Abundance decline in the avifauna of the European Union conceals complex patterns of biodiversity change

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Abstract

While global assessments provide evidence of biodiversity decline, some have questioned the strength of the evidence, with local assemblage studies often showing a more balanced picture of biodiversity change. The multifaceted nature of biodiversity and imperfect monitoring datasets may partially explain these findings. Here, using an extensive high-quality dataset, we find significant biodiversity loss in the native avifauna of the European Union (EU). We estimate a decline of 17-19% in overall breeding bird abundance since 1980: a loss of 560-620 million individual birds. Both total and proportional declines in bird numbers are high amongst species associated with agricultural land. The distribution of species’ population growth rates (ln) is centred close to zero with numerical decline driven by substantial losses in abundant species. Our work supports previous assessments indicating recent biodiversity loss and calls to reduce the threat of extinctions and restore species’ abundances, for the sake of nature and people.

Hosted file

Sylvia atricapilla (54.9)
Phylloscopus collybita (29.4)
Turdus merula (29.2)
Troglodytes troglodytes (28.2)
Carduelis carduelis (22.7)
Erithacus rubecula (21.9)
Columba palumbus (21.3)
Cyanistes caeruleus (19)
other species; N = 195 (114.4)
other species; N = 167 (−281.3)
Passer montanus (−29.7)
Linaria cannabina (−33.7)
Serinus serinus (−34.9)
Phylloscopus trochilus (−36.9)
Alauda arvensis (−68)
Sturnus vulgaris (−74.6)
Motacilla flava (−97)
Passer domesticus (−246.7)