

Long-term trends in the abundance of British Moths

By Kelvin Conrad

Rothamsted Insect Survey moth data has been widely used for research into population dynamics and biodiversity. Over 600 publications making some use of the RIS light-trap data have been produced. However, few of these are particularly aimed at assessing long-term trends or addressing particular conservation issues. This reflects the pure research purpose and priorities of the core funding body of the RIS, the Biotechnology and Biological Sciences Research Council.

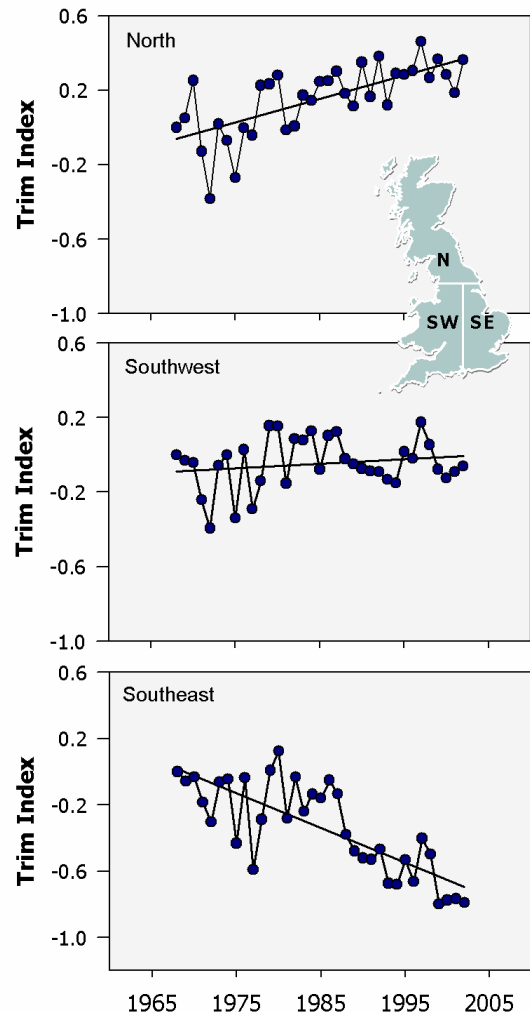
Recently, our detailed study of the Garden Tiger moth, *Arctia caja*, confirmed that the species declined and even apparently disappeared from many areas in England. As part of that study, we also extracted trends for a few related species, some of which revealed remarkable declines of over 70% during the last 30 years. These major declines seem to have been overlooked despite a large increase in amateur moth recording during recent years. It was clear that we needed a far more complete picture of population changes of the common moth species.

Working with Butterfly Conservation, we obtained a new grant from the Esmée Fairbairn Foundation to discover how hundreds of other moth species are faring. The main purpose of this two-year project is to extract and make available trend data for all "common" species monitored by the RIS light-trap network. The resulting publication will be a high-profile, colour report summarising the population trend data, similar to the highly successful 'State of Britain's Butterflies' report. This is the first time funding has been available specifically to look at population trends of large numbers of species in the RIS database.

The preliminary results obtained so far are troubling. Two-thirds of the 338 species of common macro-moths examined display a declining long-term trend. Just over two-dozen species are declining at a rate sufficient to be of international conservation concern, which is a remarkable statistic for species once assumed to be common.

At the opposite end of the scale, garden species like the Least Carpet appear to be increasing, and recent invaders such as Blair's Shoulder Knot are becoming more widespread.

Finally, as might be expected, different species fare differently in different parts of the country, as may be seen in the figure above. Work is continuing to search for patterns in trends across larval habitats, host plants, life history and distribution.



Long-term population trends of the Scalloped Hazel (*Odontopera bidentata*). The index value shows relative change between years, while the line indicates long-term trend in abundance. Regions are designated as in the inset map.