

# Science for Environment Policy

## Small mammals flourish under UK agri-environment scheme

**Small mammals** clearly benefit from a UK agri-environment scheme (AES), a recent study concludes. Numbers and diversity of voles, shrews and mice were found to increase on and around farmland with 6 m wide field margins and patches of semi-natural habitat – features encouraged under the government-led AES.

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**Intensive agriculture** has been blamed for [biodiversity](#) loss on farmland across Europe. The [Environmental Stewardship AES](#) in England, UK, is an optional scheme which financially rewards farmers for adopting special measures to restore wildlife. This study explored its effectiveness on communities of small mammals. These creatures are ecologically important as they are prey for protected species, including polecats (*Mustela putorius*) and barn owls (*Tyto alba*).

The researchers set up five experimental cropland blocks of three different types of farmland management. There were therefore 15 areas of management in all, 43–70 hectares each, on a site in central England. The three types of management were:

1. **'Cross Compliance'**: conventionally farmed plots with 1–2 m field margins. Hedgerows were cut once a year.
2. **Environmental Stewardship Entry Level Scheme (ELS)**, which adopted measures needed to qualify for Environmental Stewardship payments. One per cent of land in each block was converted to 6 m wide field margins of mixed grasses. A 0.25 hectare patch of plants that provide seeds for birds was also sown. Hedgerows were cut every two years.
3. **Environmental Stewardship ELS Extra**, which provided further habitat for wildlife: 5% of land in each block was converted to 6 m wide field margins of grass and wildflowers, and each block had three 0.5 hectare patches of seed-providing plants and three 0.5 patches of wildflowers. Hedgerows were cut every two years.

The researchers trapped and counted small mammals (alive) in the field margins over five years. Diversity increased in all three management types. At the start of the study, only wood mice (*Apodemus sylvaticus*) were trapped, but increasing numbers of species were seen over the five years.

By the fifth year, seven species were present altogether, comprising different types of mice, shrews and voles. Diversity was on average 1.4 times greater on ELS and ELS Extra land than on Cross Compliance land.

Total numbers of small mammals doubled within the first two years of the experiment across all types of site. The AES had different effects on different species and benefited voles and shrews in particular. For example, field voles (*Microtus agrestis*) were 3.8 times more abundant on ELS land than on Cross Compliance land. It did not seem to bring any added benefits for wood mice, perhaps because they do not depend on grassy habitat.

These results show an apparent spillover effect of the scheme: i.e. a rise in abundance and diversity of species on AES land, but also on conventionally farmed plots nearby. This suggests that AES can have landscape-wide impacts, the researchers say.

ELS Extra management did not seem to bring any added benefits for small mammals over ELS land. The researchers suggest that the additional features of ELS Extra land may support other creatures, such as birds and insects, more than mammals. The habitat provided by ELS may also have been enough to boost mammal populations to their maximum possible density.