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Mortality of migratory birds caused by hunting in Europe: bag statistics and proposals for the conservation of birds and animal welfare

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Projects which collect information on hunting bags are an important means of assessing the sustainability and impact of hunting on wild bird populations. Although more than 80 species of birds can be legally hunted within the framework of the EU directive for the protection of birds, no European-wide monitoring scheme exists for the collection and analysis of information on the numbers of huntable birds shot annually. The aim of this study was to collect all available data on bird hunting statistics from the 25 member states of the EU, and additionally Switzerland and Norway, and to assess the number of individuals killed per species, country and year. The total number of active hunters in the 27 countries covered by this study is some 6.8 million individuals. Organisations and authorities in the study area were contacted and intensive searches on the internet and in libraries were undertaken. By the date of the first submission of this article (15.9.2005) a total of 81.5 % (n = 571) of all potential single bag returns (n = 705) of the bird species listed in Annex II of the directive was collated and analysed. The minimum estimate of the number of wild birds hunted in the 27 countries covered by the analysed data is 101,900,720 individuals including 243,885 geese, 7,433,972 ducks, 33,535,603 fowl like birds (*Galliformes*), 4,103,493 waders, 94,636 gulls, 391.148 rails, 18,606,498 doves and 37,371,845 passerines (including corvids). The total bag figures for all 82 bird species listed in Annex II of the Birds Directive are presented and discussed. Direct and indirect effects of hunting, such as hunting of migratory species or species with an unfavourable conservation status, the unknown numbers of injured individuals, or the effects of disturbance and the use of lead shot were discussed in the context of estimated hunting activity. The available data was insufficient to determine whether or not hunting is a decisive factor responsible for population decline. Nevertheless, the results presented in this study show that hunting is an important mortality factor for many migratory and resident bird species in Europe. It can be assumed that hunting accelerates the current decline of a number of species with unfavourable conservation status such as Lapwing, Garganey, Skylark, Quail, Turtle Dove or Jack Snipe.

Keywords: hunting, migratory birds, hunting bags, mortality, conservation, threatened birds, European Union, Birds Birective

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1 Introduction

According to BIRDLIFE INTERNATIONAL (2004), more than 200 of the some 500 bird species that breed or overwinter in Europe are in an "unfavourable state of conservation". The dramatic decline of many species to some extent presents a serious danger to the preservation of biological diversity and threatens the balance of nature in Europe. Increasing use of the countryside, intensive farming, the use of environmentally damaging chemicals, disturbance and persecution by man are for many species the fundamental threat factors in breeding grounds (HAGEMEIJER & BLAIR 1997, GATTER 2000, BAUER et al. 2002). Migrating bird species also suffer from further limiting factors along the migration routes and in their winter quarters such as drought in Sahel (BERTHOLD 1973, SZÉP 1993), use of biocides in the African overwintering regions (MULLIÉ et al. 1989, BÜHLER 1991), destruction of and change to rest areas (GATTER 2000) and hunting, trapping and poaching along the migration routes (MASSA & BOTTONI 1989, GIORDANO 1991, MAGNIN 1991, GIORDANO et al. 1998, LINDELL & WIRDHEIM 2001, TÖNNIS 2001). A clue to the importance of threat factors outside breeding grounds is provided by the observation that the populations of long-distance migrants have noticeably declined to a greater degree than those of short-distance migrants (BERTHOLD 1990, BAUER & BERTHOLD 1997, BRANDT & NAGEL 1999, WEGGLER & WIDMER 2001).

The role of hunting in connection with migrant bird species decline is a much discussed subject, where the attitudes of bird and nature conservationists are very much at odds with those of the hunters. As NOWAK (1975) has already commented, a sober analysis of the (shooting) figures is often more useful than the emotionally charged discussion between exploiters and protectors, which is more often the case. Although this truth has now been self-evident for 30 years, precise mortality rates for hunting victims have only been published for a small number of species or species groups (NOWAK 1975, BERNDT & WINKEL 1977, MOOIJ 1995, AEBISCHER 1997, MOOIJ 1999, BARBIER 2001, BOUTIN 2001, SCHRICKE 2001, 2002, GUYOMARCH 2003, KALCHREUTER 2003, TROLLIET 2003, MOOIJ 2005). The main reason for this is that migrating birds overfly a large number of countries with, in some cases, greatly varying hunting structures. Within the European Union, some of the member countries publish full hunting bag figures on a national basis either annually or at regular intervals. Often, however, only incomplete data or estimates of the annual take of birds are available (NOWAK 1975, EU COMMISSION 2003b, AEBISCHER et al. 2003, HARRADINE 2003). In spite of these data gaps, the laws of numerous EU states still permit the hunting and trapping of species such as Skylark, Lapwing, Curlew, Black-tailed Godwit, Taiga Bean Goose, Garganey, Pintail, Snipe, Quail or Turtle Dove, the European populations of which have declined to an alarming extent in the past few decades (HAGEMEIJER & BLAIR 1997, BAUER et al. 2002, BIRDLIFE INTERNATIONAL 2004, EU COMMISSION 2005, HEINICKE et al. 2005). In 1997, the EU Commission decided to develop management plans for 22 European huntable species with unfavourable conservation status (Tab. 5, EU COMMISSION 2003a). An indispensable basis for such management plans is the best possible knowledge of the reasons for population decline and mortalities due to hunting in breeding grounds and on migration routes.

When questioned on the influence of hunting on bird populations, European hunting organisations often maintain that the hunting of migratory birds is a sustainable form of the use of natural resources, which has no negative effect on the population development of the hunted species

(DEUTSCHER JAGDSCHUTZ-VERBAND - 2004, 2005). This claim cannot however be judged properly until comprehensive information on the killing rate across the whole of the annual habitat range is available. This is far from being the case today. Without relevant data the sustainability of hunting, especially of species of unfavourable conservation status remains unproved.

Huntable bird species in accordance with the EU Directive on the Protection of Wild Birds

In 1979, the EU Directive on the Protection of Wild Birds (Birds Directive - BD) prohibited the deliberate killing or trapping of native European bird species throughout the territories of member states in the knowledge that, in addition to habitat destruction, above all direct human persecution represents an important influencing factor on bird populations. Exceptions to this ban, where the Commission considers that their status permits hunting, still currently include 25 goose and duck species, 15 different gallinaceous bird species, 22 waders or shore birds (including gull species), 5 dove and 12 passerine species as well as Water Rail, Moorhen and Coot. The BD permits the hunting of 24 of these 82 species in all member states (Part 1 of Annex II BD). Part 2 of Annex II lists in which member state the remaining 54 species, except during the breeding and rearing season and the return to breeding grounds, may be hunted (NOWAK 1979, BERNDT 1980, BOYE & HAUPT 1999, for individual hunting seasons cf. GARRIGUE 2001). Article 7 BD states that member countries must ensure that the hunting of these species does not counteract conservation efforts on their behalf.

Special exceptions for bird trapping in accordance with Article 9 BD

As an exception to the general ban in Article 5 BD on the trapping of birds, Article 9 permits member states selectively, in addition to hunting, the trapping of certain bird species "under strictly monitored conditions". In some French Départements for example, the trapping of Lapwing and Skylark with nets, and thrushes with horsehair snares, lime sticks and stone crush traps is permitted (REBATTET 1988, BEDIN et al. 1996). Until a few years ago, some 50,000 Ortolan Buntings were caught annually in cage traps in southwest France (TUCKER & HEATH 1994). In Spain, the Catalonian regional administration permits the annual trapping of some 900,000 thrushes (SANTOS & MUÑOZ-COBO 1984, GUTIÉRREZ 1991b) in so-called *barracas* – huge lime stick trapping facilities. Italian bird trappers in Lombardy and Veneto are still permitted to trap tens of thousands of thrushes in so-called *roccoli* (net trap enclosures) in order to supply hunters with decoy birds for hunting from hides (HEYD 2004). "Traditional" trapping of Golden Plover, Lapwing, Turtle Dove and Quail with nets and live decoy birds is still allowed (FENECH 1992, HIRSCHFELD 2005).

Hunting of species not listed in Annex II BD

Article 9 BD permits individual member states to allow the hunting or trapping of additional species when there is no other acceptable solution and if they are necessary, for example, to prevent damage to crops and fish stocks, for research purposes or the preservation of so-called "traditional hunting methods". The take, in accordance with the BD, is to be restricted to "small numbers". The criterion "small" in this context has, in the view of the European Court of Justice (ECJ, Case No. C-182/02) no absolute meaning but relates to the conservation of the population as a whole and the

reproduction rate of the species in question. In the view of the ECJ, a bag of 1 % or less of the complete population satisfies this criterion, as the parameters of population dynamism are can seldom be estimated to a exactitude of less than a single percentage and a bag of less than 1 % can be mathematically ignored in study models (EU COMMISSION 2003a).

On the basis of this judgement, EU special licences for the hunting or trapping of a further 17 bird species are issued. Well known examples are the permitting of the shooting of Cormorant and Grey Heron to prevent damage to fish stocks (VON LINDEINER 1997), the traditional hunting of Chaffinch, Brambling, Italian and Tree Sparrow in some regions of Italy (TÖNNIS 2002), trapping of seven finch species in huge nets on Malta (FENECH 1992) and the trapping of Siskin, Bullfinch, Crossbill and Goldfinch in the Salzkammergut region of Austria (SCHAUFLER et al. 2001, RIEDER 2002). Less well known is the hunting of Ravens in some Austrian provinces and Spanish regions (e.g. SCHAUFLER et al. 2001), Spotless Starling in Spain and Portugal and the trapping of finches in some Spanish provinces (GUTIÉRREZ 1991a, 1991b), shooting of Barnacle Goose in the north German districts of Ditmarschen and Northern Frisia (DEUTSCHER JAGDSCHUTZ-VERBAND 2004) and the occasional licensing of shooting of various raptors in Germany and Austria (SCHAUFLER et al. 2001, RUST & TISCHLER 2001, DITSCHERLEIN 2004). A European overview of hunting and trapping of bird species not listed in Annex II BD is currently being produced by the Committee against Bird Slaughter (CABS - Komitee gegen den Vogelmord) (HIRSCHFELD, in prep.)

Poaching and illegal bird trapping

This study does not take account of the enormous extent of poaching of protected species, particularly in Southern Europe, North Africa and in the Balkans. This includes illegal trapping with nets and traps in Northern and Southern Italy, the poaching of countless raptors and passerines on Malta and in the Straits of Messina (GIORDANO 1991, FENECH 1992), the illegal trapping of migrant passerines in Cyprus (LINDELL & WIRDHEIM 2001, MAGNIN 1991), illegal hunting of waterfowl in Italy, Bulgaria and Rumania as well as the massive shooting and trapping of migrants in North Africa and the Arabian Peninsula (BAUMGART 1991, MAGNIN 1991, ANDREWS 1996, BIRDLIFE INTERNATIONAL 2005).

Because of the lack of statistics on the scale of poaching, many authors estimate the total numbers of birds shot per hunting season on the basis of other known figures, such as the sale of shotgun cartridges (AEBISCHER et al. 2003), the evaluation of questionnaires (FENECH 1992) or individual observations (PENSKI & KROYMANN 1979). CONRAD & POLTZ (1976) for example calculated the number of shot birds in Italy in the 1970s as between 25 and 440 million birds on the basis of ammunition sold and a projection of the bags of local hunting clubs. BERTHOLD (1990) believes that at the beginning of the 1990s some 175 million small birds were shot in Italy alone, and in the whole of the Mediterranean region several hundred million.

Hunters in the, EU, Switzerland and Norway

According to information from hunting organizations and authorities (FACE 2005), some 6.8 million hunters were registered in 2004 in the 25 member states of the EU, Switzerland and Norway. The numbers and density of hunters, together with the number of huntable, the quality of data evaluated and the total bag of birds species in each individual country are shown in Tab. 1.

In addition to hunting "on one's own doorstep", the past few years have shown an increasing commercialization of the hunting of certain bird species. For some years now trophy hunting abroad has been on offer at hunting exhibitions, in hunting magazines and on the internet. Offers include hunting of Capercaillie and Black Grouse in Austria, Nordic wild geese and ducks in Germany and Hungary, doves in Spain, Woodcock in Belgium and Denmark and passerines in Spain, Portugal and Italy.

Aim of this study

The aim of this study was to achieve the most accurate as possible oversight of the annual number of legally shot individual birds of the 82 huntable species listed in Annex II BD in the area of the EU, Switzerland and Norway. This was to be achieved through correspondence with the responsible authorities and intensive literature and internet research. In addition to determination of dependable annual estimates of species-specific hunting bags, the possible influence of hunting on populations of species with unfavourable conservation status (EU COMMISSION 2003) was to be analysed and discussed.

2 Materials und Methods

In April 2004, CABS commissioned the Bioplan environmental planning firm (in Raisdorf, Schleswig-Holstein) to send a questionnaire to those ministries and other authorities responsible for hunting in the 25 EU states, Switzerland and Norway, requesting information on the numbers of birds of species listed in Annex II BD (Parts 1 and 2) legally shot or trapped in their country. At the same time research on bag figures for individual countries, regions and species was carried out in various libraries and on the internet.

Data sources and statistics

By the end of 2005, bag data had been collated from 26 of the 27 countries under study. The exact time periods covered by the respective hunting statistics are shown in Tab. 1. This table also shows the number of huntable bird species per country as well as the number of datasets available for evaluation.
For Belgium, Italy, Ireland, Greece and Spain bag figures were only available for some individual regions, or the results of surveys on shooting preferences for different huntable bird species. These sample data were used to make national projections based on the total numbers of hunters (in Belgium, Italy, Ireland, Greece) or the species-specific frequency in regional hunting statistics (Spain).
Using these methods a total of 571 individual bags of birds listed in Annex II BD could be collated or estimated for the 27 states studied. This covered some 81 % of the legally possible 705 individual bags in the individual countries.

In order to avoid statistical anomalies, the standard mean values of the past two to three years were used for 15 countries with complete statistics covering several years. Tab. 1 shows the individual time periods taken into account for each country.

Where minimum and maximum bag figures were given, the mean values were taken and used for further calculation (n = 3 cases). Bag figures in the form of "< X specimens" were fed in as at least X/2 shot specimens in the evaluation (n = 5 cases). The hunter density per km² was calculated from area size and number of hunters for individual states declared by the DEUTSCHER JAGDSCHUTZ-VERBAND (2004) and FACE (2005). The criteria "huntable" and "protected" were based on the applicable

national hunting laws or regional hunting calendar for spring 2005 in the 27 countries under study.

Estimation of species-specific share of bags in species groups bag figures

The data studied from 14 countries included combined bag figures for species groups such as "wild doves" in Austria or "wild ducks" and "gulls" in Germany (Tab. 2). Based on the assumption that the amount of individual bags of huntable species of such groups correlate to the frequency of these species (and thereby also with the number of potential encounters with hunters), such combined bags were calculated using the rule of three and allocated to individual species. In order to estimate the proportion of individual species in combined bags, the numbers for ducks, geese and gulls were allocated to individual species according to the numbers of their winter populations and, for doves and thrushes, the individual species numbers of European breeding populations. If not otherwise indicated in the text, the figures for winter populations in 1999/2000 from GILISSEN et al. (2002), and mean values of total European populations from HAGEMEIJER & BLAIR (1997) have been used. The ratio of individual species in Norwegian and Estonian gull bag figures were estimated using GILISSEN et al. (2002) winter population figures for the Baltic and Nordic area. The species-specific allocation for Danish combined geese bags is derived from the species ratio published in the 1997/98 annual hunting statistics (ASFERG 2004).

The estimates of the bag share included only members of a species group which, in the time period in which the statistics were raised, could actually be hunted legally in accordance with the hunting law and hunting season regulations of the country concerned.

Countries with complete datasets (n = 14)

Up to date and, with few exceptions, complete bag statistics for an entire hunting season, were available for the following countries:

Denmark (ASFERG 2004, DANMARKS JÆGERFORBUND 2004), Estonia (Ministry of the Environment, Forest Department, letter dated 22.9.2004), Finland (FINNISH GAME AND FISHERIES RESEARCH INSTITUTE 2005), Lithuania (Ministry of Environment of the Republic of Lithuania, letter from the Deputy Minister dated 8.10.2004), Luxemburg (Grand-Duché de Luxembourg, Administration des Eaux et Forets, letter dated 18.11.2004), Netherlands (KONINKLIJKE NEDERLANDSE JAGERS VERENIGING 2004), Norway (STATISTICS NORWAY 2004), Poland (Ministry of the Environment, letter dated 8.10.2004), Sweden (Naturvårdsverket - Swedish Environmental Protection Agency, letter dated 23.06.2005, Kindberg 2003), Switzerland (BUNDESAMT FÜR UMWELT, WALD UND LANDSCHAFT 2004), Slovenia (Ministry of Environment and Spatial Planning, letter dated 10.11.2004), Slovakia (Ministry of Environment, letter dated 25.10.2004), Czech Republic (CZECH STATISTICAL OFFICE 2005), Hungary (Source: Ministry of Environment and Water, letter dated 4.10.2004).

Countries with incomplete datasets or different sources (n = 8)

Germany: The calculation of the number of corvids shot annually in Germany was based on the mean bag figures for the three hunting seasons 2000/01 to 2002/03 published by LANGGEMACH & DITSCHERLEIN (2004). The hunting season 2003/04 bag figures for numbers of birds huntable in most German federal states - Mute Swan and Coot - were

requested by telephone from the responsible state authorities. All other bag figures were taken from statistics for the three hunting seasons 2002/03 to 2004/05 published by the DEUTSCHER JAGDSCHUTZ-VERBAND (2005, 2006). The combined figures for the species group "gulls" for the hunting season 2003/04 were allocated to individual species on the basis of the proportions of winter populations in northwest Europe (GILISSEN et al. 2002), whereby only those species huntable under individual state regulations in 2003 were included.

France: The published results of a random questionnaire for the hunting season 1998/99, issued by scientists of the OFFICE NATIONAL DE LA CHASSE ET DE LA FAUNE SAUVAGE (2000), were evaluated. The combined figures for "other waders" in this publication (with the exception of separately recorded Woodcock and Jack Snipe, Common Snipe, Lapwing and Golden Plover) were calculated on the basis of the average species ratio of French wader bags published by TROLLIET & GIRARD (2000). Individual species of the combined group TROLLIET & GIRARD (2000) of Black-tailed and Bar-tailed Godwit (*barges*), Curlew and Whimbrel (*courlis*), Ruff, Spotted Redshank, Redshank and Greenshank (*chevaliers*) were allocated to individual species corresponding to their average winter populations in the northwest of the country (GILISSEN et al. 2002) where, according to TROLLIET & GIRARD (2000), the vast majority of waders are shot in France.

The species allocation of the combined bags for huntable ducks in France (with the exception of Mallard and Pochard) was made on the basis of the average winter frequency of these species in northwest and southeast France (winter population figures from GILISSEN et al. 2002). As the bag of geese in France consists almost exclusively of Greylag (YÉSOU 2000) the complete French goose bag was assumed to be of this species.

United Kingdom: The study used the estimates made by AEBISCHER (1997) for various fowl like birds (*Galliformes*) shot annually in England, Scotland and Northern Ireland as well as the MURRAY & SIMCOX (2003) estimates of British bag figures for ducks, grouse, Woodcock, Common Snipe and Wood Pigeon. The bag figures for the undifferentiated species group "grouse" was allocated to the distinct species Ptarmigan and Red Grouse in accordance with the ratio of numbers in the British populations HAGEMEIJER & BLAIR (1997). Bag figures for the three huntable goose species are from RUTSCHKE (1997). The numbers of corvids shot annually in England, Scotland and Northern Ireland are taken from ROBINSON (2005).
Not included: The tables in this study do not include figures for data on so-called pest species, Starling and gulls, shot legally in the United Kingdom.

Latvia: The data evaluated are taken from statistics for the 2004/05 hunting season, which was published on the website of the LATVIAN STATE FOREST SERVICE (2005) in the form of a press statement on 7.7.2005.
Not included: Data on bags of Capercaillie, Black Grouse, Coot and Herring Gull which are huntable species in Latvia.

Malta: The numbers of birds shot on Malta in 2001 were taken from data presented to the EU Commission by the Maltese government (NATIONAL STATISTICS OFFICE MALTA 2003). Although the figures published are regarded by numerous associations and scientists as too low, and only include data on 14 huntable species, they were accepted by the EU Commission as a basis for granting derogation for the trapping of finches in "small quantities" for an interim period until the end of 2008. The

figures for hunting bags and trapping of Bean Goose, Wigeon, Gadwall, Mallard, Pochard, Tufted Duck, Red-breasted Merganser, Coot, Grey Plover, Lapwing, Jack Snipe, Common Snipe, Wood Pigeon, Blackbird, Redwing, Moorhen, Ruff and Water Rail originate from a survey in the 1996 hunting season (MINISTRY FOR RURAL AFFAIRS AND THE ENVIRONMENT 1997).

Austria: For the purposes of this study, the country-wide bag figures for the hunting seasons 2002/03 to 2003/04, published by STATISTIK AUSTRIA (2004), as well as the separately listed shooting figures of the nine federal states for the 2003/04 hunting season were used. The individual state combined bags for the species groups "wild ducks" and "wild geese" were allocated to individual species on the basis of their winter populations in Austria (GILISSEN et al. 2002) and for "wild doves" in proportion to the size of their European populations (HAGEMEIJER & BLAIR 1997). Account was taken only of species that were huntable under individual state regulations in 2003.
Not included: Bag figures for the following species, only huntable in a few federal states, were not included in the hunting statistics published by STATISTIK AUSTRIA (2004). Huntable and shot Quails in Burgenland; Magpies and Jays in Lower Austria, Salzburg, Vorarlberg and Tirol; Jackdaws, Carrion and Hooded Crows Lower Austria, Salzburg and Vorarlberg; Black-headed Gulls in Salzburg; Ptarmigan in Tirol and Common Snipe in Carinthia.

Portugal: The only figures available for Portugal are the estimates by FONTOURA & DIAS (1995) of the annual bag of Turtle Doves. As there was no reaction to the questionnaire sent to the Ministry of the Environment in Lisbon, and the search for other sources was unsuccessful, data for other huntable species could not be included in the statistics. As the some 300,000 Portuguese hunters are legally permitted to shoot 30 further bird species in addition to Turtle Doves (cf. Tab 2), the number of birds shot in the country undoubtedly runs into seven figures. Portugal represents the greatest data gap in the analysis of total European shooting bags.

Cyprus: The shooting bag figures for the 2001/02 hunting season for Red-legged Partridge, Quail, Woodcock, Black Francolin and thrushes, as well as the bag figures for some 110,000 "other birds big and small", come from a summary of a relevant study carried out by the Cyprus Ministry of the Interior and published in a *Cyprus Daily News* article on 19.01.2002. The study represents the evaluation of a random survey answered by some 388 hunters.

Projection methods for countries on the basis of regional hunting statistics (n = 3)

Belgium: Whereas the Flanders region published species-specific bag statistics for the 2003/04 hunting season (CASAER 2004, DUMORTIER et al. 2005), no data from the Wallonia region were available for this study. In the Brussels region hunting is banned completely. For the 6 species huntable in the other 2 regions the average Flemish bag per hunter was multiplied by the total number of Wallonian hunters (n = 8,000) and the result added to the published Flanders figures to arrive at a national total. According to some DUMORTIER et al. (2005), 66% of Belgian hunters are active in Flanders.
Not included: Woodcock and Teal are protected throughout the year in Flanders but are huntable in Wallonia. The Wallonian bag of these species could not therefore be projected and the figures are missing from the statistics

Italy: The Italian Environment Ministry provided 2003/04 hunting season bag figures collated by the National Wild Animal Institute for the Lombardy and Liguria regions. A projection of these figures for the whole of Italy, taking account of the huntable bird species and number of registered hunters in the remaining 18 regions, was made (corresp. C. Consiglio, European Federation against Hunting). According to Consiglio (corresp.), some 15 % of the 709,000 Italian bird hunters are active in Lombardy and Liguria.
Not included: As Jack Snipe, Ruff and Water Rail are not hunted in the sample regions of Lombardy and Liguria, national bag numbers for these three species could not be projected and they are therefore missing from the final statistics. Jack Snipe is huntable in 11 regions and Ruff and Water Rail in 6 and 15 regions respectively.

Spain: The authors were informed by the Spanish Ministry of the Environment on 02.11.2004 that a national system for recording of species-specific bird hunting bags and numbers of birds trapped did not exist. Species-specific bag figures are available for Red-legged Partridge and Quail only. In the statistical yearbook 2004, the number of "other wild birds" (otra caza volátil) shot on average annually from 1993-2000 is given as 8,676,951 individuals. (Instituto Nacional de Estadística 2004). In addition species-specific (with the exception of thrushes) hunting statistics were available for the Andalusia region for 2003 (Junta de Andalucia 2003) where, according to the national statistic office (Instituto Nacional de Estadística 2004) some 27 % of the some 1,183,000 Spanish hunters are registered. In order to arrive at an estimate of species-specific figures for the annual bag of "other wild birds", the average national bag of these species was projected on the basis of the frequency of each species in the Andalusian statistics for all huntable species.

Not included: Bag figures for the individual regions (except Andalusia) of the huntable species Garganey, Water Rail and Jay

Projection of bag figures with data from random sampling (n = 2)

Greece: The questionnaire issued to 400 hunters by THOMAIDES et al. (1995) was used as the basis for the total bag of migrant birds shot annually in Greece. These data encompassed some 6,956 hunting *outings* and covered 17 huntable species. The figures given for the average number of birds shot per outing were assessed for each species or species group on the basis of the hunters' preference (= number of hunters who shot this species or species group), multiplied by the average number of outings per hunter/year (= 16.49) and by the factor 270,000 (total number of active hunters in Greece (FACE 2005). The result was taken as the estimate of the total number of individuals shot annually in Greece.
Not included: The numbers of White-fronted Geese, Pheasant, Coot, Moorhen, Lapwing, Common Snipe, Starling, Skylark, Magpie, Jackdaw and crows.

Ireland: The Association of Regional Game Councils (NARGC) sends a questionnaire to all of its some 23,000 members annually for the recording of wildlife bag figures. A total of 492 individuals answered the questionnaire in respect of birds shot in the hunting season 2003/04. The results of this study (O´HUALLACHAIN & HENDERSON 2004) were projected for each individual huntable species on the basis of 23,000 NARGC members.

3 Results

Tab. 1 shows the numbers of huntable species and the number of evaluated datasets (= individual bags) together with the number

and density of hunters per country. For Mallard, Pheasant, Turkey, Grey Partridge and some members of the *Alectoris* family, the fact that an unknown number of individuals shot are reared specifically for the gun must be taken into account.

The total numbers of individual of species listed in Annex II BD which are shot annually in Europe amount, on the basis of the available data, to at least 101,900,720 individuals including 243,885 geese, 7,433,972 ducks, 33,535,603 fowl like birds (*Galliformes*), 4,103,493 waders, 94,636 gulls, 391.148 rails, 18,606,498 doves and 37,371,845 passerines. The species-specific bag figures, together with the number of countries in which they may be hunted, conservation status and references in the relevant literature to their winter and breeding populations are shown in Tab. 3. The evaluated individual bag figures, by country and species, are listed in Tab. 4

4 Discussion

Completeness and value of the datasets used

In view of the fact that almost no data was available for Portugal, where after all almost 5 % of all European hunters are permitted to shoot birds of more than 30 different species (Tab. 1), and the list of missing individual bag figures (Tab. 4), it can be assumed that the total of 100 million officially shot or trapped birds reflects only a part of the actual hunting activity in the study area.

It is further suspected that some of the individual bag figures used in this study consists of one-sided low estimates. For example, a study on the number of shot ducks in Poland not recovered by the hunter, amounted to an undetected or unreported 10 % of the total bag (NOWAK 1975). MOOIJ (1995, 2005) estimates that hunting of waterfowl results in injury to 1 in 4 or 5 birds, adding a potential additional "crippling loss" of some 25 % to the total bag.

Sources of error in projections

Projecting national bag figures on the basis of regional spot checks can lead to a degree of data distortion due to specific regional or hunting peculiarities, with the inaccuracy of the projection increasing in relation to the degree of special local factors. In the case of Spain, the effects could be kept in check as the total amount of the average birds shot annually was known and, because of the species-specific frequencies in the Andalusian statistics, could be projected to this threshold value. Nevertheless, the danger in applying the projection method used for Spain is that the shooting preferences in the spot check areas are not representative of the whole of Spain and the actual individual species ratio the complete bag of some species can deviate as a result. The projection applied for Italian national bag estimates, based on the number of licensed hunters as well as the use of bag figures from only two sampling regions, can also affect the accuracy of some bag estimates due to regional peculiarities not being taken into account. For example, the sampling regions used have relatively few wetlands in comparison to the rest of Italy, leading to the assumption that fewer ducks and Lapwings per hunter are shot there as elsewhere in the country. The actual bag figures were accordingly higher than in the estimates. Another potential source of error is contained in the projection for Italian bags of thrushes and Skylarks. These 5 species are huntable in a total of 6 regions, including the sampling regions of Lombardy and Liguria, from hides (*capanni*) using decoy birds. As it is probable that more birds per

hunter and season can be shot by this method than in the hunt on foot, the projection of bag figures can err on the high side. As hunting from hides, unlike other forms of hunting, is restricted by Italian law only to three instead of the usual five days a week per hunter, this inflationary effect is at least partly compensated.
When determining the species-specific numbers of combined geese and duck bags based on their population frequency in winter (Tab 2.) it was assumed for the sake of simplicity that all huntable members of a species group were hunted only outside the breeding season and in the same time period. Experience shows that in many countries breeding birds (e.g. Greylag Goose in Germany) are hunted long before the arrival of the exclusively winter guests (in this case White-fronted and Bean Goose). In a few cases this can lead to the bag ratio of native birds being underestimated and the bag ration of winter visitors being correspondingly inflated.

Comparison of the study estimates with literature references

A comparison of the estimates derived from this study with available references in the relevant literature for the EU area results, in three cases, in a good measure of agreement. The estimated bag figures of at least 2.37 million Turtle Doves and 2.63 million Quails are of the same magnitude as the estimates of BOUTIN (2001) and GUYOMARCH (2003) for the former EU15 area of two to four million Turtle Doves and 2.15 million Quails. For Garganey, the estimated minimum bag of 24,454 individuals lies under SCHRICKE'S (2001) estimate of 37,300 to 65,200 shot birds. The study estimate of a 7.6 million total bag of all duck and geese for EU25 is almost identical to MOOIJ'S (2005) figure of some 7.5 million. In the case of the proportion of individual species of the total bag, with exception of the figures for Garganey and Long-tailed Duck, there are in some cases considerable differences to Mooij's report. The main reason for these deviations is, in the opinion of the authors, a fundamental difference in the methodology of species-specific differentiation of combined bags of, for example, "wild ducks". MOOIJ (2005) has projected the ratio of individual species in the bags of the remaining EU states on the basis of the known average allocation into species-specific statistics of individual countries. This study, on the other hand, determined species-specific allocation on the basis of the possibility of encounter between birds and hunters within the individual country or the part of the area under study outside the breeding season, using GILISSEN'S et al. (2002) winter population figures, for. A comparison of these methods, when applied to the data collated in this study, demonstrates in the estimate of the British Wigeon bag for example, completely different results. Whereas in this study, the large number of wintering Wigeon lead to a respectively high proportion of this species in the British "duck" bag of some 1.25 million, the estimation of the Wigeon bag on the basis of all other species-specific statistics in the other EU states results in a considerably lower figure.
TROLLIET (2003) estimated the numbers of Lapwing shot annually in France, Spain, Greece and Italy at roughly one million birds, which is appreciably more than the 516,475 individuals estimated in this study. One reason for these divergences is the fact that the actual Lapwing population in Greece could not be taken into account in this study. In addition, it is suspected that the estimated number of Lapwings shot in Italy is too low for the reasons given earlier in this paper.

The direct consequences of hunting for bird populations

In view of the high shooting rates for many endangered bird species, it is to be expected that the severe pressure exerted by hunting at least accelerates the already worrying declines recorded in these populations. Indeed it effect must be considerably greater, as the estimated figures represent only the mortality on part of the migration routes and in only part of the complete annual habitat range. According to ORLOV (1999), more than 15.3 million waterfowl are shot annually in Russia alone. These include numerous species which overwinter in the EU. Many species are also hunted intensively every year in winter and spring in Africa and on the Arabian Peninsula (MAGNIN 1991, ARINAITWE 1999, BIRDLIFE INTERNATIONAL 2005).

Whether or not intensive hunting is or was the decisive cause of the decline of certain species cannot be judged on the basis of the data presented here. Insufficient data is available to estimate and evaluate the ratio of European breeding birds and the percentage of non-European visitors in individual bag figures. A direct comparison of the estimates based on GILISSEN et al. (2004) wintering figures for January in Europe make clear however that hunting represents a central and somewhat disturbing mortality factor for numerous European bird species. The comparison is however only partially valid as a basis for judging the degree of mortality caused by hunting, as many birds are killed earlier in the second half of summer or in autumn (NOWAK 1975). Although precise scientific evidence for the negative influence of hunting on bird populations is hard to come by as a rule, good examples do exist demonstrating that huntable species, despite high rates of decline, can stabilise and indeed expand their local populations (INGLIS et al. 1990, GATTER 2000). As it is likely however that the consequences of hunting-related mortality will be detected later in optimal biotopes than in less suitable habitats, regional studies only reflect in a limited way the role of hunting across the complete distribution range. The species most particularly endangered by high hunting-related mortality are those that are long-lived and with a lower annual reproduction rate (e.g. geese. gulls, Curlew), as well as species which are hunted when the majority of the species-specific winter losses are already evident. The fact that intensive human persecution can indeed have a severe effect on bird populations is sadly evidenced in the wide scale eradication of numerous raptor and owl species in the 19th Century (in general: NEWTON 1979, 1986; Eagle Owl: DALBECK 2003; Bearded Vulture: ROBIN et al. 2004; White-tailed Eagle: KOLLMANN et al. 2002; Golden Eagle: WATSON 1997). NEWTON (1972) believed that the significant increase in Sparrowhawks (*Accipiter nisus*) ringed in Scotland during World War II was due to the greatly reduced numbers of hunters during the period of hostilities.

According to NOWAK (1975), hunting in Europe is one of the major factors influencing the quantitative dynamism of many waterfowl species. In the case of the dark-breasted form of the Brent Goose (*Branta bernicla bernicla*), NOWAK (1975) presumes that hunting and trapping in the north of the former Soviet Union were the decisive factors in the dramatic decline of its winter population. In the case of the Greylag Goose, PERSSON (1992) has proved that massive hunting of wintering geese in the Spanish "Marismas de Gudalquivir“ region at the end of the 1980s led to a decline in the Norwegian breeding population. JEAN (1997) conclusively demonstrated that the high shooting figures in the Pyrenees and on the Iberian Peninsula, in combination with other loss factors, must adversely influence the migrant Wood Pigeon population. In the case of the Song Thrush, BEZZEL (1993) believes that hunting in Southern Europe represents the most important mortality factor for the species. MELTOFTE (1986)

blamed high bag figures in Denmark and France for the serious decline in the Fennoscandian Curlew population in the 1950s. The spring hunt in France (MAYR 2003), only condemned by the ECJ as late as 2004, was considered by LINDELL & WIRDHEIM (2001) to have had a direct negative influence on the Swedish populations of the affected species.

The indirect influence of hunting on bird populations

The trans-national hunting of migrant birds along their migration routes is an extremely complex and critical form of human intervention, the consequences of which much more far-reaching than the actual losses due to shooting. The different aspects of hunting as indirect persecution, for instance the disturbance caused by extreme hunting pressure and the consequences arising from the use of lead shot, have been the central focus of numerous studies and publications (BALAT 1969, MELTOFTE 1982, JÖNSSON et al. 1985, BELL & OWEN 1990, EBBINGE 1991, MADSEN & FOX 1995, MOOIJ 1995, KENDALL et al. 1996, BEZZEL & GEIERSBERGER 1998, WETLANDS INTERNATIONAL 2000, KENNTNER et al. 2001, TAVECCHIA et al. 2001, WILLE & BERGMANN 2002).
In addition to an unknown number of injured birds, which perish much later and are not included in the hunting statistics (MADSEN & NOER 1996, NOWAK 1975), intensive hunting also has serious energy penalties for the individual birds involved. The possible consequences range from death through exhaustion on migration and late arrival in the breeding territory to a reduction in mating or reproduction success (MADSEN & FOX 1995, FREDERIKSEN et al. 2004).

In its ruling C-435/92, the ECJ drew attention to the fact that hunting also led to disturbances which, regardless of the number of shot individuals, could possibly have a negative influence on the conservation status of the affected species. In the opinion of the ECJ, these disturbances are particularly grave for birds on migration, when they gather in flocks in rest areas or in winter quarters or at those times when the birds find it difficult enough to cover their energy and nutrition needs (MADSEN 1995). Many waterfowl for example have their breeding territory in Northern Europe and overwinter on a patchwork of wetlands in temperate or tropical zones. Because of their social behaviour, these species are much more affected by hunting-related disturbance than they are by the number of individuals shot by hunters. As shooting often takes place directly at the stretches of water where the birds spend the night, other roosting species are also severely affected. In particular, the practice of putting the birds up by volleys of shots leads to panicky reaction among the roosting bird masses, which compels other non-huntable species to take to flight with consequent unavoidable energy loss.
The energy shortages caused in this way can lead to additional mortality due to exhaustion, in particular among young birds (MOOIJ 1995).

The importance of these additional population losses, as well as the influence of the hunting of migrants on the reproduction success of hunted individuals in the breeding territory, is little known at present. They present however an additional potential threat to population development. In addition, hunting pressure increases the sensitivity of the roosting birds to human presence. The resulting high disturbance distances (BEZZEL & GEIERSBERGER 1998, BERGMANN 2001) can result in reduced settlement density or even abandonment of areas where the disturbance factor for a species is high (FENECH 1992, GATTER 2000) Another side-effect is that bird and nature lovers suffer a significant reduction in their

enjoyment of the natural spectacle of migration. On the lower reaches of the River Inn in Bavaria REICHHOLF (2001) proved that duck hunting had severe consequences for the ecological system "water" and the nutritional ecological cycles which it encompasses.

Use of lead shot

The use of lead shot for bird hunting presents a further threat. With the exception of Denmark, Norway, the Netherlands, the United Kingdom and some German federal states, where lead shot is either completely banned or at least for hunting on waterways, lead-based ammunition is widely used for bird hunting throughout the rest of Europe. Taking a hit rate of between 0.2 and 0.06 shots per bird, an average lead content of 30 grammes per cartridge and some 100 million birds shot annually, a potential yearly consumption of between 15,000 and 50,000 tonnes of lead is calculated. The effect of this massive poison deposit on the bird world is immense. Studies of wild geese in various areas of Europe have shown that the bodies of about a quarter of all young birds and a good 60 % of adult geese contain lead. Scientists estimate that the result of these involuntary hunting souvenirs cause an additional 5 % mortality rate in populations due to lead poisoning or internal injuries (MOOIJ 1995, MADSEN & NOER 1996). In addition there are an unknown number of live birds which, as a result of lead poisoning or shot injury, have a reduced reproduction capability. The high lead counts established in various waterfowl species must also be seen as an indication of a potential threat to the whole of the bird world (cf. BELLROSE 1959, KENDALL et al. 1996, KENNTNER 2001). It has been proved for example that more than a quarter of 100 White-tailed Eagles found dead or moribund in Germany and Austria died as a result of fatal concentrations of lead in their bodies. The cause was established as emanating from lead shot which the raptors ingested through their diet (KENNTNER et al. 2001).

Demands

Migrant birds recognise no borders and are part of the natural inheritance all Europeans. The millions of, and in view of the threat, often blind intervention in the complex and fragile bird migration system, benefits only a small majority of the population as leisure activity. In view of the potential threat to many bird species from hunting, the Committee against Bird Slaughter believes that a critical debate on the ecological side-effects and the problems caused by resident and migrant bird hunting is urgently required. In future, in addition to purely numerical and scientific arguments, the animal protection aspect must be given much more consideration. The continued legal use of non-discriminating and cruel traps, shooting of birds in their roosts and rest areas and at their leks, must be as equally condemned as the hunting of species where populations are declining or where their status is uncertain. The agreement to take no initiative at present in the direction of amending the text of the Bird Directive, reached between BirdLife International and the European hunters' federation FACE in October 2004 is, from the standpoint of a consistent bird protection policy, far from in keeping with the times. Instead of agreeing to a "ceasefire" with the hunters' lobby in this important question, the Committee against Bird Slaughter supports the view that, at the very least, a hunting ban for species with declining populations, as well as a distinct curtailment of hunting season dates, should be implemented without delay, The continued hunting of species with an unfavourable status has already been addressed in the framework of the last proposed amendment to Annex II BD. In the report of the European Parliamentary Committee for Environmental, Public Health and Food Safety on the Commission's

proposal in 1991 on amendment to the BG (cf. HERKENRATH 1991) it states: "If a species is in decline, hunting cannot by definition be sustainable unless it is part of a properly implemented management plan that also incorporates the conservation of habitats and other measures to halt the decline and to eventually reverse this development" (EU COMMISSION 2003). In view of the steady decline of many species over decades, the Committee calls on the EU Commission to finally take the logical step demanded by this statement, now 14 years old, and to ban completely the hunting of species with an unfavourable conservation status (see Tab. 5) or with an uncertain population status. Until a corresponding revision to and amendment of the BD is complete, an interim solution could consist of changes in the hunting laws and hunting season dates of member states.

The Committee against Bird Slaughter has therefore called upon the European conservation and hunting organisations to support appropriate reforms at both national and EU level and to add their specialist expertise to the wished-for debate. The data on bag totals for the whole of Europe contained in this study can provide the necessary material for argument, and are an important basis of calculation for the estimation of hunting pressure on individual populations. In order to fully evaluate the influence of hunting on migrant birds in Europe, a long term, independent, monitoring programme is essential. Such a programme could assist in providing a contemporary estimate and evaluation of the direct and indirect consequences of hunting throughout the whole length of the migration routes (cf. AEBISCHER et al. 2003, EU COMMISSION 2003b, DEPLANQUE 2003, SUSTAINABLE HUNTING INITIATIVE 2005).

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Summary

Statistics published on hunting bags provide an important degree of magnitude for assessing the sustainability and impact of hunting on animal populations. Although more than 80 species of birds can be legally hunted within the framework of the EU Directive on the Conservation of Wild Birds, no European-wide monitoring scheme exists for the collection and analysis of information on the numbers of huntable migrant birds shot annually. The aim of this study was to estimate the shooting statistics of all bird species listed in Annex II BD from the 25 member states of the EU, and additionally Switzerland and Norway. The total number of active hunters in the 27 countries covered by this study is some 6.8 million individuals. In the course of intensive literature and internet research, data on some 81.5 % (n=571) essential bag figures for species necessary for an overview were collated and evaluated by mid-September 2005. By the date of the first submission of this article (15.9.2005) a total of 81.5 % (n = 571) of all potential single bag returns (n = 705) of the bird species listed in Annex II of the directive was collated and analysed. On the basis of the available data, the minimum estimate of the number of wild birds shot annually in the study area amounted to 101,900,720 individuals including 243,885 geese, 7,433,972 ducks, 33,535,603 fowl like birds (*Galliformes*), 4,103,493 waders, 94,636 gulls, 391.148 rails, 18,606,498 doves and 37,371,845 passerines (including corvids). On the basis of these findings the

direct and indirect effects of hunting, such as hunting of migratory species or species with an unfavourable conservation status, the unknown numbers of injured individuals, or the effects of disturbance and the use of lead shot were discussed. The results of the study confirm that hunting represents a significant mortality factor for numerous bird species. It is suspected that high losses as a direct result of hunting accelerate the observed decline of several migrant bird species with unfavourable conservation status throughout Europe (e.g. Lapwing, Common Snipe, Garganey, Skylark, Quail, Turtle Dove or Jack Snipe). In view of the in part dramatic population losses of these species it is considered urgently necessary that a European-wide ban on their shooting should be enforced.

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Tabelle 1:
Vogeljagd in der EU / *birdhunting in the EU.*
Legende/*legend*: Q=Datenqualität / *data quality* (-- = keine oder unzureichende Daten / *data insufficient or lacking*, - = regionale Stichproben oder unvollständige Datensätze / *regional samples or incomplete data*, + = vollständige Statistik, jedoch z.T. nicht artgenau / *complete bag-statistics, but partly not specified*, ++ = komplette, artgenaue Daten / *complete and specified data)*, Anzahl Jäger=Anzahl der offiziell registrierten Jäger / *number of registered hunters* (DEUTSCHER JAGDSCHUTZ-VERBAND 2004, FACE 2005), Jäger/km^2=Dichte der Jäger pro Quadratkilometer / *density of hunters per square kilometer*, Abschuss pro Jahr=Anzahl der mindestens pro Jahr geschossenen Individuen von Vogelarten des Anhang II der europäischen Vogelschutzrichtlinie / *minimum number of individuals of bird species listed in annex II of the european directive for the protection of birds shot annually*, Vögel/Jäger=durchschnittliche Anzahl der geschossenen Vögel pro Jahr und Jäger / *mean number of birds shot per hunter and year*, erfasste(s) Jahr(e)=Zeitraum, in dem die ausgewerteten Jagdstrecken erhoben wurden / *period of time represented by the analysed datasets*, jagdb. Arten=Anzahl der Vogelarten, für die im Jagdjahr 2005/06 eine Jagdzeit eingerichtet wurde / *number of bird species with a legal hunting season in 2005/06*, n Datensätze=Anzahl ausgewerteter Einzelstrecken / *number of analysed single bag records*, % Datensätze=Anteil ausgewerteter Einzelstrecken / *percentage of analysed datasets.*

	Q	Anzahl Jäger	Jäger/ km^2	Abschuss pro Jahr	Vögel/ Jäger	erfasste(s) Jahr(e)	jagdb. Arten	n Daten-sätze	% Daten-sätze
Belgien	-	20.000	0,65	1.175.326	58,77	2002-2003	11	9	82
Dänemark	+	165.000	3,84	2.150.265	13,03	2000-2002	37	37	100
Deutschland	+	340.000	0,95	2.299.984	6,76	2002-2004	27	25	93
Estland	+	15.000	0,35	21.804	1,45	2002+2003	34	32	94
Finnland	++	290.000	0,95	1.173.000	4,04	2003+2004	32	25	78
Frankreich	+	1.313.000	2,41	25.676.403	19,56	1998	61	61	100
Griechenland	-	270.000	2,01	10.025.871	37,13	s. Text	31	17	55
Großbritannien	-	800.000	3,27	22.149.024	27,69	s. Text	38	27	71
Irland	+	350.000	5,00	3058.046	8,74	2003	21	21	100
Italien	-	750.000	2,49	17.054.468	22,74	2003	35	31	89
Lettland	+	25.000	0,38	44.261	1,77	2004	26	22	85
Litauen	++	25.000	0,38	14.765	0,59	2002+2003	16	16	100
Luxemburg	++	2.000	0,67	2.903	1,45	2000-2002	6	6	100
Malta	+	15.000	47,17	397.690	26,51	s. Text	32	32	100
Niederlande	++	30.000	0,88	1.022.300	34,08	2002	12	9	75
Norwegen	+	190.000	0,49	728.924	3,84	2002-2004	34	28	82
Österreich	+	115.000	1,37	284.904	2,48	2002+2003	28	23	82
Polen	+	100.000	0,32	284.490	2,84	2002+2003	13	13	100
Portugal	--	230.000	2,50	s. Text		s. Text	31	1	3
Schweden	++	290.000	0,71	553.734	1,91	2001+2002	31	30	97
Schweiz	++	30.000	0,73	38.285	1,28	2001-2003	20	19	95
Slowakei	+	55.000	1,12	171.198	3,11	2001-2003	18	17	94
Slowenien	++	22.000	1,10	50.834	2,31	2002+2003	6	6	100
Spanien	-	980.000	1,94	11.147.285	11,37	s. Text	39	27	69
Tschechien	+	110.000	1,39	988.361	8,99	2004	15	13	87
Ungarn	++	54.500	0,59	688.910	12,64	2002+2003	16	16	100
Zypern	-	45.000	50	669.250	14,87	2001	35	5	14

Tabelle 3:
Status, Bestände und Schätzwerte für die gesamteuropäischen Entnahmestärken von 82 Vogelarten des Anhang II der europäischen Vogelschutzrichtlinie. Status, populations and estimated european total of all collected bag statistics for 82 species of birds listed in Annex II of the european directive of the protection of wild birds.

Legende/legend: VSR = Anhang und Teil der Vogelschutzrichtlinie, in dem die jeweilige Art gelistet ist/annex and part of the birds directive in which the particular species is listed, NMAX = Anzahl der Länder, in denen die Art bejagd wird/number of countries where the species is hunted, N = Anzahl vorhandener Datensätze/number of available datasets, Erhaltungsstatus/conservation status: Unf. = unvorteilhaft/unfavourable, F = vorteilhaft/favourable, BP EU25 = durchschnittlicher Gesamtbestand an Brutpaaren in den EU25-Ländern/mean breeding population size (pairs) in the EU25-countries (Quelle: BirdLife International 2004), Winterbestand = Durchschnittlicher Winterbestand in den EU-25 Ländern (in Individuen) /mean number of wintering individuals (Quelle: BirdLife International 2004), Abschuss = Anzahl der in der EU, Norwegen und der Schweiz mindestens geschossener Vögel/minimum number of birds shot in the EC, Norway and Switzerland.

		VSR	N_{max}	N	Status	BP EU25	Winter-bestand	Abschuss
ANSERIFORMES								
Cygnus olor	Höckerschwan	II/2	2	2	F.	80.000	220.000	2.644
Anser fabalis	Saatgans	II/1	15	14	F.	2.750	380.000	35.914
Anser brachyrhynchus	Kurzschnabelgans	II/2	3	3	F.	-	290.000	20.208
Anser albifrons	Blässgans	II/2	16	12	F.	-	930.000	15.653
Anser anser	Graugans	II/1	17	16	F.	74.000	350.000	107.813
Branta canadensis	Kanadagans	II/1	11	10	F.			64.297
Branta bernicla	Ringelgans	II/2	1	0	F.	-	240.000	
Anas penelope	Pfeifente	II/1	19	17	F.	95.000	1.600.000	849.839
Anas strepera	Schnatterente	II/1	15	12	F.	24.000	79.000	73.410
Anas crecca	Krickente	II/1	22	19	F.	290.000	570.000	960.027
Anas platyrhynchos	Stockente	II/1	27	25	Unf.	2.200.000	2.900.000	4.524.449
Anas acuta	Spießente	II/1	16	14	Unf.	21.500	79.000	123.891
Anas querquedula	Knäkente	II/1	13	8	Unf.	18.500	-	24.454
Anas clypeata	Löffelente	II/1	15	13	Unf.	34.000	140.000	87.929
Netta rufina	Kolbenente	II/2	2	2	F.	8.300	13.000	6.365
Aythya ferina	Tafelente	II/1	20	18	Unf.	90.000	440.000	202.545
Aythya fuligula	Reiherente	II/1	21	17	Unf.	235.000	970.000	246.457
Aythya marila	Bergente	II/2	7	5	Unf.	1.700	100.000	1.575
Somateria mollissima	Eiderente	II/2	6	6	F.	550.000	880.000	104.495
Clangula hyemalis	Eisente	II/2	7	7	F.	2.250	2.000.000	27.953
Melanitta nigra	Trauerente	II/2	5	5	F.	3.750	610.000	23.737
Melanitta fusca	Samtente	II/2	5	5	Unf.	28.000	110.000	3.337
Bucephala clangula	Schellente	II/2	11	11	F.	320.000	270.000	152.618
Mergus serrator	Mittelsäger	II/2	5	4	F.	58.500	52.000	7.941
Mergus merganser	Gänsesäger	II/2	4	4	F.	48.000	140.000	12.950
GALLIFORMES:								
Meleagris gallopavo	Truthuhn	II/2	3	2	F.		keine Angabe	214
Tetrastes bonasia	Haselhuhn	II/2	9	9	Unf.	615.000	keine Angabe	111.119
Lagopus lagopus	Moorschneehuhn	II/2	2	2	Unf.	485.000	keine Angabe	382.568
Lagopus l. scoticus	S. Moorschneehuhn	II/1	2	2	F.		keine Angabe	435.582
Lagopus mutus	Alpenschneehuhn	II/1	7	5	Unf.	95.000	keine Angabe	175.270
Tetrao tetrix	Birkhuhn	II/2	9	7	Unf.	690.000	keine Angabe	203.627
Tetrao urogallus	Auerhuhn	II/2	8	7	Unf.	365.000	keine Angabe	75.344
Alectoris chukar	Chukarhuhn	II/2	2	1	F.	160.000	keine Angabe	420.000
Alectoris graeca	Steinhuhn	II/1	4	4	Unf.	28.500	keine Angabe	242.436

		VSR	N_{max}	N	Status	BP EU25	Winter-bestand	Abschuss
Alectoris rufa	Rothuhn	II/1	6	5	Unf.	3.250.000	keine Angabe	5.016.178
Alectoris barbara	Felsenhuhn	II/2	1	0	F.	13.750	keine Angabe	
Perdix perdix	Rebhuhn	II/1	16	15	Unf.	1.180.000	keine Angabe	1.872.904
Coturnix coturnix	Wachtel	II/2	8	6	F.	960.000	keine Angabe	2.634.334
Phasianus colchicus	Fasan	II/1	26	22	F.	34.000.000	keine Angabe	21.959.775
Francolinus francolinus	Halsbandfrankolin	II/2	1	1	Unf.	2.500	keine Angabe	6.250
GRUIFORMES								
Rallus aquaticus	Wasserralle	II/2	3	2	F.	136.000	keine Angabe	30.305
Gallinula chloropus	Teichhuhn	II/2	7	3	F.	995.000	keine Angabe	153.668
Fulica atra	Blässhuhn	II/1	21	15	F.	845.000	1.500.000	207.175
CHARADRIIFORMES								
Haematopus ostralegus	Austernfischer	II/2	1	1	F.	295.000	840.000	12.677
Pluvialis apricaria	Goldregenpfeifer	II/2	7	3	F.	185.000	820.000	75.140
Pluvialis squatarola	Kiebitzregenpfeifer	II/2	2	2	Unf.	-	120.000	43
Vanellus vanellus	Kiebitz	II/2	5	4	F.	1.065.000	2.800.000	516.475
Calidris canutus	Knutt	II/2	1	1	F.	-	470.000	7.491
Philomachus pugnax	Kampfläufer	II/2	3	2	Unf.	61.000	keine Angabe	766
Lymnocryptes minimus	Zwergschnepfe	II/1	8	4	F.	15.500	11.000	81.048
Gallinago gallinago	Bekassine	II/1	14	11	Unf.	375.000	290.000	586.020
Scolopax rusticola	Waldschnepfe	II/1	25	22	Unf.	960.000	440.000	2.730.125
Limosa limosa	Uferschnepfe	II/2	1	1	F.	64.500	60.000	13.274
Limosa lapponica	Pfuhlschnepfe	II/2	1	1	F.	230	120.000	10.352
Numenius phaeops	Regenbrachvogel	II/2	1	1	F.	50.500	keine Angabe	46
Numenius arquata	Großer Brachvogel	II/2	3	2	Unf.	190.000	410.000	44.248
Tringa erythropus	Dunkler Wasserläufer	II/2	1	1	F.	20.500	keine Angabe	1.148
Tringa totanus	Rotschenkel	II/2	1	1	F.	120.000	170.000	23.974
Tringa nebularia	Grünschenkel	II/2	1	1	F.	56.500	keine Angabe	666
Larus ridibundus	Lachmöwe	II/2	5	4	F.	1.140.000	keine Angabe	6.200
Larus canus	Sturmmöwe	II/2	5	4	Unf.	345.000	keine Angabe	25.186
Larus fuscus	Heringsmöwe	II/2	2	2	F.	250.000	keine Angabe	495
Larus argentatus	Silbermöwe	II/2	9	5	F.	545.000	keine Angabe	48.080
Larus cachinnans	Weißkopfmöwe	II/2	1	0	F.	315.000	keine Angabe	
Larus marinus	Mantelmöwe	II/2	7	5	F.	46.000	keine Angabe	14.675
COLUMBIFORMES								
Columba livia	Felsentaube	II/1	4	0	F.	5.250.000	keine Angabe	
Columba oenas	Hohltaube	II/2	4	1	F.	560.000	keine Angabe	210.592
Columba palumbus	Ringeltaube	II/1	25	23	F.	10.250.000	keine Angabe	15.571.251
Streptopelia decaocto	Türkentaube	II/2	11	8	F.	3.350.000	keine Angabe	457.240
Streptopelia turtur	Turteltaube	II/2	8	7	Unf.	2.100.000	keine Angabe	2.367.416
PASSERIFORMES								
Alauda arvensis	Feldlerche	II/2	4	3	Unf.	24.500.000	keine Angabe	2.523.643
Turdus merula	Amsel	II/2	8	4	F.	46.500.000	keine Angabe	6.615.587
Turdus philomelos	Singdrossel	II/2	8	5	F.	13.600.000	keine Angabe	14.901.508
Turdus pilaris	Wacholderdrossel	II/2	9	7	F.	3.600.000	keine Angabe	3.465.307
Turdus iliacus	Rotdrossel	II/2	8	5	F.	3.350.000	keine Angabe	4.201.905

		VSR	N_{max}	N	Status	BP EU25	Winter-bestand	Abschuss
Turdus viscivorus	Misteldrossel	II/2	6	4	F.	2.450.000	keine Angabe	994.471
Turdus spp.	Drosseln			2			keine Angabe	119.173
Sturnus vulgaris	Star	II/2	7	4	Unf.	19.000.000	keine Angabe	417.122
Garrulus glandarius	Eichelhäher	II/2	14	13	F.	4.600.000	keine Angabe	1.144.941
Pica pica	Elster	II/2	21	17	F.	5.400.000	keine Angabe	980.630
Corvus monedula	Dohle	II/2	8	5	F.	3.050.000	keine Angabe	250.934
Corvus frugilegus	Saatkrähe	II/2	6	5	F.	2.750.000	keine Angabe	607.739
Corvus corone	Aaskrähe	II/2	23	18	F.	6.050.000	keine Angabe	1.148.882
	„Andere Vögel“ (Zypern)							117.000

Tabelle 4:
Geschätzte Abschusszahlen von Vogelarten des Anhang II der europäischen Vogelschutzrichtlinie in den 27 untersuchten Staaten (nE). *Estimates of the number of bagged individuals of bird species listed in annex II of the EC birds directive in the 27 countries covered by this study (nE).*

Legende / *legend*: KJZ = für die Art existiert in der Jagsaison 2005/06 im entsprechenden Land keine Jagdzeit, ? = Art wird im entsprechenden Land bejagt, die Zahl der getöteten Individuen ist jedoch unbekannt, CH = Schweiz, CY = Zypern, CZ = Tschechische Republik, DE = Deutschland, DK = Dänemark, EE = Estland, EL = Griechenland, ES = Spanien, FI = Finnland, FR = Frankreich, HU = Ungarn, IE = Irland, IT = Italien, LT = Litauen, LU = Luxemburg, LV = Lettland, MT = Malta, NL = Niederlande, NO = Norwegen, PL = Polen,

	nE	BE	CZ	DK	DE	EE	GR	ES	FR	IE	IT	CY	LV
ANSERIFORMES													
Cygnus olor	2.644				1.844								
Anser fabalis	35.914	KJZ	738	886	4.255	648	KJZ	KJZ	0	KJZ	KJZ	KJZ	445
Anser brachyrhynchus	20.208	KJZ		3.403						KJZ			
Anser albifrons	15.653	KJZ	1.029	233	12.088	166	?		0	KJZ		?	150
Anser anser	107.813	KJZ	19	13.564	13.506	1.037	KJZ	7.543	20.850	280	KJZ	?	KJZ
Branta canadensis	64.297	KJZ	KJZ	3.915	273	1	KJZ	KJZ	0	140	KJZ	KJZ	4
Branta bernicla	?			KJZ	?								
Anas penelope	849.839	632	KJZ	40.967	33.228	862	16.016	3.226	94.109	64.655	10.178	?	0
Anas strepera	73.410	KJZ	KJZ	533	KJZ	149	454	2.317	45.363	1.028	4.325	?	0
Anas crecca	960.027	?	KJZ	66.500	4.892	3.494	38.322	2.439	330.890	127.908	36.086	?	3
Anas platyrhynchos	4.524.449	131.618	329.725	577.233	396.475	7.870	12.460	29.656	1.561.150	193.077	129.675	?	9.084
Anas acuta	123.891	KJZ	KJZ	6.067	5	318	8.919	3.090	46.603	1.075	6.729	?	0
Anas querquedula	24.454	KJZ	KJZ	167	KJZ	1.040	?	?	KJZ	KJZ	4.706	?	KJZ
Anas clypeata	87.929	KJZ	KJZ	1.867	KJZ	328	3.218	5.862	48.325	3.927	5.383	?	0
Netta rufina	6.365							5.831	534				
Aythya ferina	202.545	KJZ	731	1.133	21.065	29	7.917	2.681	43.550	4.721	10.178	?	10
Aythya fuligula	246.457	KJZ	KJZ	3.433	65.158	12	689	?	18.819	5.797	5.681	?	126
Aythya marila	1.575	KJZ		333	KJZ	51	KJZ		861	327			3
Somateria mollissima	104.495			76.133		0			3	KJZ			
Clangula hyemalis	27.953			3.267		160			6	KJZ			13.785
Melanitta nigra	23.737			3.533	KJZ	KJZ			15.961	KJZ			255
Melanitta fusca	3.337			1.967	KJZ	24			659	KJZ			437
Bucephala clangula	152.618			14.733		107	KJZ		1.097	1.823			11.093
Mergus serrator	7.941			2.533						KJZ			
Mergus merganser	12.950			1.300						KJZ			
GALLIFORMES													
Meleagris gallopavo	214		134		?								
Tetrastes bonasia	111.119					135			50				31

PT = Portugal, SE = Schweden, SI = Slowenien, SK = Slowakei, UK = Vereinigtes Königreich.

Fettdruck = Originalangaben, Normaldruck = hochgerechnete Daten, Kursiv = von Spannweitenangaben berechnete Mittelwerte / *bold = original datasets, normal = projected datasets, italics = means calculated from data presented in ranges*

Zellen für Arten, die nur in einzelnen EU-Ländern bejagt werden dürfen (Anhang II (Teil 2) der Vogelschutzrichtlinie) sind für diese Länder dunkelgrau, für die übrigen Länder (keine Bejagung) hellgrau, hinterlegt. *Cells for species which can be hunted legally only in certain countries of the E.U. (annex II, part 2 of the birds directive) were marked with dark grey colour for these countries, for other countries with light grey colour.*

	LT	LU	HU	MT	NL	AT	PL	PT	SI	SK	FI	SE	UK	NO	CH	Vogelart
					800	?								KJZ	KJZ	Höckerschwan
	34	KJZ	2.992	6	?	1.139	13.812	KJZ	KJZ	659	6.850	3.450	KJZ	KJZ	KJZ	Saatgans
													16.000	805	KJZ	Kurzschnabelgans
	0		1.410		?	13	288			26		250	?	KJZ	KJZ	Blässgans
	KJZ	KJZ	KJZ	49	12.500	335	12	KJZ	KJZ	95	6.000	5.959	16.000	10.064	KJZ	Graugans
	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	4.550	26.850	25.000	3.564	KJZ	Kanadagans
														KJZ	KJZ	Ringelgans
	KJZ	KJZ	KJZ	10	?	239	KJZ	?	KJZ	KJZ	54.300	1.300	527.031	3.085	1	Pfeifente
	KJZ	KJZ	KJZ	40	KJZ	473	KJZ	?	KJZ	KJZ	?	KJZ	18.684	KJZ	44	Schnatterente
	447	KJZ	2.611	74	KJZ	1.664	761	?	KJZ	KJZ	118.750	9.100	212.174	3.724	188	Krickente
	9.579	1.645	56.944	45	300.000	44.944	115.901	?	6.011	18.340	264.900	98.300	200.339	22.735	6.743	Stockente
	KJZ	KJZ	KJZ	83	KJZ	14	KJZ	?	KJZ	KJZ	10.550	KJZ	40.437	KJZ	1	Spießente
	135	KJZ	414	240	KJZ	?	KJZ	?	KJZ	KJZ	17.750	KJZ	KJZ	KJZ	2	Knäkente
	KJZ	KJZ	KJZ	5	KJZ	25	KJZ	?	KJZ	KJZ	6.550	KJZ	12.439	KJZ	0	Löffelente
														KJZ	KJZ	Kolbenente
	16	KJZ	719	22	KJZ	5.639	471	?		KJZ	1.800	KJZ	101.426	KJZ	437	Tafelente
	0	KJZ	KJZ	7	KJZ	16.049	12.809	?	KJZ	KJZ	6.800	4.350	105.661	583	483	Reiherente
					KJZ								?	KJZ	?	Bergente
											10.200	3.850		14.309	KJZ	Eiderente
											9.650	250	KJZ	835	KJZ	Eisente
											KJZ	250	KJZ	3.738	KJZ	Trauerente
											KJZ	250	KJZ	KJZ	KJZ	Samtente
	KJZ		121			2.308					74.250	10.750	31.808	4.528	KJZ	Schellente
				11							1.750	475	KJZ	3.172	KJZ	Mittelsäger
											8.900	2.750	KJZ	?	KJZ	Gänsesäger
						KJZ				80				KJZ	KJZ	Truthuhn
						218	204			28	95.650	10.700		4.103	KJZ	Haselhuhn

	nE	BE	CZ	DK	DE	EE	GR	ES	FR	IE	IT	CY	LV
Lagopus l. lagopus	382.568												
Lagopus l. scoticus	435.582	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	3.132	KJZ	KJZ	KJZ
Lagopus mutus	175.270	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	395	KJZ	79	KJZ	KJZ
Tetrao tetrix	203.627	KJZ			KJZ				1.078		KJZ		?
Tetrao urogallus	75.344				KJZ				100		956		?
Alectoris chukar	420.000	KJZ	KJZ	KJZ	KJZ	KJZ	?	KJZ	KJZ	KJZ	KJZ	420.000	KJZ
Alectoris graeca	242.436						241.466		115		720	KJZ	
Alectoris rufa	5.016.177	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	2.819.458	1.731.963	5.984	8.772	KJZ	KJZ
Alectoris barbara	?							?			KJZ		
Perdix perdix	1.871.346	31.440	KJZ	43.433	10.977	73	KJZ	KJZ	1.453.780	KJZ	103.692	KJZ	KJZ
Perdix p. hispaniensis	1.558	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	?	1.558	KJZ	KJZ	KJZ	KJZ
Coturnix coturnix	2.634.334						744.354	1.403.382	341.000		88.033	11.000	
Phasianus colchicus	21.959.775	188.490	610.010	661.967	396.962	1.394	?	74.156	5.061.054		848.254	?	6
Francolinus francolinus	6.250											6.250	
GRUIFORMES													
Rallus aquaticus	30.305								30.270		?		
Gallinula chloropus	153.668	KJZ					?	?	76.190		77.386		
Fulica atra	207.175	852	1.392	17.533	15.606	74	?	?	133.070	KJZ	22.207	?	?
CHARADRIIFORMES													
Haematopus ostralegus	12.677			KJZ					12.677				
Pluvialis apricaria	75.140	KJZ		KJZ			KJZ	?	62.960	10.144			
Pluvialis squatarola	43			KJZ					0				
Vanellus vanellus	516.475	KJZ		KJZ			?	46.938	435.690		33.777		
Calidris canutus	7.491			KJZ					7.491				
Philomachus pugnax	766								719		?		
Lymnocryptes minimus	81.048	KJZ	KJZ	2.267	KJZ	KJZ	KJZ	?	49.640	29.125	?	?	KJZ
Gallinago gallinago	586.020	KJZ	KJZ	18.933	KJZ	85	?	5.801	274.910	205.139	50.311	?	KJZ
Scolopax rusticola	2.730.125	?	0	38.333	10.562	1.103	1.061.874	35.321	1.168.290	125.383	104.874	15.000	7.633
Limosa limosa	13.274			KJZ					13.274				
Limosa lapponica	10.352			KJZ					10.352				
Numenius phaeops	46			KJZ					46				
Numenius arquata	44.248			KJZ					43.173	1.075			
Tringa erythropus	1.148			KJZ					1.148				

	LT	LU	HU	MT	NL	AT	PL	PT	SI	SK	FI	SE	UK	NO	CH	Vogelart
											102.850	KJZ		279.718	KJZ	Moorschneehuhn
	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	432.450	KJZ	KJZ	S. Moorschnee-huhn
	KJZ	KJZ	KJZ	KJZ	KJZ	?	KJZ	KJZ	KJZ	KJZ	KJZ	?	17.550	156.655	591	Alpenschneehuhn
						2.178					144.450	27.000	2.000	26.333	588	Birkhuhn
						370					37.900	25.350	500	10.168	KJZ	Auerhuhn
	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	Chukarhuhn
										135				KJZ	KJZ	Steinhuhn
	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	?	KJZ	KJZ	KJZ	KJZ	450.000	KJZ	KJZ	Rothuhn
														KJZ	KJZ	Felsenhuhn
	814	KJZ	2.292	KJZ	KJZ	9.896	21.011	KJZ	2.310	128	2.100	2.400	187.000	KJZ	KJZ	Rebhuhn
	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	Span. Rebhuhn
				46.565		?		?						KJZ	KJZ	Wachtel
	237	45	477.655	KJZ	95.200	173.475	92.356	?	34.434	121.694	18.150	33.500	12 Mio	?	120	Fasan
														KJZ	KJZ	Halsbandfrankolin
				35										KJZ	KJZ	Wasserralle
				92				?					?	KJZ	KJZ	Teichhuhn
	133	KJZ	1.924	16	KJZ	1.817	8.298	?		602	2.800	KJZ	?	KJZ	851	Blässhuhn
														KJZ	KJZ	Austernfischer
				2.036	KJZ			?					?	?	KJZ	Goldregenpfeifer
				43									KJZ	KJZ	KJZ	Kiebitzregen-pfeifer
				70				?						KJZ	KJZ	Kiebitz
														KJZ	KJZ	Knutt
				47										KJZ	KJZ	Kampfläufer
	KJZ	KJZ	KJZ	16	KJZ	KJZ	KJZ	?	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	Zwergschnepfe
	6	KJZ	KJZ	97	KJZ	250	KJZ	?	KJZ	KJZ	KJZ	KJZ	30.000	488	KJZ	Bekassine
	2.389	67	7.803	4.240	KJZ	3.937	4.749	?	KJZ	2.494	4.600	1.800	125.000	2.932	1.741	Waldschnepfe
														KJZ	KJZ	Uferschnepfe
													KJZ	KJZ	KJZ	Pfuhlschnepfe
													KJZ	KJZ	KJZ	Regenbrachvogel
													?	KJZ	KJZ	Gr. Brachvogel
														KJZ	KJZ	D. Wasserläufer

	nE	BE	CZ	DK	DE	EE	GR	ES	FR	IE	IT	CY	LV
Tringa totanus	23.974			KJZ					23.974		KJZ		
Tringa nebularia	666			KJZ					666				
Larus ridibundus	6.200	KJZ		KJZ	3.500	9		?					
Larus canus	25.186			KJZ	6.235	26							
Larus fuscus	495			133	362								
Larus argentatus	48.080	KJZ		19.333	5.694	27							?
Larus cachinnans	?							?					
Larus marinus	14.675			9.533	499	2							
COLUMBIFORMES													
Columba livia		KJZ	KJZ	KJZ	KJZ	KJZ	?	?	KJZ	KJZ	KJZ	?	KJZ
Columba oenas	210.592						KJZ	210.592	KJZ			?	
Columba palumbus	15.571.251	617.843	22.923	285.267	817.765	370	221.974	412.990	5.168.980		63.895	?	11
Streptopelia decaocto	457.240		4.502	7.233	63.031				305.660		?	?	
Streptopelia turtur	2.367.415						522.468	1.464.056	189.300		56.086	?	
PASSERIFORMES													
Alauda arvensis	2.523.643						KJZ		637.570		1.839.508	?	
Turdus merula	6.615.587						?	2.849.635	984.820		2.779.333	?	
Turdus philomelos	14.901.508						3.751.514	1.032.530	2.382.429		7.590.043	?	
Turdus pilaris	3.465.309					66	1.436.296	59.926	912.130		1.053.697	?	
Turdus iliacus	4.201.906						1.350.546	56.348	857.674		1.936.735	?	
Turdus viscivorus	994.467						607.384	23.568	358.727			?	
Turdus spp.	119.173											100.000	
Sturnus vulgaris	417.122		1.077	2.200			?	370.856	KJZ			?	
Garrulus glandarius	1.144.944	11.433	3	KJZ	33.544				167.600		129.675		
Pica pica	980.630	78.358	13.084	37.600	144.108		?	190.455	210.100		26.714	?	419
Corvus monedula	250.934						?	16.688				?	
Corvus frugilegus	607.739			100.900		14			171.000				
Corvus corone	1.148.882	114.660	2.997	75.333	238.350	2.130	?	11.939	166.000		26.780	?	766
„Andere Vögel“	117.000											117.000	

	LT	LU	HU	MT	NL	AT	PL	PT	SI	SK	FI	SE	UK	NO	CH	Vogelart
													KJZ	KJZ	KJZ	Rotschenkel
														KJZ	KJZ	Grünschenkel
			KJZ			?				8		KJZ		2.683	KJZ	Lachmöwe
											?	10.950		7.975	KJZ	Sturmmöwe
													?	KJZ	KJZ	Heringsmöwe
											?	14.850	?	8.176	KJZ	Silbermöwe
			KJZ											KJZ	KJZ	Weißkopfmöwe
											?	4.050	?	591	KJZ	Mantelmöwe
	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	?	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	KJZ	Felsentaube
								?						KJZ	KJZ	Hohltaube
	0	KJZ	2.368	128	450.000	12.711	13.818	?	KJZ	1.645	160.950	55.650	6 Mio	57.979	1.294	Ringeltaube
			67.317			6.338				2.752			?	KJZ	407	Türkentaube
				99.633		872		35.000						KJZ	KJZ	Turteltaube
				46.565										KJZ	KJZ	Feldlerche
				1.799				?				?		KJZ	KJZ	Amsel
				144.992		KJZ		?			KJZ			KJZ	KJZ	Singdrossel
				2.344				?				850		?	KJZ	Wacholderdrossel
				603				?						?	KJZ	Rotdrossel
				4.788				?						KJZ	KJZ	Misteldrossel
														19.173	KJZ	Drosseln
			KJZ	42.989				?					?	KJZ	KJZ	Star
		272	17.735		2.800			?	3.819	4.659		18.900	738.353	9.121	7.030	Eichelhäher
		396	29.283		8.400			?	1.048	12.040	?	46.400	154.382	24.837	3.006	Elster
	0				61.600						?	38.400	134.246	KJZ	KJZ	Dohle
	211		KJZ							?			335.614	KJZ	KJZ	Saatkrähe
	764	478	17.322		91.000			?	3.212	5.813	?	94.800	234.930	46.850	14.758	Aaskrähe
																„Andere Vögel“

Tabelle 2:
Länder mit zusammengefassten Streckenangaben für verschiedene Artengruppen. Countries with summarized bag statistics for different groups of species.

Land	Artengruppe
Deutschland	Enten, Gänse, Möwen, Tauben
Dänemark	Gänse
Estland	Möwen
Frankreich:	Limikolen, Enten, Drosseln
Griechenland	Drosseln, Enten
Großbritannien	Enten, Schneehühner
Lettland	Enten
Norwegen	Möwen
Österreich	Tauben, Enten, Gänse
Polen	Enten, Gänse
Slowakei	Gänse
Spanien	Drosseln
Tschechien	Gänse
Zypern	Drosseln

Tabelle 5:
In der EU jagdbare Vogelarten mit unvorteilhaftem Erhaltungsstatus (EU-Kommission, 2003a). Huntable bird species with unfavourable conservation status in the E.U. (EU-Kommission, 2003a).

Status: SPEC 2 - gefährdet; Kriterium: starker Rückgang
Limosa limosa (Uferschnepfe/Black-tailed Godwit)
Status: SPEC 2 - zurückgehend; Kriterium: mäßiger Rückgang
Tringa totanus (Rotschenkel/Redshank),
Larus canus (Heringsmöve/Common Gull)
Status: SPEC 3 - gefährdet; Kriterium: starker Rückgang
Anas strepera (Schnatterente/Gadwall)
Anas acuta (Spießente/Pintail)
Anas querquedula (Knäkente/Garganey)
Coturnix coturnix (Wachtel/Quail)
Lymnocryptes minimus (Zwergschnepfe/Jack snipe)
Scolopax rusticola (Waldschnepfe/Woodcock)
Limosa lapponica (Pfuhlschnepfe/Bar-tailed Godwit)
Alauda arvensis (Feldlerche/Skylark)
Status: SPEC 3 - gefährdet; Kriterium: < 2.500 Paare
geringer Winterbestand
Branta bernicla (Ringelgans/Brent goose)
Status: SPEC 3 - zurückgehend; Kriterium: mäßiger Rückgang
Netta rufina (Kolbenente/Red-crested Pochard)
Numenius arquata (Großer Brachvogel/Curlew)
Streptopelia turtur (Turteltaube/Turtle Dove)
Status: SPEC 3 - begrenzte Winterverbreitung; Kriterium: begrenzte Verbreitung
Aythya ferina (Tafelente/Pochard)
Melanitta fusca (Samtente/Velvet Scoter)
Calidris canutus (Knutt/Knot)
Gallinago gallinago (Bekassine/Snipe)
Pluvialis apricaria (Goldregenpfeifer/Golden Plover)
Vanellus vanellus (Kiebitz/Lapwing)
Philomachus pugnax (Kampfläufer/Ruff)