European Environment Agency

8th Environment Action Programme

Common bird index in Europe

8TH EAP HEADLINE INDICATOR, 2023

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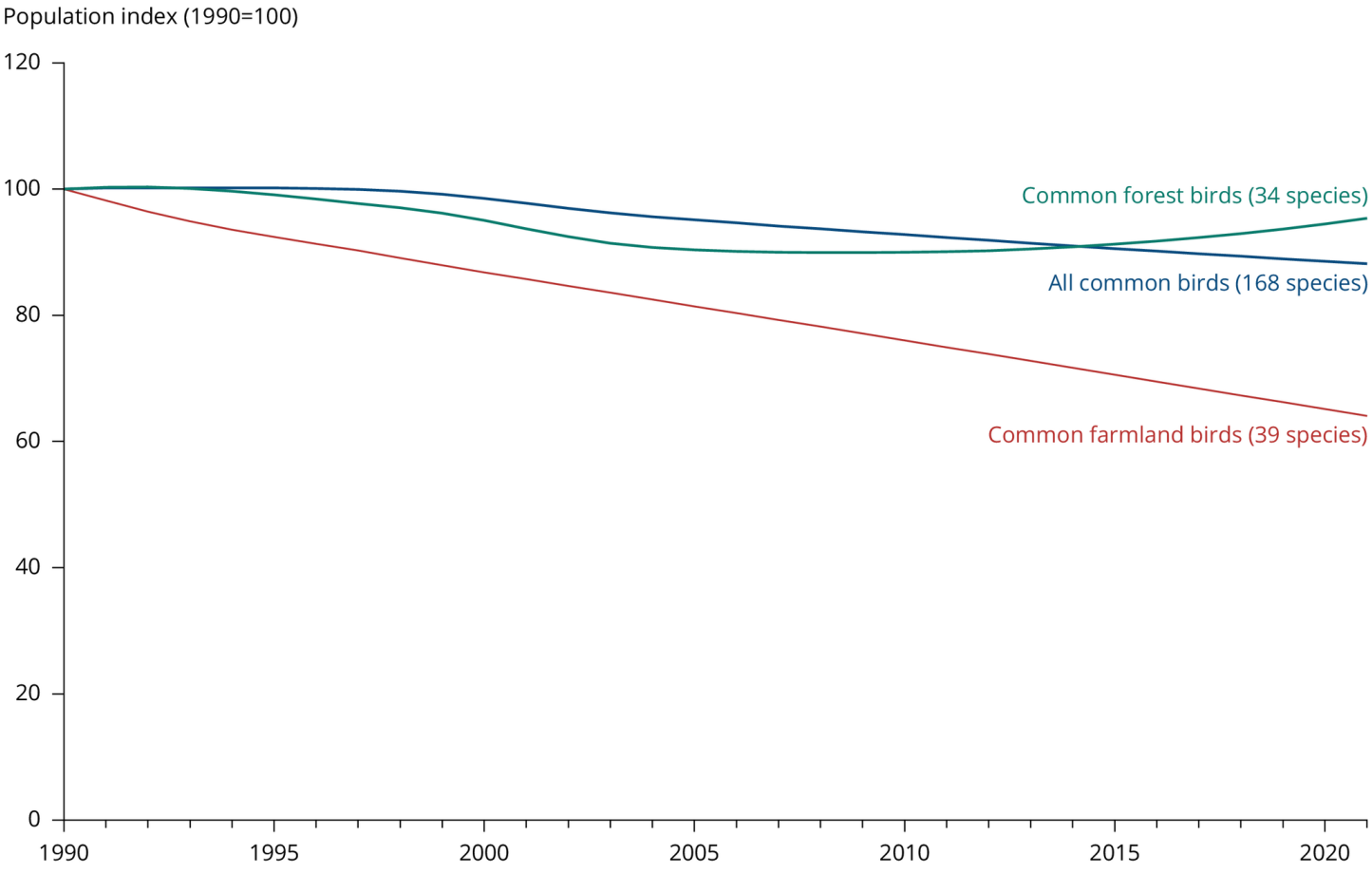
Birds are sensitive to environmental pressures and their populations can reflect changes in the health of the environment. Long-term trends show that between 1990 and 2021, the index of 168 common birds decreased by 12% in the EU. The decline was much stronger in common farmland birds, at 36%, while the common forest bird index decreased by 5%. At present, it seems unlikely that the decline in populations of common birds can be reversed by 2030. To ensure the recovery of common birds, Member States need to significantly increase the implementation of existing policies and put new appropriate conservation and restoration objectives and measures in place.

Figure 1. Common bird index in the EU, 1990-2021



Source: European Bird Census Council/EEA.

The status of birds has been the subject of long-term monitoring in Europe, much of it via voluntary effort, and is a good example of how the power of citizen science can be released through effective targeting [1][2]. Birds are sensitive to environmental pressures and their population numbers can reflect changes in ecosystems and other animal and plant populations. Therefore, trends in bird populations can serve as an indicator of the health of the environment and can help measure progress towards the EU's aim to put biodiversity on the path to recovery by 2030 [3][4][5][6].

Long-term population trends of all common birds in the 26 EU Member States with monitoring schemes reveal significant population declines. Between 1990 and 2021, the common bird index declined by 12%, while the common forest bird index decreased by 5%. The decline in common farmland birds was much more pronounced, at 36%. Although this indicator uses 1990 as a baseline, significant decreases had occurred before this date [7][8].

These trends demonstrate a major decline in biodiversity in Europe, caused by anthropogenic pressures [9]. Agricultural intensification is the main pressure for most bird population declines [10], in particular pesticides and fertiliser use [11][12][13][14], not only for farmland species but for also for many other species whose diet relies on invertebrates during the breeding season [10][15][16][17]. Other factors that have adverse effects on the recovery of populations include land use change and associated habitat loss, fragmentation and degradation [18][19], intensive forest management[20][21], climate change [22] and increasing competition for land for production of renewable energy and biofuels[23][24][25].

It is difficult to forecast how soon biodiversity, as illustrated by the abundance of bird populations, can recover, as it is influenced by a complex combination of socio-economic drivers, environmental factors and policy measures. Measures set out in the Birds and Habitats Directives[26][27] have helped protect target bird species and their habitats [28], however, the overall decline of bird populations in the EU is mainly driven by large declines in a number of common species [8][10]. The proposal for an EU regulation on nature restoration paves the way for a broad range of ecosystems to be restored and maintained by 2050, with measurable results by 2030 and 2040. In particular, the proposal includes binding targets and obligations to reverse the declines of common farmland and forest birds by 2030, which will require Member States to put appropriate restoration measures in place.

Nevertheless, the past trend indicates a steady decline in the population of common birds, which seems unlikely to be reversed by 2030. This is because the type of measures under the EU nature restoration regulation and the timing of their implementation are still unclear, as is the time needed for species' response to conservation and restoration actions. In addition, it is crucial that more effective and ambitious measures to halt biodiversity loss are included in other policies, such as the EU common agricultural policy (CAP)[29]and that CAP Strategic Plans support the implementation and effectiveness of the current and upcoming EU biodiversity and nature legislation.

Supporting information

Definition

This indicator is a multi-species index measuring changes in population abundance of all common bird species (n=168), as well as those associated with specific habitats: common farmland bird species (n=39) and common forest bird species (n=34). The index for each group is calculated at EU level only, using 1990 as reference year. Each of the three EU bird indices is presented as a smoothed time series and is calculated with 95% confidence limits.

Methodology

The data for this indicator originate from national monitoring data collected by the Pan-European Common Bird Monitoring Scheme (PECBMS). PECBMS is a partnership, involving the EBCC, the Royal Society for the Protection of Birds, BirdLife International and Statistics Netherlands, that aims to deliver policy-relevant biodiversity indicators for Europe. The PECBMS coordination unit is part of the Czech Society for Ornithology (CSO), based in Prague, Czechia. The unit collects national indices, produces European indices and indicators, prepares outputs for publication, and communicates outputs to the public, policymakers and scientists.

Trend information spanning different time periods is derived from annual national breeding bird surveys in 26 EU countries. Skilled survey participants, including volunteers, carry out counting and data collection. Data are collected nationally on an annual basis during the breeding season through common bird monitoring schemes. National bird monitoring data are gathered using several count methods (e.g. standardised point transects/line transects, territory mapping), using a variety of sampling strategies (from free choice of plots to stratified random sampling), and individual plot sizes vary within each country (from 1 × 1km or 2 × 2km squares or 2.5 degree grid squares to irregular polygons).

Indicators (multi-species indices) are computed using the MSI-tool (R-script) for calculating multi-species indicators (MSIs) and trends in MSIs. A Monte Carlo method is used to account for sampling error and when not all yearly index numbers for all species are available. The method of calculation is described in Soldaat et al., 2017[30]. European, EU or regional species indices including standard errors are used as source data.

Country coverage (i.e. reflecting the availability of high-quality monitoring data from annually operated common bird monitoring schemes employing generic survey methods and producing reliable national trends): Austria (since 1998), Belgium (Brussels since 1992; Flanders since 2007; Wallonia since 1990), Bulgaria (since 2005), Croatia (since 2015), Cyprus (since 2006), Czechia (since 1982), Denmark (since 1976), Estonia (since 1983), Finland (since 1975), France (since 1989), Germany (since 1989), Greece (since 2007), Hungary (since 1999), Ireland (since 1998), Italy (since 2000), Latvia (since 1995), Lithuania (since 2011), Luxembourg (since 2009), the Netherlands (since 1984), Poland (since 2000), Portugal (since 2004), Romania (since 2007), Slovakia (since 2005), Slovenia (since 2008), Spain (since 1998) and Sweden (since 1975).

The current population index of common birds at EU level was produced for the following 168 species:

- **Common farmland birds**: *Alauda arvensis, Alectoris rufa, Anthus campestris, Anthus pratensis, Bubulcus ibis, Burhinus oedicnemus, Calandrella brachydactyla, Ciconia ciconia, Corvus*

frugilegus, Emberiza calndra, Emberiza cirlus, Emberiza citrinella, Emberiza hortulana, Emberiza malanocephala, Falco tinnunculus, Galerida cristata, Galerida theklae, Hirundo rustica, Lanius collurio, Lanius minor, Lanius senator, Limosa limosa, Linaria cannabina, Melanocorypha calandra, Motacilla flava, Oenanthe hispanica, Passer montanus, Perdix perdix, Petronia petronia, Saxicola rubetra, Saxicola torquatus, Serinus serinus, Streptopelia turtur, Sturnus unicolor, Sturnus vulgaris, Sylvia communis, Tetrax tetrax, Upupa epops and Vanellus vanellus.

- **Common forest birds**: *Accipiter nisus, Anthus trivialis, Bombycilla garrulous, Bonasa bonasia, Carduelis cintinella, Certhia brachydactyla, Certhia familiaris, Coccothraustes coccothraustes, Columba oenas, Cyanopica cyanus, Dryobates minor, Dryocopus martius, Emberiza rustica, Ficedula albicollis, Ficedula hypoleuca, Garrulus glandarius, Leiopicus medius, Lophophanes cristatus, Nucifraga caryocatactes, Periparus ater, Phoenicurus phoenicurus, Phylloscopus bonelli, Phylloscopus collybita, Phylloscopus sibilatrix, Picus canus, Poecile montanus, Poecile palustris, Pyrrhula pyrrhula, Regulus ignicapilla, Regulus regulus, Sitta europaea, Spinus spinus, Tringa ochropus and Turdus viscivorus.*
- **Other common birds**: *Acanthis flammea, Acrocephalus arundinaceus, Acrocephalus palustris, Acrocephalus schoenobaenus, Acrocephalus scirpaceus, Actitis hypoleucus, Aegithalos caudatus, Alcedo atthis, Anas platyrhynchos, Apus apus, Ardea cinerea, Buteo buteo, Calcarius lapponicus, Cecropis daurica, Cettia cetti, Chloris chloris, Circus aeruginosus, Cisticola juncidis, Clamator glandarius, Columba palumbus, Corvus corax, Corvus corone, Corvus monedula, Cuculus canorus, Cyanecula svecica, Cyanistes caeruleus, Cygnus olor, Delichon urbicum, Dendrocopos major, Dendrocopos syriacus, Egretta garzetta, Emberiza cia, Emberiza schoeniclus, Erithacus rubecula, Fringilla coelebs, Fringilla montifringilla, Fulica atra, Gallinago gallinago, Gallinula chloropus, Grus grus, Haematopus ostralegus, Hippolais icterina, Hippolais polyglotta, Iduna pallida, Jynx torquilla, Larus ridibundus, Locustella fluviatilis, Locustella naevia, Lullula arborea, Luscinia luscinia, Luscinia megarhynchos, Lyrurus tetrix, Merops apiaster, Motacilla alba, Motacilla cinerea, Muscicapa striata, Numenius arquata, Numenius phaeopus, Oenanthe oenanthe, Oriolus oriolus, Parus major, Passer domesticus, Phasianus colchicus, Phoenicurus ochruros, Phylloscopus trochilus, Pica pica, Picus viridis, Pluvialis apricaria, Podiceps cristatus, Prunella modularis, Ptyonoprogne rupestris, Pyrrhocorax pyrrhocorax, Streptopelia decaocto, Sylvia atricapilla, Sylvia borin, Sylvia cantillans, Sylvia curruca, Sylvia hortensis, Sylvia melanocephala, Sylvia nisoria, Sylvia undata, Tachybaptus ruficollis, Tadorna tadorna, Tringa erythropus, Tringa glareola, Tringa nebularia, Tringa totanus, Troglodytes troglodytes, Turdus iliacus, Turdus merula, Turdus philomelos, Turdus pilaris and Turdus torquatus.*

National monitoring schemes and indices can contain a subset of these 168 species, reflecting their varying occurrence in different countries. More information about species indices and trends is available at: https://pecbms.info/

Policy/environmental relevance

The common bird index is a headline indicator for monitoring progress towards the 8th Environment Action Programme (8th EAP). It mainly contributes to monitoring aspects of the 8th EAP priority objective Article 2.2.e that shall be met by 2030: ‘protecting, preserving and restoring

marine and terrestrial biodiversity and the biodiversity of inland waters inside and outside protected areas by, inter alia, halting and reversing biodiversity loss and improving the state of ecosystems and their functions and the services they provide, and by improving the state of the environment, in particular air, water and soil, as well as by combating desertification and soil degradation'[6]. For the purposes of the 8th EAP monitoring framework this indicator assesses specifically whether the EU will 'reverse *by 2030* the decline in populations of common birds' [3].

The common bird index is also used to monitor progress toward EU Biodiversity Strategy for 2030 target 4 and as an EU indicator to monitor progress towards the Sustainable Development Goal 15: "Life on land".

Related policy documents

- EU biodiversity strategy for 2030: the European Commission has adopted a new EU biodiversity strategy for 2030 and an associated action plan — a comprehensive, ambitious, long-term plan for protecting nature and reversing the degradation of ecosystems. It aims to put Europe's biodiversity on a path to recovery by 2030, with benefits for people, the climate and the planet. It aims to build our societies' resilience to future threats such as climate change impacts, forest fires, food insecurity and disease outbreaks, including by protecting wildlife and fighting illegal wildlife trade. A core part of the European Green Deal, the biodiversity strategy will also support a green recovery following the COVID-19 pandemic.

- EU, 2022, Decision (EU) 2022/591 of the European Parliament and of the Council of 6 April 2022 on a General Union Environment Action Programme to 2030, OJL 114, 12.4.2022, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32022D0591 accessed October 24, 2022.
- EC, 2022, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the monitoring framework for the 8th Environment Action Programme: Measuring progress towards the attainment of the Programme's 2030 and 2050 priority objectives, COM/2022/357 final, EUR-Lex - 52022DC0357 - EN - EUR-Lex (europa.eu), accessed October 24, 2022.
- The EU has been taking action to protect biodiversity for a considerable number of years, for example by adopting the Birds Directive — Council Directive 79/409/EEC (updated by Directive 2009/147/EC) and the Habitats Directive — Council Directive 92/43/EEC.

Justification for indicator selection

Main advantages of the indicator:

Policy relevant: this indicator contributes to the assessment of biodiversity conservation policies and targets, as well as other sectoral and thematic policies and strategies.

Biodiversity relevant: birds can be excellent indicators of the health of the environment. They occur in many habitats, can reflect changes in other animal and plant populations, and are sensitive to environmental change.

Scientifically sound and methodologically well founded: the methods used have been harmonised (national systems may differ but indices are standardised before being combined), and are peer-reviewed and statistically robust.

Monitors progress towards targets: this indicator provides a tangible basis for measuring progress towards biodiversity targets.

Broad acceptance and understanding: Birds resonate strongly with the public, illustrating how citizen science can be exploited through effective targeting.

Accuracy and uncertainties

No accuracies or uncertainties have been reported.

Data sources and providers

- Common bird index by type of species - EU aggregate (source: EBCC) [sdg_15_60], European Bird Census Council (EBCC)

Metadata

DPSIR

Impact

Topics

 # Biodiversity **# Nature protection and restoration**

Tags

 # biodiversity **# common birds** **# population trends** **# bird populations**
 # Common bird index **# SEBI027** **# common farmland and forest birds** **# conservation**
 # birds **# animal and plant population** **# 8th EAP**

Temporal coverage

1990-2021

Geographic coverage

Austria
Belgium
Bulgaria
Croatia
Cyprus
Czechia
Denmark
Estonia

Finland
Germany
Hungary
Italy
Lithuania
Netherlands
Portugal
Slovakia
Spain
France
Greece
Ireland
Latvia
Luxembourg
Poland
Romania
Slovenia
Sweden

Typology

Descriptive indicator (Type A - What is happening to the environment and to humans?)

UN SDGs

Life on land

Unit of measure

population index (1990=100)

Frequency of dissemination

Once a year

Contact

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