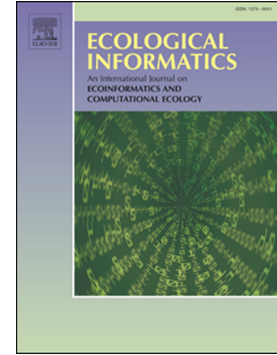


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Relationships between Tree Sparrow *Passer montanus* fledging success and the quantity and quality of agricultural habitats – a model comparison study.

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Abstract

Changes in land use due to agricultural intensification are a key anthropogenic cause of biodiversity declines impacting invertebrate, plant and bird populations. This study assesses whether fledging success in the tree sparrow, a farmland bird that has declined by over 94% since 1970, is best described by patterns of agricultural habitat coverage or by the quality (measured by invertebrate chick food abundance) of these habitat patches. We were particularly interested in the effect of agri-environment scheme (AES) habitats on reproductive success, as AES include habitat prescriptions that are employed to alleviate biodiversity problems. Our results indicated that the habitat coverage model best fitted the fledging success data and estimates from this model show that fledging success decreased with the area of wild bird seed mix and grassland cover within the average adult foraging range. Habitat coverage models are currently the most popular method of investigating AES – bird relationships and our findings provide support to such studies. These models could be used to assess whether AES farmland bird conservation strategies are successfully improving reproductive success.

1. Introduction

To study the way in which habitat change may be influencing a species' decline, it is usually necessary to make an assessment of habitat quality. Many studies that seek to do this rely on simple measures of habitat quality based on the extent, or abundance, of certain habitat features rather than a measure based upon qualitative traits, such as the resources the habitat provides. Using more representative measures of habitat quality should increase the effectiveness of conservation strategies derived from such studies.

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