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INTERNATIONAL SINGLE SPECIES ACTION PLAN FOR THE CORNCRAKE *Crex crex*

(Introductory note prepared by the Secretariat)

The Single Species Action Plan for the Corncrake *Crex crex* has been initiated as a joint initiative of CMS, AEWA and the European Commission. As regards CMS, the CMS Scientific Council at its twelfth meeting (Glasgow, April 2004) has approved in principle the co-funding by the Convention of a project aimed at extending the geographic scope the existing European Action Plan for the species.

Initially, the plan was foreseen to be an EU plan only, but with the support and the legal framework of CMS and AEWA it was extended to cover the global range of the species. 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).

This final version is the result of a wide consultation amongst Range States within the species' range, and all suggested amendments received through the official comments were incorporated. Consultation process within the EU took place via the Ornis Committee (the EU body for coordination of the implementation of the EU Birds Directive), and the plan was approved by the EU within the framework of that Committee.

The Technical Committee of AEWA reviewed the document at its 6th meeting in May 2005 and made several minor proposals, which were later included by the compilers.

The present version has been endorsed by the 3^d Meeting of the Parties (MOP3) to AEWA (Dakar, October 2005) for implementation in the AEWA region.



European Union



Single Species Action Plan for the Conservation of the Corncrake *Crex crex*

Final version
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Executive summary

The Corncrake is worldwide considered 'near threatened'. 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 et al. 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 parts 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 et al. 1997a).
Taxonomy	The Corncrakes is member of the <i>Rallidae</i> (Gruiformes), and together with African Crake <i>Crex egregia</i> represent the genus <i>Crex</i> (del Hoyo et al. 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 et al. 1997a). In a number of countries the species hovered at the verge of extinction in the 1980s. However, surveys in eastern European countries in the 1990s proved the existence of thriving populations, although declines have been reported in those countries too prior to 1990 (Green et al. 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 increase observed in several countries (Schäffer & Green 2001). Secondly, also increases in relation to improved conservation measures have 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 et al. 1997a). Young of first broods seem to depart from the breeding sites already in the beginning of August, but it is unknown if 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 at an annual survival rate of adult birds of only 20-

	<p>30% whereas first-year survival was 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 assumed to be low. Apart from destruction by mowing, Scottish nests had a success rate of 93% (Tyler 1996).</p>
<p>Life history</p>	<p>Breeding: In contrast to other <i>Rallidae</i>, Corncrakes are serial polygynous (Tyler 1996, Schäffer 1996). Males advertise for females with a distinct and loud, disyllabic <i>crex crex</i> 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 early morning or during daytime. Once the female has started a clutch, the pair-bond breaks and the males resumes singing again, often away from the initial territory. Incubation and parental care are done by females only. After about two weeks, the female abandons the brood, and often associates with a new male and starts a new clutch. Second clutches have been reported to occur until mid-July. Clutch size is about 10 eggs. Incubation time is on average 18 days. Chicks are flightless until about 35 days (Tyler 1996, Schäffer 1999).</p> <p>Feeding: mainly invertebrates, mostly taken from the ground or from plants. Main prey items include earth-worms, molluscs, beetles and various insects (Tyler 1996, Schäffer 1999). Diet often represents local availability of invertebrates and food therefore does not seem to be a major constraint to the occurrence of Corncrakes (Green et al. 1997a). Besides, also plant seeds are taken (Prostov 1964, Glutz von Blotzheim et al. 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, mainly seem to migrate through the Iberian peninsula to Africa (Wernham et al. 2002). A desk study by Stowe & Becker (1992), pointed at 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; 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 primaeval 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 vegetation structure (Schäffer & Münch 1993, Tyler 1996, Schaffer 1999, Helmecke 2000), especially tall vegetation with 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</p>

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 et al. 1997a). In some countries, the species also inhabits subalpine meadows up to 1500-3000 m asl (Glutz von Blotzheim et al. 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 (Els 1997, Keiss 1997). Preferred crops are winter cereals and alfalfa (Netherlands), i.e. those crops which offer suitable cover at arrival on the breeding grounds. In some countries breeding is also reported in set-asides and fallow land.

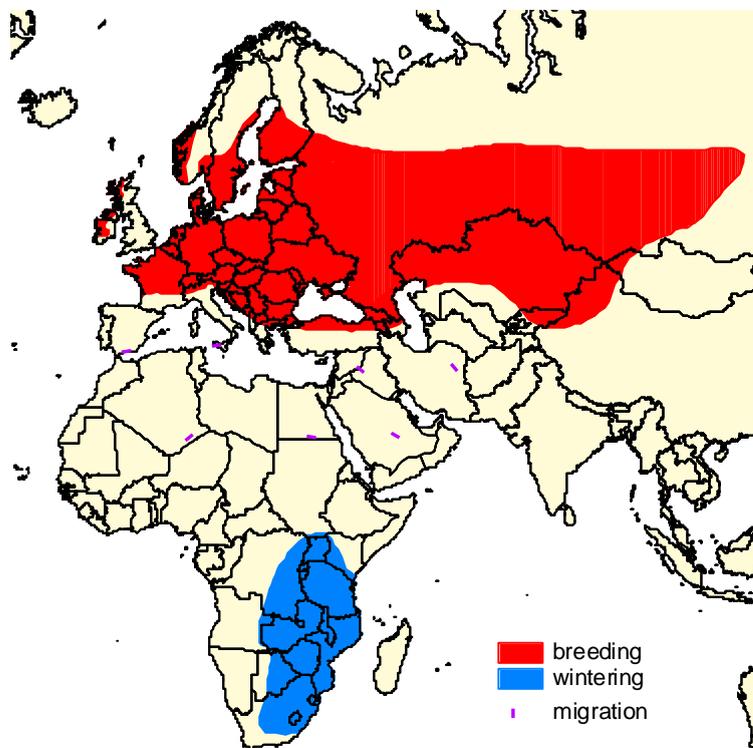


Figure 1. World distribution of Corncrakes (after del Hoyo et al. 1996), added with information provided by Stowe & Becker (1992), Hagemeyer & Blair (1997), Bräulich & Rank (2004) and BirdLife International.

Table 1. Geographical distribution of Corncrakes during the year (after 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 Kyrgystan 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, Jordania, Iraq, Kuwait, VAE, Saudi-Arabia, Jemen, Oman);	Botswana Congo-Kinshasa Kenya Leshoto Malawi Moçambique 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 been easily 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 has 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 by, which might drive Corncrakes to areas where they not breed regularly (Green et al. 1997a). Similar movements are also reported due to extreme climatological 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 at a local scale (e.g. provided by conservation action) and they are considered to be able to re-occupy breeding spots which were lost previously.

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 at 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 which 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 (probably most birds of the population involved). However delineation of these routes is not possible. Neither it is 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, Jarukaitė 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 which determines distribution (Schäffer 1999). For countries where data on habitat requirements are lacking, it can be safely 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 3000 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 earth-worms, molluscs, snails and (large) insects, have been found as principal prey items (Tyler 1996, Schäffer 1999). Among insects 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 therefore is a less important key-factor to limit 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 (after 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 to 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 are extremely difficult to assess. Baseline population has been left blank as they are 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	1,000-1,500	medium	2002	+4	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	1990-2002	+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-Conacry, 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 migrates 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 were 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 Fig. 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.

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 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 nest 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 adult birds on most occasions are fast enough to escape from machinery, on the provision 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 short time.

Hunting and trapping

Importance: low

In nearly all countries within the breeding range, Corncrake is a protected species. However, it is a quarry species in Russia, the 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 (e.g. France) 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). 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 American Mink *Mustela vison* and especially feral Cats *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 Raccoon Dog *Nyctereutes procyonoides* has been reported (L. Raudonikis). 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 operates at a local level, and is not likely to cause serious declines at population level. The impact of predation during mowing might occur on a wider scale but is still considered of local importance.

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, will be 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 impact of extreme drought in east African wintering areas (2004; P. Newbery) and increased risk of floodings (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 agricultural-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 disappeared already 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.

Inufficient 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 wider 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 not attractive to join. Conservation projects carried out so far are scattered and mainly operate at a local level, and studies which assess 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). Disturbance has also been observed by development of motorways and windfarms in Nordrhein-Westfalen, Germany (Müller & Illner 2001). Especially motorways 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). Direct conflicts with recreation are not assumed to occur on a large scale as recreational pressure is generally low in core habitats which are inhabited by Corncrakes.

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

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

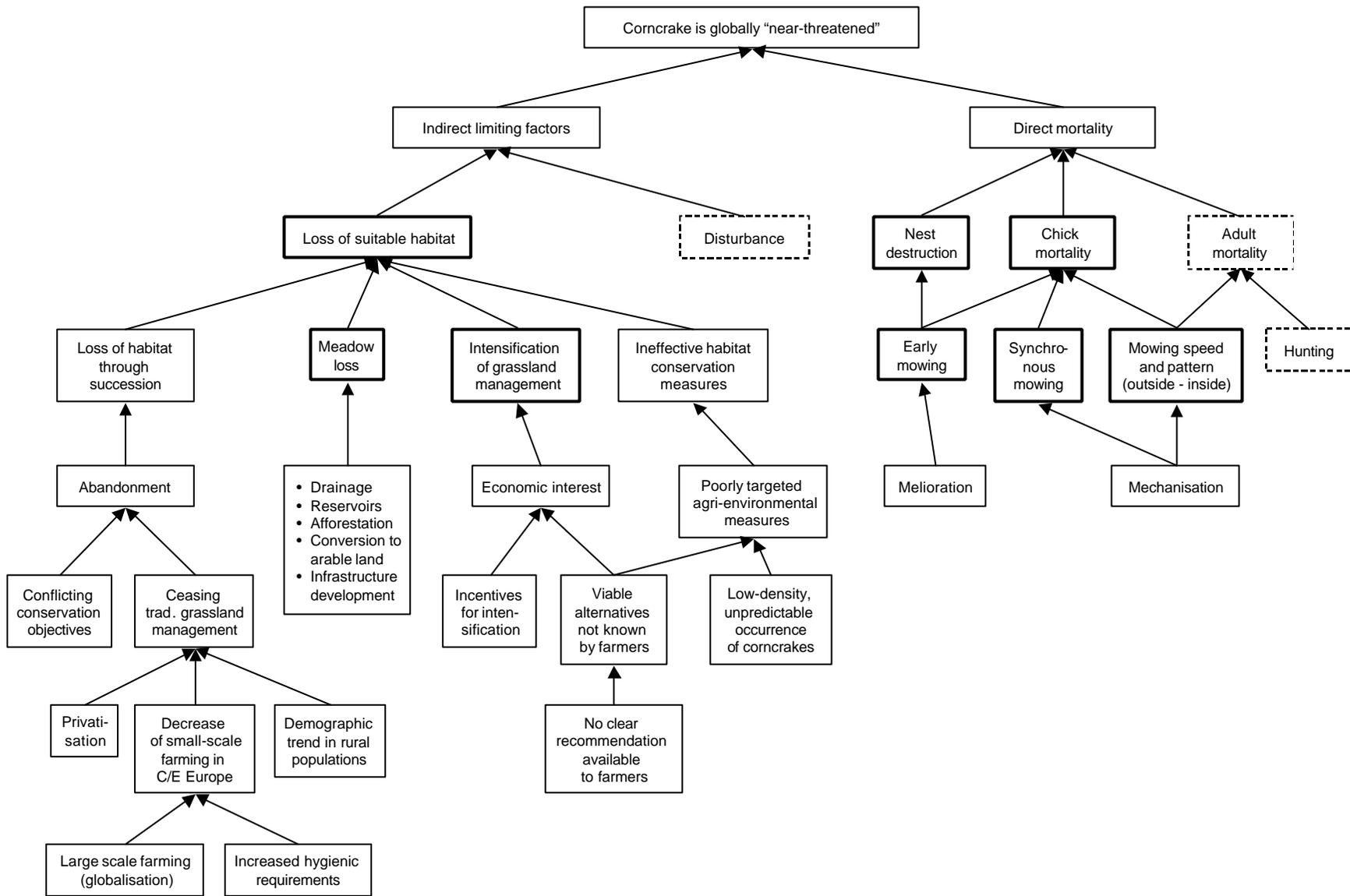


Table 4. Review of threats and their importance at national level. For each threat-category, importance is considered: 1-critical, likely to cause very rapid declines; 2-high, likely to cause rapid declines; 3-medium, likely to cause slow, but significant declines; 4-low, likely to cause fluctuations; 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	1	2	5	7	1	7	7	5	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	5	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 Corncrakes are included. The species is globally considered "near-threatened" and a SPEC 1 species in the European Union (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 Corncrake is listed on 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 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): 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 (after Tucker & Heath 1994, Birdlife International 2000).

Convention	Status
World Status	near threatened
European Status	vulnerable
SPEC category	SPEC 1
EU Wild Birds Directive	Annex I
Bern Convention	Annex II
Bonn Convention	Appendix II
African-Eurasian Migratory Waterbird Agreement	Included
Convention on International Trade in Endangered Species	Not included

Besides international agreements, Corncrakes are 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, Ukraine) where Corncrake is a legal quarry species and two states where (illegal) hunting is reported (Bulgaria, France). Information from countries where the species migrates and winters was not available.

Table 6. National conservation and legal status of Corncrakes 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	no red data book available	yes	1994	?	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	1988	250,000 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	?	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	1981	max. £ 5000/ 6 yr. prison	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 only applicable for the 25 EU-countries under the EC 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	20	-	?	?	none
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
Kyrgystan	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 Corncrakes. 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 last 10 years	General attitude towards 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	N	N	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 ³	N	N	low	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
Kyrgystan	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 Corncrakes 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**. On 26 June 2003, EU- farm ministers adopted a fundamental reform of the Common Agricultural Policy (CAP). The reform intends to change the way the EU supports its farm sector fundamentally. In future, the vast majority of subsidies will be paid independently from 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 covering at least 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 habitat could qualify as less-favoured area. Farmers in areas subject to environmental constraints, outside of areas classified as less-favoured area otherwise, may also receive support to cover the additional costs and losses of income resulting from implementation of Community environmental rules.

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 adaption 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 Corncrakes 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 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 Corncrake Species Action Plan. The actions and results listed cover the period from 10 years after endorsement of the plan (2005-2015).

Summary of objectives/ activities	Objectively Verifiable Indicators (OVIs)	Means/Sources of verification (MOVs)	Important assumptions
<p><i>Overall goal:</i> Restore 'Least Concern' status on the global Red List</p>	<ul style="list-style-type: none"> • Conservation Status 	<ul style="list-style-type: none"> • IUCN/BirdLife Global Red List assessment 	
<p><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 20th century¹</p>	<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 part)) • 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 century¹ 	<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 maintained beyond the time-frame of this action plan
<p><i>Results:</i> 1. Extent of suitable habitat at least maintained, but increased where large declines were reported in the second half of the 20th century¹</p>	<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 century¹ 	<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 	<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

		Control System (where available)	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 with large decline with recent compared to the first year of the implementation of this action plan, at least at identified Corncrake key areas² 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 	<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 the beginning of the breeding season in Corncrake key-sites 	<ul style="list-style-type: none"> Predation pressure at breeding sites remains low
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 	<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

	<p>measures on population trends and recruitment rates are understood and published by 2015</p> <ul style="list-style-type: none"> • Migration strategies understood and published by 2015 • Habitat and other ecological requirements of Corncrakes, both during breeding and non-breeding season, understood across the breeding range and published by 2015. 		
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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 1st August given here as general recommendation, 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) 1st 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 small impact on the population as a whole.

Time-scale 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 Corncrakes 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 part), 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, Kyrgystan, 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).

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%	<p>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.</p> <p>2. Restore suitable breeding habitats in areas where species disappeared in recent decades using agri-environmental payments or other effective means.</p> <p>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</p>	<ul style="list-style-type: none"> • High • Medium • High 	<ul style="list-style-type: none"> • Medium: all countries • Ongoing: DK, FI, IE, GB³/Medium: all other countries • Ongoing: all countries 	<ul style="list-style-type: none"> • National Government • National Government, National Nature Protection Agencies • National Nature Protection Agencies

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>Regulation 1257/1999 and a comparable strengthened measure in the new regulation.</p> <p>4. Identify and designate all 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 (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 • High 	<ul style="list-style-type: none"> • Ongoing: all countries • Ongoing: all countries • Short: all countries • Short: all countries 	<ul style="list-style-type: none"> • National Government • National/Local Government • National/Local Government • National Government, EU-Agencies (EEA, JRC, IES, IACS)
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<p>2. Mortality caused by agricultural practice is significantly reduced</p>	<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. 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 3. Monitor the extent of suitable breeding habitat not mown by 1 August⁴ 	<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)
<p>3. Mortality caused by hunting and trapping is significantly reduced</p>	<ol style="list-style-type: none"> 1. Ensure legal protection pursuant to Art. 5 of the Bird Directive 2. Monitor illegal hunting and trapping 3. Fight against illegal hunting and trapping 	<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
<p>4. Wintering and migratory sites maintained (here: only migratory sites)</p>	<ol style="list-style-type: none"> 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)
<p>5. Knowledge gaps filled</p>	<ol style="list-style-type: none"> 1. Establish a standardised annual monitoring programme and repeated 	<ul style="list-style-type: none"> • High 	<ul style="list-style-type: none"> • Ongoing: BE, DK, FI, HU, IE, IT, LU, NL, 	<ul style="list-style-type: none"> • National Government, NGOs

⁴ see Table 9 for comment on 1 August.

	<p>national surveys once every five years</p> <ol style="list-style-type: none"> 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"> • Medium • High • High • Medium • Medium • Low 	<p>NO, SI, SE, CH, GB / Short: other countries</p> <ul style="list-style-type: none"> • 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"> • Research institutions • National Government, Research institutions, NGOs
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**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 Corncrakes 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			

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>management of protected areas.</p> <p>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 1257/1999² to compensate farmers for delayed mowing in SPAs and a comparable strengthened measure in 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, 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 • Low • High 	<ul style="list-style-type: none"> • Ongoing: CZ, SK / Medium: other countries • Completed: CZ / Ongoing: EE, LV, LT, PL, SK • Short: all countries • Long: all countries • Short: all countries 	<ul style="list-style-type: none"> • National Government, National Nature Protection Agencies • National Government National Nature Protection Agencies • National/Local Government • National/Local Government • National Government, EU-Agencies (EEA, JRC, IES, IACS)
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<p>2. Mortality caused by agricultural practice is significantly reduced</p>	<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. 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 3. Monitor the extent of suitable breeding habitat not mown by 1 August⁴ 	<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)
<p>3. Mortality caused by hunting and trapping is significantly reduced</p>	<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
<p>4. Wintering and migratory sites maintained (here: only migratory sites)</p>	<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)

<p>5. 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 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 • 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, NGOs
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**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	<ol style="list-style-type: none"> 1. Prevent abandonment of areas important for Corncrakes 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). 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 4. 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, 	<ul style="list-style-type: none"> • High • Medium • High • High 	<ul style="list-style-type: none"> • Short: BG, HR, RO /Long: TR • Medium: all countries • Short: all countries • Short: all countries 	<ul style="list-style-type: none"> • National Government • National Government, National Nature Protection Agencies • National Nature Protection Agencies • National/Local Government

	<p>conversion of permanent grassland into arable cultivation and regardless of the size of the project</p> <p>5. Implement habitat compensation measures to offset loss of Corncrake habitat.</p> <p>6. Monitor the extent of suitable habitat</p>	<ul style="list-style-type: none"> • Low • High 	<ul style="list-style-type: none"> • Long: all countries • Short: all countries 	<ul style="list-style-type: none"> • 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. Develop pre-accession pilot agri-environment schemes to gain experience with corncrake-friendly mowing and harvesting techniques</p> <p>3. Monitor the extent of suitable breeding habitat not mown by 1 August⁴</p>	<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	<p>1. Ensure legal protection for the species by the time of EU-accession pursuant to Art. 5 of the Bird Directive</p> <p>2. Monitor illegal hunting and trapping</p> <p>3. Fight against illegal hunting/trapping</p>	<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)	<p>1. Maintain the extent of permanent grassland for migratory birds</p>	<ul style="list-style-type: none"> • Low 	<p>see (1) since migratory habitat and breeding habitat is considered the same</p>	<ul style="list-style-type: none"> • see (1)

<p>5. Knowledge gaps filled</p>	<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 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: all countries • Long: all countries 	<ul style="list-style-type: none"> • National Government, NGOs • Research institutions • National Government, Research institutions, NGOs
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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 part), UA Ukraine (supporting large populations)

AL Albania, AM Armenia, AZ Azerbaijan, BA Bosnia-Herzegovina, CN China, GE Georgia, KG Kyrgystan, 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 Corncrakes 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 case of drainage, building of reservoirs, other infrastructure developments, afforestation, conversion of 	<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 	<ul style="list-style-type: none"> • National Government • National Government, National Nature Protection Agencies • National Nature Protection Agencies • National/Local Government

	<p>permanent grassland into arable cultivation and regardless of the size of the project</p> <p>5. Implement habitat compensation measures where loss of habitat has occurred.</p> <p>6. Monitor the extent of suitable habitat</p>	<ul style="list-style-type: none"> • Low • 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: AF, AL, AZ, CN, KG, MK, MN, TJ 	<ul style="list-style-type: none"> • 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 harvesting techniques in Corncrake key areas</p> <p>2. Introduce national incentive schemes (similar to 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</p> <p>3. Monitor the extent of suitable breeding habitat not mown by 1 August⁴</p>	<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

<p>3. Mortality caused by hunting and trapping is significantly reduced</p>	<p>1. Provide legal protection for the species</p> <p>2. Monitor illegal hunting</p> <p>3. Prevent illegal hunting/trapping through strict law enforcement</p>	<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
<p>1. Wintering and migratory sites maintained (here: only migratory sites)</p>	<p>1. Maintain suitable habitat for migratory birds</p>	<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>	<p>1. Establish a standardised annual monitoring programme and repeated national surveys once every five years</p> <p>2. Expand DNA-Microsatellite marker techniques to assess population structure and movements</p> <p>3. Initiate research to evaluate effect of conservation measures by comparing trends and recruitment rates in different management regimes</p> <p>4. Continue and expand research to assess impact of mowing and other agricultural practices</p>	<ul style="list-style-type: none"> • High • Medium • Medium • High 	<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, MD, YU / Long: AF, 	<ul style="list-style-type: none"> • National Government, NGOs • Research institutions • National Government, Research institutions, NGOs • National Government, Research institutions,

	<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"> • Medium • Medium • Low 	<p>AL, AZ, CN, KG, MK, MN, TJ</p> <ul style="list-style-type: none"> • 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 	<p>NGOs</p> <ul style="list-style-type: none"> • National Government, Research institutions, NGOs • National Government, Research institutions, NGOs • National Government, NGOs
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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 on 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	<ol style="list-style-type: none"> 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)	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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

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