

HELPING TO PROTECT BEETLES, NATURAL FARMLAND PEST CONTROLLERS

THE ECN NETWORK, UK



Carabid (ground) beetles are predators, and are important components of many food webs. Some also eat seeds and in farmed areas, they help control weeds. There is concern that their numbers are in decline, so long-term data from the UK Environmental Change Network were used to investigate trends in carabid beetle populations, and the possible causes of any changes.

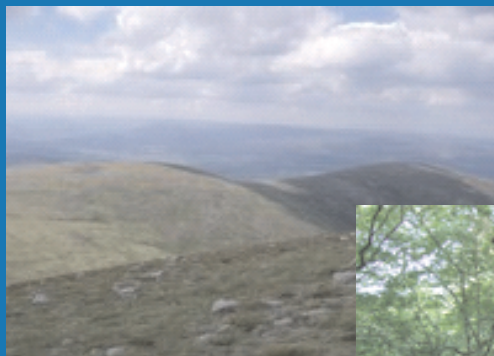
Carabid beetles were recorded at 11 long-term research sites from 1994 to 2008. The sites covered pasture, field margins, chalk downland, woodland and hedgerows in the lowlands, moorland and pasture in the uplands, and grassland, heaths and bogs in montane locations.



RESEARCH



Carabid beetles were found to be declining at some of the sites, but increasing at others. The biggest declines were seen at montane sites (52%), northern moorland sites (31%) and western pasture sites (31%). In contrast, there was a 48% increase in species numbers at the southern downland site. Populations were generally stable in upland pasture, woodland and hedgerow sites.

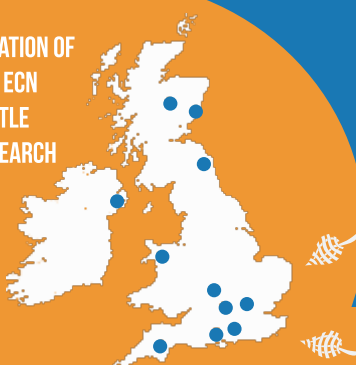


Carabids declined most at the montane sites.



At the woodland sites, carabid beetle populations were stable.

LOCATION OF
THE ECN
BEETLE
RESEARCH



Climatic changes could account for some of the observed changes, but localised changes in habitats may also be important. For example, the height of the vegetation sward may be important (it affects temperature at the soil surface).

AIMS

- Understanding long-term dynamics of beetle species;
- Defining factors which influence their biodiversity and abundance;
- Deriving recommendations for land management;

OUTCOME - IMPACT

This study resulted in recommendations for carabid beetle conservation.

To help protect carabid beetles, it may be possible to manage 'microhabitat' conditions.

In particular, since woods and hedgerows are important overwintering refuges for many carabids, there may be scope to manage these habitats to benefit the beetles.



PRIORITY THEMES



OTHER?

PRIORITY ECOSYSTEM SERVICES

PROVISIONING
REGULATING PEST CONTROL
CULTURAL
SUPPORTING BIODIVERSITY, HABITATS

AREA OF RELEVANCE, ACCORDING TO SDG



SDG - UN Sustainable Development Goals



FURTHER INFORMATION

Brooks, DR., Bater, JE., Clark, SJ., Monteith, DT., Andrews, C., Corbett, SJ., Beaumont, DA. and Chapman, JW. (2012). Large carabid beetle declines in a United Kingdom monitoring network increases evidence for a widespread loss in insect biodiversity. *Journal of Applied Ecology*, 49 (5), 1009-1019.

Web link: <http://www.ecn.ac.uk/publications/brooks-et-al>

Dataset: <http://doi.org/10/77z>