Ministero delle politiche agricole alimentari e forestali

RETERURALE NAZIONALE 20142020

Fondo europeo agricolo per lo sviluppo rurale: "l'Europa investe nelle zone rurali"

2017

Common farmland birds in Italy

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

LIPU ONLUS

These publications are dedicated to Paolo Boldreghini, Sergio Frugis, Gaspare Guerrieri and Helmar Schenk

Document produced by the Ministry of agriculture, food and forestry (Ministero delle politiche agricole, alimentari e forestali) as part of the activities of the National Rural Network (Rete Rurale Nazionale).

Editorial coordination
Laura Silva (Lipu)

Text
Federica Luoni, Laura Silva (Lipu), Tommaso Campedelli, Guglielmo Londi, Guido Tellini Florenzano (coop. D.R.E.Am. Italia)

Translators
Ottavio Janni and Laura Silva (Lipu)

We also thank
Paolo Ammassari, Giuseppe Blasi, Emilio Gatto (MiPAAF); Antonella Trisorio (CREA); Rossana Bigliardi, Claudio Celada, Marco De Silvi, Giorgia Gaibani, Marco Gustin, Andrea Mazza, Patrizia Rossi, Silvia Maselli and Danilo Selvaggi (Lipu); Paolo Bonazzi, Lia Buvoli (studio FaunaViva); Gianpiero Calvi (studio Pteryx); Simonetta Cutini (D.R.E.Am. Italia); all the photographers and AFNI (Associazione Fotografi Naturalisti Italiani) for the beautiful images.

Since 1994 Lipu is the Italian partner of BirdLife International - a global partnership of more than 100 indipendent organisations with a special focus on birds and nature. www.birdlife.org

Design and layout
Andrea Ascenso

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

Recommended citation
Rete Rurale Nazionale & Lipu (2018). Common breeding farmland birds in Italy. Update of population trends and Farmland Bird Indicator for National Rural Network 2000-2017.

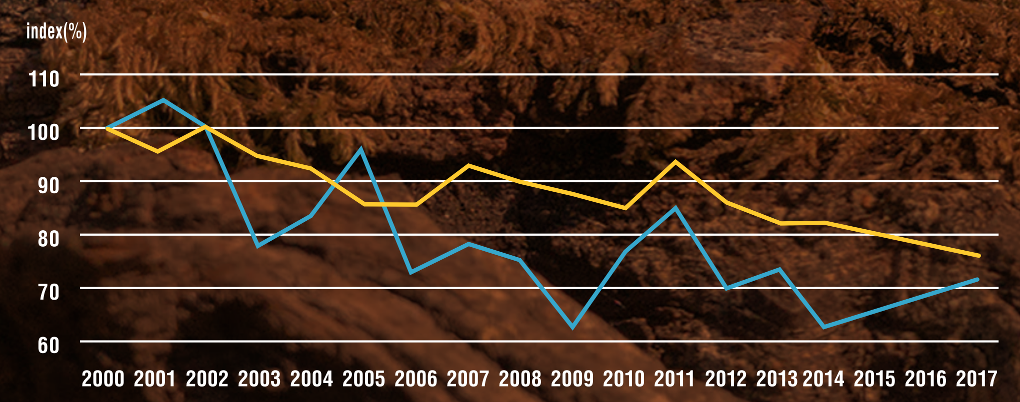
Cover photo
Italian sparrows and European greenfinchs by Milko Marchetti

Black redstart by Simona Tedesco

Aggregate **indicators**

The indicators that are obtained from population indexes of typical species of farmland and open mountain habitats, which depend in large part on agricultural or shepherding practices such as the mowing of meadows and grazing, respectively include the **Farmland Bird Index (FBI) and the Index for species of mountain grasslands (FBI_{pm})**. These indicators are synthetic tools that can monitor and especially communicate the evolution of population trends in these species, thus providing an overview of the health of the habitats they depend on. Both indexes confirm population declines, in keeping with recent trends. In 2017 the FBI and the FBI_{pm} respectively amounted to 77% and 71% of their initial value in the year 2000. As shown in the graphic, half of the 28 species that contribute to calculating the FBI and 8 of 13 of those that contribute to the FBI_{pm} are experiencing population declines (see table on page 10). The species undergoing the steepest declines include those typical of mountain grasslands, those found in Mediterranean pseudo-steppes – such as Tawny Pipit and Crested and Calandra Larks -, and birds found in diversified farmland, with landscape elements such as hedgerows and dry stone walls.

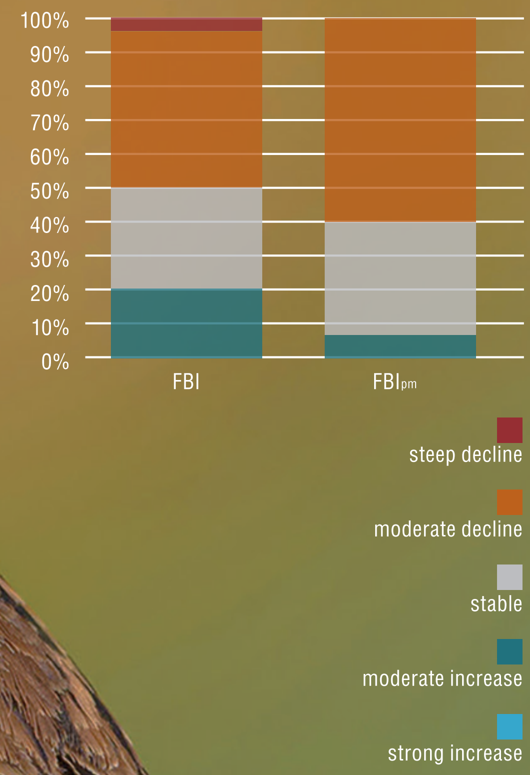
These latter species, which include Common Stonechat and Red-backed Shrike, are suffering from habitat loss and reduced food supplies due to the simplification of agricultural landscapes and intensive farming practices. The overall picture is even more dramatic if we consider than 20 of the 41 species analyzed are species of european conservation concern (SPEC), either threatened at the global level (**SPEC 1**) or with an unfavourable population status and with the bulk of their population occurring in Europe (**SPEC 2**) or outside of Europe (**SPEC 3**) (BirdLife International 2017)[1]. 65% of the 20 species monitored with FBI and FBI_{pm}, that are classified as SPEC, are declining. A worrying case concerns the Italian Sparrow, whose population has dropped by 54% nationwide between 2000 and 2017; this is all the more alarming if we consider that Italy hosts 87% of the global population. These data clearly show that the only way to save wild birds will be to improve the sustainability of human activities, including farming practices, by integrating general policies with environmental and biodiversity protection, and increasing monitoring and scientific research in general. This will not only benefit birds, but also us, our society and the quality of our landscapes, food and environment.



Trends in the Farmland Bird Index (FBI) and Index of species of mountain grasslands (FBI_{pm}) in 2000-2017. Data from 2015 and 2016 are still being processed, and have thus been excluded from the analyses presented in this brochure.

Italian sparrow by Roberto Becucci

Subdivision into classes of population trends of the species comprising the composite indicators.



20 SPEC species that contribute to calculating the FBI and FBI_{pm} indicators

SPEC 1 European Turtle-dove

SPEC 2 Corn Bunting, Yellowhammer, Ortolan Bunting, Red-backed Shrike, Italian Sparrow, Whinchat, European Serin

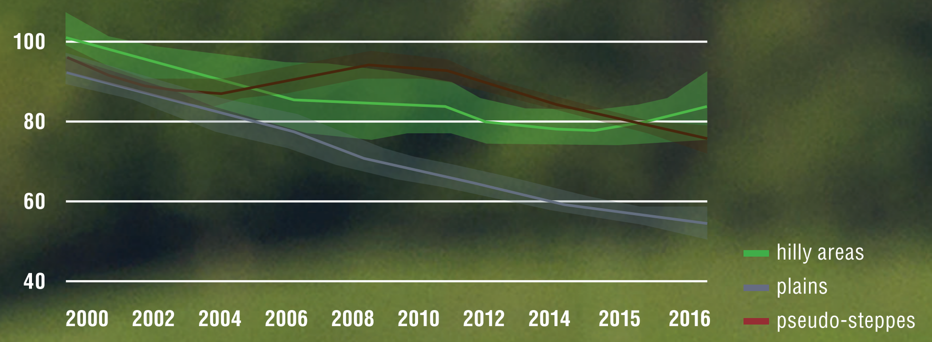
SPEC 3 Eurasian Skylark, Tawny Pipit, Tree Pipit, Greater Short-toed Lark, Crested Lark, Barn Swallow, Eurasian Wryneck, Calandra Lark, Western Yellow Wagtail, Northern Wheatear, Eurasian Tree Sparrow, Common Starling

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

Birds in farmland in different **ornithological zones**

As we have seen, the FBI shows that the population trends of italian farmland birds are generally unfavourable, with an overall decrease of 23% between 2000 and the present. However, italian agriculture is extremely diverse, ranging from the extensive monoculture of the Po Plain to habitat mosaics dominated by vineyards and olive groves in hilly areas, to montane grasslands and pastureland. It is thus natural to ask whether population trends for bird species included in the FBI vary depending on the ornithological zone in question. In order to find out, we can identify various farmland systems and calculate the FBI for each: if trends are significantly different, then so is the overall conservation status of the systems in question[1]. The study of "ornithological zones"[2,3] – geographic areas where local breeding bird communities are homogeneous – shows that three of these – namely plains, hills, and mediterranean pseudo-steppes – comprise the majority of italian farmland areas; farmland is much less represented in the remaining ornithological zones. By comparing FBI trends in these three different farmland systems, we can clearly see that trends are far worse in the plains than in the hills or pseudo-steppes. By using subsets of FBI species[4], we can analyse different types of farmland habitats: for example, trends for species typical of agricultural grasslands[5] are stable in hilly areas and declining in the plains. By the same token, there is a significant difference between hills and plains – with the latter once again showing stronger negative trends – for species of complex farmland ecosystems[6] or species tied to permanent crops[7]. By grouping species according to other criteria, such as where they nest (on the ground[8], on trees and shrubs[9], on buildings[10]), their migratory strategy (long-distance migrants[11] or short-distance migrants[12]), or by taxonomic groups (such as larks[13] and finches[14], which largely comprise species that are strongly tied to farmland habitats) FBI trends confirm that the conservation status is always worse in the plains that in hilly areas or mediterranean pseudo-steppes. While the above data confirm that the health of farmland ecosystems in Italy is generally unsatisfactory (there are no areas, not even hills, in which trends are positive), they also show that farmland ecosystem in the plains are experiencing a general crisis, which is not limited only to a few species or to certain specific types of farmland habitats. The picture that emerges is far from reassuring, and underscores the extent and gravity of the phenomenon.

FBI trends in plains, hilly areas and mediterranean pseudo-steppes.



Trends in the Farmland Bird Index (FBI) and Index of species of mountain grasslands (FBI_{pm}) in 2000-2017. Data from 2015 and 2016 are still being processed, and have thus been excluded from the analyses presented in this brochure.

Red-backed shrike by Renato Cottalasso

[1] Londi G., Tellini Florenzano G., Campedelli T., Rossi P., Fornasari L., Calvi G. (2017). Modelli di agricoltura a confronto sul tema della biodiversità ornitica: cosa dicono 15 anni di andamenti di popolazione delle specie nidificanti comuni. Riassunti del XIX Convegno Italiano di Ornitologia: 79-80
[2] Londi G., Tellini Florenzano G., Campedelli T., Fornasari L. (2010). An ornithological zonation of Italy. Bird Numbers (EBCC, 2010): 77
[3] Rete Rurale Nazionale & Lipu (2011). Uccelli comuni in Italia. Gli andamenti di popolazione dal 2000 al 2010. Pp: 18-19
[4] Campedelli T., Tellini Florenzano G., Sorace A., Fornasari L., Londi G. & Mini, L. (2009). Species selection to develop an Italian farmland bird index. Avocetta 33: 87-91
[5] Eurasian Skylark, Tawny Pipit, Western Yellow Wagtail, White Wagtail, Red-backed Shrike, Hooded Crow
[6] European Turtle-dove, Eurasian Hoopoe, Eurasian Wryneck, Crested Lark, Barn Swallow, Western Yellow Wagtail, Common Nightingale, Eurasian Golden Oriole, Eurasian Magpie, Hooded Crow, Italian Sparrow, Spanish Sparrow, Eurasian Tree Sparrow, European Serin, European Greenfinch, European Goldfinch
[7] European Turtle-dove, Eurasian Hoopoe, Eurasian Wryneck, Spanish Sparrow, European Serin, European Greenfinch
[8] Calandra Lark, Greater Short-toed Lark, Crested Lark, Eurasian Skylark, Tawny Pipit, Western Yellow Wagtail, Common Stonechat, Ortolan Bunting, Corn Bunting
[9] European Turtle-dove, Eurasian Wryneck, Common Nightingale, Eurasian Golden Oriole, Red-backed Shrike, Eurasian Magpie, Hooded Crow, European Serin, European Greenfinch, European Goldfinch
[10] Common Kestrel, Eurasian Hoopoe, Barn Swallow, White Wagtail, Common Starling, Spotless Starling, Italian Sparrow, Spanish Sparrow, Eurasian Tree Sparrow
[11] European Turtle-dove, Eurasian Hoopoe, Eurasian Wryneck, Greater Short-toed Lark, Barn Swallow, Tawny Pipit, Western Yellow Wagtail, Common Nightingale, Eurasian Golden Oriole, Red-backed Shrike, Ortolan Bunting
[12] Common Kestrel, Eurasian Skylark, White Wagtail, Common Stonechat, Common Starling, European Serin, European Greenfinch, European Goldfinch, Corn Bunting
[13] Calandra Lark, Greater Short-toed Lark, Crested Lark, Woodlark, Eurasian Skylark
[14] European Serin, European Greenfinch, European Goldfinch, Common Linnet

Population trends 2000-2017

The table below shows the population trends of common birds in Italy, from 2000 to 2017, that contribute to calculating the national Farmland Bird Index (FBI) and the Index for species of montane grasslands (FBI_{pm}). Data from 2015 and 2016 are still being processed, and have thus been excluded from the analyses presented in this brochure. **Species name** and **Scientific name** are given in the first two columns. The species names are listed alphabetically for ease of use.

Annual change ± SE (%) represents the average percentage change per year with its standard error (SE); it measures the trend's inaccuracy, and this indirectly its reliability, for the time period in question. **Trend classification 2000-2017** describes, using arrows and colours, population trends classified as follows (definitions recommended by EBCC):

- *strong increase* ▲▲ increase significantly more than 5% per year (5% would mean a doubling in abundance within 15 years);
- *moderate increase* ▲ significant increase, but not significantly more than 5% per year;
- *stable* ● no significant increase or decline, and most probable trends are less than 5% per year;
- *moderate decline* ▼ significant decline, but not significantly more than 5% per year;
- *steep decline* ▼▼ decline significantly more than 5% per year (5% would mean a halving in abundance within 15 years).

A low number of pairs counted and/or a high standard error may make trend values non-significant. Whenever one of these two conditions applies the population is prudently classified in the lower category for positive trends (moderate increase instead of strong increase, stable instead of moderate increase), or the upper category for negative trends (moderate decline instead of strong decline, stable instead of moderate decline).

- *uncertain* ? no significant increase or decline, and unlikely trends are less than 5% per year.

The **Squares** lists the number of 10x10 km squares whose ornithological data were used to calculate population trends for each species, namely the number of squares visited at least twice in the 2000-2017 period in which the species was present; this makes it possible to assess sample size for each species. A total of 1276 10x10 km squares were used for the analysis.

The **Indicator** column refers to the breakdown of species in accordance with habitat preferences at the national scale, as follows:
- farmland species whose population trends are used to calculate the FBI,
- mountain meadows species whose population trends are used to calculate the FBI_{pm}.
In order to provide a more comprehensive framework, additional information on species was added, drawn from other studies carried out at the national scale.

Northern wheatear by Simona Tedesco

The **Conservation status** column lists species according to the following conservation categories:

- *Favourable conservation status*
the species can thrive without any changes to current management strategies;

- *Inadequate conservation status*
the species requires a change in management policies, because populations have suffered of a decline less than 10% in 10 years;
- *Poor conservation status*
populations of these species populations have suffered of a decline more than 10% in 10 years.

For more information on the methodology used to define the conservation status of Italian birds, see Gustin et al., 2009, 2010a,b[1], which publications can be downloaded here https://sisn.pagepress.org/index.php/rio/article/view/332.

Finally, the **Red List** column indicates the category assigned to each species in the Red List of Italian breeding birds. The categories are: Regionally Extinct (RE), Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near-threatened (NT), Data Deficient (DD), Least Concern (LC). The categories CR, EN, VU (threatened species) apply to species at high to very high short-term extinction risk at the national level; NT applies to species which have a real possibility of being upgraded to threatened in the near future; LC applies to species that are not at imminent risk of extinction (even if slowly declining and/or relatively rare); DD applies to species for which there is insufficient data to asses their extinction risk; RE applies to species that have recently become extinct in Italy. For more information on the categories and criteria adopted to compile the national Red List[2] and the following websites: http://ciso-coi.it/avocetta/archivio-pubblicazioni and www.iucn-redlist.org.

[1] Gustin 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. https://doi.org/10.4081/rio.2016.332
[2] Peronace V., Cecere J.G., Gustin M., Rondinini C., 2012. Lista Rossa 2011 degli Uccelli Nidificanti in Italia. Avocetta 36:11-58

Scientific name	Species name	Annual change ± SE (%)	Trend classification 2000-2017	Squares	Indicator	Conservation status	Red List
Acanthis flammea	*Redpoll*	-6.21 (±1.34)	▼	81	FBI_{pm}	Favourable	LC
Alauda arvensis	*Eurasian Skylark*	-3.85 (±0.31)	▼	675	FBI	Poor	VU-A2bc
Anthus campestris	*Tawny Pipit*	-4.13 (±0.91)	▼	191	FBI	Poor	LC
Anthus spinoletta	*Water Pipit*	-2.91 (±0.65)	▼	135	FBI_{pm}	Inadequate	LC
Anthus trivialis	*Tree Pipit*	-1.12 (±0.55)	▼	263	FBI_{pm}	Inadequate	VU-A2bc
Calandrella brachydactyla	*Greater Short-toed Lark*	-1.83 (±0.99)	●	114	FBI	Poor	EN-A2bc
Carduelis carduelis	*European Goldfinch*	-2.55 (±0.18)	▼	1220	FBI	Inadequate	NT
Chloris chloris	*European Greenfinch*	-2.97 (±0.22)	▼	1097	FBI	Inadequate	NT
Corvus cornix	*Hooded Crow*	0.8 (±0.17)	▲	1137	FBI	Favourable	LC
Corvus corone	*Carrion Crow*	-1.16 (±0.78)	●	190	FBI_{pm}	Favourable	LC
Emberiza calandra	*Corn Bunting*	0.98 (±0.26)	▲	753	FBI	Inadequate	LC
Emberiza citrinella	*Yellowhammer*	-2.93 (±0.68)	▼	206	FBI_{pm}	Poor	LC
Emberiza hortulana	*Ortolan Bunting*	0.75 (±1.31)	●	94	FBI	Poor	DD
Falco tinnunculus	*Common Kestrel*	0.94 (±0.31)	▲	995	FBI	Favourable	LC
Galerida cristata	*Crested Lark*	-1.08 (±0.28)	▼	470	FBI	Inadequate	LC
Hirundo rustica	*Barn Swallow*	-1.57 (±0.23)	▼	1144	FBI	Poor	NT
Jynx torquilla	*Eurasian Wryneck*	-6.08 (±0.58)	▼	501	FBI	Inadequate	EN-A2b
Lanius collurio	*Red-backed Shrike*	-4.25 (±0.39)	▼	724	FBI	Poor	VU-A2bc
Luscinia megarhynchos	*Common Nightingale*	0.04 (±0.18)	●	952	FBI	Favourable	LC
Melanocorypha calandra	*Calandra Lark*	-2.99 (±1.36)	▼	69	FBI	Poor	VU-A2ac
Motacilla alba	*White Wagtail*	0.02 (±0.32)	●	957	FBI	Inadequate	LC
Motacilla flava	*Western Yellow Wagtail*	-2.42 (±0.47)	▼	270	FBI	Inadequate	VU-A2bc
Oenanthe oenanthe	*Northern Wheatear*	-0.98 (±0.62)	●	209	FBI_{pm}	Poor	NT
Oriolus oriolus	*Eurasian Golden Oriole*	3.78 (±0.28)	▲	756	FBI	Favourable	LC
Passer hispaniolensis	*Spanish Sparrow*	-3.41 (±0.49)	▼	162	FBI	Inadequate	VU-A2bc
Passer italiae	*Italian Sparrow*	-3.52 (±0.22)	▼	1076	FBI	Poor	VU-A2bc
Passer montanus	*Eurasian Tree Sparrow*	-2.56 (±0.32)	▼	907	FBI	Poor	VU-A2bc
Phoenicurus ochruros	*Black Redstart*	1.13 (±0.4)	▲	508	FBI_{pm}	Favourable	LC
Pica pica	*Eurasian Magpie*	2.2 (±0.18)	▲	945	FBI	Favourable	LC
Prunella modularis	*Dunnock*	-1.54 (±0.68)	▼	172	FBI_{pm}	Favourable	LC
Saxicola rubetra	*Whinchat*	-4.52 (±1.09)	▼	111	FBI_{pm}	Poor	LC
Saxicola torquatus	*Common Stonechat*	-6.7 (±0.36)	▼▼	841	FBI	Inadequate	VU-A2bc
Serinus serinus	*European Serin*	-0.23 (±0.17)	●	1155	FBI	Favourable	LC
Streptopelia turtur	*European Turtle-dove*	-0.34 (±0.22)	●	929	FBI	Poor	LC
Sturnus unicolor	*Spotless Starling*	4.49 (±0.69)	▲	144	FBI	Favourable	LC
Sturnus vulgaris	*Common Starling*	0.03 (±0.31)	●	797	FBI	Favourable	LC
Sylvia borin	*Garden Warbler*	-6.37 (±1.34)	▼	92	FBI_{pm}	Inadequate	LC
Sylvia curruca	*Lesser Whitethroat*	3.9 (±1.01)	●	123	FBI_{pm}	Favourable	LC
Turdus pilaris	*Fieldfare*	-3.2 (±0.85)	▼	98	FBI_{pm}	Inadequate	NT
Turdus torquatus	*Ring Ouzel*	-0.96 (±1.2)	●	92	FBI_{pm}	Inadequate	LC
Upupa epops	*Common Hoopoe*	0.24 (±0.34)	●	758	FBI	Favourable	LC

MODERATE INCREASE ▲ · STRONG INCREASE ▲▲ · MODERATE DECLINE ▼ · STEEP DECLINE ▼▼ · STABLE ● · UNCERTAIN ? · FAVOURABLE (green) · POOR (red) · INADEQUATE (yellow)

Ear of corn by Milko Marchetti

Agri-environment-climate measures: concrete help for farmland species?

The loss of biodiversity in farmland habitats is considered to be one of the main environmental problems in Europe and beyond. According to a study published in Nature[1], at the global level agriculture has a negative impact on biodiversity second only to direct take (over-exploitation, hunting and poaching, commercial fishing). There are many processes leading up to this, and depending on the geographic context, they can even work against one another: while in Europe the worst effects are caused mainly by the intensification of farming practices and the abandonment of marginal areas, in tropical countries they are caused by the conversion of natural areas into farmland. Of the animal taxa most affected by these processes, birds take on a key role both because the documented impacts they suffer are manifold and because they serve as “umbrella” species to study the effect of farming practices on biodiversity as a whole. Studying the causes of bird declines and trying to remedy them thus helps benefit the entire ecosystem.
Unfortunately, it is usually very difficult to explain negative population trends – such as those highlighted by the Farmland Bird Index – with a single cause, since they are usually the result of a series of factors interacting with one another in ways that differ depending on the environmental and geographic context, and with effects that vary depending on the type of farmland habitat. Generally speaking, however, we can say that changes in farming practices especially its intensification, the reduction of habitat and crop diversity and the use of pesticides, at least in certain context, have brought about and continue to cause a reduction in the food resources and habitats of numerous species, thus causing their populations to decrease.

These processes, which have been taking place in Europe since the end of WWII, are largely caused by the application of the Common Agricultural Policy (CAP); additional support for this hypothesis, which has been backed by extensive research, comes from a recent study[2] highlighting the declines in farmland birds in several eastern European countries after their entrance in the EU and adoption of the CAP.
In order to reduce the negative effects of farming practices on biodiversity and the environment in general (such as soil and water quality), environmental sustainability goals were added to the CAP in 1992. In order to reach these goals, several instruments were strengthened or introduced. Firstly, all farmers who receive subsidies must abide by the so-called conditionality (norms concerning pollution reduction already adopted in other European legislation and norms of farming best practices such as the maintenance of permanent meadows) and by greening norms, introduced during the current planning period, which establish that a certain percentage of agricultural payments can only be made to farmers who follow certain “green rules”, such as the maintenance of a certain percentage of Ecological Focus Areas (EFAs), crop diversification, or the planting of nitrogen-fixing crops. The main instrument identified by the EU to mitigate these negative effect lies in the European Agricultural Fund for Rural Development, which establishes voluntary measures that farmers can adhere to: these comprise a series of so-called agri-environment climate measures (AECM) designed specifically to mitigate the environmental impact of agriculture and to prevent or remedy the damages that excessively intensive agriculture causes to the land.

This commitment is reiterated in the EU Biodiversity Strategy to 2020, adopted in 2011 by the European Commission, which includes among its goals the increase in farmland subject to measures to protect biodiversity and the environment. The question thus arises of whether these instruments – particularly AECM – have been successful so far and have caused bird population trends to improve. Once again, the answer is quite complex, and the many available studies have drawn different conclusions, as well shown by a recent Europe-wide analysis[3] that showed a positive correlation between the areas subjected to these measures and the population size and trend of certain species, but that also showed how these instruments have so far largely failed in their goal of reversing large-scale negative trends for these species. This would mean that at most, the application of these measures staunched, at the local level, the negative effect of modern agricultural practices.

But why is this so? First of all, a particularly interesting aspect that seems to influence the efficacy of these measures appears to be the environmental context in which they are applied. Indeed, numerous studies have shown that these measures are significantly more effective when applied in modern farm landscapes with few natural areas, where one or a few natural elements can make a big difference (akin to an oceanic island or a desert oasis), rather than in diverse, less-intensive farmland, where the measures are useful to protect the ecosystem from becoming impoverished in the long run, or where only highly targeted measures – such as specific management practices for pastureland or for mowing meadows – can make a difference.

A second and perhaps more important aspect is that not all of these measures are equal, but rather can be divided into two broad categories that Kleijn and Sutherland (2003)[4] call "horizontal" and "zonal". The former are measures that can be applied to large areas and whose goal is a general reduction in the impact of farming on the environment, regardless of the crops or habitats in question, such as a reduction in the use of chemicals; these measures include organic farming. The latter instead aim to protect or recreate habitats for one or more species in response to limiting factors that have been identified, such as the lack of food or cover; this is why actions such as planting hedgerows in lowland areas or maintaining mountain pastures are applied to specific contexts. Zonal measures also include those planned for the ecological needs of specific species or groups of species, such as creating permanently flooded ditches on the margins of rice fields as a way to favour aquatic fauna and herons.

Several cases studies[5] have shown how the positive effect of zonal measures on biodiversity, especially birds, is more evident compared to system-wide measures. These results were upheld by a study carried out in lowland farmland ecosystems in Emilia-Romagna[6] showing that of the AECMs that were applied, the only one to have a significant positive effect on breeding birds – albeit on generalist species of low conservation value – was that of maintaining hedgerows and other natural landscape elements. There were no evident, significant local impacts for organic and integrated agriculture. Similar results were achieved in other studies carried out in vineyards in Trentino[7,8].

At first glance, these results may suggest that zonal measures are the only ones to be efficient. In fact, as the authors themselves claim, if the data are analysed in detail it appears evident that vertebrates such as birds respond clearly to measures designed specifically for them – such as hedgerows in contexts in which agricultural management leads to extremely simplified landscapes with minimal natural habitats, and where extremely intensive farming practices are applied, as is the case for orchards and vineyards in Emilia-Romagna and Trentino.

Obtaining evidence on the efficacy of measures such as organic agriculture is more difficult, since it is not targeted, but rather has indirect effects, especially on vertebrates, which are often only evident in the long run and on a large scale.

The third aspect has to do with the "density" of the intervention, namely the extent to which one or more measures are applied to a specific geographic context. Indeed, it is logical to assume that if one creates a small wetland or a single row of trees, this will bring about an increase in the number of birds in that specific site, while favouring species that do not need large habitat patches or that are able to move from one habitat patch to the next. On the other hand, a network of measures implemented on a wider scale will increase the number of birds at a large scale, thus making it possible to achieve stable population and decrease negative trends even for species that are more sensitive or specialized. But since farmers currently adhere to these measures on a voluntary basis only, there cannot be any large-scale structural landscape redesign plans, thus often nullifying the results achieved on a local scale.

The same can be said of horizontal measures, for which the effects of the reduced inputs of pollutants (such as the amount of chemical residue in a river) are visible only if generalized. Indeed, it has been shown that the most effective actions for biodiversity protection are the collaborative farming and Leader measures, which are applied on a district-wide scale so as to maximize the efficacy of interventions.

In conclusion, if we want to invert the negative trend affecting farmland biodiversity, and especially birds, we must not only define specific measures, but also make sure they are applied correctly and on a wide scale, and in manner that helps them integrate with more generic measures. In order to do so, it is necessary to have a sound grasp of the current situation – the FBI can make a meaningful contribution in this regard – in order to understand which interventions are needed in a given geographic context and to make sure that these measures are attractive to farmers, so that they may be applied in a widespread and thorough fashion.

Yellow wagtail by Milko Marchetti

[1] Maxwell S.L., Fuller R.A., Brooks T.M, Watson J.E.M., (2016). Biodiversity: the ravages of guns, nets and bulldozers. Nature 536: 143–145 doi:10.1038/536143a

[2] Reif J. & Vermouzek Z., (2018). Collapse of farmland bird populations in an Eastern European country following its EU accession. Conservation Letters 2018;e12585. https://doi.org/10.1111/conl.12585

[3] Gamero A., Brotons L., Brunner A., Foppen R., Fornasari L., Gregory R.D., Herrando S., Hořák D., Jiguet F., Kmecl P., Lehikoinen A., Lindström A., Paquet J.Y., Reif J., Sirkiä P.M., Škorpilová J., van Strien A., Szép T., Telenskŷ T., Teufelbauer N., Trautmann S., van Turnhout C.A.M., Vermouzek Z., Vikstrøm T., Vořìšek P., (2017). Tracking progress toward EU Biodiversity Strategy Targets: EU Policy effects in preserving its common farmland birds. Conservation Letters 10(4): 395-402

[4] Kleijn D. & Sutherland W.J., (2003). How effective are European agri-environment schemes in conserving and promoting biodiversity? Journal of Applied Ecology (2003) 40: 947-969

[5] Batáry P., Dicks L.V., Kleijn D., Sutherland W.J., (2015). The role of agri-environment schemes in conservation and environmental management. Conservation Biology, Volume 29(4): 1006-1016

[6] Calvi G., Campedelli T., Tellini Florenzano G., Rossi P., (2017). Evaluating the benefits of agri-environment schemes on farmland bird communities through a common species monitoring programme. A case study in northern Italy. Agricultural Systems 160: 60-69 http://dx.doi.org/10.1016/j.agsy.2017.09.002

[7] Assandri G., Bogliani G., Pedrini P., Brambilla M., (2016). Diversity in the monotony? Habitat traits and management practices shape avian communities in intensive vineyards. Agriculture, Ecosystems & Environment 223: 250-260.

[8] Assandri G., Giacomazzo M., Brambilla M., Griggio,M., Pedrini P., (2017). Nest density, nest-site selection, and breeding success of birds in vineyards: Management implications for conservation in a highly intensive farming system. Biological conservation 205: 23-33. http://dx.doi.org/10.1016/j.biocon.2016.11.020

National financial supporters

2009-2017 – Ministero delle Politiche Agricole Alimentari e Forestali

Local financial supporters, regional coordinators and counters for FBI project 2009-2017 (in alphabetical order):

ABRUZZO Coordinator: Mauro Bernoni (2009-2017)
Counters: Carlo Artese, Mauro Bernoni, Sante Cericola, Mirko Di Marzio, Mauro Fabrizio, Davide Ferretti, Giorgio Lalli, Marco Liberatore, Antonio Monaco, Lorenzo Petrizzelli, Eliseo Strinella

BASILICATA Coordinator: Fulco Egidio (2009-2017)
Counters: Tommaso Campedelli, Pietro Chiatante, Egidio Fulco, Fabio Mastropasqua, Simone Todisco

PROVINCIA DI BOLZANO Coordinators: Oskar Niederfriniger (2009-2011), Erich Gasser (2012-2016), Patrick Egger (2017) **Counters:** Paolo Bonazzi, Tommaso Campedelli, Patrick Egger, Alessandro Franzoi, Erich Gasser, Christian Kofler, Andreas Lanthaler, Guglielmo Londi, Oskar Niederfriniger, Iacun Prugger, Arnold Rinner, Francesca Rossi, Udo Thoma, Leo Unterholzner
Financial supporter: 2009-2017 Arbeitsgemeinschaft für Vogelkunde und Vogelschutz - Südtirol

CALABRIA Coordinator: Francesco Sottile (2009-2017)
Counters: Rosario Balestrieri, Domenico Bevacqua, Paolo Bulzomì, Giovanni Capobianco, Gianluca Congi, Salvatore De Bonis, Manuel Marra, Giuseppe Martino, Eugenio Muscianese, Mario Pucci, Francesco Sottile, Pierpaolo Storino, Salvatore Urso, Maurizio Vena

CAMPANIA Coordinators: Danila Mastronardi (2009-2012), Danila Mastronardi e Rosario Balestrieri (2013-2017)
Counters: Rosario Balestrieri, Ilaria Cammarata, Camillo Campolongo, Silvia Capasso, Giovanni Capobianco, Vincenzo Cavaliere, Costantino D'Antonio, Davide De Rosa, Elio Esse, Maurizio Fraissinet, Alfredo Galietti, Marcello Giannotti, Silvana Grimaldi, Ottavio Janni, Mario Kalby, Claudio Mancuso, Danila Mastronardi, Stefano Piciocchi, Andrea Senese, Alessio Usai, Mark Walters, Davide Zeccolella
Financial supporter: 2012-2013 Assessorato all'Agricoltura - Regione Campania

EMILIA-ROMAGNA Coordinators: St.E.R.N.A. (Stefano Gellini e Pier Paolo Ceccarelli) (2000-2017) e Lipu (Marco Gustin) (2011-2017)
Counters: Davide Alberti, Luca Bagni, Simone Balbo, Mario Bonora, Fabrizio Borghesi, Francesco Cacciato, Maurizio Casadei, Lino Casini, Pier Paolo Ceccarelli, Carlo Ciani, Massimiliano Costa, Simonetta Cutini, Paolo Gallerani, Marco Gustin, Giorgio Leoni, Guglielmo Londi, Maurizio Samorì, Fabio Simonazzi, Stefano Soavi, Cristiano Tarantino, Luigi Ziotti
Financial supporter: 2011-2013 Regione Emilia-Romagna D.G. Agricoltura, economia ittica, attività faunistico venatorie, Servizio Programmi, Monitoraggio e Valutazione

FRIULI VENEZIA GIULIA Coordinators: Roberto Parodi (2009), Reg. aut. Friuli Venezia Giulia – Ufficio studi faunistici (Fabrizio Florit) (2010-2017)
Counters: Marco Baldin, Enrico Benussi, Antonio Borgo, Silvano Candotto, Renato Castellani, Matteo De Luca, Bruno Dentesani, Fabrizio Florit (Reg. aut. Friuli Venezia Giulia, Uff. studi faunistici), Carlo Guzzon, Kajetan Kravos, Francesco Mezzavilla, Roberto Parodi, Michele Pegorer, Remo Peressin, Francesco Scarton, Valter Simonitti, Pier Luigi Taiariol, Matteo Toller (Reg. aut. Friuli Venezia Giulia, Serv. Foreste e Corpo forestale, St. for. di Resia), Michele Toniutti (Reg. aut. Friuli Venezia Giulia, Serv. Foreste e Corpo forestale, St. for. di Udine), Paul Tout, Paolo Utmar, Tarcisio Zorzenon (Reg. aut. Friuli Venezia Giulia, Serv. Foreste e Corpo forestale, St. for. di Duino-Aurisina)
Financial supporter: 2010-2012 Regione autonoma Friuli Venezia Giulia, Direzione centrale infrastrutture e territorio, Servizio paesaggio e biodiversità, Ufficio studi faunistici

LAZIO Coordinator: Massimo Brunelli, Stefano Sarrocco, Alberto Sorace (2009-2017) **Counters:** Mauro Bernoni, Massimo Brunelli, Michele Cento, Ferdinando Corbi, Emiliano De Santis, Luigi Ianniello, Daniele Iavicoli, Emanuela Lorenzetti, Mario Melletti, Angelo Meschini, Sergio Muratore, Roberto Papi, Loris Pietrelli, Stefano Sarrocco, Enzo Savo, Sara Sciré, Alberto Sorace, Daniele Taffon, Marco Trotta

LIGURIA Coordinators: Sergio Fasano (2009-2017)
Counters: Luca Baghino, Massimo Campora, Renato Cottalasso, Sergio Fasano, Roberto Toffoli, Rudy Valfiorito
Financial supporter: 2009-2013 Regione Liguria, Dipartimento Ambiente, Servizio Parchi, Aree protette e Biodiversità; coordinamento: Ente Parco del Beigua. 2014-2017 Ente Parco del Beigua

LOMBARDIA Coordinators: FaunaViva (2009-2017)
Counters: Giuseppe Agostani, Davide Aldi, Gaia Bazzi, Mauro Belardi, Roberto Bertoli, Paolo Bonazzi, Sonia Braghiroli, Gianpiero Calvi, Stefania Capelli, Gianpasquale Chiatante, Felice Farina, Massimo Favaron, Lorenzo Fornasari, Arturo Gargioni, Nunzio Grattini, Daniele Longhi, Giuseppe Lucia, Alessandro Mazzoleni, Mariella Nicastro, Mattia Panzeri, Alessandro Pavesi, Fabrizio Reginato, Cesare Rovelli, Jacopo Tonetti, Andrea Viganò, Severino Vitulano
Financial supporter: 2009-2013 Regione Lombardia - D.G. Agricoltura

MARCHE Coordinators: Riccardo Santolini (2009-2016), Paolo Perna (2017)
Counters: Jacopo Angelini, Simonetta Cutini, Nicola Felicetti, Fabrizio Franconi, Mauro Furlani, Fabrizio Fusari, Pierfrancesco Gambelli, Guglielmo Londi, Giorgio Marini, Mauro Mencarelli, Federico Morelli, Niki Morganti, Francesca Morici, Mina Pascucci, Giovanni Pasini, Paolo Perna, Danilo Procaccini, Fabio Pruscini

MOLISE Coordinators: Lorenzo De Lisio (2009-2017)
Counters: Marco Carafa, Andrea Corso, Lorenzo De Lisio, Davide De Rosa, Giancarlo Fracasso

PIEMONTE Coordinators: Roberto Toffoli (2009-2017)
Counters: Giacomo Assandri, Andrea Battisti, Giovanni Boano, Stefano Boccardi, Enrico Caprio, Franco Carpegna, Stefano Costa, Dario Di Noia, Ivan Ellena, Sergio Fasano, Luca Giraudo, Davide Giuliano, Marco Pavia, Claudio Pulcher, Giovanni Soldato, Roberto Toffoli, Simone Tozzi
Financial supporter: 2009-2014 Regione Piemonte, Assessorato Agricoltura, Istituto Piante da Legno e Ambiente IPLA

PUGLIA Coordinators: Associazione Or.Me. (Giuseppe La Gioia) (2009-2017)
Counters: Giuseppe Albanese, Michele Bux, Tommaso Capodiferro, Tommaso Campedelli, Pietro Chiatante, Vincenzo Cripezzi, Filippo D'Erasmo, Egidio Fulco, Lorenzo Gaudiano, Vittorio Giacoia, Giuseppe Giglio, Anthony Green, Rocco Labadessa, Giuseppe La Gioia, Cristiano Liuzzi, Manuel Marra, Fabio Mastropasqua, Giuseppe Nuovo, Simone Todisco, Severino Vitulano

SARDEGNA Coordinators: Sergio Nissardi e Danilo Pisu (2009-2017)
Counters: Jessica Atzori, Fabio Cherchi, Roberto Cogoni, Davide De Rosa, Ilaria Fozzi, Pier Francesco Murgia, Sergio Nissardi, Riccardo Paddeu, Stefania Piras, Danilo Pisu, Giampaolo Ruzzante, Angelo Sanna, Carla Zucca

SICILIA Coordinators Lipu (2009), Amelia Roccella (2010-2017)
Counters: Barbara Bottini, Emanuela Canale, Carlo Capuzzello, Michele Cento, Fabio Cilea, Giovanni Cumbo, Simonetta Cutini, Graziella Dell'Arte, Paolo Galasso, Egle Gambino, Gabriele Giacalone, Elena Grasso, Renzo Ientile, Giovanni Leonardi, Guglielmo Londi, Flavio Lo Scalzo, Maurizio Marchese, Amelia Roccella, Angelo Scuderi

TOSCANA Coordinators: D.R.E.Am. Italia (Guido Tellini Florenzano) (2009-2017), COT (Luca Puglisi) (2009-2017)
Counters: Emiliano Arcamone, Giancarlo Battaglia, Tommaso Campedelli, Alberto Chiti-Batelli, Iacopo Corsi, Barbara Cursano, Simonetta Cutini, Michele Giunti, Marco Lebboroni, Guglielmo Londi, Angelo Meschini, Ewa Oryl, Francesco Pezzo, Sandro Piazzini, Luca Puglisi, Alessandro Sacchetti, Roberto Savio, Guido Tellini Florenzano, Marco Valtriani, Lorenzo Vanni, Ursula Veken, Andrea Vezzani
Financial supporter: 2009-2013 Regione Toscana, Direzione Generale dello Sviluppo Economico, Settore Politiche agroambientali, attività faunistica-venatoria e pesca dilettantistica. Beneficiario COT

PROVINCIA DI TRENTO Coordinators Paolo Pedrini (2009-2017)
Counters: Tommaso Campedelli, Francesco Ceresa, Alessandro Franzoi, Guglielmo Londi, Giuseppe Martino, Stefano Noselli, Paolo Pedrini, Franco Rizzolli, Francesca Rossi, Michele Segata, Gilberto Volcan
Financial supporter:2009-2017 Museo delle Scienze di Trento, Sezione Zoologia dei Vertebrati: Provincia Autonoma di Trento: Dipartimento Ambiente, Territorio e Foreste, Servizio Conservazione della Natura - Ufficio Rete Natura 2000; Dipartimento Agricoltura, Turismo e Commercio e Promozione (2010-2013); Accordo di Programma per la Ricerca 2014

UMBRIA Coordinators: Osservatorio Faunistico Regionale (Giuseppina Lombardi e Francesco Velatta) (2009-2017)
Counters: Enrico Cordiner, Laura Cucchia, Egidio Fulco, Angela Gaggi, Daniele Iavicoli, Sara Marini, Angelo Meschini, Monica Montefameglio, Carmine Romano, Francesco Velatta, Martina Zambon
Financial supporter: 2009 e 2011-2017 Osservatorio Faunistico Regione Umbria

VALLE D'AOSTA Coordinator: Roberto Toffoli (2009-2017)
Counters: Andrea Battisti, Stefano Boccardi, Franco Carpegna, Vittorio Fanelli, Sergio Fasano, Lorenzo Petrizzelli, Roberto Toffoli
Financial supporter: 2009-2011 e 2013 Servizio Aree protette, Assessorato Agricoltura e Risorse naturali, Regione autonoma Valle d'Aosta

VENETO Coordinators: Francesco Mezzavilla (2009-2014), Andrea Favaretto (2015-2017), Maurizio Sighele (Provincia VR: 2009-2017)
Counters: Marco Basso, Paolo Bertini, Katia Bettiol, Renato Bonato, Luca Boscain, Michele Cassol, Elvio Cerato, Carla Chiappisi, Lorenzo Cogo, Vittorio Fanelli, Andrea Favaretto, Cristiano Izzo, Roberto Lerco, Alessandro Mazzoleni, Francesco Mezzavilla, Andrea Mosele, Aronne Pagani, Michele Pegorer, Davide Pettenò, Giulio Piras, Luigi Piva, Fabrizio Reginato, Franco Rizzolli, Fabio Sabbadin, Alessandro Sartori, Francesco Scarton, Arno Schneider, Cesare Sent, Giacomo Sgorlon, Giacomo Sighele, Maurizio Sighele, Giancarlo Silveri, Emanuele Stival, Giuseppe Tormen, Danilo Trombin, Mauro Varaschin, Emiliano Verza, Corrado Zanini

Tree pipit by Renato Cottalasso

We would like to thank all those who contributed to the MITO2000 project from 2000 to 2008:

MITO2000 Board:
Lorenzo Fornasari - chair (FaunaViva); Mattia Brambilla (CISO); Claudio Celada - vicechair (Lipu); Guido Tellini Florenzano - vicechair (D.R.E.Am. Italia); Elisabetta de Carli - vicechair, Sergio Fasano, Giuseppe La Gioia, Riccardo Santolini, Alberto Sorace (Coordinatori regionali **Technical team:** Paolo Bonazzi, Gianpiero Calvi, Elisabetta de Carli (FaunaViva); Tommaso Campedelli, Simonetta Cutini, Guglielmo Londi, Guido Tellini Florenzano - chair (D.R.E.Am. Italia); Claudio Celada (Lipu) **Organization secretary:** Lia Buvoli - chair (FaunaViva); Simonetta Cutini (D.R.E.Am. Italia); Laura Silva (Lipu) **Validation team:** Paolo Bonazzi (FaunaViva); Simonetta Cutini, Guido Tellini Florenzano - chair (D.R.E.Am. Italia)

National financial supporters:
2000 - Ministero dell'Ambiente e della Tutela del Territorio e del Mare
Local financial supporters, regional coordinators and counters for MITO2000 project 2000-2008 (in alphabetical order):

ABRUZZO Coordinator: Mauro Bernoni (2000-2008) **Counters:** A. Antonucci, C. Artese, M. Bernoni, M. Carafa, M. Cirillo, E. Cordiner, V. Dundee, G. Guerrieri, G. Lalli, M. Liberatore, M. Miglio, A. Monaco, M. Pellegrini, P. Plini, B. Santucci, E. Strinella

BASILICATA Coordinators: Giovanni Palumbo (2000), FaunaViva (2001-2004), Egidio Fulco (2005-2008) **Counters:** M. Bernoni, P. Bonazzi, S. Brambilla, F. Canonico, E. Fulco, G. Miapane, G. Palumbo

PROVINCIA DI BOLZANO Coordinator: Oskar Niederfriniger (2000-2008)
Counters: O. Danay, E. Gasser, E. Girardi, J. Hackhofer, L. Hilpold, R. Hitthaler, C. Kofler, A. Leitner, M. Moling, M. Moling, O. Niederfriniger, K. Niederkofler, M. Obletter, P. Pedrini, J. Riegel, A. Rinner, U. Thoma, L. Unterholzner, G. Volcan, J. Waschgler, T. Wilhalm, J. Winkler **Financial supporter:** 2000-2008 Arbeitsgemeinschaft für Vogelkunde und Vogelschutz - Südtirol

CALABRIA Coordinators: Toni Mingozzi e Francesco Sottile (2000), FaunaViva (2001-2008) **Counters:** P. Bulzomì, G. Camelliti, S. De Bonis, R. Facoetti, M. Kalby, A. Mancuso, G. Marzano, M. Sacchi, N. Sills, F. Sottile, P. Storino, S. Urso, M. Walters

CAMPANIA Coordinators: Giancarlo Moschetti (Province CE, BN: 2000-2001), Mario Milone (Province NA, AV, SA: 2000-2002) e Maria Filomena Caliendo (2000-2008) **Counters:** R. Balestrieri, M. Bruschini, M.F. Caliendo, C. Campolongo, F. Canonico, F. Carpino, P. Conti, G. De Filippo, F. Finamore, M. Fraissinet, D. Fulgione, L. Fusco, M. Giannotti, R. Guglielmi, S. Guglielmi, O. Janni, M. Kalby, C. Mancuso, E. Manganiello, D. Mastronardi, M. Milone, G. Moschetti, S. Piciocchi, D. Rippa, C.E. Rusch, S. Scebba, A. Vitolo, M. Walters

EMILIA-ROMAGNA Coordinator: St.E.R.N.A. (Stefano Gellini e Pierpaolo Ceccarelli) (2000-2008) **Counters:** F. Aceto, M. Allegri, A. Ambrogio, G. Arveda, L. Bagni, M. Bonora, L. Bontardelli, F. Cacciato, M. Casadei, L. Casini, P.P. Ceccarelli, C. Ciani, I. Corsi, M. Costa, M.E. Ferrari, M. Finozzi, M. Gustin, L. Melega, M. Salvarani, G. Sardella, G. Tellini Florenzano, S. Volponi, F. Zanichelli

FRIULI VENEZIA GIULIA Coordinator: Roberto Parodi (2000-2008)
Counters: A. Borgo, S. Candotto, R. Castellani, M. De Luca, B. Dentesani, U. Fattori, F. Florit, F. Genero, C. Guzzon, K. Kravos, R. Parodi, R. Peressin, V. Simonitti, P.L. Taiariol, M. Toniutti, P. Tout, P. Utmar
Financial supporter: 2002-2008 Regione autonoma Friuli Venezia Giulia, Direzione centrale risorse rurali, agroalimentari e forestali, Servizio caccia, risorse ittiche e biodiversità, Ufficio studi faunistici

LAZIO Coordinators: Loris Pietrelli (2000), Massimo Brunelli, Stefano Sarrocco, Alberto Sorace (2000-2008) **Counters:** C. Battisti, M. Belardi, M. Bernoni, M. Biondi, A. Boano, M. Brunelli, A. Castaldi, C. Catoni, M. Cento, F. Corbi, L. Corsetti, E. De Santis, F. Fraticelli, P. Fusacchia, G. Guerrieri, L. Ianniello, G. Landucci, M. Liberatore, E. Lorenzetti, M. Melletti, A. Meschini, M. Miglio, A. Montemaggiori, R. Papi, L. Pietrelli, F. Pinos, P. Plini, S. Roma, M. Rossetti, F. Rossi, M. Sacchi, B. Santucci, S. Sarrocco, E. Savo, S. Sciré, A. Sorace, D. Taffon, C. Teofili, M. Trotta
Financial supporter: 2006-2008 Agenzia Regionale Parchi del Lazio - Regione Lazio

LIGURIA Coordinators: Luca Baghino (2000-2006), FaunaViva (2007), Sergio Fasano (2008) **Counters:** G. Accinelli, C. Aristarchi, L. Baghino, S. Brambilla, M. Campora, P. Canepa, R. Cottalasso, S. Fasano, C. Figoni, L. Fornasari, L. Galli, C. Galuppo, M. Giorgini, N. Maranini, M. Oliveri, M. Ottonello, C. Peluffo, S. Spanò, R. Toffoli, R. Valfiorito, A. Verner
Financial supporter: 2008 Regione Liguria, Dipartimento Ambiente, Servizio Parchi, Aree protette e Biodiversità; coordinamento: Ente Parco del Beigua

LOMBARDIA Coordinator: FaunaViva (2000-2008)
Counters: G. Agostani, M. Allegri, F. Baccalini, L. Bani, R. Barezzani, E. Bassi, G. Bazzi, M. Belardi, R. Bertoli, M. Biasioli, P. Bonazzi, M. Bonetti, L. Bontardelli, P. Bonvicini, S. Brambilla, R. Brembilla, M. Caffi, E. Cairo, G. Calvi, M. Canziani, S. Capelli, F. Cecere, F. Ceresa, S. Colaone, P. Cucchi, R. Facoetti, F. Farina, M. Favaron, A. Ferri, I. Festari, L. Fornasari, A. Galimberti, A. Gargioni, G. Gottardi, N. Grattini, W. Guenzani, M. Guerrini, R. Leo, R. Lerco, D. Longhi, L. Longo, G. Lucia, L. Maffezzoli, S. Mantovani, L. Marchesi, M. Marconi, C. Martignoni, A.Micheli, S. Milesi, C. Movalli, A. Nevola, M. Nova, F. Ornaghi, F. Orsenigo, E. Perani, V. Perin, G. Piotti, S. Ravara, G. Redaelli, S. Riva, A. Rossi, C. Rovelli, D. Rubolini, M. Sacchi, R. Sacchi, C. Sbravati, C. Scandolara,
M. Sighele, J. Tonetti, M. Valota, A. Viganò
Financial supporter: 2001-2008 Regione Lombardia - D.G. Agricoltura

MARCHE Coordinators: Paolo Perna (2000), Riccardo Santolini (2001-2008)
Counters:J. Angelini, S. Brambilla, E. Cordiner, N. Felicetti, M.E. Ferrari, A. Ferri, D. Fiacchini, M. Furlani, G. Pasini, P. Perna, M. Sacchi, A. Sorace, N. Tonolini

MOLISE Coordinators: Massimo Pellegrini (2000), Lorenzo De Lisio (2001-2008)
Counters: F. Aceto, P. Brichetti, A. Corso, L. De Lisio, M. Pellegrini

PIEMONTE Coordinators: Giovanni Boano (2000-2001), Roberto Toffoli (2002-2008)
Counters: G. Aimassi, P. Alberti, P. Beraudo, R. Bionda, G. Boano, L. Bordignon, A. Boto, F. Carpegna, G. Cattaneo, B. Caula, S. Fasano, M. Favaron, A. Ferri, L. Fornasari, G. Gertosio, L. Giraudo, P. Grimaldi, P. Marotto, C. Movalli, M. Pavia, C. Pulcher, D. Reteuna, G. Roux Poignant, D. Rubolini, R. Toffoli, S. Tozzi
Financial supporter: 2001-2004 Regione Piemonte, Settore Pianificazione Aree Protette, Parco Naturale Alpi Marittime. 2007-2008 Regione Piemonte, Assessorato Agricoltura, Istituto Piante da Legno e Ambiente IPLA

PUGLIA Coordinators: Antonio Sigismondi (2000), Associazione Or.Me. (Giuseppe La Gioia) (2001-2008) **Counters:** G. Albanese, M. Bux, M. Caldarella, T. Capodiferro, G. Capone, G. Chiatante, P. Chiatante, A. Corso, V. Giacoia, G. Giglio, M. Gioiosa, G. La Gioia, M. Laterza, C. Liuzzi, G. Marzano, G. Nuovo, V. Rizzi, A. Sigismondi, S. Todisco

SARDEGNA Coordinators: Sergio Nissardi e Danilo Pisu (2000-2008), FaunaViva (2004) **Counters:** M. Aresu, N. Baccetti, L. Bassu, P. Cosa, C. Fiesoli, A. Fozzi, C. Fresi, A. Locci, N. Marras, P.F. Murgia, S. Nissardi, D. Pisu, H. Schenk, G. Spano, J. Tonetti, M. Zenatello, C. Zucca **Financial supporter:** 2001 Regione Autonoma della Sardegna. Assessorato della Difesa dell'Ambiente

SICILIA Coordinators: Renzo Ientile (2001-2004), FaunaViva (2000, 2005-2008)
Counters:P. Bonazzi, E. Canale, A. Corso, L. Fornasari, R. Hewins, R. Ientile, G. Leonardi, F. Lo Valvo, M. Lo Valvo, G. Marzano, M. Sacchi, M. Siracusa

TOSCANA Coordinators: COT (Guido Tellini Florenzano) (2000-2002), COT (Luca Puglisi) (2003-2008), D.R.E.Am. Italia (Guido Tellini Florenzano) (2006-2008)
Counters: E. Arcamone, N. Baccetti, G. Battaglia, M. Bonora, T. Campedelli, A. Chiti-Batelli, L. Colligiani, I. Corsi, B. Cursano, S. Cutini, L. Favilli, A. Fontanelli, A. Gaggi, P. Giovacchini, M. Giunti, G. Guerrieri, G. Londi, E. Meschini, L. Mini, D. Occhiato, F. Pezzo, S. Piazzini, L. Puglisi, A. Sacchetti, M. Sacchi, M. Salvarani, R. Savio, P. Sposimo, G. Tellini Florenzano, M. Valtriani, L. Vanni, U. Veken, F. Velatta, A. Vezzani **Financial supporter:** 2000-2008 Regione Toscana, Direzione Generale dello Sviluppo Economico, Settore Politiche agroambientali, attività faunistica-venatoria e pesca dilettantistica. Beneficiario COT

PROVINCIA DI TRENTO Coordinator: Paolo Pedrini (2000-2008)
Counters: S. Brambilla, M. Caffi, V. Cavallaro, F. Ceresa, P. Laimer, L. Marchesi, A. Micheli, O. Negra, O. Niederfriniger, S. Noselli, M. Obletter, P. Pedrini, D. Prevedel, F. Rizzolli, F. Rossi, M. Segata, F. Torben Bach, G. Volcan
Financial supporter: 2000-2008 Museo delle Scienze di Trento, Sezione Zoologia dei Vertebrati: Progetto BIODIVERSITA' (Fondo per la Ricerca - PAT 2001-2005); Provincia Autonoma di Trento: Dipartimento Ambiente, Territorio e Foreste, Servizio Conservazione della Natura - Ufficio Rete Natura 2000

UMBRIA Coordinator: Osservatorio Faunistico Regionale (Giuseppina Lombardi e Francesco Velatta) (2000-2008) **Counters:** S. Brambilla, R. Casalini, E. Cordiner, L. Cucchia, P. Forconi, L. Fornasari, A. Gaggi, D. Iavicoli, S. Laurenti, S. Marini, A. Masci, A. Meschini, M. Montefameglio, A.M. Paci, R. Papi, F. Pezzo, F. Renzini, F. Velatta **Financial supporter:** 2000-2008 Osservatorio Faunistico Regione Umbria

VALLE D'AOSTA Coordinators: Massimo Bocca (2000-2001), FaunaViva (2004-2006), Roberto Toffoli (2007-2008) **Counters:** M. Bocca, P. Bonazzi, G. Bosio, G. Cattaneo, D. De Siena, A. Ferri, M. Grosa, G. Maffei, M. Nicolino, L. Ramires, L. Ruggieri

VENETO Coordinators: Mauro Bon (2000-2008), Maurizio Sighele (Provincia VR: 2003-2008) **Counters:** M. Baldin, K. Bettiol, R. Bonato, M. Bonetti, F. Borgo, L. Boscain, E. Boschetti, S. Bottazzo, M. Bovo, R. Cappellaro, L. Carlotto, M. Cassol, E. Cerato, F. Ceresa, L. Cogo, A. Costa, A. De Faveri, V. Dini, I. Farronato, M. Fioretto, L. Fornasari, G. Fracasso, S. Lombardo, L. Longo, G. Martignago, C. Martignoni, F. Mezzavilla, A. Nardo, S. Noselli, M. Paganin, L. Panzarin, P. Parricelli, R. Peressin, M. Pesente, G. Piras, L. Piva, F. Rizzolli, F. Rossi, G. Sgorlon, M. Sighele, G. Tiloca, R. Ton, A. Tonelli, G. Tormen, S. Valente, E. Verza, G. Volcan, M. Zenatello
Financial supporter: 2001-2008 Associazione Faunisti Veneti (ASFAVE)

Mosaic farmland by Renato Cottalasso