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Data sheet

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Abstract: The report presents a preliminary assessment of the conservation status for birds on the EU Birds Directive, which has as its objective the protection of wild birds and their habitats. The assessment is made for each of the 42 bird species that are listed in Annex-1 of the EU Birds Directive and breed more or less regularly in Denmark. The assessment is also made for each of the 37 bird species and subspecies that either are wintering or are staging on a regularly basis in Denmark in numbers that are of international importance.

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NERI Technical Reports

1 Introduction

1.1 Background

In 1979 the European Council adopted the *Council Directive 79/402/EEC of 2. April 1979 on the conservation of wild birds*, known as the Birds Directive. The purpose of the directive was, and is still, to enhance the protection of wild birds within the boundaries of the EU, such as through the protection of birds' habitats. To implement the directive, Denmark, in 1983, designated 111 Special Protection Areas (SPAs) for the bird species listed in Annex I of the directive, or those regularly occurring as migratory species.[1]

Denmark later implemented a regulation, *Bekendtgørelse om afgrænsning og administration af internationale naturbeskyttelsesområder* (nr. 782 of 1st November 1998). This regulation was a commitment to develop conservation objectives for bird species, and conservation areas designated in accordance with the EC Habitats Directive and the EC Birds Directive, as the national contribution to the so-called Natura 2000 network. In § 1 of the regulation it is stated: *"The conservation objective for the international conservation areas is to secure and maintain favourable conservation status for the species and the natural habitat types the area has been designated for"*. The definition of favourable conservation status for species and natural habitat types is stated in the Habitats Directive as:

"The conservation status will be taken as 'favourable' when:

"population dynamic data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats (1), and"

"the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future (2), and"

"there is, and will probably continue to be, a sufficient large habitat to maintain its populations on a long-term basis (3)"

1.2 Purpose

The purpose of this report is to present a preliminary assessment of the national conservation status for each of the bird species, based on background data and the information available. The report covers those bird species that either are listed on the Birds Directives Annex I and regularly breed in Denmark, or, as "regularly occurring migratory" birds, are mentioned in site descriptions that are the basis for designation of the 111 Danish SPAs. This report is to provide the ba-

[1] The original basis for designation of SPAs was updated in spring 2005 by the National Forest and Nature Agency and can be found on: http://www2.skovognatur.dk/natura2000/fuglebeskyttelse/oplysninger/opdatering_udpegningsgrundlag

sis for the development of conservation objectives for birds, which will be undertaken by the National Forest and Nature Agency. The National Environmental Research Institute (NERI) will develop a monitoring programme for the continued assessment of the conservation status of the bird species in question. The monitoring of birds forms part of NOVANA, a national nature and environment monitoring programme that will be launched in 2004.

1.3 Acknowledgement

A sincere thank you goes to Bjarke Huus Jensen from Nordjyllands County and John Frikke from Ribe County for critical review of an earlier manuscript, and to employees at NERI and other biologists, who have reviewed certain parts of the manuscript as part of the quality assurance: Ole Amstrup, Mogens Bak, Thomas Kjær Christensen, Mark Desholm, Tony Fox, Geoff Groom, Hans Erik Jørgensen, Hans Meltofte, Henrik Haaning Nielsen, Ib Kragh Petersen, Lars Maltha Rasmussen, Palle Rasmussen and Ole Thorup.

2 Summary

2.1 Background and objective

As part of the implementation of the EU Birds Directive of 1979, Denmark, in 1983, designated 111 Special Protection Areas (SPAs) to protect wild birds and their habitats. Together with Special Areas of Conservation (SACs) designated under the EU Habitats Directive, and protected areas designated under the Ramsar Convention, the SPAs contribute to the NATURA 2000 network of protected areas in Denmark.

The EU member states are obliged to report their national conservation status of species and habitats within the NATURA 2000 network to the Commission. To comply with these requirements, the National Forest and Nature Agency, the Danish county authorities, and the National Environmental Research Institute have initiated a co-operative programme to gather and compile the necessary data to assess the national conservation status of the species and habitats concerned. The assessment of the conservation status for species and habitats under the EU Habitats Directive is presented in Pihl et al. (2000).

The purpose of this report is to present a preliminary assessment of the conservation status within Denmark of each of the species listed on Annex 1 of the Birds Directive that breed in Denmark, and each of the species that, as regularly occurring migratory birds, are mentioned in site descriptions that are the basis for the designation of the 111 Danish SPAs. Assessments are based on the currently available information about each bird species' abundance and distribution.

This report covers 42 species of birds that are on the Annex I of the Birds Directive, and regularly or almost regularly breed in Denmark. "Regularly breeding" is defined as breeding every year for at least ten years. Among these 42 species are some of the species proposed for Annex I by the new member states of the EU. The report also covers 37 regularly occurring migratory bird species or populations, which are regularly recorded in internationally important numbers in Denmark on migration or wintering. "Internationally important numbers" are defined as concentrations of birds meeting the criteria for internationally important sites as given by the Ramsar Convention.

2.2 Conservation status for birds

The conservation status of a species is defined in the Habitats Directive as the result of all the conditions that influence the species, and which in the long term are significant to the abundance and distribution of the species. The conservation status of a species is considered favourable if data relating to the population show that it is likely to survive in the long term, its abundance and distribution are stable or

increasing, and the habitats used by the species are considered to be sufficient to ensure the long term survival of the species.

However, there are various circumstances that can lead to a favourable assessment of conservation status in a regularly occurring migrating species even though the abundance in Denmark is declining, or the distribution in Denmark is contracting. Natural changes take place and some species (e.g. Scaup and Goosander) with currently stable or increasing international populations, now occur in Denmark with lower abundances than during 1979-1983, when the Birds Directive was implemented in Denmark. In such cases, it is most likely that decreases in abundances in Denmark are the result of increased feeding opportunities elsewhere, and not to deteriorating feeding conditions within Denmark. Hence, such species are considered to be of favourable conservation status.

There is a long tradition of monitoring birds in Denmark. Waterbirds have been surveyed regularly since the mid-1960s by governmental agencies, and the Danish Ornithological Society (DOF) has monitored the distributions of the Danish breeding birds by Atlas projects twice in the recent past. For the last five years, DOF has also monitored the abundance and distribution of each of the Danish rare breeding bird species. On this basis, the monitoring data for assessment of the national conservation status of the bird species covered by the Birds Directive are considered sufficient.

The conservation status of each population has been assessed in terms of the following categories: favourable, unfavourable, uncertain and disappeared. The category unfavourable is further divided in unfavourable-increasing, unfavourable-stable and unfavourable-decreasing.

2.3 Conservation status of breeding birds

The results of the preliminary assessment of the national conservation status of breeding birds are:

Favourable conservation status: 17 species.

Unfavourable conservation status: 14 species. The species of unfavourable conservation status are, in general, species of open habitats such as heathland, moor, meadows and salt-marshes:

- unfavourable-increasing: 1 species: Corncrake
- unfavourable-stable: 2 species: Montagu's Harrier and Wood Sandpiper
- unfavourable-decreasing: 11 species: White Stork, Spotted Crake, Golden Plover, Dunlin, Ruff, Gull-billed Tern, Sandwich Tern, Little Tern, Black Tern, Short-eared Owl, Tawny Pipit.

Uncertain conservation status: 9 species. This group included species that are either colonising or re-colonising Denmark as a breeding area: Black Stork, Spoonbill, Hen Harrier, Golden Eagle, Osprey, Peregrine Falcon, Kentish Plover, Mediterranean Gull, Tengmalm's Owl.

Disappeared: 2 species seem to have disappeared from Denmark since 1983: Black Grouse, Barred Warbler.

2.4 Conservation status for regularly occurring migratory birds

The results of the preliminary assessment of the national conservation status of regularly occurring migratory birds are:

Favourable conservation status: 32 species/subspecies and 1 population[2]. The Bean Goose population wintering in southeast Denmark is considered of favourable conservation status and is probably discrete from the birds wintering in north-west Denmark.

Unfavourable conservation status: 1 species and 1 subspecies:

- unfavourable-increasing: Light-bellied Brent Goose
- unfavourable-decreasing: Eider .

Uncertain conservation status: 1 species and 1 population. Velvet Scoter is considered of uncertain status. The Bean Goose population wintering in north-west Denmark, which is probably discrete from other Bean Goose populations, is currently of unknown status.

[2] This population together with the population mentioned in the Uncertain category constitute one species.

3 Sammenfatning

3.1 Baggrund og formål

I henhold til EF-fuglebeskyttelsesdirektivet udpegede Danmark i 1983 111 fuglebeskyttelsesområder til beskyttelse af de vilde fugle og deres levesteder. De 111 fuglebeskyttelsesområder udgør sammen med områder udpeget efter EF-habitatdirektivet og vådområder udpeget i henhold til Ramsar-konventionen et samlet netværk af beskyttede naturområder i Danmark, det såkaldte NATURA 2000 netværk.

Medlemsstaterne i EU er forpligtet til at indrapportere bevaringsstatus for NATURA 2000 netværkets arter og naturtyper til Fællesskabet. Skov- og Naturstyrelsen, amterne og Danmarks Miljøundersøgelser har på denne baggrund indledt et samarbejde for at tilvejebringe og sammenstille de nødvendige data til en vurdering af bevaringsstatus for de pågældende naturtyper og arter. Bevaringsstatus for arter og naturtyper omfattet af Habitatdirektivet er tidligere præsenteret i Pihl m.fl. (2000).

Formålet med denne rapport er at præsentere bevaringsstatus i Danmark for fugle omfattet af Fuglebeskyttelsesdirektivet baseret på det foreliggende datagrundlag og eksisterende viden.

Rapporten behandler i alt 42 fuglearter på Fuglebeskyttelsesdirektivets Bilag I som mere eller mindre regelmæssigt yngler i Danmark og 37 arter og underarter af regelmæssigt tilbagevendende trækfugle, som raster eller overvintrer i internationalt betydningsfulde antal. Rapporten omhandler arter beskyttet af Fuglebeskyttelsesdirektivet, som generelt er ualmindelige ynglefugle og talrigt forekommende vandfugle, som opholder sig i Danmark uden for yngletiden, men den behandler ikke de almindeligt forekommende fugle. Rapporten præsenterer således en status i forhold til Fuglebeskyttelsesdirektivet og ikke en vurdering af status for den danske fuglefauna.

3.2 Bevaringsstatus for fuglearter

En arts bevaringsstatus er defineret i Habitatdirektivet som resultatet af alle de forhold, der indvirker på arten, og som på langt sigt kan få indflydelse på artens udbredelse og talrighed. Bevaringsstatus vurderes som gunstig, hvis data vedrørende bestandsudvikling viser, at arten på langt sigt vil kunne overleve, udbredelsesområdet er stabilt eller stigende og der er et tilstrækkeligt antal levesteder til at arten kan overleve på langt sigt.

Naturen er imidlertid dynamisk, og i enkelte tilfælde er bevaringsstatus for en regelmæssigt tilbagevendende trækfugleart vurderet gunstig på trods af tilbagegang i antal og/eller udbredelse. Hvis den samlede bestand er stabil eller stigende og det er sandsynligt at ændringer i forekomst skyldes forøgede fødemuligheder i områder

uden for Danmark snarere end forringede fødemuligheder i Danmark vil vurderingen af bevaringsstatus kunne blive gunstig.

Der er en lang tradition for at overvåge fugle i Danmark i såvel statsligt som privat regi. DMU og tidligere institutioner har således overvåget vandfugle siden midten af 1960erne og Dansk Ornitologisk Forening har gennemført to såkaldte Atlas-undersøgelser af de danske ynglefugles udbredelse og overvåger løbende de sjældne danske ynglefugles antal. Det vurderes derfor, at datagrundlaget har været tilstrækkeligt til at vurdere bevaringsstatus for samtlige fuglearter omfattet af Fuglebeskyttelsesdirektivet.

På dette grundlag er fuglearternes bevaringsstatus vurderet i kategorierne: Gunstig, ugunstig, usikker og forsvundet. Ugunstig er underinddelt i kategorierne: Ugunstig-stigende, ugunstig-stabil og ugunstig-faldende.

3.3 Bevaringsstatus for ynglefugle

Gunstig bevaringsstatus: 17 arter

Ugunstig bevaringsstatus: 14 arter fordelt med ugunstig-stigende for 1 art: Engsnarre, ugunstig-stabil for 2 arter: Hedehøg og tinksmed og ugunstig-faldende for 11 arter: Hvid stork, plettet rørvagtel, hjejle, sydlig almindelig ryle, brushane, sandterne, dværgterne, sortterne, mosehornugle og markpiber. Disse arter er overvejende ynglefugle som er knyttet til heder, hedemoser, moser, klitter samt enge og strandenge.

Usikker bevaringsstatus: 9 arter, som overvejende omfatter fuglearter under indvandring eller genindvandring: Sort stork, skestork, blå kærhøg, kongeørn, fiskeørn, vandrefalk, hvidbrystet præstekrave, sorthovedet måge og perleugle.

Forsvundet: 2 arter. Urfugl og høgesanger synes at være forsvundet som ynglefugle i Danmark.

3.4 Bevaringsstatus for regelmæssigt tilbagevendende trækfugle

Gunstig: 33 arter og underarter samt 1 bestand[3]. Den omtalte bestand er sædgæs i Sydøstdanmark, hvis bevaringsstatus vurderes som gunstig, og som synes at være isoleret fra bestanden i Nordvestdanmark.

Ugunstig: 2 arter og underarter fordelt med ugunstig-stigende for lysbuget knortegås og ugunstig-faldende for ederfugl.

Usikker: 1 art og 1 bestand. Fløjlsand vurderes som usikker. Bestanden omfatter den del af sædgæssene, som opholder sig i Nordvestjylland uden for yngletiden. Bestanden vurderes som usikker, til bestandsforholdene er afklarede.

[3] Bestanden udgør sammen med bestanden nævnt i kategorien Usikker én art

4 Material and Method

4.1 Data for evaluation of preliminary conservation status

The present monitoring data gathered for birds covered by the Birds Directive is generated by NERI, in co-operation with the Danish counties and the National Forest and Nature Agency. Data for breeding birds are derived mainly from the results of the ornithological Atlas projects carried out by the Danish Ornithological Society (DOF) (Grell 1998), and DOF's monitoring of rare breeding birds (Grell 1999, 2000, 2001, 2002). Data about regularly occurring migratory species are derived from NERI's monitoring of waterbirds (e.g. Pihl et al. 2001).

4.2 Criteria for favourable conservation status

From the outset, it is necessary to state that many of the following preliminary assessments of the national conservation status of Danish breeding and migratory birds presented in this report are largely best estimates.

The conservation status for breeding birds is assessed in terms of the following categories, based on the following criteria:

favourable for a species with stable or increasing numbers and distribution in Denmark over the last 20 years, for which the population is estimated to have a size that suggests that the species will be able to maintain itself in Denmark on a long-term basis. In a few cases the conservation status for a migratory species is assessed as favourable even though the population is in decline in Denmark. This can happen if the flyway population of the species is increasing, and it is considered, that enhanced feeding opportunities outside Denmark are the cause of the decline in Denmark (e.g. Scaup).

unfavourable for a species with a decreased Danish population size and/or a reduced distribution in Denmark over the last 20 years, or a species with a population that is not sufficiently large to be self-maintaining in Denmark on a long-term basis. This category is subdivided into:

unfavourable-increasing for a species that has experienced an increased abundance and enlarged distribution in Denmark over the last 20 years, but has a current population that is not large enough to be assessed as favourable.

unfavourable-stable for a species with a stable population trend within Denmark, but a current Danish population that is not large enough to be assessed as favourable.

unfavourable-decreasing for a species that might be either common or scarce within Denmark, but for which it is clear that the number of birds within Denmark is declining.

uncertain for a species that is colonising or re-colonising Denmark and for which, for that reason, the conservation status cannot yet be assessed. (In general a species must have been breeding in Denmark regularly over a 12- year period before the conservation status can be assessed.) The category *uncertain* is also used for species for which the distribution in Denmark is poorly known, and for species showing large regional differences within Denmark that make the overall assessment of the conservation status unclear.

disappeared for a species that no longer occurs in Denmark but which occurred regularly around 1980, when the Birds Directive was implemented.

The national conservation status for migratory birds cannot be assessed in the same way as for breeding birds. A single country is usually only a small part of the flyway. Thus, it is necessary to include an assessment of the conservation status of the population throughout the rest of the flyway as part of an assessment of the national conservation status. One example is Scaup *Aythya marila*. The winter abundance of Scaup in Denmark has decreased during the period after 1970, but at the same time the European population has increased. Evidence suggests that the decline in Danish numbers is more a result of increased feeding opportunities in the Netherlands (Laursen et al. 1997, van Eerden & Zijlstra 1986) than of decreased feeding conditions on the Danish wintering grounds. Theoretically, is it possible that feeding condition in the Netherlands could deteriorate in the future and the birds could then again winter in Denmark in larger numbers. Such an increase in Denmark would obviously not reflect an increase in conservation status for Scaup in the flyway. As further examples, some species, e.g. Goldeneye *Bucephala clangula* and Goosander *Mergus merganser*, winter in increasing numbers in the inner parts of the Baltic Sea. However, in severe winters they are forced southwest by extensive ice-cover, and occur in Denmark in higher numbers than in mild winters (Laursen et al. 1997). A result of the run of mild winters over the last 15 years has been that a larger proportion of the species that show such a wintering strategy has been able to winter in the inner Baltic Sea. For Goosander, wintering numbers have been decreasing in the Danish waters in spite of increasing numbers in the Northwest European flyway population as a whole. In the light of this, it is reasonable to assess the conservation status for Goosander in Denmark as favourable. For the same reason, it is impossible to set, with respect to that assessment, a threshold for the number of Goosander that must winter in Denmark.

Indeed, there is only rarely sufficient scientific evidence available to determine the necessary extent of a distribution, in order for a population to be assessed as having a favourable conservation status. Hence, only rarely, is there a scientific basis with which to establish the threshold between favourable and unfavourable conservation status. The target for attaining favourable conservation status for most of the species assessed in this report has been that they achieve

similar levels of abundance as was the case during 1979-1983, when the Birds Directive was implemented in Denmark and the 111 Danish SPAs were designated. For both breeding and migratory bird species, it must be remembered that a population decline might have been caused by conditions outside the Danish territories, i.e. developments over which Denmark has had no influence.

Often, a species will increase its abundance and/or distribution in some parts of the country and decrease them in others, or show large inter-annual fluctuations in its abundance and/or distribution. The Habitats Directive criteria regarding stability or increase are inflexible, but in assessing conservation status for birds in Denmark, increases have simply been set against decreases.

4.3 Species

This report covers Danish breeding birds, as well as migratory birds. The breeding species that are covered include all those on the Birds Directives Annex I that regularly or almost regularly breed in Denmark. The group of regularly occurring migratory birds includes all species for which at least one Danish SPA has supported at least 1% of the flyway population on a regular basis. In addition to the species that are included in the original justifications for designation of the SPAs, Red-necked Grebe *Podiceps grisegena*, on the basis of more recent data, has been included.

The report provides preliminary assessments of the conservation status for 75 bird species, including two subspecies. The conservation status has been preliminarily assessed for both the subspecies Dark-bellied Brent Goose *Branta bernicla bernicla*, and the subspecies Light-bellied Brent Goose *Branta b. hrota*. Barnacle Goose *Branta leucopsis*, Avocet *Recurvirostra avosetta*, Golden Plover *Pluvialis apricaria*, and Dunlin *Calidris alpina* are assessed both as breeding and as migratory birds.

According to the original justifications for their designation, the 111 SPAs were designated in order to secure 16 species of breeding birds that are on the Birds Directive's Annex I, and 37 species of regularly occurring migratory birds. Previously, Cormorant *Phalacrocorax carbo* was also included on Annex I and in the original justifications for designation, but the species was removed from Annex 1 of the Birds Directives in 1997.

The Danish bird fauna has changed considerably since the initial implementation of the Birds Directive in 1983. Several species on the Birds Directives Annex I are colonising or re-colonising Denmark as breeding species. Furthermore, not all of the bird species on Annex I that were breeding in Denmark when the Birds Directive was implemented were included in the original justifications for designation. This was the case for 24 species that have been breeding in Denmark regularly or almost regularly. Finally, the Birds Directive's Annex I has changed following the entry of new member states into the EU. Thus, Kentish Plover *Charadrius alexandrinus*, Little Gull *Larus minutus*, and the Baltic subspecies of Dunlin *Calidris alpina schinzii* have

recently been added to Annex I. Preliminary conservation status of Kentish Plover and Baltic Dunlin are presented in this report. The Annex 1 species Little Gull, and likewise Slavonian Grebe *Podiceps auritus* and Whooper Swan *Cygnus cygnus*, breed in Denmark too sporadically for consideration in this report as breeding birds.

Among the 16 breeding birds species in the original justifications for designation of the SPAs, Avocet and Gull-billed Tern *Gelochelidon nilotica* were designated as species of national responsibility[4] on the Danish Amber List from 1997 (Stoltze 1998). Baltic Dunlin is likewise a species of national responsibility. Cormorant comes under the same category, but is monitored in Denmark through a different scheme.

Overall, the preliminary conservation status has been assessed for 42 species of Danish breeding birds.

Of the 37 species and subspecies of regularly occurring migratory birds covered by this report, the inclusion of 36 is based on their mention in connection with at least one SPA within the original (1983) justifications for designation of the SPAs. Whimbrel *Numenius phaeopus* is among the original justifications for designation of one SPA, but this seems to be based on a mis-identification, and consequently its conservation status is not assessed. Twenty of the 36 species are also designated as species of national responsibility on the Amber List from 1997 (Stoltze 1998). Preliminary conservation status is assessed for one further species of national responsibility according to the Amber List (Stoltze 1998), namely Red-necked Grebe. Red-throated Diver *Gavia stellata*, , Razorbill *Alca torda*, Little Auk *Alle alle*, and Mallard *Anas platyrhynchos*, which are all species of national responsibility on the Amber List from 1997, are not treated here. The three former species all occur in offshore areas, often far outside the 12 nautical mile limit to national waters. Conservation status for these three species will be assessed when full guidelines for designation of offshore SPAs have been identified and developed. The Amber List species Mallard is numerous and widespread, and is released in vast numbers for hunting purposes, thus it remains difficult to assess its true conservation status.

Overall, the preliminary conservation status has been assessed for 37 species and subspecies of Danish regularly occurring migratory birds.

4.3.1 Outline of the species

The species texts are divided into the following three sections:

A table showing:

- the status of the species on the Birds Directive's Annex I,
- the status of the species as a species of national responsibility according to the 1997 Danish Amber List (Stoltze 1998); the abbreviations AY and AT translate to breeding birds and migratory birds respectively,

[4] If at least 20% of a population of a species reproduces or stages at any time of the year in the Danish territory, the species is categorised as a species of national responsibility. Species of national responsibility are found on the Danish Amber List (Stoltze 1998).

- the status of the species according to the 1997 Danish Red List (Stoltze & Pihl 1998),
- the flyway population size estimate for 1997,
- the 1% criterion for identification of internationally important areas for migratory birds in 1983 and
- the 1% criterion for identification of internationally important areas for migratory birds in 2002
- the preliminary assessment of the national conservation status.

The section *Biology*:
- summarising the population, breeding, and feeding conditions for the species,
- summarising the size and distribution of the flyway population to which the Danish birds belong, and
- noting the 1% criterion for identification of internationally important sites for regular migratory bird species, if such a criterion exists.

The section *National conservation status* summarising:
- the importance of Denmark for the species according to the 1997 Danish Amber List (Stoltze 1998), which lists species of national responsibility, for which Denmark has an obligation for the survival of the species, and/or
- the importance of Denmark for the species according to the 1997 Danish Red List (Stoltze & Pihl 1998), which assesses the risk of disappearance from Denmark
- On the basis of available information about the species the national conservation status is preliminarily assessed.

4.4 Natural factors affecting the species

Birds are dependent on a reliable and steady supply of food. This means that the abundance and distribution of any given species is driven by the factors that determine the abundance and productivity of the plants and/or animals upon which the species is dependent for food. However, birds are also affected by the occurrence of natural predators. Even the largest birds of prey, as newly hatched chicks in the nest, are vulnerable to predation. Changes in the abundance or availability of food resources, or the pressure from predators might therefore lead to changing conservation status for a given species.

The majority of the birds species in the north-western part of Europe, which includes Denmark, are migratory, and therefore population changes might be the result of factors affecting the species outside Denmark. For example change might be the result of factors operating within the breeding areas in Siberia, elsewhere along the migration routes, or within the wintering areas in Africa. It is well-known that the breeding success for a number of shorebirds that breed in Siberia is related to the occurrence of lemmings and polar foxes on the breeding grounds (Madsen et al. 1999). If there are many lemmings the foxes feed on these, but if there are few lemmings the foxes predate eggs and chicks of waterbirds to a much higher extent.

Denmark is geographically situated very close to the 0° Celsius January isotherm. This means that the winter climates in areas north and east of Denmark are dominated by frost and snow whereas areas west and south of the country have milder winter climates. The frequency of cold winters varies between decades. In the 1980s there were four severe winters compared with just one in the 1990s. Indeed, several of the winters in the latter decade have been unusually mild. As a consequence, several of the bird species that winter along the edge of the fast ice zone in the Baltic Sea have through the 1990s increasingly wintered further east, resulting in lower numbers in Denmark. Hence, an apparent decrease in abundance in Denmark does not necessarily reflect a general decrease in the population. The severity of the winters also affects survival of the birds. In the severe winter of 1995/96, more geese died than in the more "normal" or mild winters before and after; the survival rate of adult Light-bellied Brent Geese decreased from 97% to 91%. Severe winters, as were frequent in the 1940s and the 1980s, will most likely have a substantial effect on overall long-term population trajectories of a number of bird species.

Unfavourable weather conditions might also affect breeding birds. Cold, windy and rainy periods during the breeding season may result in increased chick mortality for some species, but will rarely have any long-term effects.

Disease might occasionally have a measurable effect on a population, as for example among Eider *Somateria mollissima*, which, in 1996, were hit by Pasteurellosis in several Danish breeding colonies. Up to 85% of the breeding females died in some colonies (Christensen 1996). This has probably been one of the factors that have contributed to the decline in Eider in north-west Europe that has been observed during the 1990s.

5 Discussion and conclusion

5.1 Breeding birds

Of the 42 species of birds on the Birds Directive Annex I that regularly or almost regularly breed in Denmark, the national conservation status have been preliminarily assessed as favourable for 17 species, unfavourable for 14, uncertain for nine and disappeared for two.

Among the 14 species that have been assessed as unfavourable, one has been assessed as unfavourable-increasing, two as unfavourable-stable, and 11 as unfavourable-decreasing. Among these 14 species, it appears that it is only Corncrake *Crex crex* that is increasing. This species is, apparently, returning as a regular Danish breeding bird. All the species with an unfavourable conservation status, breed in open habitats. Breeding birds that are particularly associated with heathland, moorland and sand dune habitats appear to be experiencing difficulties, in Denmark, at the present time. Thus, Black Grouse *Tetrao tetrix* is assessed as disappeared, and the conservation status for Montague's Harrier *Circus pygargus*, Golden Plover, Wood Sandpiper *Tringa glareola*, Gull-billed Tern, Short-eared Owl *Asio flammeus*, and Tawny Pipit *Anthus campestris* is assessed as unfavourable. Of the other species that are assessed as having unfavourable conservation status, five species (White Stork *Ciconia ciconia*, Spotted Crake *Porzana porzana*, Baltic Dunlin, Ruff *Philomachus pugnax,* Black Tern *Chlidonias niger),* are associated with breeding habitats that comprise salt-marsh, fresh water meadow and bog. A further two of these species (Sandwich Tern *Sterna sandvicensis*, Little Tern *Sterna albifrons),* breed on isolated islands or undisturbed sand flats.

The group of nine bird species with uncertain conservation status comprise eight species that are experiencing spontaneous colonisation or re-colonisation of Denmark, plus Kentish Plover; the latter species seems dependent on conservation action to be able to maintain the small breeding population in Denmark. Among the nine species with uncertain conservation status are four predator species that, having experienced population increases in northern Europe during the latter part of the twentieth century, have begun breeding in Denmark: Hen harrier *Circus cyaneus,* Golden Eagle *Aquila chrysaetos*, Osprey *Pandion haliaetus,* and Peregrine Falcon *Falco peregrinus.* (A fifth bird of prey, White-tailed Sea-Eagle *Haliaeetus albicilla*, appears to have established a Danish population that is large enough for the conservation status to be assessed as favourable, even though the species has not bred in Denmark during the past 12 years.) Among the other species assessed as having uncertain conservation status, there are two species that appear to be returning as Danish breeding birds after population increases in neighbouring countries to the south, namely, the Netherlands (Spoonbill *Platalea leucorodia*), and Germany/Poland (Black Stork *Ciconia nigra*).

5.2 Migratory birds

Among the 37 species and subspecies of frequently occurring migratory birds, 33 species and one possibly discrete population are assessed as having favourable conservation status, one species and one subspecies are assessed as unfavourable, and one species and one possibly discrete population are assessed as uncertain. The two possibly discrete populations are those of Bean Goose *Anser fabalis*. Until the relationship between the two Bean Goose populations has been clarified, the population in east Denmark is assessed as favourable, whereas the population in north-west Jutland is assessed as uncertain.

The two unfavourable conservation status assessments comprise one species that is assessed as unfavourable-decreasing, and one subspecies that is assessed as unfavourable-increasing. The latter, Light-bellied Brent Goose is, despite its long-term increases, not yet at a level high enough to enable assessment of the population as favourable. The unfavourable-decreasing species is Eider. Eider has been hit by disease in its colonies and other effects, resulting in a rapid population decrease over the last decade.

Uncertain conservation status is, in addition to the possibly discrete Bean Goose population in north-west Jutland, also the assessment for Velvet Scoter *Melanitta fusca*. Whimbrel is not assessed, as the existence of the species in the original justifications for designating SPAs seems to be based on a mis-identification. The distribution of this species is known only to a low degree, as the birds occur in low numbers over several habitat types that are not covered by traditional waterbird census surveys in Denmark.

6 Species account

6.1 Red-necked Grebe *Podiceps grisegena*

Red-necked Grebe	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 1997	Conservation status
Migratory bird	-	AT	-	25,000-100,000 birds (North-west Europe)	-	1,000	Favourable

Biology

Red-necked Grebes breed in nutrient-rich, shallow lakes with well-developed bank vegetation. The species occurs throughout Denmark, but is common only in east Jutland and on the larger islands. The Danish population has been increasing during the period since the implementation of the Birds Directive. The Danish population was estimated at 730-900 pairs in 1978-1981 (Olsen 1992), and had increased to 1,500-2,000 pairs in 1993-1996 (Grell 1998). The Danish waters are also moulting and wintering areas for an unknown but large number of Red-necked Grebes. The distribution and abundance outside of the breeding season are poorly known as this species occurs in offshore areas, and often as individual birds. Immediately after the breeding season, the species assembles in particular marine areas for wing-feather moult. Surveys from aircraft of Omø Stålgrunde and Sejerøbugten in August 1990 recorded many moulting birds in these areas, e.g. 375 Red-necked Grebes on Omø Stålgrunde and 1,160 in Sejerøbugten (Pihl 1995). Ship surveys carried out in the period 1988 to 1993 in the Kattegat between Djursland and Læsø, observed up to an estimated 2,300 Red-necked Grebes (Durinck et al 1994).

The Danish Red-necked Grebes belong to the Northwest European population, which, in 2002, on the basis of surveys from the beginning of the 1990s, was estimated at 15,000 birds (Delany & Scott 2002). The population trend is considered as stable. The Baltic population by itself has been, in 1997, estimated at 13,000 pairs (Hagemeier & Blair 1997). The criterion for identification of internationally important areas for Red-necked Grebe is 1,000 birds (Delany & Scott 2002); there was no such criterion for this species in 1983 (Frednings-styrelsen 1983).

National conservation status

Red-necked Grebe is on the 1997 Danish Amber List classified as a species of national responsibility in Denmark outside the breeding season (Stoltze 1998). The Red-necked Grebe population has been increasing over the last 30 years or more, and thus, the national conservation status for Red-necked Grebe in Denmark is preliminarily assessed as favourable.

6.2 Bittern *Botaurus stellaris*

Bittern	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	Rare	10,000-12,000 pairs (Europe exc. Russia)	-	-	Favourable

Biology

Bitterns breed in large, undisturbed reed beds on the banks of lakes or lagoons and, to a lesser degree, in swamps. The optimal habitat is a reed bed with a cover of shallow water, as a dry reed bed appears to increase the danger of predation. In Vejlerne, each Bittern generally requires a territory that comprises c. 20 ha of reed bed, although where there are more territories, this can also be as little as 7 ha. Bitterns are concentrated in two areas in Denmark, Vejlerne and Maribo lakes, with dispersed occurrence in other parts of Denmark, particularly in some areas along the west coast of Jutland. The total Danish population was, in 1998, estimated at 150-200 pairs (Grell 1998). This species has since the beginning of the 1980s, when there were just 24-40 pairs, undergone a significant population increase, primarily due to water level increases in Vejlerne. During just a few years in the 1980s, the number of pairs in this area increased from 25 to 80. In 2001, there were more than 150 booming males in Vejlerne (DMU data).

Bitterns are to a large extent migratory birds that return to the breeding grounds from late January. They feed primarily on fish and frogs, but might also take salamanders, insects, etc. Occupation of territories and pair formation happens in late winter and incubation is often initiated in the beginning of March.

Bitterns in Denmark belong to the European population. This has never been mapped in detail, but was, in 1997, estimated at 10,000-12,000 pairs outside Russia (Hagemeier & Blair 1997). The trend in the population has been decreasing in west Europe, while, in addition to Denmark, increases have been recorded in Sweden, Finland and Estonia.

National conservation status

Bittern is on the 1997 Danish Red List categorised as rare (Stoltze & Pihl 1998). This species has generally increased in numbers, including in most of the SPAs in Denmark for which it is listed in the justification for the designation, but it might have disappeared from Sønder Ådal and the South Funen Archipelago. The Danish population has been markedly increasing since 1980, and thus, the national conservation status for Bittern in Denmark is preliminarily assessed as favourable.

6.3 Black Stork *Ciconia nigra*

Black Stork	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	Rare	6,000 pairs (Europe exc. Russia)	-	-	Uncertain

Biology

The Black Stork is a shy bird, and despite of its large size is rarely seen during the breeding season. This species has high demands for the breeding grounds, as it needs old, open deciduous forest for nest sites, and streams and shallow wetlands for feeding. Black Stork was widely distributed over most of Denmark in the middle of the nineteenth century, and the number of pairs was estimated at c. 150. Felling of trees and intensified use of woodland and forest, including drainage, decreased the extent of suitable conditions for this species, and around 1900 the number present had fallen to c. 70 pairs. The decline continued, and Black Stork disappeared as a Danish breeding bird in 1953. After a breeding attempt in central Jutland in 1965, and on Als in 1972, the species returned in the beginning of the 1980s. It is estimated that c. 15 Danish breeding incidents of Black Stork might have taken place in the period 1981-1989, and a further three from 1989 to 1995 (Grell 1998). There is no evidence to indicate that the species bred in Denmark in 1998 and 1999 (Grell 1999, 2000), but it is speculated that two pairs bred here in 2000 (Grell 2001). The population of Black Stork in Germany and Poland has been increasing, and it seems likely that surplus birds from these areas have established the small Danish breeding population. It is however doubtful if this small population can be maintained in the long run without immigrations from these southern breeding areas.

Black Storks are migratory birds that winter in Africa. The Danish breeding birds arrive at the end of March and in April. Some birds are also seen on migration in May. The breeding birds leave the country in the middle of August, and Denmark is also visited by Black Storks from neighbouring countries until the end of August. The species feeds on amphibians, fish and insects.

Denmark forms the north-western border of this primarily east European species. The size of the population of Black Stork has never been estimated, but analysis, in 1997, of accessible breeding data resulted in an estimate of c. 6,000 pairs outside Russia (Hagemeier & Blair 1997). The species is increasing in east Europe and is apparently spreading to other places, including Denmark.

National conservation status

Black Stork is on the 1997 Danish Red List categorised as rare (Stoltze & Pihl 1998). The species disappeared from Denmark for a number of years, but seems currently to be re-colonising the country and is breeding here, albeit irregularly. The establishment of the species in Denmark might be dependent upon immigration of birds from other countries and the national conservation status for Black Stork is preliminarily assessed as uncertain.

6.4 White Stork *Ciconia ciconia*

White Stork	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	Critically endangered	105.000-120.000 pairs (Europe)	-	-	Unfavourable-decreasing

Biology

The White Stork is, in contrast to the Black Stork, associated with human habitation. The nests are situated on houses or artificial nest sites in villages or towns; thus, the White Stork has few demands concerning the nest site. It does, however require extensive wetland in proximity to the nest, for foraging. The White Stork was distributed throughout Denmark in the middle of the nineteenth century, but after that time its numbers started to decline. The population has been estimated at 4,000 pairs at the beginning of the twentieth century. The decrease continued despite periodic increases in the 1930s. Drainage of wetlands and modernisation of agriculture, with the use of chemicals, made the Danish farmland less suitable for the White Stork. The last breeding record on the Danish islands was in 1965. During the first Atlas investigation of breeding birds, in the beginning of the 1970s, 38-54 annual breeding pairs were recorded (Dybbro 1976), which had decreased to 6-7 annual breeding pairs during the Atlas investigation of 1993-1996 (Grell 1998). In 1998, 1999 and 2000, the number of breeding pairs was 3, 2 and 3 respectively (Grell 1999, 2000, 2001). 2001 was the first year since recording began with no White Storks breeding in Denmark. A large number of the chicks from nests in Denmark have been ringed and subsequently found as breeding birds in Schleswig-Holstein.

White Stork is a migratory bird that winters in Africa. The Danish breeding birds arrive at the end of March or in April. Some birds are also seen on migration in May. The breeding birds disappear in the middle of August. White Stork feeds on amphibians, fish, mice and large insects.

Denmark forms the north-western border within Europe for this species, which is primarily an eastern European bird but also has a considerable population on the Iberian Peninsula. The European population of White Stork has been, in 1997, estimated at 105,000-120,000 pairs (Hagemeier & Blair 1997). The species is increasing in Europe, although there are regional decreases such as in Denmark. The population of White Stork has been increasing in east Europe and stable in Schleswig-Holstein.

National conservation status

White Stork is on the 1997 Danish Red List categorised a critically endangered (Stoltze & Pihl 1998). The species seems to be undergoing disappearance from Denmark, with decrease during the twentieth century from 4,000 to just 2 breeding pairs. Birds are still seen in the breeding areas and the national conservation status for White Stork is thus preliminarily assessed as unfavourable-decreasing.

6.5 Spoonbill *Platalea leucorodia*

Spoonbill	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	Disappeared	3,000 pairs (Europe)	-	-	Uncertain

Biology

The Spoonbill bred again in Denmark in 1996 after a gap of 26 years. The species breeds in colonies, and the nests are placed on small islands or in large reed beds, where it is not possible for foxes to predate the eggs and chicks. Foraging takes place in shallow waters that are rich with the bird's food items, which it filters from the water using its spoon-shaped bill. The foraging areas can be as far as 25 km from the colony, but with increasing distance the breeding success decreases. Spoonbill is known from only a few sites in Denmark and during the twentieth century, prior to 1996, breeding pairs were recorded in only 1900, 1919, 1928-1929, 1942-1944, 1948-1949 and 1962-1969 (Grell 1998). Since its return in 1996, the species has bred annually and with increasing numbers of chicks as a result. Thus, three pairs were recorded in both 1998 and 1999 and they had 7 and 11-12 chicks respectively (Grell 1999, 2000). In 2000 six pairs had 9-10 chicks (Grell 2001). The Danish birds are believed to be of Dutch origin and the 1996 reappearance in Denmark coincides with notable emigration from one Dutch breeding colony, due to a decrease in the water level there (Grell 1998).

Spoonbills are migratory birds that winter in West Africa, particularly in Senegal. The Danish breeding birds return in April and aggregate in Vejlerne; during the last few years return has begun in mid-March. They leave the country again by the end of August. The species feeds on small fish, tadpoles and water insects.

Denmark is situated at the north-western margin for this species, which has a dispersed distribution within Europe. The European population of Spoonbill has been estimated in 1997 at c. 3,000 pairs (Hagemeier & Blair 1997). The species has in spite of local increases in countries such as the Netherlands been decreasing during most of the twentieth century.

National conservation status

Spoonbill is on the 1997 Danish Red List categorised as disappeared (Stoltze & Pihl 1998). It has, since 1996, re-colonised Denmark, breeding annually. It is premature however, to claim that a stable Danish breeding population exists, and the national conservation status for Spoonbill is preliminarily assessed as uncertain.

6.6 Mute Swan *Cygnus olor*

Mute swan	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in1983	1% criterion for migratory birds in2002	Conservation status
Migratory bird	-	AT	-	250,000 birds (Northwest- and Central Europe)	1,200	2,500	Favourable

Biology

Mute Swans are present in Denmark all year round. They include the Danish breeding birds, but also include birds from the Baltic countries, primarily Poland, the eastern parts of Germany and Sweden. The Danish population has been stable over the last 20 to 30 years, and has been estimated at 5,000 pairs (Grell 1998).

By the end of June, large numbers of Mute Swan aggregate in shallow, undisturbed waters in south-east Denmark to moult their flight feathers. Mute Swan is robust to disturbance except in the moulting period, when flocks of birds in moult will flee to a considerable distance from any boats, windsurfers, etc. that approach the flocks. The number of moulting Mute Swans has been estimated at 28,400 birds around 1970, and at 34,300-59,200 birds by the end of 1980s (Laursen *et al*. 1997).

The highest numbers of Mute Swans are registered in midwinter, and these registrations show stable and increasing numbers since the time the first countrywide surveys were made. In the period 1969-73 between 43,600 and 69,200 wintering Mute Swans were recorded (Joensen 1974). From the series of countrywide surveys in the period 1987-92, between 37,000 and 73,200 birds were recorded (Pihl *et al*. 1992, Laursen *et al.* 1997), and 53,000 were recorded in the latest countrywide survey in January 2000 (Pihl *et al*. 2001). The birds are numerous in secure bays, fjords and lagoons in the eastern parts of Denmark, but also in Limfjorden and in east Jutland. Particularly large numbers are recorded in severe winters, when large parts of the coastal waters in Poland and Germany freeze. In mild winters increasing numbers remain at the staging sites east of Denmark throughout the winter. In the 1990s, many Polish and Lithuanian Mute Swans remained further east than had done so in more severe winters of the years previous (Svazas et al. 2001). Within the two SPAs EF38 Nissum Fjord and EF43 Ringkøbing Fjord, fewer Mute Swans have been recorded during the latter half of the 1990s than previously (Clausen et al. 2001, Laursen 2001). Here significant reductions in the amount of submerged vegetation, due to eutrophication, have reduced the feeding conditions for the Mute Swan (Clausen & Percival 1998, Jensen 2000). Mute Swans feed on plants all year round and they exploit large Eelgrass beds and areas with other aquatic plants or macro algae, such as Sea Lettuce, in lakes and shallow coastal areas. The Mute Swan is restricted to the marine or brackish environment to a much greater extent than the Whooper Swan. During the 1990s, there have been increasing observations of Mute Swan flocks feeding on winter crops (wheat, barley and rape).

The Northwest European flyway population was estimated in 2002 at 250,000 Mute Swans (Delany & Scott 2002). The population has been increasing since the 1970s, and has almost doubled during the period 1974-1996 (Delany et al. 1999). The wintering and moulting numbers in Denmark constituted up to 33% of the total population for the mid-1980s (Laursen et al. 1997). The criterion for identification of internationally important areas for Mute Swan is 2,500 birds (Delany & Scott 2002), while at the time of the designation of the SPAs in 1983 it was 1,200 birds (Fredningsstyrelsen 1983).

National conservation status

Mute Swan is on the 1997 Danish Amber List categorised as a species of national responsibility outside the breeding season (Stoltze 1998). The number of Mute Swans in the flyway population has increased, while the numbers in Denmark have been stable. On the basis of the size and stability of the Danish population over the last 30 years, in the context of the increase in the flyway population, the national conservation status for Mute Swan in Denmark is preliminarily assessed as favourable.

6.7 Bewick's Swan *Cygnus columbianus bewickii*

Bewick's Swan	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Migratory bird	Yes	AT	-	29,000 birds (Northwest Europe)	120	290	Favourable

Biology

Bewick's Swans breed in the high arctic of Russia and western Siberia, and migrate through Denmark during the spring and autumn on their way to and from the wintering areas in UK, Ireland, the Netherlands and Belgium. The birds arrive in Denmark in October, and most have left again by late December; single birds and smaller flocks might stay among the wintering Whooper Swans. In spring, Bewick's Swans arrive in Denmark from February, with the last leaving during April. Bewick's Swans occur throughout the country, but large flocks are regularly recorded only in north, west and south Jutland and at Tissø in west Zealand. In the first countrywide surveys of waterbirds, in 1969-1973, Joensen (1974) noted a population of 2,000-3,000 Bewick's Swans – a number that has increased considerable since then. At co-ordinated censuses during the years 1991/92-1992/93 a maximum of 4,100-4,400 Bewicks Swans was recorded (Laubek 1995a). This species feeds on plants, but has, as Whooper Swan a varied choice of food items. At the end of the 1960s and the beginning of the 1970s Bewick's Swans fed almost exclusively on submerged vegetation in marine areas and larger lakes, but during the 1970s they have, like Whooper Swans, increasingly been feeding on agricultural fields, particularly stubble and grass (Laubek 1995b). Bewick's Swans are generally robust to human disturbance.

The Continental Northwest European flyway population was in 2002 estimated at 29,000 Bewick's Swans (Delany & Scott 2002). The population has been increasing since the 1970s and has approximately doubled in the period to the end of the 1990s (Delany et al. 1999). The criterion for identification of internationally important areas for Bewick's Swan is 290 birds (Delany & Scott 2002), while at the time of the designation of the SPAs it was 120 birds (Fredningsstyrelsen 1983).

National conservation status

Bewick's Swan is on the 1997 Danish Amber List categorised as a species of national responsibility outside the breeding season (Stoltze 1998). In general, the numbers of Bewick's Swans have been stable or slightly increasing in Denmark (Laubek 1995b). This species has, like Whooper Swans, coped with the reductions in submerged vegetation, caused by eutrophication in the lagoons in west Jutland, by changing to foraging on the adjacent agricultural fields. On the basis of the Danish population's size and stability over the last 30 years, in the context with the increase in the flyway population, the national conservation status for Bewick's Swan in Denmark is preliminarily assessed as favourable.

6.8 Whooper Swan *Cygnus cygnus*

Whooper Swan	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Migratory bird	Yes	AT	-	59,000 birds (Continental North Europe)	150	590	Favourable

Biology

The majority of the Whooper Swans that winter in Denmark belong to the Continental Northwest European flyway population, which breeds mainly in Sweden, Finland and northwest Russia. Smaller numbers of breeding birds are also found in Norway, Estonia, Latvia and Lithuania. From the breeding areas, the birds migrate to the wintering quarters that extend from the Netherlands and Belgium in the southwest to Sweden and East Germany in the east. Smaller numbers of Whooper Swans also visit Denmark from breeding areas in Iceland (600-1,500 birds, Laubek 1995a). The Whooper Swans arrive in the Danish wintering quarters in October/November and leave the country again in March/April. Considerable fluctuations between years in the Whooper Swan occurrence have been registered in Denmark. If the weather is mild, a larger proportion of the birds stay in southern Sweden, but under severe weather conditions a larger number of birds migrates further south-west, to winter in the Netherlands. Whooper Swans occur, in connection with wetlands, throughout Denmark, although the most important areas are situated in the northern half of Jutland, south Zealand, Lolland-Falster and Møn (Laubek 1995a). In the first countrywide surveys of waterbirds, in 1969-1973, the wintering numbers of this species were 4,700-10,800 birds (Joensen 1974). Since then the numbers have increased significantly. During countrywide mid-winter censuses in the period 1994-1999, between 10,900 and 23,200 Whooper Swans have been recorded (Pihl & Laubek 1999). At the latest countrywide survey in January 2000, 23,000 Whooper Swans were recorded (Pihl et al. 2001). The Whooper Swan feeds on plants and has a varied selection of food items. During the late-1960s and early-1970s, the habitat and food selection of Whooper Swans seemed similar to those of Mute Swans. The birds fed particularly on aquatic vascular plant and macro algae in sheltered marine areas (Joensen 1974). However, Joensen also noted that the Whooper Swans, in contrast to the Mute Swans, often fed, in smaller numbers, on meadows. Since then, a distinctive change in habitat selection of the Whooper Swans has happened, and the birds now rarely forage on aquatic plants after the end of November (Laubek 1995b). For the remainder of the winter, the Whooper Swans mainly forage inland, utilising various crops or grassland (Laubek 1995b). The food item selection in marine areas has never been thoroughly investigated, but is most likely similar to that of the Mute Swan (see the earlier species). In agricultural land adjacent to the lagoons the birds feed on waste grain in stubble, or crop waste of potatoes, beet or carrot, winter crops (wheat, barley and rape) and grass fields (Laubek 1995b, Pihl & Laubek 1999). Whooper Swans are generally robust towards human disturbance.

The Continental Northwest European flyway population was, in 2002, estimated at 59,000 Whooper Swans (Delany & Scott 2002). The population has been increasing since the 1970s, and by 50-75% during the period 1974-1996 (Delany et al. 1999). The criterion for identification of internationally important areas for Whooper Swans is 590 birds (Delany & Scott 2002), while at the time of the designation of the SPAs it was 150 birds (Fredningsstyrelsen 1983).

National conservation status

Whooper Swan is on the 1997 Danish Amber List categorised as a species of national responsibility outside the breeding season (Stoltze 1998). In general, the numbers of wintering Whooper Swans has increased in Denmark. In contrast to the Mute Swans, decrease in the numbers in the lagoons in west Jutland, associated with reduction in the amount of aquatic vegetation due to eutrophication, has not occurred. The Whooper Swans have, instead, changed to foraging on the adjacent agricultural fields. On the basis of the Danish population's size and increases over the last 30 years, in the context of the increase in the flyway population, the national conservation status for Whooper Swan in Denmark is preliminarily assessed as favourable.

6.9 Bean Goose *Anser fabalis*

Bean Goose	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Migratory bird (East Denmark)	-	AT	-	100,000 birds (*A.f. fabalis*)	700	1,000	Favourable
Migratory bird (North-west Jutland)	-	AT	-	?	700	1,000	Uncertain

Biology

Denmark is a wintering area for the subspecies *A. f. fabalis* of Bean Goose. In some winters there might be 30,000 birds in the country. There are, however major regional differences in the occurrence of the Bean Geese. In north Jutland the first flocks of Bean Geese arrive in the beginning of October. At 4-5 staging sites, about 2,000 birds assemble during the autumn. With the onset of cold weather and snow, the birds migrate southwards, presumably in particular to the Netherlands. They return in March, but only for a short period before migrating towards the breeding grounds. In milder winters, the geese remain in north Jutland. The Bean Geese in Thy have shown themselves as a discrete population that migrates to winter grounds in Norfolk, in eastern England (Madsen *et al*. 1999). On the larger Danish islands, the Bean Geese arrive during December in rather varying numbers. In mild winters only a few thousands will appear, but if there is a spell of colder weather larger flocks will arrive from Skåne in Sweden. If the winter gets too severe with a thick layer of snow, the flocks are forced to move further south, but if the snow layer is thin the birds might remain in spite of the cold. As soon as the weather turns milder, the Bean Geese return to south Sweden. In north Jutland, the Bean Geese feed particularly on fields with grass, winter crops and occasionally fields with waste beets or potatoes. The Bean Geese on the larger islands, on the contrary, primarily feed on fields with winter grain crops. In years with large numbers of Bean Geese present, localised crop damage may result. Especially during the thaw, the geese might rip whole plants, including their roots, out of the ground.

Bean Goose is legal quarry in Denmark. The annual bag has decreased from ca. 1,100 birds in the 1960s, to ca. 500 in the beginning of the 1990s (Madsen *et al*. 1996).

The population in north-west Europe has been estimated at 100,000 birds (Delany & Scott 2002). The trend seems to be stable. The criterion for identification of internationally important areas for Bean Goose is 1,000 birds (Delany & Scott 2002), while at the time of the designation of the SPAs in 1983 it was 700 birds (Fredningsstyrelsen 1983).

National conservation status

Bean Goose is on the 1997 Danish Amber List categorised as a species of national responsibility outside the breeding season (Stoltze 1998). The relationships between the apparently distinct populations of

Bean Goose need clarification. For the purpose of this report, the population in Thy has been segregated from that of the rest of the country. The numbers of Bean Geese in northwest Jutland is slowly decreasing and the overall numbers are small. On the larger islands the numbers are fluctuating, dependant upon the severity of the winters. Because of its special status, the population in Thy has been granted special protection from hunting. The conservation status of the Southeast Danish population of Bean Goose is preliminarily assessed as favourable, whereas the conservation status for the population in Thy is preliminarily assessed as uncertain until the relationship between the populations has been clarified. If the population in Thy is discrete it will most likely be assessed as unfavourable due to the small numbers in the Thy population.

6.10 Pink-footed Goose *Anser brachyrhynchus*

Pink-footed Goose	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Migratory bird	-	AT	-	37,000 birds (Continental North-west Europe)	300	370	Favourable

Biology

The population of Pink-footed Goose that occurs in Denmark breeds on Svalbard. From Svalbard, the birds migrate to the wintering grounds in Denmark, the Netherlands and Belgium during September, and the birds remain here until April-May. In autumn and spring the birds stage at some sites in Norway. In Denmark, the birds are distributed in areas along the west coast of Jutland, from Vejlerne in the north to Tøndermarsken in the south. In autumn, the Pink-footed Geese occur primarily on two staging sites (Vest Stadil Fjord and Fiilsø), while in winter and spring they are dispersed over c. 25-30 sites. During the 1990s the geese utilised a number of new sites e.g. around Vejlerne and at Nibe Bredning (where up to 3,000 were present in spring 2001). The Pink-footed Geese rest and roost in lakes, lagoons and sheltered bays, and move to feeding areas that lie up to 15 km from the roost sites. In autumn and winter, the birds feed particularly on stubble fields, grass (permanent grass, meadows and saltmarsh) and winter crops. In spring, the geese also feed on newly sown corn and pea fields. To avoid damage to newly sown crops the geese are provided with corn that is specially placed for them in fields at 4-5 sites in west Jutland. The population amounted in the 1990s to 30,000-40,000 birds, and has been slightly increasing during the 1990s. In March-April the total Svalbard population is assembled in Denmark and in October, January and February more than half of the population stage here.

Pink-footed Goose is a legal quarry in Denmark. The bag has increased from c. 1,300 in the 1960s, to c. 2,000 in the beginning of the 1990s (Madsen et al. 1996).

The total Svalbard population has been most recently estimated at 37,000 birds (Delany & Scott 2002). It has been slightly increasing during the 1980s and 1990s. The criterion for identification of internationally important areas for Pink-footed Goose is 370 birds (Delany & Scott 2002), while at the time of the designation of the SPAs in 1983 it was 300 birds (Fredningsstyrelsen 1983).

National conservation status

Pink-footed Goose is on the 1997 Danish Amber List categorised as a species of national responsibility (Stoltze 1998). In most of the SPAs where this species occurs hunting free reserves have been established that also include undisturbed roost sites for the autumn and winter. In autumn, the utilisation of the Danish staging sites is limited by a combination of food and hunting disturbances. The national conservation status for Pink-footed Goose is preliminarily assessed as favourable.

6.11 Greylag Goose *Anser anser*

Greylag Goose	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Migratory bird	-	AT	-	400,000 birds (North-west Europe)	400	4,000	Favourable

Biology

Greylag Goose is the only goose species that is known to have bred in Denmark since the first bird recordings were made in the mid-nineteenth century. The Danish breeding population is estimated at 3,500-4,000 pairs (Grell 1998). The centres of the distribution are the larger islands and southeast Jutland. Additionally, more than 1,000 pairs breed in Vejlerne in Thy.

The Danish Greylag Geese belong to the Northwest European breeding population, which winters in the Netherlands and Spain. This population consists of Norwegian, Swedish, Danish, Polish and German breeding birds. Since the 1960s this population has increased from about 20,000 to more than 200,000 geese. Within the Northwest European population, the largest increase has been noted for the Norwegian breeding population, which is reflected in the numbers of Greylag Geese in west Jutland during autumn, with more than 50,000 birds having been recorded in the middle of September (NERI data). The causes of the increase are not known in detail, but quite likely include a decrease in the mortality rate due to a decline in hunting of this species in the flyway. This, in turn, is partly a result of shortening of the open seasons for hunting in various countries, and partly a result of newly established hunting free reserves on wintering sites in Spain and the Netherlands. In Denmark moulting sites for non-breeders are established on Saltholm (10,000-14,000 geese), in Saltbækvig in northwest Zealand (current numbers unknown) and in the Maribo Lakes (c. 2,000 geese).

By the end of July most Greylag Geese leave the breeding sites and assemble on a few late-summer staging sites. Such staging sites typically consist of a larger lake or lagoon, where the geese might rest undisturbed, and an adjacent feeding area. Most of the late-summer staging sites are found on the larger Danish islands. The biggest are the Maribo Lakes and Basnæs-Holsteinsborg Nor in west Zealand. Birds from the Norwegian breeding population arrive in west Jutland by the end of August. The late-summer stock of Greylag Geese in Denmark amounts to c. 100,000 birds. During September the geese commence the migration southwards and by the end of November most geese have left the country. In mild winters, up to 16,000 Greylag Geese have been recorded (Pihl et al. 2001). In the late summer, most of the birds feed on waste corn in stubble field. They might also at this time of year feed on fields that are not yet harvested, such as if there is flattened corn, and this can result in localised crop damage. Other preferred food items are waste beet and various grasses. The establishment of hunting and disturbance free areas has resulted in increasing numbers of Greylag Geese in a number of SPAs.

Greylag Goose is legal quarry in Denmark. The national bag has increased during the latter half of the twentieth century from c. 4,000 birds in the late-1960s, to c. 11,000 in the first half of the 1990s (Madsen et al. 1996).

The Northwest European population, which the Danish birds belong to, was in 2002 estimated at 400,000 Greylag Geese, with an increasing trend (Delany & Scott 2002). The criterion for identification of internationally important areas for Greylag Goose is 4,000 birds (Delany & Scott 2002), while at the time of the designation of the SPAs it was 400 birds (Fredningsstyrelsen 1983).

National conservation status

Greylag Goose is on the 1997 Danish Amber List categorised as a species of national responsibility outside the breeding season (Stoltze 1998). The species has through recent decades been significantly increasing in numbers. Furthermore, a number of reserves have been established in the SPAs where the geese occur, or through voluntary conservation schemes, based upon the species' needs for undisturbed staging sites in the autumn. The national conservation status for Greylag Goose in Denmark is preliminarily assessed as favourable.

6.12 Barnacle Goose *Branta leucopsis*

Barnacle Goose	Annex I	Species of special responsibility	97 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	Rare	13.000 birds (Baltic area)	-	-	Favourable
Migratory bird	Yes	No	-	360.000 birds (Continental North-west Europe)	500	3.600	Favourable

Biology

Barnacle Goose was first recorded as a Danish breeding bird in 1992, and since then the stock has experienced a steady rise. These geese breed on small islands and in salt-marshes with good feeding conditions, although on Bornholm they also breed on rocky coasts. This species is originally an arctic bird, breeding in north Russia, on Svalbard and Greenland. In 1971, it started breeding on the island of Gotland in the Baltic Sea, and from here the birds rapidly dispersed to other Baltic countries including Denmark, the German Wadden Sea and the Netherlands. In 1996, the Danish stock numbered 10 pairs, but just one year later this had risen to 16-17 pairs, that were recorded solely on the island of Saltholm, close to Copenhagen (Grell 1998). The rate of increase seems to have continued, and in 1998 a minimum of 28 breeding pairs on 2-3 sites were recorded (Grell 1999), and in 1999 62 breeding pairs on Saltholm (Grell 2000). In 2000, only 39 pairs were registered on Saltholm and the total Danish stock was estimated at 50 pairs (Grell 2001), but in 2001 more than 100 pairs were breeding on Saltholm (DMU data).

In terms of its original breeding areas, and its new breeding areas in the inner parts of the Baltic Sea, the Banacle Goose is a migratory species. However, whether the Danish birds are migratory too is unknown. A large part of the Russian population of Barnacle Goose migrate through Denmark during October, on their way to the winter quarters in the Netherlands. However, increasing numbers have recently started to winter in Denmark, especially in mild winters. In spring the birds assemble in the Wadden Sea of the Netherlands, Germany and Denmark, and on sites along the west coast of Jutland, before commencing migration towards the Arctic breeding areas. In the international censuses of Barnacle Geese in the middle of March during the last five years, 15,000-31,000 birds have been recorded (NERI data). Barnacle Geese usually feed on salt-marsh and meadow grasses, but might also take the green shoots of winter corn crops.

Denmark is situated on the southern and western borders of the distribution area for the Baltic population, which the Danish breeding birds belong to. This was, in 1997, estimated to number c. 13,000 birds, and winters in the Netherlands together with the Russian birds (J. Madsen pers. com.). Most recently, the total population of Barnacle Geese has been estimated at 360,000 birds, which includes the birds from the Baltic countries (Delany & Scott 2002). This population has been rapidly increasing in numbers following the low-point of maybe 10,000 birds that occurred in the beginning of the 1950s. The criterion

for identification of internationally important areas for Barnacle Goose is 3,600 birds (Delany & Scott 2002), while at the time of the designation of the SPAs in 1983 it was 500 birds (Fredningsstyrelsen 1983).

National conservation status

Barnacle Goose has bred in Denmark for an 11-year period and might presumably be considered as an established Danish breeding bird. The species is on the 1997 Danish Red List categorised as rare (Stoltze & Pihl 1998). Barnacle Goose did not breed in Denmark, when the Birds Directive was implemented and the species has in a few years established a considerable stock. The national conservation status for Barnacle Goose as Danish breeding is preliminarily assessed as favourable.

The Danish spring stock of staging Barnacle Geese has been increasing since a minimum was reached in the 1950s and likewise since 1979-1983, when the Birds Directive came into force and the Danish SPAs were designated. Thus, the national conservation status for staging Barnacle Geese in Denmark is preliminarily assessed as favourable.

6.13 Dark-bellied Brent Goose *Branta bernicla bernicla*

Dark-bellied Brent Goose	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Migratory bird	-	No	-	215,000 birds (West Europe)	1,300	2,200	Favourable

Biology

Two subspecies of Brent Goose occur in Denmark on migration– Dark-bellied Brent Goose *Branta bernicla bernicla* and Light-bellied Brent Goose *Branta bernicla hrota*. Dark-bellied Brent breed along the coasts of Siberia and migrate through the White and Baltic Seas to winter in western Europe. In Denmark, this species occurs primarily in autumn (from the middle of September to November) and in spring (from March to the end of May), when up to 15,000-30,000 birds are present at the peak. In autumn a large number of birds pass through the country. Both in autumn and spring the Wadden Sea is the most important staging site for the Dark-bellied Brent Geese. In autumn, the geese make only a short stay in Danish coastal waters. In spring, staging flocks are recorded at a number of sites outside the Wadden Sea, e.g. on the Tipper Peninsula in Ringkøbing Fjord, at Læsø and in the South Funen Archipelago. In mild winters, small flocks might stay in the Kattegat and the Wadden Sea. Brent Geese feed on plants. In autumn, in the Wadden Sea, they utilise the inter-tidal mud flats in particular, feeding mainly on Eelgrass. Outside the Wadden Sea they eat Eelgrass, green algae and Pondweed. In spring, they often, in general, forage on salt-marshes, however, in the Wadden Sea they forage on the foreshore and on natural salt marshes (on Langli). On the salt-marshes, the birds feed on Sea Spear Grass, Sea Plantain and Sea Starwort. On the island of Mandø in the Wadden Sea, flocks feed behind the dykes on permanent grass fields. At several sites in the Baltic area, the geese have shifted from feeding on Eelgrass in shallow waters to feeding on salt-marshes.

The population of Dark-bellied Brent Geese has been monitored internationally by co-ordinated censuses since the mid-1950s. Until the beginning of the 1970s the population was 20,000-40,000 birds, but after hunting of this species in Denmark stopped in 1972, the population increased to c. 300,000 in the 1990s (Rose & Scott 1997), but has lately decreased to c. 215,000 birds (Delany & Scott 2002). The criterion for identification of internationally important areas for Dark-bellied Brent Goose is 2,200 birds (Delany & Scott 2002), while at the time of the designation of the SPAs in 1983 it was 1.300 birds (Fredningsstyrelsen 1983).

National conservation status

Dark-bellied Brent Goose is on the 1997 Danish Amber List categorised as a species of national responsibility outside the breeding season (Stoltze 1998). The numbers of spring staging Dark-bellied Brent Geese in Denmark has been stable during the 1990s. The numbers in the autumn outside the Wadden Sea have been decreasing, most likely as a result of decreasing Eelgrass beds in many shallow coastal areas, due to eutrophication. In the Wadden Sea autumn numbers

have been stable. In most of the SPAs where this species occurs during the open season for other species, a number of hunting and disturbance free reserves have been established; to a large extent these reserves support the species' needs for undisturbed feeding areas in autumn and winter. The national conservation status for Dark-bellied Brent Goose as migratory species in Denmark is preliminarily assessed as favourable.

6.14 Light-bellied Brent Goose *Branta bernicla hrota*

Light-bellied Brent Goose	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Migratory bird	-	AT	-	5,000 birds (Svalbard population)	100	50	Unfavourable-increasing

Biology

Denmark constitutes the most important wintering grounds for the population of Light-bellied Brent Geese which breeds in the eastern and northern parts of Svalbard (c. 80% of the population), Kronprins Kristian Land in northeast Greenland (c. 20%), and on Franz Josef's Land (a few breeding pairs). The geese leave the breeding areas during September and migrate to the winter quarters, where the birds stay most of the time until their departure in May. The migration to and from the breeding sites is one continuous flight without feeding, which makes the storage of fat and protein depots in spring in Denmark vital for the birds. In the winter quarters, the Light-bellied Brent Geese occur regularly on a small number of sites in north-west, north-, and north-east Jutland and in the northern part of the Danish Wadden Sea. Outside Denmark, Lindisfarne in north-east England is the only other regular staging site. In severe winters, large numbers of Light-bellied Brent Geese migrate to the Netherlands to winter. Parallel with an increase in the population, a number of new staging sites have been utilised in north-east and north Jutland. In autumn 50-75% of the population stay in Denmark and the rest in Lindisfarne, but the whole population assembles at five to six spring staging sites, which all are in Denmark. The Light-bellied Brent Goose feeds on plants. The birds feed in autumn and spring particularly on aquatic plants and macro algae in shallow and sheltered coastal areas and dried mud flats. They change their feeding habit during late winter however, to feeding on salt-marsh. During the second half of the 1990s flocks have increasingly been observed feeding on winter crops (wheat and barley) and newly sown spring barley fields. On the mud flats in the Wadden Sea, and in eastern Vendsyssel (north Jutland) the birds feed particularly on a dwarf-Eelgrass species and on Enteromorpha. In shallow-water areas on other sites, they primarily feed on Eelgrass, Pondweed and Sea Lettuce. It is known from German and English studies that human disturbances can have negative effects on the energy budgets of the birds.

The population of Light-bellied Brent Geese has been estimated to c. 5,000 birds, and to be increasing (Delany & Scott 2002). From 1980 to 2001, the population has increased slowly but regularly, from 3,500 to 6,400 birds (Clausen et al. 1999, NERI data). The criterion for identification of internationally important areas for Light-bellied Brent Goose is 50 birds (Delany & Scott 2002), while at the time of the designation of the SPAs in 1983 it was 100 birds (Fredningsstyrelsen 1983).

National conservation status

Light-bellied Brent Goose is on the 1997 Danish Amber List categorised as a species of national responsibility outside the breeding season (Stoltze 1998). Hunting and disturbance free reserves has been established in all the SPAs where this species occurs during the open season for other species; to a large extent these reserves support the species' needs for undisturbed feeding areas in autumn and winter. In all the important spring staging sites breeding bird reserves with no admittance for the public have been established, which supports the species needs for undisturbed feeding areas in spring. Despite the population increase over the last 30 years, it is still too early to consider this population secured. This is justified by the small size of the population. Modelling predicts that, based on preliminary analyses of the current population level of 6,400 birds, it is possible that the population might drop to a level of less than 2,000 birds within the next 100 years. Despite the population increase over the last 30 years, the national conservation status for Light-bellied Brent Goose is preliminarily assessed as unfavourable-increasing.

6.15 Shelduck *Tadorna tadorna*

Shelduck	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Migratory bird	-	AT	-	300,000 birds (North-west Europe)	1,250	3,000	Favourable

Biology

Shelducks breed commonly all over Denmark, being most numerous along the coasts. After a serious decline, hunting of Shelduck was banned in 1931, which led to an increase in numbers. During 1978-1981 the Danish stock was estimated at 2,300 pairs (Dybbro 1985). From later investigations in 1993-1996, the stock was estimated to 2,500 pairs (Grell 1998). Those Shelducks that occur in Denmark outside the breeding season are presumed to originate from breeding areas in Denmark, south Sweden and west Norway, and possibly also north Germany. From these breeding areas the birds migrate during June and July, mainly to the German part of the Wadden Sea, to undergo wing-feather moult. During surveys in August in 1987-1989 in the Danish part of the Wadden Sea, up to 12,300 birds were counted (Laursen et al. 1997). After moult, the birds return to a small number of areas in Denmark. Later, in autumn and early winter, the Shelduck disperse along the Danish coasts. In winters with extensive ice-cover they move out of Denmark. During the countrywide surveys of waterbirds in 1969-1973, 2,800-20,400 Shelducks were recorded (Joensen 1974), while in the period 1988-1992, 18,600-45,700 birds were recorded (however, in the severe winter 1987 only 100 birds were recorded) (Pihl et al. 1992, Laursen et al. 1997). During a countrywide survey in January/February 2000, 27,600 birds were recorded (Pihl et al. 2001). The development in the Danish stock of Shelducks probably reflects the population increase in northwest Europe as well as an increase in Denmark due to milder winters, and thus improved feeding conditions, since 1988. The index for Shelduck, based on the annual mid-winter counts has been stable through the 1990s (Pihl 2000). Shelducks forage on inter-tidal flats and in shallow water within lagoons or other sheltered parts of the coasts. They feed on snails, bivalves, crustaceans and, to a lesser degree, on bristle worms. In some areas the birds feed on waste grain in stubble fields.

Denmark lies in the middle of the distribution for the Northwest European population, which breeds in the Baltic and North Sea areas. In 2002, this population was estimated at 300,000 birds (Delany & Scott 2002). The trend in numbers has been increasing since 1994 (Delany et al. 1999). The criterion for identification of internationally important areas for Shelduck is 3,000 birds (Delany & Scott 2002), while at the time of the designation of the SPAs in 1983 it was 1,250 birds (Fredningsstyrelsen 1983).

National conservation status

Shelduck is on the Danish 1997 Amber List categorised as a species of national responsibility outside the breeding season (Stoltze 1998). Over the last 30 years the numbers in the Danish breeding and mid-winter stocks have been increasing, as have the Northwest European

population. Hence, the national conservation status for Shelduck in Denmark is preliminarily assessed as favourable.

6.16 Wigeon *Anas penelope*

Wigeon	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Migratory bird	-	AT	-	1.5 M. birds (North-west Europe)	5,000	15,000	Favourable

Biology

Wigeon is a widely distributed dabbling duck, whose main breeding area extends from Iceland, Scandinavia and Russia to the Pacific Ocean. In Denmark, the species is a rare breeding bird and the small Danish breeding stock amounted in 1993-1996 to just 4-15 pairs (Grell 1998). The Wigeon that migrate through Denmark to winter in west and south Europe, belong to the Northwest European flyway population, presumably originating from Scandinavia and northwest Russia, west of the Ural Mountains. From the breeding area, the Wigeon migrate to winter quarters in west and southwest Europe, in particular to UK, Ireland, the Netherlands, Belgium and France. In Denmark the Wigeon stage during autumn migration (September-November) and on spring migration (March-April). In mild winters some of the birds remain here. The stock of wintering Wigeon in Denmark has been surveyed since the second half of the 1960s by mid-winter counts of waterbirds. However, these counts cover the winter period when relatively few Wigeon are present in Denmark. The highest numbers were recorded in the period 1969-1973 by incomplete surveys in October, with 69,300-75,600 Wigeon recorded in west Jutland and the Wadden Sea (Joensen 1974). During the subsequent country-wide autumn surveys in 1987 and 1988, 37,000-39,900 Wigeon were recorded, and 42,200-44,800 were recorded during spring surveys in 1988 and 1989 (Laursen et al. 1997). The autumn figures from 1987 and 1988 are almost certainly under-estimates, as the surveys both years were carried out from the end of October until the middle of November, which is after the peak of the autumn migration of Wigeon through Denmark. In Nissum Fjord and Ringkøbing Fjord far fewer birds have been recorded around 1990 than previously, associated with reduction in amount of aquatic vegetation, and thus the food for the birds (Clausen et al. 2001, Jensen 2000). Something similar has happened in Nibe Bredning since 1999 (Clausen et al. 2001, NERI data). The Wigeon feed all year round on aquatic plants and macro algae, growing in large patches upon mud flats and within shallow-water lagoons and sheltered coastal bays. Additionally the birds feed, particularly in spring, on vegetation on salt-marshes, fresh meadows and occasionally, on crops.

Wigeon is legal quarry in Denmark. The species is highly gregarious and is affected by human disturbance, particularly hunting disturbances. This has been shown during experiments with reserves. The numbers of Wigeon increased markedly in several areas after reserves were established. The Danish bag increased from 40,000-50,000 birds, to 50,000-65,000 in the period from 1969 to 1994, but has subsequently decreased to c. 30,000 birds (Clausager 2001). Wigeon seem, during much of the 1990s, to have had very bad breeding success. As

assessed from the Danish wing surveys, the breeding success has been below average during the whole of the period 1994-1999 (Clausager 2001).

The Northwest European flyway population of Wigeon has been estimated at 1.5 million. birds (Delany & Scott 2002). The trend has been for an increase since the 1970s, and the numbers have approximately doubled in the period 1974-1996 (Delany et al. 1999). The criterion for identification of internationally important areas for Wigeon is 15,000 birds (Delany & Scott 2002), while at the time of the designation of the SPAs in 1983 it was 5,000 birds (Fredningsstyrelsen 1983).

National conservation status

Wigeon is on the 1997 Danish Amber List categorised as a species of national responsibility outside the breeding season (Stoltze 1998). It is possible than the total number in Denmark has increased after the establishment of hunting and disturbance free areas. However, large decreases have been observed in west Jutland, due to deterioration of the food supplies. Despite local decreases and the apparently low breeding success in the 1990s, the population has increased in northwest Europe since 1974, and the national conservation status for Wigeon in Denmark is preliminarily assessed as favourable. However, it is uncertain how the low breeding success will effect the population's development in the future.

6.17 Teal *Anas crecca*

Teal	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Migratory bird	-	AT	-	400,000 birds (North-west Europe)	2,000	4,000	Favourable

Biology

Teal is a numerous and widely distributed dabbling duck with a distribution that covers Europe and Russia from the Alps north- and eastwards. The Danish stock was in the mid-1990s estimated at c. 300 pairs (Grell 1998). From the breeding area the birds migrate to the winter quarters in west and southwest Europe, particularly UK, Ireland, France and Spain. In Denmark, the birds stage during the autumn migration (September-November) and the spring migration (March-April). The stock of wintering Teal in Denmark has been surveyed by the mid-winter surveys of waterbirds since the latter half of the 1960s, but these surveys primarily cover the time of year when relatively few Teal are present in the country. Many Teal stay in small lakes and hide within the vegetation (reed beds and reed swamps), and are thus poorly covered by surveys from aircraft and from land. The largest numbers in the period 1969-1973 were recorded by incomplete surveys in September 1970 and October 1971, during which 29,000-29,500 Teal were recorded in areas of west Jutland and in the Wadden Sea (Joensen 1974). During countrywide surveys in autumn 1987 and 1988, 23,000-33,700 Teal were recorded, and 10,300-26,200 during spring surveys in 1988 and 1989 (Laursen et al. 1997). The autumn figures are most likely under-estimates, as in November 2000 in Vejlerne, Vest Stadil Fjord and Skjern Å alone, 38,000 Teal were recorded (NERI data). In Nissum Fjord, fewer Teal have with certainty been recorded in the last half of the 1990s than in the years prior to the designation of the SPAs in 1983 (Clausen et al. 2001). Teal has a varied selection of food items consisting of the seeds of vascular plants, and invertebrates, which they find in areas with aquatic plants and macro algae on mud flats, shallow lakes, lagoons and sheltered coastal areas, reed swamps, salt-marshes and fresh-water meadows. Additionally, the Teal perform nocturnal raids for foraging to small lakes, wet meadows and stubble fields.

Teal is legal quarry in Denmark. The species is highly gregarious and as such is sensitive to human disturbances, particularly hunting disturbances. The Danish bag has during the 1990s decreased from 75,000-100,000 birds, to 50,000-65,000 (Clausager 2001).

The total Northwest European flyway population of Teal has been estimated at 400,000 birds (Delany & Scott 2002). The population has been relatively stable since the 1970s albeit with annual fluctuations (Delany et al. 1999). The criterion for identification of internationally important areas for Teal is 4,000 birds (Delany & Scott 2002), while at the time of the designation of the SPAs in 1983 it was 2,000 birds (Fredningsstyrelsen 1983).

National conservation status

Teal is on the 1997 Danish Amber List categorised as a species of national responsibility outside the breeding season (Stoltze 1998). The species fluctuates in numbers, but has, in Denmark as a whole, probably increased in numbers after the establishment of a reserve at Ulvshale-Nyord, the subsequent establishment of reserves in a number of SPAs, the restoration of Vest Stadil Fjord and Skjern Å, and the raising of the water level in west Vejler. The size and relative stability of the population within the last 30 years are the reasons that the national conservation status for Teal in Denmark is preliminarily assessed as favourable.

6.18 Pintail *Anas acuta*

Pintail	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Migratory bird	-	AT	-	60,000 birds (North-west Europe)	2,500	600	Favourable

Biology

Pintail is a widespread breeding bird in Scandinavia and Russia eastwards to the Pacific Ocean. The species also breeds on Iceland. The precise eastern border for the Northwest European flyway population, which migrates through Denmark in the autumn and spring, has not been established but is presumably situated close to the Ural Mountains. The winter quarters for the population lies south of the Sahara. The Danish breeding stock was in the mid-1990s estimated at 150-175 pairs (Grell 1998). In Denmark, the Pintails stage during autumn migration (September-November) and spring migration (March-April). The numbers of wintering Pintails in Denmark has been estimated from mid-winter surveys of waterbirds since the latter half of the 1960s, but these counts primarily cover the time of year when there are relatively few Pintails in the country. The largest numbers in the period 1969-1973 were recorded during incomplete surveys in October, which recorded 17,800-31,500 Pintails in west Jutland and the Wadden Sea (Joensen 1974). During countrywide surveys in autumn 1987 and 1988, 5,200-8,300 Pintails were recorded and 3,800-8,500 during spring surveys in 1988 and 1989 (Laursen et al. 1997). The autumn figures from 1987-1988 certainly represent under-estimates, since they took place from the end of October to the middle of November, which is after the peak of migration of Pintail through Denmark. In Ringkøbing Fjord fewer Pintails have with certainty been recorded in the latter half of the 1990s than in the years prior to the designation of the SPAs in 1983. In this area, reductions in the aquatic vegetation, due to eutrophication, have negatively affected the feeding conditions for Pintail (Jensen 2000). The Pintails feed all year round on snails, worms and other invertebrates, and seeds and roots from a number of aquatic and terrestrial vascular plants, on salt-marshes and in shallow-water, sheltered coastal areas. They also feed on waste grain in stubble fields.

Pintail is legal quarry in Denmark. The species is highly gregarious and is sensitive to human disturbances particularly hunting disturbances. The Danish bag has decreased from 10,000-15,000 birds, to 5,000-10,000 in the period from 1969 to 2000 (Clausager 2001).

The total Northwest European flyway population of Pintail has been estimated at 60,000 birds (Delany & Scott 2002). The population has been stable in the period 1974-1996 (Delany et al. 1999). The staging stock in Denmark in autumn and spring constitutes up to 14% of the total population. The criterion for identification of internationally important areas for Pintail is 600 birds (Delany & Scott 2002), while at the time of the designation of the SPAs in 1983, when the Northwest European population was merged with the population that winters in Africa, it was 2,500 birds (Fredningsstyrelsen 1983).

National conservation status

Pintail is on the 1997 Danish Amber List categorised as a species of national responsibility outside the breeding season (Stoltze 1998). In areas in Denmark with long-term monitoring of the species e.g. Tippe rne, Vejlerne, Tøndermarsken and within several hunting and disturbance free reserves, the numbers of staging Pintail that have been recorded show annual fluctuations. The overall picture is thus one of fluctuation with no clear tendency. The size of the population and apparent stability over the last 30 years are the reasons that the national conservation status for Pintail in Denmark is preliminarily assessed as favourable.

6.19 Shoveler *Anas clypeata*

Shoveler	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Migratory bird	-	No	-	40,000 birds (North-west Europe)	1,000	400	Favourable

Biology

The Shoveler is a widely distributed dabbling duck that breeds in Europe and Russia north- and eastwards from the Alps. The Danish breeding stock was in the mid-1990s estimated at 800-1,000 pairs (Grell 1998). From the breeding area, the birds migrate to winter quarters in west and southwest Europe, particularly the Netherlands, Belgium and France. The Shoveler is the dabbling duck with the earliest autumn migration peak. In Denmark, the birds stage during autumn migration (August-September) and fewer are recorded during spring migration (March-May). The Shoveler has not been surveyed optimally by the countrywide autumn surveys, which were carried out in October-November, due to the relatively early peak of the autumn migration. The knowledge of the occurrence of Shovelers in Denmark is thus primarily based on counts from land, that form part of the surveys of waterbirds in the reserves. The most important sites for Shoveler in Denmark are all situated in west Jutland and southeast Denmark, with the the main ones being Tipper Peninsula, Vejlerne, the Wadden Sea, Saltholm, Nyord and the Maribo lakes. In the second half of the 1990s, typically 3,000-6,000 Shoveler have been staging in Denmark by the time of the autumn maximum (NERI data). In Ringkøbing Fjord, fewer Shovelers have been recorded with certainty in the 1990s than in the years prior to the designation of the SPAs in 1983 (Laursen 2001). The Shoveler feeds, to a greater extent than other dabbling ducks, on invertebrates found on aquatic plants and macro algae, within mud flats, in shallow-water lakes, inlets and lagoons and sheltered coastal areas.

Shoveler is legal quarry in Denmark. The species is highly gregarious and is sensitive to human disturbances particularly hunting disturbances. The Danish bag has decreased since 1970 from c. 10,000 birds, to c. 3,000 birds in the late-1990s (Clausager 2001).

The total Northwest European flyway population of Shoveler has been estimated at 40,000 birds (Delany & Scott 2002). The population has been relatively stable since the 1970s, albeit with annual fluctuations (Delany et al. 1999). The criterion for identification of internationally important areas for Shoveler is 400 birds (Delany & Scott 2002), while at the time of the designation of the SPAs in 1983 it was 1,000 birds (Fredningsstyrelsen 1983). At that time however, the division of the species between populations was different.

National conservation status

In general, the numbers of Shoveler in the country as a whole have presumably increased after the establishment of the reserve at Ulvshale-Nyord, and the subsequent establishment of hunting and disturbance free areas in a number of SPAs. However, the annual fluctuations are large. The size of the population, and the presumed

stability over the last 30 years are the reasons that the national conservation status for Shoveler in Denmark is preliminarily assessed as favourable.

6.20 Pochard *Aythya ferina*

Pochard	Annex I	Species of natonal responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Migratory bird	-	No	-	350,000 birds (North-west Europe)	2,500	3,500	Favourable

Biology

Pochard colonised Denmark as a breeding bird around 1860. It breeds in nutritious, shallow-water lakes. The species is most common in east and southeast Denmark, and apart from in the Wadden Sea area, it is practically absent west of ice front line (from the last ice age) that lies north-south through central Jutland. The Danish stock around 1970, was estimated at 350-700 pairs (Dybbro 1976), and in 1997 at 400-600 pairs (Grell 1998). Thus, the Pochard seems to have been relatively stable in numbers during the last 30 years, despite marked annual fluctuations. Denmark is also a staging and wintering area for a large number of Pochards, although most birds disappear from the country in severe winters. The birds on migration are most numerous from the middle of September to the beginning of November, and, in spring, at around the turn from March into April. Pochard is often recorded together with Tufted Duck in diurnal staging flocks in undisturbed lakes and sheltered coastal areas. On nocturnal foraging raids the birds have a varied selection of food items that include snails, bivalves and aquatic plants. In the countrywide surveys during 1968-1973, 3,000-10,100 birds were recorded (Joensen 1974), while in the period 1987-1992 the numbers varied between 2,600 and 18,600 (Pihl et al. 1992, Laursen et al. 1997). During a countrywide survey of Danish waters in January/February 2000, 10,100 Pochard were counted (Pihl et al. 2001). Pochard is assumed to be well covered by the annual mid-winter counts of waterbirds, which form the basis for the calculation of species' indices. The index for Pochard has been rather stable through the 1990s, with some fluctuations caused by severe winters (Pihl 2000).

Pochard is legal quarry in Denmark. The Danish bag has decreased through the latter half of the twentiest century from 5,000-6,000 in the late-1960s, to less than 2,000 birds in the latter half of the 1990s (Clausager 2001).

The Danish Pochards belongs to the Northwest European population, which in 2002 was estimated to number 350,000 birds (Delany & Scott 2002). The trend of the population has been stable since the mid-1980s, or slightly decreasing in the Baltic area (Delany et al. 1999). The criterion for identification of internationally important areas for Pochard is 3,500 birds (Delany & Scott 2002), while at the time of the designation of the SPAs in 1983 it was 2,500 birds (Fredningsstyrelsen 1983).

National conservation status

The countrywide surveys, as well as the population index at mid-winter indicate that the population of Pochard has been stable during the last 30 years. The national conservation status for Pochard is preliminarily assessed as favourable.

6.21 Tufted Duck *Aythya fuligula*

Tufted Duck	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Migratory bird	-	AT	-	1.2 M birds (North-west Europe)	5,000	12,000	Favourable

Biology

Tufted Duck established itself as a Danish breeding bird around 1900. After a steady increase in the twentieth century, it is currently a rather common breeding bird throughout the country. It occurs in nutritious lakes, watercourses and brackish lagoons. The Danish breeding stock was, in the late-1970s, estimated at 500-650 pairs (Dybbro 1985), and in 1997 at 800-1,000 pairs (Grell 1998). The stock has thus continued to increase during the last 30 years. Denmark is also a staging and wintering area for a very great number of Tufted Duck. The migrants arrive in large numbers from the middle of November, and the species is most numerous in Denmark during January and February. The birds leave Denmark again during March and April. Tufted Duck is often recorded together with Pochard as mixed diurnal staging flocks in undisturbed lakes and sheltered coastal areas. On nocturnal foraging raids the birds feed primarily on bivalves, snails and worms. During winter, the species is most numerous in southeast Denmark and on Funen/Langeland. During the countrywide surveys in the period 1968-1973, 95,000-196,000 birds were recorded (Joensen 1974), while during the period 1987-1992 the number recorded varied between 84,000 and 187,000 (Pihl et al. 1992, Laursen et al. 1997). During a countrywide survey in January/February 2000, 125,000 Tufted Ducks were counted (Pihl et al. 2001). Tufted Duck is considered as being very well covered by the annual mid-winter surveys of waterbirds, which form the basis for the calculation of species' indices. The index for Tufted Duck has been rather stable during the 1990s (Pihl 2000).

Tufted Duck is legal quarry in Denmark. The Danish bag has decreased in the latter half of the twentieth century from 30,000-40,000 birds in the late-1960s, to about 10,000 in the first half of 1990s (Madsen et al. 1996), and to less than 5,000 in the latter half of the 1990s (Clausager 2001).

The Tufted Ducks in Denmark belong to the Northwest European population, which in 2002 was estimated at 1.2 million birds (Delany & Scott 2002). The trend in numbers has been stable since the beginning of the 1970s, and in the Baltic area the trend has been one of slight increase (Delany et al. 1999). The criterion for identification of internationally important areas for Tufted Duck is 12,000 birds (Delany & Scott 2002), while at the time of the designation of the SPAs in 1983 it was 5,000 birds (Fredningsstyrelsen 1983).

National conservation status

Tufted Duck is on the 1997 Danish Amber List categorised as a species of national responsibility outside the breeding season (Stoltze 1998). Countrywide surveys as well as the mid-winter population index indicate that the population of has been stable during the last

30 years, and thus, the national conservation status for Tufted Duck is preliminarily assessed as favourable.

6.22 Scaup *Aythya marila*

Scaup	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Migratory bird	-	No	-	310,000 birds (North-west Europe)	1,500	3,100	Favourable

Biology

Previously, Denmark was probably the most important wintering area for Scaup in Europe, but since the 1970s the birds, to a large extent, appear to over-winter in wetlands and marine areas elsewhere. Hence, the Danish winter stock now only includes a smaller proportion of the European winter population. Thus, in earlier times, up to 1,000 birds assembled in late summer at Lovns Bredning in the Limfjord to moult their flight feathers, but occurrences there have not been recorded since the 1970s (Joensen 1973).

The Danish wintering population of Scaup arrives in large numbers from November and peaks during the months of January and February. The birds are most often recorded as huge diurnal staging flocks in undisturbed marine areas such as Hevring Bay, the area between Endelave and Samsø, and Bøjden Nor. It is assumed that these flocks forage at night in nearby coastal marine areas, but little is known about the phenomena. During mid-winter surveys in the period 1969-1973, 42,000-95,000 birds were recorded (Joensen 1974), while during similar surveys in the period 1987-1991 the numbers recorded varied between 13,000 and 38,000 (Laursen et al. 1997). During a country-wide survey in January/February 2000, 9,400 Scaup were recorded (Pihl et al. 2001). The apparent decrease in the numbers of Scaup is, presumably, mainly on account of enhanced feeding conditions outside Denmark, rather than changes in conditions in the Danish winter quarters. Particularly large numbers are found in Ijsselmeer in the Netherlands, where the birds feed, almost exclusively, on the Zebra Mussel, which has colonised the area relatively recently. It is thus doubtful if increased protection of the species and its habitats in Denmark could have a positive effect on the number of wintering birds in Denmark. Scaup feed in Danish waters on bivalves and snails.

Scaup is a legal quarry in Denmark. The Danish bag has decreased during the latter half of the twentieth century from about 6,000-8,000 birds at the end of the 1960s, to about 2,000 in the mid-1990s (Madsen et al. 1996), and less than 1,000 in the latter half of the 1990s (Clausager 2001).

The Danish Scaup belong to the Northwest European population, which, on the basis of surveys in the beginning of the 1990s, has been estimated at 310,000 birds (Delany & Scott 2002). The trend was at that time characterised as stable. The criterion for identification of internationally important areas for Scaup is 3,100 birds (Delany & Scott 2002), while at the time of the designation of the SPAs in 1983 it was 1,500 birds (Fredningsstyrelsen 1983).

National conservation status

Scaup is on the 1997 Danish Amber List categorised as a species of national responsibility outside the breeding season (Stoltze 1998). There is only a little information available about wintering Scaup since 1992, but there is no doubt that this species has undergone a serious decline in the winter numbers in Denmark during the last 30 years. The Northwest European population however, is stable or increasing, and the decrease in Denmark is probably caused by enhanced feeding conditions in the Netherlands rather than deterioration of the Danish winter quarters. Despite the decline in numbers of wintering birds the national conservation status for Scaup is preliminarily assessed as favourable.

6.23 Eider *Somateria mollissima*

Eider	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Migratory bird	-	AT	-	0.85-1.20 M. birds (Baltic population)	10,000	10,300	Unfavourable-decreasing

Biology

Eiders breed in colonies on small and relatively undisturbed islands. They give up breeding and abandon the island if foxes are present. Shortly after hatching, the female leads the chicks to the water and often then on to areas that represent better foraging opportunities than the breeding island. Eiders feed primarily on Blue Mussel. In Denmark, at least 26,000 pairs of Eider bred in 1991. This number has subsequently been decreasing due to the disease Chloralosis that has hit several of the Danish breeding colonies since 1996. Chloralosis has killed a large number of birds (Christensen 1996). In late summer, large numbers of Eiders assemble in a small number of Danish marine areas to moult the flight feathers. During the period 1987-1989, 70,000-135,000 moulting birds were annually recorded during August by countrywide surveys from aircraft (Laursen et al. 1997). The birds were mainly registered around Læsø, on Hatter Rev and Svanegrund (east and west of Samsø respectively), in the Sejerø Bay, and in the Wadden Sea. It is not known to what extent the recent decreases in the winter numbers of Eider are reflected in the numbers of moulting birds. Denmark is also the wintering area for a large number of those Eiders that breed in the Baltic area and the Wadden Sea. In Denmark during late autumn, winter and early spring, these birds are primarily distributed in the central parts of the inner Danish waters from Læsø, through the Kattegat, Storebælt and Lillebælt to the South Funen Archipelago, and in the Wadden Sea. The Danish winter stock of Eiders increased from c. 500,000 birds that were recorded in the beginning of the 1970s, to c. 800,000 around 1990 (Laursen et al. 1997, Pihl et al. 1992). Subsequently, the numbers have apparently decreased, and the countrywide survey in January/February 2000 recorded only 320,000 Eiders (Pihl et al. 2001).

Eider is legal quarry in Denmark. The Danish bag has decreased in recent years from c. 150,000 birds around 1990, to c. 90,000 around 2000 (Clausager 2001, National Nature and Forest Agency 2001).

The Danish Eiders belong to the Baltic Sea/Wadden Sea population, which in 2002 was estimated at 0.85-1.20 million birds (Delany & Scott 2002). The trend in numbers was characterised as decreasing. The population has in the latter half of the 1990s been affected by Chloralosis, increased mortality in the winter quarters in the Netherlands, and decreased reproductive success in parts of the Baltic Sea. The criterion for identification of internationally important areas for Eider is 10,300 birds (Delany & Scott 2002), while at the time of the designation of the SPAs in 1983 it was 10,000 birds (Fredningsstyrelsen 1983). It should be noted that the coverage and methods in seaduck surveys, including Eiders, outside the breeding season are

rather uncertain, and this probably manifests itself in the estimation of the numbers and status on national as well as international levels.

National conservation status

Eider is on the 1997 Danish Amber List categorised as a species of national responsibility outside the breeding season (Stoltze 1998). The numbers of Eider have been decreasing over the last decade as a result of Chloralosis, and the associated increase in mortality. The species has maintained its distribution area. The numbers increased rapidly until 1990, and subsequently decreased, and the national conservation status for Eider is preliminarily assessed as unfavourable-decreasing.

6.24 Long-tailed Duck *Clangula hyemalis*

Long-tailed Duck	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Migratory bird	-	No	-	4.6 M birds (North-west Europe)	5,000	20,000	Favourable

Biology

Denmark is the wintering area for a large number of Long-tailed Ducks, although these constitute only a small proportion of the birds of this species, which breeds in Fennoskandia and the western Russia. The Long-tailed Ducks appear in Danish waters from September, but they are not numerous until January. From April, numbers decrease. Long-tailed Duck is most often registered in small flocks on relatively deep water far from land, and as such is difficult to survey. During countrywide surveys in the period 1968-1973, 3,600-12,200 birds were recorded (Joensen 1974), while in the period 1987-1992 numbers varied between 1,200 and 5,900 birds despite a better coverage of the off-shore areas (Laursen et al. 1997). During a countrywide survey in January/February 2000, 2,000 Long-tailed Ducks were recorded (Pihl et al. 2001). However, transect surveys from both ship and aircraft has shown that the numbers of Long-tailed Duck that winter in Danish waters are actually considerably greater. Thus, based on ship transect surveys the number of Long-tailed Duck in the severe winter of 1986/87 was estimated at 425,000, and 165,000 in the winter of 1987/88 (Laursen et al. 1997). From both ship and aircraft transect surveys of just the Rønne Banke, more than 75.000 Long-tailed Ducks have been estimated (Laursen m. fl. 1997).

Long-tailed Duck is legal quarry in Denmark. The Danish bag shows large annual variations in numbers, but has decreased through the latter half of the twentieth century from 10,000-12,000 birds in the late-1960s, to less than 5,000 in the latter half of the 1990s (Clausager 2001).

The Danish Long-tailed Ducks belong to the North Europe/West Russian population, which, on the basis of surveys in the beginning of the 1990s, has been estimated at 4.6 million birds (Delany & Scott 2002). The trend was characterised as stable. The criterion for identification of internationally important areas for Long-tailed Duck is 20,000 birds (Delany & Scott 2002), while at the time of the designation of the SPAs in 1983 it was 5,000 birds (Fredningsstyrelsen 1983). It should be noted that the coverage and methods in sea-duck surveys, including Long-tailed Ducks, outside the breeding season are rather uncertain, and this probably manifests itself in the estimation of the numbers and status on national as well as international levels.

National conservation status

Only scattered information on wintering Long-tailed Ducks is available for the years after 1993. On the basis of the available information the national conservation status for Long-tailed Duck is preliminarily assessed as favourable.

6.25 Common Scoter *Melanitta nigra*

Common Scoter	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Migratory bird	-	AT	-	1.6 M birds (Europe)	10,000	16,000	Favourable

Biology

Denmark is a moulting and wintering area for a large part of the Common Scoters that breed in Fennoskandia and north Russia east to the Khatanga River. During late summer, huge numbers of the birds assemble in a few Danish marine areas to undergo the annual wing feather moult. During the period 1987-1989, annual countrywide surveys from aircraft during August recorded 33,000-124,000 moulting birds (Laursen et al. 1997). The birds were primarily recorded in the northern Kattegat, Sejerø Bay and west of the Wadden Sea. The Common Scoter are elusive and shy when approached from a vessel, and particularly so during the moult period. This makes the species in the moult period particularly difficult to survey, and the numbers noted above, especially with respect to the first survey year (1987, 33,000 birds), are probably significant under-estimates of the actual numbers. The Danish winter stock of Common Scoters are also difficult to survey, as the birds are most often found in off-shore areas. The number of recorded birds in the winter has increased from 79,000-148,000 birds in the period 1969-1973, to 950,000 in 1992 (Laursen et al. 1997, Pihl et al. 1992). However, the apparent substantial increase might not be genuine, since increased use of twin-engined aircraft and satellite navigation equipment during the latter years has enhanced the possibilities for better coverage of the off-shore areas. During a countrywide survey in January/February 2000, only 101,000 Common Scoters were recorded, but the method used was different from earlier surveys and does not allow for direct comparisons with the results from the earlier surveys (Pihl et al. 2001). Common Scoter feed mainly on bivalves, especially Blue Mussel, but also cockles, etc.

Common Scoter is legal quarry in Denmark. The Danish bag has decreased during the latter half of the twentieth century from c. 20,000 birds in the late-1960s, to about 5,000 in the latter half of the 1990s (Clausager 2001).

The Common Scoters in Denmark belong to the European population, which, on the basis of surveys in the beginning of the 1990s, has been estimated at 1.6 million birds (Delany & Scott 2002). The trend was at that time characterised as stable, although this was based on scant information. The criterion for identification of internationally important areas for Common Scoter is 16,000 birds (Delany & Scott 2002), while at the time of the designation of the SPAs in 1983 it was 10,000 birds (Fredningsstyrelsen 1983). It should be noted that the coverage and methods in sea-duck surveys, including Common Scoters, outside the breeding season are rather uncertain, and this probably manifests itself in the estimation of the numbers and status on national as well as international levels.

National conservation status

Common Scoter is on the 1997 Danish Amber List categorised as a species of national responsibility outside the breeding season (Stoltze 1998). There is no information about the development in numbers of moulting Common Scoters in Danish waters since 1987-1989, and only a little information about wintering birds since 1992. On the basis of the available information, the national conservation status for Common Scoter is preliminarily assessed as favourable.

6.26 Velvet Scoter *Melanitta fusca*

Velvet Scoter	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Migratory bird	-	No	-	1 M birds (Europe)	2,000	10,000	Uncertain

Biology

Denmark is a moulting and wintering area for a considerable part of the Velvet Scoters that breed in Fennoskandia and Russia east to the Jenisei River. Previously, during late summer, large numbers of the birds aggregated in a few areas to perform wing feather moult. In the period 1966-1972, a number of aerial surveys of moulting waterbirds took place. On the basis of the results it was estimated that in August a minimum of 45,000 Velvet Scoters were present at the moulting sites (Joensen 1973). In the period 1987-1989, the annual countrywide surveys recorded only 1,500-7,600 moulting birds in August. Though the figures do not form the basis for a direct comparison, it is estimated that they reflect a real decrease (Laursen et al. 1997). During a countrywide survey from aircraft in Sejerø Bay on 28th August 1990, more than 10,000 Velvet Scoters were recorded (Pihl 1995). Around 1990, Velvet Scoter were mainly registered in the northern Kattegat, in Sejerø Bay and on Omø Stålgrunde, but they seem to have abandoned the moult site in Løgstør Bredning, where up to 16,000 birds were counted around 1970 (Joensen 1973). The Danish winter stock of Velvet Scoter is difficult to count due to the species' resemblance to Common Scoter. The number of recorded Velvet Scoters in winter was 5,500-21,500 during the period 1968-1973 (Joensen 1974), while it was 4,000-41,000 during the period 1987-1991 (Laursen et al. 1997, Pihl et al. 1992). In 1992, 122,000 Velvet Scoter were recorded, of which 113,000 were north of Anholt (Pihl et al. 1992). The apparent increase, and also the fluctuations in numbers, was partly a result of increased utilisation of twin-engined aircraft and satellite navigation equipment, which enhanced the possibilities for better coverage of the off-shore areas. At the same time, the occurrence of Velvet Scoter in Lillebælt and the South Funen Archipelago was markedly reduced. During a countrywide survey in January/February 2000, only 1,700 of the birds were recorded (Pihl et al. 2001). However, the results are not directly comparable, partly because the method during the 2000 survey was different from the previous surveys, and partly because of the presumed great variability in the annual numbers present in the Danish waters, depending on the severity of the winters.

Velvet Scoter is legal quarry in Denmark. The Danish bag has decreased through the second half of the twentieth century from c. 10,000 in the late-1960s, to about 2,000 in the 1990s (Clausager 2001).

The Danish Velvet Scoters belong to the European population, which, on the basis of surveys from the beginning of the 1990s, was estimated at 1.0 million birds (Delany & Scott 2002). The trend in numbers was at that time characterised as stable. The criterion for identification of internationally important areas for Velvet Scoter is 10,000 birds (Delany & Scott 2002), while at the time of the designation of

the SPAs in 1983 it was 2,000 birds (Fredningsstyrelsen 1983). It should be noted that the coverage and methods in seaduck surveys, including Velvet Scoters, outside the breeding season are rather uncertain, and this probably manifests itself in the estimation of the numbers and status on national as well as international levels.

National conservation status

There is no available information about the development in numbers of moulting Velvet Scoter in the Danish waters since 1987-1989, and only a little information about wintering birds since 1992. The numbers of birds in the moult season and in autumn has decreased, while it is possible that the numbers in winter, despite decreases in the distribution area, have remained stable. On the basis of available information, the national conservation status for Velvet Scoter is preliminarily assessed as uncertain.

6.27 Goldeneye *Bucephala clangula*

Goldeneye	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Migratory bird	-	AT	-	400,000 birds (North-west Europe)	2,000	4,000	Favourable

Biology

Goldeneye is a newcomer amongst the Danish breeding birds, with the first breeding recording made in 1972. Since then, the species has increased, and the total Danish breeding stock amounted to 63 pairs in 1996 (Grell 1998). It breeds in lakes with access to nest holes in trees or boxes. The mounting of many nest boxes might, among other factors, have enhanced the increase. In late summer, more than 10,000 Goldeneyes previously moulted wing feathers in a few areas, with Hjarbæk Fjord as the most important. However, the numbers were, by the end of the 1980s, reduced to just a couple of thousands (Laursen et al. 1997). Denmark is also the staging and winter quarters for many Goldeneyes. The migrants arrive in large numbers from the middle of November and the species is most numerous in January, February and March. The birds leave the Danish waters again during March and April. The Goldeneyes are dispersed in small flocks along all sheltered coastal stretches, and, to a lesser degree, in larger lakes inland. During the countrywide surveys in the period 1968-1973, 42,000-91,000 birds were recorded (Joensen 1974), while in the period 1987-1992 the numbers varied between 41,000 and 65,000 (Laursen et al. 1997, Pihl et al. 1992). During a countrywide survey in January/February 2000, 64,000 Goldeneyes were recorded (Pihl et al. 2001). Goldeneye is considered as being well covered by the annual mid-winter surveys of waterbirds, which form the basis for the calculation of a species' index. The index for Goldeneye has been increasing through the 1990s (Pihl 2000). The food selection of Goldeneye is versatile, and includes small bivalves, snails, crustaceans and fish as well as seed from aquatic plants.

Goldeneye is legal quarry in Denmark. The Danish bag has decreased since the mid-1970s, from 25,000-30,000 birds, to 10,000-15,000 in the 1990s (Clausager 2001).

The Danish Goldeneyes belong to the Northwest and Central European flyway population, which in 2002 was estimated at 400,000 birds (Delany & Scott 2002). The trend in the numbers was at that time characterised as increasing. The criterion for identification of internationally important areas for Goldeneye is 4,000 birds (Delany & Scott 2002), while at the time of the designation of the SPAs in 1983 it was 2,000 birds (Fredningsstyrelsen 1983).

National conservation status

Goldeneye is on the 1997 Danish Amber List categorised as a species of national responsibility outside the breeding season (Stoltze 1998). The countrywide surveys as well as the population index at mid-winter indicate that the population has been stable over the last 30 years. Thus, the national conservation status for Goldeneye is preliminarily assessed as favourable.

6.28 Smew *Mergellus albellus*

Smew	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Migratory bird	Yes	No	-	40,000 birds (North-west Europe)	200	400	Favourable

Biology

Denmark is part of the wintering area for Smew, although at most of the places in Denmark where it occurs, the species is recorded in quite small numbers. In mild and normal winters, Smew occur in larger lakes and coastal lagoons and bays. In the event of extensive ice cover of lakes and coastal areas, the Smew seek ice free areas e.g. the Storstrøm, Bøgestrøm and Copenhagen South Harbour, where up to 700 Smew have been recorded. The Danish winter stock of Smew arrives from November, and peaks in the winter months of January and February. They are found in lakes and wetlands in the South Copenhagen area. During countrywide mid-winter surveys in the period 1969-1973, between 200 and 500 birds were recorded (Joensen 1974), while during similar surveys in the period 1989-1992 the numbers varied between 190 and 580 (Laursen et al. 1997, Pihl et al. 1992). During a countrywide survey in January/February 2000, 660 Smew were registered (Pihl et al. 2001). The species is assessed as being well covered by the annual mid-winter surveys of waterbirds, which form the basis for the calculation of species' indices. The index for Smew has been slightly increasing through the 1990s (Pihl 2000).

The Smew wintering in Denmark belong to the Northwest European population, which in 2002 was estimated at 40,000 birds (Delany & Scott 2002). This population, including that of the Baltic area, has been increasing since the beginning of the 1970s (Delany et al. 1999). The criterion for identification of internationally important areas for Smew is 400 birds (Delany & Scott 2002), while at the time of the designation of SPAs in 1983 it was 200 birds (Fredningsstyrelsen 1983).

National conservation status

The numbers of wintering Smew has been stable or increasing over the last 30 years and thus the national conservation status for Smew is preliminarily assessed as favourable.

6.29 Red-breasted Merganser *Mergus serrator*

Red-breasted Merganser	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Migratory bird	-	AT	-	170,000 birds (North-west Europe)	400	1,700	Favourable

Biology

Red-breasted Merganser breeds in Denmark in relatively sheltered coastal areas, while on the breeding grounds far north of Denmark the species also breeds close to fresh water. The Danish breeding stock is not considered well covered by the Atlas projects of breeding birds, but is assessed as stable over the last 25 years (Grell 1998). In late summer, up to 12,000 Red-breasted Mergansers previously moulted their wing feathers at a few areas in Denmark, the most important being Løgstør Bredning (Joensen 1973). In the late-1980s, up to 7,000 moulting birds were recorded in Denmark and the numbers in Løgstør Bredning had decreased significantly (Laursen et al. 1997). Red-breasted Merganser feeds on small fish. Denmark is also a staging and wintering area for a large number of Red-breasted Merganser. Autumn migration peaks in November, when the countrywide surveys have recorded up to 28,000 birds, with the largest concentrations in the Limfjord and Smålandsfarvandet (Laursen et al. 1997). The Danish winter stock is much smaller. During the countrywide mid-winter surveys in 1968-1973, 11,700-19,600 birds were recorded (Joensen 1974), while in the period 1987-1992 the numbers varied between 8,200 and 15,400 (Laursen et al. 1997). During a countrywide survey in January/February 2000, 10,100 Red-breasted Mergansers were recorded (Pihl et al. 2001).

Red-breasted Merganser is legal quarry in some parts of Denmark, but is protected locally in some areas. The Danish bag has decreased slightly since a maximum of 8,000 birds around 1970. During the 1990s the bags were 2,000-6,000 birds (Clausager 2001).

The Red-breasted Mergansers in Denmark belong to the Northwest and Central European population, which has been estimated at 170,000 birds (Delany & Scott 2002). The trend in numbers has been increasing since 1974, while the Baltic part of the population has been stable with large annual fluctuations. The criterion for identification of internationally important areas for Red-breasted Merganser is 1,700 birds (Delany & Scott 2002), while at the time of the designation of the SPAs in 1983 it was 400 (Fredningsstyrelsen 1983).

National conservation status

Red-breasted Merganser is on the 1997 Danish Amber List categorised as a species of national responsibility outside the breeding season (Stoltze 1998). The countrywide surveys in late summer as well as in mid-winter seem to indicate a slight decrease over the latest 30 years. This might have been the result of dispersal deeper into the Baltic Sea, and thus, the national conservation status for Red-breasted Merganser is preliminarily assessed as favourable.

6.30 Goosander *Mergus merganser*

Goosander	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Migratory bird	-	No	-	250,000 birds (North-west Europe)	750	2,500	Favourable

Biology

Goosander breeds in small numbers along the southern coasts of Denmark, where trees with holes (or nest boxes) for nest sites are found close to the coast. The Danish breeding stock has, since a minimum of just 17-20 pairs was reached in 1974-1975, been increasing as a result of the mounting of nest boxes (Dybbro 1976). The stock was estimated at 50 pairs in 1997 (Grell 1998). Denmark is also a staging and wintering area for a large number of Goosander. The birds arrive in November or later, and the numbers peak in January and February. Goosander, in contrast to Red-breasted Merganser, occurs often in fresh water sites, but is also recorded in considerable numbers in coastal lagoons and other sheltered coastal areas. During the countrywide mid-winter surveys in 1968-1973, 15,900-28,200 birds were recorded (Joensen 1974), while in the period 1987-1992 the numbers varied between 8,800 and 20,600 (Laursen et al. 1997). During a countrywide survey in January/February 2000, 13,600 Goosander were recorded (Pihl et al. 2001). The largest numbers of Goosander are usually registered in normal and severe winters, which might be one of the explanations for the apparent decrease in the numbers recorded in recent years, when milder winter weather conditions have been the norm. Goosander is considered as well covered by the annual mid-winter surveys of waterbirds, which form the basis for the calculation of species' indices for waterbirds. The index for Goosander has been stable through the 1990s (Pihl 2000).

Goosander is legal quarry in Denmark, but the species has local protection in certain areas. The Danish bag has decreased from 3,000-6,000 birds at the end of the 1960s to less than 1,000 in the latter half of the 1990s (Clausager 2001).

The Goosanders in Denmark belong to the Northwest and Central European population, which in 2002 was estimated at 250,000 birds (Delany & Scott 2002). The trend has been stable in the Baltic area until 1998, and subsequently increasing (Delany et al. 1999). The criterion for identification of internationally important areas for Goosander is 2,500 birds (Delany & Scott 2002), while at the time of the designation of the SPAs in 1983 it was 750 (Fredningsstyrelsen 1983).

National conservation status

The countrywide surveys in mid-winter seem to indicate a decreasing tendency over the last 30 years, but at the same time the Northwest European population has been increasing. Mid-winter surveys in countries in the inner Baltic Sea, e.g. Estonia and Lithuania, show significantly increasing numbers of Goosander since 1989, during which time there has been only one severe winter (1996). Thus, the national conservation status for Goosander is preliminarily assessed as favourable.

6.31 Honey Buzzard *Pernis apivorus*

Honey Buzzard	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	No	45,000 pairs (Europe outside Russia)	-	-	Favourable

Biology

Honey Buzzards breed mainly in old deciduous forests and woods, where the nest is often placed in the more open parts. The species is most often found in woods larger than 100 ha. The birds feed in the woods, but also in meadows and bogs within or adjacent to the wood.

Honey Buzzards are, in Denmark, dispersed through the deciduous woodlands, which are mainly found to the east and north of the ice front line from the last ice age. The species is thus, scarce in west Jutland. The Danish stock was by the end of the 1980s estimated at 650 pairs, and the numbers have most likely been stable since then (Jørgensen 1989). Earlier estimates of the Danish stock are very uncertain, due to the concealed habits of this species. Honey Buzzard is a migrant, which arrives in Denmark, in the latter half of May, from the wintering quarters in west and central Africa, and disappears around the beginning of September. The birds are long-lived and reproduce slowly with 0.9 fledglings annually per pair in Denmark (Jørgensen 1989). The food consists mainly of larvae of wasps and bumblebees, but other insects, amphibians and bird chicks are also taken.

The Honey Buzzards in Denmark belong to the European population, which in 1997 was estimated at c. 45,000 breeding pairs, excluding birds in Russia (Hagemeier & Blair 1997). The trend in numbers seems rather stable, although observations of migration at Falsterbo in Sweden indicate a decreasing trend in the Scandinavian stock.

National conservation status

Honey Buzzard seems to have been stable in numbers and distribution over the last 20 years, both within and outside the SPAs. The Danish stock has been stable since 1980, and thus, the national conservation status for Honey Buzzard in Denmark is preliminarily assessed as favourable.

6.32 Red Kite *Milvus milvus*

Red Kite	Annex I	Species of national responsibility	97 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	Rare	19,000 pairs (Europe)	-	-	Favourable

Biology

Red Kite is once again a Danish breeding bird, after having been absent for the period 1910-1970. An absence of disturbances within the nesting area is of utmost importance for the species. The birds occur in mosaic landscapes, of groves, woods and cultivated land. In the nineteenth century, Red Kites were common and dispersed all over Denmark. The extensive persecution of birds of prey in the beginning of the twentieth century hit the Red Kite very hard, and after just a few years the species disappeared as a Danish breeding bird. The Red Kite was, in 1922, the first bird of prey in Denmark to be completely protected; however, this had no subsequent effect. Through the twentieth century, the Red Kite bred or attempted to breed in Denmark a number of times. The species properly re-colonised Denmark in the 1970s, and in the 1980s the Danish stock was estimated at c. 15 breeding pairs annually (Jørgensen 1989). Since 1990, the stock has varied between 20 and 30 pairs (Grell 1998). In 1998, 1999 and 2000, 21 pairs, 22-29 pairs and 15-20 pairs respectively have bred (Grell 1999, 2000, 2001). Red Kite is most common in east Jutland from Frederikshavn to Åbenrå. A few pairs breed on Bornholm, whereas on Zealand, Lolland and Falster the species is very irregular. The production of fledglings is c. 2 per successful pair, which is similar to that of the birds in Skåne in Sweden and Slesvig-Holstein in Germany (Jørgensen 1989). However, fewer pairs in Denmark seem to be successful. During the period 1976-1988, 53-63% of the breeding attempts in Denmark was successful, compared to 76% in Skåne, and 73% in Slesvig-Holstein (Jørgensen 1989).

Red Kite is mainly a migrant. The Danish breeding birds arrive in March from the winter quarters in France and Spain and leave the country in September. The spring migration, of mainly Swedish birds, peaks in March, and the autumn migration peaks at the end of September. The food selection is varied, but carcasses constitutes a large part of the food, which might be one factor explaining the occurrence of most of the nests in east Jutland within a few kilometers of the main north-south motorway. Red Kite is distributed widely in Europe with Denmark and Skåne lying at the species' northern margin. The European population of Red Kite was in 1997 estimated at 19,000-32,000 pairs (Hagemeier & Blair 1997). The species is increasing in Skåne, but is decreasing in the southern part of its total distribution area.

National conservation status

Red Kite is on the 1997 Danish Red List categorised as rare (Stoltze & Pihl 1998). The species re-colonised Denmark in the 1970s, after having been absent for a long time, and the breeding stock in the 1990s amounted to 20-30 pairs annually. The Danish stock has doubled

since the Birds Directive came into force, and thus, the national conservation status for Red Kite is preliminarily assessed as favourable.

6.33 White-tailed Sea-Eagle *Haliaeetus albicilla*

White-tailed See-Eagle	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	Rare	700 pairs (Baltic area)	-	-	Favourable

Biology

White-tailed Sea-Eagle has recently re-colonised Denmark as a breeding bird. The species has high demands for undisturbed nesting areas, and also for adjacent lakes or coast with good supplies of fish and waterbirds. White-tailed Sea-Eagle was, in the middle of the nineteenth century, distributed over most of Denmark, except west Jutland and Bornholm, and for the period up to 1900 about 50 breeding sites are known. The extensive persecution of birds of prey in the beginning of the twentieth century hit the White-tailed Sea-Eagle hard, and in 1911 the species disappeared as a breeding bird. Through the twentieth century, the birds have bred or attempted to breed in three areas, with the Maribo Lakes in 1979-1980 representing the most recent occasion. During the period 1950-1970, the Baltic part of the population was hit particularly hard by environmental toxins, but from about 1985 this part of the population has increased significantly. The species returned to Denmark in 1995, with an unsuccessful breeding attempt, and with two pairs in 1996, and subsequently the numbers have increased. In 1998, 1999 and 2000, 5, 6 and 6 pairs respectively have bred (Grell 1999, 2000, 2001). In 2001, 7 pairs raised a total of 11 fledglings.

The Danish breeding birds are sedentary. They remain in Denmark during the winter months, when additional birds appear from Scandinavia and the Baltic countries. White-tailed Sea-Eagles feed on waterbirds and fish, but will also take carcasses.

Denmark is situated at the western edge of the distribution area for White-tailed Sea-Eagle. The size of the Baltic population of this species, to which the Danish birds belong, has never been estimated, but a calculation made in 1997, based on available breeding bird data, gave a figure of c. 700 pairs (Hagemeier & Blair 1997). The species is increasing in the Baltic area and is evidently undergoing dispersal to, for instance, Denmark.

National conservation status

The White-tailed Sea-Eagle is on the 1997 Danish Red List categorised as rare (Stoltze & Pihl 1998). The species was absent from Denmark for many years, but is currently returning. The White-tailed Sea-Eagle has in the period 1996-2001 bred with 2-7 pairs annually. The birds did not breed in Denmark when the Birds Directive came into force, and the species has in a few years established what seems to be a viable stock. This justifies that the national conservation status for White-tailed Sea-Eagle in Denmark preliminarily is assessed as favourable, even though the species has not yet bred in Denmark for the required 12 years.

6.34 Marsh Harrier *Circus aeruginosus*

Marsh Harrier	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	No	ca. 29,000 pairs (Europe outside Russia)	-	-	Favourable

Biology

Marsh Harriers commonly breed in reed beds, bogs, lakes and peat bogs in the southern part of Denmark. In Jutland the birds are less numerous than on the larger islands, and are apparently absent from parts of central and north Jutland. The birds feed over crops, permanent grass fields and meadows, and occasionally in vegetation which is more than one meter high (winter crops). The Danish stock has varied a lot during the last 150 years. In the nineteenth century, the species was common, but subsequently it was markedly reduced as a result of persecution, and the species was threatened with disappearance from Denmark during the twentieth century until 1922, when it was given protection during the breeding season. The Danish stock was, in the beginning of the 1970s, estimated at 76-96 pairs (Dybbro 1976). Subsequently a steady increase has taken place, and the stock was in the mid-1990s estimated at 650 pairs (Grell 1998).

Marsh Harriers are migratory birds that winter in southwest Europe and Africa. The species feed primarily on small rodents and birds, but also larger food items such as waterbirds, leverets and Water Voles are taken. The birds feed in open country over both cultivated and uncultivated land, ranging from bare soil and meadows with low vegetation to winter crop fields and reed beds with a vegetation height of more than 1 meter (Jørgensen 1989). The Danish Marsh Harriers arrive in the country in the beginning of April and leave Denmark during August and September.

The Danish Marsh Harriers belong to the European population, which is distributed as far north as the southern edge of the Gulf of Bothnia. The population was, in 1997, estimated at c. 29,000 pairs and the trend in numbers is characterised as decreasing (Hagemeier & Blair 1997).

National conservation status

The numbers of breeding Marsh Harriers have markedly increased from c. 100 pairs in 1970, to 650 pairs in the mid-1990s. Nevertheless, the species seems to have disappeared (periodically?) from a number of the SPAs that have been designated for the Marsh Harrier. Simultaneously the species has established itself in a number of other SPAs. Considering the huge increase in numbers, the national conservation status for Marsh Harrier in Denmark is preliminarily assessed as favourable.

6.35 Hen Harrier *Circus cyaneus*

Hen Harrier	Annex I	Species of special national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	Rare	10,000 pairs (Europe outside Russia)	-	-	Uncertain

Biology

Hen Harrier is a rare Danish breeding bird that has bred in Denmark almost annually since 1992. The species occurs in open areas with low vegetation such as salt-marshes, coastal swamps, heathland and bogs. The birds feed over uncultivated areas with relatively high vegetation, including reed beds. The breeding records are from south and west Jutland, often in areas where Montague's Harrier is also breeding. Hen Harrier has always been rare and has only periodically bred in Denmark, and, historically, has most likely not been a regular Danish breeding bird, although breeding attempts have been made during various periods. Jørgensen (1989) places Denmark outside the distribution area of Hen Harrier and explains the breeding attempts as incidental cases of birds from the increasing Dutch stock. During the period 1993-1996, the Danish stock amounted to 2-5 pairs annually (Grell 1998). In 1998, two pairs bred (Grell 1999), but no pairs bred in 1999 (Grell 2000), and it is presumed that one pair bred in 2000 (Grell 2001). The Danish breeding birds are most likely emigrants from the Dutch stock.

Hen Harrier is a migratory bird. Almost nothing is known about the migration and winter quarters of the Danish birds. Denmark is also visited by migratory Hen Harriers from Scandinavia. The autumn migration of these birds peaks at the beginning of October, and the birds leave Denmark again in April and May. Hen Harriers feed mainly on small rodents and birds.

Hen Harrier is well distributed over large parts of Europe. The European population was in 1997 estimated at 10,000 pairs outside Russia (Hagemeier & Blair 1997). The species is decreasing in its numbers in most areas, but is increasing in the Netherlands.

National conservation status

Hen Harrier is on the 1997 Danish Red List categorised as rare (Stoltze & Pihl 1998). The attempts to colonise Denmark since 1992, and the establishment of a breeding population of 0-5 pairs annually might be one further irregular occurrence of the species before it disappears again. A period with almost annual breeding for nine years is not enough to consider the species as a regular Danish breeding bird. It seems premature to predict whether a regular Danish breeding stock has been established, and thus, the national conservation status for Hen Harrier is preliminarily assessed as uncertain.

6.36 Montague's Harrier *Circus pygargus*

Montague's Harrier	Annex I	Species of special national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	Vulnerable	ca. 8,000 pairs (Europe outside Russia)	-	-	Unfavourable-stable

Biology

Montague's Harrier previously bred in heathland, bogs and newly planted areas with conifers in west Jutland. By the middle of the twentieth century, the species decreased in numbers, and, simultaneously, the birds became concentrated in southwest Jutland, primarily in open bogs without trees, salt-marshes and meadows with patches of reed beds for the nests. From the beginning of the 1990s Montague's Harrier increasingly occurred in winter crops, and more than half of the Danish stock has since the mid-1990s bred in cultivated fields. In order to avoid failure of these breeding attempts, due to harvesting of crops, laying of rape in swaths, or cutting of grass, the Danish Ornithological Society has, through agreements with the involved farmers, succeeded in securing the protection of the pairs breeding within winter crops. The species continues to be concentrated in southwest Jutland north to Fiilsø, with scattered and irregular occurrences through the rest of Jutland. The Danish stock has in the period 1993-1996 varied between 35 and 50 breeding pairs (Grell 1998), which is at the same level as it was around 1970 (Jørgensen 1989), but is much less than it was around 1940, when the Danish stock peaked at 350-400 breeding pairs (Grell 1998). In 1998, 1999 and 2000, 35, 35-45 and 38-40 pairs respectively have bred (Grell 1999, 2000, 2001).

Montague's Harrier is a migratory bird that mainly winters in Africa. The occupation of territories and pair formation happens in May, and the birds leave Denmark in August-September. The species primarily feeds on small rodents, birds, larger insects and reptiles, which are found in meadows with large areas of permanent grass, and to a much smaller degree in cultivated areas. The Montague's Harriers in Denmark constitute the north-western margin for the European population. This population was, in 1997, estimated at c. 8,000 pairs, and the trend in numbers as decreasing (Hagemeier & Blair 1997).

National conservation status

Montague's Harrier is on the 1997 Danish Red List categorised as vulnerable (Stoltze & Pihl 1998). Distribution and number of pairs seem to have been stable over the last 30 years, but concurrent with the change in habitat and the up-growth of vegetation in bogs, the species seems to have disappeared from a number of the SPAs that were designated for the species. Montague's Harrier has decreased significantly in numbers since the middle of the twentieth century, during which time the distribution area has diminished to southwest Jutland. However, its status seems to have been stable in the period that the Birds Directive has been into force, with a Danish breeding stock of 35-50 pairs. As it often breeds in insecure habitats, and has disappeared from, or is irregular in several SPAs for which it is in-

cluded in the justification for the designation, the national conservation status for Montague's Harrier in Denmark is preliminarily assessed as unfavourable-stable.

6.37 Golden Eagle *Aquila chrysaetos*

Golden Eagle	Annex I	Species of special national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	No (not breeding bird in 1997)	5,000-6,000 pairs (Europe)	-	-	Uncertain

Biology

Since 1999, a pair of Golden Eagles has bred in Denmark. The pair has chosen Lille Vildmose, which includes large, open areas of raised bogs and forest. The area is, in particular, characterised with a very low level of disturbance, which presumably is one of the main reasons why this site was chosen. Golden Eagles feed in large open areas and surrounding forest, where there is an ample supply of larger mammals and birds. The Golden Eagle has probably never before in historical time bred in Denmark, and seems in recent years to be about to colonise south Sweden. Wintering birds annually visit Denmark from Scandinavia. They often arrive in October-November, to leave the country again in March. Migrating Golden Eagles might be seen at Skagen in April and May. The species primarily feed on medium-sized mammals such as hares, and on larger birds.

Golden Eagle is widely distributed in mountainous terrain over large parts of Europe. The European population was, in 1997, estimated at 5,000-6,000 pairs (Hagemeier & Blair 1997). The trend in numbers seems to be stable, although decreases have been recorded on the Iberian Peninsula.

National conservation status

The establishment of a successful territory of Golden Eagle in 1999 in Denmark might be the first step towards the species colonising the country. It is still too early to determine whether the country contains possibilities for the establishment of a regular Danish breeding stock, and thus, the national conservation status for Golden Eagle is preliminarily assessed as uncertain.

6.38 Osprey *Pandion haliaeetus*

Osprey	Annex I	Species of special national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	Critically endangered	5,000 pairs (Europe outside Russia)	-	-	Uncertain

Biology

Osprey has apparently been a highly irregular Danish breeding bird since the beginning of the twentieth century. The species has high demands for undisturbed nesting areas, and particular conditions for the actual nest site, including adjacency to lakes with large quantities of fish. Osprey was, in the latter half of the nineteenth century, a dispersed but not uncommon breeding bird in the eastern parts of Denmark, but disappeared from there in 1916 (Jørgensen 1989). From the following 80 years only a few documented records are known, e.g. in 1996 (Grell 1998), although many observations of birds during the breeding season were reported. In 1998, one pair bred for certain, and possibly also a further nine pairs were reported (Grell 1999). In 1999, 6-8 pairs bred (Grell 2000). It is believed that the re-colonisation of Denmark by Osprey has been made harder by the lack of suitable nest sites (Grell 1998).

Ospreys in north Europe are migratory birds that winter in Africa. The Scandinavian birds are also common on migration through Denmark during April-May, and again in August-September. Ospreys feed on fish.

The European population of Osprey is distributed over Scandinavia and the Baltic countries, and is also scattered over the rest of Europe. A population estimate has never been made, but a simple summation of the breeding bird data that were available in 1997 resulted in a figure of c. 5,000 pairs in Europe (Hagemeier & Blair 1997).

National conservation status

Osprey is on the 1997 Danish Red List categorised as critically endangered (Stoltze & Pihl 1998). The species has been absent from Denmark as a breeding bird for many years, but seems to be undergoing re-colonisation of the country. The birds are believed to have bred regularly in Denmark during recent years. If this is indeed the case (there are very few records of nests), this development is new, and the national conservation status for Osprey in Denmark is preliminarily assessed as uncertain.

6.39 Peregrine Falcon *Falco peregrinus*

Peregrine Falcon	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	Disappeared	6,000 pairs (Europe outside Russia)	-	-	Uncertain

Biology

The last record of Peregrine Falcon breeding in Denmark dates back to 1972. That the species is considered here, is on account of breeding attempts, including egg laying, on Møns Klint in 2001 and 2002. As the population of Peregrine Falcon is increasing in northern Europe, it is likely that the species will within the foreseeable future re-colonise Denmark as a breeding bird. The Peregrine Falcon often breeds in secure places on cliff ledges or in the abandoned nests of other birds, but has increasingly also been reported breeding on tall buildings and in nest boxes. In the period 1930-1950, 6-10 pairs bred annually in Denmark. 1-2 pairs bred in Rold Skov up to 1949, 1-2 pairs used to breed on Stevns Klint but disappeared around 1950, 1-4 pairs bred on Bornholm up to 1961, and finally 1-2 pairs bred on Møn up to 1972. North of the Mediterranean areas, during the period 1956-1965, the species experienced a collapse in its numbers due to environmental toxins (Hagemeier & Blair 1997). Subsequently the population has increased. In Denmark, the numbers of observations of migrating or wintering birds has increased through the 1980s and the 1990s, concurrent with the population increase. The northern parts of the population of Peregrine Falcon are migratory, passing through Denmark in September-October and again in April-May. The species feed on birds of the size of a pigeon.

Peregrine Falcon is distributed over large parts of Europe. The population in Europe has been, in 1997, estimated at c. 6,000 pairs (Hagemeier & Blair 1997). The trend in numbers is increasing in almost all areas, after marked declines during the middle of the twentieth century.

National conservation status

Peregrine Falcon is on the 1997 Danish Red List categorised as disappeared (Stoltze & Pihl 1998). The species seems to be on the way to re-establishing itself as a breeding bird in Denmark. However, it is still too early to predict whether that will happen, and the national conservation status for Peregrine Falcon is assessed as uncertain.

6.40 Black Grouse *Tetrao tetrix*

Black Grouse	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	Critically endangered	>500 pairs (Benelux, Germany, Denmark)	-	-	Disappeared

Biology

The Black Grouse is probably no longer a Danish breeding bird. The species bred in open heathland, with ponds and bogs, and scattered trees for roosting. The Black Grouse was widely dispersed and common in the heathlands of Jutland in the nineteenth century. Concurrent with the cultivation of heathland, the numbers decreased, and in 1942 the Danish stock was estimated at 2,400 birds. At the time of a survey in 1963-1966, the numbers had halved. In 1973, the stock was estimated at 420 birds, in 1978 at 100 birds, in 1991 at 35 birds, and finally in 1993-1996 at just 10 birds at most (Grell 1998). During investigations in 1998 and 1999, no breeding Black Grouse were recorded (Grell 1999, 2000). The Danish Black Grouses were sedentary. They fed on berries and seeds, among other things.

The Black Grouse is widely dispersed over the northern European forests with scattered stocks in west and central Europe. The population of Black Grouse was, in 1997, estimated to number at least 1 million breeding females (Hagemeier & Blair 1997). The species is in numerical increase in Sweden, but decreasing in all other areas. The national stocks of the lowland population of Black Grouse in Belgium, the Netherlands and Germany are all extremely small and the possibility for a natural re-colonisation of Denmark seems unlikely.

National conservation status

The Black Grouse is on the 1997 Danish Red List categorised as critically endangered (Stoltze & Pihl 1998). The species seems to have disappeared as breeding from Denmark, and thus, the national conservation status for Black Grouse is preliminarily assessed as disappeared.

6.41 Spotted Crake *Porzana porzana*

Spotted Crake	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	Vulnerable	50,000-180,000 pairs (Europe)	-	-	Unfavourable-decreasing

Biology

The Spotted Crake breeds in large swamps and freshwater meadows, with standing water levels that are no higher than 30 cm. The species seems to prefer the sedge zone, but also breeds in uncultivated meadows in river valleys that are subject to natural, periodical flooding. Spotted Crakes are concentrated in a few areas in Denmark, the major ones being Vejlerne, Tøndermarsken, and Ølene on Bornholm. The total Danish stock is difficult to estimate due to the concealed habits of the birds. Additionally, the picture is blurred by transient birds, on prolonged migration during the spring, that perform courtship activities in potential breeding places. The species was much more common in the nineteenth century than now, but drainage of wetlands has diminished the total potential area for breeding. The first attempt at an estimation of the size of the stock dates from 1960-1969, when 43-115 'pairs' were recorded annually at 18 sites. In 1978-1981 this was reduced to 32-55 'pairs' (Dybbro 1985), while in 1998 an estimated 15-49 'pairs' occurred at 19 sites (Grell 1998). In 1999, 117-121 courting males were recorded (Grell 2000) and in 2000, 90 birds (Grell 2001).

The Spotted Crake is a migratory species, which winters in east and southeast Africa. The birds arrive in Denmark in April and May and leave the country from August to October. The birds feed on tiny food items that include both insects and plants.

The Spotted Crake is dispersed over most of Europe. The European population is, like the Danish part of it, fluctuating and was, in 1997, estimated at 50,000-180,000 pairs, of which 85% occurred in Russia, Belorussia, Romania and Ukraine (Hagemeier & Blair 1997). The trend in numbers has been slightly decreasing throughout western Europe.

National conservation status

The Spotted Crake is on the 1997 Danish Red List categorised as vulnerable (Stoltze & Pihl 1998). The species numbers are highly fluctuating from year to year, but might have been slightly decreasing since 1979-1983. The stock has been variable and possibly decreasing since 1980, and thus, the national conservation status for Spotted Crake in Denmark is preliminarily assessed as unfavourable-decreasing.

6.42 Corncrake *Crex crex*

Corncrake	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	Disappeared	100,000-200,000 pairs (Europe)	-	-	Unfavourable-increasing

Biology

The Corncrake breeds in humid meadows with a natural and varied flora, and in grassland with relatively high vegetation and without trees and bushes. The Corncrake was absent from Denmark as a definite Danish breeding bird in the period 1993 to 1999 (Stoltze & Pihl 1998, Grell 2000). It has not been a regular breeding bird in any one area since 1990 (Grell 1998), although a number of courting males have been heard each spring and these have probably belonged to breeding pairs. However, changes in the agricultural practises in Poland and the eastern part of Germany have led to improved conditions for the species there, and increasing numbers of Corncrakes have visited Denmark (and bred?) in recent years. The Danish stock is difficult to estimate due to the concealed habits of the species. Additionally, the picture is blurred on account of birds, on prolonged migration during the spring, that perform courtship activities in potential breeding places. The Corncrake was in the nineteenth century widely distributed and common all over in Denmark, but changes in agricultural practises including earlier harvesting, with faster machines, has hit the species hard, particularly the hatchlings. Since the 1960s, regular stocks are known only from meadows at Skjern Å (these disappeared in 1968), Varde Å (disappeared in 1976), and Ry Å. In 1971-1974, during the first Atlas project of breeding birds, 97 breeding records were made from Denmark as a whole, with the majority registered in Jutland (Dybbro 1976), while in the second Atlas survey (1993-1996) only 12 probable and 19 possible breeding records were made, despite a better coverage (Grell 1998). The Corncrake has in the most recent years occurred much more numerously, with 25-50 courting males registered in 1998 (Grell 1999), and at least 200 courting males, and one confirmed breeding record registered in 1999 (Grell 2000). In 2000, 270 courting males were recorded (Grell 2001). It is not known how large a proportion of these courting males are breeding birds.

The Corncrakes are migratory birds that winter in savanna areas in southern, eastern and central Africa. The birds arrive in Denmark from the middle of May, and leave the country during September. The Corncrake mainly feeds on insects and plant parts.

The Corncrake is distributed over most of Europe except the northernmost and southernmost parts. The European population is, like the Danish population, fluctuating and was, in 1997, estimated at 100,000-200,000 pairs, of which 85% are in Russia, Belorussia and the Baltic countries (Hagemeier & Blair 1997). The trend in the numbers has been one of significant decrease in Europe, and as the species occurs only in this part of the world it is categorised as vulnerable on the Global Red List (Baillie & Groombridge 1996). This was the basis

for the development of a European action plan for Corncrake (Crockford et al. 1996).

National conservation status

The Corncrake is on the 97 Danish Red List categorised as disappeared (Stoltze & Pihl 1998). The species shows marked annual fluctuations in numbers and has disappeared from the last remaining regular breeding site, Ry Å, since 1979-1983. Subsequently, an action plan for Corncrake in Denmark has been developed (Christensen & Asbirk 2000), and the re-establishment of areas for Corncrake, initiated at Skjern Å, Varde Å and Ry Å, seems successful. The breeding stock has been variable and decreasing since 1980, and the species has for a period been absent from Denmark, but might currently be recolonising the country. Thus the national conservation status for Corncrake in Denmark is preliminarily assessed as unfavourable-increasing.

6.43 Coot *Fulica atra*

Coot	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Migratory bird	-	No	-	1.75 M birds (North-west Europe)	10,000	17,500	Favourable

Biology

The Coots that occur in Denmark during migration and in winter, breed in the Baltic countries and further east in the western parts of Russia. The Danish breeding stock has most recently been estimated at c. 20,000 pairs (Grell 1998). The most important habitats in Denmark outside the breeding season are sheltered marine areas. In these areas, unsuccessful breeding birds assemble during summer, and subsequently the numbers increase until November, which is when the largest numbers have been recorded. During severe winters in particular, the numbers decrease due to migration southeast to milder winter quarters. Coots occur widely and numerously in coastal areas all over the country. The Danish winter stock of Coot has been surveyed since the late-1960s. During countrywide surveys in the years 1969-1973, 125,000-270,000 birds were recorded in autumn, and 105,000-207,000 in winter (Joensen 1974). During the subsequent countrywide surveys in 1987-1992, 40,000-153,000 Coots were recorded in autumn, and 26,000-209,000 were recorded in midwinter (Pihl et al. 1992, Laursen et al. 1997). During a countrywide survey in January/February 2000, 164,500 Coots were registered (Pihl et al. 2001). Within the two SPAs of South Funen Archipelago and Ringkøbing Fjord, the numbers of Coots have shown a definite decrease during the second half of the 1990s, compared to the years prior to the designation of SPAs (Clausen et al. 2001, Laursen 2001). In these two SPAs the aquatic vegetation has undergone significant reductions due to eutrophication, and this has meant deterioration of the feed stock for the staging Coots (Rask et al. 1996, Jensen 2000). All year round, the birds feed in lakes and sheltered marine areas on large areas of Eelgrass, sea grass, other vascular plants, and macro algae such as Sea Lettuce. They eagerly supplement their diet with snails and other invertebrates that are living in the vegetation. The species is relatively tolerant to human disturbance, although the birds usually move away from approaching boats, windsurfers or walkers.

The Coot is legal quarry in Denmark. The Danish bag has decreased since the mid-1970s from a maximum of 100,000 birds, to 15,000-20,000 birds annually during the second half of the 1990s (Madsen et al. 1996, Skov- og Naturstyrelsen 2001).

The Northwest European population of Coot has been estimated at 1.75 million. birds (Delany & Scott 2002). The species is significantly hit by increased mortality in severe winters, which makes the population more fluctuating than that of other waterbirds. The total Northwest European population has nevertheless been relatively stable since the 1970s, but the Baltic-Nordic part of this population was cut by a half after the severe winter of 1978/79 and has never fully recovered again (Delany et al. 1999). The criterion for identifica-

tion of internationally important areas for Coot is 17,500 birds (Delany & Scott 2002), while at the time of the designation of the SPAs in 1983 it was 10,000 birds (Fredningsstyrelsen 1983).

National conservation status

The numbers of Coot is heavily affected by severe winters. Hence, it might be difficult to assess the developments of the population or parts thereof. Fluctuating numbers of Coot, recorded during mid-winter surveys on a reduced numbers of sites since 1986, show no significant tendency. The size of the stock and apparent stability over the latest 30 years are the reason that the national conservation status for Coot in Denmark is preliminarily assessed as favourable.

6.44 Crane *Grus grus*

Crane	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	Rare	40,000 pairs (Europe)	-	-	Favourable

Biology

The Crane breeds in Denmark in open disturbance-free heathland bogs in north Jutland, in overgrown bogs in a few other places, and in small woodland bogs on Bornholm. The species bred rarely in the first half of the nineteenth century, and was not recorded with certainty as a Danish breeding bird from around 1850 until 1938. Following that period, Cranes established themselves on several sites in north Jutland. In 1971-1974, during the first Atlas project of breeding birds, three breeding records were made on two sites in north Jutland (Dybbro 1976). In 1990, the species started breeding on Bornholm, presumably coming from the increasing Polish and German breeding stocks. During 1993-1996, the numbers were 6-10 breeding pairs annually, but the following year, 11-12 pairs were recorded (Grell 1998). In 1998, the result was 11-13 breeding pairs (Grell 1999), in 1999 16 pairs (Grell 2000), and in 2000 13-17 pairs (Grell 2001).

The Crane is a migratory species and the majority of Danish breeding birds winter in Spain and north Africa, while more eastern parts of the population migrate to northeast Africa. The birds arrive in Denmark from the beginning of March, and leave the country during September. The birds mainly feed on plant material.

Cranes occur over most of Europe except the northernmost and southernmost parts. The European population was in 1997 estimated at 40,000 pairs, with almost half in Fennoscandia (Hagemeier & Blair 1997). The trend in the numbers of the European population was decreasing until around 1960, but has been increasing since.

National conservation status

The Crane has, since 1952, re-established itself as a Danish breeding bird after about 100 years of absence. The re-colonisation seems to have been particularly rapid since 1990. The Crane is on the 1997 Danish Red List categorised as rare (Stoltze & Pihl 1998). The stock has been increasing since 1980, and thus, the national conservation status for Crane in Denmark is preliminarily assessed as favourable.

6.45 Oystercatcher *Haematopus ostralegus*

Oyster-catcher	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Migratory bird	-	No	-	1,020,000 birds (Europe)	7,500	10,200	Favourable

Biology

Oystercatchers breed on beaches, salt-marshes, grassland, and, occasionally, in cultivated fields. After hatching, the parents lead the hatchlings to wetland with shallow water, where they are fed. The Danish breeding stock is estimated at 7,000-8,000 pairs (Grell 1998), of which 3,000 pairs breed in the Wadden Sea area. The stock is assumed to have been increasing during the most recent decades, and in the Wadden Sea area the numbers of breeding birds increased by c. 600 pairs from 1991 to 1996 (NERI-data). During late summer, Oystercatchers assemble along the coasts, particularly in the Wadden Sea, where they initiate moult. In August-September a number of migratory visitors from Scandinavia and northern Russia arrive. The largest staging sites for Oystercatcher in Denmark are found in the Wadden Sea, where, in autumn, an average of 30,000-40,000 birds are recorded, with maxima of 50,000. Some of the birds winter in the Wadden Sea, but the majority migrate south and west to winter in the German and Dutch parts of the Wadden Sea and in Belgium, France and Great Britain. In spring, the birds are present at many places along the coasts of Denmark, and the numbers have been relatively stable. In the Wadden Sea c. 18,000 birds can be recorded in the middle of April, and up to 7,000 on other Danish sites. During breeding, the food items are worms, bristle worms and small crustaceans. Outside the breeding season, the diet mainly consists of bivalves, particularly Blue Mussel and Cockle.

The European population of Oystercatcher was, in 2002, estimated at 1,020,000 birds, and assessed as increasing (Delany & Scott 2002). The numbers have been increasing in the Danish part of the Wadden Sea since regular aerial surveys were initiated in 1980 (Laursen & Frikke 1997). The criterion for identification of internationally important areas for Oystercatcher is 10,200 birds (Delany & Scott 2002), while at the time of the designation of the SPAs in 1983 it was 7,500 (Fredningsstyrelsen 1983).

National conservation status

The numbers of Oystercatchers have been increasing in Denmark with respect to both breeding and staging birds in the Danish part of the Wadden Sea. Thus, the national conservation status for Oystercatcher as a migratory bird in Denmark is thus preliminarily assessed as favourable.

6.46 Avocet *Recurvirostra avocetta*

Avocet	Annex I	Species of special national responsibility	97 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	AY	No	40,000 pairs (Europe 1997)	-	-	Favourable
Migratory bird	Yes	AT	-	73,000 birds (North-west Europe)	260	730	Favourable

Biology

The Avocet breeds in colonies in saltwater and brackish lagoons, along sheltered coastal areas with mudflats, and in open meadows and marshes with low vegetation. The nests are most often placed on small islands, which are inaccessible to foxes and other predators. As the siting of nests and breeding success are dependent on, among other things, predation and water levels, the occurrence and breeding success of Avocets is very variable. The species occurs in all parts of the country except Bornholm, but is absent from exposed parts of the coasts and also sandy beaches in west Jutland and the north coast of Zealand. Following protection of Avocet in 1922, the species has undergone a marked increase, from a level of 700 pairs in the 1920s, to 3,300-4,700 pairs in the period 1978-1981, and an estimated 5,000 pairs in 1998 (Grell 1998).

The Avocet is a migratory bird that arrives in Denmark in March-April from the winter quarters in southwest Europe and west Africa. During July, when the breeding season is over, the birds assemble in, for example, the Wadden Sea, to moult before the southward migration takes place in September-November. The stock of moulting Avocets in the Danish part of the Wadden Sea has been estimated at 6,000-7,500 birds (Meltofte 1993), with a slightly decreasing tendency (Laursen & Frikke 1997, NERI data). Other moulting sites include the Tipper Peninsula in Ringkøbing Fjord, where up to 1,500 birds moult, Bøvling Fjord in Nissum Fjord with up to 2,500, and Læsø with up to 900 (Meltofte 1993). During the 1990s, a moult site was established in Alleshave Bay, Saltbækvig, where up to 1,000 Avocets have assembled. The Avocet feeds on small benthic invertebrates, which are caught by moving the bill from side to side directly over the bottom of shallow mudflats, or by filtering the surface water.

Denmark is situated on the northern border of the European distribution of the Avocet. The European population was in 1997 estimated at 40,000 pairs (Hagemeier & Blair 1997), while the West European population alone numbered 73,000 birds (Delany & Scott 2002). The numbers in northwest Europe have been increasing. The criterion for identification of internationally important areas for staging Avocets is 730 birds (Delany & Scott 2002), while at the time of the designation of the SPAs in 1983 was it 260 (Fredningsstyrelsen 1983).

National conservation status

The Avocet is on the 1997 Danish Amber List categorised as a species of national responsibility as a breeding bird (Stoltze 1998). The numbers of breeding Avocets in Denmark has generally increased over

the last 20 years, although the birds are concentrated on a small number of sites. There is great variation of the selection of nest sites from year to year. From the most recent estimations, from the 1990s, of the size of the population, only 13% of the total European population bred in Denmark. The Danish stock has been increasing since 1980, and thus, the national conservation status for Avocet as breeding bird in Denmark is assessed as favourable.

The Avocet is on the 1997 Danish Amber List categorised as a species of national responsibility outside the breeding season (Stoltze 1998). The numbers of moulting Avocets in the Danish part of the Wadden Sea and the other moult sites has been stable. Thus the national conservation status for moulting and staging Avocet in Denmark is preliminarily assessed as favourable.

6.47 Kentish Plover *Charadrius alexandrinus*

Kentish Plover	Annex I	Species of special national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	New	No	Critically endangered	62,000-70,000 pairs (Europe)	-	-	Uncertain

Biology

The Kentish Plover breeds on undisturbed sandy beaches, and in recent years, also on salt-marshes with very low vegetation, and on unvegetated flats. The species was formerly distributed along sandy beaches over most of Denmark, but is currently reduced to the Wadden Sea area. A marked decrease was noted in 1950, concurrent with the increase in recreational human activities in these areas. Between the years 1969 and 1974 alone, the stock decreased from 136 pairs to c. 75 pairs. Around 1991, the stock had further reduced to just 30-40 pairs, on six sites. During the most recent estimates, from the mid-1990s, the stock numbered 50-60 pairs (Grell 1998). Subsequently, the species has been, like other rare species, surveyed on an annual basis and some increase has been reported. Thus, the Danish stock has varied between 90 and 115 pairs during the period 1999-2001 (Grell 2000, 2001, 2002). The increase in the most recent years is probably due to active management of the breeding sites, with these having been made inaccessible to the public.

The Kentish Plover is a migratory species and the birds arrive to Denmark in April, from the winter quarters in southwest Europe and west Africa. During September the birds migrate southwards.

Denmark is situated on the northern border for the European population, which breeds sporadically around Europe in coastal areas. The population was, in 1997, estimated at 62,000-70,000 pairs (Hagemeier & Blair 1997). The trend in numbers in Europe has been stable or decreasing in all countries.

National conservation status

Kentish Plover is on the 1997 Danish Red List categorised as critically endangered (Stoltze & Pihl 1998). The species has undergone a significant reduction in the number of breeding birds, as well as breeding sites, in Denmark over the last 40 years. Around 2000, some increase in the Danish stock apparently happened, as a result of the active protection of the breeding sites. However, it is only an increase in numbers, and the distribution seems static. The numbers of birds and their distribution are markedly restricted, and the Kentish Plover is dependant on continued protection of the breeding areas. Thus, the national conservation status for Kentish Plover in Denmark is preliminarily assessed as uncertain.

6.48 Golden Plover *Pluvialis apricaria*

Golden Plover	Annex I	Species of special national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	Critically endangered	440,000-785,000 pairs (Europe)	-	-	Unfavourable-decreasing
Migratory bird	Yes	AT	-	c. 1.73 M birds (North- and Northeast Europe)	10,000	8,000	Favourable

Biology

The Golden Plover breeds in Denmark in open, dry heathland areas with only sparse heath vegetation and no trees. The birds select the most disturbance-free areas. The species bred rather commonly in Jutland during the nineteenth century, and also on a few sites on Zealand and Bornholm. Concurrent with the cultivation of the heathlands, the Golden Plover stock decreased, in terms of both the size of the stock and its distribution, and in the 1930s the total Danish stock was estimated at just 45-78 pairs, all in north Jutland. In 1982 Golden Plover was protected. In 1984, 5-12 pairs were recorded on six sites. In the Atlas survey of breeding birds during 1993-1996, 6-10 pairs on four sites were recorded (Grell 1998). In 1998, 7-8 pairs on 4 sites were registered (Grell 1999), while in 1999 the result was 4-6 pairs (Grell 2000), and in 2000 2-5 pairs (Grell 2001).

The Danish breeding birds belong to the southern form *Pluvialis a. apricaria* that, similarly to the northern Golden Plovers *Pluvialis a. altifrons*, winter in west Europe. The breeding birds arrive to Denmark from the beginning of March, and leave the country during August and September.

The northern Golden Plovers are frequent as staging birds in spring in the Wadden Sea, and north and west Jutland. In the period from March to May, 70,000-100,000 northern Golden Plovers stage in Denmark. From July to November, the birds are more numerous but are more dispersed, occurring all over the country. During autumn surveys in 1974-1978, c. 88,000 were recorded, and, based on this figure, it was estimated that the actual number was 150,000 Golden Plovers. In 1993, 218,000 were recorded (Rasmussen 1994). The birds feed on small invertebrates, such as worms and insects.

Denmark is situated on the southern border of the breeding distribution of Golden Plover in Europe. The European population was, in 1997, estimated at 440,000-785,000 pairs, with around half on Iceland (Hagemeier & Blair 1997). In northwest Europe, the population was, in 2002, estimated at 1.73 million birds (Delany & Scott 2002). This population has been split in an East Atlantic population (Iceland and the Faeroes) of c. 930,000 birds and a North and Northeast European population (Norway and West Russia) of c. 800,000. Both populations seem to be stable. The southern population of Golden Plover, that the Danish birds belong to, occurs in very small numbers in the lowland areas of Denmark, Germany, Poland and Benelux, and has been sig-

nificantly decreasing. The criterion for identification of internationally important areas for Golden Plover in northwest Europe is 8,000 birds (Delany & Scott 2002), while at the time of the designation of the SPAs in 1983 (when the two northern populations were merged) it was 10,000 (Fredningsstyrelsen 1983).

National conservation status

Golden Plover is on the 1997 Danish Red List categorised as critically endangered (Stoltze & Pihl 1998). The Danish breeding stock of Golden Plover seems, apart from the most recent years, to have been stable during the last 20 years. However, it has been at a level that makes it doubtful whether they will survive as a breeding bird in Denmark. Thus, the national conservation status for breeding Golden Plover in Denmark is preliminarily assessed as unfavourable-stable or unfavourable-decreasing.

Golden Plover is on the 1997 Danish Amber List categorised as a species of national responsibility outside the breeding season (Stoltze 1998). The Danish autumn stock of migrating Golden Plovers seems to have increased since 1979-1983. Thus, the national conservation status for staging Golden Plovers in Denmark is preliminarily assessed as favourable.

6.49 Grey Plover *Pluvialis squatarola*

Grey Plover	Annex I	Species of special responsibility	97 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Migratory bird	-	No	-	247.000 (West Europe)	800	2.500	Favourable

Biology

The Grey Plover breeds in the Arctic and occurs in Denmark during spring and autumn, on migration to and from the winter quarters in south and southwest Europe and west Africa. The Grey Plovers feed on sand and mud flats in coastal areas with shallow water. In Denmark the birds stage on a few sites. The majority are found in the Wadden Sea, where 3,000-4,000 birds have been recorded during surveys from land. The spring migration mainly takes place in May, particularly the latter half of the month. The autumn migration happens over a much longer period. The adult birds might, as the first to arrive, be seen from the end of July, and the last juveniles leave Denmark by the end of October. In contrast to most other shorebirds, Grey Plovers feed singularly, and maintain a territory during feeding. The food consists of small crustaceans and bristle worms.

The West European and West African winter population of Grey Plover was in 2002 estimated at 247,000 birds, with an increasing trend (Delany & Scott 2002). The stock in the Danish part of the Wadden Sea has been increasing since the regular aerial surveys started in 1980 (Laursen & Frikke 1997). The criterion for identification of internationally important areas for Grey Plover is 2,500 birds (Delany & Scott 2002), while at the time of the designation of the SPAs in 1983 it was 800 (Fredningsstyrelsen 1983).

National conservation status

The Danish autumn stock of staging Grey Plover in the Wadden Sea, which is the most important staging site for the birds in Denmark, has been increasing since 1979-1983. Thus, the national conservation status for staging Grey Plovers in Denmark is preliminarily assessed as favourable.

6.50 Red Knot *Calidris canutus*

Red Knot	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Migratory bird	-	No	-	340,000 C.c. canutus. 450,000 C.c. islandica	3,000	4,500	Favourable

Biology

The Red Knot breeds in high arctic areas in Canada, Greenland and Russia. Two populations of Red Knot migrate through various parts of Denmark in different periods of spring and autumn. The Greenlandic population, *C. c. islandica*, is found along the west coast of Jutland and in the Wadden Sea. The Siberian population, *C. c. canutus*, is also found in the Wadden Sea, but passes Jutland and the larger islands on migration, and is thus, also found along the coasts of Funen and Zealand. The Greenlandic birds on autumn migration arrive to west Jutland in July and August. They winter in France, the Wadden Sea and the British Isles, and assemble again in the Wadden Sea in March and April. In May, the migration begins, to the breeding areas in Greenland and Canada, via Iceland and north Norway. The Siberian birds arrive in July and migrate further south in August, when they fly non-stop to west Africa, and some even to South Africa, to winter. The birds return to the Wadden Sea in May and stay 2-3 weeks. By the end of May and the beginning of June, they continue the migration to northern Siberia. In Denmark, most Red Knots are recorded in the Wadden Sea. On average, 15,000-20,000 birds are recorded with maxima of 40,000-50,000 birds in April-May and 5,000-6,000 birds in October-November (NERI data). The numbers fluctuates markedly because the proportion of the birds which use the Danish part of the Wadden Sea comprise only a small part of a very large population that has its main staging site at Westerhever Sand in Germany, c. 70 km south of the Danish border. Here, up to 180,000 Red Knots may stage. The food is mainly small bivalves particularly cockles and Baltic clams.

The Greenlandic/Canadian population was, in 2002, estimated at c. 450,000 birds, with a decreasing trend (Delany & Scott 2002). The Siberian population was, at the same time, estimated at 340,000 birds and, similarly, with a decreasing trend. The results of surveys in the Danish part of the Wadden Sea show that numbers were stable in the period 1980-2000, although with considerable annual variations (Laursen & Frikke 1997, NERI data), while surveys in England and the Netherlands show decreasing numbers. The criterion for identification of internationally important areas for Red Knot is 4,500 birds (Delany & Scott 2002), while at the time of the designation of the SPAs in 1983 it was 3,000 (Fredningsstyrelsen 1983).

National conservation status

The numbers of staging Red Knots have been stable in the period 1980-2000 in the Danish part of the Wadden Sea, which is the only significant staging place for this species in Denmark. The numbers are thus presumed to have been stable in Denmark since 1980-1983. Thus, the national conservation status for staging Red Knots in Denmark is preliminarily assessed as favourable.

6.51 Dunlin *Calidris alpina*

Dunlin	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	New	AY (C.a. schinzii)	Rare	4,000 birds (UK, Ireland and Baltic area)	-	-	Unfavourable-decreasing
Migratory bird	New	AT (both C.a.alpina and C.a.schinzii)	-	1.33 M birds (Europe)	20,000	13,300	Favourable

Biology

The Dunlin is, in Denmark, both a breeding and a migratory bird. The breeding birds belong to the subspecies, Southern Dunlin *C. a. schinzii*, which occurs in the Baltic Sea countries, the British Isles and Iceland. This subspecies has been decreasing during the last 100 years or more. The Danish breeding stock was in 1993-1996 estimated at c. 450 pairs, mainly in the reserves at Tipperne and Vejlerne, the Danish part of the Wadden Sea, Saltholm, and west Amager (Grell 1998). During migration, thousands of staging birds occur in Denmark, particularly along the coasts. These birds belong to the subspecies Northern Dunlin, *C.a. alpina*, which is breeding in the Scandinavian mountains and in the sub-arctic zone in northern Russia. In spring, the birds arrive to Denmark in March, and the main migration takes place in May, when typically 50,000 are present in the Wadden Sea with maxima of 200,000-300,000 birds, and c. 25,000 in other parts of the country (Meltofte 1993, Laursen & Frikke 1997). The adults on autumn migration, return from the end of June, with numbers peaking in August. The juveniles migrate through the country from August to the beginning of October. In the Wadden Sea, 250,000 birds might be recorded in September-October, and in other parts of the country 40,000-50,000. The Dunlin winter in west Europe, particularly in France and England, in the Mediterranean and west Africa.

The European population of Northern Dunlin is estimated at 1.33 million birds and is assumed to be stable, while the Southern Dunlin is estimated at c. 4,000 birds and decreasing (Delany & Scott 2002). The results of regular aerial surveys of the Danish Wadden Sea since 1980 show a decreasing trend (Laursen & Frikke 1999). The criterion for identification of internationally important areas for Northern Dunlin is 13,300 birds (Delany & Scott 2002), while at the time of the designation of the SPAs in 1983 it was 20,000 (Fredningsstyrelsen 1983).

National conservation status

Southern Dunlin is on the 1997 Danish Red List categorised as rare (Stoltze & Pihl 1998), and on the 1997 Danish Amber List as a species of national responsibility as a breeding bird (Stoltze 1998). The Danish breeding stock of Southern Dunlin has undergone persistent decreases through the twentieth century. The number of sites has concurrently decreased, and the species now occurs at only a few sites. The persistent decrease of the Danish stock is the reason that the national conservation status for breeding Southern Dunlin is preliminarilyassessed as unfavourable-decreasing.

The Danish autumn stock of staging Northern Dunlin has been slightly decreasing since the beginning of the 1980s. On the basis of the huge number of birds involved, the national conservation status for staging Northern Dunlin in Denmark is preliminarily assessed as favourable

6.52 Ruff *Philomachus pugnax*

Ruff	Annex I	Species of special national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	Vulnerable	130,000 pairs (Europe)	-	-	Unfavourable-decreasing

Biology

The Ruff breeds in Denmark on brackish marshes with low vegetation, on salt-marshes with creeks and pans, and, to a lesser degree, in freshwater meadows. Pair formation takes place around the lek sites, and subsequently, the females, alone, take care of the hatch and hatchlings. As the females lead a concealed life it can be very difficult to decide whether a breeding attempt has taken place. The species occurs scattered on a few sites in Denmark, and is absent from Bornholm. The most important sites are the Tipper Peninsula, Vejlerne and Saltholm. The Ruff is also a rare breeding bird in the Danish part of the Wadden Sea. The species was a widely distributed and common breeder in Denmark around 1900, but numbers and distribution decreased after that time. In the 1960s, 840-1,100 'pairs' were recorded. By the end of the 1980s, the stock had undergone a slight decline to c. 750 'pairs', while the number of sites had decreased significantly. From the most recent survey, during the mid-1990s, the number of 'pairs' was estimated at 500 (Grell 1998). However, the various surveys have covered the stock differently. With that in mind, it was assessed that the number of 'pairs' had decreased by 75% in the period 1970-1995, and the number of sites by 70%. Thus, the species hardly occurs at all as a breeding bird south of a line from the Tipper Peninsula to Tissø and Saltholm. The decrease is probably caused by drainage, and by extensive animal farming in the breeding areas, with increased use of insecticides; hunting along the migration route and in the winter quarters might also have had negative effects (Hagemeier & Blair 1997).

The Ruff is a migratory species that occurs in Denmark in March-April from the winter quarters in Africa. In spring, large staging sites are utilised along the west coast of Jutland. The autumn migration is more evenly distributed over the country. In June the males leave the leks and migrate southwards. Later, the females follow, and then the juveniles, and by the end of September the last birds disappear. The Ruff feeds on benthic fauna, which it finds on mudflats, in creeks and pans on salt-marshes, or in other areas with low vegetation. It is apparently tolerant of low salt concentrations, but too much salt or too intense grazing have negative effects on the birds.

The birds in Denmark belong to the European population, which is distributed from Belgium to central Poland northwards to northernmost Scandinavia. This population was, in 1997, estimated at 130,000 'pairs' (Hagemeier & Blair 1997). The trend in numbers in north Europe has in general been decreasing, in particular in the southern part of the distribution area, including Denmark.

National conservation status

The Ruff is on the 1997 Danish Red List categorised as vulnerable (Stoltze & Pihl 1998). The species has undergone a significant decrease in the number of breeding birds as well as the number of sites in Denmark over the last 30 years. The birds are currently concentrated in three areas, the Tipper Peninsula, Vejlerne and Saltholm, with small numbers in other areas. On the Tipper Peninsula, active management of the areas with respect to this species has resulted in a local increase in numbers. However, the numbers have been decreasing again during the 1990s, probably due to effects of increased salt concentrations associated with Ringkøbing Fjord. Numbers, as well as the distribution, have been decreasing since 1970, and thus, the national conservation status for Ruff in Denmark is preliminarily assessed as unfavourable-decreasing.

6.53 Bar-tailed Godwit *Limosa lapponica*

Bar-tailed Godwit	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Migratory bird	Yes	No	-	120,000 birds (West Europe and North-west Africa)	5,500	1,200	Favourable

Biology

The Bar-tailed Godwit occurs in Denmark on spring and autumn migration. The breeding areas are situated in the low arctic zone of Eurasia where the birds prefer wet bogs. The main part of the population breeds in Russia, while in northern Scandinavia a little less than 2,000 pairs breed, with the majority of these in north Norway and Finmark.

The birds occur most commonly in Denmark during spring. The first birds are seen in March in the Danish Wadden Sea and in west Jutland, and in April the birds are present on a number of shallow-water sites that are exposed at low tide or, in other areas, by the effect of the wind on the water level. The spring migration peaks in the beginning of May, when up to 30,000-40,000 birds can be recorded in the Danish Wadden Sea, and a further 15,000-20,000 birds recorded over the rest of the country (Laursen & Frikke 1997). Denmark is one of the last places where Bar-tailed Godwit can build up fat reserves before the migration to the breeding areas. The autumn migration starts as early as the beginning of July, with arrival of the adult birds. From late August, the juveniles arrive. The birds stay in Denmark only a short time, and the autumn migration passes through Denmark rapidly. In the Danish Wadden Sea, up to 20,000 birds have been recorded in August, with just a few hundred occurring in other parts of the country. The food items consist of bristle worms, small bivalves and crustaceans.

The winter populations of Bar-tailed Godwit in west Europe/northwest Africa and west/southwest Africa were, in 2002, estimated at 120,000 and 530,000 birds respectively, and, likewise, the trend in numbers as stable and decreasing (Delany & Scott 2002). Regular surveys in the Danish Wadden Sea since 1980 have shown marked annual fluctuations, but a stable level up to 2000 (Laursen & Frikke 1997, unpubl. data). The criterion for identification of internationally important areas for Bar-tailed Godwit is 1,200 birds (Delany & Scott 2002), while at the time of the designation of the SPAs in 1983 it was 5,500 (Fredningsstyrelsen 1983).

National conservation status

The numbers of Bar-tailed Godwit in the Danish Wadden Sea, which is the largest staging site in Denmark, have been stable since 1980, and no data are available that indicates a different trend in other Danish staging sites. Thus, the national conservation status for Bar-tailed Godwit is preliminarily assessed as favourable.

6.54 Whimbrel *Numenius phaeopus*

Whimbrel	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Migratory bird	-	No	-	160,000-300,000 birds (North-west Europe)	500	2,300	-

Biology

The Whimbrel breeds in Scandinavia and northern Russia, where it is found in the northern part of the boreal conifer zone, and in the birch zone. It breeds in wet bogs. The migrations through Denmark during spring and autumn are much dispersed, and the birds are seen in high numbers in only a very few places. The Whimbrel is a long-distance migratory species, and the birds that pass through Denmark winter in west Africa. In spring, when the birds stage along the coasts, they feed on bristle worms and small crustaceans. In autumn however, they are also numerous inland, where they feed on berries in the heathlands. Up to 400 Whimbrels has been recorded in the Danish Wadden Sea in spring, and additional birds have been recorded from a number of other sites, although in smaller numbers. However, in 1999, 460 Whimbrels were recorded on the reserve at Tipperne in Ringkøbing Fjord. In autumn, at most only 200 birds have been recorded in the Danish Wadden Sea (Meltofte et al. 1994). On other Danish sites, the numbers recorded have been much fewer.

The Danish Whimbrels belong to the European population that winters in west Africa. This was, in 2002, estimated at 160,000-300,000 birds, and the trend in numbers was assessed as stable (Delany & Scott 2002). The criterion for identification of internationally important areas for Whimbrel is 2,300 birds (Delany & Scott 2002), while at the time of the designation of the SPAs in 1983 it was 500 (Fredningsstyrelsen 1983).

National conservation status

Whimbrels occur scattered in Denmark, and the total numbers are small. The species was originally included in the justification of the designation of the Wadden Sea as a Danish SPA. However, this must have been based on mis-identifications of Curlews. The numbers of Whimbrel has never met the 1% criterion in any Danish SPA and the national conservation status for Whimbrel is not assessed.

6.55 Curlew *Numenius arquata*

Curlew	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Migratory bird	-	No	-	420,000 birds (Europe)	3,000	4,200	Favourable

Biology

The Curlew is distributed in the northern part of Europe, where it prefers the humid part of the boreal conifer zone. It breeds in heathland and bogs, but can also occur in dunes and marshes. In Denmark a small stock of c. 300 pairs breed (Grell 1998). They mainly occur in in southwest, west and north Jutland, on heathland, in dunes and bogs, and to a lesser extent on cultivated fields. The birds also breed on Saltholm and a few other sites in east Denmark. Drainage and cultivation of the species' breeding habitats are probably the main reason that the size of the Curlew population in north Europe has been decreasing through the twentieth century. However, hunting has also had a negative effect on the population's development (Hagemeier & Blair 1997). The Curlews migrate through Denmark during spring and autumn, along the coasts, as well as inland wherever wet fields or meadows can be found. The birds are difficult to survey partly because of their wide dispersion, and partly because Curlews are wary of people and will flee to a considerable distance. Occasionally, the birds roost in large numbers, gathering from over a considerable area. The autumn migration begins in June-July, when the females arrive. They are followed by the males in July-August. Lastly, come the juveniles in August-September. In mild winters, some birds may stay in Denmark. In autumn, up to 3,000 Curlews have been recorded in the Danish Wadden Sea during September (Meltofte 1993, Meltofte et al. 1994). Up to 9,000 birds have been recorded in Nissum Fjord, and 1,100 on Læsø, while up to 500-600 birds have been registered on other sites. In spring the Curlew are dispersed over a considerably greater number of sites than in autumn. During migration, when the species occurs along the coasts, the diet consists of lug worms, bristle worms and crustaceans. However, a large proportion of the birds feed inland on wet grassland, where they forage on earthworms and insect larvae. Curlews were legal quarry in Denmark until 1993.

The Danish birds belong to the European population that in 2002 was estimated at 420,000 birds, with a stable or increasing trend in numbers (Delany & Scott 2002). In the Danish Wadden Sea, the numbers have been increasing since 1992, as a result of better protection of the species in the Wadden Sea (Laursen & Frikke 1999). The criterion for identification of internationally important areas for Curlew is 4,200 birds (Delany & Scott 2002), while at the time of designation of the SPAs in 1983 it was 3,000 (Fredningsstyrelsen 1983).

National conservation status

The numbers of Curlew in Denmark have been increasing since 1992, probably due to protection of the species. The result has been an increase in the number of staging birds in, for instance, the Danish Wadden Sea. As the Wadden Sea meets the criteria for an interna-

tionally important area for the species the national conservation status for Curlew is preliminarily assessed as favourable.

6.56 Redshank *Tringa totanus*

Redshank	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Migratory bird	-	No	-	250,000 birds (West Europe, T.t. totanus)	2,000	2,500	Favourable

Biology

The Redshank is a common breeding bird in Denmark, where it prefers salt-marshes along the coasts, and bogs and meadows with shallow lakes inland. The Danish breeding stock was, in 1992, estimated at 10,000-15,000 pairs. This figure has been maintained (based on mapping during the period 1993-1996), although the trend is assessed to be decreasing (Grell 1998). The species is also common as a migratory bird in Denmark. In spring, the northern breeding birds migrate along the Danish coasts during the first half of May, when 5,000-8,000 Redshank may be present. The autumn migration begins in June, and peaks in July and the beginning of August. In contrast to the spring migration, the birds fly directly to the Danish Wadden Sea, where up to 3,000 birds have been recorded during August (Meltofte et al. 1994). Two populations of Redshank pass Denmark. In spring, the breeding birds from the Baltic area are the first to migrate through Denmark. Later on, the breeding birds of north Scandinavia and Russia pass through. Similarly, in autumn, the birds from the Baltic countries migrate first, followed by the more northerly breeding birds. The two populations have quite different winter quarters, with the southern breeding birds (including those that breed in Denmark) wintering in Mediterranean areas, and the northern population migrating to west Africa. Beside these two populations, Denmark is also visited by birds from the Icelandic subspecies, *T. t. robusta*. In the northern part of the Danish Wadden Sea up to 1,000 "Icelandic" Redshanks have been recorded.

The total European population of Redshank was, in 1997, estimated at c. 350,000 pairs (Hagemeier & Blair 1997). The mid-winter population of *T.t. totanus* originating from Europe was estimated, in 2002, at 250,000 birds, with a decreasing trend, while the *T.t. robusta* population on Iceland and the Faeroe Isles, was estimated at 64,500 birds and a stable or increasing trend (Delany & Scott 2002). Aerial surveys of shorebirds in the Danish Wadden Sea shows marked annual fluctuations in the numbers of Redshank, but with a long-term stable tendency (Laursen & Frikke 1997). The criterion for identification of internationally important areas for Redshank is 2,500 birds (Delany & Scott 2002), while at the time of the designation of the SPAs in 1983 it was 2,000 (Fredningsstyrelsen 1983).

National conservation status

Surveys in the Wadden Sea, which is the most important Danish area for Redshank, show stable numbers for the species since 1980. Thus the national conservation status for Redshank as a staging bird in Denmark is preliminarily assessed as favourable.

6.57 Greenshank *Tringa nebularia*

Green-shank	Annex I	Species of special national responsibility	1997 Danish Red List	Flyway population in 2002	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Migratory bird	-	No	-	234,000-395,000 birds (Europe)	500	3,100	Favourable

Biology

The Greenshank breeds in north Europe in the conifer zone, and also in the northern parts of the birch zone, where the territories are placed in wet heathland and bogs. The birds in Denmark appear only on migration. The adult birds occur along the coasts and inland from the beginning of July to the middle of August. The juveniles appear from the beginning of August into October. During migration, the birds generally occur singularly or in small flocks; however, at high-tide there can be flocks of several hundred birds, often together with other shorebirds such as Redshank. Most Greenshanks are recorded in Denmark in autumn, particularly in the Danish Wadden Sea, where up to 1,800 birds have been recorded (Meltofte et al. 1994). Similar numbers might be present in the other parts of the country. In spring, a total of a couple of thousands of Greenshanks occur in Denmark from late April to the middle of May. These birds mainly occur in the Danish Wadden Sea. The species winters in Africa and Asia. Greenshank feed on small fish, worms and crustaceans.

The total population of Greenshank in Europe is estimated at 234,000-395,000 birds, with the trend in numbers being stable (Delany & Scott 2002). Aerial surveys in the Danish Wadden Sea in the period 1980-2000 show increasing numbers in August (Laursen & Frikke 1997, unpubl. data). These results, together with results from England, indicate that the population of Greenshank is increasing. The criterion for identification of internationally important areas for Greenshank is 3,100 birds (Delany & Scott 2002), while at the time of the designation of the SPAs in 1983 it was 500 (Fredningsstyrelsen 1983).

National conservation status

The numbers of Greenshank in the Danish Wadden Sea have been increasing since 1980. This area is the largest staging site for Greenshank in Denmark. On that basis, the national conservation status for Greenshank as a migratory species in Denmark is preliminarily assessed as favourable.

6.58 Wood Sandpiper *Tringa glareola*

Wood Sandpiper	Annex I	Species of special national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	Vulnerable	1.2 M pairs (Europe)	-	-	Unfavourable-stable

Biology

The Wood Sandpiper breeds in west Jutland, in open heathland bogs, and close to heathland lakes and pools. Previously, the species was distributed over most of Jutland, but has bred only occasionally on Denmark's larger islands. Wood Sandpiper numbers have decreased significantly compared to an estimated breeding stock in the 1950s of 200-300 pairs, and the 88-112 breeding pairs on 53 sites that were registered in the period 1978-1981. During a recent survey during 1991-1993, that was focussed on heathland birds, the Danish stock of this species was estimated at 63-82 pairs on 12-13 sites (referred to in Grell 1998). In 1998 and 1999, 72-74 and 85-90 pairs respectively were recorded (Grell 1999, 2000). The Wood Sandpipers have disappeared in particular from the middle and southern parts of Jutland, and are currently concentrated in a few areas in Thy in north Jutland, where active management of the habitats with respect to this species has resulted in local increases in numbers.

Denmark forms the southern boundary of the distribution area for this migratory bird, which is abundant in the breeding areas in Scandinavia and Russia, and is common on migration through Denmark in May and August-September. The birds winter in Africa. The Wood Sandpiper feed on insects, snails, worms etc.

The Wood Sandpipers in Denmark belong to the European population, which in 1997 was estimated at 1.2 million pairs (Hagemeier & Blair 1997). The trend in numbers in Finland has been decreasing. This is assumed to have been caused by the conditions outside the breeding areas, maybe in the winter quarters (Hagemeier & Blair 1997). The species seems also to be in decline in the southern part of its distribution, including Denmark.

National conservation status

The Wood Sandpiper has, in Denmark, during the last 20 years undergone a marked numerical decrease and concentration on a few sites. The birds breed regularly in eight of the 20 SPAs in which it was included in the justification for designation as a SPA. Wood Sandpiper is on the 1997 Danish Red List categorised as vulnerable (Stoltze & Pihl 1998). The size of the stock, as well as the extent of the distribution, has been decreasing since 1970, but has possibly been stable since the 1980s, due to the increase in number in Thy. The national conservation status for Wood Sandpiper in Denmark is preliminarily assessed as unfavourable-stable.

6.59 Mediterranean Gull *Larus melanocephalus*

Mediterranean Gull	Annex I	Species of special national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	No (annual from 1998)	190,000-370,000 pairs (Europe)	-	-	Uncertain

Biology

The Mediterranean Gull is new as a breeding bird in Denmark, where the species breeds on small islands in coastal areas, typically in connection with colonies of Black-headed Gull or Common Gull. Mediterranean Gull was first recorded breeding in Denmark in 1970, as part of the species' expansion into west Europe, and has in the period 1980 to 1997 bred irregularly in Denmark, with several pairs annually. Since 1998, up to six pairs have bred regularly.

The Mediterranean Gulls in northwest Europe are migratory birds that arrive in Denmark in April-May, and disappear in September-October. The birds winter mainly in the Mediterranean, and along the Atlantic coasts in southwest Europe, and in northwest Africa.

The vast majority of the Mediterranean Gulls breed along the coasts of the Black Sea, particularly in Ukraine. The species fluctuates in numbers, and in 1997 the total population of Mediterranean Gull was estimated at 190,000-370,000 pairs (Hagemeier & Blair 1997).

National conservation status

Mediterranean Gull is relatively recent as a Danish breeding bird and was not included on the 1997 Danish Red List (Stoltze & Pihl 1998). The species has not yet bred regularly over a longer period. Thus, the national conservation status for Mediterranean Gull is preliminarily assessed as uncertain.

6.60 Gull-billed Tern *Gelochelidon nilotica*

Gull-billed Tern	Annex I	Species of special national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	AY (German-Danish population)	Critically endangered	c. 100 pairs (Germany and Denmark)	-	-	Unfavourable-decreasing

Biology

The Gull-billed Tern breeds in Denmark on small islands with low vegetation, most often in connection with colonies of Black-headed Gull or Common Tern. The species requires foraging areas of heathland, salt-marshes with low vegetation, sand flats or cultivated land. The Gull-billed Tern has never been common in Denmark. During the period c. 1850-1950, the Danish breeding stock varied between 150 and 500 pairs. In the mid-1970s, the stock was reduced to 10-16 pairs. From the mid-1980s, the main distribution in Denmark changed from the Limfjord area to the Danish Wadden Sea, and it is assumed that the birds, which had previously bred in the Limfjord area established new colonies in the Wadden Sea. The reasons for the recorded decline and change in location of the colonies are thought to include, cultivation of heathland and salt-marshes, predation (particularly by fox), human disturbances, egg collection, and destruction of nests by sheep, although the conditions in the winter quarters cannot be ruled out as also having had an effect on the decline in the bird's numbers (Rasmussen & Fischer 1997). From 1980 to the mid-1990s, the stock was relatively stable with 1-16 pairs annually, all of which have bred in the Wadden Sea (Grell 1998). Subsequently, 8 pairs were recorded in 1998 (Grell 1999), 7-8 pairs in 1999 (Grell 2000), and 2 pairs in 2000 (Grell 2001). The production of fledglings has for a number of years been poor, and far from sufficient to maintain a Danish breeding stock. The last known fledglings date back to 1995, although it is possible that one pair had three fledglings in 2000 (Grell 2001). There is no doubt that the small Danish breeding stock is still existing only through support by birds from the German colonies, which apparently have had good breeding success (Rasmussen & Fischer 1997).

The Gull-billed Tern is a migratory bird that winters in tropical west Africa. The Danish breeding birds arrive in May, and depart from the country in July-August. In contrast to other terns, the birds feed over land, and the diet is rather varied comprising, e.g. bird chicks, reptiles, insects and worms.

The Gull-billed Tern is distributed over most of the world. Within Europe, the Danish/German population, which is no larger than 100 pairs, is isolated from the main distribution area in the Mediterranean. The total population of Gull-billed Terns in western Europe was, in 1997, estimated at c. 4,000 pairs (Hagemeier & Blair 1997). The species is decreasing in practically the whole of Europe, and for the same reasons as have been mentioned above concerning the Danish breeding birds.

National conservation status

The Gull-billed Tern is on the 1997 Danish Red List categorised as critically endangered (Stoltze & Pihl 1998). On the 1997 Danish Amber List, the Gull-billed Tern is categorised as a species of national responsibility concerning the breeding population in north Europe (Stoltze 1998). In the light of the absence of breeding success in the Danish stock this assessment is no longer valid. The species has undergone a permanent decrease in numbers in Denmark since 1950 and seems now on the verge of disappearance as a Danish breeding bird. Thus, the national conservation status for Gull-billed Tern is preliminarily assessed as unfavourable-decreasing.

6.61 Sandwich Tern *Sterna sandvicensis*

Sandwich Tern	Annex I	Species of special national responsibility	97 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	No	70,000-95,000 pairs (Europe)	-	1,700	Unfavourable-decreasing

Biology

The Sandwich Tern typically breeds on uninhabited islands with low vegetation, adjacent to colonies of Black-headed Gulls. The Black-headed Gulls are aggressive and provide a good defence for the Sandwich Terns against predators. Sandwich Terns often move their colonies to new places. Thus, the availability of suitable sites for the colony is of great importance. During the period 1993-1996, the species was recorded as breeding at a total of 30 sites in Denmark, but only 15 colonies were registered annually (Grell 1998). Colonies of Sandwich Tern might comprise up to several thousand pairs, and most of the Danish Sandwich Terns breed in a few colonies of more than 100 pairs, in north and west Jutland. The Danish stock was, in the mid-1990s, estimated at 4,500 pairs (Grell 1998). This is about 2,500 pairs less than there were in the middle part of the twentieth century. On Hirsholmene, in north Jutland, c. 4,000 pairs bred in 1940, which had decreased to 1,600 pairs in 1995. Thus, it seems that the decrease in this colony alone can account for the overall decline in the Danish numbers (Grell 1998).

The Sandwich Tern is a migratory bird that winters along the west African coasts. The species feeds on fish, particularly Sand eel, which are caught by diving from the air. The birds arrive in Denmark in April, and almost all have left the country by the end of August.

The Sandwich Terns in Denmark belong to the European population, which is currently increasing, and, in 1997, was estimated at 70,000-95,000 breeding pairs (Hagemeier & Blair 1997). In 2002, the North and West European population by itself was estimated at c. 165,000 birds (Delany & Scott 2002). The criterion for identification of internationally important areas for Sandwich Tern is 1,700 birds (Delany & Scott 2002).

National conservation status

The number of Sandwich Terns in the biggest Danish colony, on Hirsholmene, has decreased from 3,000 pairs in 1988, to half that number in the mid-1990s. This change alone is sufficient to account for the reduction in the Danish stock, from 5,700 to 4,500 pairs, that has taken place over the last 20 years. During moult, in July-August, up to 6,000 Sandwich Terns are assembled at Blåvandshuk in west Jutland, and the site is thus internationally important for the species. The national conservation status for Sandwich Tern in Denmark is preliminary assessed as unfavourable-decreasing.

6.62 Common Tern *Sterna hirundo*

Common Tern	Annex I	Species of special national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	No	210,000 pairs (Europe)	-	6,400	Favourable

Biology

Common Tern breed in colonies on small islands along the coasts, but can also be found at lakes inland. They often place their colonies within colonies of Arctic Tern or Black-headed Gull. As with other terns, Common Terns often move their colonies to new sites. Thus, the availability of suitable sites for the colony is of great importance. In the period 1993-1996, this species was recorded breeding at c. 100 sites, albeit with large inter-annual variability in their numbers (Grell 1998). The species was registered in all areas of Denmark, except Bornholm. By far the largest numbers of records were made on Zealand, Lolland and Falster, while the largest colonies occurred in west Jutland. Common Tern was absent from large parts of east Jutland. The Danish stock was, at this same time, estimated at 1,000 pairs (Grell 1998). The first reliable assessments of the Danish stock date from around 1970, when it was estimated at 600-800 pairs. This number was maintained, as shown by surveys in 1978-1981. In 1988, the figure reached 1,500 pairs (Grell 1998).

The Common Tern is a migratory bird that winters along the west African coasts. The birds arrive in Denmark by the end of April, and leave the country during August and September. The species feeds primarily on small fish that are caught by diving from the air, but they might also take large water insects.

The Danish Common Terns belong to the European population, which has been fluctuating through the twentieth century, with a tendency to decrease. The population is estimated at c. 210,000 breeding pairs (Hagemeier & Blair 1997). In 2002, the North and East European population by itself was estimated at c. 640.000 birds (Delany & Scott 2002). The criterion for identification of internationally important areas for Common Tern is 6,400 birds (Delany & Scott 2002).

National conservation status

Since around 1980, the Danish stock of Common Tern has increased from 600-800 pairs to 1,000 pairs, and has at one point reached 1,500 pairs. During moult in August up to 18,000 Common Terns have been recorded on roost sites in Ho Bay; these birds feed at Blåvandshuk in daytime. The national conservation status for Common Tern in Denmark is preliminarily assessed as favourable.

6.63 Arctic Tern *Sterna paradisea*

Arctic Tern	Annex I	Species of special national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	No	600,000 pairs (Europe)	-	-	Favourable

Biology

Arctic Terns breed in colonies within areas of low vegetation on small islands along the coasts. As with other terns, the Arctic Terns often move their colonies to new sites. Thus, the availability of suitable sites for the colony is of great importance. During the period 1993-1996, this species was registered on c. 200 sites, albeit with large inter-annual variability in their numbers (Grell 1998). The Arctic Tern was recorded in all areas of Denmark, except Bornholm. The Danish stock was, at this same time, estimated at 8,000-9,000 breeding pairs (Grell 1998). The first reliable assessments of the Danish stock of Arctic Tern date from around 1970, when it was estimated to number 5,500-6,000 pairs. This figure increased to 6,000-8,000 pairs, as shown by surveys in 1978-1981 (Dybbro 1985). However, the increase probably reflected a better coverage of the colonies, rather than an actual increase in the number of pairs. At the end of the 1980s, c. 8,000 pairs were recorded.

Arctic Terns are migratory birds that winter close to the Antarctic. The birds arrive in Denmark by the end of April, and depart during July and the beginning of August. The species feed mainly on small fish that are caught by diving from the air, but they might also take larger water insects.

The Danish Arctic Terns belong to the European population that has been relatively stable since at least around 1970. The population is estimated at c. 600,000 breeding pairs (Hagemeier & Blair 1997).

National conservation status

The Danish assessments show an increase in the numbers of Arctic Terns, since c. 1980, from 6,000-8,000 to 8,000-9,000 pairs. Thus, the national conservation status for Arctic Tern in Denmark is preliminarily assessed as favourable.

6.64 Little Tern *Sterna albifrons*

Little Tern	Annex I	Species of special national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	Rare	37,000 pairs (Europe)	-	-	Unfavourable-decreasing

Biology

Little Terns breed typically in colonies on open sandy beaches without any vegetation, and occasionally at lakeside shores inland. Suitable sites for the nests seem of major importance for the establishment of colonies. This species can be found along most coasts in Denmark, but is absent from Bornholm and exposed coasts such as the west coast of Jutland north of Blåvandshuk, and the north coast of Zealand. The Danish stock of Little Tern decreased from 600-900 pairs in the 1960s, to 400-600 pairs in the mid-1990s (Grell 1998). In 1998, 1999 and 2000, the stock was estimated at 400 pairs, 450 pairs and 470 pairs respectively (Grell 1999, 2000, 2001). The numbers of sites seems to have more than halved over the last 20 years, and the Little Tern has abandoned in particular its former breeding sites around Lolland and Falster, in the South Funen Archipelago, in Lillebælt, and in the Limfjord. In contrast to that trend, the numbers in the Danish Wadden Sea have increased from 82 pairs in 1981, to 247 pairs in 2001, and the number of colonies has in the same period increased from 5 to 25 (Rasmussen 2003). The reason for the decline is probably the marked increase in recreational activity on the sandy beaches, and the associated increase in disturbance of hatching birds, while the increase in bird occurrences in the Wadden Sea might be due to better protection against disturbance by people.

The Little Tern is a migratory bird that winters along the coasts of west Africa. The birds arrive in Denmark by the end of April and during May, and almost all have left the country by the middle of September. The species feeds on small fish caught by diving from the air into waters that are close to the coast.

The Little Terns in Denmark belong to the European population, which after a steady decrease during the twentieth century, has been increasing since the 1970s, and is estimated at c. 37,000 breeding pairs (Hagemeier & Blair 1997).

National conservation status

Little Tern is on the 1997 Danish Red List categorised as rare (Stoltze & Pihl 1998). The number of Little Tern in Denmark has apparently been decreasing through the twentieth century, as have the number of breeding sites. Thus, the national conservation status for Little Tern in Denmark is preliminarily assessed as unfavourable-decreasing.

6.65 Black Tern *Chlidonias niger*

Black Tern	Annex I	Species of special national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	Critically endangered	57,000-110,000 pairs (Europe)	-	-	Unfavourable-decreasing

Biology

Black Terns breed in colonies in fresh water areas associated with wet meadows with rush and sedge, in ditches or other open waters in the zones between grazed meadows, and in lakes or bogs with abundant floating vegetation. In Europe, the colonies are often 20 pairs or less and there are very few colonies are more than 50 pairs. In Denmark, the species is concentrated in a few regularly used breeding sites (Vejlerne, Tønder Marshes, Husby Lake and Nørre Lake in Jutland, and Ramsø Valley on Zealand), occurring only highly irregularly in the other parts of the country. In 1996, the Danish stock reached a minimum of 26-30 pairs (Grell 1998). This comprises just a tiny fraction of the several thousand pairs that are thought to have bred in Denmark at the end of the nineteenth century. Since then, the numbers have been in steady decrease. Around 1950, the Danish stock was estimated at 700 pairs, in 1963-1965 at c. 400 pairs, and in 1971-1974 at 200 pairs (Dybbro 1976). During the years after 1996, a slight increase in numbers has taken place, and the numbers recorded since then have been 36-41 pairs in 1998 (Grell 1999), 49-55 pairs in 1999 (Grell 2000) and 30-37 pairs in 2000 (Grell 2001). The lack of suitable sites for nests seems to have been a problem for the species, and, in connection with this, in some selected lakes in Sweden artificial platforms for Black Tern nests have proved successful. However, a similar operation in Vejlerne was unsuccessful. The Black Terns are migratory birds that winter along the west African coasts. Occupation of territories and pair formation take place in May, and the birds depart from Denmark during August. The species feed on middle sized or small aquatic insects that are caught while the birds fly low over the water or from the floating vegetation.

Black Terns in Europe have, similar to the situation in Denmark, undergone a significant reduction in numbers during the twentieth century. It is estimated that between just 1970 and 1997, the population decreased by more than 50%. The total population was, in 1997, estimated at 57,000-110,000 breeding pairs (Hagemeier & Blair 1997). Each August, almost the entire population gathers in Ijsselmeer in the Netherlands to perform body and wing feather moult. During a three week period, up to 150,000-200,000 birds can be seen there.

National conservation status

The Black Tern is on the 1997 Danish Red List categorised as critically endangered (Stoltze & Pihl 1998). Distribution and number of pairs has been drastically reduced and in the period from 1970 to 1996 about 85% of the Danish Black Terns disappeared. Thus, the national conservation status for Black Tern is preliminarily assessed as unfavourable-decreasing.

6.66 Great Horned Owl *Bubo bubo*

Great Horned Owl	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	Rare	25,000 pairs (Europe)	-	-	Favourable

Biology

The Great Horned Owl bred again in Denmark in 1984, after having been absent for 100 years. A large-scale release of the species in north Germany was the basis for the return to Denmark. The Great Horned Owl most often inhabits quiet, undisturbed parts of gravel pits, close to woodland, with the nest placed directly on the ground. The species seems to have only limited requirements for the breeding area, although it apparently needs relatively undisturbed surroundings for the nest. Great Horned Owl bred until 1884 in Denmark, but disappeared as a result of extensive persecution. In the first year after the bird's return only one pair bred, but the species dispersed rather rapidly to all of Jutland south of the Limfjord, and since 1999 also north of there. However, the stock now seems to have stabilised, and was in each of the years 1998, 1999 and 2000 estimated at 25-30 pairs (Grell 1999, 2000, 2001). Breeding success seems to have been good with 15 fledglings (from 6 pairs) in 1998, 18 fledglings (from 7 pairs) in 1999 and 26-28 fledglings (from 11 pairs) in 2000.

Great Horned Owls are sedentary as adults, while the juveniles move around. The diet consists of birds, such as Wood Pigeon and Hooded Crow, and mammals, such as hedgehog and brown rat. Outside of Denmark, wild rabbits are a very important food item.

The birds are distributed in woodlands throughout Europe. The European population of Great Horned Owl was, in 1997, estimated at c. 25,000 pairs (Hagemeier & Blair 1997). The species has decreased over large parts of Europe, such as where it has been persecuted, but seems to recover quickly once the persecution has ceased.

National conservation status

Great Horned Owl is on the 1997 Danish Red List categorised as rare (Stoltze & Pihl 1998). The species was absent from Denmark for 100 years, but has recently re-colonised Jutland after extensive release in Germany. Great Horned Owl has in the period 1998-2000 bred in Denmark, with 25-30 pairs annually. The species did not breed in Denmark when the Birds Directive came into force, but has in a few years established a considerable and apparently viable stock. The national conservation status for Great Horned Owl in Denmark is preliminarily assessed as favourable.

6.67 Short-eared Owl *Asio flammeus*

Short-eared Owl	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	Critically endangered	14,000-26,000 pairs (Europe)	-	-	Unfavourable-decreasing

Biology

The Short-eared Owl breeds in Denmark on large uncultivated areas with low vegetation, such as salt-marshes and river valleys, but, previously, also in bogs and heathland. The annual numbers of pairs are very variable, and, until recently, was high in years with an abundance of rodents. However, in the last year with an abundance of mice for which information is available, 1996, the number of pairs does not seem to have been greater than for the other years during the 1990s. The species was previously well distributed in Jutland, but has never been common, and, during the period 1978-1981, between 24 and 41 confirmed and probable breeding pairs were recorded. During the most recent Atlas survey of the Danish breeding birds, in 1993-1996, no area could be shown to have regularly breeding pairs (Grell 1998). In total, four confirmed and 11 probable breeding pairs were recorded, and thus, the species has decreased markedly in Denmark. It seems, however, that Mandø has become a site of regular breeding for the species, and the situation might have improved in the years since the Atlas survey. In 1998, 2-5 breeding pairs were recorded in Denmark (Grell 1999), and 9-15 pairs in 1999 (Grell 2000), while there seems to have been no breeding records from 2000 (Grell 2001).

The species also occurs as a migratory bird, passing through the country from Scandinavian breeding sites to winter in Denmark. The numbers of these birds have also been decreasing, so that, while 276-286 birds were recorded annually in 1988-1989, this number had fallen to 129-212 birds in 1993-1995 (Grell 1998). The Short-eared Owl feeds on small rodents, particularly voles.

The Danish Short-eared Owls belong to the European population. This was, in 1997, estimated at 14,000-26,000 pairs outside Russia (Hagemeier & Blair 1997). The trend in numbers in Europe has been decreasing, and the species is now practically absent from central Europe. In Russia, the species is estimated to have declined by 50% since 1970.

National conservation status

The Short-eared Owl is on the 1997 Danish Red List categorised as critically endangered (Stoltze & Pihl 1998). Over the last 30 years, the species has undergone a marked decrease in the number of breeding pairs, as well as in the number of breeding sites in Denmark, and it no longer occurs as a regular breeding bird on any site or SPA. Its abundance and distribution have been decreasing since 1970, and the national conservation status for Short-eared Owl in Denmark is preliminarily assessed as unfavourable-decreasing.

6.68 Tengmalm's Owl *Aegolius funereus*

Tengmalm's Owl	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	Critically endangered	50,000-70,000 pairs (Europe)	-	-	Uncertain

Biology

Tengmalm's Owl has appeared as a Danish breeding bird during the twentieth century, although it is difficult precisely to document when. It has certainly been breeding on Bornholm since 1979, but was observed on the island from 1973. The species is found in mixed woodland and pine woodland, where it breeds in tree holes, such as ones left by Black Woodpecker *Dryocopus martius*, and this has probably limited its dispersion. Thus, it colonised Bornholm after the Black Woodpecker had been breeding on the island for a number of years, and the first breeding record of Tengmalm's Owl was from a Black Woodpecker hole. However, the competition between the various hole-nesting birds for these holes is hard, and Tengmalm's Owl will in, the absence of tree holes, go into nest boxes. After the colonisation, the species has occurred regularly only on Bornholm, and in varying numbers. In the years 1993, 1994 and 1995, 6, 7-8 and 1 hooting males were recorded respectively, and the number of breeding pairs has been estimated at 1-5 (Grell 1998). The species was not recorded in 1998, while in 1999 and 2000 Tengmalm's Owls have been heard at four sites (Grell 1999, 2000, 2001). Thus, the annual numbers seem quite variable, and the species might not be established on Bornholm for certain. This indicates that the Bornholm birds might not be self-sustaining, but dependant on the contributions of birds immigrating from Sweden or Poland.

Tengmalms Owl is mainly sedentary, but both adult females and juveniles may move around. The species primarily feed on small rodents. Tengmalms Owl is distributed north of Denmark, but is also found south of the Danish border to the Pyrenees and Greece. The European population of Tengmalm's Owl has been, in 1997, estimated to 50,000-70,000 pairs (Hagemeier & Blair 1997). The trend in numbers seems to have been stable, due to a large-scale mounting of nest boxes, to compensate for the loss of natural nest holes associated with modern forestry methods.

National conservation status

Tengmalm's Owl is on the 1997 Danish Red List categorised as critically endangered (Stoltze & Pihl 1998). The species has bred regularly, although in very small numbers, on Bornholm since 1979, and maybe even 1973. The stock has, since 1979, been estimated at 1-5 pairs, but it is uncertain whether it is self-sustaining or dependent on contributions of birds from Fennoscandia. Tengmalm's Owl established itself during the period when the Birds Directive came into force but has never been able to develop a viable stock. Thus, the national conservation status for Tengmalm's Owl in Denmark is preliminarily assessed as uncertain.

6.69 Nightjar *Caprimulgus europaeus*

Nightjar	Annex I	Species of special national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	No	250,000 pairs (Europe)	-	-	Favourable

Biology

The Nightjar seems, to a great extent, to have changed breeding habitat, concurrent with the cultivation and disappearance of the heathlands. Previously, the birds mainly bred in heathland, but currently they occur almost exclusively in open pine woods on dry and sandy soil. In the nineteenth century, the Nightjar was described as a characteristic bird of the Danish heathlands, and it was common in Jutland, but also dispersed over the rest of the country. Through the twentieth century the distribution area was reduced and the species disappeared from Funen and large parts of east and south Jutland. In the period 1993-1996, the Danish stock was estimated at 500-600 pairs (Grell 1998). Previous assessments are probably not reliable, and even though the species seems to have decreased over the last 20 years, the results from 1993-1996 will form the basis for future assessments. Nightjars are migratory birds that winter in east and south Africa. The birds arrive to the Danish breeding places in the middle of May, and depart during August and September. The birds feed on nocturnal insects.

The Nightjar is distributed north to central Sweden, and thus Denmark is on the northern border of its range. The European population of Nightjar was, in 1997, estimated at c. 250,000 pairs (Hagemeier & Blair 1997). The species has apparently undergone significant declines in most European countries.

National conservation status

No precise assessments exist, within the last 20 years, of the development of the Danish stock of Nightjar. However, there seems little doubt that the distribution area has declined. This reduction is most likely a result of reduction in the area of heathland and forests with minimal management. On the basis of numbers and distribution in 1993-1996, and the relatively large breeding population, the national conservation status for Nightjar in Denmark is preliminarily assessed as favourable.

6.70 Kingfisher *Alcedo atthis*

Kingfisher	Annex I	Species of special national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Ynglefugl	Yes	No	Rare	36,000-94,000 pairs (Europe)	-	-	Favourable

Biology

The Kingfisher breeds in Denmark along clear and clean watercourses and lakes with abundant small fish. The birds breed in banks that lead to the water or ones that are situated nearby, and also in artificial banks, such as close to Haderslev. The species is rather shy, and has low tolerance to human disturbances on the breeding sites. Mortality might be high in severe winters, and the number of pairs varies from year to year. The Kingfisher is particularly well distributed in central and east Jutland, but is more dispersed in north and west Jutland, on Funen and locally on Zealand. The Danish stock was, in 1971-1974, estimated at 200 pairs (Dybbro 1976), but decreased to 50-100 pairs after the severe winters in the mid-1980s. During the last Atlas survey of breeding birds, in 1993-1996, the number of Kingfishers was estimated at c. 300 pairs (Grell 1998). A large proportion of the Danish breeding birds migrate south in winter, but some will stay, and additional birds from Sweden will winter here. The birds feed on fish of lengths less than 10 cm.

The Kingfishers in Denmark belong to the European population. This has never been assessed, but a calculation, in 1997, based on available breeding bird data, resulted in a figure of 36,000-94,000 pairs outside Russia (Hagemeier & Blair 1997). The long-term trend in the numbers is unknown.

National conservation status

Kingfisher is on the 1997 Danish Red List categorised as rare (Stoltze & Pihl 1998). Despite fluctuations in population size the species has been increasing in Denmark during the last 20 years, from c. 200 to 300 pairs. The Danish stock has been increasing, and the distribution area has expanded. Thus, the national conservation status for Kingfisher in Denmark is preliminarily assessed as favourable.

6.71 Black Woodpecker *Dryocopus martius*

Black Woodpecker	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	No	250,000 pairs (Europe)	-	-	Favourable

Biology

The Black Woodpecker breeds in mixed forests, where older beech trees (80-120 years) are adjacent to areas of conifers, and where Carpenter Ants and/or Wood Ants occur, these insects being among the species' most important food items during the breeding season. Particularly during winter, stems and stumps are important foraging sites for the species. The Black Woodpecker was added to the Danish list of breeding birds in 1961, when it was recorded simultaneously in north Zealand and on Bornholm. Since then the species has dispersed through these two areas and also through the eastern part of mid-Jutland, but it has not yet spread to Funen, Lolland and Falster. The Danish stock was, in 1971-1974, estimated at 80 pairs (Dybbro 1976), and 120 pairs at the end of the 1980s. During the most recent Atlas survey of breeding birds, in 1993-1996, the numbers were estimated at c. 200 breeding pairs (Grell 1998). The Black Woodpecker is sedentary, and remains in Denmark during winter. Occasionally, the Danish stock is apparently supplemented by visitors from Sweden, the beginning of the 1970s having been the most recent occasion.

The Black Woodpeckers in Denmark belong to the European population. This has never been assessed, but a calculation, in 1997, based on available breeding bird data, resulted in a figure of c. 250,000 pairs outside Russia (Hagemeier & Blair 1997). The long-term trend in the numbers is unknown.

National conservation status

The Danish stock of Black Woodpeckers has been steadily increasing since the first birds appeared in 1961. The number has most recently (1997) been estimated at 200 pairs. Black Woodpecker is undergoing colonisation and dispersal within Denmark, and the national conservation status for Black Woodpecker in Denmark is preliminarily assessed as favourable.

6.72 Wood Lark *Lullula arborea*

Wood Lark	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	Rare	1-3 M pairs (Europe)	-	-	Favourable

Biology

The Wood Lark occurs in open, sandy areas with low vegetation. The breeding site has to include bare ground with sparse vegetation, but also small bushes and trees that provide song posts. Hence, the species breeds in heathland, dunes and cleared areas in coniferous forests. Newly planted areas of pine trees, of 2-3 years old, seem to be particularly attractive for the species. Nothing is known of the development in Wood Lark numbers and distribution in Denmark during the twentieth century. It is assumed that the species has been decresing since the 1950s, but the Danish stock seems to have been stable during the last 20-25 years (Grell 1998). During the most recent Atlas survey of breeding birds, in 1993-1996, the Danish stock was estimated to number at least 300 pairs (Grell 1998).

The Wood Lark is a migratory bird that winters in southwest Europe. The majority of the birds arrive to the Danish breeding sites in March, and leave the country in October. The species feeds mainly on insects.

The Wood Lark is distributed northwards to central Sweden, and Denmark is thus situated in the northern part of its range. The European population has been, in 1997, estimated at 1-3 million pairs (Hagemeier & Blair 1997). The species is adversely affected by severe winters, and has been fluctuating with a decreasing trend in both its numbers and its distribution.

National conservation status

The Danish stock of Wood Larks seems to have been stable over the last 20-25 years, although the distribution area has been reduced. On the basis of numbers and distribution in 1993-1996, and the relatively large size of the Danish breeding stock, the national conservation status for Wood Lark in Denmark is preliminarily assessed as favourable.

6.73 Tawny Pipit *Anthus campestris*

Tawny Pipit	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	Critically endangered	500,000-800,000 pairs (Europe)	-	-	Unfavourable-decreasing

Biology

The Tawny Pipit occurs in Denmark almost exclusively in open, dry and sandy dunes near the coast, where it can tolerate the occurrence of only a very few trees and bushes. The species has always been scarce, and in the 1950s the Danish stock was estimated at c. 50 pairs. In 1971-1974, it was estimated that 30-50 pairs were breeding (Dybbro 1976). During the most recent Atlas survey, in 1993-1996, the species was recorded in only a small proportion of its former breeding areas. From a distribution area that formerly included large parts of the Kattegat coasts, regular breeding sites were registered in only the Skagen area, and on Anholt (Grell 1998). The decrease in north Zealand was especially marked. There is a pronounced overlap between the habitat of the species and areas used for human recreational activities, and human disturbance seems to be the most important reason for the reduction in numbers in north Zealand. During the period 1993-1996, the Danish stock was estimated at a minimum of 20-25 pairs, at Skagen and on Anholt (Grell 1998). In 1998 and 1999, the Danish stock was estimated at 15-20 pairs, but records of the birds singing indicate that the species might also breed on Læsø (Grell 1999, 2000).

The Tawny Pipit is a migratory bird that winters in the Sahel area in Africa and on the Arabian Peninsula. The species arrives at the Danish breeding sites in May, and leaves the country during August and September. The birds feed on insects.

Denmark, together with south Sweden and Estonia represents the northern border in Europe for breeding Tawny Pipit. In 1997, the European population was estimated at 500,000-800,000 pairs, this number including 500,000 pairs in Spain (Hagemeier & Blair 1997). The species has been decreasing throughout its European distribution area since the mid-1960s.

National conservation status

The Tawny Pipit is on the 1997 Danish Red List categorised as critically endangered (Stoltze & Pihl 1998). The Danish stock of Tawny Pipits has been decreasing over the last 25-30 years and the species is currently restricted to just three small areas. Thus, the national conservation status for Tawny Pipit in Denmark is preliminarily assessed as unfavourable-decreasing.

6.74 Bluethroat *Luscinia svecica*

Bluethroat	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	Rare	40,000-125,000 pairs (L.s. cyanecula)	-	-	Favourable

Biology

After c. 100 years of absence, Bluethroat returned as a Danish breeding bird in 1992, when a pair with fledglings was recorded. Since then the numbers of pairs have increased. The birds are currently distributed in southwest Jutland, from the border to Germany north to Varde Å. The birds often breed along watercourses or ditches with reeds, that are adjacent to cultivated fields with, for example, rape. During the Atlas survey of breeding birds in 1993-1996, 1-3 pairs were recorded annually (Grell 1998), but since then the Bluethroat colonisation of the country has continued, with 2-7, 7-9, and 9 pairs recorded in 1998, 1999 and 2000 respectively (Grell 1999, 2000, 2001). The number for 2000 is almost certainly an under-estimation, since, in Tøndermarsken alone, 21 probable breeding pairs were registered in 2001 (L.M. Rasmussen in letter). The Danish breeding birds belong to the sub-species Southern Bluethroat *Luscinia s. cyanecula.* The return of the species to Denmark has happened after a large increase in the Dutch stock, from 800 pairs in 1970, to 5,500-7,500 pairs in 1990, and establishment of a stock in the German part of the Wadden Sea (Hagemeier & Blair 1997). The Danish breeding birds arrive in April, and migrate, probably to the winter quarters in the Mediterranean, in September. Northern Bluethroats *Luscinia s. svecica* migrate, in small numbers, through Denmark in May and September-October. The birds feed on insects.

Bluethroat occur over large parts of Europe. In 1997, the total European population was estimated at 0.8-2.5 million pairs, of which *L. s. cyanecula* constitutes 5% or 40,000-125,000 pairs (Hagemeier & Blair 1997). The species has fluctuated in numbers markedly in its southern areas, but has been stable in the northern breeding grounds.

National conservation status

Bluethroat is on the 1997 Danish Red List categorised as rare (Stoltze & Pihl 1998). The species has certainly re-colonised Denmark after having been breeding here in increasing numbers over the last 10 years. Thus, the national conservation status for Bluethroat in Denmark is preliminarily assessed as favourable.

6.75 Barred Warbler *Sylvia nisoria*

Barred Warbler	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	Critically endangered	250,000 pairs (Europe)	-	-	Disappeared

Biology

The Barred Warbler breeds in Denmark on coastal marginal grasslands with thorny bushes, adjacent to tall herb vegetation with a few high trees. The species apparently lives in close association to the Red-backed Shrike, and presence of the latter species seems to be a precondition for occurrence of breeding Barred Warblers. The Barred Warbler demands sunny locations with relatively little precipitation. At Jydelejet on Møn (part of EF90), management has been carried out in an attempt to make the birds return to a former breeding site. This was a success for some years, but later the Barred Warbler disappeared. At the end of the nineteenth century, the species was distributed all over Denmark but disappeared from Jutland during the first half of the twentieth century. Since then, the decrease has continued. Based on the first Atlas survey of breeding birds, in 1971-1974, the Danish stock was estimated at 10-30 pairs, and its distribution was restricted to south Zealand, Lolland, Falster and Møn (Dybbro 1976). During the most recent Atlas survey, during 1993-1996, only one pair has bred for certain, this being on Falster in 1996 (Grell 1998). From 1998, there are reports of 1-3 pairs breeding (Grell 1999), while there are no breeding records from 1999 and 2000 (Grell 2000, 2001). Therefore, the Barred Warbler can no longer be considered as a regular Danish breeding bird.

The Barred Warbler is a migratory bird that winters in east Africa. The few birds that are recorded in Denmark have usually been seen during the second half of May, and in August. The birds feed on insects and berries.

Denmark, together with a small occurrence in south Norway constitutes the north-western border for this southeast European species. The population of Barred Warbler has never been assessed, but a calculation, in 1997, based on available breeding bird data resulted in a figure of c. 250,000 pairs outside Russia (Hagemeier & Blair 1997). The long-term trend in the numbers is not known.

National conservation status

The Barred Warbler is on the 1997 Danish Red List categorised as critically endangered (Stoltze & Pihl 1998). The Danish stock of Barred Warbler has been steadily decreasing during the last 100 years and the species is no longer an annual breeding bird in Denmark. The species is in the process of disappearance from Denmark, and the national conservation status for Barred Warbler is preliminarily assessed as disappeared or, at best, unfavourable-decreasing.

6.76 Red-backed Shrike *Lanius collurio*

Red-backed Shrike	Annex I	Species of national responsibility	1997 Danish Red List	Flyway population in 1997	1% criterion for migratory birds in 1983	1% criterion for migratory birds in 2002	Conservation status
Breeding bird	Yes	No	No	2.2 M pairs (Europe)	-	-	Favourable

Biology

The Red-backed Shrike occurs in a varied number of open habitats with bushes, single trees, hedgerows, etc., such as, e.g. marginal grasslands, grazed fields and clearings in woods. Not much is known about the species' development in terms of its numbers and distribution prior to the first Atlas survey of breeding birds, in 1971-1974. At that time, the Red-backed Shrike was distributed all over the country, but was particularly numerous in east Denmark and more scarce in west Jutland. The Danish stock was, at that time, estimated to number 1,500-3,000 pairs (Dybbro 1976). During the period 1993-1996, the second Atlas survey estimated the Danish stock to be unchanged in size, but showed major changes in its distribution, with a marked reduction in the number of birds in east Denmark, that was compensated by an approximately equal increase in the number of birds in west Denmark (Grell 1998).

Red-backed Shrike is a migratory bird that winters in east and south Africa. The majority of the birds arrive to the Danish breeding sites from the middle of May, and depart from the country during August and September. The birds feed on insects.

Red-backed Shrike is distributed from north Sweden to north Spain eastwards, but has recently disappeared from the British Isles. The European population of Red-backed Shrike has, with some uncertainty, been, in 1997, estimated at 2.2 million pairs (Hagemeier & Blair 1997). The species has been decreasing in most European countries during the last 20-30 years.

National conservation status

The Danish stock of Red-backed Shrike seems stable in size over the last 25-30 years, although the distribution has changed. The species has decreased in the eastern parts and increased in the western parts of Denmark. The national conservation status for Red-backed Shrike in Denmark is preliminarily assessed as favourable.

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