-headed Gull and Common Gull colonies have been recorded since the mid-1990s.

Picture 46.



Map 17.

However, genuine breeding or breeding attempts could not be confirmed before 2008. In 2008, there was a breeding attempt in Malmö; in 2010, 2 pairs bred successfully in Blekinge (Sölvesborg); in 2011, there were two breeding attempts, one in Blekinge and one in Västergötland (Vänersborgsviken). The species is obviously immigrating into Sweden, but it cannot yet be considered as an established breeder.

In **Estonia**, two breeding records have been recorded: 1962 one nest with 2 eggs on the islet of Kuralaid (Oriku group of islands), and 1967 one nest with 1 egg on the same islet.

In **Poland**, until 1980 the Mediterranean Gull was only known as a rare visitor. It started breeding in 1981. During the 1990s, it colonized both coastal and inland breeding sites (Tomiałojć & Stawarczyk 2003). The main breeding sites are found along large rivers, where the birds nest on islets with sparse vegetation. In coastal areas, breeding has been confirmed near Elblag, Gdynia and Swinoujscie. The total population in 2000-2005 was 18-30 confirmed breeding pairs, but 28-54 bp if probable breeding is included (Sikora *et al*. 2007).

At the **German** Baltic coast of Mecklenburg-Western Pomerania, the first breeding of the Mediterranean Gull was recorded in 1951, when a male *Larus melanocephalus* bred with a female *Larus canus* on the island Langenwerder. Two years later a pair of *Larus melanocephalus* bred on the same island (Dost 1965). Starting in 1958, the species became a regular breeding bird with fluctuating numbers of 1-10 bp, breeding on different coastal islands (Langenwerder, Heuwiese, Kirr, Barther Oie and others). During the last 5 years (2007-2011) the number of breeding pairs was 3-9.

In Schleswig-Holstein, the first breeding attempts have been recorded in 1965 on the coastal islands Graswarder and Oehe/Schleimünde. Since 1969 the Mediterranean Gull is breeding on inland lakes. Since the end of the 1990s, it also breeds at the North Sea coast. The total population in the eastern (Baltic) parts of Schleswig-Holstein fluctuates between 8 and 12 bp (numbers 2007-2011). The main permanent breeding sites are the Nature Reserve Graswarder and some inland Gull colonies in the lake area near Plön (Berndt et al. 2002). In recent times, the species also has bred on roofs of the city of Kiel and the sea resort Weißenhäuser Strand.

In **Denmark**, the Mediterranean Gull breeds both at the North Sea and Baltic Sea coasts. The first breeding took place in 1970 on the island Enø in the Baltic. Until 1999, *Larus melonocephalus* was only an occasional breeder in the Danish Baltic. Since then it has established as a regular breeder in low numbers (Olsen 1992, Hansen 2004). A maximum of 16 pairs was recorded in 2006 (Hansen 2007), and in 2010 9-10 pairs were found (Hansen 2011).

Table 22: Population numbers of the Mediterranen Gull *Larus melanocephalus* in the Baltic Sea area.

Country	**Breeding pairs**		**Short-term population trend (10 years)**	**Long-term population trend (50 years)**
	Population number	**year**		
Sweden	2	2010-2011	+	
Estonia	Exceptional breeding bird	1962 and 1967		
Poland	28-54	2000-2005	+	+
Germany - MV	3-9	2007-2011	0	+
Germany - SH	8-12	2007-2011	0	+
Denmark	7-16	2006-2010	+	+
Baltic Sea	**50-95**			

Ecology and Habitat: *Larus melanocephalus* breeds on coastal bird islands, usually within colonies of Black-headed Gulls (*Larus ridibundus)* or Common Gulls (*Larus canus*). Inland breeding places are found on islands with Gull colonies on lakes, on river islets with sparse vegetation or at reservoirs. The Baltic population is migratory. Ringing recoveries of birds ringed in Mecklenburg-Western Pomerania reveal the British islands and the coasts of the British Channel being the main wintering area (Heinicke 2009, unpublished). Birds ringed in the Netherlands and Belgium have been recorded in the same area, but also along the Atlantic coasts of France, Spain, Portugal up to Morocco (Boldreghini *et al.* 1992). There is a movement of birds from the Black Sea to the Baltic, as it was shown by a bird which has hatched 1975 at the Ukrainian Black Sea coast and bred 1978 in the Wismar Bight/ Mecklenburg-Western Pomerania. Birds from the Mediterranean Sea have been found to establish as breeders in north-western Europe (Boldreghini *et al.* 1992).

Reasons for being threatened: The population of the Mediterranean Gull in the Baltic Sea area is stable to slowly increasing on a low level. The number of breeding sites is limited. Hence, the species is vulnerable to random threat factors (RFT). Furthermore, the problem of predation by non-native and native predators exists also for *Larus melanocephalus*.

HELCOM Red List Category: The species has to be classified, according to the small population size (<250 mature individuals), as *Endangered* (EN) (criterion D).

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English name	Scientific name
Lesser Black-backed Gull	***Larus fuscus fuscus***
Taxonomical group Aves / Charadriiformes /Laridae	Species authority (Linnaeus, 1758)
Description of major threats: CP, N, A, D, H	Threats in the future: CP, N, A, D, H
IUCN Criteria: A2abce	**Assessment justification:** **VU**
European IUCN Red List Category -	Annex I EU Bird Directive no
Generation length 10 years	Annex II EU Bird Directive II B (DK, DE)

Range description and general trends: The Lesser Black-backed Gull is a widespread breeder in coastal areas of northern and western Europe. There are 3 subspecies recognized: The Lesser Black-backed Gulls of the central and eastern Baltic Sea and eastern Scandinavia belong to the nominate sub-species *Larus fuscus fuscus*. A second sub-species, *L. fuscus intermedius,* breeds in the Netherlands, at the German and Danish North Sea coast, in Norway and in the western Baltic (Denmark, Swedish west coast, recently also in Germany), whereas the third sub-species, *L. fuscus graellsii*, occurs in western Europe (UK, Iceland, France, Portugal and Spain). The European breeding population of all three subspecies is large (>300.000 bp) and increased since the 1970s. However, there has been a long-term decline of *L.f. fuscus* in the eastern parts of the range. The world population of this subspecies was about 15.000 bp around the year 2000, of which 45% bred in Finland and 35% in Sweden.

In the Baltic Sea area, *Larus fuscus intermedius* breeds at the Swedish West coast and the Danish Kattegat with a stable population, and has started to colonize the Baltic coast of Schleswig-Holstein (Germany) in 2001.

Distribution and status in the Baltic Sea region: The largest breeding populations of the nominate subspecies of the Lesser Black-backed Gull in the Baltic Sea area are found in Finland, Sweden and Russia (St Petersburg region). There it has suffered a strong long-term decline since the 1970s.

Picture. 47

Map. 18

In Sweden, *L. fuscus fuscus* almost exclusively breeds at the Baltic coast where it has shifted its distribution towards the north. In Finland, the reduction also commenced on the southern coast.

In **Sweden**, the population counted 17.000 bp in the 1970s, today only 7.000-13.000 bp have left. However, there are indications for a population increase during the last *c.* 5 years.

Strong declines have been observed in **Finland**. The Finnish population was 20.000 bp in the 1960s, of which only 7.000 have remained today. The decline concerns both the coastal and the inland populations.

In **Russia, St Petersburg** region, the Lesser Black-backed Gull breeds on the islands in the Gulf of Finland with 300-500 bp.

In **Poland**, the Lesser Black-backed Gull is a sporadic breeder. Single pairs probably bred during (1973?) 1983-1989 and 1992-1994 on the coastal lakes Gardno and Łebsko and 1991 near Świnoujście (Tomiałojć & Stawarczyk 2003).

At the **German** Baltic coast, the Lesser Black-backed Gull is a rather recent breeding bird. The breeding birds in Schleswig-Holstein obviously belong to the sub-species *L.f. intermedius,* whereas the birds breeding in Mecklenburg-Western Pomerania are supposed to belong to the subspecies *L.f. fuscus*. The first breeding attempt in Mecklenburg-Western Pomerania was recorded in 1943 on the island Langenwerder, the next in 1974 on the island Greifswalder Oie. Since then, the species has bred in most years with 1-4 bp.

In **Denmark**, *Larus f. fuscus* has been once a numerous breeder on Bornholm, especially on the bird island Græsholm (Ertholmene) with up to 1,200 bp during the 1940s. Nowadays there are only 3-5 bp on this island (http://www.chnf.dk/fugle/yffugle_chroe.php) and some single pairs on other sites of Bornholm (Olsen 2010; http://Gulldk.blogspot.com/2010/08/baltic-Gull-larus-fuscus-fuscus-ad.html). In the Danish western Baltic Sea area, *Larus f. fuscus* is a breeding bird on Saltholm in the Øresund near Copenhagen. The exact number of breeding pairs is unknown. Both subspecies *L.f. intermedius* and *L.f. fuscus* are breeding in this colony with a total of 80-240 bp (1993-2006). In 1999 it was estimated that the proportion of *L.f. fuscus* was 10-20%.

Table 23: Population numbers of the Lesser Black-backed Gull *Larus f. fuscus* in the Baltic Sea area.

Country	**Breeding pairs**		**Short-term population trend (10 years)**	**Long-term population trend (50 years)**
	Population number	**year**		
Sweden	6,800-11,500	2010	?	-
Finland	7,000	2007	-	-
Russia - PET	300-500	2009	-	-
Estonia	50-100	2003-2008	-	--
Poland	Sporadic breeder			
Germany - MV	1-3 (?)	2003-2009	0	+
Denmark	<100	2003-2009	-	--
Baltic Sea	**14,200-19,200**			

Ecology and Habitat: This species breeds in colonies on coasts and lakes, *Larus f. fuscus* also as solitary pairs, especially on inland waterbodies. Currently, the colony size of the nominate *Larus f. fuscus* seldom exceeds 100 pairs. *Larus f. fuscus* is strictly insular, nesting on grassy treeless skerries in the Baltic archipelagos and on small rocks in lakes, solitary pairs also on wooded islets in the midst of trees. The western subspecies *Larus f. intermedius* nests within the urban environment, often in association with Herring Gulls, but for *Larus f. fuscus* the roof-nesting is exceptional and there is no association with Herring Gulls. The species is omnivorous, but *Larus f. fuscus* is predominantly fish-feeder. It also takes insects, crustaceans, worms, starfish, molluscs, seeds, berries, small mammals, eggs, even small birds. *Larus f. fuscus* is a long-distance migrant spending the winter in equatorial Africa, there becoming exposed to pesticides. Western forms seldom travel longer than to the Mediterranean – northern Africa.

Description of major threats: The population decline of the nominate Lesser Black-backed Gull in the Gulf of Finland is caused by an exceedingly high chick mortality due to diseases and predation by Herring Gulls. In the 1980s and 1990s, 65–70% of chicks had degeneration in various internal organs (primarily liver), inflammations (mainly intestinal), and sepsis, the final cause of death (Hario & Rudbäck 1996). Most of the remaining chicks (the potential recruits) were taken by predatory Herring Gulls, so the fledging rate was only 0.02 chicks per pair. As the only African migrant among the Baltic Gulls, the nominate Lesser Black-backed Gull is especially prone to DDT and its metabolites. The DDE/PCB ratio in chick livers was significantly elevated in the 1990s, indicating an increased exposure to DDTs as compared with other Baltic and circumpolar seabirds. Similarily, in northern Norway blood residues of DDE were higher in *L.f. fuscus* than in the increasing *L.f. intermedius* (Bustnes *et al.* 2006).

A significantly lower proportion of chicks have been found diseased in the 2000s in the Gulf of Finland. This is a genuine change. The mean hepatic concentration of PCBs was not significantly smaller than previously, whereas those of DDE were, leading to a lower DDE/PCB ratio. This is the first record of an apparent lowering in some of the OC levels in nominate Lesser Black-backed Gull chicks. The reduced rate of preyed-on chicks is supposed to be a result of the culling programme for predatory Gulls conducted over the entire central Gulf of Finland in 2004–2007. PCB levels in Baltic Herring (*Clupea harengus*), the staple food of *L.f. fuscus* during the breeding time, have not decreased. However, with regard to the different OC profiles, it has been difficult to decisively attribute effects of different pollutants in wild birds due to the correlative nature of OCs (reviewed in Hario & Nuutinen 2011).

Assessment justification: The species has to be classified, according to the observed decline during the last 3 generations and the possible continuation of this trend, as *Vulnerable* (VU) (criteria A2abce).

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English name	Scientific name
Black-legged Kittiwake	***Rissa tridactyla***
Taxonomical group Aves / Charadriiformes / Laridae	Species authority Linnaeus, 1758
Description of major threats: RTF, L, Bc, F, O, Cc	Threats in the future: RTF, L
IUCN Criteria: D1	**Assessment justification:** **EN**
European IUCN Red List Category -	Annex I EU Bird Directive no
Generation length 9 years	Annex II EU Bird Directive no

Range description and general trends: The Black-legged Kittiwake has a holarctic distribution. The East Atlantic population has increased in numbers, and also the range has expanded to the eastern North Sea including the northern Kattegat during the 20th century. The East Atlantic population is large (8.4 million individuals, Wetlands International 2006).

There was a moderate increase in the breeding population of this species in the North-East Atlantic area over the period 1970–1990. However, from 1990-2000 the species declined in Greenland, Norway and the UK by 20-29%, and suffered a moderate decline (>10%) overall in Europe (Heubeck 2004; BirdLife International 2004).

In the south-eastern North Sea, the closest breeding sites of the Kittiwake to those of the Kattegat are found in north-west Denmark and on Helgoland (Germany). At the Danish North Sea, the most important breeding site is Bulbjerg rock in the Jammerbugt, which was colonized in 1979 and hosted up to 800 bp. Smaller numbers of Kittiwakes have also bred in recent times on Hanstholm Havn, Hirtshals Havn and Rudbjerg Knude. The colony on Helgoland comprises a stable population of 7.000-8.000 bp (Hüppop in Mendel *et al.* 2008).

Distribution and status in the Baltic Sea region: The Baltic Sea population of the Black-legged Kittiwake represents the edge of the East Atlantic population. It has always been small and about stable during the last 20 years.

Pictures: 48 (above) & 49 (below)

Map. 19

In **Sweden**, the species started to breed in 1967. It reached a maximum of 60 bp in the 1970s, but dropped down to 25-35 bp at the beginning of the 1980s and has remained stable on this level since then (Tjernberg & Svensson 2007).

The Black-legged Kittiwake bred in the **Danish** part of Kattegat between 1941 and 1988 when the last colony on Nordre Rønner was abandoned. An occasional breeding has been recorded later in 1995.

Table 24: Population numbers of the Black-legged Kittiwake in the Baltic Sea area.

Country	Breeding pairs				Short-term population trend (10 years)	Long-term population trend (50 years)
	1980	1990	2000	2009		
Denmark	105	-	-	-		-
Sweden	60	29	30	36	0	+
Baltic Sea	**165**	**29**	**30**	**36**		

Ecology and habitat: The Black-legged Kittiwake is a highly pelagic species that only comes ashore for breeding. Pelagic shoaling fish is favoured as prey. It breeds in colonies on coastal cliffs or islands, but also on roofs. The birds breeding in the Baltic Sea area are found on roofs (lighthouse buildings).

Picture 50. Example habitat. The Black legged Kittiwake breeds in colonies on coastal cliffs or islands, but also on roofs. The birds breeding in the Baltic Sea area are found on roofs (lighthouse buildings).

Description of major threats: Since there is only one breeding site of the Black-legged Kittiwake in the Baltic Sea area (Nidingen / Kungsbacka Fjord, Sweden), the occurrence of the species in the Baltic Sea area is vulnerable to random threat factors which may affect the breeding site itself or the vicinity (*e.g.* food availability in the surrounding water areas). Furthermore, *R. tridactyla* is threatened by reductions in the availability of small pelagic shoaling prey fish, which maybe affectet directly or indirectly by human activities (*e.g.,* industrial sandeel fishery). Sandeel larvae are strongly related to plankton abundance, and the plankton is influenced by surface water temperature. Hence, climate change is also a factor likely to affect the population (OSPAR 2009). Despite the fact that by-catch of *Rissa tridactyla*, especially by longline fisheries, has largely be reduced in recent times by adecuate protection of the hooks, there are still considerable numbers of birds killed as by-catch. *R. tridactyla* is also reported to be threatened by marine oil spills and chronic oil pollution (OSPAR 2009). Another threat is imposed by plastic litter, which the birds may use for nest construction (Heckroth & Hartwig 2005). Chicks may entangle in the plastic or die by ingestion of plastic particles.

Assessment justification: In the Baltic Sea area, the species is classified as *Endangered* (EN) according to criterion D1. The breeding place in the Baltic Sea area represents the edge of the East Atlantic biogeographic population, which has a population size of 8.4 million individuals and is classified as *Secure* by Wetlands International (2006). However, the category of the Baltic Sea population is not downgraded on the basis of the secure East Atlantic population, since the species has declined strongly in neighbouring areas in Norway (50-80%) since 1980 and has been classified as *Endangered* (EN) in the latest Norvegian Red List (2010).

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English name **Gull-billed Tern**	Scientific name ***Gelochelidon nilotica***	
Taxonomical group Aves / Charadriiformes / Sternidae	Species authority Gmelin, 1789	
Description of major threats:	Threats in the future: -	
IUCN Criteria: -	**Assessment justification:**	**RE**
European IUCN Red List Category VU (A2b)	Annex I EU Bird Directive yes	
Generation length 9 years	Annex II EU Bird Directive no	

Range description and general trends: The main breeding area of the Gull-billed Tern is South- and South-East Europe. In North-Western Europe, there is only a small breeding population at the German and Danish North Sea coast. During the 20th century, this "cimbric" population has moved its range towards the south, *i.e.* from the Danish towards the German coasts. The population has been declining from 400-500 bp around 1950 to 20-60 bp currently (Berndt *et al.* 2002; Mauscherning *et al.* 2011). In Denmark, it has become an irregular breeder during the last years (2 bp in 2005, 1 bp in 2009-2011, Nyegaard & Grell 2006; Nyegaard & Willemoes 2010; Eskildsen & Vikstrøm 2011). At the German North Sea coast, the population has been fluctuating between 19 and 61 breeding pairs between 2001 and 2010 (Mauscherning *et al.* 2011).

Pictures: 51 (above) & 52 (below)

Distribution and status in the Baltic Sea region: At the **German** Baltic coast, the Gull-billed Tern has been a rare breeding bird in the lagoon areas west of Rügen during the 19th century. There are breeding records documented for the island Liebes during the years 1818-1839. Though for most years exact numbers are not documented, the species obviously bred only with few pairs and probably not in all years. Many of the breeding birds have been shot and clutches collected for scientific collections. In 1880, the Gull-billed Tern has bred at the southern spit of the island Hiddensee, however, this clutch also has been destroyed (Nehls 1987).

In **Denmark**, before 1970 Gull-billed Terns regularly bred in 5 to 7 colonies in the Limfjord area, 3 to 4 colonies on the island of Læsø and surrounding islets, and one colony in Mariager Fjord.

During the 1970s the species declined markedly, and the last known breeding in the Baltic took place on Læsø in 1982 (Møller 1975, Rasmussen & Fischer 1997).

During the last 10 years one or two stray pairs have been seen now and then near some of the old Baltic breeding sites, and breeding has been suspected in a few cases. However, although likely, breeding was never substantiated.

Ecology and Habitat: This species breeds in colonies on lakes, marshes and at the coast. The “cimbric” population prefers coastal breeding sites, such as islands or dyke forelands, close to fresh or brackish water surfaces. The former breeding sites in the Baltic Sea area have been small islands with low grass vegetation. The Gull-billed Tern feeds on insects taken in flight, and also often hunts over wetlands to take earthworms and insects, but also amphibians, small mammals and birds. The wintering areas are situated in tropical Africa.

Description of major threats: Reasons for the decline and range shifts of the “cimbric” population are probably losses and degeneration of feeding habitats due to the intensification of agricultural management. Reduction of food availability due to pesticide application is claimed for both breeding and wintering areas. There are also indications that elevated mortality due to accumulation of toxic substances may play a role. Disturbances and predation (especially by Foxes and other predatory mammals) could lead to abandonment of breeding sites. Climate and weather phenomena (wet or extremely hot periods during the breeding season, flood events) can (with increasing trend?) affect the reproduction success (Hälterlein 1998).

Assessment justification: Since there havn’t been breeding records in the Baltic Sea area for almost 30 years, the species has to be classified as *Regionally Extinct* (RE).

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English name	Scientific name
Caspian Tern	***Hydroprogne caspia***
Taxonomical group Aves / Charadriiformes / Sternidae	Species authority (Pallas, 1770)
Description of major threats: ERT, N, A, H	Threats in the future: ERT, N, A, H, Cc?
IUCN Criteria: C1	**Assessment justification:** **VU**
European IUCN Red List Category -	Annex I EU Bird Directive yes
Generation length 10 years	Annex II EU Bird Directive no

Range description and general trends: The Caspian Tern breeds patchily along the Baltic, Black Sea and Caspian Sea coasts. The European population is small, with about 1,700 bp in the Baltic, 800 in the Black, and 2,000 in the Caspian Sea (Tjernberg & Svensson 2007). It was breeding also at the German North Sea coast, but this population got extinct during World War I (Schulz 1947). The European population underwent a large decline between 1970-1990, but increased during 1990-2000 (BirdLife International 2004).

Distribution and status in the Baltic Sea region: The Baltic breeding population increased from 500 bp in the mid-1930s to 1.200 bp in 1953 and finally to 2.500 bp in 1971, an undisputed peak so far. Until 1984 the population declined to 1.900 bp (Hario *et al.* 1987), and further to 1.600-1.700 pairs currently.

The **Swedish** population has suffered a decline from 850-950 bp in 1971 (Väisänen 1973) to 532 bp in 2010 (Staav in Eskildsen & Vikstrøm 2011). However, the trend is characterised by certain fluctuations – there were 500 bp in 2000, but 660 in 2007. Most of the birds are breeding in colonies, but some (19% in 2010, 13% in the average) are also found as single breeding pairs from Scania to Norrbotten and inland at Lake Vänern (Tjernberg & Svensson 2007).

Pictures: 53 (above) & 54 (below)

Map 20.

In **Finland**, the population peaked at 1.200 bp in 1971 (Hario *et al.* 1987). After a period of decline it has stabilized at around 800-900 bp in recent times. About 700 of them nest in colonies, the others as solitary pairs.

In the **Russian** part of the easternmost Gulf of Finland, 20-40 bp were encountered in the Bolshoi Fiskar archipelago during 1995–2006, but in 2010 none was discovered despite a complete survey and mapping of seabird colonies across the Gulf (A. Kondratiev, *pers. com*.). Another colony was found in 1992 on Moshny Island (Noskov *et al.* 1993). However, this colony has not ben visited again. In 2007-2010 Caspian Terns have been seen at different points of the Russian part of the Gulf of Finland; breeding on some of the islands is not unlikely . In Lake Ladoga there were *c.* 10 bp., but on the territory of Karelia.

After a long time of stability, the **Estonian** breeding population recently has suffered some decline. In 1971, 356 bp have been counted (Väisänen 1973). For 1998-2002, Elts *et al.* (2003) give a population number of 250-400 bp, but only 150-250 bp were estimated for the period 2003-2008 (Elts *et al.* 2009).

In **Latvia**, one single breeding has been recorded in 1976 (Vīksne *et al.* 1980). The same is true for **Poland**, where the Caspian Tern has been found breeding in 1969 near Łeba (Tomiałojć Stawarczyk 2003).

In the south-western Baltic, the species is rare and has not been a permanent breeder. It was obviously breeding at the end of the 18th century on the island Großer Stubber in the Greifswald Lagoon (**Germany, Western Pomerania**; Otto 1776), but then disappeared for about 150 years. It possibly bred around the island Hiddensee during the 1930s (Schulz 1947), but the first doubtless breeding record of recent times dates from 1956, when a clutch was found on the small bird island Heuwiese (Dost 1963). Since then, the species has bred regularly, though not in all years, with 1-3 bp on small islands around Rügen (mainly Heuwiese and Beuchel). There was no breeding record from 2005-2009, but in 2010 one pair bred successfully on the island Beuchel.

In **Denmark**, breeding of the Caspian Tern is exceptional. There was one breeding record on Saltholm in 2009 – the first record after 1944 (Nyegaard & Willemoes 2010). In 2010, 2 breeding pairs have been recorded on Saltholm and Øksneholm in the Roskilde Fjord (Eskildsen & Vikstrøm 2011).

Table 25: Population numbers of the Caspian Tern in the Baltic Sea area.

Country	**Breeding pairs**		**Short-term population trend (10 years)**	**Long-term population trend (50 years)**
	Population number	**year**		
Sweden	532	2010	f	-
Finland	880	2010	0	+
Russia PET	0-20	2010	f	?
Estonia	150-250	2008	-	0
Latvia	Exceptional	1976		
Poland	Exceptional	1969		
Germany MV	1-3	Since 1956		
Denmark	Sporadic, 1-2	1944; 2009/10		
Baltic Sea	**1,600-1,700**			

Ecology and Habitat: The cosmopolitan Caspian Tern inhabits a wide range of aquatic habitats. Within the Baltic range, it breeds in the outer archipelago and has recently colonized a few inland lakes in small numbers (Lake Ladoga in Russia, Vänern in Sweden[12], Vanaja in Finland). Foraging flights venture inland up to 30-100 km distances from the coast (Soikkeli 1973). The Baltic population is a distinct unit, with no apparent interchange with its nearest neighbouring population in the Black Sea despite these two populations sharing the same wintering areas in the inundation zone of the river Niger in Mali (Staav 1979). Within the Baltic archipelago, it is highly maritime occurring colonially on exposed outer skerries or solitarily on small rocks, always together with other larids (Numers 1995).

Picture 55. Example habitat. Bird skerries on the northern coast of the Baltic Sea lie in the outer zone, have only little vegetation and missing reed beds. Despite this, the bird life is ample with Terneries and Gulleries all over.

About 90% of the population breeds in colonies (of up to 300 pairs), the remainders being solitary. Small groups of less than 10 pairs always result from splitting of larger colonies, and such groups seldom breed in two consecutive seasons before merging again (Bergman 1980).

Description of major threats: Predation on Caspian Tern eggs and chicks by herring Gulls and White-tailed Eagles have recently devastated colonies in Sweden, and red Foxes have caused colony shifts in Estonia. Egg collection by local people still occurs in Estonia and in Russia (BirdLife Finland 2007). Mortality of first-winter birds in the Sahel zone has increased during the post-1960s draught years, as revealed by Finnish ring recoveries (Hario *et al.* 1987, Zwarts *et al*. 2009). This is the most obvious single reason for the long-term decline of the Baltic population although there are also indications of elevated adult mortality in recent years. This, together with breeding failures due to predation, leads to a currently critical situation of the Caspian Tern in the Baltic Sea area.

Assessment justification: The Baltic breeding population counted about 2.500 bp at the beginning of the 1970s, but declined to 1900 bp in 1984, and 1.600-1.700 currently. Considering the population size, the period of 3 generation lengths (*i.e.* 30 years) and the observed continued decline the species classifies as *Vulnerable* (VU) according to criterion C1.

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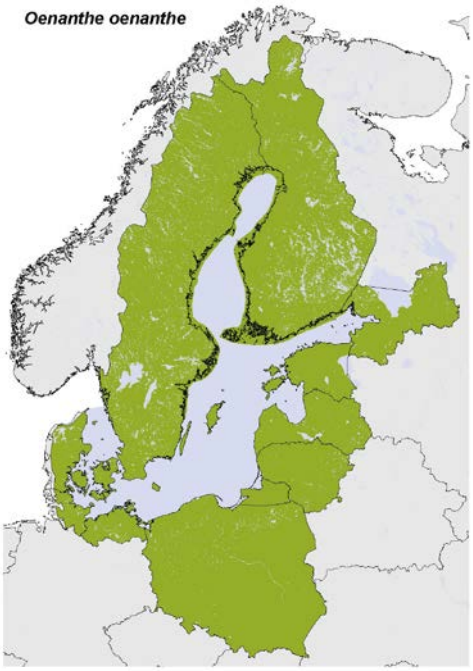
English name	Scientific name
Northern Wheatear	***Oenanthe oenanthe***
Taxonomical group Aves / Passeriformes / Muscicapidae	Species authority Linnaeus, 1758
Description of major threats: Am, ERT, Cc	Threats in the future: Am, ERT, Cc
IUCN Criteria: A2abc	**Assessment justification:** **NT**
European IUCN Red List Category -	Annex I EU Bird Directive no
Generation length <3.3 years	Annex II EU Bird Directive no

Range description and general trends: The Northern Wheatear is a widespread breeding bird in most of Europe. Its European population is large (>4.6 Mio bp), and was stable between 1979 and 1990. During the period 1990-2000 the European population suffered declines in many parts of its range, including in some of its key areas (Turkey, Sweden, and Finland).

Picture 56.

Distribution and status in the Baltic Sea region: The very large Swedish and Finnish populations have recently suffered considerable declines. The **Swedish** population is estimated at 180.000-410.000 bp, of which *c.* 70% live in the mountain area. Ottvall *et al.* (2009) estimate the decline to 10-19% for the recent 10 year period; the long-term trend is also given as declining. However, in the mountain area the population is not declining, at least not much.

In **Finland**, the decline is estimated at 40% during the period 1990-2000 (BirdLife International 2004), but is currently (2000-2010) up to 58%. The species is assessed as *Vulnerable* (VU) in Finland. The overall distribution in Finland has been diminishing by 29% during the last 10 years (no. of Atlas grids). According to line transect data; there has been a steady population decline of 2.0% p.a. since 1975. The decline only concerns the inland population, whereas the coastal and the northern mountain populations have not changed much.



Map 21.

The population in the eastern Baltic countries (**Lithuania, Latvia, Estonia, Baltic Russia**) is large and about stable in the short-term and probably also in the long-term run.

In **Poland**, the Northern Wheatear is a widespread breeding bird. Locally, especially in the mountains, peripheries of towns and forest clearings, it may reach higher densities. (Tomiałojć & Stawarczyk 2003). According to results of the national bird monitoring, the population seems to be stable (http://monitoringptakow.gios.gov.pl/app/trendy).

In the western Baltic (**Denmark, German Federal states Schleswig-Holstein** and **Mecklenburg-Western Pomerania**) the Northern Wheatear is a local, not numerous breeder; it has suffered long-term declines in all parts of this region.

Table 26: Population numbers of the Northern Wheatear in the Baltic Sea area.

Country	Breeding pairs		Short-term population trend (10 years)	Long-term population trend (50 years)
	Population number	Year		
Sweden	180,000-410,000	2010	-	-
Finland	50,000-100,000	2009	-	-
Russia, PET	common	2010	0	0
Russia, KAL	?? (population size rather small)	2010	0	f
Estonia	20,000-30,000	2003-2008	0	0
Latvia	10,000-30,000	1990-2000	0	0
Lithuania	5,000-10,000	1999-2001	?	+
Poland	20,000-50,000	2000-2002	0	?
Germany - SH	50	2005-2009	-	-
Germany - MV	900-1,000	1994-1998	-	-
Denmark	1,000-2,000	2000	-	-
Baltic Sea	**287,000-633,000**			

Ecology and Habitat: Within its Baltic range, the Northern Wheatear occupies all kinds of open-ground habitats from coastal islands and arable land to boulder fields in the fell area. It is also common in most man-made habitats in industry, agriculture and forestry. Across the archipelago zonation of the Baltic Sea, the Wheatear is more maritime than the Wagtail (Numers 1995), being less numerous in the inner archipelago zone. Compared to Wagtail and Rock Pipit – the other two maritime passerines – the Wheatear breeds singularly; it is a strict cavity-nester. Nests are well hidden under stones and boulders or in crevices in cliffs, but also rabbit burrows. The shelter from sun and rain apparently enables nestlings to maintain stable body temperature, this possibly being one reason for the species' wide range of extreme habitats (Verbeek 1988).

Description of major threats: Since the decline refers mainly to the inland, but not to the coastal and mountainous areas, changes in farming and forestry practices are likely to play a role. These environments have faced drastic intensification of land use leading to less stony pasturage, less open logging areas, and less mosaic-like landscape pattern. Wheatears are probably producing less well in suboptimal habitats, although there are no proper population studies done in these environments. The species is a long-distance migrant, wintering in sub-Saharan Africa and possibly suffering from the frequent draughts in that area during the post-1960 era. It is difficult to see how the carry-over effects from Africa would affect only the inland population unless there is a difference also in the reproduction rate among habitats.

Assessment justification: In its main Baltic breeding area, during the last 10 years the Northern Wheatear has declined by *c.* 10% (Sweden) and 58% (Finland), respectively. It is also declining in the western Baltic. However, the species is breeding in this region only in low numbers. The eastern Baltic countries (Lithuania, Latvia, Estonia, Baltic Russia) host strong and stable populations.

The overall trend in the Baltic Sea area is, due to the trend in Sweden and Finland, declining, but the decline obviously did not exceed 30% during the last 10 years. The species hence classifies as *Near Threatened* (NT) according to criterion A2abc.

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