

ABSTRACT

The ecology of the Red-backed Shrike *Lanius collurio*

DES VANHINSBERGH

Department of Animal & Plant Sciences, University of Sheffield, Sheffield, S10 2TN, UK

The Red-backed Shrike *Lanius collurio* has declined in many parts of its European range over the last 50 years and it is now extinct as a regular breeding bird in Britain. One of the main reasons for its decline is thought to be the intensification of agriculture, which has led to a loss of suitable breeding habitat and a reduction in the abundance of large invertebrates, its primary food source. However, despite being widely studied, the ecological requirements of Red-backed Shrikes breeding on farmland are poorly understood. A PhD project funded by the Biotechnology and Biological Sciences Research Council and the Royal Society for the Protection of Birds was set up in collaboration with the Konrad Lorenz Institute of Comparative Ethology (Vienna) to investigate the ecology of the Red-backed Shrike. The aim of the project was to determine the habitat and food requirements of Red-backed Shrikes breeding in a mixed farmland area of Carinthia, southern Austria. Empirical and observational studies revealed that: (1) Red-backed Shrikes selected areas containing extensively grazed pasture and scrub as breeding sites. The coverage of pasture and scrub could be used to predict the density of Red-backed Shrikes in a given area; (2) adult diet consisted mainly of Coleoptera and Hymenoptera, whereas mainly Orthoptera were fed to nestlings; (3) males spent longer foraging from perches situated above mown areas than perches above unmown areas; (4) clutch size and nestling mass were both limited by food availability. The findings of this study suggest that extensively grazed pasture containing scrub is the primary habitat of the Red-backed Shrike when a mixture of different farmland habitats is available. Pasture and scrub provide a habitat for the insects that shrikes eat, nest sites and hunting perches. Grazing by cattle prevents areas from becoming too overgrown and maintains a mosaic of short and long vegetation throughout the breeding season, which facilitates foraging. In addition, cow dung attracts many Coleoptera that are eaten by adults. The high food availability in extensively grazed areas containing scrub allows Red-backed Shrikes to achieve a high productivity. In order to conserve this species, the regeneration and preservation of extensively grazed pasture containing areas of scrub is recommended.

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