

Common farmland birds in Italy

Update of population trends and Farmland Bird Indicator
for the National Rural Network



These publications are dedicated to Paolo Boldregghini, Mario Bonora, Sergio Frugis, Gaspare Guerrieri, Stefano Picocchi, Helmar Schenk e Giuseppe Tormen

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Related web sites

www.lipu.it | www.ebcc.info

The English and Italian versions of this brochure, with the technical reports in Italian, can be downloaded from:

www.reterurale.it/farmlandbirdindex

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Northern wheatear by Andrea Cortese



Since 1994 LIPU is the Italian partner of BirdLife International - a global partnership of more than 100 independent organisations with a special focus on birds and nature. <https://www.birdlife.org/>

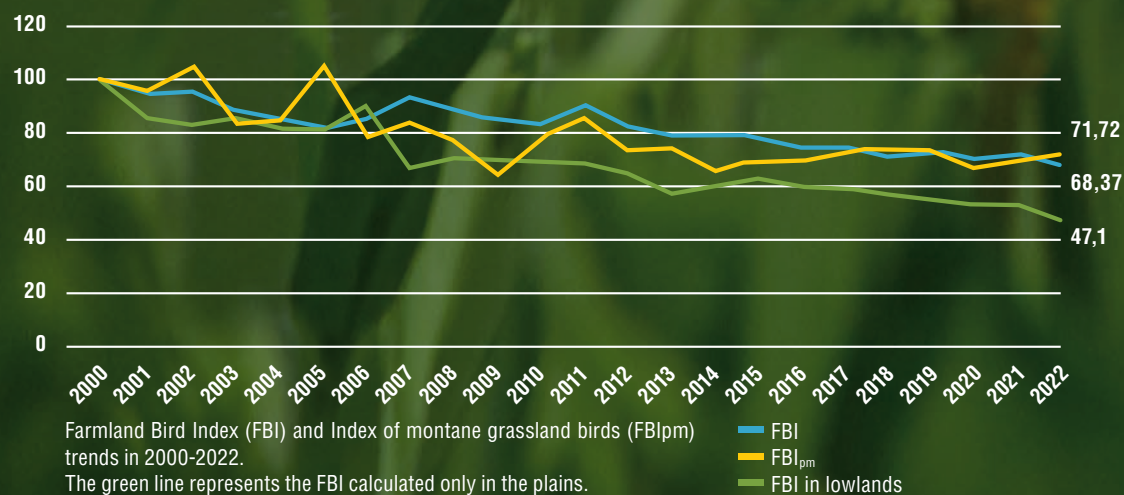


The Farmland Bird Index

In 2022, the Farmland Bird Index (FBI) continued to show a declining trend, with a loss of value – in other words, a decline in the bird species that comprise the FBI – amounting to -36.63% compared to the year 2000. If the FBI is applied to lowland areas only in the 2000-2022 period, it shows an even more dramatic decline that the one on a national scale, falling by as much as -52.9%, a drop of seven percentage points compared to 2021. This is a worrying development, and may have been exacerbated by “extreme” weather events (which sadly are no longer truly extreme) such as prolonged drought and frequent heat waves. Indeed, the effects of these events may be even more intense in environments such as intensive lowland farmland that are already impoverished and ecologically stressed. Here, the scarcity of natural elements, microhabitats and resources makes it even more difficult to face such phenomena, which are becoming ever more frequent due to climate change.

The Index of montane grassland birds (FBI_{pm}) also shows a marked decline (-28.28%), making the situation as a whole even more worrying. Especially on a historical data series that encompasses many years such as the FBI, percentage values don't fully convey the true magnitude of the decline of bird populations. In fact, over the last 23 years, between 9.5 and 16.5 million individual birds of the 41 species considered in the indexes have been lost. Such a massive loss at the national level, and one that has been essentially constant over time, betrays the poor state of health of Italian farmland, which continues to grow poorer in terms of biodiversity and the ecosystem services it provides.

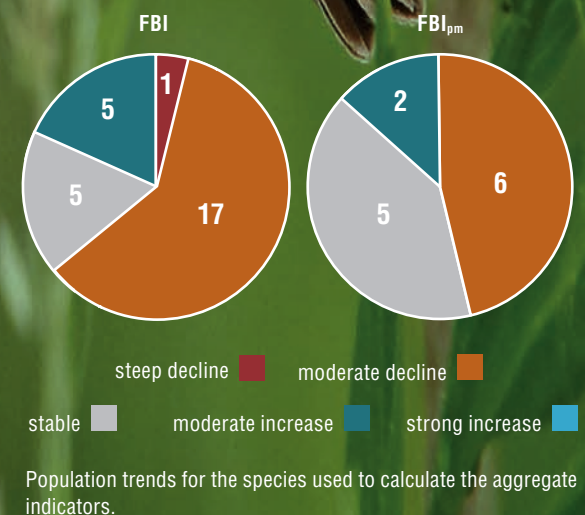
The main factors behind the FBI's decline include the loss of suitable habitats and food resources that has been exacerbated by an intensive agricultural model, especially in lowland areas. According to the European Environment Agency, agricultural intensification is the leading threat to biodiversity, and is in turn compounded by other factors such as climate change. This is quite alarming, especially considering that according to the latest ISTAT data (2022), utilized agricultural area (UAA) amounts to about 44% of Italy's entire surface area. Farming practices that aim to maximize yields also lead to a loss of food for wildlife: monoculture and the loss of natural vegetation, together with the massive use of pesticides and herbicides, reduce the amount of food available to insectivores and seed-eating species.



The FBI project, which since 2009 has been calculating the C35 context indicator (Regulation EU n. 808/2014) required by the regulations of the Common Agricultural Policy (CAP), has provided clear evidence highlighting the perilous conservation state of farmland birds and farmland environments in general. Unfortunately, this evidence has not sufficiently been taken into consideration during the new programming phase that entered into force on January 1, 2023, and which does not appear to be up to the challenge of stopping and reversing the ongoing biodiversity decline in Europe's rural landscapes.

In mountain and marginal areas, on the other hand, the abandonment of cultivated fields and pasture and the disappearance of small, family-run farms have drastically altered the landscape, with a reduction in open habitats such as grasslands and meadows and a constant increase in forest cover. This translates into a loss of suitable habitat and nesting sites for the typical species of these environments, as evidenced by the FBI_{pm}, and of the social and cultural heritage tied to rural mountain traditions.

In addition to capturing the population trends of the bird species it monitors, the Farmland Bird Index thus also paints a clear picture of the poor state of health of our agricultural ecosystems, affecting all of their biological components, humans included, and thus serving as an excellent context indicator.



Farmland species classified as SPEC: a comparison



In 1994, in order to create a baseline of data on the conservation status of bird species in Europe, BirdLife International published an initial complete assessment of every European bird species. It classified them according to threat category, introducing the concept of “*Species of European Conservation Concern*”, abbreviated as SPEC. There are five SPEC categories; they classify bird species according to decreasing levels of threat:

SPEC 1 European species of global conservation concern;

SPEC 2 Species with global population concentrated in Europe and with unfavourable conservation status in Europe;

SPEC 3 Species not concentrated in Europe, but with unfavourable conservation status in Europe;

Non-SPEC^E Species with global population concentrated in Europe and with favourable conservation status in Europe;

Non-SPEC Species not concentrated in Europe, but with favourable conservation status in Europe.

The criteria used to classify species in the various SPEC categories include: global conservation status according to the IUCN Red List; conservation status of the European population; percentage of the global population or of the global range present in Europe.

As early as the first assessment, 38% of European bird species were found to have an unfavourable conservation status (and thus classified as SPEC); in the updates that followed, in 2004 and in 2017, that number had risen to 43%. Of these, 40 (7.6%) were classified as SPEC 1, 45 (8.6%) as SPEC 2 and 141 (26.9%) as SPEC 3¹. Unfortunately, the results of the fourth assessment, which will be published in 2023, closely match those of the previous ones².

By analysing the SPEC status of the species for which the project provides nationwide population trends provides additional information that helps us frame their conservation status in a more thorough manner.

Of the 41 species included in the Farmland Bird Index (FBI) and the Index for montane grassland species (FBIpm), 15 are either threatened or have an unfavourable conservation status according to the latest SPEC update. More specifically, two species are SPEC 1 (Italian Sparrow and European Turtle Dove), 3 are SPEC 2 (Ortolan Bunting, Dunnock, and Yellowhammer) and 10 are SPEC 3 (Eurasian Skylark, Calandra

Lark, Greater Short-toed Lark, Crested Lark, Yellow Wagtail, Eurasian Kestrel, Eurasian Tree Sparrow, Tree Pipit, Barn Swallow and Water Pipit)². According to FBI project data, 66.6% of these 15 species are declining.

The SPEC classification of 26 species, or 63% of the total, has remained unchanged since 1994; their conservation status has thus remained stable over the last thirty years. It is worth discussing the remaining 15 species in a little more detail.

Seven species (Yellow Wagtail, Tree Sparrow, Dunnock, Water Pipit, Tree Pipit, European Starling and Yellowhammer) have shifted from SPEC to Non-SPEC classification. Four (Yellow Wagtail, Eurasian Tree Sparrow, Tree Pipit and Water Pipit) went from Non-SPEC to SPEC 3, two (Dunnock and Yellowhammer) from Non-SPEC^E to SPEC 2, while European Starling went back to being classified as Non-SPEC after being classified as SPEC 3 in 2004 and 2017.

Red-backed Shrike, Whinchat, and European Serin are classified as Non-SPEC^E; and Tawny Pipit, European Stonechat, and Eurasian Wryneck as Non-SPEC; in at least one of the previous two assessments, all of these species were included in one of the SPEC categories.

Two cases are worth a more in-depth discussion. The first concerns the European Turtle-Dove, which was classified as SPEC 3 in the first two assessments, and since 2017 has been classified as SPEC 1. The simplification of farmland habitats, which host the species during the breeding period, has affected population trends for this species, which were estimated at a national scale by the present project and at the European scale by the European Bird Census Council (EBCC). Other threats also contribute to the species' poor conservation status, especially hunting and poaching³. An estimated 2-3

million European Turtle-Doves are killed each year in European countries, and in the Mediterranean region around 603,000 are illegally shot each year (in light of the difficulties in accurately quantifying poaching and similar illegal activities, this is likely an underestimate)⁴.

The second case is even more relevant to Italy, since it concerns a species that is essentially endemic to the country, the Italian Sparrow. Once abundant, in the space of 30 years (1994-2023) this species went from Non-SPEC^E to SPEC 1, reflecting a rapid and significant population decline. Its classification as SPEC 1, a globally threatened species, is due to the fact that as an Italian near-endemic, its disappearance from the country would lead to its extinction worldwide. Even worse, the Italian Sparrow is a widespread species. As such, its extinction would have a major and wide-ranging impact on the ecosystem dynamics it is a part of, with serious indirect consequences.

The concept of national responsibility - as is the case for Italy with regards to the Italian Sparrow - was introduced and developed to assess the importance of local populations (national or regional) on the likelihood of survival of the global population of a given species. Member States must thus take on appropriate responsibilities for the conservation of these species, bringing to bear all possible resources in order to minimize the risk of extinction and establishing priorities for action that combine assessments of national responsibility with population trends.

Up-to-date population trends, together with the responsibilities of individual states for certain species identified by BirdLife International, make it possible to evaluate historical fluctuations in the population of species at the local level, and pinpoint the ones for which adequate conservation measures must be developed and adopted.

¹ BirdLife International, 2017. European birds of conservation concern: populations, trends and national responsibilities. Cambridge, UK: BirdLife International

² Burfield I.J., Rutheford C.A., Fernando E., Grice H., Piggott A., Martin R.W., Balman M., Evans M.I. & Staneva A. in press. Birds in Europe 4: species of European Concern. Bird Conservation International.

³ Fisher I., Ashpole J., Scallan D., Proud T., and Carboneras C. (compilers), 2018. International Single Species Action Plan for the conservation of the European Turtle-dove *Streptopelia turtur* (2018 to 2028). European Commission

⁴ Brochet A-L. et al., 2016. Preliminary assessment of the scope and scale of illegal killing and taking of birds in the Mediterranean. Bird Conservation International 26 :1 - 28.

Population trends between 2000 and 2022

The table on the following page shows population trends of common birds in Italy between 2000 and 2022; these are the species used to calculate the Farmland Bird Index (FBI) and the Index of montane grasslands birds (FBI_{pm}), at the national level.

Species name (common name) and the **Scientific name** are given in the first two columns. In order to make the information contained in the table more legible and accessible, the species are listed alphabetically by common name and not in taxonomic order.

Average annual variation ± SE (%) represents the average percentage change per year with its standard error (SE). The standard error is a measure of the inaccuracy of the index, and thus is a proxy for its reliability, over the entire monitoring period.

Trend classification 2000-2022 describes, with the use of arrows and colours, population trends classified as follows (definitions recommended by EBCC):

- **strong increase** ▲▲ a trend slope of >1.05 (an increase of more than 5% per year), with the lower confidence limit of the slope >1.05;
- **moderate increase** ▲ a trend slope between 1.00 and ≤1.05 (an increase of no more than 5% per year), with the lower confidence limit of the slope between 1.00 and 1.05;
- **stable** ● a trend slope where the confidence intervals overlap 1 (no significant change), with the lower confidence limit of change >0.95 and upper confidence limit of change <1.05;
- **moderate decline** ▼ a trend slope of ≥0.95 and 1.00 (a decline of no more than 5% per year), with the upper confidence limit of the slope between 0.95 and 1.00;

- **steep decline** ▼▼ a trend slope of <0.95 (a decline of more than 5% per year), with the upper confidence limit of the slope <0.95; A low number of individuals recorded and/or a high standard error can make these trends non-significant. Should this happen, the population is prudentially categorized in the lower category for positive trends (*moderate increase* instead of *strong increase*, *stable* instead of *moderate increase*) or in the higher one for negative trends (*moderate decline* instead of *steep decline*, *stable* instead of *moderate decline*).

- **uncertain** ? a trend slope where the confidence intervals overlap 1 (no significant change), with the lower confidence limit of change <0.95 and/or the upper confidence limit of change >1.05.

The **Squares** column reports the number of 10x10 km squares from which data was used to calculate trends for each species, namely the number of squares visited at least twice in 2000-2022 in which the species in question was recorded. This makes it possible to compare sample size between species. A total of 1,366 10x10 km squares were used for the analyses.

The **Indicator** column divides bird species on the basis of their habitat preferences at the national scale:

- birds of farmland habitats whose population trends are used to calculate the **Farmland Bird Index (FBI)**,
- species used to calculate the **Index of montane grasslands birds (FBI_{pm})**.

In order to provide as exhaustive a picture as possible, we also included additional information, drawn from other studies conducted both

at the national and international level, on the species for which the project presents population trends.

The Conservation **status column** provides information on each species' conservation status as follows:

- **Favourable conservation status** ■ stable or expanding range and population, number of pairs and demographic parameters showing no signs of concern, habitat quality and extension are compatible with the species' long-term survival;
- **Inadequate conservation status** ■ the population or range has declined over the last 10 years (no more than 10%), or the population/range is highly concentrated/fragmented/fluctuating, or lower than the favourable reference values, and/or the extent of their habitat appears to be insufficient with the species' long-term survival;
- **Poor conservation status** ■ the population or range has declined significantly, or have fallen by more than 10% in the last ten years, or the population is significantly lower than the favourable population reference values, and/or their habitat has been significantly degraded or reduced.

For more information on the methodology used for defining the conservation status of Italian birds, see these publications^{1,2}.

The **SPEC** column indicates the category assigned to each species according to the latest BirdLife International update. The categories assigned are:

- **SPEC 1** European species of global conservation concern;
- **SPEC 2** Species with global population concentrated in Europe and with unfavourable conservation status in Europe;
- **SPEC 3** Species not concentrated in Europe, but with unfavourable conservation status in Europe;
- **Non-SPEC^E** Species with global population concentrated in Europe and with favourable conservation status in Europe;
- **Non-SPEC** Species not concentrated in Europe, but with favourable conservation status in Europe.

For more information on the classification, see the relevant BirdLife publication³.

¹Brambilla M., Gustin M., Celada C., 2013. Species appeal predicts conservation status. Biol. Conserv. 160, 209-213.

²Gustin, M., Brambilla, M., Celada, C., 2016. Stato di conservazione e valore di riferimento favorevole per le popolazioni di uccelli nidificanti in Italia. Rivista Italiana di Ornitologia, 86 (2), 3-58.

³Burfield I.J., Rutheford C.A., Fernando E., Grice H., Piggott A., Martin R.W., Balman M., Evans M.I. & Staneva A. in press. Birds in Europe 4: species of European Concern. Bird Conservation International.



Species name	Scientific name	Annual change ± SE (%)	Trend classification 2000-2022	Squares	Indicator	Conservation status	SPEC ¹
Barn Swallow	<i>Hirundo rustica</i>	-1.60 (±0.14)	▼	1263	FBI	■	SPEC 3
Black Redstart	<i>Phoenicurus ochruros</i>	1.33 (±0.26)	▲	591	FBI _{pm}	■	Non-SPEC
Calandra Lark	<i>Melanocorypha calandra</i>	-2.27 (±0.92)	▼	77	FBI	■	SPEC 3
Carrión Crow	<i>Corvus corone</i>	-0.26 (±0.49)	●	221	FBI _{pm}	■	Non-SPEC
Common Kestrel	<i>Falco tinnunculus</i>	0.12 (±0.20)	●	1143	FBI	■	SPEC 3
Common Nightingale	<i>Luscinia megarhynchos</i>	-0.23 (±0.12)	●	1049	FBI	■	Non-SPEC [€]
Common Redpoll	<i>Acanthis flammea</i>	-6.29 (±0.77)	▼	92	FBI _{pm}	■	Non-SPEC
Common Starling	<i>Sturnus vulgaris</i>	-0.32 (±0.21)	●	902	FBI	■	Non-SPEC
Corn Bunting	<i>Emberiza calandra</i>	0.57 (±0.17)	▲	835	FBI	■	Non-SPEC [€]
Crested Lark	<i>Galerida cristata</i>	-1.09 (±0.18)	▼	522	FBI	■	SPEC 3
Dunnoek	<i>Prunella modularis</i>	-0.82 (±0.44)	●	186	FBI _{pm}	■	SPEC 2
Eurasian Golden Oriole	<i>Oriolus oriolus</i>	1.78 (±0.17)	▲	878	FBI	■	Non-SPEC
Eurasian Hoopoe	<i>Upupa epops</i>	-0.56 (±0.21)	▼	874	FBI	■	Non-SPEC
Eurasian Magpie	<i>Pica pica</i>	1.89 (±0.12)	▲	1065	FBI	■	Non-SPEC
Eurasian Skylark	<i>Alauda arvensis</i>	-2.83 (±0.19)	▼	746	FBI	■	SPEC 3
Eurasian Tree Sparrow	<i>Passer montanus</i>	-2.63 (±0.20)	▼	1025	FBI	■	SPEC 3
Eurasian Wryneck	<i>Jynx torquilla</i>	-5.59 (±0.35)	▼	604	FBI	■	Non-SPEC
European Goldfinch	<i>Carduelis carduelis</i>	-2.89 (±0.12)	▼	1322	FBI	■	Non-SPEC
European Greenfinch	<i>Chloris chloris</i>	-3.53 (±0.14)	▼	1212	FBI	■	Non-SPEC [€]
European Serin	<i>Serinus serinus</i>	-0.77 (±0.11)	▼	1271	FBI	■	Non-SPEC [€]
European Stonechat	<i>Saxicola rubicola</i>	-6.20 (±0.22)	▼▼	932	FBI	■	Non-SPEC
European Turtle Dove	<i>Streptopelia turtur</i>	-1.65 (±0.14)	▼	1034	FBI	■	SPEC 1
Fieldfare	<i>Turdus pilaris</i>	-2.82 (±0.70)	▼	109	FBI _{pm}	■	Non-SPEC [€]
Garden Warbler	<i>Sylvia borin</i>	-5.19 (±0.88)	▼	103	FBI _{pm}	■	Non-SPEC [€]
Greater Short-toed Lark	<i>Calandrella brachydactyla</i>	-0.05 (±0.79)	●	142	FBI	■	SPEC 3
Hooded Crow	<i>Corvus cornix</i>	0.56 (±0.11)	▲	1242	FBI	■	Non-SPEC
Italian Sparrow	<i>Passer italiae</i>	-3.12 (±0.14)	▼	1154	FBI	■	SPEC 1
Lesser Whitethroat	<i>Curruca curruca</i>	-0.13 (±0.72)	●	139	FBI _{pm}	■	Non-SPEC
Northern Wheatear	<i>Oenanthe oenanthe</i>	-0.74 (±0.42)	●	226	FBI _{pm}	■	Non-SPEC
Ortolan Bunting	<i>Emberiza hortulana</i>	-1.42 (±0.88)	●	110	FBI	■	SPEC 2
Red-backed Shrike	<i>Lanius collurio</i>	-4.06 (±0.24)	▼	812	FBI	■	Non-SPEC [€]
Ring Ouzel	<i>Turdus torquatus</i>	-1.06 (±0.81)	●	102	FBI _{pm}	■	Non-SPEC [€]
Spanish Sparrow	<i>Passer hispaniolensis</i>	-2.26 (±0.33)	▼	167	FBI	■	Non-SPEC
Spotless Starling	<i>Sturnus unicolor</i>	4.20 (±0.53)	▲	150	FBI	■	Non-SPEC [€]
Tawny Pipit	<i>Anthus campestris</i>	-3.67 (±0.51)	▼	229	FBI	■	Non-SPEC
Tree Pipit	<i>Anthus trivialis</i>	0.84 (±0.33)	▲	299	FBI _{pm}	■	SPEC 3
Water Pipit	<i>Anthus spinoletta</i>	-1.13 (±0.44)	▼	141	FBI _{pm}	■	SPEC 3
Western Yellow Wagtail	<i>Motacilla flava</i>	-1.52 (±0.28)	▼	329	FBI	■	SPEC 3
Whinchat	<i>Saxicola rubetra</i>	-1.66 (±0.69)	▼	122	FBI _{pm}	■	Non-SPEC [€]
White Wagtail	<i>Motacilla alba</i>	-1.31 (±0.19)	▼	1079	FBI	■	Non-SPEC
Yellowhammer	<i>Emberiza citrinella</i>	-2.93 (±0.47)	▼	226	FBI _{pm}	■	SPEC 2



For the nomenclature in the table and brochure texts, reference is made to the IOC world bird list <https://www.worldbirdnames.org/new/> in continuity with previous years' publications.

¹Burfield I.J., Rutheford C.A., Fernando E., Grice H., Piggott A., Martin R.W., Balman M., Evans M.I. & Staneva A. in press. Birds in Europe 4: species of European Concern. Bird Conservation International.



The decline of sparrows in Italy

The species in the genus *Passer*, commonly known as sparrows, are among our most widespread and familiar birds. Although “sparrows” are often talked about as if they were a single entity, there are in fact four species in Italy. As its name indicates, the Italian Sparrow (*Passer italiae*) is endemic to Italy (which hosts 87% of the global population) and a few immediately surrounding areas. The House Sparrow (*Passer domesticus*) is present in relatively small numbers in parts of the Alps. The Eurasian Tree Sparrow (*Passer montanus*) is found nearly throughout Italy and is the sparrow species most closely tied to farmland habitats. Finally, the Spanish Sparrow (*Passer hispaniolensis*) occurs in Sardinia and very locally in continental Italy and Sicily; migrants occur on the Tyrrhenian and Adriatic coasts

and in the Sicilian Channel, predominantly in spring. Italy plays a crucial role and has a great responsibility in protecting these birds, which have lived alongside humans since time immemorial.

Until recently, sparrows were very common and could easily be seen just about anywhere. In recent decades, however, we have seen an ongoing and rapid population decline at the global level, including in Europe and the Mediterranean countries, where these species are disappearing from cities and the countryside. Due to this decline, the Italian and Spanish Sparrows are classified as Vulnerable (VU) in Italy by the IUCN, while the Eurasian Tree Sparrow and the House Sparrow are Near Threatened (NT)¹. For the same reason, with the exception of the Spanish Sparrow, these spe-

cies are classified as SPEC (*Species of European Conservation Concern*): the Italian Sparrow is classified as SPEC 1, while the House Sparrow and the Eurasian Tree Sparrow are classified as SPEC 3².

But what are the main causes behind the decline of these species?

The co-existence of humans and sparrows began around 8000-7000 BC, when humans started to shift from nomadic hunter-gatherers to sedentary farmers. The spread of sparrows closely tracks the increase in sedentary agriculture, which helped humans colonize the entire European continent from the Middle East. Paradoxically, the evolution of agriculture over time towards increasingly intensive forms has turned into the main cause behind the population decline of these species in rural areas.

Since the mid-1970s, an estimated 247 million sparrows have disappeared from Europe alongside the rise of industrial agriculture³; the steepest decline – about 60% - took place between 1979 and 1995. This decline, which mirrors those of many other species of agricultural habitats, is clearly reflected in national indicators for subsequent years as well. The Farmland Bird Index project, which assesses trends at the national scale, shows respective declines of -61.04%, -36.48%, and -60.39% in Italian, Spanish, and Eurasian Tree Sparrows between 2000 and 2022.

The worrying collapse in sparrow populations is mainly due to changing and intensified farming practices: the shift from spring planting to fall planting; the increasingly massive use of insecticides and pesticides; the expansion of monoculture; the reduction in grain crops; the use of machinery to compact the soil; the loss of natural elements and of native seed stock from farmland, leading to an increasingly uniform landscape, all played a role in shaping the fortunes of sparrows in Europe. The modernization of rural areas, especially the renovation of traditional farm buildings, and the gradual replacement of traditional farms with mechanized ones, have reduced the availability of suitable nest sites. Together with climate change and the global collapse in insect biomass, these factors kick-started a cascading effect that reduced the availability of both the seeds that provide food to sparrows throughout the year, and of the invertebrates that are indispensable during the chick rearing phase.

While the situation for sparrows in rural areas is worrying, these synanthropic species are

not faring well in cities either. In addition to reduced food availability and the disappearance of nesting cavities due to building renovation efforts, the main causes of the decline of sparrows in urban areas lie in the lack of green spaces, poor air quality, road mortality, and collisions against windows and other glass surfaces (an estimated 25 million birds die this way each year, of which 15% are sparrows)⁴. We can thus deduce that the socio-economic changes that affected Italy, especially over the last fifty years, had a strongly negative impact on these species. In order to ensure they have a future - especially the Italian Sparrow, the most urban of these species and an Italian endemic (its extinction in Italy would imply its extinction worldwide) - building renovation efforts must be avoided during the breeding season, and window decals should be used to avoid collision. At the same time, the causes of this seemingly unstoppable decline must

be researched and studied more thoroughly. The most worrying aspect is that sparrows, as common generalist species that are quite adaptable both in terms of habitat selection and food sources, should never have become threatened in the first place. Aside from the various causes that are contributing to it, their decline is a warning bell that must not be ignored. This decline is not limited to Italy, but is affecting Europe as a whole: the data from the United Kingdom, Belgium, Germany, Holland, Switzerland, and Poland is just as sobering⁵.

In spite of this alarming state of affairs, it is not too late to turn things around, but to do so, the current concept of agriculture, based chiefly on maximizing profits at the expense of nature, must be overhauled completely⁶. In

keeping with the actions set out by the European Commission as part of the European Green Deal and included in the Biodiversity 2030 and Farm to Fork strategies, it is thus necessary to restore the natural elements typical of agricultural landscapes, preserve Mediterranean pseudosteppe habitats, and significantly reduce the use of fertilizers and insecticides, favouring organic forms of agriculture that can go hand-in-hand with biodiversity conservation.

Ultimately, applying the precautionary principle requires identifying the reasons behind the decline of sparrows in both urban and rural areas. Since these are the same places where humans live, what has affected the sparrows today may well affect us tomorrow. By saving the sparrows, we will be improving

¹ Gustin M., Nardelli R., Brichetti P., Battistoni A., Rondinini C., Teofili C. (compilatori), 2021. Lista Rossa IUCN degli uccelli nidificanti in Italia 2021. Comitato Italiano IUCN e Ministero dell'Ambiente e della Tutela del Territorio e del Mare, Roma.

² Burfield I.J., Rutheford C.A., Fernando E., Grice H., Piggott A., Martin R.W., Balman M., Evans M.I. & Staneva A. in press.

Birds in Europe 4: species of European Concern. Bird Conservation International.

³ Burns F., Eaton M.A., Burfield I.J., Klvanová A., Silarova E., Staneva A., Gregory R.D., 2021. Abundance decline in the avifauna of the European Union reveals cross-continental similarities in biodiversity change. *Ecology and Evolution* 11:16647–16660.

⁴ Dinetti M., Gustin M., Celada C., 2007. I passeri - come riconoscerli, studiarli, cosa fare per proteggerli ed evitare il declino. *Lipu*

⁵ Dinetti M., 2007. I passeri *Passer* spp. nelle aree urbane e nel territorio in Italia. *Distribuzione, densità e status di conservazione: una review. Ecologia Urbana - XIX* (1): 11-42.

⁶ Chaplin-Kramer R., Jahi Chappell M., Bennet E.M., 2022. Un-yielding: Evidence for the agriculture transformation we need. *Ann. NY Acad. Sci.*: 1–16.

National financial supporters

2009-2022 - Italian Ministry of agriculture, food sovereignty and forestry (Ministero dell'agricoltura, della sovranità alimentare e delle foreste)

Local financial supporters, regional coordinators and counters for FBI project 2009-2022 (in alphabetical order):

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Financial supporter: 2011-2013 Regione Emilia-Romagna D.G. Agricoltura, economia ittica, attività faunistico venatorie, Servizio Programmi, Monitoraggio e Valutazione

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