



EUROPEAN UNION MANAGEMENT PLAN

2009-2011



LAPWING

Vanellus vanellus

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Executive summary

The Lapwing *Vanellus vanellus* is listed on Annex II/2 of the EU Birds Directive as a species for which hunting is permitted in those Member States that have specifically indicated that hunting of the species can be allowed. Currently, there are open seasons for Lapwing in France, Spain, Italy, Malta and Greece. Available data suggest an annual harvest in the order of half a million birds within the EU.

The global population of the Lapwing is concentrated in Europe, where the species now has an Unfavourable Conservation Status both at Pan-European and at EU level. Its European breeding population was probably fairly stable until around 1990, but since then the species has suffered significant declines across most of Europe and underwent a large decline (> 30%) overall during 1990-2000. Consequently, at a European level, this previously secure species is now evaluated as Vulnerable and is classified as a Category 2 Species of European Conservation Concern (SPEC). The European population of the Lapwing is estimated at 1.7 to 2.8 million breeding pairs.

The available demographic data indicate that the ongoing population decline is mainly caused by an insufficient production of fledglings, due to an increased clutch failure rate, reduced possibilities of re-nesting and poor chick survival. The main reason for this is agricultural intensification, which has affected – and is still affecting – the habitat of the Lapwing across most of its range. The major threats from agricultural intensification impacting on the Lapwing are identified in this Management Plan and are addressed in the activities suggested.

Site-based conservation measures, targeted, e.g., at areas inside the Natura 2000 network, are insufficient to safeguard dispersed species such as the Lapwing. In addition, conservation efforts must address the general deterioration of the agricultural landscape as a habitat for the species. Recent changes to the EU Common Agricultural Policy offer improved opportunities for this, e.g. through increased support for agri-environment schemes. The fate of the Lapwing in the EU is inseparably linked with the implementation of the Common Agriculture Policy.

The available estimates of the bag size indicate that the annual harvest of the Lapwing amounts to less than 9% of the autumn population. Hunting is not the prime reason for the population declines, but harvesting can prove incompatible with a restoration of the species to a Favourable Conservation Status. Consequently, during this period, additional data on key population parameters should be collected and analysed so as to assess by 2011 the sustainability of hunting. In the absence of proper data by 2011, it would be difficult to evaluate if hunting is sustainable and a hunting ban should be considered.

The Goal (long-term objective) of the Management Plan is to restore the Lapwing to a Favourable Conservation Status in Europe. A reversal of the population trend is unlikely to occur before Lapwing-friendly management options have been implemented on a large scale for some years in a majority of Member States holding important Lapwing populations. Recognizing this, the purposes (short-term objectives) of the Management Plan are (i) to put into force regulations, incentives and other initiatives that will contribute to restoring the Lapwing to a Favourable Conservation Status in Europe and (ii) to collect more robust data on key population parameters such as population size, trends and productivity (including bag – statistics).

The following measures, to be undertaken by Member States initially for the period 2009-2011, are suggested:

- (1) Incentives exist for retaining and restoring pastoral pockets in arable areas and are taken up by farmers in all Member States with breeding or wintering Lapwing.

- (2) Incentives exist for sowing crops in spring instead of in autumn and are taken up by farmers in all Member States with breeding Lapwing.
- (3) Incentives exist for retaining and restoring damp or wet areas inside or adjacent to fields and are taken up by farmers in all Member States with breeding or wintering Lapwing.
- (4) Incentives exist for extensification of grassland management (e.g. through less effective drainage, low or no input of fertilizer/manure) and are taken up by farmers in all Member States with breeding or wintering Lapwing.
- (5) Incentives exist for maintaining and restoring extensive grazing regimes and are taken up by farmers in all Member States with breeding or wintering Lapwing.
- (6) Incentives exist for using low or no input of pesticides and biocides and are taken up by farmers in all Member States with breeding or wintering Lapwing.
- (7) For organic farming, incentives exist for omitting mechanical weeding, rolling and similar operations between 10 and 60 days after sowing of spring cereals or root crops.
- (8) Special efforts to improve the breeding success are made in Member States where Lapwings breed and are hunted.
- (9) Reliable bag statistics are available and hunting/trapping pressure is estimated.
- (10) Necessary restrictions on hunting are taken until 2011 in certain regions or Member States if there are clear evidences of excessive local hunting pressure.
- (11) Awareness-raising campaigns exist on the conservation status and decrease of Lapwing population targeted at Lapwing hunters.
- (12) In areas with breeding Lapwings, measures shall be taken to minimize predation as appropriate.
- (13) A suitable, national programme for monitoring breeding populations of common farmland birds exists in all Member States with breeding Lapwing.
- (14) A study of the Lapwing fledging success and causes of chick loss under different management regimes has been carried out in at least two Member States representing different biogeographic regions.
- (15) A suitable, national programme for monitoring wintering populations of the Lapwing is developed for Member States with more than 100,000 wintering Lapwing.
- (16) A study to determine means of habitat management that minimise predation rates are carried out in Member States with important breeding populations.

The Management Plan is aimed at all Member States with breeding, staging or wintering Lapwing. It is the responsibility of the relevant authorities in each Member State to put into effect the Activities listed in the plan. The plan should be followed by new versions with revised objectives that take into account the results achieved during the first phase.

0. Introduction

The Lapwing *Vanellus vanellus* is listed on Annex II/2 of the EU Birds Directive as a species for which hunting is permitted in those Member States, which have specifically indicated that hunting of the species can be allowed. Lapwing has been identified as a bird species that has an Unfavourable Conservation Status both at Pan-European and at EU25 level (BirdLife International 2004a, 2004b). The global population of the species is concentrated in Europe, but the species is not of global conservation concern; it is thus a Category 2 Species of European Conservation Concern (SPEC) (BirdLife International 2004a). Its European breeding population was probably stable between 1970 and 1990, but during 1990-2000 the species suffered significant declines across much of Europe and underwent a large decline overall. Consequently, at a European level, this previously secure species is now evaluated as Vulnerable according to the IUCN Red List criteria (BirdLife International 2004a).

On this background, it is important to assess the current conservation status of the species and the available research information in order to appraise the current effectiveness of conservation actions, identify reasons for the observed trends and recommend options for future management to restore the European Lapwing populations. Hence, this plan will focus upon the full implementation of the provisions of the Birds Directive as they apply for this species.

The overall format of this Management Plan follows a Single Species Action Plan format developed by BirdLife International for UNEP/AEWA Secretariat (AEWA 2002). However, parts of the plan, including some tables, have been modified to accommodate the specific needs of a plan dealing with a widespread species that only to a minor extent is linked with specific localities (IBAs, Protected Areas etc.), which might be targets of site-based management activities. Only 19-27% of European wintering population is on IBA's (BirdLife International 2004).

Ideally, the management prescriptions of this plan should cover the entire geographical range of the Lapwing populations concerned. However, as the implementation of the plan is part of the fulfilment of the EU Birds Directive, the geographical scope of the plan is at this stage limited to the EU25 Member States.

The first chapter of the Management Plan presents a summary of key information on the West Palearctic Lapwing populations. The second chapter provides more detailed information on the populations that occur in Europe with the focus on the 25 EU Member States. Chapter 3 analyses the threats that are believed to be the causes of the decline while chapter 4 lists the policies and legislation relevant for Lapwing management in Europe.

Chapter 5 evaluates the status for the Lapwing in the EU and sets out long-term and immediate objectives (goal and purposes) for its future management.

Chapter 6 describes the actions to be taken in the EU in the short term (initial three year period). These activities cover all current Members States with breeding, staging or wintering Lapwing.

It is the intention that this management plan shall be revised after three years.

1. Biological Assessment

<p>General information</p>	<p>The Lapwing <i>Vanellus vanellus</i> is unique among Palearctic waders. It is an unmistakable, medium-sized, strikingly crested and boldly patterned wader with a dramatic plunging display flight. Because of its attractive appearance and behaviour, it is a very popular species that over large parts of its temperate range is viewed as a harbinger of spring.</p> <p>The Lapwing occurs over a very wide breeding area, ranging from the Atlantic to the Pacific Ocean between 35° and 70° northern latitude. Being linked with flat, open areas, especially moist and mesic grasslands, its natural breeding habitat for centuries has been encroached upon by man, who has concurrently created suitable substitutes, largely by farming. The species is mainly migratory, wintering south and west of the breeding areas.</p> <p>The Lapwing is listed on Annex II/2 of the EU Birds Directive (79/409/CEE) as a species for which hunting may be permitted in eight countries (Belgium, Denmark, Greece, Spain, France, Ireland, Italy and Malta). Egg-collecting is permitted in one province (Fryslân) in the Netherlands. In recent decades the species has suffered significant declines across most of its European range. Consequently, it now has an Unfavourable Conservation Status both at Pan-European and at EU level.</p>
<p>Taxonomy</p>	<p>The species is monotypic. No morphological variations are known (Cramp and Simmons 1983). Only one population is recognized in Europe (Delany & Scott 2002, Trollet 2003).</p>
<p>Population development</p>	<p>The breeding range of the Lapwing showed a large-scale northward expansion in NW Europe and Russia from the late 19th century, probably linked with climatic amelioration and the spread of farming (Snow & Perrins 1998, Thorup 2004).</p> <p>Concurrently with this range expansion, Lapwing breeding populations declined in many parts of Europe in the 19th century and early 20th century owing to habitat changes and egg-collecting. Since 1940, widespread increases have occurred in some areas and decreases in others. The long-term changes are often difficult to interpret because they are masked by short-term fluctuations linked with the severity of winters (Snow & Perrins 1998).</p> <p>Between 1970 and 1990 the European breeding population was probably stable, population declines in Fenno-Scandia, UK, Germany and many other countries being counterbalanced by stability or increase of the large populations in Russia, Belarus and the Netherlands (BirdLife International 2000).</p> <p>More recently, the species has suffered significant declines across the central parts of the European range, involving all major populations, and it underwent a large decline overall during 1990-2000 (BirdLife International 2004a). In this period some northern populations, which had previously declined, stabilized at a new, lower level, while some small populations in southern and central Europe were stable or increased. According to data from the European Bird Census Council, covering 21 countries, the European population underwent a decline of nearly 30% during the period 1990-2008 (Vorisek 2008).</p>

<p>Population development</p>	<p>Since 1970, breeding population declines have been reported from all European countries holding more than 50,000 breeding pairs of Lapwing: Finland (1970-1990), Sweden (1970-1990), Norway (1970-2000), UK (1970-2000), Germany (1970-2000), Hungary (1970-2000), Netherlands (1990-2000), Russia (1990-2000), Belarus (1990-2000), Poland (1990-2000) and Ukraine (1990-2000). The important Dutch population has decreased a further 2%/year since 2000.</p> <p>Conversely, the number of Lapwing recorded on wetlands during midwinter counts has increased during the period 1989-2002, both in NW Europe and in the Mediterranean area (Wetlands International). Since wetlands are not the main habitat for wintering Lapwings, this trend does not necessarily reflect true winter population trends.</p>
<p>Distribution throughout the annual cycle</p>	<p>The Lapwing is a Palearctic species, breeding in upper and lower middle latitudes, from boreal and temperate to steppe and Mediterranean zones. Towards the north, its breeding range reaches the Arctic Ocean in NW Russia and Norway. At the western extreme it reaches Iceland (irregular breeder), Ireland, Spain, Portugal (first breeding record 1993) and north-westernmost Morocco. Distribution in the southernmost part of the range is patchy, but from the Iberian peninsula and Morocco the southern limit passes through Greece and Turkey to north-western Iran. Beyond the West Palearctic, the breeding range extends east across southern Siberia and northern central Asia to Ussuriland and northern China (Snow & Perrins 1998).</p> <p>The species is mainly migratory, although some western and southern sub-populations are only partially migratory. Within the West Palearctic it winters in western Europe and in the Mediterranean and Middle East countries. It is sensitive to prolonged cold; hence the winter distribution (and the associated migratory pattern) reflects a preference for a maritime climate and a general avoidance of continental climates (Snow & Perrins 1998).</p> <p>Post-breeding dispersal begins in May and peaks in June when some adults in particular, make long movements. Many of these head towards the Benelux countries and Britain. Direction of movement is mainly south-west for Scandinavian and Baltic birds and west or north-west for birds from eastern and south-eastern Europe (Imboden 1974). Some birds pass south-west to Italy and southern France (Snow & Perrins 1998).</p> <p>Summer movements merge into autumn migration during September-November as increasing numbers of juveniles leave their natal areas. Migration occurs over a broad front, in a generally south-westerly direction towards and along the western seaboard and into Iberia and North Africa, occasionally reaching as far south as the Senegal delta (Pienkowski & Knight 1977, Girard & Triplet 1992). Other Lapwings pass through Italy to reach Algeria and Tunisia. Generally, the further east the origin of the Lapwings, the further east their migration routes and wintering areas are.</p> <p>The UK and Ireland constitute the northernmost regular wintering areas, although small flocks also remain in the Low Countries and the Wadden Sea area of Denmark and Germany (Snow & Perrins 1998). Approximately one third of the British Lapwings winter within the British Isles, the others moving to the continent. The majority of the European population, including birds of Russian origin, winter in countries ranging from the Benelux to Morocco (Imboden 1974, Bak & Ettrup 1982, Leitão & Peris 2004, Pettersson 1982, Trolliet 1986, Girard 1989, Asensio 1992).</p>

<p>Distribution throughout the annual cycle</p>	<p>In the northern parts of the wintering area, serious cold spells lead to pronounced movements. These movements, which may involve massive numbers, can force some birds inhabiting the British Isles to move to France and join up with continental birds converging in south-western France, the Iberian Peninsula and Morocco (Leitão & Peris 2004). In other cases, birds move from the continent to the UK and Ireland.</p> <p>The onset of spring migration is difficult to determine because hard-weather movements, after the return of milder weather, are followed by northward movements. According to Snow & Perrins (1998) spring passage begins as early as late January in the southern wintering areas. Migration peaks in early March in central Europe and in late March in northern Europe (Imboden 1974). Spring migration generally follows a more easterly route than the post-breeding movements (Imboden 1974, Dall'Antonia <i>et al.</i> 1996). Males tend to migrate earlier than females (Trolliet 2000).</p> <p>The breeding grounds are re-occupied in March-April, averaging later in the north and east (Snow & Perrins 1998).</p>
<p>Survival and productivity</p>	<p>According to Thompson <i>et al.</i> (1994), 67% of the Lapwings breed for the first time at the age of 1 year, 27% at 2 years and 6% at 3 years.</p> <p>Trolliet (2000) compiled data from studies performed earlier over most of Europe and concluded that, on average, approximately 60% of all completed clutches hatched at least one egg. Main causes of nest loss are ground and avian predators, farming operations and in some areas livestock trampling. Partial losses are not infrequent, and 6-7% of the eggs are infertile or contain dead embryos. Predation rates are higher in grassland than on cultivated land, but losses due to farming operations are lower (Galbraith 1988, Shrubb 1990).</p> <p>Between the mid-1970s and 1999, clutch failure rate increased in the UK (Chamberlain & Crick 2003). Current productivity is probably lower than that estimated by Trolliet (2000) in large areas (see below). On average 30% of the clutches in the Netherlands are predated while 6-9% are lost to farming. Predation rates differ between years and are higher in dry and semi-open compared to wet and open habitats (Teunissen <i>et al.</i> 2005).</p> <p>In studies of chick survival from the UK, Netherlands, Germany and Switzerland between 0 and 42% of the hatched young (mean 21%) survived to the age of fledgling (Glutz <i>et al.</i> 1975, Jackson & Jackson 1975, 1980, Matter 1982, Galbraith 1988, Beintema 1995). In the Netherlands in 2003-2005 on average 14% survived to the age of fledging, although the variation between areas and years is large (Teunissen <i>et al.</i> 2005). Chick survival may be dependent (Galbraith 1988) or independent (Klomp & Speek 1971) of hatching date, but is higher on grasslands, especially extensively managed grasslands, than on cultivated areas. Main causes of chick loss are starvation/cold and predation. In the Netherlands in 2003-2005 predation and farming operations were the main causes of chick loss (Teunissen <i>et al.</i> 2005).</p> <p>Annual productivity (no. of fledglings per female or pair) has been measured as follows: <u>UK</u>: 0.88 (Jackson & Jackson 1975), 0.52 (Jackson & Jackson 1980), 0.62 (Galbraith 1988), 0.70 (Baines 1989) – several unpublished studies have shown virtual breeding failure across a range of habitats and regions. <u>Denmark</u>: 0.57 (Ettrup & Bak 1985). <u>Germany</u>: 0.55 (Kooiker 1984), 1.20 (Kooiker & Buckow 1997), <u>Belgium</u>: 0.98 (Impe 1988), <u>Switzerland</u>: 1.57 (Heim 1978), 0.42 (Matter 1982) and <u>Netherlands</u>: 0.8-1.0 (Den Boer 1995) but probably lower in recent years.</p>

<p>Survival and productivity</p>	<p>According to recently published results the estimated average productivity of 0.8 fledglings per female/pair per year (Trolliet 2000) should be regarded as an overestimate. In large parts of Central and western Europe only 0.4-0.6 fledglings per female/pair per year can be expected. The productivity rate is obviously decreasing (NABU, unpublished compilation of recent reports).</p> <p>Survival rate of young Lapwings is estimated at 0.56-0.62 from August to 31 March the following year (Glutz <i>et al.</i> 1975, Bak & Ettrup 1982, Peach <i>et al.</i> 1994). This rate does not seem to have changed since the beginning of the 20th century (Trolliet 2000). Most studies, however, do not include mortality from time of fledgling until August; this mortality was 8.4% in a Danish study (Bak & Ettrup 1982).</p> <p>Mean annual survival rate after 1st year was estimated at 0.68 by Glutz <i>et al.</i> (1975). A similar survival rate of 0.67 was estimated for Danish birds between 1920-1978 (Bak & Ettrup 1982). Survival of British Lapwings has seemingly improved during the 20th century; the most recent rate is 0.79-0.83 for the period 1965-1988 (Peach <i>et al.</i> 1994, Catchpole <i>et al.</i> 1999). The sex ratio of adult Lapwings may be skewed in favour of males (Vaughan 1980), indicating a poorer survival of females.</p> <p>Maximum age known in the wild is ≥ 2.5 years (Bak & Ettrup 1982). Life expectancy of young birds, alive in August, was 2.1 years for Danish Lapwings. For birds reaching adulthood, life expectancy was 2.5 and 3.5 years for Danish and British birds, respectively (Bak & Ettrup 1982, Peach <i>et al.</i> 1994). Generation length, defined as the average age of the parents of the current cohort, has been estimated at 5 years (BirdLife International 2004a).</p>		
<p>Life history</p>	<p>Breeding:</p> <p>Egg-laying begins in mid- or late March in the Netherlands and UK. Start of laying is progressively later towards north and east of the range, and length of laying period becomes shorter. Single-brooded, but replacement clutches may be laid after egg loss, occasionally after loss of chicks (Klomp 1951). Unfledged young may occur until c. 1 September in northern Europe (Cramp & Simmons 1983).</p>	<p>Feeding:</p> <p>Forages on moist ground with bare spots or low vegetation of grass and herbs, along edges of pools or on fields with low or no vegetation. Breeding birds usually feed within 200-300 m of their nest (Christensen <i>et al.</i> 1996).</p> <p>Nocturnal and diurnal feeder. Almost all food is taken from ground where prey is located by sight and sound. Foot-trembling is frequent (Cramp & Simmons 1983).</p>	<p>Outside breeding season:</p> <p>Highly gregarious. Flocks begin to form during May, at first mostly adult females, but also adults and immature of either sex that have failed to pair or breed. Juveniles start flocking by mid-June. In early summer, some flocks are exclusively adults or juveniles, but later in season flocks are mixed (Cramp & Simmons 1983 and quotations herein).</p> <p>During migration and winter season, flocks may be very large; up to 15,000 (Spencer 1953) or 35,000 (Parquin <i>et al.</i> 1955 quoted by Cramp & Simmons 1983).</p>

<p>Life history</p>	<p>Most of the birds are monogamous. Territorial around the nest; solitary breeder or in loose neighbourhood groups, percentage of solitary breeders varies between studies (29-54%). Nesting groups usually ≤ 10 pairs with 10-150 m between nests. Nests in groups are generally more successful than solitary nests (e.g. Cramp & Simmons 1983, Berg <i>et al.</i> 1992, Salek & Smilauer 2002).</p> <p>Nest is a shallow scrape, lined with variable amount of vegetation. Placed on open ground, normally raised slightly (Snow & Perrins 1998).</p> <p>Clutch size normally 4, less often 3, rarely 2 or 5; mean 3.85 (Cramp & Simmons 1983, Trollet 2003). No seasonal variation; replacement clutches only marginally smaller than first clutches.</p> <p>Incubation 26-28 days: Steady incubation begins with last egg; earlier eggs are covered intermittently.</p> <p>Young are nidifugous and self-feeding. They grow slowly and are not fully homoiothermic until c. 3 weeks old (Beintema & Visser 1994). Fledging period is 30-42 days (Beintema <i>et al.</i> 1991), young become independent soon after fledging (Cramp & Simmons 1983).</p>	<p>Predominant food is ground-living arthropods, especially beetles, and earthworms. A wide range of insects are taken, probably in accordance with their availability. Vegetable matter (grass leaves and weed seeds) is of minor importance (Christensen <i>et al.</i> 1996).</p> <p>Importance of earthworms is difficult to assess from stomach analyses. Lapwings feeding in Swedish farmland and grassland in April, caught earthworms in 23% of all pecks (Högstedt 1974). In Scotland, Lapwings caught 0,2 - 0,5 large earthworms and 1,5 - 2,1 other items per minute spent actively foraging (Galbraith 1989a). Apparently, earthworms are mainly important in winter and early spring.</p> <p>Young pick their food opportunistically rather than selectively. Main food items are earthworms, beetles and larvae of <i>Tipulidae</i> and <i>Stratiomyidae</i>, where water is present. Also aquatic invertebrates, especially <i>Chironomidae</i> (Galbraith 1989b, Beintema <i>et al.</i> 1991, Ausden <i>et al.</i> 2003). Small chicks probably depend mainly on the surface fauna and where available, on aquatic prey. Soil invertebrates gain importance as the chicks approach fledging age (Beintema & Visser 1994).</p>	<p>In winter, the species promptly vacates areas covered by snow or gripped by severe frost because it requires ready access to soil for feeding. Hard-weather movements may be pronounced and involve massive numbers.</p> <p>Similar phenomena occurs in Iberia during severe droughts (D.Leitão, unpub.data)</p> <p>Flocks start breaking up mid-late February, latest mid-March (Spencer 1953).</p>
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<p>Habitat requirements</p>	<p>Basic requirement is for open land, flat or gently undulating, that affords unbroken all-round view and does not impede easy walking. The Lapwing needs ready access to soil (not arid, preferably moist) with an appreciable amount of surface or subsurface prey organisms (Cramp & Simmons 1983).</p> <p>Originally, the species bred in grassy habitats (steppes, open grassland, peat bogs, moorland) where the structure of the vegetation remained short in spring because of the soil, climate and/or grazing by large herbivores. Natural sites still occupied are, e.g., coastal marshes, fens, bogs, moors and upland grasslands (to 800-1000 m).</p> <p>Forest clearance and the expansion of livestock rearing considerably increased the availability of suitable areas, and Lapwings are now widely distributed in semi-natural habitats such as meadows and pastures, where association with cattle or sheep is clearly favoured (Cramp & Simmons 1983).</p> <p>Vegetation heights below 15 cm are strongly preferred (Lister 1964, Flodin <i>et al.</i> 1990). Winter flooding improves conditions for breeding Lapwing by keeping the sward short and open and by creating suitable, wet feeding areas (Ausden <i>et al.</i> 2001).</p> <p>Lapwings frequently nest in arable land, where spring-sown fields offer suitable breeding conditions for a short period. Crop height should be below 8 cm in dense stands and 15 cm in more open crops (Glutz <i>et al.</i> 1975), although heights up to 30 cm may be tolerated in cereals (Lister 1964), particularly where the plants are unusually well-spaced.</p> <p>Small (< 5 ha) enclosed fields are avoided (Cramp & Simmons 1983). Proximity of good feeding areas for the chicks is essential; such feeding areas may be found within the field used for breeding or more frequently on adjacent grassland (Galbraith 1988, 1989a). In agricultural areas the optimum habitat may thus be a mosaic of spring-sown fields and permanent grassland (e.g. Shrubbs & Lack 1991, Petersen 1996, Wilson <i>et al.</i> 2001). Almost half of the Dutch Lapwings breed in maize fields (Schekkerman 2002).</p> <p>Outside the breeding season the species frequents a wide variety of habitats meeting its basic requirements, such as large cultivated fields, wide expanses of grassland, lake or river margins, estuaries etc. In the UK, post-breeding flocks, typically up to 500 birds, are often associated with gravel-pits or other waterbodies (Wernham <i>et al.</i> 2002). At this time of year there is often little available habitat with short vegetation suitable for Lapwings.</p> <p>Lapwings seemingly prefer cultivated areas for feeding but shift to grassland (mostly wet meadows) during cold spells (Balança 1984, Caupenne 1987), when the species may even resort to tidal mudflats (Cramp & Simmons 1983). In England they choose autumn-sown cereals, preferably those with a height of 7 to 11 cm, but at the end of winter this preference lessens or changes in favour of grassland (Gregory 1987, Mason & MacDonald 1999).</p>
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Table 1. Geographical distribution of the Lapwing during the year (EU 25 only).

Breeding	Formerly breeding (date of extinction)	Migrating (June - November & February - April)	Non-breeding visitor (October - March)
<ul style="list-style-type: none"> • Austria • Belgium • Czech Republic • Denmark • Estonia • Finland • France • Germany • Greece • Hungary • Ireland • Italy • Latvia • Lithuania • Luxembourg • Netherlands • Poland • Portugal • Slovakia • Slovenia • Spain • Sweden • United Kingdom 		<ul style="list-style-type: none"> • All EU Member States 	<ul style="list-style-type: none"> • Portugal

2. Available key knowledge

Table 2 provides a summary of the most recent, available knowledge on the distribution and trends of the breeding population of Lapwing in each of the European countries. A graph showing the development of the European breeding population in the period 1980-2002, based upon data from the Pan-European Common Bird Monitoring scheme, is included as Figure 1, which gives an image of the general trend of the population.

The wintering population of Lapwing is monitored at the annual midwinter counts in January, which are organised by Wetlands International. However, only a relatively small proportion of the population¹ is counted during these counts, as most birds winter inland where coverage is very incomplete (Thorup 2004). France has a wintering bird monitoring scheme covering all the suitable habitats (Trolliet 2007 and 2008). Winter counts are also carried out in farmland and grassland habitats in Portugal and the UK (Leitão 2006). The results of the midwinter counts during the period 1989-2002 are summarised in Fig. 2 for the NW European and the West Mediterranean areas. Few Lapwings of European origin are wintering outside these areas (e.g. Gilissen *et al.* 2002).

There is a striking discrepancy between the breeding and winter population trends (Table 2, Figs. 1 and 2), as a census was made of only a minor part of the wintering population, and the sites covered by the midwinter counts are not typical Lapwing wintering areas. Thus the trend based on the breeding counts is considered the most reliable. The apparent increase in the winter counts may reflect that an increasing proportion of the European Lapwing population winters at coastal sites, due to a deterioration of the inland habitats. Also, Gillings *et al.* (2006) found that Lapwing increases on coastal sites seemed to be a result of an eastward redistribution effect within Britain, which was more likely linked with milder winter weather than an agricultural change. A similar eastward shift along the winter isotherms has been recorded for most common species of wader in Britain (Austin & Rehfisch 2005) and in North West Europe (Maclean *et al.* in review). However, data from the French national survey show that 99% of Lapwings wintering in France are still inland (Trolliet 2007 and 2008).

Being a typical dispersed species, and with a major part of the population occurring in agricultural areas, the Lapwing is only to a minor degree linked with Important Bird Areas or Protected Sites. Therefore, tables on the occurrence of the species in IBAs/Protected areas have not been included.

A table summarising information on the National Conservation and Hunting Status of the species is included as Table 4. Apparently, statistics on annual bags of Lapwings do not exist in any of the countries where hunting is currently taking place, so the figures presented in the table are compiled from various sources. The lack of proper bag statistics in the relevant countries is a serious gap in knowledge.

¹ E.g. in France, 10% (300,000-400,000 birds in January) of the national estimate.

Table 2. European breeding population of the Lapwing *Vanellus vanellus*.

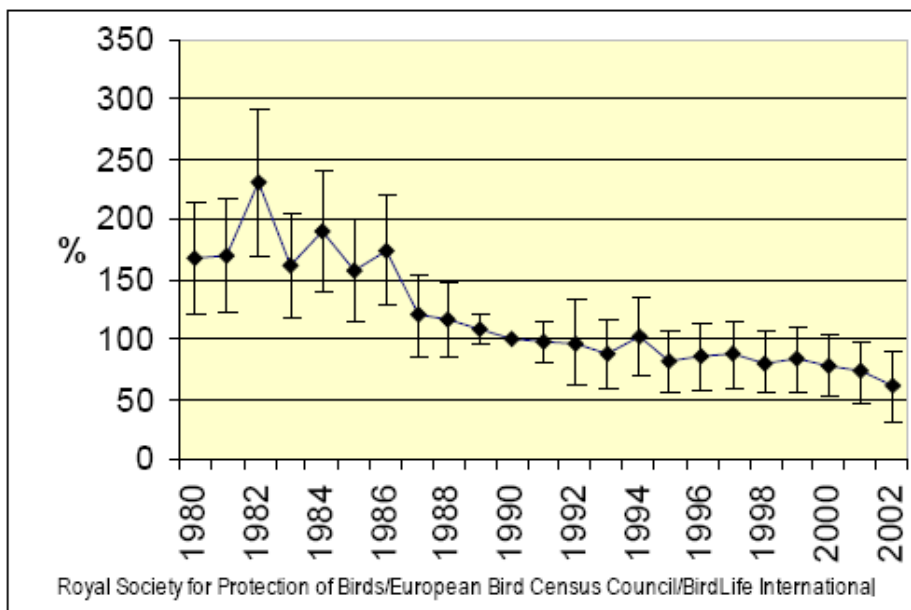
Country	Breeding pairs	Quality	Year(s) of the estimate	Breeding population trend (1990-2000)	Quality	Reference
Albania	10 - 45	2	1996 - 2002	- 0 - 19%	2	Zekhuist & Tempelman 1998, Bino 2000, BirdLife International 2004a
Armenia	350 - 850	2	1998 - 2002	–	3	BirdLife International 2004a
Austria	3,000 - 6,000	2	1998 - 2002	0	3	BirdLife International 2004a
Azerbaijan	500 - 5,000	3	1996 - 2000	0	3	BirdLife International 2004a
Belarus	100,000 - 160,000	2	1997 - 2000	- 0 - 9%	1	BirdLife International 2004a
Belgium	17,000 - 24,000	2	2001 - 2002	0	3	BirdLife International 2004a
Bosnia & Herzegovina	100 - 500	3	1960 - 1987	?	–	Thorup 2004
Bulgaria	600 - 1,000	2	1996 - 2002	+ 0 - 19%	2	BirdLife International 2004a
Croatia	4,000 - 5,000	3	2002	0	3	BirdLife International 2004a
Czech Rep.	7,000 - 10,000	1	2000	- 50 - 79%	1	BirdLife International 2004a
Denmark	30,000 - 45,000	2	1995 - 2000	- 30%	1	BirdLife International 2004a
Estonia	15,000 - 30,000	3	1998	0	2	Eltis <i>et al.</i> 2003, BirdLife International 2004a
Finland	50,000 - 80,000	2	1998 - 2002	0	2	BirdLife International 2004a
France	17,000 - 20,000	2	1998 - 2002	- 18%	3	Jiguet <i>et al.</i> 2003, BirdLife International 2004a
Georgia	Present	3	2003	?	–	BirdLife International 2004a
Germany	67,000 - 104,000	2	1995 - 1999	- 50 - 79%	2	BirdLife International 2004a
Greece	50 - 100	3	1995 - 2000	- 0 - 19%	3	BirdLife International 2004a
Hungary	93,000 - 150,000	2	1999 - 2002	- 0 - 19%	2	Szép & Nagy 2002, BirdLife International 2004a
Iceland	0 - 2	1	1990 - 2000	Fluctuating	3	Petursson <i>et al.</i> 1992, BirdLife International 2004a
Rep. Ireland	2,500 - 10,000	3	1988 - 1991	- >80%	3	BirdLife International 2004a
Italy	6,000 - 7,000	2	2003	+ 0 - 19%	2	BirdLife International 2004a Boano ,Della & Toffola (2005)
Latvia	12,000 - 15,000	2	1990 - 2000	0	3	Strazds <i>et al.</i> 1994, LOB 1998,

Country	Breeding pairs	Quality	Year(s) of the estimate	Breeding population trend (1990-2000)	Quality	Reference
						Aunins <i>sine anno</i> , BirdLife International 2004a
Liechtenstein	0 - 1	1	1998 - 2000	- 30 - 49%	1	BirdLife International 2004a
Lithuania	18,000 - 20,000	3	1999 - 2001	- 30 - 49%	3	BirdLife International 2004a
Luxembourg	20 - 30	1	1998 - 2002	- 80 - 89%	1	BirdLife International 2004a
Macedonia	50 - 150	2	1990 - 2000	Fluctuating	2	BirdLife International 2004a
Moldova	350 - 470	2	1990 - 2000	+ 20 - 29%	2	BirdLife International 2004a
Netherlands	177,000 - 266,000	1	2004	- 8%	1	SOVON 2002, Teunissen <i>et al.</i> 2002, BirdLife International 2004a Teunissen & Soldaat 2006,
Norway	40,000 - 80,000	3	1990 - 2003	- 0-19%	3	BirdLife International 2004a
Poland	100,000 - 150,000	1	2000 - 2002	- 0-19%	2	BirdLife International 2004a
Portugal	0 - 25	2	2002	New breeder	1	BirdLife International 2004a
Romania	40,000 - 60,000	3	1990 - 2002	- 0 - 19%	3	PMSC 2003, BirdLife International 2004a
Russia	600,000 - 1,100,000	2	1990 - 2000	- 20 - 29%	2	Tomkovich & Lebedeva 1998, 1999, Sviridova 2000, BirdLife International 2004a
Serbia & Montenegro	2,000 - 2,500	2	1995 - 2002	- 0 - 19%	2	BirdLife International 2004a
Slovakia	2,500 - 5,000	2	1980 - 1999	- 30 - 49%	2	BirdLife International 2004a
Slovenia	2,000 - 3,000	2	1994	0	3	BirdLife International 2004a
Spain	1,000 - 2,500	3	1998 - 2002	Fluctuating	3	BirdLife International 2004a
Sweden	50,000 - 100,000	2	1999 - 2000	0	1	BirdLife International 2004a
Switzerland	250 - 400	2	1998 - 2002	- 30 - 49%	2	BirdLife International 2004a
Turkey	10,000 - 20,000	2	2001	- 0 - 19%	2	BirdLife International 2004a
Ukraine	65,000 - 124,000	2	1990 - 2000	- 0 - 19%	2	BirdLife International 2004a
UK	137,000 - 174,000	1	2000	- 15%	1	Crick <i>et al.</i> 2004, BirdLife International 2004a
Total (approx.)	1,700,000 - 2,800,000					BirdLife International 2004a

Data quality: 1: reliable quantitative data, 2: incomplete quantitative data, 3: no quantitative data

Figure 1. Population trend 1980 - 2002 of the Lapwing *Vanellus vanellus* in Europe.²

Indices (+/- 1.96 SE), 1980 – 2002, Europe. The index for the base year (1990) is 100 %.



² Based upon monitoring data from 18 countries: Austria, Belgium, Denmark, France, Germany, Ireland, Italy, Netherlands, Spain, Sweden, UK, Estonia, Latvia, Poland, Czech Republic, Hungary, Norway and Switzerland. The apparently large fluctuations 1980-87 are probably partly accidental, due to a greater variance of data. (Reproduced from Vorisek 2004)

Figure 2. The development in the number of the Lapwing recorded at midwinter (January) counts during 1989-2002 in NW Europe and in the West Mediterranean

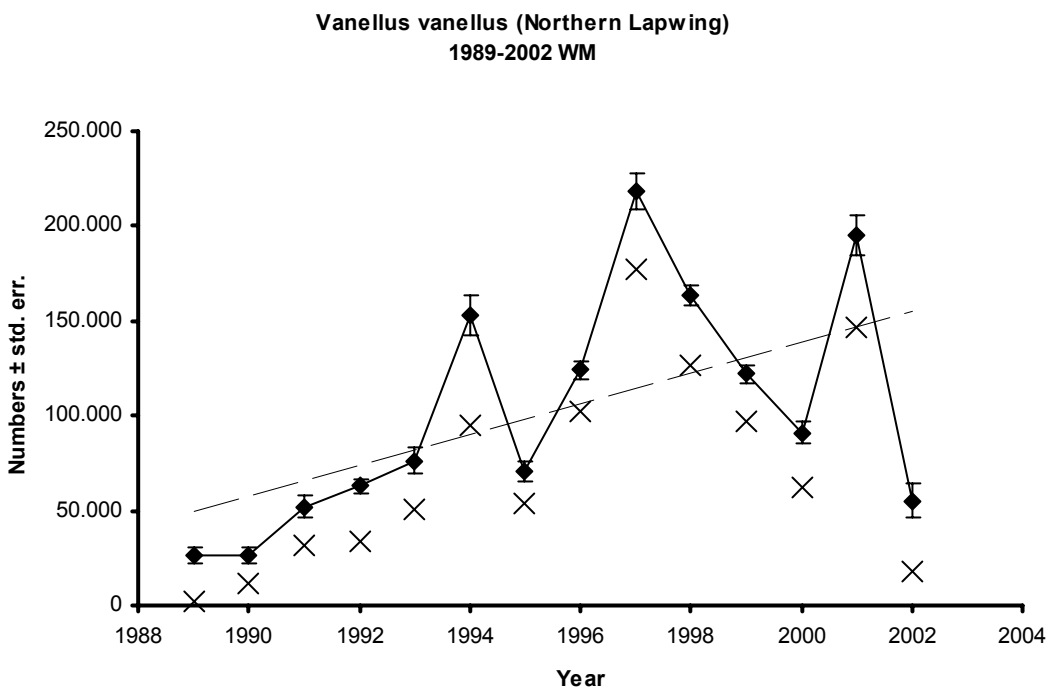
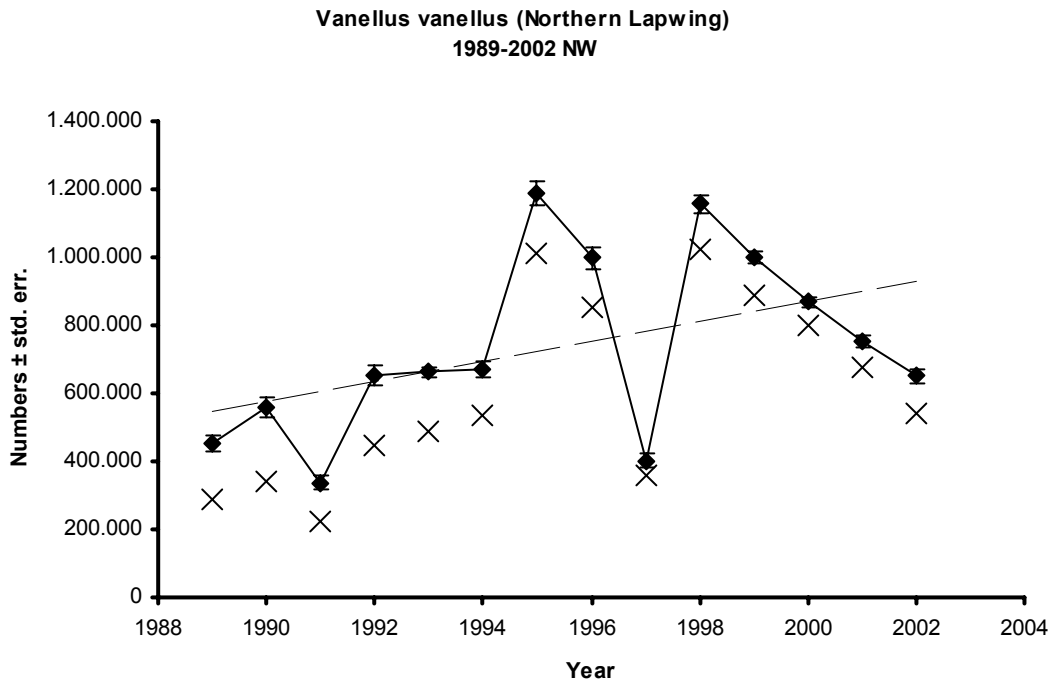


Table 3. European wintering population of the Lapwing *Vanellus vanellus*. (Only countries with supposed presence of the species in winter are included).

Country	No. of wintering birds	Year(s) of the estimate	Wintering population trend	References
Belgium	50.000 - 80.000	1999 - 2005	Stable	Devos, K. Unpubl. data
Bosnia & Herzegovina	700 - 2.000	1990-2000	Stable	Birdlife International database
Bulgaria	27 - 1.253	1997 - 2001	Fluctuating	Birdlife International database
Croatia	500 - 1.000	2002	Unknown	Birdlife International database
Cyprus	500 - 5.000	1994 - 2002	Stable	Birdlife International database
Czech republic	0 - 50	1990 - 2000	Stable	Birdlife International database
Denmark	1.000 - 2.000	1999 - 2000	Stable	Birdlife International database
Estonia	0 - 5	1998	Unknown	Birdlife International database
France	3.500.000	2007	Unknown	Trolliet 2007
Germany	2.500 - 10.000	1995 - 2000	Fluctuating	Birdlife International database
Greece	4.000 - 16.000	1995 - 1999	Fluctuating	Birdlife International database
Republic of Ireland	165.000 - 231.000	1994 - 2000	Decreasing	Birdlife International database
Italy	30.000 - 80.000	2002	Increasing	Birdlife International database
Latvia	1 - 2	1990 - 2000	Unknown	Birdlife International database
Lithuania	0 - 50	1992 - 2002	Fluctuating	Birdlife International database
Luxemburg	500 - 1.500	2002	Stable	Birdlife International database
Malta	10 - 25	1995 - 2002	Decreasing	Birdlife International database
Netherlands	95.000 - 130.000	1999 - 2001	Stable	Birdlife International database
Poland	250 - 1.000	1990 - 2000	Increasing	Birdlife International database
Portugal	200,000 - 550,000	2000-2002	Fluctuating	Leitão & Peris 2003, Leitão 2006
Romania	0 - 200	1990 - 2000	Fluctuating	Birdlife International database
Serbia & Montenegro	800 - 2.000	1990 - 2002	Fluctuating	Birdlife International database
Slovakia	0 - 1.000	1990 - 1999	Unknown	Birdlife International database
Slovenia	30 - 200	1995 - 2000	Fluctuating	Birdlife International database
Spain	100.000 - 250.000	1990 - 2001	Unknown	Birdlife International database
United Kingdom	1.600.000 - 2.100.000	1981 - 1992	Increasing	Birdlife International database Baker <i>et al.</i> 2006.

Table 4. National conservation and hunting status of the Lapwing *Vanellus vanellus* in EU countries.

Country	Status in national Red Lists	Legal protection/ hunting status	Year of protection status	Open season	Annual bag size	Highest responsible national authority
<i>Austria</i>	Near threatened	Protected		–	–	Provincial Governments
<i>Belgium</i>		Huntable in Flemish Region		None	–	Regional governments
<i>Cyprus</i>				–	–	Ministry of Interior
<i>Czech Republic</i>				–	–	Ministry of Environment
<i>Denmark</i>	Least Concern	Huntable		None	–	Ministry of Environment
<i>Estonia</i>				–	–	
<i>Finland</i>				–	–	Ministry of Environment
<i>France</i>		Huntable		15/10 - 31/01 (annual decision)	436,000 ³ c. 250,000 - 300,000 ⁴ 97,000 ⁵	Ministry of Environment
<i>Germany</i>				–	–	
<i>Greece</i>		Huntable		15/9 - 31/1 ⁶	c. 100,000 ⁷	
<i>Hungary</i>				–	–	
<i>Ireland</i>		Huntable		None	–	
<i>Italy</i>		Huntable		Oct. - 31/1	50,000 - 80,000 ⁸	

³ Trolliet & Girard 2000.

⁴ B. Trolliet 2008, *pers. Com*

⁵ Fédération nationale des chasseurs, survey 2007/08 unpublished).

⁶ In July - August the Greece Ministry of Rural Development and Food issues an annual ministerial decision about the next years hunting season. The period mentioned applies to 2005 - 2006 with a bag limit of 10 individuals per hunter per day.

⁷ The Artemis program gives indications of a far lower off take indicating an annual figure in the region of 5,700 Lapwings - Source: Hellenic hunters organisation

Country	Status in national Red Lists	Legal protection/ hunting status	Year of protection status	Open season	Annual bag size	Highest responsible national authority
<i>Latvia</i>				–	–	
<i>Lithuania</i>				–	–	Ministry of Environment
<i>Luxembourg</i>				–	–	
<i>Malta</i>		Huntable		The hunting season is determined on a yearly basis upon a recommendation of the Ornis Committee in line with Maltese legislation, namely the Conservation of Wild Birds Regulations, 2006.	130 ⁹	
<i>Netherlands</i>		Egg-collection permitted in Province Fryslân		1/3 - 1/4	Maximum of 6,700 eggs	Ministry of Agriculture, Nature Management and Food Quality
<i>Poland</i>				–	–	
<i>Portugal</i>	Least Concern	Not huntable	2000	–	–	Ministry of Environment
<i>Slovakia</i>				–	–	
<i>Slovenia</i>	Vulnerable	Protected		–	–	Ministry of Environment
<i>Spain</i>		Huntable ¹⁰		2/10 - 31/1 ¹⁰	?	
<i>Sweden</i>				–	–	

⁸ Hunting pressure has decreased because the institution of sub district hunting department (especially in north Italy) makes mobility of hunters around the territory were Lapwings are located more difficult. (FACE/Michele Sorrenti (Associazione Cacciatori Migratori Acquatici, Italy)).

⁹ Source: FKNK - average from 2002/03 till 2004/05.

¹⁰ Depending on the province.

Country	Status in national Red Lists	Legal protection/ hunting status	Year of protection status	Open season	Annual bag size	Highest responsible national authority
<i>United Kingdom</i>				–	–	DEFRA
Total					400,000 - 486,700	

*Note on French Hunting Bag

Season 1983/84	1,357,000 Lapwings (Trolliet 1986)	2,2 millions hunters
Season 1998/99	435,000 Lapwings (Trolliet <i>et al.</i> 2000)	1,5 millions hunters
Season 2004/05	Estimate: 250,000-300,000 Lapwings	1,3 millions hunters and season reduced by 60 days

Local data from the *département du Nord* in France showed that the Lapwing bag **decreased by over 80%** from 21,900 individuals in 1998-1999 to 4,039 in 2002-2003.

3. Threats

This chapter gives an overview of the threats believed to have a negative impact on Lapwing populations in the EU25 Member States. The species now has an Unfavourable Conservation Status across its European breeding range, and the major cause is thought to be agricultural intensification, affecting both arable and grassland areas.

The human activities and other threats impacting the Lapwing have been rather thoroughly studied in Western Europe, especially in the UK. A similar amount of knowledge does not exist for the East European countries. Therefore, this chapter mainly focuses on the threats known to exist in Western Europe. However, with enlargement of the EU and the adoption of the EU Agricultural Policy in the new Member States, intensification of agriculture is gaining speed over large parts of Eastern Europe. As a consequence, the threats impacting on the East European Lapwing populations will be the same as those known from Western Europe.

For each of the threats listed, the importance is assessed according to a ranking system as follows:

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.

1. Agriculture (1.1)¹¹

Agricultural intensification

The major demographic cause of the Unfavourable Conservation Status of the species is a low annual production of fledglings (Trolliet 2000, Newton 2004). This is mainly due to poor chick survival, an increased clutch failure rate and reduced possibilities of re-nesting. All of these factors are wholly or partly linked with the intensification of agriculture, which has affected both arable land and grassland. Several elements of agricultural intensification have a negative impact on Lapwing breeding success, and some of them also reduce the suitability of the areas outside the breeding season:

- Specialization and the concomitant loss of mixed farm holdings (with both arable and pastoral production) have reduced the number of areas with a mosaic of spring-sown fields and permanent grassland. Lapwings prefer to nest on spring tillage (e.g. Galbraith 1988, Berg *et al.* 2002), but soon after hatching the chicks move to permanent grassland, if available. Immediate access to pasture significantly increases chick survival (Galbraith 1988, Blomqvist & Johansson 1995).
- Spring-sown crops have been replaced by autumn-sown crops in many regions. Autumn-sown crops are almost useless as a breeding habitat for Lapwing (Shrubb & Lack 1991, Wilson *et al.* 2001).

¹¹ Numbers in brackets refer to the IUCN hierarchical classification of causes of species decline (IUCN SSC SiS Threats Authority file).

Spring cereals are a favoured breeding habitat, but high densities are also found in beets and other broad-leaved spring crops (Petersen 1996). Unlike cereals, root crops remain open and suitable for Lapwings for a long period, allowing successful re-nesting after clutch or brood failure. The area with root crops has declined, first of all because beet as a fodder crop has been replaced by maize.

- Drainage generally reduces the suitability of an area for Lapwings (e.g. Taylor & Grant 2004). A high water table retards crop growth in spring, thus keeping the vegetation height suitable for Lapwings for a longer period, and damp areas inside or adjacent to a field provide foraging sites for the chicks (Berg *et al.* 1992). Drainage of grasslands is often accompanied by increased fertilizer application and re-seeding (e.g. Newton 2004). An important danger is also caused by the form of drainage trench in which young birds could drown. The main reason for this is the form of the trenches.
- Increased amounts of fertilizer used on arable fields and grassland generally reduce their value for the Lapwing. The higher nutrient levels accelerate vegetation development, lead to more homogenous swards and make the areas unsuitable for Lapwing nesting and foraging earlier in the season. Increased fertilizer levels may also affect Lapwing chicks negatively by changing the composition of their invertebrate prey (Beintema *et al.* 1997) or impeding chick mobility (Devereux *et al.* 2004). Fertilization of grasslands allows earlier and more frequent mowing, increasing the risk of egg or chick loss.
- Increased use of pesticides causes a reduction in the amount of available Lapwing food (Hudson *et al.* 1994). The negative impact of insecticides, especially the non-selective types, is trivial, but also carbamate fungicides and some molluscicides and seed-dressings have a negative effect on, e.g., earthworm biomass (P. Granval pers. comm. to Trollet 2000). Herbicide use is known to reduce survival of Partridge chicks by removing host plants of phytophagous insects and changing the microclimate (Potts 1986); it is very probable that Lapwing chicks could be affected by a similar mechanism. Certain anti-helminthic agents, especially ivermectins, affect dung-dwelling invertebrates and may thus reduce this food resource (Vickery *et al.* 2001).
- Deep ploughing, simplified crop rotations and a reduction in the amount of manure reducing earthworm biomass (Granval *et al.* 1993, Trollet 2000). Earthworms may be a particularly important element of Lapwing diet in the pre-laying period (Högstedt 1974, Berg 1993) and may also be very important for the chicks (Beintema *et al.* 1991, Sheldon *et al.* 2004). They are also the main energetic component of winter diet.
- Increased stocking densities ensure that the vegetation is kept low, but increases the frequency of nest losses due to trampling (Beintema & Müskens 1987, Shrubbs 1990). High stocking densities also disrupt incubation schedules and increase the risk of nest predation (Hart *et al.* 2002).
- Loss of pastures (for chick rearing) due to increasing trend to keep cattle for beef production indoors.
- The spread of agricultural machinery undoubtedly has increased the number of nests being destroyed during farming operations. Such losses may be high; e.g. in Sweden, 43.5% of 870 clutches were destroyed by agricultural machinery (Berg *et al.* 1992).

Importance

The different elements of agricultural intensification typically act in concert and it is difficult to separate their effects. As a whole, the importance of agricultural intensification is set at High.

Afforestation and agricultural abandonment

Changed economic conditions render farming unprofitable in some areas, especially in the New Member States, northern Fenno-Scandia and Iberia. This results in an abandonment of arable fields and biodiversity-rich grassland systems, which may then be afforested or invaded by bushes and other kinds of tall vegetation (European Environment Agency 2004). In some regions this could cause a significant loss of high value Lapwing habitat.

In addition to the direct destruction of habitat, plantations also have an indirect, negative effect on Lapwing breeding densities (Stroud & Reed 1986, Stroud *et al.* 1990). Breeding Lapwings avoid nearby trees, because they increase their vulnerability to Crows (Flodin *et al.* 1990, Berg *et al.* 1992), foxes and mustelids.

Importance

The major trend will undoubtedly be towards agricultural intensification, and the extent of afforestation is difficult to foresee. The importance of agricultural abandonment as a threat may locally be High, but for the European population as a whole it is set at Unknown.

2. Infrastructure development (1.4)

Obviously, enlargement of human settlements and road constructions may cause a direct loss of the Lapwing habitat.

The breeding Lapwings avoid the proximity of roads. Van der Zande *et al.* (1980) and Reijnen *et al.* (1996) found that the density of Lapwing nests could be lower than expected up to 2000 m from a road and concluded that not only the distribution, but also the number of breeding pairs was affected. Conversely, Blühdorn (1998) only noticed a negative effect up to 40 m from the road. Among the Danish Lapwings, where the cause of death was known, 1.4% were killed by collision with cars (Bak & Ettrup 1982).

Power lines may also pose a threat to Lapwings. In the study of Bak & Ettrup (1982), 1.7% of the ringed Lapwings recovered (with known cause of death) were killed by collision with power lines. Furthermore, wind farms have been shown to reduce habitat available for staging and wintering Lapwings in several case studies (Hötker *et al.* 2004).

Importance

The importance of infrastructure development as a threat is set at Low.

3. Harvesting (3)

Within the EU25, harvesting of Lapwing may be permitted in eight countries, i.e. Belgium, Denmark, France, Greece, Ireland, Italy, Malta and Spain. In three of these (Belgium, Denmark and Ireland) there is at the moment no open season for the Lapwing. In addition, in one province of the Netherlands, Fryslân, up to 6,700 eggs may be harvested per year. Lapwings are also trapped in France (between 200 and 1450 per year in recent years) under derogation.

The sum of the known annual bags is c. 480,000 although recent unpublished data give lower figures (Table 4). To produce an estimate of the total hunting mortality affecting the European Lapwings, an unknown number of the Lapwings harvested in Russia and other East European countries, and probably also a small number of birds shot in northern Africa, must be added to this figure.

Most of the hunting occurs in France, Italy, Greece, and probably Spain. However, because of the Lapwing's extensive migration movements and lack of philopatry, hunting in these countries is likely to involve birds originating from all the species range (Trolliet 2000). Hunting accounted for more than 85% of recoveries in France, Ireland, Portugal and Spain, although there has been a decline in the proportion of ring recoveries attributable to hunting (Wernham *et al.* 2002).

When cold weather drives the Lapwings south from Britain and other more northerly wintering areas the impact on these populations is more severe, especially as the species is in any case prone to cold weather mortality (Wernham *et al.* 2002). In case of severe cold weather, measures are taken to stop hunting but their implementation sometimes gets in force too late and suffers from a lack of coordination.

The European breeding population totals 1.7 - 2.8 million pairs (Table 2) or 3.4 - 5.6 million birds. Assuming a mean production of 0.8 fledglings per pair and a post-fledging mortality of 8.4% (cf. the section on Survival and Productivity) would result in an annual production of 1.25 - 2.05 million juveniles. Adding these to the breeding adults, we arrive at an autumn population of 4.6 - 7.6 million birds. If mean production is only 0.5, annual production would be 0.7 - 1.3 million juveniles leading to an autumn population of 4.1 - 6.9 million birds. Using some slightly different assumptions (e.g. an annual production of one juvenile per breeding pair), Thorup (2004) estimates the autumn/winter population to be in the order of 5.5 million birds.

The beginning of the hunting seasons does not overlap with the breeding season. Because of the irregular cold weather movements, the onset of spring migration is difficult to determine. The hunting season has been recently shortened in France, a.o. in order to increase the survival of young the Lapwings.

Importance

The importance of harvesting as a threat is set at Medium.

4. Pollution (6)

Deposition of nutrients, particularly nitrogen compounds, can lead to unfavourable changes in vegetation structure and generally increase vegetation growth, to the detriment of Lapwings.

Heavy metals, e.g. lead, may concentrate in earthworms and thus are taken up by Lapwings, but the effects on survival and productivity (if any) are unknown.

The agricultural pesticides currently approved within the EU do not pose any noticeable risk of direct poisoning to the Lapwing, provided that the products are used in accordance with regulations. Indirect effects of pesticide use, i.e. effects of food depletion, may constitute an important threat (e.g. Campbell *et al.* 1997), but such effects should be viewed as part of the intensification of agriculture and are considered under that heading.

Importance

The importance of pollution as a threat is set at Unknown.

5. Predators (8.2)

Generally, predation is the most important cause of nest losses in Lapwings (Teunissen *et al.* 2005), although destruction by agricultural machinery and livestock may be more important in some habitats. The most important nest predators are corvids, foxes and mustelids and, more locally, gulls, harriers, rats, hedgehog and badger (Trolliet 2000, Evans 2004). The chicks, which are flightless for at least five weeks, undoubtedly also suffer heavily from predation. This is a natural situation to which the Lapwing population has adapted through centuries. However, anthropogenic changes in predator numbers and habitat condition may combine to make this species more vulnerable to the effects of predators than formerly in some areas due to population and range contraction. This may be because eggs or chicks of the Lapwings breeding as isolated pairs or at low densities are more likely to suffer predation, probably because there are fewer adults to communally defend their nests against predators (Stilman *et al.* 2006).

If the number of predators increases, prey populations may decline as a result. Several species of corvids and raptors (e.g. buzzards in the Netherlands) have increased across Europe within the last decades. Mammalian ground predators such as foxes and mustelids prey on Lapwing nests and have increased, at least in some areas. Fox populations have increased due to a reduced incidence of rabies in several European countries (e.g. Bellebaum 2003). Increases may also be partly due to a reduced hunting pressure (termed “decreased keeping” by some authors, e.g. Tapper 1990). The recent spread of American Mink has also the potential to reduce productivity of Lapwings in wetland areas.

Increased nest and chick predation is regarded as an important cause of the observed decline in productivity (Langgemach & Bellebaum 2005, Teunissen *et al.* 2005) and has also contributed to population declines on a local scale in some wader species, e.g. Golden Plover (Parr 1992) and Curlew (Grant *et al.* 1999). There is mounting evidence, though, that predation can be important in influencing productivity on at least a local scale (Teunissen *et al.* 2005) but it is unknown to what extent the Lapwing populations are affected, especially on a pan-European scale.

Predation locally has become a problem for the Lapwing populations because the populations are already at a very low level. Moreover, the quick growth of vegetation, the early harvest and the quick drying up of wet grasslands reduces the time available for replacement clutches (Nehls 1996). Multiple replacement clutches would be the natural reaction to high predation.

Predation on fledged birds is mainly by raptors such as *Accipiter* hawks and falcons and is probably not important (Trolliet 2000).

Besides the losses of specimen caused by agriculture, many authors name the predation on nests and chicks as a serious problem. In Great Britain it was proved that predation is current the main reason of losses. Different investigations in meadow bird areas of North Germany and the Netherlands came to similar results (Chamberlain & Crick 2003, Brandsma 2001, 2004, Koester *et al.* 2001, Koester & Bruns 2003). In some regions, preliminary result of monitoring showed that night-active mammals are the main predators (Bellebaum 2009, Eikhorst & Bellebaum 2004, Blühdorn 2004), regarding the mortality of young birds (Schoppenhorst 2004, Junker *et al.* 2004). In the Netherlands, Teunissen *et al.* (2005) showed that the main predators of chicks are the Grey Heron, the Common Buzzard, the Stoat and the Hooded Crow.

Importance

The importance of predators as a threat varies between countries and regions and is set at Medium.

6. Human disturbance (10)

Human disturbance of Lapwings on the breeding grounds mainly occurs through farming activities, which are considered under the heading of Agriculture (1). Leisure activities may locally be of importance; for example, Klimov (1998) found that human disturbance from leisure activities (together with intensified grazing and increased predation) were among the causes of a decline in the number of breeding Lapwings in his study area in Russia.

According to Trolliet (2000) the effect of human disturbance outside the breeding season has not been studied. In Portugal hunting activities (directed to other species, like Snipe and Golden Plover) can be responsible for disturbance in concentration areas during extreme dry winters (D.Leitão, unpub.data).

Importance

The importance of human disturbance as a threat is set at Local/medium.

7. Climate change

The climatic change in recent years has resulted in dry winters in parts of southwest EU. In Portugal these changes are believed to be potentially responsible for a long-term decrease in the capacity to support wintering Lapwings because of food scarcity and higher competition. In dry years the flocks of wintering Lapwing in Portugal are generally smaller, the feeding activity higher and night feeding is more common (M. Nunes & D. Leitão in litt.).

Importance

The importance of climate change as a threat is set as unknown.

4. Policies and legislation relevant for management

The Lapwing mainly occurs in agricultural areas. Therefore, management of the Lapwing habitat is intimately linked with national and international agricultural policy and legislation, the most important of which is the Common Agricultural Policy of the EU. A detailed account of the relevant agricultural legislation is beyond the scope of this Management Plan. See http://ec.europa.eu/agriculture/index_en.htm for an overview of the Community legislation on the Common Agricultural Policy.

Table 5. *International conservation and legal status of the Lapwing *Vanellus vanellus*.*

World Status ¹⁾ (Criteria)	European Status ²⁾	SPEC category ³⁾	EU Birds Directive Annex	Bern Convention Annex	Bonn Convention Annex	African-Eurasian Migratory Waterbird Agreement	Convention of International Trade on Endangered Species
Not listed	Vulnerable	2	II/2	Appendix III	Appendix II	B 2c	Not listed

¹⁾ BirdLife International/IUCN Red List assessment.

²⁾ BirdLife International 2004a.

³⁾ BirdLife International 2004a. – SPEC 2: Species whose world populations are concentrated in Europe and which have an unfavourable conservation status in Europe.

Member States / Contracting parties obligations

Lapwing is listed on Annex II/2 of the EU Birds Directive, which implies that the species may be hunted only in those Member States, which have specifically indicated that hunting of the species can be allowed, i.e. Belgium, Denmark, Greece, Spain, France, Ireland, Italy and Malta.

Lapwing is listed on Appendix III of the Bern Convention, which implies that any exploitation of the species shall be regulated in order to keep the populations out of danger. Measures shall include (1) closed seasons and/or other procedures regulating the exploitation, (2) the temporary or local prohibition of exploitation in order to restore satisfactory population levels and (3) the regulation as appropriate of sale, keeping for sale, transport for sale or offering for sale of live and dead birds.

Lapwing is listed on Appendix II of the Bonn Convention, which implies that Range States shall endeavour to conclude Agreements where these would benefit the species, giving priority to species in an Unfavourable Conservation Status.

Lapwing is listed under Column B 2c of the African-Eurasian Migratory Waterbird Agreement, which is used for populations numbering more than 100,000 individuals that are considered to be in need of special attention as a result of significant long-term decline.

National policies, legislation and ongoing activities

The national conservation and legal status of the Lapwing is shown in Table 4. Table 6 presents important national management and restoration projects, which benefit the Lapwing at specific sites, and also includes a brief overview of important national support schemes (e.g. agri-environment schemes) benefiting the Lapwing in the wider countryside.

Table 6. Brief overview of current support schemes, management measures and restoration projects, which benefit the Lapwing *Vanellus vanellus* in Member States.

MEMBER STATE	SCHEME / PROJECT	YEAR(S)	MONITORING OF RESULTS
Austria	Re-establishment of extensive grazing in National Park Neusiedler See	Continuous	Yes
	Wet-meadow management along Leitha river in Burgenland	Continuous	Not systematically
	Conservation & Management of alluvial grassland along river March in Lower Austria	Continuous	In parts
	Management of wet meadows in several parts of upper Austria	Continuous	yes
	Conservation & Management of wet meadows in parts of Rhine valley in Vorarlberg	Continuous	yes
Belgium	Local benefits from habitat restoration in favour of meadow birds in general, meadow bird natural reserves		
France	Agro-environmental schemes for breeding waders in Vendée (Marais poitevin and Marais breton)		
Netherlands	Agro-environmental schemes (incl. Nest protection, wader scratches, fallow land, late grass cutting)	From 1993	yes
Portugal	None		
United Kingdom	Agri-environmental schemes: <ul style="list-style-type: none"> - Countryside Stewardship - Environmental Sensitive Area - Environmental Stewardship Higher Level Scheme RSPB Demonstration Lapwing Recovery projects	2006	No No Yes Yes

5. Framework for Action

Priority statement/evaluation

The global population of the Lapwing is concentrated in Europe, where the species is still widespread and fairly common across most of its breeding range. While its natural habitat has been encroached upon by man for centuries, the spread of farming has opened new areas for the species. Until around 1990, the European breeding population was probably almost stable, population declines in many intensively farmed areas being counterbalanced by continued expansion elsewhere. Since 1990, however, significant declines have been reported from most of the species' range, and the European Lapwing population underwent a large decline (> 30%) overall (BirdLife International 2004a, Vorisek 2005). Hence, the species is now evaluated as Vulnerable.

The available demographic data indicate that the population decline is mainly caused by an insufficient production of fledglings, due to an increased clutch failure rate, reduced possibilities of re-nesting and poor chick survival. There can be little doubt that the main reason for this is agricultural intensification, which has affected – and is still affecting – almost all of the species' range.

Classical, site-based conservation measures are of little value in a dispersed species like the Lapwing. Instead, conservation efforts must address the general deterioration of the agricultural landscape (and the associated semi-natural habitats) as a breeding, staging and wintering habitat for the Lapwing. Recent changes to the EU Common Agricultural Policy offer improved opportunities for this, e.g. through increased support for agri-environment schemes. It is, however, extremely important that such incentives are available across the wider countryside and are not restricted to areas within the Natura 2000 network. Integral to such incentive schemes should be the monitoring of implementation to ensure enforcement and refinement of prescriptions on the ground.

Given the alarming situation of the species in some regions, reserves especially managed for Lapwings and other meadow birds will continue to play an important role in the conservation of the species.

Hunting of the Lapwing currently takes place in five EU countries (France, Spain, Italy, Malta and Greece). Proper bag statistics apparently do not exist but the available data suggest an annual European harvest in the order of half a million Lapwings. However a great uncertainty remains on bag statistics, an annual harvest of half a million birds would be a maximum as recent unpublished data are lower. There is an urgent need to better evaluate the hunting harvest.

Predation on eggs and chicks is high, and increased predation rates may further have contributed to the population decline. Consequently, habitat management is a key element to restore the species to a favourable conservation status.

Purpose of the Management Plan

Recognizing that the Lapwing has an Unfavourable Conservation Status in Europe due to a large, ongoing decline (BirdLife International 2004a), the goal (long-term objective) of this plan is:

To restore the Lapwing to a Favourable Conservation Status in Europe¹.

The fate of the Lapwing in the EU is inseparably linked with the Common Agriculture Policy, and a reversal of the population trend is unlikely to occur before Lapwing-friendly management options have been implemented on a large scale for some years in a majority of EU Member States holding important Lapwing populations. Furthermore, hunting has an influence on the survival rate which can not be properly assessed now. Recognizing this, the purposes (short-term objectives) of the Management Plan are:

- i. To put into force regulations, incentives and other initiatives that will contribute to restoring the Lapwing to a Favourable Conservation Status in Europe
- ii. To collect more robust data on key population parameters such as population size, trends, productivity and survival (including proper bag statistics in order to inform any proposal concerning harvesting).

Results for the period 2009-2011

This section outlines the results to be achieved during the first 3-year period of Lapwing management within the EU. The results outlined below (and the corresponding activities in Part 6) are targeted at the authorities responsible for the implementation of the provisions of the Birds Directive in the Member States *and* at the authorities responsible for the implementation of the agri-environment schemes under the Common Agricultural Policy. The results aim initially to address the most urgent issues in order to safeguard the Lapwing population in the EU, but at the same time to restrict the corresponding activities to be carried out during the 3-year period to a fairly realistic level.

The numbering of the results represents a logical sequence and does not indicate priority, which is given in Tables 7 and 8. In the Logical Framework Analyses (LFA) table (Table 9), the results with corresponding activities, verifiable indicators, means of verification and assumptions are summarized. It is the responsibility of the relevant authorities of each Member State to decide how to implement the management prescriptions of this plan.

¹ The EU Habitats Directive (92/43/EEC) states that a species' conservation status will be taken as Favourable when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its population on a long-term basis.

It is anticipated that this first Management Plan will be followed by versions with revised objectives that take into account the results achieved during the first phase, as well as other new information etc.

Policy and legislative actions

Agriculture

As described in Part 3, agricultural intensification – and to a minor degree agricultural abandonment – reduce the suitability of farmland as a habitat for Lapwing in different ways. Due to the dispersed nature of the species, these threats can only be effectively addressed through the Common Agricultural Policy (Pillar II, agri-environment schemes). It is vital for the recovery of the Lapwing population that support for management through these schemes is generally available to farmers and is not restricted to Natura 2000 sites.

The major threats from agricultural intensification that this Management Plan must address are:

- Loss of areas with a mosaic of spring-sown crops and permanent grassland,
- Loss of areas with spring cereals and root crops,
- Loss of damp areas inside or adjacent to fields,
- Abandonment of grazing or, where grazing still occurs, increased stocking densities,
- Increased fertilization of grasslands,
- Increased use of pesticides, incl. anti-helminthic treatments,
- Timing of agricultural operations that is incompatible with successful breeding like intensive grass cutting.

Conversion to organic farming (which is often mixed), addresses most of these issues, and organic farmland is known to hold higher densities of the Lapwing than conventional farmland (Braae *et al.* 1988). However, where the Lapwings choose to breed on arable fields, breeding success on organic farms may be extremely poor, due to repeated mechanical weeding (Petersen unpubl.), effectively making these areas act as a population sink. Due to the great potential for the Lapwing at organic farms, displacement of farming operations to create a “Lapwing breeding window” should be encouraged.

Results of the implementation of this Management Plan should therefore be that by 2011:

- (1) Incentives exist for retaining and restoring pastoral pockets in arable areas and are taken up by farmers in all Member States with breeding or wintering Lapwing.
- (2) Incentives exist for sowing crops in spring instead of in autumn and are taken up by farmers in all Member States with breeding Lapwing.
- (3) Incentives exist for retaining and restoring damp or wet areas inside or adjacent to fields and are taken up by farmers in all Member States with breeding or wintering Lapwing.

- (4) Incentives exist for extensification of grassland management (e.g. through less effective drainage, low or no input of fertilizer/manure) and are taken up by farmers in all Member States with breeding or wintering Lapwing.
- (5) Incentives exist for maintaining and restoring extensive grazing regimes and are taken up by farmers in all Member States with breeding or wintering Lapwing.
- (6) Incentives exist for using low or no input of pesticides and biocides and are taken up by farmers in all Member States with breeding or wintering Lapwing.
- (7) For organic farming, incentives exist for omitting mechanical weeding, rolling and similar operations between 10 and 60 days after sowing of spring cereals or root crops.
- (8) Special efforts to improve the breeding success are made in Member States where Lapwings breed and are hunted.

These measures will benefit not only the Lapwing but also several other species breeding in the same areas that have similar habitat requirements or take advantage of the Lapwings' effective predator defence (Eriksson & Götmark 1982).

Harvesting

Article 7 (4) of the Birds Directive requires that hunting complies with the principles of wise use and ecologically balanced control of the species of birds concerned. Likewise, Article 7 of the Bern Convention obliges Contracting Parties to take appropriate measures to ensure that any exploitation of the species concerned is regulated in order to keep the populations out of danger, including the temporary or local prohibition of exploitation in order to restore satisfactory population levels.

Since 1990, a large decline in the European population of Lapwing has occurred, and the species is now considered Vulnerable. Although good data on the number of Lapwings harvested in the EU are lacking, the available estimates of the bag size suggest that the annual harvest amounts to less than 9% of the autumn population together with up to 6,700 eggs in the Netherlands (less than 1% of the national egg production).

Considering the Unfavourable Conservation Status and the ongoing population decline, the impact of hunting, trapping and egg-harvesting must be assessed carefully. Up-to-date and validated bag statistics will be necessary by 2011 in order to assess whether hunting is sustainable or whether hunting restriction would be appropriate. In the absence of such proper data by 2011, it would be difficult to assess that hunting is sustainable and a hunting ban should be considered.

A result of the implementation of this Management Plan should therefore be that by 2011:

- (9) Reliable bag statistics are available and hunting/trapping pressure is estimated.
- (10) Necessary restrictions on hunting are taken until 2011 in certain regions or Member States if there are clear evidences of excessive local hunting pressure.
- (11) Awareness-raising campaigns exist on the conservation status and decrease of Lapwing population targeted at Lapwing hunters.

Predators

Natural predation on Lapwing eggs and chicks is high, the main predators being raptors, corvids, foxes and mustelids. Increased predation rates may have contributed to the decline or extinction of local populations, but it is unknown to what extent the Lapwing population has been affected on a European scale. Habitat management that improves the conditions for predators in the Lapwing breeding areas should be avoided. In addition, nests may be less well concealed and therefore more vulnerable to predation where intensive livestock management causes grass swards to become uniformly short (Baines, D. 1990). Management to create a heterogeneous habitat to benefit the Lapwing should be considered.

A result of the implementation of this Management Plan should therefore be that by 2011:

- (12) In areas with breeding Lapwings, measures shall be taken to minimize predation as appropriate.

Research and monitoring

Adequate population monitoring and an understanding of factors that contribute to population dynamics are essential to management of wildlife populations. It is impossible to judge at what level hunting and egg harvesting of the Lapwing in the EU may be sustainable if the size of the breeding population and the population development are not reasonably well known.

Breeding populations of common, dispersed species such as the Lapwing can only be the subject of total counts within very limited areas. Therefore, assessment of population size and trends must rely on random sampling techniques such as point counts. National Common Bird Census programmes exist in many Member States but not in all. Also taking into account that population trends of farmland birds (including the Lapwing) are among the indicators selected for monitoring the integration of environmental concerns into the CAP (European Environment Agency 2006), a national monitoring programme should be initiated in those Member States where such a programme is currently lacking. Such programmes should ensure a representative coverage of all regions and habitats, including agricultural land, especially in view of the increasing trend in many countries (e.g. Slovenia) for the Lapwings to breed in arable fields (Tome 1998, Ales 2005).

The low number of fledglings produced per territory and year seems to be the most important single demographic factor hindering a recovery of the European population of the Lapwing. Whereas hatching success and causes of egg losses have been the subject of many studies, less is known about fledging success and causes of chick loss. It is important that further studies on this are carried out to improve knowledge on overall fledging success and the relative importance of chick starvation and predation under different management regimes.

A result of the implementation of this Management Plan should therefore be that by 2011:

- (13) A suitable, national programme for monitoring breeding populations of common farmland birds exists in all Member States with breeding Lapwing.

- (14) A study of the Lapwing fledging success and causes of chick loss under different management regimes has been carried out in at least two Member States representing different biogeographic regions.
- (15) A suitable, national programme for monitoring wintering populations of the Lapwing is developed for Member States with more than 100,000 wintering Lapwing.
- (16) A study to determine means of habitat management that minimise predation rates are carried out in Member States with important breeding populations.

6. Activities

Table 7. *Actions to be taken in all countries in the EU where harvesting of Lapwing Vanellus vanellus is allowed or may be allowed.*

Result	Priority	National activities	Time scale	Means of verification
Special efforts to improve the breeding success are made in Member States where the Lapwings breed and are hunted.	High	Member States where Lapwing is hunted encourage hunters to take initiatives to manage breeding habitats in a favourable way (e.g. agro-environmental measures).	Short	Reports and/or websites presenting results of the initiatives.
Reliable bag statistics are available and hunting/ trapping pressure is estimated.	Medium	Ensure that an effective scheme to collect reliable bag data is implemented.	Short	Publication/website with official bag statistics in member states available by 2011.
Necessary restrictions on hunting are taken until 2011 in certain regions or Member States if there are clear evidences of excessive local hunting pressure.	Medium	A temporary, national or local ban has been settled in certain Member States where appropriate.	Short	Publication/website of regional or national restrictions on hunting. Report to Ornis Comitee by national delegates.
Awareness-raising campaigns exist on the conservation status and decrease of Lapwing population targeted at Lapwing hunters.	Medium	Awareness-raising campaigns are launched.	Short	Leaflets, press releases, conferences, etc.

The **Priority** of each Result is given, according to the following scale:

- Essential: an action that is needed to prevent a large decline in the population, which could lead to species or subspecies extinction.
- High: an action that is needed to prevent a decline of more than 20% of the population in 20 years or less

- Medium: an action that is needed to prevent a decline of less than 20% of the population in 20 years or less
- Low: an action that is needed to prevent local population declines or which is likely to have only a small impact on the population across the range.

The **Time scales** attached to each Activity use 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: an action that is currently being implemented and should continue.
- Completed: an action that was completed during the preparation of the Management Plan.

Table 8. *Actions to be taken in all countries in the EU with breeding or wintering Lapwing Vanellus vanellus (the scale for priority and the time scale are given below the table).*

Result	Priority	National activities	Time scale	Means of verification
Incentives for retaining and restoring pastoral pockets in arable areas exist and are taken up by farmers.	Essential/High	Ensure that incentives for retaining and restoring pastoral pockets in arable areas are taken up by all farmers.	Short	National statistics of agricultural land use. National reports to EU Commission (DG Agri) on agri-environment schemes.
Incentives for sowing crops in spring instead of in autumn exist and are taken up by farmers.	Essential/High	Ensure that incentives for sowing crops in spring instead of in autumn are available to all farmers. (Member States with breeding Lapwing only)	Short	National statistics of agricultural land use. National reports to EU Commission (DG Agri) on agri-environment schemes.
Incentives for retaining and restoring damp or wet areas inside or adjacent to fields exist and are taken up by farmers.	Essential/High	Ensure that incentives for retaining and restoring damp or wet areas inside or adjacent to fields are available to all farmers.	Short	National reports to EU Commission (DG Agri) on agri-environment schemes.
Incentives for extensification of grassland management (e.g. through less effective drainage, low or no input of fertilizer/manure) exist and are taken up by farmers.	High	Ensure that incentives for extensification of grassland management (e.g. through less effective drainage, low or no input of fertilizer/manure) are available to all farmers.	Short	National reports to EU Commission (DG Agri) on agri-environment schemes.

Result	Priority	National activities	Time scale	Means of verification
Incentives for maintaining and restoring extensive grazing regimes exist and are taken up by farmers.	High	Ensure that incentives for maintaining and restoring extensive grazing regimes are available to all farmers.	Short	National reports to EU Commission (DG Agri) on agri-environment schemes.
Incentives for using low or no input of pesticides and biocides exist and are taken up by farmers.	Medium	Ensure that incentives for using low or no input of pesticides and biocides are available to all farmers.	Short	National statistics of agricultural pesticide and biocide use. National reports to EU Commission (DG Agri) on agri-environment schemes.
For organic farming, incentives exist for omitting mechanical weeding, rolling and similar operations between 10 and 60 days after sowing of spring cereals or root crops.	Medium	Ensure that incentives for omitting mechanical weeding, rolling and similar operations between 10 and 60 days after sowing of spring cereals or root crops in organically farmed areas are available to all farmers.	Short	National reports to EU Commission (DG Agri) on agri-environment schemes.
A suitable, national programme for monitoring breeding populations of common farmland birds, including Lapwing, exists.	Medium	Ensure that a suitable, national programme for monitoring breeding populations of common farmland birds exists. (Member States with breeding Lapwing only)	Short	Reports and/or websites presenting results of the program.
Measures are taken to minimize predation in breeding areas as appropriate.	Medium	Member States where predation entails a threat support effective management actions to reduce it.	Short	Reports and/or websites presenting results of the program.

Result	Priority	National activities	Time scale	Means of verification
A study of the Lapwing fledging success and causes of chick loss under different management regimes has been carried out in at least two Member States representing different biogeographic regions.	Medium	Initiate and/or support a study of Lapwing fledging success and causes of chick loss under different management regimes. (Member States with breeding Lapwing only).	Medium	Study reports or scientific papers available.
A suitable, national programme for monitoring wintering populations of the Lapwing is developed for Member States with more than 100,000 wintering Lapwing.	Medium	Ensure that a suitable programme for monitoring wintering Lapwing is developed.	Short	Monitoring program available.
A study to determine means of habitat management that minimise predation rates are carried out in Member States with important breeding populations.	Medium	Member States support research programmes aimed to study habitat management that minimise predation.	Short	Study reports or scientific papers available.

The **Priority** of each Result is given, according to the following scale:

- Essential: an action that is needed to prevent a large decline in the population, which could lead to species or subspecies extinction.
- High: an action that is needed to prevent a decline of more than 20% of the population in 20 years or less
- Medium: an action that is needed to prevent a decline of less than 20% of the population in 20 years or less
- Low: an action that is needed to prevent local population declines or which is likely to have only a small impact on the population across the range.

The **Time scales** attached to each Activity use 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: an action that is currently being implemented and should continue.
- Completed: an action that was completed during the preparation of the Management Plan.

Table 9. Summary of objectives/results and activities of the Lapwing *Vanellus vanellus* Management Plan 2009-2011.

DESCRIPTION	VERIFIABLE INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
<p>Goal: To restore the Lapwing to a Favourable Conservation Status in Europe.</p> <p>Purposes: To put into force regulations, incentives and other initiatives that will contribute to restoring the Lapwing to a Favourable Conservation Status in Europe.</p> <p>To collect more robust data on key population parameters such as population size, trends and productivity. (including proper bag statistics)</p>	<p>The European Lapwing population is restored to a Favourable Conservation Status.</p> <p>Regulations, incentives and other initiatives put into force.</p> <p>Monitoring programmes and studies are initiated and/or supported</p>	<p>The European Threat Status classification of Lapwing.</p> <p>Report to ORNIS Committee by national delegates no later than 2011.</p> <p>Report to ORNIS Committee by national delegates no later than 2011.</p>	<p>Key elements responsible for the negative population development of the Lapwing have been identified and addressed in the Management Plan.</p> <p>Member States have adequate resources and commitment to take responsibility for Lapwing management in accordance with the requirements of the Birds Directive.</p>
<p>Results 2009-2011:</p> <ol style="list-style-type: none"> Incentives exist for retaining and restoring pastoral pockets in arable areas and are taken up by farmers in all Member States with breeding or wintering Lapwing. Incentives exist for sowing crops in spring instead of in autumn and are taken up by farmers in all Member States with breeding Lapwing. Incentives exist for retaining and restoring damp or wet areas inside or adjacent to fields and are taken up by farmers in all Member States with breeding or wintering Lapwing. Incentives exist for extensification of grassland management and are taken up by farmers in all Member States with breeding or wintering Lapwing. 	<ol style="list-style-type: none"> Incentives are taken up, and by 2011 the area of pastoral pockets in arable areas is higher than in 2005 in all Member States with breeding or wintering Lapwing. Incentives are taken up, and by 2011 the percentage of spring-sown crops is higher than in 2005 in all Member States with breeding Lapwing. Incentives are taken up, and by 2011 the area of damp or wet areas inside or adjacent to fields is higher than in 2005 in all Member States with breeding or wintering Lapwing. Incentives are taken up, and by 2011 the percentage of grassland that is managed extensively is higher than in 2005 in all Member States with breeding or wintering Lapwing. 	<ol style="list-style-type: none"> National statistics of agricultural land use and national reports to EU Commission on agri-environment schemes. National statistics of agricultural land use and national reports to EU Commission on agri-environment schemes. National reports to EU Commission on agri-environment schemes. National reports to EU Commission on agri-environment schemes. 	<p>(1-7): Incentives are contained within the Common Agricultural Policy.</p> <p>Member States have the commitment to make the incentives available and attractive to farmers.</p> <p>Incentives are available across the wider countryside; i.e. they are not restricted to Natura 2000 sites.</p> <p>Adequate resources are available.</p>

DESCRIPTION	VERIFIABLE INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
5. Incentives exist for maintaining extensive grazing regimes and are taken up by farmers in all Member States with breeding or wintering Lapwing.	5. Incentives are taken up, and by 2011 the percentage of pasture under extensive grazing regimes is higher than in 2005 in all Member States with breeding or wintering Lapwing.	5. National reports to EU Commission on agri-environment schemes.	Farmers have a positive attitude towards the incentives.
6. Incentives exist for using low or no input of pesticides and biocides and are taken up by farmers in all Member States with breeding or wintering Lapwing.	6. Incentives are taken up, and by 2011 the amount of pesticides and biocides used in areas covered by the schemes are lower than in 2005 in all Member States with breeding or wintering Lapwing.	6. National statistics of agricultural pesticide and biocide use and national reports to EU Commission on agri-environment schemes.	
7. For organic farming, incentives exist for omitting mechanical weeding, rolling and similar operations between 10 and 60 days after sowing of spring cereals or root crops.	7. Incentives are taken up, and by 2011 farming operations in spring crops have been displaced to create a “Lapwing breeding window” on a significant number of organic farms in all Member States with breeding Lapwing.	7. National reports to EU Commission on agri-environment schemes.	
8. Special efforts to improve the breeding success are made in Member States where Lapwings breed and are hunted.	8. Significant field initiatives are taken up by hunters	8. No later than 2011, reports and/or websites present results of field initiatives.	8. Landowners understand and accept that ensuring wader breeding success is a priority issue.
9. Reliable bag statistics are available and hunting/ trapping pressure is estimated.	9. National bag reporting scheme developed and data on annual number of the Lapwing shot/ trapped is collected in the EU.	9. Publication/ web-site with official bag statistics in relevant Member States available.	
10. Necessary restrictions on hunting are taken until 2011 in certain regions or Member States if there are clear evidences of excessive local hunting pressure.	10. Decided restrictions on hunting are implemented.	10. Publication/ websites in relevant Member States available.	10 & 12. Relevant authorities have adequate commitment to take responsibility for Lapwing management in accordance with the Birds Directive and the Bern Convention.
11. Awareness-raising campaign exists on the conservation status and decrease of Lapwing population targeted at Lapwing hunters.	11. By 2011 awareness-raising campaigns targeted to Lapwing hunters have been carried out.	11. Documents, publications/ websites rising awareness are available.	
12. In areas with breeding Lapwings, measures are taken to minimize predation as appropriate.	12. Management actions to reduce predation no later than 2011 have been implemented where appropriate.	12. Paper/ reports documenting measures on predation are available by 2011.	11. Farmers have a positive attitude towards the information.
13. A suitable, national programme for monitoring breeding populations of common farmland birds exists in all Member States with breeding Lapwing	13. No later than 2011, a national programme for monitoring breeding populations of common farmland birds is running in all Member States with breeding Lapwing.	13. No later than 2011, reports and/or websites present results of a monitoring programme.	13. Adequate financial resources and manpower are available in Member States.
14. A study of the Lapwing fledging success and causes of chick loss under different management regimes has been carried out in at least two Member States representing	14. Studies are initiated and/or supported.	14. By 2011, study reports or scientific papers are available from each study.	14. Adequate resources and scientific personnel are available.

DESCRIPTION	VERIFIABLE INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
<p>different biogeographic regions.</p> <p>15. A suitable, national programme for monitoring wintering populations of the Lapwing is developed for Member States with more than 100,000 wintering Lapwing.</p> <p>16. A study to determine means of habitat management that minimise predation rates are carried out in Member States with important breeding populations.</p>	<p>15. Programme is available by 2010.</p> <p>16. Studies on best management options supported by Member States at Lapwing breeding habitats.</p>	<p>15. No later than 2011, reports and/or websites present results of a monitoring programme.</p> <p>16. Papers and reports produced documenting new information.</p>	<p>15 & 16. Adequate financial resources and manpower are available in Member States.</p>

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