

Strasbourg, 21 October 2006
[Inf09e_2006.doc]

T-PVS/Inf (2006) 9

CONVENTION ON THE CONSERVATION OF EUROPEAN WILDLIFE
AND NATURAL HABITATS

Standing Committee

26th meeting
Strasbourg, 27-30 November 2006

**International single species Action plan
for the conservation of the Corncrake (*Crex crex*)**



**CMS Technical Series No. 14
AEWA Technical Series No. 9**

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

*Convention on the Conservation of Migratory Species of Wild Animals (CMS)
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)*

Compiled by: Kees Koffijberg¹ & Norbert Schaffer²

¹ SOVON Vogelonderzoek Nederland, Rijksweg 178, 6573 DG Beek-Ubbergen, The Netherlands

² Royal Society for the Protection of Birds, The Lodge, Sandy, Bedfordshire, SG19 2DL, UK

E-mail: kees.koffijberg@sovon.nl, norbert.schaffer@rspb.org.uk

Compilation of this species action plan would not have been possible without the encouragement and comments of the network of national experts of the Corncrake Conservation Team and numerous representatives from national and regional governmental agencies of the countries involved. We are grateful to Sten Asbirk (Skov- og Naturstyrelsen, Denmark), Ruud van Beusekom (Vogelbescherming, BirdLife the Netherlands), Sandor Boldogh (BirdLife Hungary), Andrej Bibic (Ministry of Environment, Spatial Planning and Energy, Slovenia), Luka Bozic (DOPPS, BirdLife Slovenia), Bernard Deceuninck (LPO, BirdLife France), Ventzeslav Delov (University of Sofia, Bulgaria), Miro Demko (SOVS, BirdLife Slovakia), Sergey Dereliev (BSPB, BirdLife Bulgaria), Anita Donaghy (BirdWatch Ireland), Jaanus Elts (BirdLife Estonia), Knud Fredsøe (DOF, BirdLife Denmark), Michael Grell (DOF, BirdLife Denmark), Asbjørn Folvik (Ambio Miljørådgivning, Norway), Johannes Frühauf (BirdLife Austria), Halmos Gergo (BirdLife Hungary), Heiko Haupt (Bundesamt für Naturschutz, Germany), Oskars Keišs (Latvia), Nabil H. Khairallah (Lebanon), Michael Miltiadou (BirdLife Cyprus), Alexander Mischenko (Russian Bird Conservation Union, Russia), Torsten Larsson (Naturvårdsverket, Sweden), Teemu Lehtiniemi (BirdLife Finland), Peter Newbery (RSPB, UK), Franck Noël (LPO, BirdLife France), Ingar Jostein Øien (NOF, BirdLife Norway), Nuri Özbagdatli (DD, Turkey), Andreas Ranner (Government of Burgenland, Austria), Liutauras Raudonikis (BirdLife Lithuania), Petr Roth (Ministry of Environment, Czech Republic), Silvio Stucki (SVS, BirdLife Switzerland) & Stephanie Tyler (BirdLife Botswana) for their contributions during various stages of preparation of this document.

Figures 1 and 2 were prepared by Christine Kowallik (Germany).

Milestones in the Production of the Plan

First draft: May 2004, presented to the EU Member States, as well as the CMS and the AEWA Range States

Second draft: September 2004, presented to the EU Ornithological Committee and the AEWA Technical Committee

Final draft: August 2005, approved by the AEWA 3rd Meeting of Parties in October 2005 and the CMS 13th Scientific Council Meeting in November 2005

Geographical Scope

This International Single Species Action Plan requires implementation in the following countries regularly supporting Corncrake: Albania, Algeria, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia & Herzegovina, Botswana, Bulgaria, China, Congo, Croatia, Cyprus, Czech Republic, Denmark, Egypt, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iraq, Iran (Islamic Republic of), Israel, Ireland, Italy, Jordan, Kazakhstan, Kenya, Kuwait, Kyrgyzstan, Latvia, Lebanon, Lesotho, Liechtenstein, Lithuania, Luxembourg, Macedonia (the FYR), Malawi, Malta, Moldova, Mongolia, Morocco, Mozambique, Netherlands, Norway, Oman, Poland, Portugal, Romania, Russian Federation, Rwanda, Saudi Arabia, Serbia & Montenegro, Slovakia, Slovenia, South Africa, Spain, Sudan, Swaziland, Sweden, Switzerland, Syria (Arab Republic of), Tadjikistan, Tanzania, Tunisia, Turkey, Turkmenistan, Uganda, Ukraine, United Arab Emirates, United Kingdom, Uzbekistan, Yemen, Zambia, and Zimbabwe.

Reviews

This International Single Species Action Plan should be revised in 2015. An emergency review will be undertaken if there are sudden major changes liable to affect the population.

Recommended citation: Koffijberg, K. & Schaffer, N. (Compilers). 2006. International Single Species Action Plan for the Conservation of the Corncrake *Crex crex*. CMS Technical Series No. 14 & AEWA Technical Series No. 9. Bonn, Germany.

Picture on the cover: © Grzegorz Lesniewski

Drawing on the inner cover: © Christof Bobzin

CONTENTS

Foreword By Mr Robert Hepworth, Executive Secretary, Convention on the Conservation of Migratory Species of Wild Animals (CMS)	5
Foreword By Mr Bert Lenten, Executive Secretary, Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA)	6
Foreword By Mr Nicholas Hanley, Head of Unit Nature and Biodiversity, DG Environment, European Commission	7
Preface	8
Executive summary	9
1. Biological assessment of the Corncrake	10
2. Available key knowledge	14
3. Threats	20
3.1 Factors, which directly affect population level (increased mortality)	20
3.2 Factors, which indirectly affect population level (habitat loss and disturbance)	22
4. Policies and legislation	26
5. Framework for action	30
6. Activities by country	33
6.1 Members of the European Union, which experienced long-term declines and which generally support rather small populations	34
6.2 Members of the European Union, which generally support large populations	37
6.3 Accession countries to the European Union	40
6.4 Non-EU Members supporting large populations, and other countries within the breeding range where breeding population is small or where status is less known	43
6.5 Countries outside the breeding range (i.e. supporting migratory and wintering birds)	46
7. References	47

Foreword by Mr Robert Hepworth, Executive Secretary, Convention on the Conservation of Migratory Species of Wild Animals (CMS)

The Convention on the Conservation of Migratory Species of Wild Animals (CMS) aims to conserve terrestrial, marine and avian migratory species throughout their range. It is one of a small number of intergovernmental treaties concerned on a global scale with the conservation of wild animals and the habitats on which they depend. The 98 Parties to CMS cooperate to conserve migratory species and their habitats by providing protection for the endangered migratory species listed in Appendix I of the Convention; by concluding multilateral Agreements for the conservation and management of migratory species listed in Appendix II and by undertaking co-operative research activities.

The Corncrake (*Crex crex*) has received the attention of the Convention for several years. The 4th meeting of the Conference of the Parties (COP4) to CMS (Nairobi, June 1994) recognized the unfavourable conservation status of the species, and urged Parties to accord the species appropriate conservation measures. COP5 (Geneva, April 1997) included the species in Appendix II and designated the species for Cooperative Actions under the Convention. Since November 1999, the species is covered - for a significant part of its range - under the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA), the most ambitious Agreement concluded so far under the auspices of CMS.

Single Species Action Plans (SSAP) are an important instrument to promote and coordinate conservation and management actions for species with an unfavourable conservation status. In 1996 BirdLife International produced a European Action Plan for the Corncrake (Crockford *et al.* 1996) that was primarily intended for implementation in member states of the European Union and of the Council of Europe. Within the implementation of the CMS Cooperative Action for the species, and in a perspective of synergy and complementarity with the other existing instruments, in 2000 UNEP/CMS requested BirdLife International to prepare an Action Plan for the Corncrake *Crex crex*, to expand the action plan process to cover range states lying outside the European Union and states that were not members of the Council of Europe. This effectively extended conservation action for the Corncrake to its global range, a vitally important step for a wide-ranging migratory species. However, the CMS Action Plan did not replace or update the 1996 BirdLife Action Plan for member states of the EU or the Council of Europe.

In a similar perspective of coordination and streamlining of research and conservation action in favour of the species, CMS was pleased to join the European Commission and AEWA in supporting the revision and consolidation of the 1996 and 2000 Action Plans for the species. The present International Single Species Action Plan (SSAP) for the conservation of the Corncrake *Crex crex* is the result of that joint effort.

The UNEP/CMS Secretariat hopes that the publication and dissemination of this document will contribute to an increased awareness on the status of the species, encouraging further research and monitoring in the field and stimulating effective and coordinated conservation actions by governments, local communities and dedicated non-governmental organizations.

The UNEP/CMS Secretariat wishes to express its thanks to the many people and organizations that made the workshop and this publication possible. These include first of all the compilers of the document, Kees Koffijberg (SOVON Vogelonderzoek Nederland) and Norbert Shaffer (RSPB), for their excellent and patient work, and the numerous other experts that made contributions to the document. A special thank you goes to BirdLife International – European Division Office, which coordinated the process of compilation and revision of the document.

The UNEP/CMS Secretariat is confident that the joint efforts of all stakeholders will eventually succeed in ensuring the restoration and long-term conservation of this charismatic species, whose characteristic call I remember as a small boy growing up in Britain, before the onset of intensive agriculture which was so damaging to this species. Let us hope that we can save it from premature extinction!



Robert Hepworth
CMS Executive Secretary

Foreword by Mr. Bert Lenten, Executive Secretary, Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA)

During their life cycle, migratory waterbirds cover considerable distances in order to find the best ecological conditions and habitats for feeding, breeding and raising their young. However, migration is a perilous journey, presenting a wide range of threats. Only a small number of birds are actually threatened by natural events. Sad but true, human activities are the source of most dangers migrating birds are exposed to. Flying over long distances means crossing many international borders and entering different political areas with their own environmental politics, legislation and conservation measures. It is clear that international cooperation between governments, NGOs and other stakeholders is needed along the whole flyway of a species in order to share knowledge and to coordinate conservation efforts. The necessary legal framework and coordinative instruments for such international cooperation are provided by international agreements such as the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA).

One of these coordinative instruments in conservation of biological diversity is International Single Species Action Plans (SSAP). They are being developed to find out more about populations of species with an unfavourable conservation status throughout their whole range, to identify underlying threats and, more importantly, to roster all necessary conservation measures in a systematic and structured way. This information is crucial to tackling the problems that have caused and are still causing decline of these species and to allow action to be taken to improve their status in the long term. Such International SSAPs can only be developed and effectively implemented in close cooperation with Governments, Intergovernmental Organizations and NGOs.

AEWA, CMS and the European Commission have therefore initiated this International SSAP for the Corncrake. The drafting of the plan was carried out by BirdLife International and has been compiled by leading experts on the species Norbert Schaffer (RSPB, UK) and Kees Koffijberg (SOVON, The Netherlands). The plan was adopted under Resolution 3.12 at the Third Session of the Meeting of the Parties to AEWA in Dakar, Senegal, October 2005.

The Corncrake is a medium-size migratory *Rallidae* species and its breeding range covers large areas across Eurasia. The Corncrake population had already declined in the 19th century, but declining rates accelerated in the second half of the 20th century. This was mainly caused by habitat loss and intensification of agricultural practice. Corncrakes are highly associated with tall grass vegetation for their breeding habitat. Fortunately, by the mid-1990s, the population had recovered in several European countries due to favourable breeding conditions in former USSR countries. Nevertheless, the conservation status of the Corncrake is still 'near threatened', and it needs special attention.

I strongly hope that the Range States involved will make every effort to implement this SSAP, and that they will transform it into National Action Plans and work together to halt the decline in the Corncrake population in the future. I very much believe that if the measures described in these plans are implemented in reality, this will trigger the recovery of the population of this bird to a favourable conservation status.



Bert Lenten
AEWA Executive Secretary

Foreword by Mr. Nicholas Hanley, Head of Unit Nature and Biodiversity, DG Environment, European Commission

Whereas the EU Birds Directive does not explicitly require the preparation of action plans for threatened species, it is widely acknowledged that they are a strategically valuable tool to help effective delivery of conservation action under the Directive. In recognition of this fact the European Community has been financially supporting the development and implementation of international action plans for Europe's most threatened bird species since 1993. To date plans and management statements, prepared by BirdLife International, are in place for 47 species and sub-species.

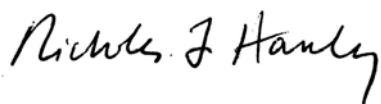
These action plans have provided an excellent way to identify priority measures to halt and restore the populations of these endangered bird species. By bringing together the best available information on status, ecology, threats and current conservation measures for each species, it has been possible to clearly define priority objectives and recommend a programme of action for each species.

Each of these species has been a priority for EU financial support under the LIFE programme and the plans have therefore helped ensure that limited financial resources are targeted at the most pressing conservation needs for the different species.

In 2003 the European Commission funded an EU-wide review by BirdLife International of the implementation of the first set of plans, focusing on 23 globally threatened species, that had been completed in 1995. Whereas this review showed that there are still significant conservation challenges, it clearly demonstrated the effectiveness of the plans, which had contributed significantly to aid the recovery of 18 of these highly threatened species, such as the Pygmy Cormorant *Phalacrocorax pygmeus*, the Lesser Kestrel *Falco naumanni* and the Audouin's Gull *Larus audouinii*. Many of the plans have now been in place for more than a decade and are in need of review and update to take account of advances in science and conservation management. The European Community was therefore very pleased to financially support the review and update of the original action plans for the Corncrake *Crex crex* and the White-headed Duck *Oxyura leucocephala*.

This updating of the two plans has used a unified plan format that deals with each of the different international conservation laws relevant to these species. This has involved close collaboration between the European Commission and the international bodies, including the Secretariat of the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA). We very much welcome such collaboration which gives full recognition to the fact that the conservation of these species does not end at EU borders but needs to be carried out throughout their entire flyways. Furthermore, as the European Community has ratified AEWA in 2005, this collaboration on action plans also gives practical effect to our commitment to this important international agreement.

Finally, I would like to congratulate BirdLife International and all the partners that have contributed to the production of these two new plans. They are the product of fruitful collaboration of a range of different institutions and professionals, committed to an integrated approach to global bird protection. The challenge now is to take the practical actions to implement the plans and improve the conservation status of these species.



Nicholas Hanley
Head of Unit Nature and Biodiversity

PREFACE

This International Single Species Action Plan for the Conservation of the Corncrake *Crex crex* was commissioned to BirdLife International. It has been compiled by Kees Koffijberg of SOVON (The Netherlands) and Norbert Schaffer of RSPB (UK). The drafts of the plan went through rigorous consultations, and the final approved version reflects comments received from a large number of experts, the EU Member States through the Ornis Committee, governmental officials from states outside of the EU, and the AEWA Technical Committee. Financial support for the preparation of this Action Plan was provided by the European Commission (EC), the Convention on the Conservation of Migratory Species of Wild Animals (CMS), and the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA). The Action Plan follows the format for Single Species Action Plans approved by the AEWA 2nd Meeting of Parties in September 2002.

EXECUTIVE SUMMARY

The Corncrake is considered 'near threatened' worldwide. It is included in Annex I of the EU Bird Directive, Appendix II of the Bern Convention and Appendix II of the Bonn Convention. Corncrakes breed widely across Eurasia, from the Atlantic to western Siberia. The core wintering area is situated in the savannas and other grasslands in eastern and south-eastern Africa. The global population is estimated to number 1.7 to 3.5 million singing males, including estimates for countries where complete national surveys are not feasible. Due to the lack of sufficient data, trends are rather poorly known in many (important) countries in the breeding range, especially in eastern Europe and Asia. Based on new information from these countries, the species recently has been downlisted from 'globally threatened' to 'near threatened'. Available data on trends suggest declines of 20-50% in the recent decades in large parts of the breeding range, most pronounced in western European countries. From the mid-1990s onwards, however, several countries have reported increases.

Major threats and constraints (and their importance, see chapter 3 for terminology) include:

- nest-destruction by early mowing - *critical*
- chick-mortality during mowing - *critical*
- intensification of grassland management - *high*
- loss of hay-meadows/wetlands - *high*
- loss of habitat through succession (abandonment) – *high/medium*
- insufficient extent and design of conservation measures – *medium/low*
- adult mortality during mowing - *low*
- hunting and trapping - *low*
- disturbance - *local*
- predation - *local*

Based on these threats, conservation priorities are (*see chapter 5*):

- maintain extent of suitable habitat, and increase size of suitable habitat with 20% in countries which experienced long-term declines in the 2nd half of the 20th century;
- reduce impact of agricultural practice significantly;
- improve protection in countries where hunting and trapping still occurs;
- maintain current extent of wintering areas in Africa;
- initiate monitoring and research to fill knowledge gaps.

1. BIOLOGICAL ASSESSMENT OF THE CORNCRAKE

General Information	The Corncrake is a medium-sized migratory <i>Rallidae</i> species, which winters in southern and eastern Africa. The breeding range covers large parts of Eurasia, but distribution is scattered, and in many countries the species has become rare. The late breeding season and strong association with tall vegetation for breeding habitat have made Corncrakes very susceptible to habitat loss and intensification of agricultural practice. In nearly all parts of its breeding range, it has experienced dramatic declines, especially in the second half of the 20 th century (Green <i>et al.</i> 1997a). The association with tall vegetation is a key factor, which determines distribution of the species (Schäffer 1999). Without special conservation measures, this habitat has already been removed by mowing in the first part of the breeding season in large expanses of the breeding range. Only in countries with lower agricultural pressure, often found in the eastern part of the breeding range, may breeding conditions still be favourable and populations thrive (Green & Rayment 1996, Green <i>et al.</i> 1997a).
Taxonomy	The Corncrake is a member of the <i>Rallidae</i> (<i>Gruiformes</i>), and together with the African Crake <i>Crex egregia</i> , it represents the genus <i>Crex</i> (del Hoyo <i>et al.</i> 1996).
Population development	Declines in Corncrake numbers were already reported in the 19 th century, but declining rates accelerated in the second half of the 20 th century. During this period, national Corncrake populations often suffered losses of more than 50% (Green <i>et al.</i> 1997a). In a number of countries the species hovered on the verge of extinction in the 1980s. However, surveys in eastern European countries in the 1990s proved the existence of thriving populations, although declines had been reported in those countries too prior to 1990 (Green <i>et al.</i> 1997a, Mischenko & Sukhanova 2004). By the mid-1990s, the species had shown a remarkable recovery in several European countries. It is thought that temporary favourable breeding conditions in former Soviet-Union-dominated countries have resulted in an increase of the total world population and have triggered the recent population growth observed in several countries (Schäffer & Green 2001). Secondly, increases in relation to improved conservation measures have also been reported (Stowe & Green 1997a).
Distribution throughout the annual cycle	Although information is scarce, Corncrakes seem to leave their breeding areas from late August onwards (Stowe & Becker 1992, Green <i>et al.</i> 1997a). Young of first broods already appear to depart from the breeding sites in the beginning of August, but it is not known whether they remain in the breeding range or use specific pre-migration sites (A. Donaghy & F. Noël, unpublished). Migration in North Africa is concentrated in September and October. Arrivals at the wintering grounds in south-eastern Africa are reported from November onwards. There is evidence that movements within the wintering area are related to the rainy season, i.e. they abandon areas as the vegetation dies off by drought. Spring migration mainly proceeds through March-April, and first arrivals in the breeding range occur from mid-April onwards. Between May and the first half of August, Corncrakes are found in their breeding range, where they raise two broods and undergo a simultaneous moult of their flight-feathers.
Survival and productivity	Due to the concealed behaviour of the species, few studies have attempted to estimate annual survival and productivity. Ring recoveries from the UK point to an annual survival rate of adult birds of only 20-30% whereas first-year survival has been estimated at 24% (Green 1999, 2004). Because adult survival is so low, Corncrakes have to produce two broods each year. However, in large parts of its breeding range, this has become impossible due to early and synchronised mowing. Reduction or even the complete failure of broods is assumed to be the main cause for the high rate of decrease in Corncrake numbers in past decades. Predation is believed to be low. Apart from destruction by mowing, Scottish nests had a success rate of 93% (Tyler 1996).
Life history	Breeding: In contrast to other <i>Rallidae</i> , Corncrakes are serially polygynous

	<p>(Tyler 1996, Schäffer 1996). Males advertise for females with a distinct and loud, disyllabic “crex crex” call which is given almost continuously by night. Often, males associate closely as in dispersed lekking species (Schäffer 1995, 1999). During pair formation, singing activity is reduced and singing is often heard during the early morning or daytime. Once the female has started a clutch, the pair-bond breaks and the males resume singing again, often away from the initial territory. Incubation and parental care are seen to by females only. After about two weeks, the female abandons the brood and often associates with a new male to start a new clutch. Second clutches have been reported to occur until mid-July. Clutch size is about 10 eggs. Incubation time is 18 days on average. Chicks are flightless for about 35 days (Tyler 1996, Schäffer 1999).</p> <p>Feeding: Mainly invertebrates, mostly taken from the ground or from plants. The main prey items include earthworms, molluscs, beetles and various insects (Tyler 1996, Schäffer 1999). The diet often represents local availability of invertebrates, and food therefore does not seem to be a major constraint to the occurrence of Corncrakes (Green <i>et al.</i> 1997a). Besides, plant seeds are also taken (Prostov 1964, Glutz von Blotzheim <i>et al.</i> 1973), especially in the non-breeding period (Schäffer 1999).</p> <p>Outside breeding season: Since observations of Corncrakes are mainly confined to singing males during the breeding season, rather little information is available on migration and wintering. Corncrakes seem to leave their breeding range mainly via Middle-East countries, although birds in western Europe, especially those at the western fringe of the breeding range, chiefly seem to migrate through the Iberian Peninsula to Africa (Wernham <i>et al.</i> 2002). A desk study by Stowe & Becker (1992), pointed to peak migration in North Africa in the second half of September and beginning of October. Wintering sites in eastern and southern Africa are occupied between November and February. The core wintering range is situated in Congo-Kinshasa, Botswana, Zambia, Malawi, Zimbabwe and the eastern part of South Africa. Spring migration occurs from March to May, and arrivals at the breeding grounds from the end of April onwards, mainly in May.</p>
<p>Habitat requirements</p>	<p>Compared to other rails, Corncrakes prefer much drier habitats and do not prefer wet areas (Schäffer 1999). In primeval times, the species is assumed to have occurred especially in riverine meadows and lowland marshes with <i>Carex</i>, <i>Iris</i> and <i>Typhoides</i> vegetation. As these original habitats have become scarce, Corncrakes nowadays select secondary habitats mainly where vegetation is removed annually, e.g. by mowing, but also by grazing or burning. A large part of the population is therefore now strongly associated with agricultural grassland. The key factor determining suitable breeding habitat is the vegetation structure (Schäffer & Münch 1993, Tyler 1996, Schaffer 1999, Helmecke 2000), especially tall vegetation which provides dense cover and has a height of at least 20 cm (at the start of the breeding season), enabling the birds to walk through. Thus, too dense vegetation or vegetation with a thick layer of dead plant material from previous years is avoided. Furthermore, the birds generally prefer open or semi-open landscapes. If these requirements are met, Corncrakes may be found in different habitats. Throughout the breeding range, (floodplain) meadows are clearly preferred (Green <i>et al.</i> 1997a). In some countries, the species also inhabits sub-alpine meadows up to 1,500-3,000 m asl (Glutz von Blotzheim <i>et al.</i> 1973, Bräulich & Rank 2004). In addition, agricultural areas with crops are important habitats in countries like Germany and The Netherlands (Müller & Illner 2001, Koffijberg & Nienhuis 2003) and also in several eastern European countries (Eltis 1997, Keiss 1997). Preferred crops are winter cereals and alfalfa (Netherlands), i.e. those crops, which offer suitable cover on arrival in the breeding grounds. In some countries, breeding is also reported in set-asides and fallow land.</p>

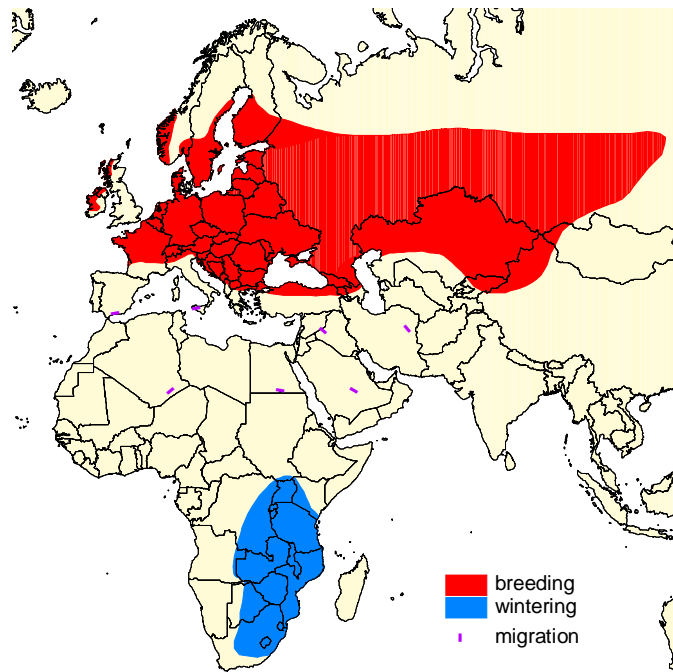


Figure 1. World distribution of the Corncrake (after del Hoyo et al. 1996), supplemented with information provided by Stowe & Becker (1992), Hagemeijer & Blair (1997), Bräulich & Rank (2004) and BirdLife International.

Table 1. Geographical distribution of the Corncrake during the year (from Glutz von Blotzheim 1973, Cramp & Simmons 1983, Stowe & Becker 1992, del Hoyo et al. 1996, Green et al. 1997a, Hagemeyer & Blair 1997, Bräulich & Rank 2004, BirdLife International). Afghanistan and Iran, which were listed in the previous CMS Corncrake Action Plan (Peet & Gallo-Orsi 2000) have been removed since breeding is doubtful in these countries (Bräulich & Rank 2004).

Breeding (April-September)	Formerly breeding	Migration (September-October/ February-April)	Non-breeding visitor (November-March), core wintering areas
Albania Armenia Austria Azerbaijan Belarus Belgium Bosnia & Herzegovina Bulgaria China Croatia Czech Republic Denmark Estonia Finland France Georgia Germany Greece Hungary Ireland Italy Kazakhstan Kyrgyzstan Latvia Liechtenstein Lithuania Luxembourg Macedonia Moldova Mongolia Netherlands Norway Poland Romania Russia Serbia & Montenegro Slovakia Sweden Switzerland Tajikistan Turkey Ukraine United Kingdom	Spain	Probably all countries between breeding and wintering areas, i.e. Mediterranean countries (Spain, Portugal, Italy, Cyprus, Malta); Black Sea countries (notably Bulgaria, Turkey); Caspian Basin (including Iran); North and Northeast Africa (notably Morocco, Algeria, Egypt, Sudan); Middle East countries (Syria, Lebanon, Israel, Jordan, Iraq, Kuwait, UAE, Saudi Arabia, Yemen, Oman);	Botswana Congo-Kinshasa Kenya Lesotho Malawi Mozambique Tanzania Rwanda South-Africa Swaziland Uganda Zambia Zimbabwe

2. AVAILABLE KEY KNOWLEDGE

Population estimates and trends

Two major problems hamper a proper assessment of Corncrake populations and trends. As Corncrakes remain mostly concealed in tall vegetation and are detected almost exclusively by the nocturnal “crex crex” song from the males, the species is rather difficult to census, and it is even more challenging to study breeding biology, movements and population ecology in winter. Especially in areas with low densities of ornithologists, the species has easily been overlooked as a breeding bird. Only recently, it has become clear that thriving populations of Corncrakes exist in the Baltic countries, Poland, Belarus and the Russian Federation (Green *et al.* 1997a, Keiss 1997, Elts 1997, Adomaitis 1998, Kurlavicius & Raudonikis 2001, Mischenko & Sukhanova 2004). Moreover, recent studies in the 1990s have shown that monitoring of singing males does not reflect the true number of 'breeding pairs' and reproductive status. Intensive work on the breeding biology of the species in Scotland, Ireland, France, Germany and Poland in the 1990s revealed a mating system of serial polygyny, where males and females associate with different partners and produce two broods between May and August (Schäffer & Münch 1993, Tyler 1996, Schäffer 1999 and review by Green *et al.* 1997a). Movements of both males and females between sites of first and second broods are not uncommon. Furthermore, large-scale movements are initiated by disturbance, for example synchronous mowing of large areas, which might drive Corncrakes to areas where they do not breed regularly (Green *et al.* 1997a). Similar movements are also reported due to extreme climate events (Koffijberg & van Dijk 2001), which not only affect suitable habitat in river valleys (precipitation level determines water tables) but also have an impact on mowing dates in floodplain meadows (warm and dry spring weather leads to earlier mowing – Schäffer 1999). As a result, Corncrake numbers often show large fluctuations from year to year. To what extent such movements occur is unknown. However, being such a mobile species, Corncrakes are assumed to benefit well from improved breeding conditions on a local scale (e.g. provided by conservation action), and they are considered to be able to re-occupy breeding spots which were previously lost.

Migratory birds in the breeding range are reported to sing (Schäffer 1994), but there is no information on the number of migrants from any country. Ringing recoveries are scarce, and seem to point to migration through France and Spain (birds ringed in the British Isles) and through the Middle East (known recoveries from at least The Netherlands, Sweden and Finland) (Stowe & Becker 1992, Wernham *et al.* 2002). The only country where large numbers of Corncrakes have been recorded on passage is Egypt, where the species is trapped during Quail netting in autumn (Baha el Din *et al.* 1996). The knowledge that has become available so far indicates that Corncrakes might cross the Mediterranean in a broad front, maybe concentrating near the narrow straits at Gibraltar and Italy/Tunisia (presumably in spring, Stowe & Becker 1992). Furthermore, pronounced passage in autumn and spring is assumed to occur through the Middle East (most birds of the population probably involved). However delineation of these routes is not possible. Neither is it known to what extent birds from different parts of the breeding range migrate along different routes nor if differences occur between spring and autumn migration.

During winter, similar difficulties arise when assessing the situation of the wintering areas. Stowe & Becker (1992) were able to give some information based on an enquiry among many national specialists and literature. As it is the only review made so far, data from the wintering range in *Table 2* are entirely based on this source. It is not known whether birds from different parts of the breeding range occupy the same wintering areas.

Habitat

Habitat requirements have been studied rather well in the breeding range (see Flade 1991, Schäffer & Münch 1993, Tyler 1996, Jarukaite 1997, Schäffer 1999, Helmecke 2000, Koffijberg & Nienhuis 2003, review by Green *et al.* 1997a). All these studies have shown that occurrence of Corncrakes is strongly associated with tall vegetation which provides the birds enough cover, and which is not so dense that it is difficult to walk through. Vegetation structure is thought to be the key factor determining distribution (Schäffer 1999). For countries where data on habitat requirements are

lacking, it can safely be assumed that Corncrakes show a similar preference as in other parts of the breeding range.

For the wintering areas, habitat preferences are less well known. The birds are mainly reported from grasslands and savannas and can be found up to 3,000 m asl (Urban *et al.* 1986, Stowe & Becker 1992). There is evidence that the birds follow the rainy season, as arrivals are often observed after the rains have started. Although the species is observed in waterlogged habitats, wetland areas are generally avoided.

Diet

So far, few studies have dealt with diet and foraging of Corncrakes in the breeding areas. Invertebrates, mainly earthworms, molluscs, snails and (large) insects, have been found as principal prey items (Tyler 1996, Schäffer 1999). Among arthropods there is a preference for beetles, flies, spiders and other larger taxa (Schäffer 1999). Stomach contents from birds shot during autumn migration also contained plant seeds (Prostov 1964). Although information is scarce, the studies carried out suggest that diet reflects local availability of suitable prey and is therefore a less important key factor in limiting breeding distribution compared to vegetation structure (Green *et al.* 1997a, Schäffer 1999). Diet and foraging habits during migration and winter are not known. Captive birds are known to switch from invertebrates to plant seeds in autumn (Schäffer 1999), suggesting seeds might be an important part of winter diet.

*Table 2. Population estimates and trends (according to BirdLife International 2004, unless otherwise stated). Estimates of breeding population and trend refer to singing males. Quality codes are: **Good** - based on reliable or representative quantitative data derived from complete counts or from sampling or interpolation; **Medium** - based on incomplete quantitative data derived from sampling or interpolation or incomplete/poor quantitative data derived from indirect evidence; **Poor** - based on non-quantitative data, but guesses derived from circumstantial evidence. Trends are indicated with + (increase), = (stable) or – (decrease), with rate of decrease in the last decade in %: 1=1-20%; 2=20-30%; 3=30-50%; 4=50-80%; 5= >80%. Information on migratory and wintering birds has been estimated from the breeding range and the assumed migration routes to the wintering areas in Africa (Glutz von Blotzheim et al. 1973, Cramp & Simmons 1983, del Hoyo et al. 1996, Bräulich & Rank 2004). Data from Africa were derived from Stowe & Becker (1992). Migratory/wintering populations are expressed as: 0 - no migration/wintering expected or observed; 1 - migration/wintering expected or observed. Since Corncrakes remain concealed in tall vegetation during their annual life cycle, data on migratory and wintering birds is extremely difficult to assess. Baseline population has been left blank as it is unknown.*

Country	Breeding population	Quality	Year(s) of estimate	Breeding population trend	Quality	Number of migratory or non-breeding populations	Quality	Baseline population	References
Breeding range									
Albania	0-20	poor	1996-2002	?	poor	1	poor	?	
Armenia	330-830	medium	1998-2002	-2	medium	1	poor	?	
Austria	200-500	medium	1998-2002	+3	medium	1	poor	?	
Azerbaijan	0-100	poor	1996-2000	=	poor	1	poor	?	
Belarus	25,000-60,000	medium	1997-2002	=	medium	1	poor	?	
Belgium	21-44	good	1995-2002	fluctuating	good	1	poor	?	
Bosnia-Herzegovina	0-250	poor	1990-2000	?	poor	1	poor	?	
Bulgaria	4,000-8,800	good	1996-97	-1	poor	1	poor	?	
Croatia	800-1,200	medium	2004	-1	medium	1	poor	?	
China	1,500-3,000	poor	?	?	poor	1	poor	?	Ma Ming & Wang Qishan in Bräulich & Rank 2004
Czech Republic	1,500-1,700	good	2000	+5	good	1	poor	?	
Denmark	50-250	poor	1998-2001	+5	good	1	poor	?	
Estonia	15,000-25,000	medium	1998	+2	medium	1	poor	?	
Finland	2,000-8,000	medium	1998-2002	+5	good	0	poor	?	
France	551-599	medium	2002	-2/3	good	1	poor	?	
Georgia	10,000-50,000	poor	1994-2002	-2	poor	1	poor	?	
Germany	2,000-3,100	medium	1995-1999	+1	medium	1	poor	?	
Greece	accidental	poor	?	?	poor	1	poor	?	
Hungary	500-1,200	medium	1998-2002	fluctuating	good	1	poor	?	
Ireland	139-157	good	1998-2002	-2	good	0	poor	?	
Italy	200-450	medium	2003	-1	medium	1	poor	?	
Kazakhstan	unknown	poor	?	?	poor	1	poor	?	
Kyrgyzstan	unknown	poor	?	=	poor	1	poor	?	Bräulich & Rank 2004
Latvia	26,000-38,000	good	1995-2003	+1	good	1	poor	?	
Liechtenstein	1-4	good	1998-2000	fluctuating	poor	1	poor	?	
Lithuania	25,000-30,000	medium	1999-2001	+3	medium	1	poor	?	
Luxembourg	0-5	good	2000-2002	-4	good	1	poor	?	
Macedonia	50-150	poor	1990-2000	fluctuating	poor	1	poor	?	
Moldova	100-150	medium	1990-2000	+1	good	1	poor	?	

Mongolia	accidental	poor	?	?	poor	0	poor	?	Bräulich & Rank 2004
Netherlands	240-700	good	1998-2000	+5	good	1	poor	?	
Norway	20-40	medium	1995-2003	+3	good	0	poor	?	
Poland	30,000-45,000	good	1997-1998	+2	poor	1	poor	?	
Romania	44,000-60,000	medium	1997	+1	good	1	poor	?	
Russia (European)	1,0-1,5 Mio.	good	1990-2000	fluctuating	medium	1	poor	?	
Russia (Asian)	500,000-1,5 Mio.	poor	1998-2000	fluctuating	poor	1	poor	?	
Serbia & Montenegro	800-1,400	medium	1995-2002	-1/2	medium	1	poor	?	
Slovakia	1,400-1,700	medium	1980-1999	+2	medium	1	poor	?	
Slovenia	500-600	good	1992-1999	=	medium	1	poor	?	
Sweden	150-200	medium	1999-2000	-1	medium	0	poor	?	
Switzerland	10-50	good	1998-2002	+3	good	1	poor	?	
Tajikistan	unknown	poor	?	?	poor	?	poor	?	
Turkey	25-100	poor	2001	?	poor	1	poor	?	
Ukraine	83,377-1,5 Mio.	good	2000-2001	-1	medium	1	poor	?	
United Kingdom	589	good	1998	=	good	0	poor	?	
Total (rounded)	1,7-3,5 Mio.								
Non-breeding range¹									
Cyprus	n/a	n/a	n/a	N/a	n/a	1 (mainly spring)	medium	?	
Malta	n/a	n/a	n/a	N/a	n/a	0/1	poor	?	
Portugal	n/a	n/a	n/a	N/a	n/a	0/1	poor	?	
Spain	n/a	n/a	n/a	N/a	n/a	1	poor	?	
Morocco	n/a	n/a	n/a	N/a	n/a	1	poor	?	
Algeria	n/a	n/a	n/a	N/a	n/a	1	poor	?	
Tunisia	n/a	n/a	n/a	N/a	n/a	0/1 (mainly spring)	poor	?	
Libya	n/a	n/a	n/a	N/a	n/a	0/1	poor	?	
Egypt	n/a	n/a	n/a	N/a	n/a	1	medium	?	
Sudan	n/a	n/a	n/a	N/a	n/a	1	poor	?	
Ethiopia	n/a	n/a	n/a	N/a	n/a	1	poor	?	
Uganda	n/a	n/a	n/a	N/a	n/a	0/1	poor	?	
Kenya	n/a	n/a	n/a	N/a	n/a	1	poor	?	
Tanzania	n/a	n/a	n/a	N/a	n/a	1	poor	?	
Congo-Kinshasa	n/a	n/a	n/a	N/a	n/a	1	poor	?	
Zambia	n/a	n/a	n/a	N/a	n/a	1	poor	?	
Malawi	n/a	n/a	n/a	N/a	n/a	1	poor	?	
Zimbabwe	n/a	n/a	n/a	N/a	n/a	1	poor	?	
Moçambique	n/a	n/a	n/a	N/a	n/a	1	poor	?	
Botswana	n/a	n/a	n/a	N/a	n/a	1	poor	?	
Lesotho	n/a	n/a	n/a	N/a	n/a	1	poor	?	
Swaziland	n/a	n/a	n/a	N/a	n/a	1	poor	?	
South-Africa	n/a	n/a	n/a	N/a	n/a	1	poor	?	
Afghanistan	n/a	n/a	n/a	N/a	n/a	1	poor	?	
Pakistan	n/a	n/a	n/a	N/a	n/a	1	poor	?	
Indian subcontinent	n/a	n/a	n/a	N/a	n/a	0 (accidental)	poor	?	
Middle-East countries	n/a	n/a	n/a	N/a	n/a	1	poor	?	

¹ Not included: accidental observations in Mauritania, Guinea-Conakry, Mali, Ivory Coast, Ghana, Chad, Nigeria, Somalia, Djibouti, Rwanda, Cameroon, Gabon, Congo-Brazzaville, Angola, Namibia (see Stowe & Becker 1992);
n/a: not applicable;
?: data not available.

*Table 3. Knowledge on habitat, diet and occurrence of the species in Important Bird Areas and Protected Areas in the breeding period. Knowledge from habitat and diet is listed as **G** - good; **M** - medium and **P** - poor. Countries where species migrate and winter have been lumped. Information on habitat and diet was retrieved from Glutz von Blotzheim et al. 1973, Cramp & Simmons 1983, Flade 1991, 1997, Schneider-Jacoby 1991, Tyler 1996, Green et al. 1997a and Schäffer 1999. Data from site protection was retrieved from the IBA database of BirdLife International.*

Country	Habitat and diet		Site protection	
	Habitat	Diet	Number of IBAs where Corncrakes breed	Proportion of national population in protected areas
Albania	P	P	P	P
Armenia	P	P	P	P
Austria	G	P	G	G
Azerbaijan	P	P	P	P
Belarus	G	P	M	M
Belgium	G	P	G	G
Bosnia & Herzegovina	G	P	M	M
Bulgaria	G	P	G	G
China	P	P	P	P
Croatia	G	P	M	M
Czech Republic	G	P	G	G
Denmark	M	P	P	P
Estonia	G	P	G	G
Finland	G	P	G	G
France	G	G	G	G
Georgia	P	P	M	M
Germany	G	P	G	G
Greece	P	P	P	P
Hungary	G	P	G	G
Ireland	G	G	G	G
Italy	G	P	G	G
Kazakhstan	P	P	P	P
Kyrgyzstan	P	P	P	P
Latvia	G	P	G	G
Liechtenstein	G	P	G	G
Lithuania	G	P	G	G
Luxembourg	G	P	G	G
Macedonia	G	P	M	M
Moldova	G	P	M	M
Mongolia	P	P	P	P
Netherlands	G	P	G	G
Norway	G	P	G	G
Poland	G	G	G	G
Romania	G	P	M	M
Russia ²	G	M	M	M
Serbia & Montenegro	G	P	M	M
Slovakia	G	P	G	G
Slovenia	G	P	G	G
Sweden	G	P	G	G
Switzerland	G	P	G	G

Tajikistan	P	P	P	P
Turkey	P	P	P	P
Ukraine	G	M	M	M
United Kingdom	G	G	G	G
Migration ¹	P	P	P	P
Winter ¹	M	P	P	P

¹ see Table 1 for countries involved

² European part

3. THREATS

The causes of the decline in Corncrake populations in the breeding range are rather well known (see also Green *et al.* 1997a for a review). This chapter lists all relevant threats and reviews key factors affecting Corncrake distribution and numbers at a national level. The main threats to Corncrakes can be subdivided into two main categories (*see also Figure 2*):

- 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 (infrastructure development).

In an enquiry among the European breeding range states, Green *et al.* (1997a) found that mechanisation of mowing and early mowing were among the most frequent threats mentioned to affect Corncrake populations, followed by loss of hay meadows and loss of wetlands. Threats in the wintering areas are not well known, but are assumed to be less critical (Stowe & Becker 1992). Therefore, we focus on factors, which have an impact on the population during breeding and migration.

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

Studies in Poland, Germany, France, United Kingdom, Ireland and Egypt (summarised by Green *et al.* 1997a) have all shown that major causes of increased mortality rates of Corncrakes are:

- nest destruction, early mowing being the most important threat;
- increased chick mortality during mowing;
- adult mortality during mowing;
- hunting and trapping;
- predation.

Below, threats have been listed along with their importance:

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.

Nest destruction by early mowing

Importance: critical

Early mowing is one of the principal factors affecting reproductive output of Corncrakes and is likely to cause very rapid declines. As the species starts to breed late in spring and produces two clutches throughout a prolonged period (May-August), Corncrakes have become increasingly

susceptible to earlier mowing dates since early in the last century, which were made possible by drainage and intensification of agricultural practice (e.g. mechanisation, use of fertilisers). In many countries, managed (fertilised) grassland is often mown already before Corncrakes arrive or in the period when the birds are about to start incubation. Many clutches thus fail through destruction of nests and nest sites, and replacement clutches become difficult as major parts of the breeding habitat are mown synchronously over large areas (*see also Loss of suitable habitat*).

Increased chick-mortality during mowing

Importance: critical

Mechanised mowing (also in combination with earlier mowing dates) was mentioned most often in the enquiry by Green *et al.* (1997a) as cause of declines in Corncrake populations. As early as the 1930s, evidence was found that serious declines in Corncrake numbers in Britain had followed the switch from hand mowing by scythe to horse-drawn mowing machines (Norris in Green *et al.* 1997a). The increased mowing speed, caused by more powerful tractors and larger mowing machines, enables large areas to be cut within short time (thus removing breeding habitat rapidly early in the season), and poses a direct threat to Corncrake chicks, which are easily injured, killed or eventually might be taken by predators (*see Predation*). Studies in Scotland, Ireland and France found losses of 55-86% among chicks present in the fields during mowing (Broyer 1996, Tyler *et al.* 1998). Thus, even when clutches hatch before mowing occurs, there is a high risk that the chicks will be killed during mowing (either by the mowing machine or by predation).

Adult mortality during mowing

Importance: low

Although Corncrake nests are at high risk of being destroyed by mowing, adult Corncrakes have rarely been reported to get injured or killed (Tyler 1996, Schäffer 1999). It is assumed that on most occasions, adult birds are fast enough to escape from machinery, provided that suitable cover is close enough to reach. This probably also applies to moulting birds, which are known to remain in the breeding habitat (Schäffer 1999). The risk for adults of being killed or injured during mowing will increase when large areas are mown synchronously and all vegetation cover is removed within a short time.

Hunting and trapping

Importance: low

In nearly all countries within the breeding range, the Corncrake is a protected species. However, it is a quarry species in Russia, Ukraine and Georgia. Hunting pressure is considered low, as the Corncrake is not a very popular quarry species (Crockford *et al.* 1996). Hunting (also with pointer dogs) has also been reported from other countries in southern and eastern Europe (e.g. Bulgaria), but precise data are lacking and would require further investigation (Stowe & Green 1997b, Deceuninck 1998). In e.g. Bulgaria, Corncrakes are hunted during quail hunting in autumn (V. Delov, pers. comm.). Similarly to Bulgaria, in Croatia Corncrakes are illegally hunted over the quail hunting period (16 August – 30 November). Furthermore, Corncrakes are also known to be trapped by quail netting along the Mediterranean coast of Egypt in autumn. Estimates of the annual catch range from 4,600-14,000 in 1991-1994 (Baha el Din *et al.* 1996, Stowe & Green 1997b). From these figures, it is estimated that only 0.5-2.7% of the European breeding population is susceptible to quail netting, probably even less (Stowe & Green 1997b). The impact at population level is therefore considered low.

Predation

Importance: local

Although few data are available, predation at the nest sites seems to be low. Tyler (1996) found that 93% of the clutches survived the period between laying and hatching. However, as part of his study was carried out on islands, nest-predation might be more important at other (mainland) sites. Predators reported to predate on Corncrake nests are the American Mink *Mustela vison* and, especially, the feral Cat *Felis catus* (Tyler 1996). The latter is mentioned as a predator in several countries (data BirdLife International), often where Corncrake populations occur near human settlements. In Lithuania, predation by the Raccoon Dog *Nyctereutes procyonoides* has been reported

(L. Raudonikis, pers. comm.). During mowing, chicks can be predated by White Storks *Ciconia ciconia*, raptors (especially harriers *Circus sp.*), gulls *Larus sp.* and corvids *Corvus sp.* (Green *et al.* 1997a, Tyler *et al.* 1998, J. Frühauf), especially when vegetation cover is removed rapidly and on a large scale. It is assumed that the risk of predation (i.e. predation of nests) mainly occurs at a local level, and is not likely to cause serious declines at population level. The impact of predation during mowing might be on a larger scale but is still considered of local importance.

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

Besides losses through mowing, deterioration of habitat is considered one of the main causes of the decline in Corncrake populations in the breeding range (Green *et al.* 1997a). It can be subdivided into the following elements:

- loss of hay-meadows and wetlands;
- intensification of grassland management;
- loss of habitat through vegetation succession/land abandonment;
- insufficient extent and design of conservation measures.

Impact is also likely from disturbance, by infrastructure (e.g. roads, wind farms) and recreation.

Loss of hay meadows and wetlands

Importance: critical

During recent decades, many (traditional) hay meadows have been replaced by uniform, highly-productive and heavily fertilised silage fields (*see also next section*). Both in terms of vegetation structure (uniform and very dense), mowing dates (earlier in improved grassland) and probably also food availability, this development has decreased habitat quality for Corncrakes. Drainage of river valleys and establishment of water reservoirs have caused deterioration in breeding conditions in floodplain meadows in several countries as well. Furthermore, partly driven by agricultural subsidies, grassland has been increasingly replaced by arable land in some core breeding areas. Habitat degradation and habitat loss has not only occurred in past decades, but is still in progress in many countries, e.g. France and Ireland (Deceuninck 1998, McDevitt & Casey 2004). This situation might improve when the CAP reform, which was decided upon recently, is endorsed.

During migration and wintering, little is known about the impact of habitat changes on Corncrakes. Stowe & Becker (1992) suggested habitat conditions in the wintering areas might even have improved in recent decades. It is assumed that climate changes will not have a serious impact on migration and wintering conditions in the next decades, although the impact of extreme drought in east African wintering areas (2004; P. Newbery) and increased risk of flooding (Ireland, A. Donaghy) indicate that the interplay between trends in climate and fluctuations in Corncrake numbers needs to be investigated in more detail, including impact of changes in global weather patterns, which might affect breeding and non-breeding habitat (changes in vegetation, onset of vegetation growth in spring).

Intensification of grassland management

Importance: critical

Intensification of grassland management is a result of optimising yields for farmers, by using fertilisers, improved grass varieties (or silage instead of traditional hay making), fast and efficient mowing techniques and improved drainage of fields. This development started in the first half of the 20th century, but has accelerated from the 1960s onwards. All these measures increase the impact of agricultural practice on Corncrake populations and enlarge the overlap of mowing periods and the Corncrake breeding season (*see also previous section*). Intensification of agricultural practice has occurred especially in western European countries in recent decades, but is expected to increase in eastern Europe as well due to the current modernisation of agriculture (Schäffer & Green 2001). The impact is considered high since many Corncrakes depend on agriculturally-managed areas nowadays (Green *et al.* 1997a).

Loss of habitat through vegetation succession/land abandonment

Importance: medium/high

This problem includes abandonment of (traditional) agriculture and also some small-scale habitat restoration projects in river valleys in western Europe, which replace hay meadows by marsh areas (e.g. Netherlands, Gerritsen *et al.* 2004) and which pose conflicting conservation strategies. Both reduce the area of suitable habitat. Abandonment occurs particularly in eastern European countries and is considered a principal threat to Corncrakes since large populations are involved (Schäffer & Green 2001). After the collapse of the collective farming system in the first half of the 1990s, many fields were initially abandoned due to land privatisation or through lack of machinery and fuel (e.g. Keiss 1997, Schäffer & Green 2001, Mischenko & Sukhanova 2004). Moreover, livestock grazing has decreased considerably in many countries whereas rationalisation of livestock industries (globalisation) and increased hygienic demands will push further towards large-scale farming. As a result, traditional small-scale farming with small herds has already disappeared in many rural areas. In the short term, this process has increased suitable breeding habitat for Corncrakes. In a longer term, however, abandoned areas will be subject to vegetation succession and will become overgrown by climax vegetation of scrub and trees and reduce breeding habitat for Corncrakes. It is difficult to predict to what extent this process will affect Corncrake numbers, since it is not known on what scale and within which time window vegetation succession will proceed. Since many core breeding areas are situated in countries where large-scale abandonment occurs (Baltic countries, Belarus, Russia, Ukraine), we assume a medium or high importance with respect to impact on population level.

Insufficient extent and design of conservation measures

Importance: low/medium

In several countries, conservation action has been initiated to halt the decline in Corncrake numbers (e.g. Stowe & Green 1997, Heer *et al.* 2000, Koffijberg & van Dijk 2001). This mostly consists of delayed mowing dates and mowing techniques, which improve chick survival during mowing. On a larger scale, however, there are only poorly targeted agri-environmental schemes which could act as a framework for the conservation of species like Corncrake. Often, the schemes are too rigid or financially not well balanced for farmers, making them unattractive to join. Conservation projects carried out so far are scattered and mainly operate at a local level, and studies assessing the results of conservation measures are scarce. For the UK, Stowe & Green (1997) showed a positive response to conservation action, and there the Corncrake population has recovered from the all-time low in the 1990s. In The Netherlands, a conservation scheme is also likely to be at least part of the cause of the recent population recovery (Schoppers & Koffijberg 2004), but interactions with other processes (e.g. immigration from elsewhere) are not known.

Disturbance

Importance: local

Little information is available about the impact of disturbance on Corncrakes. In the previous action plan (Crockford *et al.* 1996), disturbance by recreation was reported to occur in Switzerland, and is currently considered a threat in some Lithuanian areas (L. Raudonikis, pers. comm.). Disturbance has also been observed by the development of motorways and wind farms in North Rhine-Westphalia, Germany (Müller & Illner 2001). Motorways in particular might impose a serious threat since they are likely to have an impact on the nocturnal singing activity of Corncrakes. Indirect impact of recreation might arise when recreational developments and site protection interfere, as recently observed in Donegal, NW Ireland (A. Donaghy, pers. comm.). Direct conflicts with recreation are not assumed to occur on a large scale as recreational pressure is generally low in core habitats of Corncrakes.

Table 4 lists all threats and their relevance for each country or group of countries.

Figure 2. Threats and their importance for the Corncrake in a (simplified) schematic illustration. **Solid frames** represent high impact, **normal** – medium impact and **dashed** - low impact (see next page).

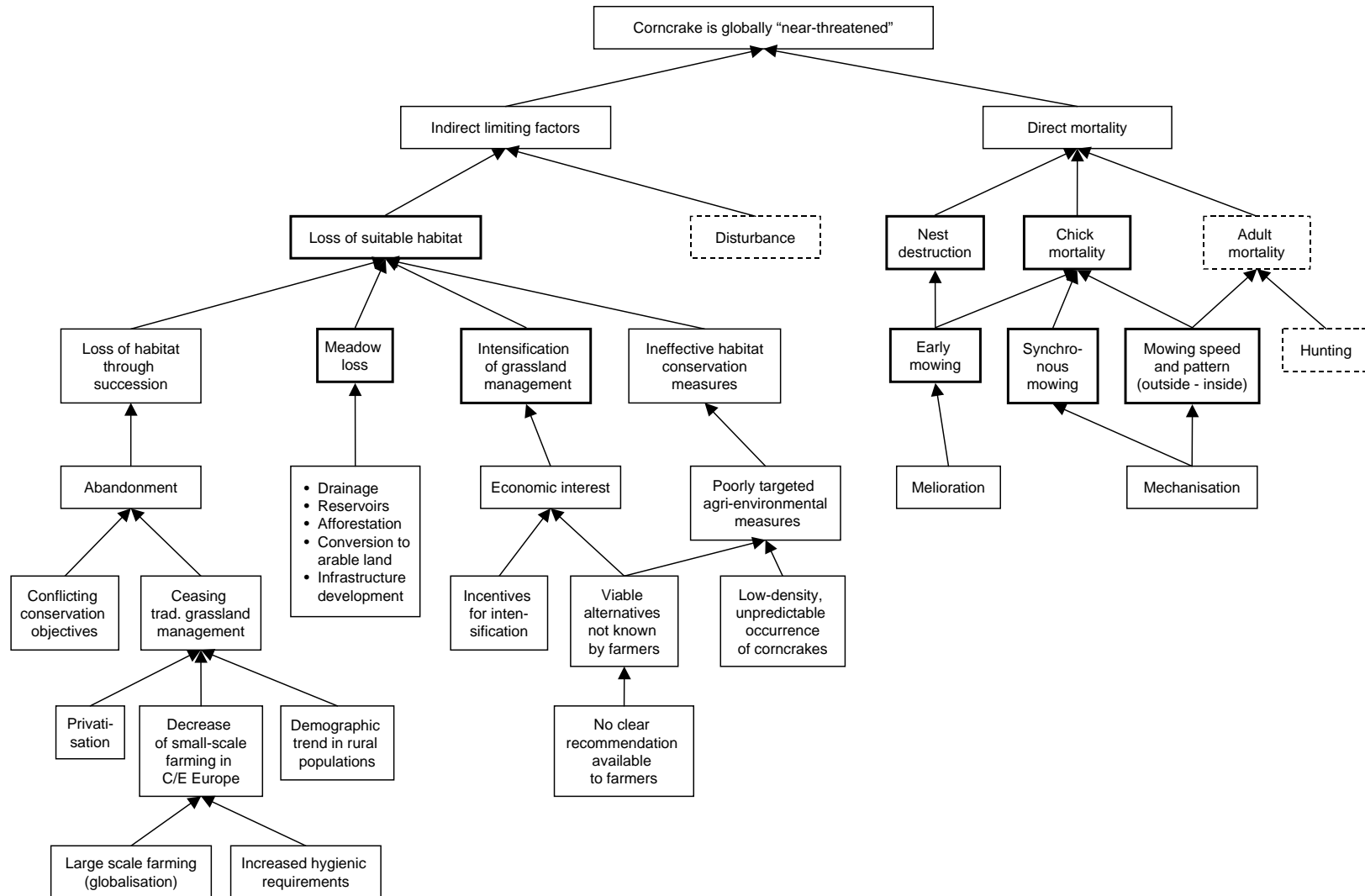


Table 4. Review of threats and their importance at national level. For each threat category, importance is considered: 1 - critical, likely to cause very rapid declines; 2 - high, likely to cause rapid declines; 3 - medium, likely to cause slow, but significant declines; 4 - low, likely to cause fluctuations; 5 - local, likely to cause negligible declines; 6 - non existent; 7 - unknown, impact expected but extent unknown.

Country	nest destruction	chick mortality by mowing	adult mortality by mowing	hunting / catching	loss of hay meadows / wetlands	intensification of agriculture	abandonment	insufficient conservation measures	disturbance
Albania	7	7	7	7	7	7	7	6	7
Armenia	7	7	7	7	7	7	7	6	7
Austria	1	1	5	6	1	1	5	4-5	5
Azerbaijan	7	7	7	7	7	7	7	6	7
Belarus	1	2	5	6	1	2	2	5	5
Belgium	1	1	5	6	1	1	5	3-4	5
Bosnia & Herzegovina	1	2	5	7	7	7	7	5	5
Bulgaria	1	2	5	5	1	2	2	5	5
China	7	7	7	7	7	7	7	7	7
Croatia	3	3	5	4	3	4	3	3	5
Czech Republic	3	3	5	6	1	2	2	4-5	5
Denmark	1	1	5	6	1	1	5	3-4	5
Estonia	1	2	5	6	1	2	2	4-5	5
Finland	1	2	5	6	1	1	5	3-4	5
France	1	1	5	6	1	1	5	4	5
Georgia	7	7	7	5	7	7	7	7	7
Germany	1	1	5	6	1	1	5	3-4	5
Greece	7	7	7	7	7	7	7	7	7
Hungary	1	2	5	6	1	2	2	4-5	5
Ireland	1	1	5	6	1	1	2-3	4-5	5
Italy	1	1	5	6	1	1	5	4-5	5
Kazakhstan	7	7	7	7	7	7	7	7	7
Kyrgyzstan	7	7	7	7	7	7	7	7	7
Latvia	1	2	5	6	1	1	1	4-5	5
Liechtenstein	1	1	5	6	1	1	5	3-4	5
Lithuania	2	2	7	6	2	3	3	3	4
Luxembourg	1	1	5	6	1	1	5	3-4	5
Macedonia	1	2	5	7	7	7	7	5	5
Mongolia	7	7	7	7	7	7	7	7	7
Moldova	1	2	5	7	1	2	2	5	5
Netherlands	1	1	5	6	1	1	3	3-4	5
Norway	1	1	5	6	1	1	5	3-4	5
Poland	1	2	5	6	1	2	2	4-5	5
Romania	1	2	5	6	1	2	2	4-5	5
Russia	3	3	5	5	4	5	3	5	5
Serbia & Montenegro	1	2	5	7	7	7	7	5	5
Slovakia	2	2	5	6	2	2	3	4-5	5
Slovenia	1	2	5	6	1	2	2	4-5	5
Sweden	1	1	5	6	1	1	5	3-4	5
Switzerland	1	1	5	6	1	1	5	3-4	5
Tajikistan	7	7	7	7	7	7	7	7	7
Turkey	7	7	7	7	7	7	7	7	7
Ukraine	1	2	5	5	1	2	2	5	7
United Kingdom	1	1	5	6	1	1	5	4-5	5
Migration ¹	5	6	6	5	4	5/7	7	7	5
Winter ¹	5	6	6	5	4	5/7	7	7	5

¹ see Table 1 for countries involved

4. POLICIES AND LEGISLATION

Table 5 gives all relevant conventions and treaties in which the Corncrake is included. The species is globally considered "near-threatened" and a SPEC 1 species in Europe (IUCN Red List, Tucker & Heath 1994, BirdLife International 2004).

The key requirements of the relevant international legislation in relation to the Corncrake are summarised below:

- EU Birds Directive (1979): as the Corncrake is listed in Annex I, EU Member States are obliged to classify the most suitable areas in number and size for the conservation of the species. However, they are also obliged to maintain suitable habitats outside of protected areas to maintain the population of the species at a level which corresponds in particular to ecological, scientific and cultural requirements. Member States shall also take requisite measures to prohibit deliberate killing or capture, destruction of or damage to their nests and eggs and deliberate disturbance of the birds.
- Bern Convention (1979, *Convention on the Conservation of European Wildlife and Natural Habitats*): requires the Contracting Parties to pay special attention to the conservation of the Corncrake and its habitat as the species is listed in Appendix II. In this context, they shall take appropriate and necessary legislative and administrative measures to ensure the conservation of its habitats and shall pay special attention to the protection of these habitats in their planning and development policies. Sites important for the species should be listed as Areas of Special Conservation Interest under the Emerald Network. Contracting parties also shall take appropriate legislative and administrative procedures to ensure the special protection of the species.
- Bonn Convention (1979, *Convention on the Conservation of Migratory Species of Wild Animals*): aims for concerted action for the conservation and effective management of migratory species through promoting international agreements.

Table 5. International conservation and legal status of the Corncrake (from Tucker & Heath 1994, Birdlife International 2000).

Convention	Status
World Status	Near Threatened
European Status	Depleted
SPEC category	SPEC 1
EU Wild Birds Directive	Annex I
Bern Convention	Appendix II
Bonn Convention	Appendix II
African-Eurasian Migratory Waterbird Agreement	A1b, B2c
Convention on International Trade in Endangered Species	Not included

Besides international agreements, the Corncrake is also often included in Red Data books of individual countries, see review in *Table 6*. Within the breeding range, there are at least three states (Georgia, Russia, and Ukraine) where the Corncrake is a legal quarry species and three states where (illegal) hunting is reported (Bulgaria, Croatia, and France). Information from countries where the species migrates and winters was not available.

Table 6. National conservation and legal status of the Corncrake at country level. For countries printed in *italics*, none of the information was available.

Country	Status in national Red Data book	Legal protection from killing	Year of protection status	Penalties for illegal killing	Open season for hunting	Annual bag size	Highest responsible national authority
<i>Albania</i>							
Armenia	endangered	yes	?	?	n/a	n/a	national government
Austria	critically endangered	yes	?	not fixed	n/a	n/a	national/federal government
<i>Azerbaijan</i>					n/a	n/a	
Belarus	not included	yes	1994	?	n/a	n/a	national government
Belgium	included	yes	1991	?	n/a	n/a	national government
<i>Bosnia-Herzegovina</i>					n/a	n/a	
Bulgaria	endangered	yes	1962	?	n/a	n/a	national government
Croatia	vulnerable	yes	1976	40,000 HRK	n/a	n/a	national government
China	not included	yes	1989	Up to 5 individuals: 10 times the value of the birds More than 5 individuals: prison	n/a	n/a	national government
Czech Republic	seriously threatened	yes	1992	?	n/a	n/a	national government
Denmark	extinct	yes	1967	?	n/a	n/a	national government
Estonia	care demanding	yes	1998	?	n/a	n/a	national government
Finland	near threatened	yes	1962	?	n/a	n/a	national government
France	endangered	yes	1976	yes	n/a	n/a	ministry of environment
Georgia	not included	no	n/a	n/a	all year	?	national government
Germany	endangered	yes	1934	5 yr. prison/fine	n/a	n/a	national/federal government
<i>Greece</i>					n/a	n/a	
Hungary	endangered	yes	1971	500,000 HUF	n/a	n/a	national government
Ireland	endangered	yes	1976	?	n/a	n/a	national government
Italy	?	yes	1978	?	n/a	n/a	national government
<i>Kazakhstan</i>	?	?	?	?	?	?	?
<i>Kyrgyzstan</i>	?	?	?	?	?	?	?
Latvia	vulnerable	yes	1980	170-1480 LVL	n/a	n/a	national government
Liechtenstein	threatened by extinction	yes	?	?	n/a	n/a	national government
Lithuania	restored	yes	1979	25-100 LTL	n/a	n/a	national government
Luxembourg	critically endangered	yes	1928	?	n/a	n/a	national government
<i>Macedonia</i>	?	?	?	?	?	?	?
Moldova	proposed to include	yes	?	?	n/a	n/a	national government
<i>Mongolia</i>	?	?	?	?	?	?	?
Netherlands	endangered	yes	1936	?	n/a	n/a	national government
Norway	critically endangered	yes	1981	?	n/a	n/a	national government
Poland	not included	yes	1984	?	n/a	n/a	national government
Romania	included	yes	1996	5 EUR	n/a	n/a	national government
Russia	not included	no	n/a	n/a	Aug-Sep	?	federal/national government
Serbia & Montenegro	?	yes	?	?	n/a	n/a	national government
Slovakia	near threatened	yes	1995	?	n/a	n/a	national government
Slovenia	endangered	yes	1976	80,000-8,000,000 SIT	n/a	n/a	national government
Sweden	vulnerable	yes	1938(?)	?	n/a	n/a	national government
Switzerland	critically endangered	yes	1925	?	n/a	n/a	federal/national government
<i>Tajikistan</i>	?	?	?	?	?	?	?
Turkey	endangered	yes	?	?	?	?	national government
Ukraine	not included	no	n/a	n/a	all year	?	national government
United Kingdom	endangered	yes	1954	max. £ 5000/ 6 yr. prison per bird	n/a	n/a	national government
Migration ²	not included	no	n/a	n/a	all year	? ¹	national governments
Winter ²	not included	no	n/a	n/a	all year	?	national governments

¹ In 1991, 1993 and 1994, an estimated 4,600, 9,000 and 14,000 respectively were caught (Baha el Din *et al.* 1996, Stowe & Becker 1997)

² see Table 1 for countries involved

n/a: Not applicable

?: information not available

*Table 7. Site and habitat protection and research. Note that SPA designation is only applicable for the 25 EU countries under the EU Birds Directive. When research has been carried out in the last 5-10 years, it is indicated by **H** (habitat research), **B** (breeding biology/reproduction) and/or **R** (ringing). Monitoring programmes are included in Table 8. Data based on national experts and IBA database BirdLife International.*

Country	Percentage population in IBAs	Percentage population in SPAs	Percentage population in Ramsar sites	Percentage population in national protected areas	Research carried out in the last 5-10 years
Albania	?	-	?	?	?
Armenia	?	-	?	?	?
Austria	70	45	<10	10	H,B
Azerbaijan	?	-	?	?	?
Belarus	<5	-	?	?	None
Belgium	100	100	?	50	H
Bosnia & Herzegovina	0	-	?	?	?
Bulgaria	<5	-	?	?	None
China	?	-	?	?	None
Croatia	40-55	-	35-45	50-60	H, R
Czech Republic	60	60	?	50	H,R
Denmark	15	10	<5	-	H
Estonia	<5	?	?	?	H
Finland	<5	?	?	?	H,B,R
France	>90	>50	40	10	H,B,R
Georgia	0	-	?	?	None
Greece	?	?	?	?	None
Germany	30	?	?	?	H,B,R
Hungary	50	60-70	?	50	H,B,R
Ireland	90	50	?	?	H,B,R
Italy	30	?	?	?	R
Kazakhstan	0	-	?	?	None
Kyrgyzstan	0	-	?	?	None
Latvia	5-15	<5	<1	5-15	H,R
Liechtenstein	100	-	?	?	None
Lithuania	>10	10	<5	10-20	H
Luxembourg	100	100	?	?	none
Macedonia	?	-	?	?	?
Moldova	?	-	?	?	?
Mongolia	?	-	?	?	none
Netherlands	30	30	<10	30	H,B,R
Norway	20	-	0	<10	none
Poland	<5	<5	?	10	H,B,R
Romania	<5	-	?	?	none
Russia	<5	-	<5	<5	H, R
Serbia & Montenegro	<5	-	?	?	none
Slovakia	60	40	10	30	H,B,R
Slovenia	85	80	0	10-20	H,B,R
Sweden	20-25	25-35	10-15	30-40	H,R
Switzerland	30	-	?	?	H,B,R
Tajikistan	?	-	?	?	none
Turkey	?	-	?	?	none
Ukraine	<5	-	?	?	none
United Kingdom	>70	20	?	20	H,B,R
Migration ¹	<5	-	?	?	none
Winter ¹	<5	-	?	?	none

¹ see Table 1 for countries involved

-: negligible

?: unknown

Table 8. Recent conservation measures and attitude towards the Corncrake. Data provided by national experts. Y - yes; N - no; ? - not known. General attitude has been classified as **high** (conservation action widely accepted), **medium** (conservation action only locally accepted) or **low** (conservation action only accidentally accepted or people are unfamiliar with the species). Conservation Action has been defined as **good** (national co-ordinated conservation campaign), **medium** (local conservation campaign), **low** (scattered or no conservation action carried out).

Country	National Protection Plan	National Corncrake Working Group	National Monitoring Programme	National Monitoring Programme, Protected Areas	Routine for conservation action	Conservation effort in the last 10 years	General attitude towards the species
Albania	N	N	N	N	N	low	low
Armenia	N	N	N	N	N	low	low
Austria	N	N	N	N ¹	partly	medium	high
Azerbaijan	N	N	N	N	N	low	low
Belarus	N	N	N	N ¹	N	low	low
Belgium	N	Y ²	Y	Y	partly	medium	high
Bosnia & Herzegovina	N	N	N	N	N	low	low
Bulgaria	Y	N	N	N	N	low	low
China	N	N	N	N	N	low	low
Croatia	N	N	Y	Y	N	low	low
Czech Republic	N	Y	Y	Y	partly	medium	medium
Denmark	Y	Y	Y	Y	N	medium	low
Estonia	N	N	N	N	N	medium	low
Finland	N	N	Y	Y	N	medium	medium
France	N ³	Y	N	Y	partly	medium	medium
Georgia	N	N	N	N	N	low	low
Germany	N	N	N	N	N	medium	medium
Greece	N	N	N	N	N	low	low
Hungary	N	N	N ⁴	N	Y	medium	low
Ireland	N ³	Y	Y	Y	Y	high	high
Italy	Y ⁵	Y	Y	Y	N	low	low
Kazakhstan	N	N	N	N	N	low	low
Kyrgyzstan	N	N	N	N	N	low	low
Latvia	Y	Y	Y	N ¹	N	low	low
Liechtenstein	N	N	N	N	N	low	low
Lithuania	N	N	N ⁴	N ¹	N	low	medium
Luxembourg	N	N	Y	Y	Y	medium	low
Macedonia	N	N	N	N	N	low	low
Moldova	N	N	N	N	N	low	low
Mongolia	N	N	N	N	N	low	low
Netherlands	Y	Y	Y	Y	Y	high	high
Norway	Y	Y	Y	Y	Y	high	high
Poland	N	N	N	N	N	medium	low
Romania	N	N	N	N	N	low	low
Russia	N	N	N ⁴	N ¹	N	low	low
Serbia & Montenegro	N	N	N	N	N	low	low
Slovakia	Y	Y	Y	Y	N	medium	medium
Slovenia	N ³	Y	Y	Y	N	medium	medium
Sweden	N	N	Y	Y	N	medium	high
Switzerland	Y	Y	Y	Y	Y	high	high
Tajikistan	N	N	N	N	N	low	low
Turkey	N	N	N	N	N	low	low
Ukraine	N	N	N	N	N	low	low
United Kingdom	Y	Y	Y	Y	Y	high	high
Migration ⁶	N	N	N	N	N	low	low
Winter ⁶	N	N	N	N	N	low	low

¹ monitoring carried out at some important sites

² only in Wallonia (where core breeding area)

³ national action plan is being prepared

⁴ monitoring only carried out at some key sites

⁵ not published

⁶ see Table 1 for countries involved

Agricultural policies

The conservation of the Corncrake is closely associated with national and EU agricultural policies. In this context, it is important to highlight some measures under the reformed **Common Agricultural Policy (CAP)**. On 26 June 2003, EU farm ministers adopted a fundamental reform of the CAP. The reform intends to radically change the way the EU supports its farm sector. In future, the vast majority of subsidies will be paid independently of the volume of production. To avoid abandonment of production, Member States may choose to maintain a limited link between subsidy and production under well-defined conditions and within clear limits. These new "single farm payments" will be linked to the respect of environmental, food safety and animal welfare standards (cross compliance). Amongst others, farmers are required to respect statutory requirements outlined in Annex III of the Council Directive 1782/2003, which clearly refers to the habitat and species conservation requirements of the Birds Directive. According to Art. 5(2), Member States shall ensure the maintenance of permanent grasslands. Furthermore, EU Member States are required to ensure that all agricultural land, especially land that is no longer used for production purposes, is maintained in good agricultural and environmental condition. By January 2007, Member States are required to set up a farm advisory system at least covering cross compliance.

According to the Council Regulation 1257/1999 farmers in less favoured areas, i.e. mountain areas, areas affected by specific handicaps, may be supported by compensatory allowances to ensure continued and sustainable agricultural land use, preservation of the countryside, and the fulfilment of environmental requirements. A large percentage of Corncrake habitats could qualify as less favoured areas. Farmers in areas subject to environmental constraints, outside of areas otherwise classified as less favoured may receive support to cover the additional costs and losses of income resulting from implementation of Community environmental rules too.

Support can be also granted to farmers who use agricultural production methods designed to protect the environment and maintain the countryside (agri-environment). These measures may provide compensation for income loss or for additional cost associated with the management of Corncrake habitats according to the specific needs of the species, like delay of mowing dates and adoption of mowing techniques, which reduce mortality among chicks.

Regulation 1257/1999 on rural development 2000-2006 will be replaced for the period 2007-2013 by a new regulation on the same subject. This regulation places considerable emphasis on improving the environment and the countryside devoting the highest percentage of minimum spending to this axis of rural development. Among the measures relevant to the protection of the Corncrake possible under this regulation are support to farmers in mountain and other areas subject to handicaps, agri-environment payments and payments linked to Natura 2000 and the Water Framework Directive (2000/60/EEC).

5. FRAMEWORK FOR ACTION

The success of this action plan heavily depends on the implementation of its actions and recommendations in each individual country. Without this commitment, the action plan will remain ineffective, and the unfavourable conservation status of the Corncrake will continue. In this section, we provide a framework for conservation measures, including the aspects that should be incorporated in each national action plan. This framework constitutes a logical frame (*Table 9*) and is used to address the actions mentioned in chapter 6 for individual countries.

Table 9. Framework for action for the Corncrake Species Action Plan. The actions and results listed cover the period up to 10 years after endorsement of the plan (2005-2015).

Summary of objectives/ Activities	Objectively Verifiable Indicators (OVIs)	Means/Sources of verification (MOVs)	Important assumptions
<i>Overall goal:</i> Restore 'Least Concern' status on the global Red List	<ul style="list-style-type: none"> Conservation Status 	<ul style="list-style-type: none"> IUCN/BirdLife Global Red List assessment 	
<i>Purpose of this action plan:</i> Maintain current population level of the species throughout its breeding range, and increase population by 20% in those parts of the breeding range where large declines were reported in the second half of the 20 th century ¹	<ul style="list-style-type: none"> Corncrake population remains at 2000 level in the eastern part of the breeding range (especially Estonia, Latvia, Lithuania, Poland, Romania, Bulgaria, Belarus; Ukraine, Russia (European & Asian parts)) Corncrake population size increases by 20% in the next 10 years in countries with long-term declines in the 2nd half of the 20th century. Occupied breeding range expands with 20% in countries with long-term declines in the 2nd half of the 20th century ¹ 	<ul style="list-style-type: none"> Summarised results of national Corncrake surveys (BirdLife World Bird Database) National Corncrake censuses / atlas surveys 	<ul style="list-style-type: none"> Habitat conservation measures are main- tained beyond the time frame of this action plan
<i>Results:</i> 1. Extent of suitable habitat at least maintained, but increased where large declines were reported in the second half of the 20 th century ¹	<ul style="list-style-type: none"> Extent of suitable meadows for Corncrakes increases by 20% in those countries with long-term declines in the 2nd half of the 20th century ¹ 	<ul style="list-style-type: none"> Monitoring of land-use by remote sensing techniques (European Environmental Agency, Joint Research Centre, Institute for Environment and Sustainability or information from Integrated Agriculture Control System (where available)) 	<ul style="list-style-type: none"> Climate changes do not affect extent of the breeding range in the next 10 years. Rural areas are not abandoned. CAP Reform will provide framework for sustainable management of suitable Corncrake habitats.
2. Mortality caused by agricultural practice is significantly reduced	<ul style="list-style-type: none"> Extent of unmown meadows on 1st August has been maintained in countries with large populations maintained or increased by more than 20% in countries with large decline compared to the first year of the implementation of this action plan, at least at identified Corncrake key areas 	<ul style="list-style-type: none"> Remote sensing of land-use (EIS/JRC projects) Randomised habitat sampling, e.g. in connection with Corncrake census areas Counting of calling males at 	<ul style="list-style-type: none"> Predation pressure at breeding sites remains low

	² <ul style="list-style-type: none"> Number of calling males in Corncrake key areas at the beginning of the breeding season maintained or increased compared to the first year of the implementation of this action plan 	the beginning of the breeding season in Corncrake key sites	
3. Mortality caused by hunting and trapping is reduced.	<ul style="list-style-type: none"> Corncrake is legally protected from hunting and trapping in all range states Illegal hunting is not reported 	<ul style="list-style-type: none"> National legislation National hunting bag statistics Reports of Eurogroup Against Bird Crime 	<ul style="list-style-type: none"> Climate changes and desertification do not affect survival during migration.
4. Wintering and migratory sites maintained	<ul style="list-style-type: none"> Maintain current extent of savannas and other suitable grassland areas for Corncrakes 	<ul style="list-style-type: none"> Remote sensing of habitats (UNEP World Conservation Monitoring Centre) 	<ul style="list-style-type: none"> Data sufficient to identify key sites for Corncrakes
5. Knowledge gaps filled	<ul style="list-style-type: none"> A standardised monitoring programme operates by 2006, aiming at national surveys every 5 years and annual censuses in (stratified) sample plots to assess trends Spatial distribution of breeding population (i.e. exchange within the breeding range) is understood and published by 2015 Impact of conservation measures on population trends and recruitment rates are understood and published by 2015 Migration strategies understood and published by 2015 Habitat and other ecological requirements of the Corncrake, both during breeding and non-breeding season, are understood across the breeding range and published by 2015 	<ul style="list-style-type: none"> Monitoring and research reports Scientific papers Presentations at expert meetings 	<ul style="list-style-type: none"> Corncrake Conservation Team remains in place to co-ordinate, stimulate and initiate research effort

¹ mainly includes Member States of the European Union, i.e. countries in the western part of the breeding range, like Ireland, UK, France, Belgium, Netherlands, Germany, Denmark, Sweden, Finland, Italy, Austria, Hungary and Czech Republic, as well as Switzerland and Norway.

² 1 August given here as general recommendation; in regions where phenology of Corncrake breeding is earlier (e.g. France), an earlier date (15 July) might be more appropriate, for a later breeding season (e.g. mountainous areas) 1 September is recommended.

6. ACTIVITIES BY COUNTRY

This chapter summarises all necessary actions for Corncrake conservation for each country. Terminology of conservation action follows the 'results' column in *Table 9*. Furthermore, priority, the responsible organisations and a time scale are given. 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.

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 preparation of this plan.

Since many results and proposed conservation action apply to more than one country, we have grouped countries into five categories, combining status and trends of the Corncrake and the political situation of each country:

- Members of the European Union which experienced long-term declines and which support rather small populations, i.e. Austria, Belgium, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Netherlands, Slovenia, Sweden, UK, as well as (non-EU Members) Liechtenstein, Norway, Switzerland. Some of these countries have recorded a recent increase in numbers;
- EU Members which support large populations, i.e. Czech Republic, Estonia, Latvia, Lithuania, Poland, Slovakia;
- EU Accession countries, i.e. Bulgaria, Croatia, Romania, Turkey;
- Non-EU Members supporting large populations, i.e. Belarus, Kazakhstan, Russia (both European and Asian parts), Ukraine and other countries within the breeding range where breeding population is small or where status is less known, i.e. Albania, Armenia, Azerbaijan, Bosnia & Herzegovina, China, Georgia, Kyrgyzstan, Macedonia, Moldova, Mongolia, Serbia & Montenegro, Tajikistan;
- Countries within the migratory or wintering part of the flyway, consisting of EU Member States (Cyprus, Greece, Malta, Portugal, Spain) as well as countries on the Indian subcontinent, in the Middle East and in Africa, see *Table 1* for a full list of countries.

The actions are based on the 'results' section of *Table 9*. Data concerning national actions were derived from an enquiry, which was completed by national Birdlife Partners in January/February 2004. Besides, information was obtained from national experts, the previous action plans (Crockford *et al.* 1996, Peet & Gallo-Orsi 2000) and the (unpublished) proceedings of the Corncrake meeting in Hillpoltstein, Germany, in 1998 (Schäffer & Mammen in prep., see www.corncrake.net). Country abbreviations refer to ISO codes (given in the head of each Table).

6.1. Members of the European Union, which experienced long-term declines and which generally support rather small populations

AT Austria, BE Belgium, DK Denmark, FI Finland, FR France, DE Germany, GR Greece, HU Hungary, IE Ireland, IT Italy, LU Luxembourg, NL Netherlands, SI Slovenia, SE Sweden, GB United Kingdom, as well as (non-EU Members) LI Liechtenstein, NO Norway, CH Switzerland.

Result	National activity	Priority	Time-scale	Responsible organisation
1. Existing suitable habitats maintained and increased by 20%	<ol style="list-style-type: none"> 1. Member States shall incorporate the species' requirements into the definition of good agricultural and environmental conditions pursuant to Art. 5 of Council Regulation 1782/2003. Particular attention shall be paid to the maintenance of the area of existing wet grasslands, and these areas should be not afforested. National rules defining the minimum level of maintenance in grasslands should not request mowing during the breeding season. 2. Restore suitable breeding habitats in areas where species disappeared in recent decades using agri-environmental payments or other effective means. 3. Take into account habitat requirements of the species in management of Special Protection Areas and other protected areas. Apply compensatory payments according to Art. 16 of the Council Regulation 1257/1999 and a comparable strengthened measure in the new regulation. 4. Identify and designate the most suitable areas² with >20 singing males, but at least the five most important sites at appropriate geographic level (e.g. NUTs regions) if there is no site supporting >20 singing males, as SPA and 	<ul style="list-style-type: none"> • High • Medium • High • High 	<ul style="list-style-type: none"> • Medium: all countries • Ongoing: DK, FI, IE, GB³/Medium: all other countries • Ongoing: all countries • Ongoing: all countries 	<ul style="list-style-type: none"> • National Government • National Government, National Nature Protection Agencies • National Nature Protection Agencies • National Government

² This should apply to areas, which support Corncrakes on a regular basis (mostly annual observations) in the period May-June, the so-called 'Corncrake key areas'

³ Includes re-introduction project started by RSPB near Cambridge, England 2003

	<p>(where appropriate) implement national legislation for protection.</p> <p>5. Ensure that national legislation requires Environmental Impact Assessments preceding activities, which would damage breeding habitat in Corncrake key areas, especially in case of drainage, building of reservoirs, motorway projects, other infrastructure developments, afforestation, conversion of permanent grassland into arable cultivation and regardless of the size of the project.</p> <p>6. Implement habitat compensation measures to offset any loss of Corncrake habitat.</p> <p>7. Monitor the extent of suitable habitat.</p>	<ul style="list-style-type: none"> • High • High • High 	<ul style="list-style-type: none"> • Ongoing: all countries • Short: all countries • Short: all countries 	<ul style="list-style-type: none"> • National/Local Government • National/Local Government • National Government, EU Agencies (EEA, JRC, IES, IACS)
2. Mortality caused by agricultural practice is significantly reduced.	<p>1. Provide farmers with information on corncrake-friendly mowing and habitat management techniques (e.g. provision of early cover, where necessary) in Corncrake key areas.</p> <p>2. Provide incentive schemes to encourage farmers and nature conservation agencies to delay mowing dates until 1 August or later⁴ and apply corncrake-friendly mowing and harvesting techniques</p> <p>Monitor the extent of suitable breeding habitat not mown by 1 August.⁴</p>	<ul style="list-style-type: none"> • Essential • Essential • High 	<ul style="list-style-type: none"> • Ongoing: AT, CH, DK, FI, GB, IE, NL, NO, SE, SI /Short: all other countries • Ongoing: AT, CH, FI, DK, GB, IE, NL, NO, SE /Short: all others countries • Short: all countries 	<ul style="list-style-type: none"> • National Government, Nature Protection Agencies, NGOs • National Government (within EU framework) • National Government, EU Agencies (JRC, EIS projects)
3. Mortality caused by hunting and trapping is significantly reduced.	<p>1. Ensure legal protection pursuant to Art. 5 of the Bird Directive.</p> <p>2. Monitor illegal hunting and trapping.</p> <p>3. Fight against illegal hunting and trapping.</p>	<ul style="list-style-type: none"> • Low • Low • Low/Short (FR) 	<ul style="list-style-type: none"> • Completed: all countries • Ongoing: all countries • Ongoing: all countries 	<ul style="list-style-type: none"> • National Government • National Government • National Government, NGOs

⁴ See Table 9 for comment on 1 August

4. Wintering and migratory sites maintained (here: only migratory sites).	1. Maintain the extent of permanent grasslands for migratory birds.	<ul style="list-style-type: none"> Low 	<ul style="list-style-type: none"> See (1), since migratory habitat and breeding habitat is considered the same. 	<ul style="list-style-type: none"> see (1)
5. Knowledge gaps filled	<ol style="list-style-type: none"> 1. Establish a standardised annual monitoring programme and repeated national surveys once every five years. 2. Expand DNA microsatellite marker techniques to assess population structure and movements. 3. Initiate research to evaluate effect of conservation measures by comparing trends and recruitment rates in areas with different management regimes. 4. Continue and expand research to assess impact of mowing and other agricultural practices. 5. Expand research programmes to monitor survival rates and mortality. 6. Continue and expand research on breeding biology and habitat requirements in a wider part of the breeding range. 7. Repeat study on status and threats during migration and winter. 	<ul style="list-style-type: none"> High Medium High High Medium Medium Low 	<ul style="list-style-type: none"> Ongoing: BE, DK, FI, HU, IE, IT, LU, NL, NO, SI, SE, CH, GB / Short: other countries Ongoing: DE, FI, FR, HU, IT / Medium: other countries. Ongoing: FR, GB, IE, NL / Short: other countries Ongoing: FR, GB, IE, HU, NL / Medium: all other countries Ongoing: GB, IE / Medium: other countries Ongoing: GB, FR, IE / Medium: other countries Long: all countries 	<ul style="list-style-type: none"> National Government, NGOs Research institutions National Government, research institutions, NGOs National Government, research institutions, NGOs National Government, research institutions, NGOs National Government, research institutions, NGOs

6.2. Members of the European Union, which generally support large populations

CZ Czech Republic, EE Estonia, LV Latvia, LT Lithuania, PL Poland, SK Slovakia

Result	National activity	Priority	Time scale	Responsible organisation
1. Extent of suitable habitat maintained	1. Incorporate the species' requirements into the definition of good agricultural and environmental conditions pursuant to Art. 5 of Council Regulation 1782/2003 with special regard to the maintenance of permanent grasslands. Particular attention shall be paid to the maintenance of the area of existing wet grasslands, and these areas should be not afforested. National rules defining the minimum level of maintenance in grasslands should not request mowing during the breeding season.	• High	• Short: all countries	• National Government
	2. Prevent abandonment of areas important for the Corncrake through incorporating these regions into Less Favoured Areas pursuant to Art. 19 of the Council Regulation 1257/1999 and reflect the species' requirements in the definition of good farming practices. ¹	• High	• Short: all countries	• National Government
	3. Take into account habitat requirements of the species in management of protected areas.			
	4. Identify and designate all national key sites (in general areas with 75-100 singing males annually, depending on national population) as SPA and (where appropriate) implement national legislation for protection. Apply Art. 16 of the Council Regulation 1257/1999 ² to compensate farmers for delayed mowing in SPAs and a comparable strengthened measure in	• High • High	• Ongoing: CZ, SK / Medium: other countries • Completed: CZ / Ongoing: EE, LV, LT,	• National Government, National Nature Protection Agencies • National Government

¹ This will be replaced by Article 36 of the new Rural Development Regulation according to the Commission's proposal COM(2004) 490.

² It will be replaced by Article 36 of the new Rural Development Regulation according to the Commission's proposal COM(2004) 490.

	<p>the new regulation.</p> <p>5. Ensure that national legislation requires Environmental Impact Assessments preceding activities, which would damage breeding habitat, especially in case of drainage, building of reservoirs, motorway projects, other infrastructure developments, afforestation, and conversion of permanent grassland into arable cultivation, regardless of the size of the project.</p> <p>6. Implement habitat compensation measures to offset any loss of Corncrake habitat.</p> <p>7. Monitor the extent of suitable habitat.</p>	<ul style="list-style-type: none"> • High • Low • High 	<p>PL, SK</p> <ul style="list-style-type: none"> • Short: all countries • Long: all countries • Short: all countries 	<p>National Nature Protection Agencies</p> <ul style="list-style-type: none"> • National/Local Government • National/Local Government • National Government, EU Agencies (EEA, JRC, IES, IACS)
<p>2. Mortality caused by agricultural practice is significantly reduced.</p>	<p>1. Provide farmers with information on corncrake-friendly mowing and habitat management techniques (e.g. provision of early cover where necessary) in Corncrake key areas.</p> <p>2. Provide horizontal incentive schemes to encourage farmers and nature conservation agencies to delay mowing dates until 1 August⁴ or later and apply corncrake-friendly mowing and harvesting techniques.</p> <p>3. Monitor the extent of suitable breeding habitat not mown by 1 August.⁴</p>	<ul style="list-style-type: none"> • High • High • High 	<ul style="list-style-type: none"> • Medium: all countries • Medium: all countries • Medium: all countries 	<ul style="list-style-type: none"> • National Government, Nature Protection Agencies, NGOs • National Government (within EU framework) • National Government, EU Agencies (JRC, EIS projects)

3. Mortality caused by hunting and trapping is significantly reduced.	<ol style="list-style-type: none"> 1. Ensure legal protection for the species pursuant to Art. 5 of the Bird Directive. 2. Monitor illegal hunting and trapping. 3. Fight against illegal hunting/trapping. 	<ul style="list-style-type: none"> • Low • Low • Low 	<ul style="list-style-type: none"> • Completed: all countries • Ongoing: all countries • Ongoing: all countries 	<ul style="list-style-type: none"> • National Government • National Government • National Government, NGOs
4. Wintering and migratory sites maintained (here: only migratory sites)	<ol style="list-style-type: none"> 1. Maintain the extent of permanent grassland for migratory birds. 	<ul style="list-style-type: none"> • Low 	<ul style="list-style-type: none"> • See (1), since migratory habitat and breeding habitat is considered the same. 	<ul style="list-style-type: none"> • see (1)
5. Knowledge gaps filled	<ol style="list-style-type: none"> 1. Establish a standardised annual monitoring programme and repeated national surveys once every five years. 2. Expand DNA microsatellite marker techniques to assess population structure and movements. 3. Initiate research to evaluate the effect of conservation measures by comparing trends and recruitment rates in different management regimes. 4. Continue and expand research to assess the impact of mowing and other agricultural practices. 5. Expand research programmes to monitor survival rates and mortality. 6. Continue and expand research on breeding biology and habitat requirements in a wider part of the breeding range. 7. Repeat study on status and threats during migration and winter. 	<ul style="list-style-type: none"> • High • Medium • High • High • Medium • Medium • Low 	<ul style="list-style-type: none"> • Ongoing: CZ, SK / Short: EE, LV, LT, PL • Ongoing: CZ, LV / Medium: EE, LT, PL, SK • Medium: all countries • Medium: all countries • Medium: all countries • Medium: all countries • Long: all countries 	<ul style="list-style-type: none"> • National Government, NGOs • Research institutions • National Government, research institutions, NGOs • National Government, research institutions, NGOs • National Government, research institutions, NGOs • National Government, research institutions, NGOs • National Government, NGOs

6.3. Accession countries to the European Union

BG Bulgaria, HR Croatia, RO Romania, TR Turkey

Result	National activity	Priority	Time-scale	Responsible organisation
1. Extent of suitable habitat maintained	1. Prevent abandonment of areas important for the Corncrake by taking into account the species' requirements and distribution during preparation for accession to the EU, with special regard to defining Less Favoured Areas (Art. 19 Council Regulation 1257/1999).	• High	• Short: BG, HR, RO /Long: TR	• National Government
	2. Take into account habitat requirements of the species in management of protected areas.			
	3. Identify and designate all national key sites (applying similar thresholds to existing Member States depending on the size of national population) as SPA by the time of accession and (where appropriate) implement national legislation for protection.	• Medium	• Medium: all countries	• National Government, National Nature Protection Agencies
		• High	• Short: all countries	• National Nature Protection Agencies
	4. Ensure that national legislation requires Environmental Impact Assessments preceding activities, which would damage breeding habitat in Corncrake key areas, especially in the case of drainage, building of reservoirs, motorway projects, other infrastructure developments, afforestation, and conversion of permanent grassland into arable cultivation, regardless of the size of the project.	• High	• Short: all countries	• National/Local Government
	5. Implement habitat compensation measures to offset loss of Corncrake habitat.	• Low	• Long: all countries	• National/Local Government
	6. Monitor the extent of suitable habitat.	• High	• Short: all countries	• National Government, EU Agencies (EEA, JRC, IES, IACS)

2. Mortality caused by agricultural practice is significantly reduced.	<ol style="list-style-type: none"> 1. Provide farmers with information on corncrake-friendly mowing and habitat management techniques (e.g. provision of early cover where necessary) in Corncrake key areas. 2. Develop pre-accession pilot agri-environment schemes to gain experience with corncrake-friendly mowing and harvesting techniques. 3. Monitor the extent of suitable breeding habitat not mown by 1 August.⁴ 	<ul style="list-style-type: none"> • Medium • Medium • High 	<ul style="list-style-type: none"> • Ongoing: RO /Medium: other countries • Short: all countries • Medium: all countries 	<ul style="list-style-type: none"> • National Government, Nature Protection Agencies, NGOs • National Government (within EU framework) • National Government, EU Agencies (JRC, EIS projects)
3. Mortality caused by hunting and trapping is significantly reduced.	<ol style="list-style-type: none"> 1. Ensure legal protection for the species by the time of EU accession pursuant to Art. 5 of the Bird Directive. 2. Monitor illegal hunting and trapping. 3. Fight against illegal hunting/trapping. 	<ul style="list-style-type: none"> • Low • Low • Low/Medium (BG) 	<ul style="list-style-type: none"> • Completed: all countries • Ongoing: all countries • Ongoing: all countries 	<ul style="list-style-type: none"> • National Government • National Government • National Government, NGOs
4. Wintering and migratory sites maintained (here: only migratory sites)	<ol style="list-style-type: none"> 1. Maintain the extent of permanent grassland for migratory birds. 	<ul style="list-style-type: none"> • Low 	see (1) since migratory habitat and breeding habitat is considered the same	<ul style="list-style-type: none"> • see (1)
5. Knowledge gaps filled	<ol style="list-style-type: none"> 1. Establish a standardised annual monitoring programme and repeat national surveys once every five years 2. Expand DNA microsatellite marker techniques to assess population structure and movements. 3. Initiate research to evaluate the effect of conservation measures by comparing trends and recruitment rates in different management regimes. 4. Continue and expand research to assess the impact of mowing and other agricultural practices. 	<ul style="list-style-type: none"> • High • Medium • Medium 	<ul style="list-style-type: none"> • Short: all countries • Medium: all countries • Medium: all countries 	<ul style="list-style-type: none"> • National Government, NGOs • Research institutions • National Government, research institutions, NGOs • National Government, research institutions, NGOs

	<p>5. Expand research programmes to monitor survival rates and mortality.</p> <p>6. Continue and expand research on breeding biology and habitat requirements in a wider part of the breeding range.</p> <p>7. Repeat study on status and threats during migration and winter.</p>	<ul style="list-style-type: none"> • High • Medium • Medium • Low 	<ul style="list-style-type: none"> • Medium: all countries • Medium: all countries • Medium: all countries • Long: all countries 	<ul style="list-style-type: none"> • National Government, research institutions, NGOs • National Government, research institutions, NGOs • National Government, NGOs
--	--	---	--	---

6.4. Non-EU Members supporting large populations, and other countries within the breeding range where breeding population is small or where status is less known

BY Belarus, KZ Kazakhstan, RU Russia (both European and Asian parts), UA Ukraine (supporting large populations)

AL Albania, AM Armenia, AZ Azerbaijan, BA Bosnia & Herzegovina, CN China, GE Georgia, KG Kyrgyzstan, MK Macedonia, MD Moldova, MN Mongolia, CS Serbia & Montenegro, TJ Tajikistan (small populations or breeding scattered/status less known).

Result	National activity	Priority	Time-scale	Responsible organisation
1. Extent of suitable habitat maintained	<ol style="list-style-type: none"> 1. Prevent abandonment of areas important for the Corncrake through providing aid to sustainable rural development which meets the species' requirements. 2. Take into account habitat requirements of the species in management of protected areas. 3. Identify and designate national key sites (in general areas which support 75-100 singing males regularly, but depending on national population) under national legislation for protection. 4. Ensure that national legislation requires Environmental Impact Assessments preceding activities, which would damage breeding habitat, especially in the case of drainage, building of reservoirs, other infrastructure developments, afforestation, and conversion of permanent grassland into arable cultivation, regardless of the size of the project. 5. Implement habitat compensation measures where loss of habitat has occurred. 6. Monitor the extent of suitable habitat. 	<ul style="list-style-type: none"> • Essential-High • High • High • High 	<ul style="list-style-type: none"> • Short: BY, KZ, RU, UA, AM, BA, GE, MD, CS / Long: AL, AZ, CN, KG, MK, MN, TJ • Short: BY, KZ, RU, UA, AM, BA, GE, MD, CS / Long: AL, AZ, CN, KG, MK, MN, TJ • Short: all countries • Medium: BY, KZ, RU, UA, AM, BA, GE, MD, CS / Long: AL, AZ, CN, KG, MK, MN, TJ • Medium: BY, KZ, RU, UA, AM, BA, GE, MD, CS / Long: AL, AZ, CN, 	<ul style="list-style-type: none"> • National Government • National Government, National Nature Protection Agencies • National Nature Protection Agencies • National/Local Government • National/Local Government

		<ul style="list-style-type: none"> • Low • High 	<ul style="list-style-type: none"> • KG, MK, MN, TJ • Medium: BY, KZ, RU, UA, AM, BA, GE, MD, CS / Long: AF, AL, AZ, CN, KG, MK, MN, TJ 	<ul style="list-style-type: none"> • National Government, EU Agencies (EEA, JRC, IES, IACS)
2. Mortality caused by agricultural practice is significantly reduced.	<ol style="list-style-type: none"> 1. Provide farmers with information on corncrake-friendly mowing and harvesting techniques in Corncrake key areas. 2. Introduce national incentive schemes (similar to agri-environmental schemes in the EU) to encourage farmers to delay mowing dates until 1 August⁴ or later and apply corncrake-friendly mowing and harvesting techniques. 3. Monitor the extent of suitable breeding habitat not mown by 1 August.⁴ 	<ul style="list-style-type: none"> • Medium • Medium • High 	<ul style="list-style-type: none"> • Medium: BY, KZ, RU, UA, AM, BA, GE, MD, CS / Long: AL, AZ, CN, KG, MK, MN, TJ • Medium: BY, KZ, RU, UA, AM, BA, GE, MD, CS / Long: AL, AZ, CN, KG, MK, MN, TJ • Medium: BY, KZ, RU, UA, AR, BA, GE, MD, CS / Long: AL, AZ, CN, KG, MK, MN, TJ 	<ul style="list-style-type: none"> • National Government, Nature Protection Agencies, NGOs • National Government (within EU framework) • National Government
3. Mortality caused by hunting and trapping is significantly reduced.	<ol style="list-style-type: none"> 1. Provide legal protection for the species. 2. Monitor illegal hunting. 3. Prevent illegal hunting/trapping through strict law enforcement. 	<ul style="list-style-type: none"> • Medium • Medium • Medium 	<ul style="list-style-type: none"> • Completed: BY, BA, CS / Short: RU, UA, GE • Ongoing: BY, BA, CS / Short: RU, UA, GE • Medium: all countries 	<ul style="list-style-type: none"> • National Government • National Government • National Government, NGOs
1. Wintering and migratory sites maintained (here: only migratory sites)	<ol style="list-style-type: none"> 1. Maintain suitable habitat for migratory birds. 	<ul style="list-style-type: none"> • Low 	<ul style="list-style-type: none"> • See (1), since migratory habitat and breeding habitat is considered the same. 	<ul style="list-style-type: none"> • see (1)

<p>2. Knowledge gaps filled</p>	<ol style="list-style-type: none"> 1. Establish a standardised annual monitoring programme and repeated national surveys once every five years. 2. Expand DNA microsatellite marker techniques to assess population structure and movements. 3. Initiate research to evaluate the effect of conservation measures by comparing trends and recruitment rates in different management regimes. 4. Continue and expand research to assess impact of mowing and other agricultural practices. 5. Expand research programmes to monitor survival rates and mortality 6. Continue and expand research on breeding biology and habitat requirements in a wider part of the breeding range. 7. Repeat study on status and threats during migration and winter. 	<ul style="list-style-type: none"> • High • Medium • Medium • High • Medium • Medium • Low 	<ul style="list-style-type: none"> • Short: all countries • Medium: BY, KZ, RU, UA, MD / Long: AF, AL, AR, AZ, BH, CN, GE, KG, MK, MN, YU, TJ • Medium: BY, KZ, RU, UA, AR, BH, GE, MD, YU / Long: AF, AL, AZ, CN, KG, MK, MN, TJ • Medium: BY, KZ, RU, UA, AR, BH, GE, MD, YU / Long: AF, AL, AZ, CN, KG, MK, MN, TJ • Medium: all countries • Long: all countries 	<ul style="list-style-type: none"> • National Government, NGOs • Research institutions • National Government, research institutions, NGOs • National Government, research institutions, NGOs • National Government, research institutions, NGOs • National Government, research institutions, NGOs • National Government, NGOs
---------------------------------	---	---	---	---

6.5. Countries outside the breeding range (i.e. supporting migratory and wintering birds)

Members of the European Union: Cyprus, Greece, Spain Portugal, Malta, as well as countries in the Indian subcontinent, Middle East and Africa; *see Table 1 for a full list of countries involved*. Note that status and behaviour of the species during migration and winter is largely unknown.

Result	National activity	Priority	Time-scale	Responsible organisation
1. Extent of suitable habitat maintained	not relevant, see (4)			
2. Mortality caused by agricultural practice is significantly reduced.	not relevant			
3. Mortality caused by hunting and trapping is significantly reduced.	1. Provide legal protection for the species. 2. Monitor illegal hunting.	<ul style="list-style-type: none"> • Medium • Low 	<ul style="list-style-type: none"> • Completed: / Medium: • Ongoing: / Medium 	<ul style="list-style-type: none"> • National Government, NGOs • National Government, NGOs
4. Wintering and migratory sites maintained (here: only migratory sites)	1. Maintain suitable habitat for migratory birds.	<ul style="list-style-type: none"> • Medium 	<ul style="list-style-type: none"> • Medium 	<ul style="list-style-type: none"> • National Government, NGOs
5. Knowledge gaps filled	1. Repeat study on status and threats during migration and winter. (including impact of climate changes)	<ul style="list-style-type: none"> • High 	<ul style="list-style-type: none"> • Medium 	<ul style="list-style-type: none"> • NGOs

7. REFERENCES

- Adomaitis E., Barauskas R., Kirstukas M., Preiksa Z. 1998. How many Corncrakes are there in Lithuania? *Ciconia* 6: 5-7 [in lithuanian].
- Baha el Din S.M., Salama W., Grieve A. & Green R.E. 1996. Trapping and shooting of Corncrakes *Crex crex* on the Mediterranean coast of Egypt. *Bird Conservation International* 6: 213-228.
- BirdLife International 2004. Birds in Europe II. BirdLife International, Wageningen.
- Bräulich A. & Rank M. 2004. Notes on the occurrence of the Corncrake *Crex crex* in Asia and in the Pacific region. In: Schäffer N. & Mammen U. (eds), Proceedings 3rd Workshop on Corncrakes, Hilpoltstein, september 1998 (see also www.corncrake.net/proceedings.htm).
- Broyer J. 1994. La régression du Rôle des genêts *Crex crex* en France et la gestion des milieux prairiaux. *Alauda* 62: 1-7.
- Broyer J. 1996. Les 'fenaisons centrifuges', une methode pour reduire la mortalité, des jeunes Rale de Genets *Crex crex* et Cailles des Blés *Coturnix coturnix*. *Rev. Ecol. (Terre Vie)*, 51: 269-276.
- Broyer J. 1998. Effect of uncut grasses refuges on meadow birds survival in the Sône Valley, France. *Acta Zoologica Lituanica* 8: 185-188.
- Broyer J. 2002. Contribution a une méthodologie pour le suivi des populations de Rôle des gènes *Crex crex* en période de nidification. *Alauda* 70: 195-202.
- Cramp S. & Simmons K.E.L. (eds) 1980. The birds of the western Palearctic, vol. II. Oxford University Press, London.
- Crockford N.J., Green R.E., Rocamora G., Schäffer N., Stowe T.J. & Williams G. 1996. Corncrake. In: Heredia B., Rose L. & Painter M. (eds): Globally threatened birds in Europe, Action Plans. Council of Europe.
- Eltis J. 1997. Studies of the Corncrake in Estonia in 1995. *Die Vogelwelt* 118: 236-238.
- Flade M. 1997. Habitat of the Corncrake *Crex crex* in primaeval landscapes. *Die Vogelwelt* 118: 141-146.
- Gerritsen G., Koffijberg K. & Voskamp P. 2004. Beschermingsplan Kwartelkoning. Rapport EC-LNV 271. Ministerie van LNV, Den Haag.
- Glutz von Blotzheim U.N., Bauer K.M. & Bezzel E. 1973. Handbuch der Vögel Mitteleuropas. Band 5. Akademische Verlagsgesellschaft, Frankfurt/Main.
- Green R.E. & Rayment M.D. 1996. Geographical variation in the abundance of the Corncrake *Crex crex* in Europe in relation to the intensity of agriculture. *Bird Conservation International* 6: 201-212.
- Green R.E. 1999. Survival and dispersal of male Corncrakes *Crex crex* in a threatened population. *Bird Study* 46 (Supplement): S218-229.
- Green R.E. 2004. A new method for estimating the adult survival rate of the Corncrake *Crex crex* and comparison with estimates from ring-recovery and ring-recapture data. *Ibis* 146: 501-508.
- Green R.E., Rocamora G. & Schäffer N. 1997a. Populations, ecology and threats to the Corncrake *Crex crex* in Europe. *Die Vogelwelt* 118: 117-134.
- Green R.E., Tyler G.A., Stowe T.J. & Hudson A.V. 1997b. A simulation model of the effect of mowing of agricultural grassland on the breeding succes of the corncrake (*Crex crex*). *J. Zool. Lond.* 243: 81-115.
- Hagemeijer W.J.M. & Blair M.J. (eds) 1997. The EBCC Atlas of European Breeding Birds. T & AD Poyser, London.
- Heer L., Maumery L., Laesser J. & Müller W. 2000. Artenschutzprogramm Wachtelkönig in der Schweiz. Schweizer Vogelschutz, Zürich.
- Helmecke A. 2000. Raum- und Habitatnutzung des Wachtelkönigs (*Crex crex* L.) im Unteren Odertal. MsC Thesis, Humboldt-University Berlin.

- del Hoyo J., Elliot A. & Sargatal J. 1996. Handbook of the Birds of the World. Vol 3. Lynx Edicions, Barcelona.
- Jarukaite E. 1997. Results of the 'Corncrake – Bird of the year' campaign. Ciconia 5: 25-29 [in lithuanian].
- Keiss O. 1997. Results of a randomised Corncrake *Crex crex* survey in Latvia 1996: population estimate and habitat selection. Die Vogelwelt 118: 231-235.
- Koffijberg K. & van Dijk A.J. 2001. Influx van Kwartelkoningen *Crex crex* in Nederland in 1998. Limosa 74: 147-159.
- Koffijberg K. & Nienhuis J. 2003. Kwartelkoningen in het Oldambt: een onderzoek naar de populatiedynamiek, habitatkeuze en mogelijkheden voor beschermingsmaatregelen. Sovon-onderzoeksrapport 2003/04. SOVON/Provincie Groningen, Groningen.
- Kurlavicius P. & Raudonikis L. 2001. Assessment of the Lithuanian Breeding Bird Abundance, 1999-2001. Ciconia 9: 92-97 [in lithuanian].
- McDevitt A-M.. & Casey C. 2004. The Corncrake *Crex crex* in Ireland. In: Schäffer N. & Mammen U. (eds), Proceedings 3rd Workshop on Corncrakes, Hilpoltstein, september 1998 (see also www.corncrake.net/proceedings.htm).
- Mischenko A.L. & Sukhanova O.V. 2004. The Corncrake *Crex crex* in Russia (European part). In Schäffer N. & Mammen U. (eds), Proceedings 3rd Workshop on Corncrakes, Hilpoltstein, september 1998. (see also www.corncrake.net/proceedings.htm).
- Müller A. & Illner H. 2001. Erfassung des Wachtelkönigs in Nordrhein-Westfalen 1998 bis 2000. LÖBF-Mitteilungen 2/2001: 36-51.
- Peet N.B. & Gallo-Orsi U. 2000. Action Plan for the Corncrake. BirdLife International, Cambridge.
- Prostov A. 1964. Investigation of the ornithofauna in the region of Burgas. Izv. Na Zool. Inst. S Muzei, BAN, 15, 5-68. [in Bulgarian].
- Schäffer N. 1994. Methoden zum Nachweis von Brutten des Wachtelkönigs *Crex crex*. Die Vogelwelt 115: 69-73.
- Schäffer N. 1995. Rufverhalten und Funktion des Rufens beim Wachtelkönig *Crex crex*. Die Vogelwelt 116: 141-151.
- Schäffer N. 1999. Habitatwahl und Partnerschaftssystem von Tüpfelralle *Porzana porzana* und Wachtelkönig *Crex crex*. Ökologie der Vögel 21, Heft 1: 1-267.
- Schäffer N. & Münch S. 1993. Untersuchungen zur Habitatwahl und Brutbiologie des Wachtelkönigs *Crex crex* im Murnauer Moos/Oberbayern. Die Vogelwelt 114: 55-72.
- Schäffer N. & Green R.E. 2001. The global status of the Corncrake. RSPB Conservation Review 13: 18-24.
- Schneider-Jacoby M. 1991. Verbreitung und Bestand des Wachtelkönigs in Jugoslawien. Die Vogelwelt 112: 48-57.
- Schoppers J. & Koffijberg K. 2004. Resultaten van beschermingsmaatregelen voor Kwartelkoningen in Nederland in 2003. Sovon-informatierapport 2004/01. Sovon Vogelonderzoek Nederland, Beek-Ubbergen.
- Stowe T.J. & Becker D. 1992. Status and conservation of Corncrakes *Crex crex* outside the breeding grounds. Tauraco 2: 1-23.
- Stowe T.J. & Green R.E. 1997a. Response of Corncrake *Crex crex* populations in Britain to conservation action. Die Vogelwelt 112: 161-168.
- Stowe T.J. & Green R.E. 1997b. Threats to the Corncrake *Crex crex* on migration and in the winter quarters. Die Vogelwelt 112: 175-178.

- Tyler G.A. 1996. The ecology of the Corncrake, with special reference to mowing on breeding production. PhD thesis, University of Cork.
- Tyler G.A. & Green R.E. 1996. The incidence of nocturnal song by male Corncrakes *Crex crex* is reduced during pairing. *Bird Study* 43: 214-219.
- Tyler G.A., Green R.E. & Casey C. 1998. Survival and behaviour of Corncrake *Crex crex* clutches during the mowing of agricultural grassland. *Bird Study* 45: 35-50.
- Urban E.K., Fry C.H. & Keith S. (eds) 1986. *The Birds of Africa*. Vol. 2. Academic Press, London.
- Wernham C.V., Toms M.P., Marchant J.H., Clarck J.A., Siriwardena G.M. & Baillie S.R. (eds) 2002. *The Migration Atlas: movements of the birds of Britain and Ireland*. T & AD. Poyser, London.