
Bird feeder attendance during winter in the face of urbanization and weather, questioned thanks to an original citizen science scheme (BirdLab)

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Abstract

Supplementary feeding of birds during the winter is a widespread phenomenon in temperate countries. While such practice can boost individuals' winter survival, species don't use bird feeders in the same way. We were particularly interested in examining if feeder use by birds is impacted by urban landscape and weather.

Since 2014, the French MNHN started an ambitious citizen science schemes named Bird-Lab to observe the bird communities and the intra- and inter-specific interactions by asking participants to reproduce the movements (arrival, feeder switch, leaving) of each bird on two identical birdfeeders, on their smartphone or tablet by drag-and-drop small characters representing species, for a protocol of exactly 5 minutes. Four seasons after, this with more than 27000 samples that observe more than 530000 birds of 27 easily recognisable species among the most common species that used the birdfeeders in France.

We use this well-standardised dataset to examine whether the weather conditions and the proportions of the artificial, agricultural, and semi-natural areas around the feeders affect the avian diversity.

As expected, the diversity of species is a function of the harshness of the weather conditions and of the presence of natural elements in the gardens but also impacted by the urbanisation intensity. Nevertheless, our results point to a clear synergy between agricultural territories and urban areas around the gardens, with diversity increasing in urban areas adjacent to agricultural territories.

Our result supports the hypothesis that private gardens may participate in the conservation of declining farmland species by providing an alternative source of seeds, particularly in an intensive landscape which does not provide food for animals during the whole winter.

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