The Dachverband Deutscher Avifaunisten (DDA, Federation of German Avifaunists) co-ordinates national-wide bird survey programmes, such as monitoring of breeding and resting birds. As well as supporting research on applied bird conservation, the DDA represents German nature conservation organisations on Wetlands International and the European Bird Census Council.

Since more than 100 years the Naturschutzbund Deutschland (NABU, Nature and Biodiversity Conservation Union) is involved in practical and political bird and nature conservation. The NABU is the German partner of BirdLife International, it is member of the DNR (German League for Nature and Environment), and since 1971 the NABU chooses the Bird of the Year in Germany (2008: common cuckoo).

The Deutsche Rat für Vogelschutz (DRV, German Council for Bird Protection) is a forum, which enables the co-operation and an intensive exchange of experiences between representatives of governmental bird conservation agencies, scientific institutions and NGOs. The aim is to give scientifically well-founded advice to decision takers and to promote scientific knowledge and conservation strategies.

The Deutsche Ornithologen-Gesellschaft (DO-G, German Ornithologists’ Society) is one of the oldest scientific associations in the world. Since its formation in 1850, it has promoted ornithology as a pure science as well as in applied research.
Dear readers,

Germany will host the 9th UN nature conservation conference ("ninth meeting of the Conference of the Parties to the UN Convention on Biodiversity") in Bonn from 19th to 30th May 2008, to which more than 5,000 representatives from all over the world are expected. The basis of the conference of the parties is the "Convention on Biological Diversity (CBD)", which was agreed at the world summit in Rio de Janeiro in 1992 and is celebrated as a milestone for nature conservation. Here, it is expressly acknowledged that the conservation of biological diversity is in the interest of all mankind. So far, 189 countries, as well as the European Union have signed the convention.

In Johannesburg, South Africa, in 2002, the so-called "2010 target" was adopted within the framework of the CBD, in order to reduce significantly by 2010 the rate of biological diversity loss at a global, regional and national level. At Gothenburg in 2001, the EU had already decided to halt the loss of biodiversity in Europe by 2010.

On the occasion of the 9th meeting of the Conference of the Parties to CBD, the report "Birds and Biodiversity in Germany – 2010 Target" represents a comprehensive overview of the conservation status of national bird life – representing all biological diversity. The report aims to inform decision makers in politics and administration as well as the public who are interested in the successes achieved in species conservation in recent years, and also to reveal the continuing or even increasing need for action, in particular in the unprotected "wider countryside".

The analysis is based on several million records, gathered by more than 5,000 bird watchers. The evaluation allows concrete conclusions about the application of nature conservation concepts, so we could achieve a sustainable contribution to the protection of species diversity. On the other hand, they also act as early-warning systems by pointing out current undesirable developments, which need to be stopped if the aim of preventing continuous losses of species diversity is to be achieved.

Stefan Fischer, chairman of the DDA
Overall situation

- Many common bird species are in decline: numbers of 23 of the 64 commonest German birds have fallen over the last 15 years. Even species such as house sparrow, common house martin and northern lapwing continue to deteriorate in status.

- Ground-nesting birds of farmland such as Eurasian skylark and Eurasian curlew are particularly threatened: causes are intensification of agriculture, loss of semi-natural wet grasslands and the recent use of fallow land for the cultivation of energy crops. Favourable trends are found only where there are high levels of organic farming and in large protected areas. If biodiversity loss is to be halted on agricultural land, support measures must be targeted more strongly at the conservation of species and habitats. An important current issue is the need for a fallow land programme to compensate for the loss of EU set-aside.

- Forest birds have shown a slight recovery: semi-natural forest management has led to better living conditions for typical species such as Eurasian nuthatch and great spotted woodpecker. Nearly half of the 52 commonest woodland species have increased since 1990, but this increase has taken place almost exclusively outside forests, in parks, gardens and green spaces. Sharp rises in the price of timber and increased use of wood for fuel are currently causing severe intensification of forest management. Therefore, declines in forest birds should be expected in the future.

- Species breeding on the coasts are particularly seriously threatened: Kentish plover and little tern need targeted protection measures if they are to survive in Germany. Numbers of shellfish-eating visitors to the Wadden Sea, such as red knot and common eider, have shown alarming declines over the last 10 years.

- Long-running protection schemes have helped spectacular larger birds: continuing population increases for black stork, white-tailed eagle, peregrine falcon and common crane show that voluntary- and state-sector conservation measures can enable the long-term survival of these species.

Sustainability

- Birds are policy indicators of the sustainability of land-use in Germany. The Federal Government's sustainability strategy sets a target of stabilising the status of all species in the species diversity indicator and those selected to represent high value habitats.

- The indicator has stagnated over the last ten years and in 2005 only 74% of the target had been met. Significant extra effort will be needed if the sustainability target is to be achieved.

Climate change

- Climate change also affects bird life: numbers of ducks wintering in Germany have increased, because the winter range of some species has moved in response to milder winter conditions in central Europe.

- Long-distance migrants such as tree pipit, wood warbler and European pied flycatcher suffer from dramatic changes in landscape, on migration and on their African wintering grounds. Causes are drought, overgrazing, deforestation and expansion of desert.

- Long-distance migrants are particularly strongly affected by population declines, regardless of habitat preference, ecological guild, or genetic kinship. Therefore, rapidly changing conditions on the African continent should be brought more strongly within the focus of nature conservation.
Bird monitoring

In order to be able to make statements about the world of birds, we need to map and count as precisely as possible the breeding and resting birds which occur regularly in Germany.

We benefit from the presence of several thousand skilled and experienced, deeply committed bird-watchers, who willingly give their knowledge to non-profit service. Through this mostly voluntary collaboration, they all contribute to the permanent observation of our avifauna in the framework of so-called monitoring programmes, with which it is possible to describe very accurately changes in distribution and numbers of bird species. Evaluation of habitats and their links with information on landuse allows analysis of causes of population change. This is used to develop recommendations for nature conservation policy.

Monitoring of common breeding birds by the Dachverband Deutscher Avifaunisten (DDA) – the Federation of German Avifaunists – has provided reliable information on the widespread common bird species of Germany since 1990. Further important modules of bird observation are the “rare breeding birds monitoring” and the monitoring programmes for resting waterbirds (e.g. International Waterbird Census, Trilateral Monitoring and Assessment Program of the Wadden Sea, Seabirds at Sea), as well as monitoring of birds of prey and owls and the “Integrated Monitoring of Songbird populations”.

Further information on bird monitoring can be found on the homepage of the DDA under www.dda-web.de, in particular in the online information system “Vögel in Deutschland” (“Birds in Germany”).

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<th>Species</th>
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<td>Wood warbler</td>
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<td>Common reed bunting</td>
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Legend: ✔ = strong decline (> 50 %), ★ = decline (20-50 %), ★★ = moderate decline (< 20 %), ★★★ = Population fluctuating and/or without trend, ★★☆ = moderate increase (< 20 %), ★★★ = increase (20-50 %), ★★★★ = strong increase (> 50 %), ★★☆☆ = increase in the first, decline in the second part of the period.
Protection of species

In various ways, several thousand volunteers, nature protection organisations and foundations as well as public authorities are involved in species conservation. The activities range from installing nest boxes, to the purchase of ecologically valuable areas and their ecologically-friendly cultivation, to payment of compensation for profits lost by farmers and forest owners. Has the conservation situation improved for species for which particular protection measures have been in place for several years? Experience shows that those species that are in the public eye may have been helped through specific supporting measures.

The installation of artificial nests and nesting assistance are easy measures to support breeding populations of endangered species: osprey and peregrine falcon have both benefited. For species that are particularly sensitive to disturbance, such as white-tailed eagle and common crane, securing breeding sites and introducing nest protection zones have been proved to work.

Thanks to intensive efforts, in 1998 the population of great bustard increased at the three remaining breeding sites in Brandenburg and Saxony-Anhalt for the first time in decades of decline. In 2005, more than 100 birds were recorded. The population of Eurasian eagle-owl reached a low point of 70 pairs at the end of 1990s, but by 2005, large areas of Germany had been repopulated and more than 1,000 pairs were registered. While the population continues to increase in northern and western Germany, numbers are stable or even locally decreasing in South Germany. This species is supported through reintroduction in Schleswig-Holstein.

Due to enormous voluntary engagement, which has been given to species recovery programs for decades and is funded by donations as well as by public authorities, species such as barn owl and little owl also profit from the construction of nest boxes and nest holes, as do

The growing breeding population of Montagu’s harrier proves that successful protection of nest sites can also be practised on land used for agricultural crops. Since the start of state-aided species recovery programmes, the population increased nationally to between 430 and 460 pairs. In the mid 1990s the species was still “critically endangered” on the Red-List.

For the permanent protection of many endangered bird species, species action plans are indispensable. However, these plans can only proceed in the long term if the preservation of natural habitats is given the highest priority. With the designation of Special Protection Areas (SPAs) under the EU Birds Directive, Germany is on the right track to secure for future generations a comprehensive species diversity as a national contribution to the European NATURA 2000 site network. By April 2008, Germany had designated 734 SPAs (11.1% of the land area). In addition, almost 1.9 million hectares of sea, bays, intertidal areas and parts of Lake Constance are also included in the network. Further proposals for bird protection areas will be made in 2008.
At the beginning of this millennium, 26 species of breeding birds were critically endangered in Germany – as shown by the 2002 Red List. Has the ringing of alarm bells led to increased conservation effort? The balance is ambivalent: 4 species recovered slightly, for 12 species the negative population trend has been stopped and for another 4 species the rate of decline could at least be slowed. However, for 5 species the conservation effort needs to be intensified considerably if they are to be prevented from becoming extinct...

...a fate, which has already befallen the European roller, which bred for the last time in Baden-Württemberg in 1994. Populations of ruff, dunlin, woodchat shrike and aquatic warbler are threatened with immediate extinction in Germany. Kentish plover breeding on the North Sea coast show an unremittingly strong downward trend. Away from the Alps, black grouse are severely threatened, and have been lost from most of the moors and heaths in north Germany where they previously occurred. An exception is the increasing population in the Lüneburg Heath. Inland breeding numbers of black-tailed godwit, a target species of the wet meadow protection programmes of several federal states, have continued to decline, in spite of the widespread purchase of ecologically valuable meadow areas. After nearly two decades of intensive efforts, the first signs of success can be detected in protection areas. This gives rise to hope that the federal and state government conservation programmes for protecting wet meadows and bogs are slowly beginning to succeed.

European golden plover have also benefited from extensive nature protection measures, which have allowed the small remnant population in Lower Saxony to be maintained with increasing breeding success.

The breeding populations of black tern, short-eared owl and Eurasian hoopoe, which showed heavy losses between 1975 and 1990, have stabilised since the middle of the 1990s. The population of Eurasian bittern, a widespread inhabitant of reedbeds, has recovered from heavy losses due to two cold winters in the middle of the 1990s. Ferruginous duck – after an absence of more than 20 years – since 1997 again regularly in Germany.


All numbers represent breeding pairs (exceptional individuals = ind.)

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<td>Rock bunting</td>
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Legend: **strong decline (> 50 %), * = decline (20-50 %), * = stable (-20 % bis +20 %), + = increase (20-50 %), ** = strong increase (> 50 %)**
As a signatory to the “Convention on Biodiversity”, Germany has committed itself to stopping the decline of species diversity. In order to assess whether this aim can be achieved, performance indicators have been developed which react sensitively to changes in the use of our natural resources. Indicators are important aids to display complex connections in a clear and simple way. They also clarify to the public and politicians, where nature conservation action needs to be taken.

**Sustainability indicator for species diversity**

The sustainability indicator for species diversity is one of 21 indicators, against which the proposed aim of sustainable development in Germany shall be assessed. This indicator displays the quality of nature and landscape and is based on the population trends of 59 selected bird species that represent the most important landscape, habitat and landuse types in Germany (farmland, forests, settlements, inland waters, coasts and seas and the Alps). The size of the populations directly reflects the suitability of the landscape as habitat for the bird species concerned. As many species besides birds are also bonded to a rich and diverse landscape with intact, sustainably used habitats, the indicator also indirectly measures species diversity and sustainability of landuse, when considered on a large scale.

An expert panel has determined target population levels for 2015 for each bird species; these are achievable if legal requirements for nature conservation and guidelines for sustainable development are put into practice.

The indicator shows that current landuse in Germany is not sustainable and no trend is recognisable regarding the target values for 2015. Therefore additional efforts are necessary in order to hit the target and to secure the conservation of species diversity.

**‘Wild Bird’ indicators for Europe**

The view over the border of Germany shows that the European “Wild Bird Indicator”, which summarises the population trends of 124 common bird species of all habitats, showed a moderate decrease in the 1980s, but stabilised since the mid-1990s. The “Farmland Bird Indicator”, which belongs to the EU-guideline indicators for the “management of natural resources” shows that the situation for farmland birds has clearly developed negatively.

The red-backed shrike is one of ten indicator species for the habitat “farmlands”. Photo: H. Glaeder

The population trend of great crested grebe is included in the indicator for the habitat of inland waters. Photo: T. Krüger

High responsibility: almost 60 % of all red kites worldwide are breeding in Germany. Photo: K. Budweiser
Farmland birds

As in other European countries, a particular sharp decline of bird populations in agricultural landscapes was observed in Germany between 1960 and 1990. West and East Germany experienced a dramatic intensification of agricultural production through mechanisation, pesticide and fertiliser application, as well as measures to improve the land, e.g. through dewatering, drainage, installation of flood defences, as well as consolidation of farmland and reclamation of waste land. Intensification of use and productivity, and loss of species diversity on agricultural land were disproportionately greater in West Germany than in East Germany. The causes for these declines are now well understood: particular problems are rapid and dense growth of crops, lack of food, habitat destruction, lack of crop diversity, drainage of wet grassland and high levels of predation by mammals.

Current trends

Populations of birds breeding on arable land developed differently following German reunification: declines continued in the west, while a recovery of many species (e.g. yellowhammer and corn bunting) was observed in the east after reorganisation of agriculture and an increase of set-aside areas to 15-20 % of the arable land. However, here too the data mainly show declines since the late 1990s.

The population trends of northern lapwing, Eurasian skylark, whinchat and meadow pipit represent many ground-nesting birds, which were also affected by continuing declines over the last 15 years. Even more threatened are species of marshland areas: dunlin and ruff have become almost extinct in Germany; the breeding population of black-tailed godwit has shrunk to less than half its former level, and the Eurasian curlew population is in sharp decline. When considering birds breeding in arable landscapes, no clear winners can be found: only western yellow wagtail is able to use intensively cultivated field areas as breeding habitat.

Due to current farming conditions, many species are no longer able to breed, or to rear their young successfully. Drainage measures cause reductions in food supply and encourage the spread of predatory mammals, for which nests or not-fully fledged young are easy prey.

Bird species nesting in hedges and shrubs show less distinct population trends: while common nightingale and common whitethroat now show positive trends following population collapse in the 1970s, the numbers of willow warbler and common linnet have declined continuously.

Example Eurasian skylark: The already high densities of this typical farmland bird in East Germany increased even more following German Reunification, while in West Germany – after a short population recovery – declines clearly continued. Since 1999, this species has decreased at the same rate in both parts of Germany.

In western and southern Germany almost a rarity: a singing Eurasian skylark. Photo: M. Schaal
Farmland birds

New threats

Rapid changes in ecological and political determining factors over the next few years could cause further wide-ranging and immediate population losses for birds of agricultural landscapes.

As a consequence of increased crop prices and concurrent increased demand for land used to produce so-called energy crops (in particular maize for bio-gas) at explosive rates, the pressure on farmland has risen considerably in Germany, as well as in other European countries, over a relatively short time. A first consequence of this development at a European level is the suspension of compulsory set-aside. As a result, the proportion of fallow land in the landscape will be noticeably less from 2008. This will have a massive impact on the population levels of many bird species.

A second consequence is the further spread of monocultures (above all, maize), with expected negative impacts on biodiversity in agricultural regions. Already noticeable is loss of grassland, which is less profitable than arable, even more so today than several years ago. Many of the most endangered bird species are grassland specialists. Compensation payments within the framework of agri-environment programmes are likely to be uncompetitive compared with potential future earnings, with the result that either farmers will lose interest in those programmes in the near future, or – if average payment rates are increased and if the budget remains the same – a smaller total area is included in the programme. In either case, the significance of the contract based nature protection scheme might be weakened.

New and largely unexplored are the first releases of genetically modified crops, with the connected push to intensify agricultural land. Regardless of possibly unwanted impacts, the wanted impacts of genetically modified crops (GM crops) currently pose a potential threat to nature protection targets: GM crops allow intensive landuse on an unprecedented scale so far, resulting in sterile, homogeneous blocks of economic plants. If GM crops are cultivated increasingly in the future, it must be feared that populations of many farmland birds would decline further.

The consequences of climate change for farmland birds are currently not predictable. As climate change affects bird habitats not only directly, but also indirectly, due to changed forms of farmland cultivation, complex correlations are unfolded which allow only a few concrete prognoses. Birds of grassland are likely to be particularly affected, as their conservation status is already recorded as critical.
To save farmland birds is possible

The knowledge of how to help farmland birds is largely available. A number of small measures (e.g. laying out strips of fallow land, skylark patches, or hedges) are some of the improvements that can be achieved at a local scale. Effective, wider-ranging solutions have also been tried out. Compared with conventional agriculture, organic farming significantly increases the likelihood of higher bird densities.

Large scale protected areas, e.g. biosphere reserves, can also make a significant contribution. For example, the population of farmland birds developed better on large reserves in East Germany than in the wider countryside. The population trends for corn bunting, yellowhammer and Eurasian skylark indicate successes: while populations remain stable in the wider countryside of East Germany outside reserves following declines in set-aside since the mid-1990s, numbers on large scale protected areas clearly increased, even in recent years. By contrast, corn bunting has almost completely disappeared from farmland in most regions of West Germany.

The management of wet grassland has also shown some progress. Through direct rewetting, reversion of arable fields to meadows and pasture often in close collaboration with farmers – at least some populations could be supported at some localities.

Thus, tested action strategies exist to halt the decline of biological diversity on agricultural land. These include the promotion of organic farming and extensive pastoral agriculture, as well as maintaining at least 10% of the agricultural landscape as fallow land, as indicated by the conclusions of several research projects. However, implementation of these measures is still a problem.
Farmland birds

Overview of trends in agricultural landscape

• Most typical bird species of agricultural land are decreasing; declines have accelerated since the late 1990s.

• Reasons for these declines are well researched for many species. Fallow land and set-aside are key factors; the cancellation of compulsory set-aside and the boom in “energy crops” (e.g. maize) indicate dramatic population collapses within the next few years. The policy target of halting the loss of biodiversity by 2010, cannot be reached in this way.

• The mainly positive developments on organic farmland and large reserves show one way to save the biodiversity of our agricultural landscape.

Conclusion and recommended courses of action

Because of current increases in agricultural prices and the competition for land used for energy or food production, it is essential to provide the second pillar of EU agriculture policy (rural development) with efficient and well-resourced development programmes and to define sophisticated environmental standards for cross-compliance. In order to avoid a new wave of intensification, with increasing declines of species on agricultural land, the following measures are required over the next few years:

✦ Clear expansion of rural development through re-deployment of EU agricultural payments by 20% into the second pillar in the framework of the forthcoming mid-term assessment of the Common Agricultural Policy in 2008,

✦ Creation of uniform, performance-related financial instrument for sustainable development of agricultural regions within the EU from 2014,

✦ Improvement of environmental standards of cross-compliance by compulsory establishment of ecologically important areas (e.g. farm woodland, strips of flowers, managed fallow land, extensive grassland) over at least 10% of farmed areas, tightening the ban on ploughing grassland in sensitive areas, and maintaining at least three-year crop-rotation systems,

✦ Focussing financially and in content on agri-environment programs for particular ecological efficient measures (e.g. nature conservation of fallow land, preservation of species-rich grasslands, promotion orientated on success, enhancement of farmland, business development programmes),

✦ Further development of the promotion of energy crops in harmony with environment-friendly farming, by complementing existing promotional instruments on ecological minimum-criteria (e.g. regarding biogas plants, the maize proportion needs to be restricted to no more than 50% as well as the maintenance of three-year crop-rotation).
Forest birds

Forest bird populations have developed inconsistently. The forest bird indicator stagnates, but a slightly positive trend is noticeable since the millennium. For some species, this could be due to increasing abandonment of rotational clear-cutting and the trend to continuous forest use (selective cutting). However, there are signs that improvements in forest management are currently being negated by intensified felling. It is also notable that overall numbers of many common forest bird species increase, but that these increases actually occur outside forests, namely in settlements, gardens and parks.

Actual trends

Better protection of mature forest stands and the increasing average age of our forests (increased stock of wood) have encouraged populations of many species breeding in holes, such as stock dove, black woodpecker, great spotted woodpecker, Tit species and Eurasian nuthatch. Common birds of coniferous forest, such as European crested tit, firecrest, coal tit, Eurasian pygmy owl and boreal owl, are also among the winners.

Populations of nearly half of 52 common forest species have increased since 1990. However, these increases did not occur predominately or exclusively in forests, but rather in settlements. The growth of green space and the increasing age of trees in cities, villages and gardens enables more and more forest birds to settle in urban habitats.

Particular losers among forest birds are long-distance migrants, such as European turtle dove, European pied flycatcher, tree pipit and wood warbler – species which annually cover distances of several thousand kilometres between their local breeding areas and wintering grounds in Africa. It seems that the reasons for these declines are found not so much in Germany, but rather along migration routes, or on the wintering grounds.

Losers and winners can also be found among large birds living in forests. Combined with the resettlement of the German low mountain range, numbers of black stork have increased since the late 1980s – also a result of intensive species protection measures. In contrast, the population of lesser spotted eagle decreased continuously in spite of species conservation efforts since the mid-1990s.

Germany is located in the middle of the European natural range of beech forests, whose area increased in the last 15 years. Photo: S. Ellermann

The population of stock dove has increased since the end of the 1970s. Photo: H. Gläder
The breeding population of red kite – of which nearly 60% of the entire world population occurs in Germany and for the conservation of which we therefore carry a particular responsibility – has declined by more than 25% since the end of the 1980s; this decrease is significantly caused by a collapse of the population in the core red kite area in Saxony-Anhalt. The population of the secretive European honey buzzard shows a similar trend over the same time period. The declines are connected to the decline of cultivation of fodder crops (leys) and summer cereals, as well as the loss of insect-rich, extensively used cultivated landscapes. This leads to a reduction in food supply (for example common hamster, wasps), and, in addition, prey species are also difficult to catch due to dense and high vegetation even in early spring. The changes in vegetation cover and phenology are a result of the use of agricultural fertilisers and the nutrient effect of atmospheric inputs.

Our woodland grouses, western capercaillie and hazel grouse, are also decreasing. While the western capercaillie suffers losses of berry-rich, well-structured coniferous and mixed mountain forest habitats, and in the 1990s the last lowland populations were lost from the berry-rich, pine-sessile oak woods of Lusatia, the hazel grouse has
disappeared from many areas following the abandonment of traditional coppice management of woodland. Woodland grouse are particularly disadvantaged by the control of deciduous softwoods, as well as the widespread suppression of natural woodland regeneration due to afforestation.

**New threats**

For several years strong growth in demand for timber and an increase in timber prices have been noticeable. Not even the large quantities of fallen timber, caused by storm Kyrill in January 2007, could affect the price of timber. Pulp production, as well as wood chip and wood pellet fired heating systems are becoming more common. This means that increasingly not only good-quality timber, i.e. premium trunkwood and veneers, but also wood previously considered as low quality (broken branches, dead wood, soft woods and young trees, brush) can be used profitably. Accordingly, the felling rate has increased strongly in recent years. Likewise, there is a current increase in the use of domestic firewood. These developments might be a cause for concern, as the so far stable to positive trends for bird species that depend on old and dead wood, such as woodpeckers, treecreepers, *Eurasian nuthatch* and other hole-nesting birds, might decline. Frequent heavy use, increased numbers of wood collectors and higher levels of use and work during the breeding season causes more disturbances in old woodlands and causes the displacement of disturbance-sensitive species, such as birds of prey, black stork and common crane.

It seems that so far, climate change has had no direct impact on forest birds. Some species

<table>
<thead>
<tr>
<th>Species</th>
<th>Trend inside of forests</th>
<th>Trend outside of forests</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>European green woodpecker</td>
<td>-1.6</td>
<td>+7.2 **</td>
<td>*</td>
</tr>
<tr>
<td>Great spotted woodpecker</td>
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<td>+5.1 **</td>
<td>*</td>
</tr>
<tr>
<td>Winter wren</td>
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<td>+3.6 **</td>
<td>**</td>
</tr>
<tr>
<td>Common blackbird</td>
<td>-0.2</td>
<td>+1.3 **</td>
<td>*</td>
</tr>
<tr>
<td>Eurasian blackcap</td>
<td>+3.2 **</td>
<td>+7.5 **</td>
<td>**</td>
</tr>
<tr>
<td>Garden warbler</td>
<td>-0.4</td>
<td>+5.6 **</td>
<td>**</td>
</tr>
<tr>
<td>Common chiffchaff</td>
<td>-0.6 *</td>
<td>+2.3 **</td>
<td>**</td>
</tr>
<tr>
<td>Goldcrest</td>
<td>-2.5 **</td>
<td>+8.7 *</td>
<td>*</td>
</tr>
<tr>
<td>European robin</td>
<td>-0.6 *</td>
<td>+1.3 **</td>
<td>*</td>
</tr>
<tr>
<td>Great tit</td>
<td>-0.5</td>
<td>+1.0 **</td>
<td>*</td>
</tr>
<tr>
<td>Eurasian jay</td>
<td>-1.8 *</td>
<td>+7.4 **</td>
<td>**</td>
</tr>
<tr>
<td>Song thrush</td>
<td>-0.6</td>
<td>-3.1 **</td>
<td>*</td>
</tr>
<tr>
<td>Hawfinch</td>
<td>-1.2</td>
<td>-6.8 **</td>
<td>*</td>
</tr>
</tbody>
</table>

Legend: Black = different trends inside and outside of forests, red = significant decreasing trends, * = significant, ** = high significant.
Forest birds

(great spotted woodpecker, Eurasian nuthatch, tits and finches), which eat seeds in winter, even benefit from frequent and strong crops of mast, which are encouraged through mild winters and dry-sunny springs. Again, here the potential effect of warmer and drier summers might also overlap with changes in forest management (reduction of clear-cutting, increase of permanent forests) which lead to darker and denser forest stands.

The increasing interest in cultivation of alien tree species, often fast growing conifers, caused by the fear of climate change, could also have a negative effect on long-term population trends of many species, which are tied to local forest types and their associated invertebrate species.

Overview of trends in forests

- Among the most common forest birds, more species have increased since 1990 than decreased, but these increases occurred mainly outside forests, in urban areas and parks.
- Long-distance migrants are particularly affected by population decreases.
- Hole-nesters and some large bird species profit from the occasional increase in old woods and the trend towards permanent forests-like types of landuse.
- Populations of some birds of prey, notably lesser spotted eagle, as well as grouses still decrease and need specific conservation programmes.
- Potential threats are current and possible future intensification of timber use, also the profitable use of low-quality timber, the increasing cultivation of alien tree species, as well as potential indirect impacts of climate change.

Conclusion and recommended courses of action

Top priority must be given to the protection of old trees, the promotion of varied woodland structure and of the co-existence of different forest development phases side-by-side, the preservation of the highest possible numbers of ancient trees, as well as a sufficient stock of dead wood. For this, several instruments are suitable:

- Precise formulation of prescriptions for “good technical practise”;
- designation of an adequately dense network of wide-ranging protected areas (total reserves) and old forest islands;
- “Methusalem” projects for marking and preservation of old trees within a wider area, allowing them to become old naturally (for example, in the Brandenburg state forest 5 living old trees/ha are chosen, marked with badges and excluded from use).
- The cultivation of alien tree species should totally be avoided in conservation areas and limited to a specific maximum (for example in public forests not more than 10%) outside conservation areas.
- Impacts due to activities (felling, moving trees) in potential breeding areas of species sensitive to disturbance should be limited to time periods outside the breeding season (October to February, or mid-January at white-tailed eagle breeding sites).
- At actual or potential breeding areas of lesser spotted eagle, western capercaillie and hazel grouse, specific conservation programs need to be drafted and put into action.
- The trend to promote local deciduous trees and local forest companies, as well as management to encourage mosaics of age classes and forest development phases (for example permanent forest), individual trunk selection, thinning, continuous cover forestry on small areas, and to an extent also forest meadows) should become stronger.

Protection and preservation of old forests and dead wood will be essential to maintain population increases for grey-headed woodpecker and other species.

Seed-eating birds, such as the European crested tit, benefit from heavy mast crops, which could become more frequent due to climate change. Photo: H. Glader

Protection and preservation of dead wood could benefit the willow tit. Photo: H. Glader

Seed-eating birds, such as the European crested tit, benefit from heavy mast crops, which could become more frequent due to climate change. Photo: H. Glader

Protection and preservation of dead wood could benefit the willow tit. Photo: H. Glader

Protection and preservation of dead wood could benefit the willow tit. Photo: H. Glader
Overall, birds of urban areas show a negative trend over the last decade. Birds breeding at buildings and birds that almost exclusively occur in built-up areas or depend on farm buildings on the outskirts of towns and villages, have clearly decreased. Negative trends are caused by the loss of orchards, rural gardens and small domestic animals. In towns, redevelopment of buildings and building on fallow land has made it more difficult for many birds to find nest sites.

Birds that need breeding sites on buildings have shown an alarming, nationwide decline. The four most common building nesters in Germany – house sparrow, common swift, common house martin and barn swallow – show largely parallel population declines since the 1990s. Eurasian collared dove and European serin are also among the losers. Crested lark is now almost entirely absent; up to the 1960s, it was a common breeding bird on open, sparsely vegetated industrial fallow land and gap sites.

Among the winners in towns and villages are birds that occur in green spaces, parks and gardens in residential areas. Birds that used to be forest species, such as European robin, Eurasian blackcap, winter wren, European green woodpecker and great spotted woodpecker, belong to this group. Common blackbird – next to house sparrow the most common species of built-up areas – still show slightly growing populations.

Even though numbers of breeding Eurasian magpies have increased in towns and villages, it is increasingly disappearing from farmland, so that altogether the population trend tends to decline.

Breeding populations of common kestrel and barn owl have been protected for a long time through specific recovery programmes and by installing nesting boxes. Peregrine falcons have also profited from such measures, and successfully rear young in several cities: feral domestic dove are the main prey.
Wetland birds

The populations of most wetland bird species show positive trends over the last 10 years. These increases often began during the second half of the 1980s, when programmes to improve the water quality of local rivers and lakes came into force. After high losses due to the development of water bodies during the 1960s and 1970s, the populations of many species have not recovered to their former size. After the water quality has further been improved, particularly for standing water bodies, measures must be taken with the aim of restoring wetlands to their natural state and allowing a natural dynamic of water bodies.

Despite enhanced wastewater treatments, the quality of most lakes has not or scarcely improved since 1990. High nutrient inputs from arable farmland (over-use of nitrate fertilisers) and slow rates of water exchange cause often very high nutrient contents of standing water bodies (eutrophic). As a result, populations of whitefish, insignificant for fishery, have increased steadily, which might be also the reason for population increases of common merganser.

Red-crested pochard has also benefited from improved water quality: in Lake Constance, the German stronghold for this species, stoneworts have spread since the late 1980s. This is the main food source of red-crested pochard and so their population has increased steadily, currently in the southern federal states and in north-east Germany.

Over the last 20 years or so, it has been observed that a high number of introduced and escaped bird species are increasingly expanding their range in Germany. By now, almost a dozen non-native waterbird species are breeding regularly in Germany and species such as Egyptian goose, ruddy shelduck, Canada goose and mandarin duck are in some cases spreading quite quickly.

Recently, colonisation of waterbirds has also occurred without human assistance, for example, breeding populations of whooper swan and barnacle goose increase quickly in Northern Germany. If the increase of the globally endangered ferruginous duck was also “uninfluenced” is not known. However, its numbers increase in Germany slightly, even still on a very low level, while in nearly all neighbouring countries the negative trend continues.
Coastal and sea birds

The “coasts and seas” indicator has remained stable over the last 10 years. Most coastal bird species are still increasing at the North Sea coast, but show decreasing trends at the Baltic Sea coast during the 1990s.

On the North Sea, increases of some species were the result of increased food resources due to nutrient accumulation and discards (un-used fishery waste). Conservation measures in the national parks were also a positive factor.

The status of Kentish plover is worrying, as the breeding population decreases in spite of intensive conservation measures. New concepts are necessary to improve the status of shore birds, including little terns: areas of the German Wadden Sea National Park with high natural beach and dune dynamic are not only endangered by coastal protection measures; but must also be protected from recreation activities. This is particularly so if one takes into account rising sea levels, which threaten habitats of species that breed close to the high tide line.

Sea level rise will have a negative effect on bird life in the German Wadden Sea in the middle- and long-term. Increased energy input already means that smaller quantities of fine sediments, particularly mud, are deposited in front of the seawall. Birds that forage on muddy tidal flats, such as avocets, will increasingly lose areas of foraging habitat. For energetic reasons, they need food-rich mud to rear their young, and so their breeding areas will increasingly deteriorate in quality. In addition, populations of these coastal breeding birds, whose conservation status is generally declining, suffer increasing pressure from predation, with many predators introduced or promoted by man.

The population dynamics of a typical bird species of the transition areas between the open sea and the Wadden Sea can be shown by the example of the sandwich tern. Here, multiple factors – including human persecution, marine pollution (pesticides), the designation of conservation zones (breeding sites), natural succession of breeding habitats and the natural

Breeding birds of sands and coastlines – such as the common ringed plover – are threatened by tourism as well as rising sea levels. Photo: T. Krüger

The Coast / Sea Bird Indicator contains following species:

- Arctic tern
- Common eider
- Common murre
- Common redshank
- Common ringed plover
- Common tern
- Eurasian oystercatcher
- Northern harrier
- Red-breasted merganser
- Little tern

Decreasing: little tern. Photo: J. Ruddek

Attainment of target value in %

<table>
<thead>
<tr>
<th>Year</th>
<th>Target value</th>
<th>Target value reached</th>
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<tbody>
<tr>
<td>1998</td>
<td>80%</td>
<td>74%</td>
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<td>2000</td>
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<tr>
<td>2001</td>
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<tr>
<td>2002</td>
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<td>74%</td>
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<tr>
<td>2003</td>
<td>80%</td>
<td>74%</td>
</tr>
<tr>
<td>2004</td>
<td>80%</td>
<td>74%</td>
</tr>
</tbody>
</table>

The trend is constant. The current value is still far distant from the target value.

Photo: J. O. Krieta

Breeding birds of sands and coastlines – such as the common ringed plover – are threatened by tourism as well as rising sea levels. Photo: T. Krüger
Coastal and sea birds

In the Baltic, the situation of many coastal bird species has deteriorated: eleven ground-breeders are nearly extinct in Mecklenburg-Western Pomerania. For many coastal birds the protection and conservation of salt marsh as well as the continuation of extensive pasturage and hay cropping on coastal wet grasslands are all important for survival.

On Helgoland, breeding populations of seabirds continued to increase and northern fulmar, northern gannet and razorbill have reached new maximum values. Populations of black-legged kittiwake (ca. 7,500 breeding pairs) and common murre (ca. 2,500 breeding pairs) have now stabilised. For both species, the carrying capacity at Helgoland seems to have been reached. Numbers of northern gannets are still increasing, but there are signs that they will reach a plateau very soon.

For North Sea seabirds as a whole, it is generally the case that following strong population increases over the last decades, different trends are now detectable: black-legged kittiwake numbers are strongly declining, those of northern fulmar to a lesser extent. In contrast, common murre numbers increase only slightly, while northern gannets show a clear increase. Causes include different feeding strategies between species, as well as changes in the ecosystem of the North Sea, mainly due to climate change and fishing activities.

Conclusion and recommended courses of action

- Climate change and sea level rise will have adverse impacts on coastal breeding birds: therefore large protected areas are becoming more important, as birds can adapt more easily to changing conditions there than elsewhere. The protection of large areas, where natural processes are allowed to continue unimpe- ded are of vital importance. This is particularly the case for low-lying beach, dune and salt marsh areas, as they are greatly important for coastal breeding birds.

- In order to safeguard future natural sedimentation processes in the Wadden Sea, measures are needed to increase retention areas of the Wadden Sea, so that enough fine sediment can continue to be deposited.
Bird populations in the Alps have generally stagnated over the last 10 years, but this follows earlier declines. Reasons for this generally unfavourable situation are: increasing human settlement and tourist development; intensification of agriculture; widespread eutrophication; and the abandonment of traditional types of agriculture. Urban sprawl, the development of easily accessible valley sites and the expansion of tourist centres all combine to open up previously remote areas.

Intensive use and fragmentation of alpine habitats affect sensitive species, especially western capercaillie, hazel grouse and rufous-tailed rock thrush, as well as mammals. The habitat of citril finch, an endemic species in Europe, which in Germany breeds only in the Alps and the Black Forest, is altered more and more by increasing tourist development and by intensification or abandonment of alpine pastoral farming. Increased nutrient contents and earlier growing seasons for plants are unfavourable for an alpine insectivore.

Population declines of alpine bird species occur regularly, often due to poor weather conditions at the start of the breeding season, for example between 1997 and 1998 for Eurasian three-toed woodpecker and to a lesser extent for western capercaillie, European robin and Eurasian treecreeper. For long-lived species, complete breeding failure in some years can generally be balanced out, but climate change could have very adverse effects in alpine regions. A warmer climate not only affects melting of glaciers, it also causes altitudinal displacement in birds which are bound to specific altitude zones. At present, for example, we notice the loss of water pipit and citril finch from montane regions.

The Alpine Bird Indicator contains following species:

- Alpine accentor
- European robin
- Western capercaillie
- Eurasian nuthatch
- Golden eagle
- Willow tit
- Eur. three-toed woodpecker
- Ring ouzel
- Eurasian treecreeper
- Western Borell’s warbler

Population trends and numbers of several montane breeding birds between 1996 and 2005, which occur only or predominantly in the Alps.

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Rock ptarmigan</td>
<td>$\downarrow$</td>
<td>300-600</td>
<td>Eurasian crag martin</td>
<td>$\uparrow$</td>
<td>100-200</td>
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<tr>
<td>Western capercaillie</td>
<td>$\uparrow$</td>
<td>580-780</td>
<td>Wallcreeper</td>
<td>$\downarrow$</td>
<td>700-1200</td>
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<td>Golden eagle</td>
<td>$\downarrow$</td>
<td>46</td>
<td>Alpine accentor</td>
<td>$\uparrow$</td>
<td>700-1200</td>
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<tr>
<td>Eurasian three-toed woodpecker</td>
<td>$\uparrow$</td>
<td>730-1000</td>
<td>White-winged snowfinch</td>
<td>$\uparrow$</td>
<td>200-400</td>
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<tr>
<td>White-backed woodpecker</td>
<td>$\downarrow$</td>
<td>250-410</td>
<td>Water pipit</td>
<td>$\downarrow$</td>
<td>2000-6000</td>
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<tr>
<td>Alpine chough</td>
<td>$\uparrow$</td>
<td>2000-4000</td>
<td>Citril finch</td>
<td>$\downarrow$</td>
<td>3400-5500</td>
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</tbody>
</table>

Legend: $\uparrow$ = strong increase (> 50 %), $\downarrow$ = decrease (20-50 %), $\downarrow\downarrow$ = stable (-20 % bis +20 %), $\downarrow\downarrow\downarrow$ = strong decrease (> 50 %).
A number of species, such as rock ptarmigan and white-winged snowfinch, breed only in the Alps and their numbers can only be estimated due to the difficulty of accessing their mountain breeding sites. Since the beginning of the 21st century, rufous-tailed rock thrush has bred regularly again in the western Bavarian Alps (Allgäu), having previously been recorded for the last time in 1983.

Conclusion and recommended courses of action

- In order to conserve alpine biodiversity, birds within the Alps have to be protected from general tourist activity, as well as urban sprawl and habitat fragmentation. Un-exploited mountain regions must be protected more strictly from human impacts than before.

- Traditional landuse of old cultivated landscapes (e.g. mountain pastures and Alps) must be safeguarded. The separation of forest and meadow has not only to consider forestry criteria but also species protection interests.

- On the other hand, there is a need to safeguard semi-natural forests, rich in old and dead wood, in order to conserve mountain forest specialists, such as white-backed woodpecker, Eurasian three-toed woodpecker, and western capercaillie.

- Adverse consequences of climate change can only be solved through international collaboration, but in the long-term are likely to have the largest impacts on the species diversity of the Alps.
Migrating waterbirds

Many millions of waterbirds rest in Germany on their annual migration and 130 different waterbird species occur regularly. Here, they depend on a network of areas where they can replenish their energy reserves for the onward migration, or moult undisturbed, or spend the cold winter season. For resting, they use very different habitats, such as the Wadden Sea; sea coasts with their shallow sandbanks; lakes in the lowlands of north Germany and in the foothills of the Alps; rivers and their barrages; reservoirs; or sewage ponds. Due to its geographical location, Germany is very important for moulting, migrating and overwintering waterbirds – and therefore has a high responsibility for the conservation of their populations.

Germany – at the crossroads of European waterbird migration

Germany bears a very high responsibility for the protection and conservation of at least 15 waterbird species, and a high responsibility for another 23 species.

The Wadden Sea

Unique habitat of global importance

The Wadden Sea is a unique habitat, supporting 10-12 million waterbirds annually, especially during migration. Due to its rich food supplies, many populations depend on the Wadden Sea, leading to a high to very high responsibility for 13 waterbird species, mainly waders.

Nearly the entire northwest European population of common shelduck moult their wings in the Wadden Sea. Estimated 250,000 birds concentrate only at a few sites during this crucial period in their annual life cycle, unable to fly for several weeks. More than half of the northwest European population of avocet also moult in the German Wadden Sea. Brant goose, common eider, Eurasian oystercatcher, red knot, dunlin and bar-tailed godwit rest here in very high numbers. Barnacle goose, grey plover, sanderling, spotted redshank and Eurasian curlew also occur in high numbers.

Long-term negative trends of shellfish-eaters

After generally positive population trends for all waterbirds until the end of the 1980s, which can be considered as a success due to the designation of national parks with large, disturbance-free protected zones and hunting bans, recent trends of some bird guilds are worrying: since the 1990s, the populations of species that predominately feed on shellfish have declined over the whole Wadden Sea, including species such as common eider, Eurasian oystercatcher and red knot, for which Germany holds a very high responsibility. There seems to be a connection with industrial fishing of cockles, identified as major cause of the decline of red knot in the Dutch Wadden Sea and has subsequently been significantly reduced. However, it is still unclear, what impacts on local shellfish species are caused by the introduced Pacific oyster, which is spreading due to climate change and is generally not suitable as food for shellfish-eating birds.

Some bird species react sensitively to changing ecological conditions and the avocet, for which population declines have been observed over years, is a good example. One possible reason is habitat loss due to climate change: even slight increases in water levels mean that mudflats are exposed for shorter periods, resulting in a decline of mud areas. Avocets forage in precisely these areas.

Clear declines in some other species, such as brant goose since the mid 1990s, seem to be the result of changes on the Arctic breeding areas: over several years, brant geese returned to the Wadden Sea with only small numbers of young, even though they had left the Wadden Sea in good body condition.

These examples show that favourable foraging conditions and disturbance-free core zones are necessary for many waterbird and wader populations.

Waterbird numbers – as of barnacle goose – overall increased since the 1970s, but recent trends for some populations are worrying. Photo: H. Glöckle
Migrating waterbirds

Baltic Sea

International importance for diving ducks

The combination of extensive mussel beds, important fish spawning grounds and relatively short periods of sea ice, compared to the northern and northeastern Baltic, ensure the survival of more than 1 million waterbirds during the non-breeding season. In particular, the German Baltic Sea coast is of international importance as an overwintering area for diving ducks.

Nearly all of the greater scaup that occur in Germany are concentrated on a few water bodies close to the Baltic Sea coast. In particular, sheltered bays of the Baltic Sea water bodies called Haff (similar to a lagoon) and Bodden (shallow coastal waters of the Baltic Sea) are of crucial importance for mute swan, tufted duck and smew in Germany. Many overwintering species at the Baltic Sea show complex movements between daytime roost sites (bays, small lagoons, or lower river courses) and night-time feeding areas (on the Baltic Sea).

Positive trends and shifts due to milder winters?

Populations of resting waterbird species, of which large concentrations occur at the Baltic coast, show positive or stable long-term trends. A significant cause is the tendency for mild winters since the end of the 1980s. Wide-ranging freezing events occur less often and make movements to more westerly areas unnecessary. At the same time, the wintering distribution of species that are not sensitive to the cold have shifted further east, to the coasts of Poland and the Baltic states. This might be one of the reasons why overwintering numbers of some diving duck species have declined in the German Baltic. Such regional shifts of wintering distribution are not problematic for waterbird populations, as long as sites along the species’ flyway are protected sufficiently.

Here, the effects of international agreements for the protection of wetlands (Ramsar convention, Helsinki convention) or more generally for migrating waterbird species (African-Eurasian Migratory Waterbird Agreement) become important.

The extent to which increased shipping traffic and increased use by tourism have an impact on resting and molting populations, in particular of coastal areas in Mecklenburg-Western Pomerania, can currently not be quantified. Several water bodies, previously important for molting birds, have held none in recent years.

Agricultural land

Favourable conditions for foraging geese, swans and cranes

During the day, geese, swans, cranes and some waders forage on agricultural land away from wetlands. Two to three million birds use the available favourable conditions for foraging and overwintering in Germany. In conjunction with disturbance-free night-time roosts, this habitat is of critical importance for the conservation of a total of 10 species, for which Germany bears a high to very high responsibility.

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### Table: Overview of the waterbird species for which Germany bears a very high or high responsibility

<table>
<thead>
<tr>
<th>Wadden Sea and Baltic Sea</th>
<th>Very high responsibility</th>
<th>High responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brant goose (bernieclos)</td>
<td>Bovmacle goose</td>
<td></td>
</tr>
<tr>
<td>Common shelduck</td>
<td>Greater scaup</td>
<td></td>
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<tr>
<td>Common eider</td>
<td>Smew</td>
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<tr>
<td>Eurasian oystercatcher</td>
<td>Grey plover</td>
<td></td>
</tr>
<tr>
<td>Avocet</td>
<td>Sanderling</td>
<td></td>
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<tr>
<td>Red knot</td>
<td>Eurasian curlew</td>
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<tr>
<td>Dunlin</td>
<td>Spotted redshank</td>
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<tr>
<td>Bar-tailed godwit</td>
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</tbody>
</table>

**Inland water bodies**

- **Northern shoveler**
  - Great crested grebe
- **Red-crested pochard**
  - Grey heron
- **Common merganser**
  - Godswell (NW Europe)
  - Northern pintail
- **Eurasian oystercatcher**
  - Common pochard (NW Europe)
  - Tufted duck (NW Europe)
  - Coot
  - Black-headed gull

**Offshore waters**

- **Red-necked grebe**
- **Black scoter**

---

**Legend:**

- **Strong decrease (50%):**
- **Decrease (20-50%):**
- **Increase (20-50%):**
- **Strong increase (50%):**
- **Increase in the first, decline in the second part of the period:**
- **Stable (20% bis +20%):**
- **Increase (20% bis +20%):**

---

**Trends of resting populations of ducks and mergansers between 1980 and 2005. Species that rest and winter regularly in significant numbers in Germany.**

<table>
<thead>
<tr>
<th>Species</th>
<th>1980-2005 Trends</th>
</tr>
</thead>
<tbody>
<tr>
<td>Godswell</td>
<td>++</td>
</tr>
<tr>
<td>Eurasian wigeon</td>
<td>++</td>
</tr>
<tr>
<td>Eurasian teal</td>
<td>++</td>
</tr>
<tr>
<td>Mallard</td>
<td>+</td>
</tr>
<tr>
<td>Northern shoveler</td>
<td>+</td>
</tr>
<tr>
<td>Red-crested pochard</td>
<td>+ / -</td>
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<tr>
<td>Common pochard</td>
<td>++</td>
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<tr>
<td>Tufted duck</td>
<td>++</td>
</tr>
<tr>
<td>Greater scaup</td>
<td>++</td>
</tr>
<tr>
<td>Common eider</td>
<td>++</td>
</tr>
<tr>
<td>Common merganser</td>
<td>++</td>
</tr>
<tr>
<td>Red-breasted merganser</td>
<td>++</td>
</tr>
</tbody>
</table>

**Photo:** Sheltered bays and lakes along the Baltic Sea are used as day-time roosts by diving ducks. Photo: M. Sommerfeld
Resting populations of swans and geese have increased in northwest Europe since the 1970s. They have benefited particularly from favourable conditions in overwintering areas, with low hunting pressure in many regions, mainly mild winters and energy-rich food (e.g. oilseed rape, winter cereals). Population increases in northwest Europe, particularly of greater white-fronted goose, are possibly related to declines in southeast Europe, suggesting in part that a wide-ranging shift of overwintering areas has occurred. In northwest Europe hunting pressure is much lower than in most southeast European countries.

Bewick’s swan and taiga bean goose, however, have shown (clear) negative trends over the same period. Both species have very high proportions of their population resting in Germany, with more than half of the world population of taiga bean goose in northeast Germany. As for brant goose, the reasons for the observed negative trends might originate in breeding areas or on migration routes. Despite unchanged favourable conditions in overwintering areas, the birds return from their breeding grounds with fewer young than in previous years. The causes of the population decline in taiga bean goose are not yet well understood.

Model protection concept for common cranes
Nearly the whole northwestern European population of common crane rests in autumn in the northeast of Germany, before onward migration to their winter quarters. The Darss-Rügen region is known internationally for its large gatherings of common cranes. Since the 1980s, areas used for resting have spread inland, and since the end of the 1990s large roosts can also be found in the western federal states. Germany bears a very high international responsibility for the conservation of common cranes in the western part of their range. Due to extensive protection measures along the entire migration route, breeding and resting numbers have increased continuously since the 1980s. This shows that success can happen quickly if sustainable approaches and concepts in nature and species conservation are applied.

Inland water bodies
Large accumulations of resting birds in northern Germany and in the foothills of the Alps
Grebes, ducks and mergansers are the main overwintering waterbirds on inland water bodies. Germany is of high to very high importance as a moulting, resting and wintering site. High numbers of northern lapwings are resting in agricultural land. Photo: H. Glader

Intelligent and long-term sustainable solutions need to be found regarding the conflict surrounding geese, swans and cranes that forage on agricultural land. Photo: S. R. Sudmann

Trends of resting populations of geese and swans between 1980 and 2005. Species that rest and winter regularly in significant numbers in Germany

<table>
<thead>
<tr>
<th>Species</th>
<th>1980</th>
<th>2005</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mute swan</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Whooper swan</td>
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<td></td>
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<tr>
<td>Bewick’s swan</td>
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<td></td>
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<tr>
<td>Brant goose</td>
<td></td>
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<td></td>
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<tr>
<td>Bernacle goose</td>
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<td></td>
<td></td>
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<tr>
<td>Tundra bean goose (A. f. rossicus)</td>
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<tr>
<td>Taiga bean goose (A. f. fabalis)</td>
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<td></td>
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<tr>
<td>Greater white-fronted goose</td>
<td></td>
<td></td>
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<tr>
<td>Greylag goose</td>
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</tbody>
</table>

Legend: = strong decrease (> 50 %), = decrease (20-50 %), = stable (-20 % bis +20 %), = increase (20-50 %), = strong increase (>50 %), = increase in the first, decline in the second part of the period

Whooper swans benefit from milder winters and better food supply. Photo: H. Glader
Migrating waterbirds

...ing or overwintering area for a total of 11 waterbird species that occur in considerable numbers in these habitats. The populations of many of these species are very large and are spread over a wide geographical area. Therefore, to a large extent we are jointly responsible for the long-term conservation of species which, compared to others, have small biogeographical populations. One third of the entire Alpine population of common merganser, which comprises only approximately 4000 individuals, breeds in Germany. They mostly overwinter in areas immediately surrounding their breeding grounds in south Germany and neighbouring Switzerland and, according to recent genetic analyses, have been classified as a separate conservation unit. Thus, appropriate protection measures are necessary for this population.

Positive trends – with some exceptions
Population trends for resting and overwintering ducks and grebes that occur mainly inland are predominately positive. Due to milder winters, several species have gradually shifted their overwintering areas from west or southwest Europe to central Europe. Here they are exposed to lower hunting pressure and, in addition, the migration routes to their breeding areas in north or northeastern Europe become shorter. The area of open water in Germany is also continuously increasing (for example due to excavation, flooding of coal-mining areas, permanent flooding of polders), which means that more resting areas are available. At the same time, the mild winters since the end of 1980s make it possible that cold-tolerant species, which decades ago still overwintered in central Europe, have been able to expand their overwintering areas to the north and east. This is one of the reasons for the decline of wintering mallard in Germany and other west European countries.

Among others, red-crested pochard has benefited from the improved water quality of many lakes, especially in the foothills of the Alps. Its resting populations have increased continuously since the 1980s, and particularly rapidly on Lake Constance and in neighbouring Switzerland since the 1990s. During the same period, numbers of wintering red-crested pochard declined strongly in Spain. It seems that wide-ranging displacements have occurred, which could be connected to above-average dry years on the Iberian peninsula. Improved water quality at lakes in the foothills of the Alps has enabled the spread of stonewort, providing red-crested pochard with food. At the same time, a large proportion of the population shifted to areas north of the Alps for moulting. Forty percent of the southwest European population now moult their wings in south and over the last few years also in northeast Germany.

Offshore areas
Several hundred thousand birds are present in offshore waters of the North and Baltic Sea at all seasons – during the course of the year the number of individuals totals several million. Population sizes and the importance of these concentrations have only been systematically analysed in recent years. Due both to the nomadic lifestyle especially of true seabirds and to difficult survey conditions, many questions remain open and compared with terrestrial habitats it is more difficult to identify long-term trends and causal relationships.

North Sea
Offshore areas of the North Sea are most important during the summer when terns and gulls from the large breeding colonies along the coast of the Wadden Sea forage intensively in coastal waters, as well as around the island of Helgoland. During winter, black scoter and common eider are present in particularly large numbers, for which Germany bears a high to very high responsibility. During spring migration, concentrations of red-throated diver and to a lesser extent black-throated diver occur close to the coast, two species which are very sensitive to disturbance.

In the North Sea, the decades-long increase in numbers of most seabird species has now stopped. The North Sea breeding population of black-legged kittiwake is reduced by nearly half. Declines in northern fulmar have also been recorded in north Scotland. These population changes are also reflected in resting, wintering and non-breeding populations at sea – also in areas, for which Germany is responsible. The reasons for these population declines, which do not affect all seabird species to the same extent, are severe changes in food supply especially during recent years in the northern part of the North Sea: climate change and intensive industrial fishing have caused a dramatic decrease in the numbers of sandeels, which are an important food source for seabirds. By contrast, snake pipefish have increased explosively in recent years, having benefited from rising sea temperatures. However, they are particularly unsuitable for seabird chicks, so that young in the nest starve, despite the provision of plenty of...
Migrating waterbirds

Due to significant numbers during winter in offshore waters, Germany bears a very high responsibility for common eider. Photo: N. Sonntag

prey by their parents. Long-term consequences of these serious changes to the ecosystem in the North Sea are unpredictable.

Numbers of European herring gull and great black-backed gull have also decreased in recent years, especially in winter. One important reason – actually beneficial from an ecosystem point of view – could be a clear reduction in the amount of unused commercial fisheries by-catch (“discard”). Declines in European herring gull are also noticeable in the Wadden Sea. The closure of inland rubbish tips – sensible from a wider environmental view – is likely to amplify this trend. The gulls found easily available and plentiful food at such sites in winter. Since then, inland numbers have decreased by more than half. These examples show how immediate human action or impacts can markedly affect ecosystems.

Baltic Sea
The species composition of the Baltic differs from that of the North Sea. Of the waterbird species, for which Germany bears a high or very high responsibility, only common eider and black scoter overwinter in large numbers in both the North Sea and the Baltic. Other diving ducks, such as long-tailed duck and velvet scoter, are restricted to more distant offshore waters of the Baltic and reach their maximum resting populations in winter. Accordingly and in contrast to the North Sea, the Baltic Sea is of greater importance at this time of the year. These species are concentrated mainly in shallow offshore waters off the coast of Schleswig-Holstein, north of the Darss and in the Pomeranian Bay. Because birds accumulate especially over food-rich shoals, the gillnet fishery in the Baltic Sea endangers diving birds foraging there and thousands of water-birds are killed that way each year. The effects on population trends of these losses, as well as those of increasing shipping traffic and sand and gravel extraction activities at important offshore areas used for foraging cannot currently be quantified.

Conclusion and recommended courses of action
Considered overall, resting populations of waterbirds have increased in Germany as well as in other European countries. The reasons for this among others are: (1) increased conservation effort since the 1970s, which made disturbance-free areas available; (2) the introduction of closed seasons, and shorter hunting seasons for many species; (3) the improvement of overwintering conditions due to milder winters since the end of the 1980s; and (4) the wide-ranging availability of energy-rich food sources and the emergence of new ones.

However, recent trends for some populations are worrying, and protection measures are necessary. In order to stop negative developments with regard to the 2010 target, the following measures are required – in particular for species for which Germany bears a high (to very high) responsibility:

- At all important sites, refuge areas undisturbed by human activity should be created and maintained. In the Wadden Sea, these are in particular high-tide roosts, and in the Baltic Sea food- rich shallow offshore waters. In these areas, nature conservation should permanently take priority over commercial interests or tourist use.
- Sites that are important for wing-moulting waterbirds need to be granted a particularly high level of protection – regardless whether these water bodies are located inland, at the coast or offshore. During the moulting season, which occurs for most birds during summer, birds have a particular need of food-rich areas that are free of disturbance. During this time, many waterbird species are unable to fly for several weeks.
- Interdisciplinary research must be intensified in the Wadden Sea, where long-term negative population trends have been observed for shellfish-eaters, and at sea, where clear changes in the ecosystem have occurred during recent years, in order to identify adverse changes as soon as possible and so be able to take remedial action. In particular, studies on food supply and quality are urgently required.
- The gillnet fishery in the Baltic must be stopped as a significant cause of losses that endangering foraging waterbirds. Disturbance by shipping traffic must be minimised in protected sites and should be banned from areas with peak concentrations of waterbirds.
- There should be a ban on hunting on EU Special Protection Areas all year around.
- Intelligent and long-term sustainable solutions need to be found regarding the conflict surrounding geese, swans and cranes that forage on agricultural land. The same applies to the conflict between commercial fisheries and foraging great cormorants. In both cases, solutions to solve these conflicts exist, which take into account both the responsibility for conservation as well as the interest of the affected parties.
- Long-term strategies need to be developed in reaction to climate change and associated sea level rise, to guarantee the availability of mud-rich tidal flats. Removing embankments to enlarge intertidal areas are promising measures, and at the same time useful for flood control.
Trans-Saharan migrants

In Germany, disproportionate reductions in populations of trans-Saharan migrants can be observed. This trend is evident for species of various habitats, e.g. in woodland birds or birds of agricultural landscapes. According to a study by BirdLife International, a particularly high number of trans-Saharan migrant species are affected by population declines all over Europe. These connections suggest that the cause of population decline in migrating birds is not only to be found in breeding areas. This problem has been known since the end of the 1960s, when some songbird populations that winter south of the Sahara declined considerably. This was attributed to the extreme drought in the Sahel at the time and led to further research into the relationship between variations in populations and the conditions during migration or in the wintering areas.

Problems on migration routes and in wintering areas

Most studies on this subject relate to the size of breeding bird populations, or the individual probability of survival in relation to rainfall in wintering areas. Behind this is an assumption that high and low amounts of rainfall respectively result in relatively poor or good food supply. This has an affect not only on the probability of survival of migrating birds, but also influences subsequent breeding success. Birds arriving in the breeding area in a good condition are more successful breeders than those that winter under less favourable conditions.

Examples of the ways in which bird populations are influenced by conditions in wintering areas include studies which show that populations of purple heron and little egret in the Netherlands and in France can be correlated with the outflow of the rivers Niger and Senegal in West Africa. The current interpretation is that high outflows show high amounts of rainfall and thus a more favourable food supply, which means a better rate of survival for birds in the wintering area. The probability of survival in the wintering area of for example white stork, sand martin, common nightingale, common redstart and sedge warbler depends on local rainfall. If the preceding wintering period had a high amount of rainfall the probability for barn swallows to raise a second brood increases.

Unlike many other factors, climatic influences such as rainfall or temperatures (cold snaps can lead to mass mortality) are not influenced directly by anthropogenic activity (but indirectly through the climate change influenced by man).

Some migrant species are already under high hunting pressure in Europe. It is estimated that up to 50 000 ortolan bunting are killed every year in France – a species which to some extent shows large declines in population numbers. In north Africa, common quail and corn crake are hunted extensively, but their negative population trends are due to changed agricultural practices in the European breeding areas. Garganey and northern shoveler are hunted extensively, not only during their migration in southern Europe but also by Europeans in West Africa, and terns are caught for food there. However, direct hunting in wintering areas probably has only a minor influence on population trends. The uncontrolled use of insecticides could be more important.
especially if applied on a large scale. Observed large decreases in bird densities following the application of insecticides is largely attributed to displacement due to the subsequent lack of food. However, according to some reports mass mortality of white storks has occurred in connection with measures to combat red-billed queleas.

As with breeding areas, the biggest threat to migrant birds in wintering areas is probably the large-scale destruction of habitats. This particularly applies to the Sahel, south of the Sahara. In Senegal, the area of some riverine acacia forests decreased by 90% between 1954 and 1986. In north-east Nigeria, the area of wooded savannah was reduced by 14% between 1976 and 1995 and in study areas in northern Nigeria, the tree population decreased by 80% in only 8 years (1991/94-2001/02). These drastic negative changes are attributed solely to anthropogenic activities, such as consumption of wood for fuel, overgrazing and conversion of natural habitats to agricultural land. Studies in Nigeria have also shown that fewer migrating birds winter in study areas with a decreasing tree population. Because of the large-scale habitat loss, many birds could be forced to divert into less suitable habitats. The likely result would be a lower chance of survival, but also reduced breeding success later, if the birds arrive in the breeding areas in worse condition.

Open questions indicate need for research

Even though there are some hints as to how populations of migrating birds can be influenced by the conditions in the wintering area or on migration, there is often no detailed knowledge that can be transferred into conservation measures. For some species the exact wintering areas are still unknown. Examples of this are willow warbler and ortolan hunting, which show strongly negative population trends. The main wintering area, the Senegal delta, for the globally threatened aquatic warbler had not been discovered until February 2007. Moreover, it is often not known where different populations of a species overwinter. This applies to willow warbler which has decreased in many parts of Europe. Studies from the Netherlands and the south of Great Britain show that mortality rates during the non-breeding season rather than reduced breeding success is the cause of declines in numbers. However, in the north of Great Britain hardly any negative trend in willow warbler numbers is detectable. This raises the question whether northern populations winter in different parts of Africa and whether they have a better probability of survival there than their conspecifics breeding further south.

Also little is known of the ecology of long distance migrants in their African wintering areas. Even simple questions cannot be answered for many species: What habitats are used by migrant birds? Where do migrating birds build up the necessary fat reserves for spring migration? How do changes of habitat affect migrant birds? How flexibly can migrant birds react to changes? Do birds of open habitats benefit from the destruction of the rainforest? What habitats do migrant birds use during the course of a wintering season and where? The common factor to all of the points mentioned above is that populations of migrant birds seem to depend on conditions during migration or in the wintering area, but that the detailed knowledge of the main connections is rudimentary.

Conclusion and recommended courses of action

- Long distance migrants are disproportionately affected by decreasing population trends all over Europe, regardless of systematic kinship membership of an ecological guild or habitat preference.
- Demographic factors relevant to population trends (probability of survival in the wintering area, breeding success) can be influenced by the conditions during migration or in the wintering area.
- Specific conservation measures that take into account the wintering areas of European long distance migrants can often not be suggested, since little is known about where individual populations or species spend more than half of the year, which habitats in the wintering area are used, how populations and species react to changes of habitat and climate and how the conditions in the wintering and breeding areas influence each other.
- The elimination of this huge knowledge deficit would be a first step towards the understanding of population variation and urgently required protection of long distance migrants.
- Essentially is the assistance of African States to implement a sustainable land use.
Acknowledgements

Such extensive duties and responsibilities can only be met thanks to the energetic and voluntary help of large numbers of bird watchers. More than 5000 keen amateur ornithologists have helped to carry out bird counts, with great pleasure and scientific ambition. We particularly wish to express our gratitude to them. Many thanks also to all photographers, which all provided their excellent pictures free of charge.
Dear readers,

Germany will host the 9th UN nature conservation conference ("ninth meeting of the Conference of the Parties to the UN Convention on Biodiversity") in Bonn from 19th to 30th May 2008, to which more than 5,000 representatives from all over the world are expected. The basis of the conference of the parties is the “Convention on Biological Diversity (CBD)”, which was agreed at the world summit in Rio de Janeiro in 1992 and is celebrated as a milestone for nature conservation. Here, it is expressly acknowledged that the conservation of biological diversity is in the interest of all mankind. So far, 189 countries, as well as the European Union have signed the convention.

In Johannesburg, South Africa, in 2002, the so-called “2010 target” was adopted within the framework of the CBD, in order to reduce significantly by 2010 the rate of biological diversity loss at a global, regional and national level. At Gothenburg in 2001, the EU had already decided to halt the loss of biodiversity in Europe by 2010.

On the occasion of the 9th meeting of the Conference of the Parties to CBD, the report “Birds and Biodiversity in Germany – 2010 Target” represents a comprehensive overview of the conservation status of national bird life – representing all biological diversity. The report aims to inform decision makers in politics and administration as well as the public who are interested in the successes achieved in species conservation in recent years, and also to reveal the continuing or even increasing need for action, in particular in the unprotected “wider countryside”.

The analysis is based on several million records, gathered by more than 5,000 bird watchers. The evaluation allows concrete conclusions about the application of nature conservation concepts, so we could achieve a sustainable contribution to the protection of species diversity. On the other hand, they also act as early-warning systems by pointing out current undesirable developments, which need to be stopped if the aim of preventing continuous losses of species diversity is to be achieved.

Stefan Fischer, chairman of the DDA

Editors
Dachverband Deutscher Avifaunisten, Naturschutzbund Deutschland, Deutscher Rat für Vogelschutz and Deutsche Ornithologen-Gesellschaft

responsible authors:
Martin Flade, Christoph Grüneberg, Christoph Sudfeldt and Johannes Wahl

Bird monitoring: A. Mitschke, C. Sudfeldt
Protection of species: C. Grüneberg, C. Sudfeldt, M. Boschert
Critically endangered birds: C. Grüneberg, C. Sudfeldt, M. Boschert

Birds as indicators: A. Mitschke, C. Sudfeldt
Farmland birds: M. Flade, M. Hötker
Forest birds: M. Flade
Urban birds: A. Mitschke
Wetland birds: C. Grüneberg, M. Boschert, H.-G. Bauer
Coastal and sea birds: P. Südbeck, S. Garthe
Alpine birds: H. Schipf, H.-G. Bauer
Migrating waterbirds: J. Wahl
Trans-Saharan migrants: J. Salwa, M. Flade

in cooperation with:

Citation

Imprint
ISBN: 978-3-9811698-2-9

© Dachverband Deutscher Avifaunisten e.V.
Geschäftsstelle, Zerbster Str. 7, D - 39264 Steckby

"Birds and Biodiversity in Germany – 2010 Target" is published by Dachverband Deutscher Avifaunisten e.V.

Layout and graphics: Christoph Grüneberg
Translation: Solveigh Lass-Evans
Print: Druckerei Stelljes, Münster
Cover picture: Mathias Schäf, European turtle dove

The report is printed on FSC-certified paper

Available from
DDA-Schriftenversand, Regina Kronbach, Am Hohen Hein 4 d, D - 09212 Limbach-Oberfrohna
email: schriftenversand@dda-web.de, Tel.: +49 (0)3722-91819

Nominal charge 10,00 EUR plus package and postage

„Birds and Biodiversity in Germany – 2010 Target” can be downloaded for free on the homepage of the DDA (www.dda-web.de).
The Dachverband Deutscher Avifaunisten (DDA, Federation of German Avifaunists) co-ordinates national-wide bird survey programmes, such as monitoring of breeding and resting birds. As well as supporting research on applied bird conservation, the DDA represents German nature conservation organisations on Wetlands International and the European Bird Census Council.

Since more than 100 years the Naturschutzbund Deutschland (NABU, Nature and Biodiversity Conservation Union) is involved in practical and political bird and nature conservation. The NABU is the German partner of BirdLife International, it is member of the DNR (German League for Nature and Environment), and since 1971 the NABU chooses the Bird of the Year in Germany (2008: common cuckoo).

The Deutsche Rat für Vogelschutz (DRV, German Council for Bird Protection) is a forum, which enables the co-operation and an intensive exchange of experiences between representatives of governmental bird conservation agencies, scientific institutions and NGOs. The aim is to give scientifically well-founded advice to decision takers and to promote scientific knowledge and conservation strategies.

The Deutsche Ornithologen-Gesellschaft (DO-G, German Ornithologists’ Society) is one of the oldest scientific associations in the world. Since its formation in 1850, it has promoted ornithology as a pure science as well as in applied research.