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International Single Species Action Plan for the Conservation of the Black-tailed Godwit

Limosa l. limosa & L. l. islandica

Vogelbescherming NEDERLAND

Orbicon

A&W ECOLOGICAL CONSULTANTS

TOUR DU VALAT

This Single Species Action Plan has been prepared to assist the fulfilment of obligations under:

Agreement on the Conservation of
African-Eurasian Migratory Waterbirds (AEWA)

Council Directive 79/409/EEC on the conservation of
wild birds (Birds Directive) of the
European Union (EU)

International Single Species Action Plan for the Conservation of the Black-tailed Godwit

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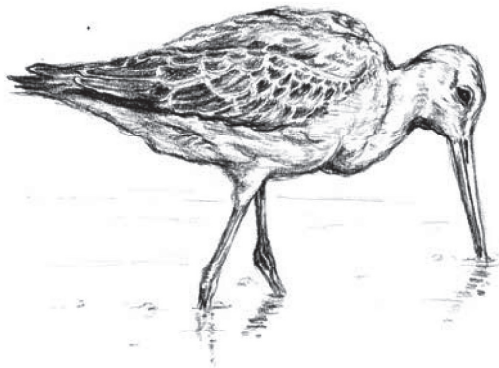

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This AEWA SSAP is based on the EU Management Plan for the Black-tailed Godwit of 2007, which was updated with newly available information and extended to flyway scale

Compiled by: Flemming Pagh Jensen[1], Arnaud Béchet[2] and Eddy Wymenga[3]
[1] Orbicon, Ringstedvej 20, DK-4000 Roskilde, Denmark
[2] Tour du Valat, F-132000 Le Sambuc, France
[3] Altenburg & Wymenga (A&W), P.O. Box 32, NL-9269 ZR Veenwouden, The Netherlands
E-mail for correspondence: FPJ@Orbicon.dk

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Geographical scope
This International Single Species Action Plan requires implementation in the following countries regularly supporting the Western Palearctic population of *L. l. limosa* and the population of *L. l. islandica* of the Black-tailed Godwit: Albania, Algeria, Austria, Azerbaijan, Belarus, Belgium, Bulgaria, Burkina Faso, Cameroon, Chad, Croatia, Czech Republic, Denmark, Egypt, Estonia, Ethiopia, Eritrea, Finland, France, Gambia, Germany, Ghana, Greece, Guinea Bissau, Guinea Conakry, Hungary, Iceland, Iran, Republic of Ireland, Israel, Italy, Kazakhstan, Kenya, Latvia, Libya, Lithuania, Mali, Mauritania, Montenegro, Morocco, Netherlands, Niger, Nigeria, Norway, Oman, Poland, Portugal, Romania, Russia, Senegal, Serbia, Sierra Leone, Slovakia, Spain, Sudan, Sweden, Tunisia, Turkey, Ukraine, United Kingdom, United Arab Emirates and Yemen.

Review
This International Single Species Action Plan should be reviewed and updated every 10 years (first revision in 2018).

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Picture on the cover: Black-tailed Godwit *Limosa l. limosa* © Martin Woiter/Fotonatura.com

Drawing on the inner cover: Black-tailed Godwit *Limosa l. limosa* © Sarah Plazzotta

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Preface

This International Single Species Action Plan for the Conservation of the Black-tailed Godwit, Western Palearctic breeding population *Limosa l. limosa* and the *L. l. islandica* of Iceland was commissioned by the UNEP/AEWA Secretariat and financially supported by Vogelbescherming Nederland (BirdLife Partner in The Netherlands). It has been compiled by a team consisting of Flemming P. Jensen of Orbicon (Denmark), Arnaud Béchet of Tour du Valat (France) and Eddy Wymenga of Altenburg & Wymenga (The Netherlands).

The Action Plan follows the format for Single Species Action Plans approved by the AEWA 2nd Meeting of Parties in September 2002.

This AEWA Action Plan builds on the European Commission Management Plan for the Black-tailed Godwit which was adopted by the EU Member States. The first draft of this plan was compiled in 1998 by Tony Fox, National Environmental Research Institute, Department of Coastal Zone Ecology (Denmark). The final draft was compiled in June 2006 by Flemming Pagh Jensen, DDH Consulting (Denmark) and Christian Perennou, Station Biologique de la Tour du Valat (France). The editing of the final version was carried out by DG ENV/B2 in September 2007.

The AEWA plan is upgraded to a flyway level and also includes new data and information, which has become available since the completion of the EU plan. This includes new estimates of population size as well as information on the migration ecology and trend in some countries. The AEWA plan also takes into account the recent temporary five-year suspension of hunting on the Black-tailed Godwit in France, which came into force in July 2008.

Executive Summary

The Black-tailed Godwit has a widespread but disjunct distribution in the Western Palearctic. Two subspecies occur in this area; *islandica* which breeds mainly in Iceland and *limosa* with a main breeding range from The Netherlands to Russia. The populations of both subspecies are migratory and have separated migration systems. In the European part of the migration system, subspecies can mix. The species increased during the 20th century throughout the Western Palearctic but while the *islandica* population has continued to increase in numbers and expanded its breeding range, nominate *limosa's* has shown range contraction and major declines in most key breeding areas during the last decades. Today the *islandica* population numbers *c*.25,000 pairs while the nominate population of the Western Palearctic totals *c*.110,000 pairs. About 50% of the nominate population breeds in The Netherlands. Due to the continuing decline of nominate Black-tailed Godwits, its status on the IUCN Red List of Threatened Species was changes in 2006 from "Least Concern" to "Near Threatened".

The nominate form breeds almost exclusively in man-made habitats in particular semi-natural grassland and meadows. In The Netherlands and adjacent Germany and Belgium, the majority breeds in intensively managed moist to wet grassland used for dairy farming. In Central and Eastern Europe the godwits mainly breed at flood-plain meadows and wet pastures near lakes and rivers with moderate cattle grazing and haymaking in the late summer. The *islandica* subspecies breeds in lowland areas, primarily on coastal marshes and dwarf-birch bogs.

Throughout its range, nominate godwits face loss and degradation of breeding habitat mainly due to urbanisation and infrastructure development, conversion of grassland into arable land, loss of openness and increasing disturbance. This has lead to a widespread decline of the species, although the development of the eastern populations is generally poorly known. In The Netherlands and Germany, where the core breeding area of western nominate godwits is located, the population is currently declining by 5% annually. Intensification of grassland management, landscape changes and increased predation has lead to a very low reproduction in this area and is believed to be that main cause of this decline. In Central and Eastern Europe, land use changes, in particular large scale abandonment of farming activities, is a serious threat to the godwits when it leads to overgrowth of breeding sites.

During migration and in the winter quarters, Black-tailed Godwits have traditionally, mostly been restricted to estuaries and large inland wetlands. In recent decades, rice fields have become increasingly important during winter in West Africa and in Spain and Portugal during spring migration. This, combined with the progressively earlier arrival of godwits to West Africa, due to failed breeding, has created conflicts with farmers, and locally resulted in a loss of 5-6% of adult birds due to hunting.

The goal of this plan is to restore the 'Least Concern' status of the Black-tailed Godwit on the IUCN Global Red List of Threatened Species. The short term objective is therefore to halt the current decline and contraction of distribution while the long-term objective is to restore all Western Palaearctic populations to a favourable conservation status. In addition, the plan aims at maintaining the favourable status of the *islandica* population.

To achieve the goal and objectives, the plan aims to addressing the most urgent issues in a specific, measurable, agreed, realistic and time-bound process. Since many results and proposed conservation actions apply to more than one country, the countries have been grouped into four categories, combining status and threats of the godwit and the political situation of each country: (1) Non-EU Member states, (2) EU Member States with the exception of The Netherlands and neighbouring areas in Germany and Belgium, (3) The Netherlands and neighbouring areas in Germany and Belgium and (4) Countries within the migratory and wintering area of the flyway, consisting of EU Member States, non-EU countries as well as countries on the Middle East and in Africa.

For these four regions, the conservation priorities are:

- The prevention of further breeding habitat loss and degradation, and restoration of breeding habitats.
- The reduction of chick-mortality and nest destruction where Black-tailed Godwits breed in intensively managed farmland.
- The provision of adequate support for and the protection and management of important Black-tailed Godwit staging and wintering areas.
- The guarantee of legal protection of Black-tailed Godwits in all range states.
- The stopping of hunting in spring (high priority) and other hunting and the elimination of illegal hunting.
- Improvement of the understanding of the distribution and trend of the eastern breeding populations.
- Improvement of the understanding of the migration and wintering areas of the eastern populations.

1. Biological Assessment

General information	The Black-tailed Godwit is a large wader species which has a widespread but disjunctive distribution in the Palearctic, extending from Iceland across northern Europe to western Siberia. Two subspecies occur in Europe. The main breeding range of the nominate form *L. l. limosa* ranges from The Netherlands to Germany, Poland, Belarus, Ukraine and western Russia. Small populations occur in other European countries. Historical data suggest that this population increased during the 20th century, in particular in The Netherlands and NW Germany, to reach a maximum population size between *c*.1940 and 1960. Throughout much of its range, this population has been in decline since then. Today about half of the population breeds in The Netherlands with other significant populations occurring in Russia, Ukraine, Poland and Belarus. The subspecies *L. l. islandica* breeds mainly in Iceland, and increased its breeding range and population over the last 100 years, especially between 1960 and 1990. This increase is on-going.
Taxonomy	The Black-tailed Godwit belongs to the *Scolopacidae* family (sandpipers and allies), the subfamily *Tringinae* (Godwits, Curlews and other sandpipers). In the Western Palearctic two subspecies occur: the nominate race *L. l. limosa* and *L. l. islandica*. The breeding populations east of the Yenisei River are separated as subspecies *L. l. melanuroides*; these are not dealt with in this action plan.
Population Development	During the first half of the 20th century, the nominate race adapted to man-induced changes of the landscape and spread into agricultural habitats over much of West and Central Europe (Glutz von Blotzheim *et al.* 1977, Cramp & Simmons 1983). In recent decades, the North-West European *limosa*-population has declined in many areas, mainly because of intensification of grassland management and loss of breeding habitat. Between 1970 and 2000, declines occurred in several countries, collectively holding up to 85% of the European population, including The Netherlands, Germany, Poland and Russia (BirdLife International 2004, Hötker *et al.* 2007). In The Netherlands, which forms the stronghold of the European population, the population grew between 1920 and 1960 to reach a maximum of 125-135,000 breeding pairs (Mulder 1972). In the 1980s the population was estimated at 85-100,000 pairs (van Dijk 1983, Piersma 1986). The most rapid declines occurred in the 1970s and again since the mid-1990s (Altenburg & Wymenga 2000, Teunissen *et al*. 2004). The present annual decline is estimated at *c*. 5% on a national scale (Teunissen & Soldaat 2006), resulting in a current population of *c*. 55,000 pairs (data SOVON, W. Teunissen pers. com.). This number may even be lower, as in the province of Fryslân, where half of the Dutch population breeds, the annual decline during 2000-2005 was 9% (Oosterveld 2006). Locally there are populations in The Netherlands which increase or are stable (Oosterveld 2006). In Russia the species was considered relatively common in some regions until the mid-1980s but from then onwards it has been declining in many areas (Sukhanova 2008). In eastern and south-eastern Ukraine numbers were low around 1880-1890, but increased since then to reach high numbers in the 1930-1940s. In the 1980s-1990s a slow decrease started and since 2000 the species has declined rapidly (Banik & Vergeles 2003).

	In the western Ukraine, including the Desna and Dnipro river basins, the same trends occurred, with breeding numbers halved in some areas over 10 years (Gorban pers. com, Voblenko pers. com). The wintering population in the western Sahel decreased by 2/3 during the last 20 years, paralleling the development of the western breeding population. Numbers in the Inner Niger Delta (Mali) and the Lake Chad basin have remained more or less stable (Zwarts *et al.* in press.). Very little information is available regarding the development of the populations wintering further east, such as in the Sudd (Sudan) and in East Africa. The population of *L. l. islandica*, which basically consists of the breeding population in Iceland, has been increasing from an estimated 2,000-3,000 individuals in 1900 (Gunnarsson *et al.* 2005a) to a mid-winter population of 50,000-75,000 birds (Gill *et al.* 2007).
Distribution throughout the annual cycle	All populations from the Western Palearctic are migratory. The Icelandic and nominate godwits have clearly separated migration systems. The majority of adult nominate godwits in West and Central Europe leave the breeding grounds in late June/July. The populations further east depart later, sometimes as late as September (Dementiev *et al.*1969). In areas with high densities, godwits roost communally after (and before) the breeding season (Piersma 1983, Gerritsen 1990). Following fattening for about two weeks most adult godwits from The Netherlands fly non-stop to the wintering areas in West Africa *(*Zwarts *et al*. in press.). The migration of juveniles lasts from July to September. The majority of juveniles are also believed to migrate non-stop to the winter quarters in West Africa, although a portion of them use areas in the south-west of France and the Iberian peninsula as stop-over sites; from an analysis of the EURING-data it appears that 85% of godwits recovered in France in July are juveniles (Zwarts *et al*. in press). The main wintering areas of the north-west European *limosa*-populations are situated in Senegal (Casamance) and Guinea Bissau and to a lesser extent in the large Sahelian floodplains: the Senegal River Delta and the Inner Niger Delta. The godwits arrive in West Africa from late June to September where they mainly congregate in the rice field zone. Initially the godwits are found mainly on recently ploughed land and just sown seedbeds and parcels (July-September). Later on the godwits use the rice zone more extensively whilst feeding on animal and vegetal matter. During the harvest period (November-December) they basically feed on rice grains (Tréca 1975, 1984, van der Kamp *et al.* 2008). When the rice fields in South Senegal (Casamance) and Guinea Bissau are harvested and drying out, the godwits start to migrate north by the end of December. The bulk of the population, including wintering birds from the Senegal Delta, is believed to fly non-stop to the rice fields in Spain and Portugal (Kuijper *et al*. 2006, Sanchez-Guzman *et al.* 2007). Wetlands in Morocco were previously important stop-over sites for these godwits. In recent years the Moroccan wetlands have lost much of their significance, although 5,000 – 10,000 birds may still stop-over briefly in January-February (Green 2000, Kuijper *et al*. 2006). Colour marking of individual birds has shown that the first *limosa* return to Spain and Portugal in December and numbers build up in January-February with some also reaching France (Hooijmeijer pers. com.). In March most *limosa's* have left Spain and Portugal, and numbers subsequently increase in France and in particular in The Netherlands (Hooijmeijer pers. com.).

Godwits arrive in The Netherlands from late February to March with 50% of the population normally present by mid-March (Wymenga 2005a).

The eastern populations (east of Germany) seem to have a more eastern migration route with ringing recoveries from Italy and Turkey and to winter mainly in the Inner Niger Delta, the Lake Chad Basin and possibly the Sudd in southern Sudan and further south to Kenya. Some also winter in the Middle East. However, generally very little is known of the movements and winter quarters of these populations. Important staging grounds are found in Azerbaijan, Iran, Greece, Bulgaria (1,000-5,000 at Atanasovsko Lake, Kostadinova & Gramatikov 2007), Kazakhstan, Turkey (the Kizilirmak and the Ceyhan Delta (Doga Dernegi) and Tunisia. On spring migration large flocks have been recorded in March-April in wetlands of the East Mediterranean Basin (Turkey, Greece, Bulgaria, Cyprus), in the Middle East and around the Black Sea (cf. Kube *et al*. 1998). In Kazakhstan concentrations of 3,000-8,000 birds have been reported in 2005 and 2006 (BirdLife Int. 2007), and up to 2,000 in southern Belarus in the Pripyat floodplain in spring (P. Pinchuk *in litt*.). In Western Ukraine 600 – 1,100 have been observed on spring migration in the Tuiria, Stokhid floodplains and in the Ukrainian part of the Pripyat (Prypyat) floodplains (Gorban 1999, 2002). In southern and eastern Ukraine fewer godwits are recorded on spring migration. In autumn the numbers passing through Western Ukraine are usually lower than in spring with flock of up to 200 in the Volyn and Lviv regions (Gorban 1999, 2002). In the Danube Delta flocks of up to 8,000 were recorded during autumn migration in the 1980s but in recent years numbers have decreased to 1,200 – 2,000 individuals, with the sharpest decline during the last five years (Zhmud pers. com). In the south-central part of Ukraine flocks of up to 500 are regularly observed in August-September in the Kinsburn Regional Landscape Park (Petrovich pers. com.) as well as in the Karkinitska Bay, Crimea (Tarina pers. com.).

The majority of godwits wintering in the Inner Niger Delta in Mali probably originate from these eastern populations (Zwarts *et al*. in press.). Black-tailed Godwits first occupy the fringes of the delta but subsequently concentrate in the central delta when the flood recedes. In late January - February they mainly feed on small bivalves for pre-migratory fattening. Departure is mainly in the second decade of March (Wymenga *et al*. 2002, Zwarts *et al*. in press.).

Birds belonging to *islandica* initially migrate to England and France in September-October but by mid-winter most have left the UK, migrating to France and in particular Spain and Portugal (Gill *et al*. 2007, Triplet *et al*. 2007) with a few reaching Morocco (J. Alves pers. com.). Numbers of wintering *islandica* in Spain and Portugal have increased significantly since the 1960s, but fluctuate much between years (J. Alves pers. com.). During spring migration in March/April many *islandica* from Portugal and France first move to The Netherlands (Gerritsen & Tijsen 2003) or eastern England, before continuing to Iceland, where they forage primarily on grasslands (Gill *et al*. 2007).

In Portugal, both *islandica* and *limosa* are present in winter. Although it is not possible to differentiate the proportion of the two subspecies, it is likely that the majority (50-70%) in January is *limosa*. Counts from the Tejo Estuary between early December and late February show a steady increase in numbers until the first week of February, when numbers can peak at 80,000 birds, suggesting the return of birds from "wintering" grounds further south.

<table>
<tr><td>Survival and productivity</td><td colspan="4">In general, long term data on survival and productivity are lacking, in particular for the eastern limosa-populations. The annual adult survival of islandica has been estimated at 87-94% (Gill et al. 2001a).
In a Dutch study from 1984-1987, the annual adult survival was 81.4%, with no significant survival difference between sexes (Groen & Hemerik 2002). A recent study of Roodbergen et al. (in press) suggests adult survival rates of western limosa and islandica of 0.97-0.98. Another Dutch study mentioned adult survival rates of 0.94 between 1994 and 2007 (Kentie et al. 2007). Recent colouring studies suggest annual survival rates of c. 81 – 96% (Both et al. 2006, J. Schröder in prep.), although national estimates from ring-recoveries suggest annual survival rates of c. 80% (van Noordwijk & Thomson 2008). Using EURING-data, completed with ringing data from the Dutch Centre for Avian Migration and Demography, Zwarts et al. (in press.) showed that the adult survival has increased over the past decennia. In The Netherlands, chick survival decreased from 17-42% in the 1980s to 0-24% in 2003-2005 (Schekkerman et al. in press).
In Germany, 0.91 fledgings per pair were recorded (Bairlein & Bergner 1995) while a Dutch study from 1984-1987 showed a productivity of 0.58-1.18 fledged chicks per pair – lowest in cold and wet springs – with decreasing net productivity in the course of the study (Groen & Hemerik 2002). In The Netherlands reproductive success has declined dramatically from c. 0.7 chicks per pair per year in the 1980s to 0.1–0.4 chicks per pair per year in 2003-2005 (Schekkerman & Beintema 2007, Schekkerman et al. in press). This is probably far below the threshold for a sustainable population.</td></tr>
<tr><td>Life history</td><td>Pre-breeding:
Highly gregarious. Flock size varies with the highest concentrations occurring at roosts in early spring when tens of thousands are found together (Snow & Perrins 1998).</td><td>Breeding:
In dispersed colonies and sub-colonies. Age of first breeding normally two years or older. However, limosa may breed in the first year. According to Snow & Perrins (1998) laying in the West and Central Europe is from early to mid-April (mean laying date of first egg in The Netherlands is around 15 April) while further north in Iceland, laying begins in late May. The single brood is found on the ground in short or fairly short vegetation.</td><td>Feeding:
Mainly invertebrates such as insects, annelids, earthworms and molluscs, small crustacean and arachnids (Snow & Perrins 1998). Populations wintering in West Africa mainly feed on plant material, in particular rice grains.

Chicks of the islandica and limosa population feed mostly on invertebrates gleaned from vegetation (Gunnarsson et al. 2006; Schekkerman & Beintema 2007).</td><td>Post-breeding:
After breeding Icelandic godwits move to moulting sites in the UK, in particular the Wash, Humber and Dee estuaries. Continental godwits start moulting at least 2-3 primaries on breeding grounds, migrate south in suspended moult, and continue to moult at their African sites (Timmerman 1985).</td></tr>
</table>

		If lost early in the season some *limosa* produce second clutch. Clutch size is normally 4 (Beintema 1991). The incubation is 22-24 days.		
Habitat requirement	**Breeding:** Originally mires, wet moor land, blanket bogs, flooded grasslands, river valley fens and marshy margins of lakes, damp grassy steppes and probably estuarine habitats. Some birds still breed in such habitats, especially in Iceland and eastern part of Western Palearctic. The majority of the European population now breeds in open, secondary habitat: meadows, semi-natural grasslands and intensively managed grassland. In Central and Eastern Europe flood-plain meadows and wet pastures near lakes and rivers are key breeding habitats. Wet or moist grassland on clay, clay-on peat or peat soil is a feature of the lowlands that supports the majority of the breeding numbers in the countries surrounding the North Sea (cf. Wymenga *et al*. 2006). In The Netherlands and North West Germany the population reached its maximum in the 1960s and 1970s in open, moist to wet, rather extensively used grasslands[1]. Mown grasslands are selected over grazed pasture. In intensively managed grasslands in The Netherlands, nest site selection is positively influenced by increasing ground water level (Verhulst *et al.* 2007), but significant breeding densities are also possible at lower ground water levels (80-100 cm below surface level, Oosterveld (2006), depending on soil structure, spatial configuration of feeding and breeding habitats, and on grassland management. In agricultural grasslands, areas mown annually hold higher densities than areas with grazing only (e.g. in Denmark, Thorup 1998, in The Netherlands, Buker & Groen 1989, and in Sweden, Larsson 1976). In Hungary, Black-tailed Godwits prefer either extensive or intensive pastures depending on the biogeographical region considered (Baldi *et al.* 2005). In Dutch grasslands chicks strongly prefer tall but not dense grass (>15-20 cm), either not yet mown or re-grown after first cut (Schekkerman & Beintema 2007). In Iceland *islandica* breeds in lowland areas, primarily on coastal marshes and dwarf-birch bogs (Gunnarsson *et al.* 2006). The expansion from south-west Iceland (around 1900) to the major basins in the north and west (1920s-1940s) and then the east and north-east of Iceland (1970s-1980s) was characterised by an increase in the proportion of dwarf-birch bog sites occupied (Gunnarsson *et al.* 2005a). The lowland areas of Iceland have seen widespread drainage of wetlands and increases in numbers of hayfields since the 1960s, and godwits are now frequently recorded feeding on hayfields during the summer season (Gunnarsson *et al.* 2005a).			

[1] The term extensive agricultural use in this Action plan means in general a rather high ground water table (spring 20-30 below surface, winter 0-10 cm below surface or (ir)regularly inundated), an annual Nitrogen input of 50-150 kg N/ha and a first mowing or grazing date > 15th June, with normally 2-3 crops per annum and a short sward height at the onset of spring. Intensively used grasslands refer to a Nitrogen input of >250 N kg/ha/y, in general a first mowing or grazing date < 15th May, and a grazing density of 2-3 cows/ha. The vegetation of these grasslands contains few species and the sword height is much longer than in extensive grasslands.

	Non-breeding: The nominate race winter predominantly in open freshwater and brackish habitats south of the Sahara while *islandica* winters in estuarine habitats along the Atlantic coast from Britain south to Morocco (Beintema & Melter 1997). Most of these birds winter on "soft coasts", mainly estuaries and areas of inter-tidal mud, but substantial numbers of *islandica* winter on floodlands in Ireland (e.g. Delany 1996). These birds also feed in adjacent grassland as the tide limits the time they can feed on tidal mudflats and where prey are subject to strong seasonal depletion (Gill *et al.* 2007). Mudflats are a key staging habitat in Iceland when the birds arrive in spring, especially in cold years (Gunnarsson *et al.* 2005b). Some *islandica* also use the Iberian rice fields in December-February. Post-harvest moist and flooded rice fields are important habitats for *limosa* in West Africa and in Portugal/Spain (Roux 1973, Tréca 1984, Altenburg *et al.* 1985, Bos *et al*. 2006). Godwits also winter in natural freshwater habitats, like the floodplains of the Senegal and Niger Rivers (Wymenga *et al*. 2002, Kuijper *et al*. 2006, see before). On the Iberian Peninsula large concentrations use the rice fields adjacent to the Tagus Estuary in Portugal, and in the Sado estuary (Kuijper *et al*. 2006, Sanchez-Guzman *et al*. 2007); the birds feed on rice grains left after the previous harvest. Despite an increasing preference for rice fields, intertidal feeding (especially on *Scrobicularia plana* and *Nereis diversicolor*) and use of salt-pans remain important at the Tagus site (Moreira 1994), but the latter feeding behaviour may well refer to *islandica*. In extremely wet winters, a significant proportion of the birds in Portugal feed on pasture land and stubbles, which are partially flooded (R. Rufino pers. com.). In Tunisia Black-tailed Godwits are found wintering in the salines of Thyna (south of Sfax), a very salt environment (Kuijper *et al*. 2006, Azafzaf & Feltrup-Azafzaf 2007).

Table 1. Geographical distribution of Black-tailed Godwits during the annual cycle

Breeding	**Migrating** *(July – September & January – May)*	**Non breeding visitor** *(July – March)*
Austria Belarus Belgium Czech Republic Denmark Estonia Finland France Germany Hungary Iceland Republic of Ireland Italy Kazakhstan Latvia Lithuania Netherlands Norway Poland Romania Russia Serbia Slovakia Spain Sweden United Kingdom Ukraine	Probably all countries in the Western Palearctic	Albania Algeria Azerbaijan Bulgaria Burkina Faso Cameroon Chad Croatia Egypt Ethiopia Eritrea France Gambia Greece Ghana Guinea Conakry Guinea Bissau Iran Republic of Ireland Israel Kazakhstan Kenya Libya Mali Mauritania Montenegro Morocco Netherlands Niger Nigeria Portugal Spain Senegal Sierra Leone Sudan Tunisia Turkey United Arab Emirates United Kingdom Yemen

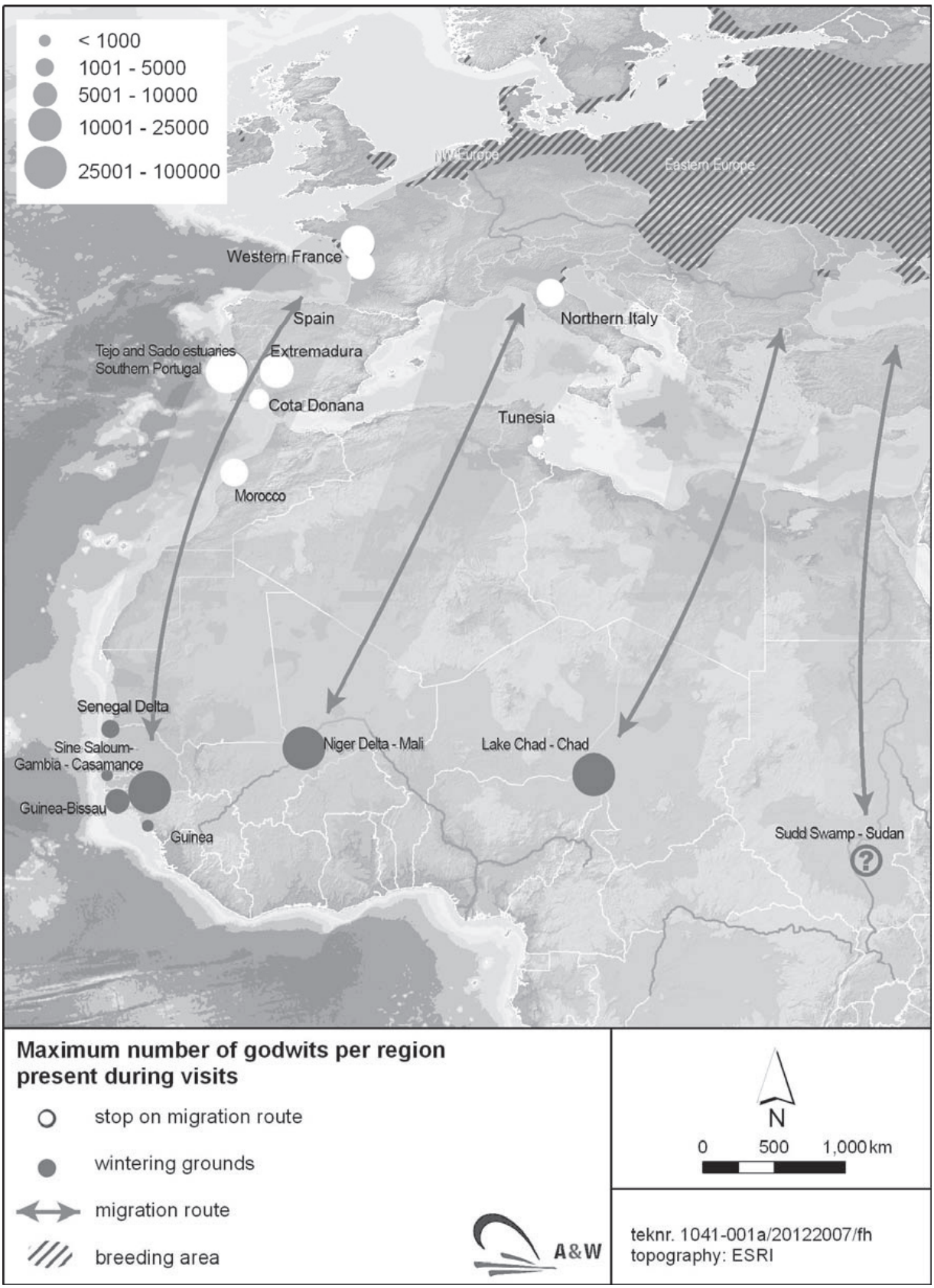


Figure 1. Breeding range, important stop-over sites and (known) main wintering areas of nominate Black-tailed Godwit Limosa l. limosa

Figure 2. Breeding range of the West Palearctic population of the nominate form of Black-tailed Godwit Limosa l. limosa *(hatched – stripes) and the islandica subspecies* Limosa l. islandica *(hatched – check stripes)*

2. Available Key Knowledge

The most contemporary information on the numbers and trend for the Western Palearctic populations of the Black-tailed Godwit across its range is presented in Tables 2 - 4.

Table 2. Numbers and trends for the Black-tailed Godwit Limosa l. limosa *in individual countries in the Western Palearctic*

Country	Breeding pairs	Quality	Year(s) of the estimate	Breeding Population trend	Baseline population (year)	Reference
Austria	100- 160	1	1998-02	+ 2	1998	BirdLife Int. 2004
Belarus	6,000-8,500	3	2007	-1	1997	P. Pinchuk *in litt*. 2007
Belgium	1,100-1,300	1	2000-02	+ 1	1990	BirdLife Int. 2004
Czech Rep.	10 - 20	1	2000	- 2	-	BirdLife Int. 2004
Denmark	700 - 725	1	2000 - 02	- 1	1987	BirdLife Int. 2004
Estonia	500 – 1,000	2	1998	- 2	-	BirdLife Int. 2004
Finland	40 – 60	1	1998-2002	+ 2	1992	BirdLife Int. 2004
France	160 – 170	1	1997 - 2000	+ 1/+2	1989	BirdLife Int. 2004
Germany	4,300	2	2004	- 2	1990	Hötker *et al.* 2007
Hungary	400 – 1,500	2	1995 - 2002	F	-	BirdLife Int. 2004
Italy	10 - 12	1	2000	0	-	BirdLife Int.2004
Kazakhstan	Min. 1000	1	2006	-	-	BirdLife Int. 2007
Latvia	80 - 100	2	1990 - 2000	- 2	-	BirdLife Int.2004
Lithuania	300 - 400	1	1999 - 2001	F	-	BirdLife Int. 2004
Netherlands	c. 55,000	1	2007	-2	1990s	SOVON, W. Teunissen *in litt.*
Norway	25	1	1990	-	-	Thorup 2005
Poland	5,000 – 6,000	1	1995 - 2000	- 1	-	BirdLife Int. 2004
Romania	100	1	1990 - 2005	+ 1	-	BirdLife Int. 2004, Muller 2005, Botond Kiss & Marinov 2005,
Russia-Europe:	13,000-30,000	1	1990-2000	-2	-	BirdLife Int. 2004
- northwest	(2,000-7,850)		1990-2000	-	-	Thorup 2005
- northeast	(960 – 1, 350)		1991-2000	-	-	Thorup 2005
- central-west	(5,505-12,205)		1990-2000	-	-	Thorup 2005
- central-east	(3,065-5,250)		1992-1999	-	-	Thorup 2005
- south-southeast	(2,650 – 4,650)		1990-2000	-	-	Thorup 2005
Serbia	20 - 40	2	1990 - 2002	0	-	BirdLife Int. 2004
Slovakia	5 - 40	2	1980 - 1999	- 2	-	BirdLife Int. 2004
Spain	4 - 4	2	1998 - 2002	(F)	-	BirdLife Int. 2004
Sweden	100 – 250	1	1999 - 2000	- 1	-	BirdLife Int. 2004
UK	50	1	2006	+1	2000	J.A. Gill pers. com.
Ukraine	5,000-9,000	2	1990-2000	-2	-	BirdLife Int. 2004
Total	***c.* 110,000**					

Table 3. Numbers and trends for the Black-tailed Godwit Limosa l. islandica *in individual countries*

Country	**Breeding pairs**	**Quality**	**Year(s) of the estimate**	**Breeding Population trend**	**Baseline population** (year)	**Reference**
Iceland	*c.* 25 000	1	2007	+ 1	-	T. Gunnarsson pers. com.
Norway (Lofoten)	40 – 100	2	1990 - 2003	(0)	-	BirdLife International 2004
Ireland	1 – 10	2	1988 - 1991	?	1989	BirdLife International 2004
UK (Shetland islands)	?					
Total	***c.* 25,000**					

Breeding population data quality:
1 Reliable quantitative data, 2 Incomplete quantitative data, 3 No quantitative data

Breeding population trend:
- 2 Large decrease, - 1 Small decrease, + 2 Large increase, + 1 Small increase, 0 Stable, F Fluctuating

Table 4. Numbers and trends of winter populations of the Black-tailed Godwit Limosa limosa *in individual countries. For many countries, trends are only indicative due to poor quality of data. The data mentioned refer in most cases to January-counts (mid-winter census)*

Country	Wintering population (individuals)	Quality	Year(s) of the estimate	Trend in numbers	Baseline population	Reference
Albania	314	1	1997			Gilissen *et al*. 2002
Algeria	200	3	2003			Samraoui B. (pers. com.)
Azerbaijan	3.200	1	2003	0		Solokha *in litt*.
Bulgaria	8	1	1999			Gilissen *et al*. 2002
Burkina Faso	1,075	?	Mar 2003	-	-	African Waterbird Census
Cameroon	See Chad					
Chad (basin)	40,000	1	Jan 2007	+1?	Mid 1980s	B. Trolliet *in litt*.
Egypt	<50 ('rare')		1980s	-	-	Goodman & Meininger 1989
Ethiopia	800-900		1999-2000			Dodman & Diagana 2003
France	11,000-17,000 (9,520*)	1	1999	+ 2	-	LPO-Wetlands International 2005.
Gambia	<1,000	2	2000 - 2005	-2	1980s	Kuijper *et al*. 2006
Ghana	2,216		2000			Dodman & Diagana 2003
Greece	173	1	1999			Gilissen *et al*. 2002
Guinea Conakry	1,480	1	2001	-2	1990	Trolliet & Fouquet 2004
Guinea Bissau	40,000**	1	2005	- 2	1983	Kuijper *et al*. 2006
Iran	9,934	2	2007			Iran Dept of Environment 2007
Iraq	500-2,500	2	1975	-	-	BirdLife Int. 2007
Ireland	10,454*	1	1999	+ 1	-	Colhoun 2001
Israel	99-296	1	2003-2006			Gilissen *et al*. 2002
Kenya	56		1999-2001			Dodman & Diagana 2003
Libya	4	1	2007			Etayeb *et al*. 2007
Mali	34,700	1	2008	F	1985	Wymenga *et al*. 2002, ONCFS (France) & Direction Nationale de la Conservation de la Nature (Mali).
Mauritania	5000***	1	2006			Troillet *et al*. 1995, Triplet & Yésou 1998, Kuijper *et al*. 2006, Data Direction Parc Nationaux / Wetlands International, Dakar
Morocco	5000		2005	-2	1980s	Kuijper *et al*. 2006
Netherlands	148*	1	1999	(F)	-	Gunnarsson *et al*. 2005a
Niger	215	?	2001	-	-	Dodman & Diagana 2003
Nigeria	> 5,000	?	1990s	-	-	Zwarts *et al*. in press
Portugal	22,500 – 56,000	1	1993 - 2005	+ 1	-	N.C. Vieira *in litt*. 2005, D. Tanger *in litt*. 2005
Senegal	10,000 – 20,000****	1	2006	-2	1980s	van der Kamp *et al*. 2008. Database Wetlands International, Dakar
Sierra Leone	1,000 – 1,500	1	Mid-1980s	-2*****	1980s	Tye & Tye 1987
Spain	11,000 – 61,000	1	1990 – 2001	- 2	-	BirdLife International 2004
Sudan	No data					No recent information
Tunisia	1,008	1	2007			Azafzaf & Feltrup-Azafzaf

Country	Wintering population (individuals)	Quality	Year(s) of the estimate	Trend in numbers	Baseline population	Reference
United Arab Emirates	36	1	1999			Gilissen *et al*. 2002
UK	11,577*	1	1999	+ 2	-	Gunnarsson *et al*. 2005a
Yemen	160	1	1997			Gilissen *et al*. 2002
Total	**[250,000 – 270,000[2]]**					

Wintering population data quality:
1 Reliable quantitative data, 2 Incomplete quantitative data, 3 No quantitative data.

Wintering population trend:
+ 2 Large increase, + 1 Small increase, - 2 Large decrease, - 1 Small decrease, 0 Stable, F Fluctuating.

* Estimated number belonging to the *islandica* subspecies.

** This estimate is based on the ratio of birds (compared to 1980s) as well as density counts. The number of wintering birds may be (substantially) higher (Kuijper *et al*. 2006).

*** Includes basically birds at Senegal River Delta incl. Senegalese part. Today, more inland wetlands reveal irregularly 10s to 100s of godwits, incidentally up to more than 3000 birds (i.e. Lac d'Alèg 3112 birds, 19 Jan 1996).

**** Refers to the estimate for southern Senegal including Sine Saloum and Casamance. For Senegal Delta, see Mauritania.

***** Supposed decline since the 1980s as observed in main Atlantic wintering areas in Sub-Saharan West Africa.

[2] It should be noted that there is considerable redistribution of populations during the non-breeding season, and, therefore, simply adding peak counts from each country cannot give the international population estimate. NB. No data are available from the Sudd (Sudan) which is a potentially important wintering area.

3. Threats

This chapter gives an overview of threats that are believed to have a negative impact on the West Palearctic Black-tailed Godwit populations in their breeding areas, during migration and in their wintering quarters.

Overall, the threats can be subdivided into two main categories:

- factors, which directly affect population size, through increased mortality of chicks and adult birds (including nest destruction);
- factors, which indirectly affect population size, through loss of suitable habitat and disturbance by other environmental conditions.

To describe the importance of the threats to the Black-tailed Godwit population, the following categories are used:

Critical*:* a factor causing or likely to cause very rapid declines (>30% over 10 years);
High: a factor causing or likely to cause rapid declines (20-30% over 10 years);
Medium*:* a factor causing or likely to cause relatively slow, but significant, declines (10-20% over 10 years);
Low: a factor causing or likely to cause fluctuations;
Local: a factor causing or likely to cause negligible declines;
Unknown: a factor that is likely to affect the species but it is unknown to what extent.

3.1. Factors, which directly affect population level (increased mortality)

3.1.1. Nest destruction and increased chick-mortality by mowing of grasslands

Importance: critical
A very low chick survival rate is generally believed to be the driver of the decline of the large Dutch population (Schekkerman 2008, Schekkerman & Müskens 2000, Schekkerman & Beintema 2007, Schekkerman *et al*. submitted). The low survival rate is caused by several factors but massive, early and fast mowing of the intensively managed grassland is probably the principal factor. Since the 1970s the first mowing has advanced, driven by drainage and the use of fertilizers, and is now taking place in the first weeks of May, in some years even starting by the end of April. Together with other factors (predation, food), this has had a dramatic effect on Black-tailed Godwit productivity as large numbers of nests are lost and chicks killed during mowing (Wymenga 1997, Kleefstra 2007). In many breeding areas in The Netherlands, volunteers mark nests before mowing to avoid destruction; the success of these activities varies depending on weather, predation pressure and farmers'attitude (cf. Teunissen & Willems 2004). Furthermore, mowing reduces chick foraging habitat thereby impacting the condition and survival of the chicks. Loss of nests and chicks due to mowing is probably mainly a problem in The Netherlands and neighbouring Germany (cf. Freudenberger 2006).

3.1.2. Nest and chick predation

Importance: high (locally critical)
Losses of nests due to predation has increased in The Netherlands by a factor 2.5 between the 1980s and in the 1990s (Teunissen & Willems 2004) and accounts for 60% of all reproductive losses of Black-tailed Godwits (Teunissen *et al*. 2005). In another Dutch study a chick survival rate of only 0-24% was recorded during 2003-2005 (average 11%, compared to 17-42% in the 1980s), mainly due to predation (Schekkerman *et al* in press). Predation may be enhanced by intensive farming practises (Schekkerman 2008). In The Netherlands, the numbers of Red Fox, Stoat, Buzzard and Grey Heron have increased in the godwit breeding areas (Schekkerman *et al*. in press). Important causes behind

these processes are a slow but profound change of landscape through drainage, road construction (opening up of relatively remote polder areas) in combination with a loss of openness (see 3.2.4). This loss of openness has lead to the (re)colonisation of the meadow landscape by several predator species. Although the consequences of these landscape changes to godwit breeding populations have been documented mainly in The Netherlands (Teunissen *et al.* 2005, Wymenga *et al.* 2006, see above), this is believed to be a major problem for all populations of *L. l. limosa* in Western Europe. Freudenberger (2006) found that in German study sites, predation was the most important source of nest loss. Predation control (hunting) is being practised in a large part of the breeding zone, including The Netherlands, but accurate information on effectiveness is lacking.

3.1.3. Trampling loss

Importance: medium
The presence of cattle and horses during the breeding season on grasslands and floodplain meadows may lead to destruction of clutches and chicks of waterbirds, including Black-tailed Godwits. For instance, trampling in intensively grazed meadows is a problem in The Netherlands (Beintema & Müskens 1987), although it is probably declining as cattle are increasingly kept out of intensive grasslands which are mowed instead (Schekkerman pers. com.). The scale of this problem in a wider population context is unknown, but next to the population in The Netherlands it appears likely to be a potential threat to all populations breeding in farmland. The risk of trampling losses depends on cattle density and the duration of grazing. In Ukraine, the risk of trampling increases in years with a cold spring (Gorban pers. com.). In some areas in The Netherlands protective devices are being placed over nests by volunteers, in an attempt to save as many clutches as possible. In Fryslân, a core breeding area for meadow birds, thousands of volunteers are involved in this practice (Roodbergen 1999).

3.1.4. Hunting

Importance: unknown
Protection of the species by hunting legislation has significantly reduced hunting pressure in the past decades, including the significant hunting during spring migration (cf. Zwarts *et al*. in press). At the time of compilation of this report (2008), hunting of the Black-tailed Godwit in Europe was only allowed in Serbia and Ukraine and affected the eastern population only. The number of birds shot and the impact on the population is unknown. In France, there is no legal protection in place so that it is, in principle, permitted to hunt the Black-tailed Godwit. However, a temporary five-year suspension of the hunting of this species was introduced in July 2008.

In recent years, increasing numbers of failed breeders of the Dutch population leave the breeding ground early and return to south Senegal in late June – July. Here they feed on sown or just planted rice fields, either by eating rice kernels or trampling plants (Tréca 1975, 1984). The alleged crop damage leads to conflicts with local farmers, who shoot the godwits to chase them away from rice fields. Van der Kamp *et al*. (2008) prudently estimate that in the southern Casamance in 2006 and 2007 c. 5% of the local population of staging godwits was shot; this estimate is based on surveys of godwits in the rice fields in August-September 2006 and 2007 and 104 interviews with farmers. The gathered data are limited and need to be substantiated by further research. The situation in South-Senegal might also apply to Guinea Bissau, as has been suggested by farmers in the north of this country (van der Kamp unpubl.). In Mali - and neighbouring countries - godwits are not intentionally pursued, but incidental shooting by fishermen operating near dense flocks of this species has been observed. Bird-netting in Mali takes place on a large scale, mainly for Garganey and Ruff, which very incidentally may involve godwit by-catch (Zwarts *et al*. in press). The hunting in West Africa by local farmers to avoid alleged crop damage, needs further investigation.

3.1.5. Pollution

Importance: unknown
Very little is known on how pollution affects birds and the possible contamination of birds by chemicals. Indirectly, there is some evidence for pollution of habitats. A recent study in The Netherlands showed that heavy metal soil contamination in habitats of breeding Black-tailed Godwit resulted in 23% lower population growth of the earthworm *Lumbricus rubellus*, one of the main prey for godwits and may lead to less optimal foraging conditions (Klok *et al.* 2006).

Evidence from studies of snipes (Beck & Granval 1997) suggest that ingestion rates of lead shot by some wader species may be as high as amongst Anatidae, but there have been no specific studies of Black-tailed Godwit to date. Sub-lethal PCB levels have been found in this species (Denker & Buthe 1995), but there have been few reports of godwits being directly affected by pollution. It is unknown to what extent the use of chemicals in rice fields is impacting foraging godwits (for instance see Mullié *et al*. 1989). In West Africa, the poisoning of birds, in particular Red-billed Quelea *Quelea quelea*, but also wader species frequenting rice fields, is practised more and more often and is probably more of a problem than the ingestion of lead shots (P. Triplet *in litt.)*.

3.2. Factors which indirectly affect population level (habitat loss and degradation)

3.2.1. Loss of breeding habitat

Importance: high
Throughout continental Europe, breeding sites of godwits on agricultural habitats are being lost (Tucker & Heath 1994, Tucker & Evans 1997), in particular outside protected areas. This habitat loss is caused by several developments, from which urbanization and fragmentation of the remaining grassland by the construction of roads, cycle-paths etc. (under influence of urbanization) are most important. For instance, the areas of open grasslands, which form the main breeding habitat for the Dutch core population, have been reduced by about 24% since the 1980s (Wymenga *et al.* 2006). Urbanization and road construction in open polder areas may result in a significant reduction of the number of breeding pairs on a regional level, as has been shown in an impact assessment by Wymenga (2005b). Loss of breeding habitat in The Netherlands still goes on, although in some provinces compensation measures are now compulsory (for instance in the provinces of Fryslân and Overijssel). Other factors involve the change of permanent grassland into temporary grassland or maize, which - because of draining - increasingly occurs in former optimal breeding areas like wet and moist grassland areas on peat soils.

In Belarus and Ukraine (and probably also in parts of Russia), important breeding habitat was lost when semi-natural meadows along rivers (floodplains) were ploughed for agricultural use (P. Pinchuk *in litt*., Banik & Vergeles 2003). This was, in particular, widely conducted during the second half of the last century, but still takes place in Belarus. In Hungary and Ukraine, livestock abandonment following communism collapse led to pasture abandonment and afforestation (Baldi *et al.* 2005). These processes often start with as a gradual degradation and end up in permanent loss.

3.2.2 Intensification of grassland management

Importance: high/critical
The widespread intensification of grassland management in many parts of the godwits range has a significant negative impact on its breeding success. However this is a particular problem in The Netherlands and adjacent NW Germany where 60-85% of the population (depending on the region) breeds in intensively exploited grasslands (Teunissen & Soldaat 2006). Here, the intensification has been more radical than in other parts of Europe and includes drainage and lowering water tables (see 3.2.5.), reseeding of grasslands and a high input of fertilisers (often >>250 kg N/ha/y), all resulting in a particularly fast growth of the sward and opening for early mowing and/or grazing in high densities. Today large-scale mowing often starts by the end of April or at the beginning of May. This results in a

very poor breeding success and many failed breeders (Wymenga 1997, Kleefstra 2007, Schekkerman & Müskens 2000) – and chick mortality (Schekkerman 2008; see 3.1.1). There are indications that intensively exploited grassland is also low quality feeding habitat for chicks (Kleijn *et al*. 2008). For instance, Schekkerman & Beintema (2007) found that in re-growth after the first cut, chicks had a 31% reduced prey intake rate compared to herb rich, low productive grassland. Despite Agri-Environment Schemes in The Netherlands – being effective on a large scale from the 1990s onwards – the decline has not been stopped (Kleijn & Sutherland 2003, Verhulst *et al*. 2007).

The recent enlargement of the European Union to Eastern European countries threatens to shift largely extensive pasture practices into intensive ones due to inappropriate balance between production and environmental incentives (Baldi *et al*. 2005). In some places, the socio-economic developments in landownership and agriculture may lead to the abandonment of former floodplain meadows (3.2.3). Also, the general developments in agriculture in Western Europe with larger farms may leave few possibilities for breeding meadow birds, unless this scaling-up goes hand in hand with a more extensive land use or other measures.

3.2.3. Extensification of land use / grassland management

Importance: medium-high
The abandonment of farming activities in meadows often leads to rapid vegetation succession including loss of openness, resulting within a few years in habitats unsuitable for species like the Black-tailed Godwit. The widespread reduction of both haymaking and cattle grazing in many parts of Central and Eastern Europe, where about 50% of the nominate *limosa's* breed, lead to overgrowing of open (floodplain) meadows by perennial vegetations (*Magnocaricion, Phragmitatea*) and shrubs, therefore seriously impacting godwit breeding populations. For example, in the Vinogradovo floodplains near Moscow in Russia, where farming was abandoned in the mid-1980s, the godwit breeding population dropped from 100-120 pairs to 12-27 pairs in the beginning of the 20th century due to overgrowth of the meadows (Sukhanova 2008).

3.2.4. Loss of openness

Importance: high
In general, Black-tailed Godwits, and other meadow-breeding birds (for instance Sky Lark) have a high preference for open habitats. As a result, godwits avoid areas with lines of trees and ascending buildings. The widespread urbanization, vegetation succession and/or land abandonment and spreading of settlements into farmland areas lead to significant fragmentation and degradation of essential breeding habitats. The preference for openness is possibly related to predation risk (see 3.1.2) and disturbance. The impact partly depends on habitat quality (i.e. in high quality habitat, godwits may breed closer to buildings, tree lines etc. than in poor quality habitats).

The distance from which the impact of trees and buildings on the breeding densities of godwits can be measured varies from 150-250 m or more, depending on the local situation (see above). Oosterveld (2006) has found that the population development of Black-tailed Godwits in 60 meadow bird reserves in Fryslân (The Netherlands) was negatively correlated with the openness of the landscape in combination with densities of predators within 1 km distance of the reserves. Restoring openness has proven to be a good tool for improving breeding habitat quality.

The loss of openness also leads to the (re)colonisation of the meadow landscape by several predator species, which can have a serious impact on the chick production (see 3.1.2).

3.2.5 Changes of the hydrological regime and lowering water tables

Importance: high
Changes of the hydrological regime can affect godwits at several levels. The widespread elimination of spring flooding of meadows (which create essential moist conditions during breeding) and changes to the groundwater level of grassland appear particularly important to the godwits compared with most other waders. In the past, the lowering of (ground) water levels has been instrumental in the process of agricultural intensification, facilitating fertilisation, and ultimately resulting in a more rapid grass growth in spring and early mowing (3.2.2).

The constructions of dikes that reduce spring flooding of breeding areas appear to be a widespread problem in Eastern Europe. For instance in Belarus, large areas of floodplain meadows are reduced or lost due to embankment and canalization of the rivers to avoid floods (P. Pinchuk *in litt*.); as a result, they become too dry for godwits without annual flooding. Drainage and lack of flooding on peat soils lead to an increased mineralization and subsequent vegetation succession, thereby losing the open floodplain character. These processes also occur in some parts of Ukraine, especially in the south and west. Along the Dnipro, Dniester and Pripyat rivers, the floodplains have become dry and covered with overgrowth of shrub and reeds following the canalisation of the rivers for agricultural purposes in the 1960s (Gorban & Flade 2000).

In The Netherlands, godwits have tended to choose nest sites in areas with a relative high groundwater level or moist soil, as such areas will remain wet in March-June and thereby secure food availability for the chicks (Beintema *et al*. 1995, Kleijn *et al*. 2007) and adults. The determining factor for birds in relation to the hydrological regime seems to be the availability and exploitability of food resources. On permanent wet soils (and regularly flooded) benthic fauna is marginally present (Ausden *et al*. 2000). Exploitability of benthic fauna (rain worms) depends on soil penetration, which is illustrated by the situation in the very dry spring of 2007 in The Netherlands (hardly any precipitation between 22 March and 8 May): several godwit-pairs breeding on clay soils left the breeding area by the end of April as the top layer became impenetrable for a godwit-bill. On the contrary, locations which were partially inundated for the sake of meadow birds attracted more godwit-pairs than usual (own observations). The optimal (ground) water level for Black-tailed Godwits therefore depends on soil type, soil structure and the hydrological situation.

3.2.6 Burning of the vegetation

Importance: low
Burning of dry meadow vegetation in spring is widespread in Belarus (P. Pinchuk *in litt.)*, Russia (Sukhanova 2008, O. Thorup pers comm.) and in neighbouring Ukraine. This practice can have serious consequences for all birds breeding on the ground as the fire not only destroys nests and eggs but also changes the habitat and leads to decrease of food recourses (invertebrates). However, if spring burning is carried out before the start of the breeding season, studies in Russia have shown that recent burnt meadows and grassland are not avoided by godwits (Sukhanova 2008). Early spring burning of semi-abandoned and abandoned grassland may therefore be a management tool to maintain godwit breeding habitat (Sukhanova 2008), obviously requiring a tailor-made management and timing.

3.2.7 Disturbance

Importance: high
The Black-tailed Godwit is generally rather sensitive to disturbance during the breeding season (e.g. Frikke 1991). This includes agricultural and recreational activities, such as fishing in rivers in breeding areas or cycle paths near breeding areas. It appears especially susceptible to road traffic disturbance, which may even impact up to 600 m at high traffic densities (Reijnen *et al.* 1996). De Molenaar *et al.* (2000) also found that street lighting had a negative impact on the breeding densities up to of 250-300 m from a highway. The construction of more and more roads, cycling paths or recreational facilities in

the open country may therefore have a significant impact on breeding densities. At present this is probably mainly a problem in Western Europe, severely reducing habitat quality.

Godwits may also be disturbed during migration and in the winter quarters. In particular disturbance from hunting (of other species) and recreational activities (especially near concentration and roosts) appear to be important problems. In Bulgaria salt production in wetlands also disturbs staging godwits. However, while wintering in the UK, in rice fields in Portugal and in southern Senegal and Guinea-Bissau, the species seems to habituate to normal human routines and allow the close proximity of humans (N. Cidraes-Vieira in litt., Gill *et al.* 2001b, van der Kamp *et al*. 2008).

3.2.8. Climate change

Importance: unknown
Climate change may affect the Black-tailed Godwit in a numbers of ways. It will most likely lead to significant changes in the breeding range. There are already indications that the breeding range in Russia is moving northwards, but so far no information is available on the impact on the population size (D. Kleijn *in litt.)*. Higher temperatures during winter and in spring could also lead to a change in the timing of migration, for instance in an earlier arrival and start of breeding within the current range. The consequence of this is unknown, but it should be noted that, for instance, in The Netherlands an earlier start to breeding might not go hand in hand with earlier mowing dates of grasslands. This could result in potentially higher losses of eggs and chicks (D. Kleijn *in litt*.).

3.2.9. Loss and degradation of habitat of stop-over sites and wintering areas

Importance: high
While on migration and during winter Black-tailed Godwits often concentrate in large numbers in few sites. This makes the species particularly vulnerable to habitat change in the stop-over sites and key wintering areas. For instance, wetlands in Morocco used to be an important staging area during spring migration with over 10,000 godwits regularly observed at the coastal wetlands up until 1980 (for example Zwarts 1972). Since then loss and degradation of wetland sites such as Merja Zerga and the Loukos Delta have caused a decline in these areas. Also former major staging/stopover sites in France appear to have lost much of their importance, although other reserves with specific management still attract many Godwits (for example Moëze). Hydrological changes (drainage) in Marais de Poitevin during the last decades and conversion of grasslands into maize fields have led to loss of habitat and godwit numbers. Up to 40,000 – 50,000 birds used to be counted during the early 1980s whereas since the 1990s totals fluctuate roughly in a range around 10% of former peak levels. In the Basse Vallée d'Angévines (near Angers) planting of trees in the river bed may lead to degradation and even loss of important spring habitat (open flooded pastures).

Birds belonging to the continental population now use a few mostly man-made sites in Spain/Portugal during the spring migration, as well as a number of additional sites in France. In Portugal/Spain, a large part of the population assembles in January-February on two rice field complexes, which makes the species vulnerable. Here future changes in land use and urban planning may pose serious threats to some of the staging/wintering sites. For instance, the Tagus estuary in Portugal is threatened by plans for a new airport just a few km away that may lead to collisions, disturbance and loss of habitat of this key staging/wintering area (P. Lourenço pers. com.).

Also the eastern population faces loss and degradation of stop-over sites and wintering areas. In Turkey, the Ceyhan Delta hydrological regime and its intertidal habitats, which are important stop-over sites for eastern godwits are threatened by land claim and overgrazing as well as the industrial expansion linked to the Baku-Tbilisi-Ceyhan pipeline.

In West Africa, several wetlands important to wintering godwits have been significantly reduced by embankment and canalization of rivers in the framework of a flood control strategy aiming at irrigation, energy production and/or sufficient water supply during the low water period (such as the

Lower Senegal River). The controlled flooding and reduction of the floodplain of the Senegal Delta has, in the past, significantly reduced the importance of the sites as wintering areas for Black-tailed Godwits (Zwarts *et al.* in press.). Wintering numbers are in the order of 3,000-5,000 birds, with higher numbers in the early 1990s (Triplet & Yésou 1998). Given the much smaller population in the 2000s, habitat-availability in West Africa does not seem to be a bottleneck in the winter quarters (Kuijper *et al.* 2006).

Figure 3a. Problem tree for the Western Palearctic populations of Black-tailed Godwit (L. l. limosa) – I: Direct Threats

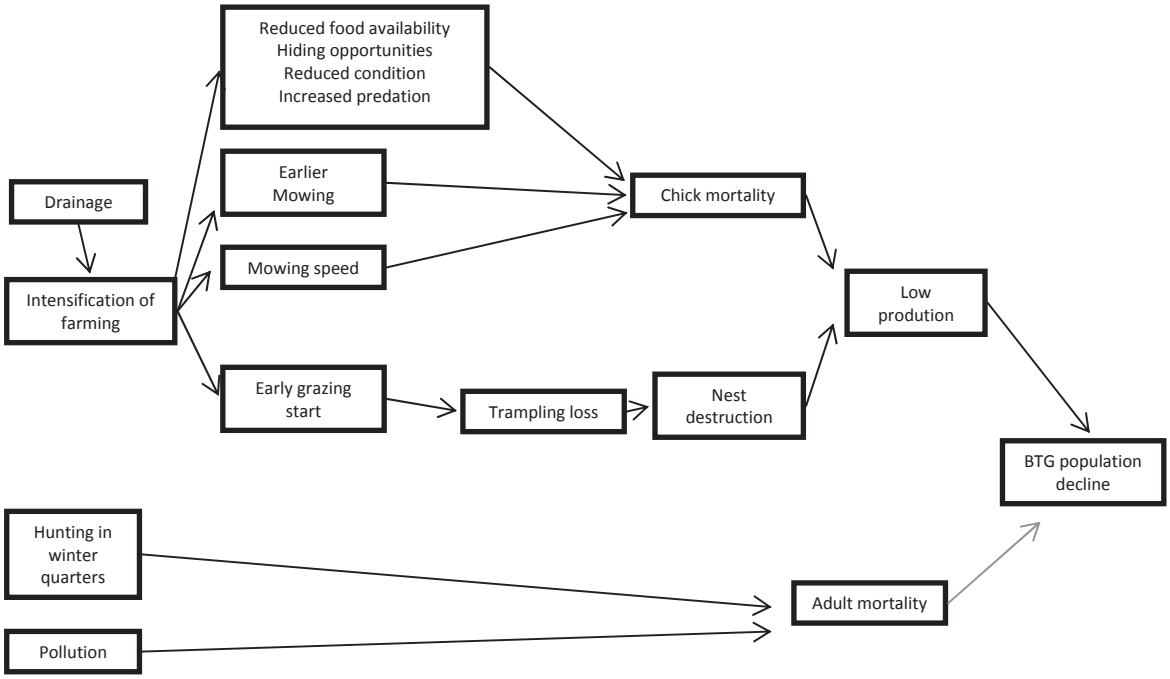
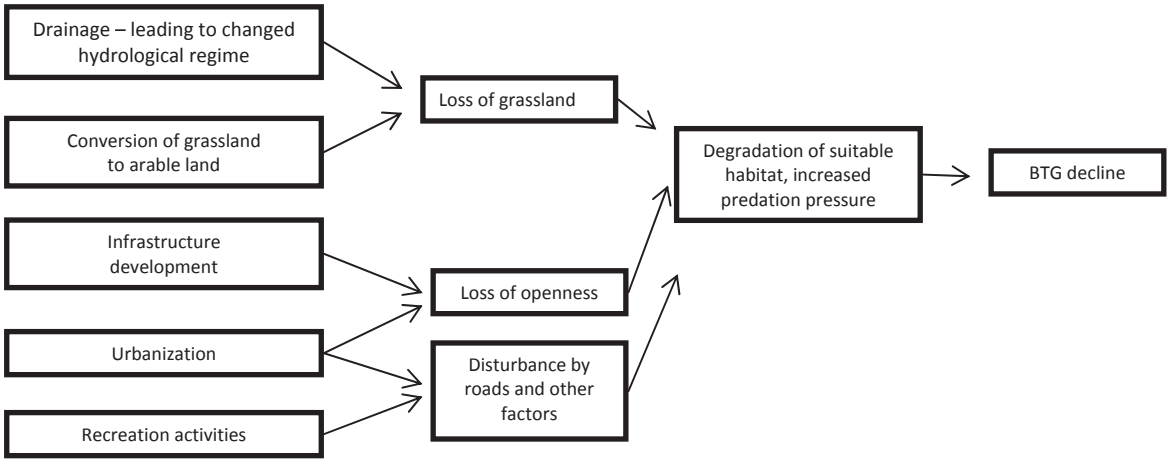


Figure 3b. Problem tree for the Western Palearctic populations of Black-tailed Godwit (L. l. limosa) – II: Indirect Threats



4. Policies and Legislation Relevant for Management

4.1. International conservation and legal status of the species

Table 5 gives the status of the Western Palearctic populations of the Black-tailed Godwit under the main international legislative instruments for conservation.

Table 5. International conservation and legal status of the Black-tailed Godwit Limosa limosa

World Status[3] (Criteria)	**European Status**[4]	**SPEC category**[5]	**EU Birds Directive Annex**	**Bern Convention Annex**	**Bonn Convention Annex**	**African-Eurasian Migratory Waterbird Agreement**	**Convention of International Trade on Endangered Species**
Near Threatened	Vulnerable	2	Annex II/2	Appendix III	Appendix II	Column B 2c[6] Except *islandica* Population: Column A 3a[7]	Not listed

Besides international agreements, the Black-tailed Godwit is included in Red Data lists of individual countries (see Table 6).

4.2. National conservation and legal status

The status in national red-data books and hunting status is shown in Table 6.

Table 6. National conservation and legal status

Country	**Status in national Red Data Book**	**Legal protection from killing**	**Year of protection status**	**Highest responsible authority**
Albania	-	?	-	National government
Algeria	-	?	-	-
Austria	-	Yes	-	National/federal government
Azerbaijan	-	?	-	-
Belarus	VU	Yes	2004	National government
Belgium	-	Yes	-	National government
Bulgaria	Least Concern	Yes	2002	National government
Croatia	Least Concern	Yes	-	National government
Czech Republic	-	Yes	-	National government
Denmark	Vulnerable	Yes	1982	Ministry of Environment
Egypt	-	?	-	-
Estonia	-	Yes	-	National government
Finland	-	Yes	-	National government
France	-	Yes[8]	2008	Ministry of Environment

[3] BirdLife International/IUCN Red List assessment. - 2007 IUCN Red List Category.
[4] BirdLife International (2004).
[5] BirdLife International (2004). - SPEC 2: Species whose world populations are concentrated in Europe, but which have an unfavourable conservation status in Europe.
[6] Showing significant long-term decline.
[7] Concentration onto a small number of sites at any stage of their annual cycle.
[8] A temporary five-year suspension of the hunting on the species was introduced in July 2008.

Country	Status in national Red Data Book	Legal protection from killing	Year of protection status	Highest responsible authority
Germany	Endangered by extinction	Yes	-	National/federal government
Greece	-	Yes	-	-
Guinea Bissau	-	?	-	-
Hungary	-	Yes	-	National government
Iceland	-	Yes	-	National government
Iran	-	?	-	-
Iraq	-	?	-	-
Rep. Ireland	-	Yes	-	National government
Israel	-	Yes	1955	Israel Nature & Park Authority
Italy	-	Yes	1997	National government
Kazakhstan	-	Yes	-	Committee of Forestry and Hunting to the Ministry of Agriculture
Kenya	-	?	-	-
Latvia	-	Yes	-	National government
Libya	-	?	-	-
Lithuania	-	Yes	-	National government
Mali	-	?	-	-
Montenegro	-	?	-	-
Netherlands	Sensitive	Yes	-	National government
Norway	-	Yes	-	National government
Oman	-	?	-	-
Poland	-	Yes		National government
Portugal	-	Yes	-	National government
Romania	-	Yes		National government
Russia	-	?	-	-
Senegal	-	Yes	-	Ministry of Environment and Nature Protection
Serbia	-	No	-	-
Slovakia	-	Yes	-	National government
Slovenia	-	Yes		National government
Spain	-	Yes	-	-
Sweden	-	Yes	-	-
Tunisia	Vulnerable	Yes	-	-
Turkey	-	?	-	National government
United Arab Emirates	-	?	-	-
Ukraine	Not listed	No[9]	-	National government
United Kingdom	-	Yes	-	National government
Yemen	-	?	-	-

[9] Hunting season from second Saturday in August to last Monday in December or first Monday in January. It is currently considered to remove the species from the list of huntable species in Ukraine due to the population decline.

5. Framework for Action

This section of the plan initially summarises the conservation status of the Western Palearctic populations of Black-tailed Godwit populations and sets the overall priorities for the Single Species Action Plan. In section 5.2 the purpose of the plan is described with the goals identified and defined, targets set and means of verification of its implementation outlined.

5.1 Priority statement

The two subspecies of Black-tailed Godwit that breed in the Western Palearctic (*Limosa l. limosa* and *L. l. islandica*) have shown contrasting population developments over the last decades. While the population of *L. l. islandica* has increased significantly in numbers and expanded its breeding range, the *Limosa l. limosa* has shown range contraction and major declines in most key breeding areas. For this reason, the actions in breeding areas described in this chapter will focus on the recovery of the nominate form. Many important staging areas and wintering sites used by godwits belonging to both subspecies are threatened in one way or the other and the actions for staging and wintering areas therefore apply to the populations of both subspecies.

The nominate form of the Black-tailed Godwit has a large breeding range across the Western Palearctic consisting of many more or less isolated populations. It is well established that several of these populations differ in behaviour and should be treated separately. For instance, due to a unique genetic variation of the godwits breeding in the Baltic basin and especially on the island Gotland in Sweden it has been suggested that these areas qualify as a "conservation unit" (Johansson 2001). The strong preference for human-managed habitats during breeding, migration and in the winter quarters in particular by the Dutch populations points to another separate "conservation unit". For practical reasons the unique population in The Netherlands and neighbouring areas in Germany and Belgium will be considered separately in the context of this plan. However, when national or local management prescriptions are to be developed for the godwits throughout the Western Palearctic, it is essential to take into account the unique specialisations of the population in question.

Nominate Black-tailed Godwits of Western Palearctic breed almost exclusively in man-made habitats or habitats modified by man. In most of its range it is associated with semi-natural grassland and meadows while in The Netherlands and adjacent areas in Germany and Belgium the majority breeds in intensively managed open, moist-to-wet grassland used for dairy farming. Throughout its range the Black-tailed Godwit is and has been facing a loss and degradation of breeding habitat due to urbanisation and infrastructure, conversion of grassland into arable land, loss of openness and in some areas increasing disturbance. With the exception of some marginal populations (for instance in France and the UK), this has lead to a widespread decline (although the development of the eastern populations is generally poorly known). The intensification of grassland management in The Netherlands and adjacent areas of Germany, often in combination with an increased predation, has lead to a very low annual reproduction, and are the main causes for the ongoing decline of about 5% per year of the Dutch core population, despite AES-schemes (see box) and protection measures by volunteers in many areas.

During migration and in the winter quarters, Black-tailed Godwits have traditionally largely been restricted to estuaries and large inland wetlands including the traditional rice fields in the coastal zone of West Africa. More recently also wet rice fields in Spain and Portugal are used during spring migration. The importance of rice fields as wintering grounds, combined with progressively earlier arrival in Africa of godwits from the North-West European population due to failed breeding, create conflicts with farmers due to alleged crop damage. This leads to local shooting of godwits; the scale on which this occurs as well as the impact of this on population level has yet to be investigated.

Presently, the breeding population of the nominate form in the Western Palearctic is estimated at *c*.110,000 pairs. However, due to the large decline (>30%) since 1990, the species was classified as Near Threatened by IUCN in 2006. More effective management and protection of important breeding sites and better protection of sites utilised during migration and in winter should lead to the recovery of the nominate populations of the Western Palearctic. Essential however for the recovery of the unique core population in The Netherlands and adjacent areas in Germany are measures to increase the reproduction.

This action plan will address these issues by proposing activities that focus on the management of key habitats and sites throughout the range. To minimise the mortality, the plan also calls for a stop of hunting of the species throughout the entire range covered by this plan. Finally, a need has been identified for further studies to improve estimates of juvenile survival and improve survey information of the distribution and abundance during migration and in the winter grounds.

Agri-Environmental Schemes and other measures for the Black-tailed Godwit

Over the years a large number of initiatives have been taken to improve the situation for the Black-tailed Godwit, in particular in the breeding areas in Western Europe. This includes the preparation of national management plans (for instance in Denmark) and large scale and often very costly management activities in Sweden, Denmark, Germany and in particular in The Netherlands. Here so called mosaic-management was tested on 52 sites in 2003 – 2005 in an attempt to improve chick-survival as part of the project Nederland-Gruttoland.

In The Netherlands large scale Agri-Environment Schemes (AES) are implemented with annual budgets of *c*. 35 million euros aimed at all meadow birds and other biodiversity. However, despite large scale protection by volunteers (see above) and the implementation of AES in The Netherlands, the decline of the species was not able to be halted. Since 2000 many new initiatives to further assess the causes of decline and improvement of management have been started. Key issues in this respect are optimizing water tables, restoring openness of the landscape, soil conditions and creation of optimal chick habitat through mosaic management of grasslands. These combined measures should be taken in core breeding areas, in order to maximise results. In many areas predation control is undertaken in combination with initiatives to restore the openness of the habitats. Essential to these initiatives has been a change in attitude from farmers who are now often eager to participate in the new forms of management, especially where there is a collective drive and coordination to work on meadow bird conservation.

To further support this, several so-called 'godwit-circles' have been formed in which groups of farmers, nature managers and volunteers work together on a local level (500-1,000 ha) to improve meadow bird conservation. This development is highly supported by the Dutch government. Because of the unfavourable status of the species, an additional effort is planned in 2008-2009 (8 million euros), aiming at improving habitat quality in special managed reserves including Natura 2000-sites. The aim is to direct this support specifically to core regions, where still relatively high densities of godwits are breeding, and where the potentials for restoration of reproduction are good and this type of innovative grassland management is welcomed by the farmers. Essential to the restoration of the Dutch godwit population are also the unique efforts made by over 10,000 volunteers who mark thousands of nests before the grasslands are mowed or grazed. This significantly improves the nesting success (number of hatched eggs) - although it does not necessarily improve chick survival. Predation control is practiced to a certain extent in several parts of the Dutch breeding area. Notwithstanding these efforts, the priorities and activities listed in Table 8-11 remain.

5.2 Purpose of the plan

Recognising that the Western Palearctic populations of the nominate form of the Black-tailed Godwit have a "Near Threatened" Conservation Status due to a continuing decline of key populations the Goal of this plan is to restore 'Least Concern' status on the global IUCN Global Red List of Threatened Species.

The short term objective is therefore to halt the current decline and contraction of distribution while the long-term objective is to restore all Western Palaearctic populations to a favourable conservation status. In addition, the plan aims at maintaining the favourable status of the *islandica* population by addressing the most urgent issues in a specific, measurable, agreed, realistic and time-bound process.

Table 7. The framework for action for the Black-tailed Godwit Species Action Plan. The actions and results listed cover the period up to 5 years after endorsement of the plan

Summary of objectives /Activities	Objectively Verifiable Indicators (OVIs)	Means/Sources of verification (MOVs)	Important assumptions
Overall goal: To restore 'Least Concern' status on the IUCN/BirdLife Global Red List	The Black-tailed Godwit populations have recovered to favourable conservation status	IUCN/BirdLife Global Red List classification of the Black-tailed Godwit	Black-tailed Godwit AEWA Action plan approved and supported and implemented by AEWA member states
Purpose of this action plan: To halt the decline of the Western Palearctic populations of *L. l. limosa* and to maintain the favourable status of the *islandica* population	• Decline of western population L. l. limosa has stopped • Eastern population of *L. l. limosa* remains at 2000 level • *Islandica* population maintains favourable conservation status	• Summarised results of national Black-tailed Godwit surveys (BirdLife World Bird Database) • National Black-tailed Godwit censuses / atlas surveys	Habitat conservation measures are maintained beyond the time frame of this action plan
Results: Degradation of breeding habitat quality and habitat loss has stopped (*L. l. limosa*)	Breeding range and population size of BtG[10] have been maintained at 2007 level or have increased	National inventories	Climate change will not have negative impact on the BTG breeding range
Low reproduction has increased to levels that sustain the population (*L. l. limosa*)	Chick-mortality and nest destruction have decreased where BtG breed in intensively managed farmland	New research documents	CAP[11] Reform will provide framework for sustainable management of BTG habitats within the EU
Wintering areas are maintained and migratory sites are maintained or have	Adequate protection of important BtG staging areas		

[10] Black-tailed Godwit.
[11] Common Agriculture Policy of the European Community.

Summary of objectives /Activities	**Objectively Verifiable Indicators (OVIs)**	**Means/Sources of verification (MOVs)**	**Important assumptions**
increased (*L. l. limosa & L. l. Islandica*)			
Hunting stopped throughout the range	BtG is legally protected in all range states	National legislation National hunting bag statistics	Implementation and acceptance of AEWA plan
	Illegal hunting is not reported	Reports of Eurogroup Against Bird Crime	
Knowledge gaps filled	Improved understanding of the distribution and trend of the eastern breeding populations	New research document National inventories	
	Improved understanding of the migration and wintering areas of the eastern populations.	New research document National inventories	

6. Activities by Country/Region

Table 8 – 11 summarises the necessary actions for Black-tailed Godwit conservation for each country. The terminology of actions follows the "results" column in Table 7.

Priority is defined as:

- *Essential*: an action that is needed to prevent a large decline in the population, which could lead to extinction.
- *High*: action needed to prevent declines of > 20% of the population within less than two decades;
- *Medium*: action to prevent declines of < 20% of the population within less than two decades;
- *Low*: action needed to prevent local declines or processes, which are assumed to have a low impact on the population as a whole.

Priorities in brackets indicate that the priority criteria do not follow the above scale but express the importance of the action to support the implementation of the plan.

Time scales are according to the following criteria:

- *Immediate*: completed within the next year;
- *Short*: completed within the next 1-3 years;
- *Medium*: completed within the next 1-5 years;
- *Long*: completed within the next 1-10 years;
- *Ongoing*: current action in progress and should continue;
- *Completed*: actions, which were completed during the preparation of this plan.

Since many results and proposed conservation actions apply to more than one country, the countries have been grouped into four categories, combining status and threats of the Black-tailed Godwit and the political situation of each country:

- Non-EU Member states

- EU Member States with the exception of The Netherlands and neighbouring Germany and Belgium

- The Netherlands and adjacent areas in Germany and Belgium

- Countries within the migratory and wintering area of the flyway, consisting of EU Member States, non-EU countries as well as countries in the Middle East and in Africa.

Table 8. Non-EU Member States supporting the eastern breeding population (Russia, Kazakhstan, Belarus, Ukraine and Serbia)

Results	National activities	Priority	Time Scale	Responsible organisation
Degradation of breeding habitat quality and habitat loss has stopped	• Identify and protect key breeding sites for the BtG under national legislation	High	Medium	National Government, National Nature Protection Agency/NGOs
	• Prevent loss of further breeding habitat when meadows are ploughed for agricultural use and floodplain meadows are reduced, lost or the hydrological regime changes by embankment and canalization of the rivers to avoid floods	High	Medium	National Government/Local authorities
	• Support haymaking and cattle grazing of important breeding habitat by providing aid to sustainable farming to prevent overgrowth of important breeding habitat	High	Medium	National Government/Local authorities
	• Reverse land abandonment, where appropriate, and restore habitats	Medium	Medium	National Government/Local authorities
	• Take into account the habitat requirements of the BtG in management of protected areas	Medium	Medium	National Government, National Nature Protection Agency
	• Prevent disturbance of nesting BtG including recreational activities, such as fishing in rivers in breeding areas	Low/Medium	Medium	National Government/Local authorities
	• Prevent the current practice of late spring burning of dry meadow vegetation which leads to loss of BtG nests and decrease in food recourses	Low/Medium	Medium	National Government/Local authorities
	• Ensure that national legislation requires Environmental Impact Assessments are carried out preceding activities that could lead to breeding habitat degradation or loss.	Low	Short	National Government/Local authorities

Results	National activities	Priority	Time Scale	Responsible organisation
Improved survival and recruitment by reducing mortality	• Provide legal protection of the BtG, as far this is not yet the case	(Medium)	(Short)	National Government/Local authorities
	• Stop hunting in spring (high priority) and other hunting and control illegal hunting.	(Medium)	(Short)	National Government/Local authorities/NGOs
Knowledge gaps filled	• Prepare distribution maps and update estimates of breeding population and trend	(High)	(Short)	National Government/Local authorities/NGOs
	• Carry out inventory of key sites and determine habitat threats	(High)	(Short)	National Government/Local authorities/NGOs
	• Starting colouring schemes to monitor and investigate staging sites, migration routes and wintering areas of these populations	(High)	(Short)	National Government/NGOs

Table 9. EU Member States with the exception of NW European core population (The Netherlands and neighbouring areas in Germany and Belgium)

Results	National activities	Priority	Time Scale	Responsible organisation
Loss and degradation of breeding habitat has stopped	• Prevent important breeding areas to be lost through urbanisation, infrastructure and other planning. Implement this kind of protection in national legislation	High	Short	National Government/Local authorities
	• Support biodiversity-sensitive management (including appropriate grazing and/or mowing regimes) of important breeding habitats in order to promote chick survival and to prevent overgrowing	High	Short	National Government/Local authorities
	• Prevent loss and degradation of permanent grasslands important to breeding BtG	Medium	Medium	National Government, National Nature Protection Agency
	• Improvement of management of protected areas by taking into account the habitat requirements of the BtG.	Medium	Medium	National Government, National Nature Protection Agency
Low productivity caused by agricultural practice is significantly reduced	• Support activities that maintain the openness of BtG habitats and thereby reduce mortality from predators. Develop actions to restore openness in former breeding areas.	High	Short	National Government/Local authorities
	• Support activities for maintaining/re-introducing optimal groundwater levels of grasslands and meadows, needed both for an optimal management and to secure food availability for adults and chicks.	Medium	Medium	National Government/Local authorities
Knowledge gaps filled	• Improve estimates of juvenile survival and causes of mortality and implement a model with population dynamics to be able to quantify the significance of threats and measures.	(High)	(Short)	National Government/Local authorities/NGOs

Table 10. The Netherlands and neighbouring areas in Germany and Belgium

Results	National activities	Priority	Time Scale	Responsible organisation
Degradation of breeding habitat quality and habitat loss has stopped	• Prevent further habitat loss in key breeding area to urbanisation, infrastructure and other planning, and loss of openness of the landscape. Implement this kind of protection in national legislation	High	Short	National Government/Local authorities
	• Prevent loss (such as turning wet grassland into maize fields) and degradation of permanent grasslands important to breeding BTG	High	Medium	National Government/Local authorities
	• Improvement of management of protected areas by taking into account the habitat requirements of the BtG.	High	Medium	National Government/Local authorities
Low productivity caused by agricultural practice is significantly reduced	• Support biodiversity-sensitive management (including appropriate grazing and/or mowing regimes for the BtG) of important breeding habitats through AES in order to promote chick survival.	Essential/High	Immediate/Short	National Government, National Nature Protection Agency
	• Take BtG interests into account in the management of grassland nature reserves.	High	Short	National Government/Local authorities
	• Maintaining/re-introducing grassland areas with optimal groundwater level to secure food availability for adults and chicks	Essential/High	Immediate/Short	National Government, National Nature Protection Agency
	• Maintaining/re-introducing the openness of the landscape (and thereby also reduce predation)	High	Short	National Government/Local authorities

Results	National activities	Priority	Time Scale	Responsible organisation
	• Return to late mowing of grasslands to reduce nest destruction and reduce chick mortality in core breeding area, such measures being part of AES.	High	Short	National Government/Local authorities
Knowledge gaps filled	• Gather long-term and representative data on reproduction, survival in relation to breeding habitat quality, migration etc.	(High)	(Short)	National Government, National Nature Protection Agency, universities, NGOs
	• Chick survival in relation to modern practices of agriculture resulting in a further optimizing of mosaic management.	(High)	(Short)	
	• Improve estimates of juvenile survival and causes of mortality and implement a model with population dynamics to be able to quantify the significance of threats and measures.	(High / medium)	(Short)	
	• Investigate the effectiveness of predator control on the reproduction and survival	(Medium)	(Medium)	
	• Better understanding of the arrival and settling ecology of godwits.			

Table 11 .Countries with staging and winter populations of Black-tailed Godwit (L. l. limosa and L. l. islandica)

Results	National activities	Priority	Time Scale	Responsible organisation
Wintering and migratory sites are maintained or restored	**Portugal and Spain**			
	• Bilateral development of legislation aiming at effective protection of staging areas	High	Short	National Governments
	• Water management in rice fields with special focus on creation of steady and suitable staging/wintering conditions for Black-tailed Godwits	High	Medium	Regional/Local authorities
	• Rice field management taking BtG into account using appropriate CAP and AES mechanisms	Medium	Medium	National authorities & Regional authorities
	• Portugal: urban and infrastructure planning which takes into account the ecological requirements of Black-tailed Godwit feeding and roosting areas.	High	Short	Relevant Planning Ministry
	France			
	• Restore degraded and lost staging sites/habitats.	Medium	Low	National authorities/NGO's Regional authorities
	Turkey			
	• Urban planning which takes into account the ecological requirements of the Black-tailed Godwit	Medium	Medium	Relevant national/regional authorities
	• Regulation of grazing.	Medium	Medium	Relevant national/regional authorities
	Morocco			
	• Start restoration of habitats in (former) important spring staging areas, in particularly Merja Zerga and the Loukos Delta	Medium	Medium	Relevant national/regional authorities – Private sector
	• Set up monitoring schemes to register ecological development of wetlands before, during and after restoration.	High	Short	NGO's

Results	National activities	Priority	Time Scale	Responsible organisation
	Senegal and Mauritania • Initiate partial restoration of wetland habitats in the Senegal River Delta with focus on enlargement (in time and space) of existing wintering habitat through bilaterally fine-tuning of water management	High	Short	National Government Agencies/Private sector/NGO's
	• Initiate restoration of the former wintering area at the southern edge of the Senegal River Delta.	High	Long	National and Regional Government Agencies/Private sector/NGO's
	Senegal and Guinea Bissau • Wise use of all wetlands, taking BTG into account. In addition create protected areas, where Black-tailed Godwits can roost and feed without disturbance	High	Short	National Government/ NGO's
	• Initiate the development of a support-program for farmers in the core wintering areas for BTG, aiming at the development of alternative feeding grounds for BTG to avoid alleged crop damage and protect BTG	High	Short	National Government/ NGO's / international donors
	• Develop legislation as to protected areas of special importance for Black-tailed Godwits; being a flagship species for wetlands many more water bird species will take advantage from this.	Medium	Short	National Government/ NGO's
Improved survival and recruitment by reducing mortality	• Hunting ban introduced in all countries where hunting is permitted to reduce mortality	Medium	Short	National Government
	• Strict enforcement of species protection legislation across the range	Medium	Medium	National Government

Results	National activities	Priority	Time Scale	Responsible organisation
	• Local total hunting ban introduced in and near important staging sites where disturbance from hunting of other species may occur (such as in Portugal and Spain).	Medium	Medium	National Government and related agencies
Knowledge gaps filled	• Support further in-depth studies of the movements, numbers, timing, distribution and ecological requirements of the Black-tailed Godwits wintering in West Africa including aerial counts, colour-marking of individual birds and satellite telemetry studies	High	Short	National Governments and related agencies, International Nature Protection organisations, Universities
	• Initiate studies of the migration routes, key staging areas and main wintering areas of the eastern populations with focus on colour-marking of individual birds and satellite telemetry	High	Short	National Governments and related agencies, International Nature Protection organisations, Universities
	• Studies of the whereabouts of first-year birds (in Africa)	Medium	Short	
	• Support further studies of the ecological needs of Black-tailed Godwit in Portugal and Spain, focusing on the pre-migratory energy storage period.	High	Ongoing	National Governments and related agencies

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UNEP/AEWA Secretariat
UN Campus
Hermann-Ehlers-Str. 10
53113 Bonn
Germany
Tel.: +49 (0) 228 815 2413
Fax: +49 (0) 228 815 2450
aewa@unep.de
www.unep-aewa.org