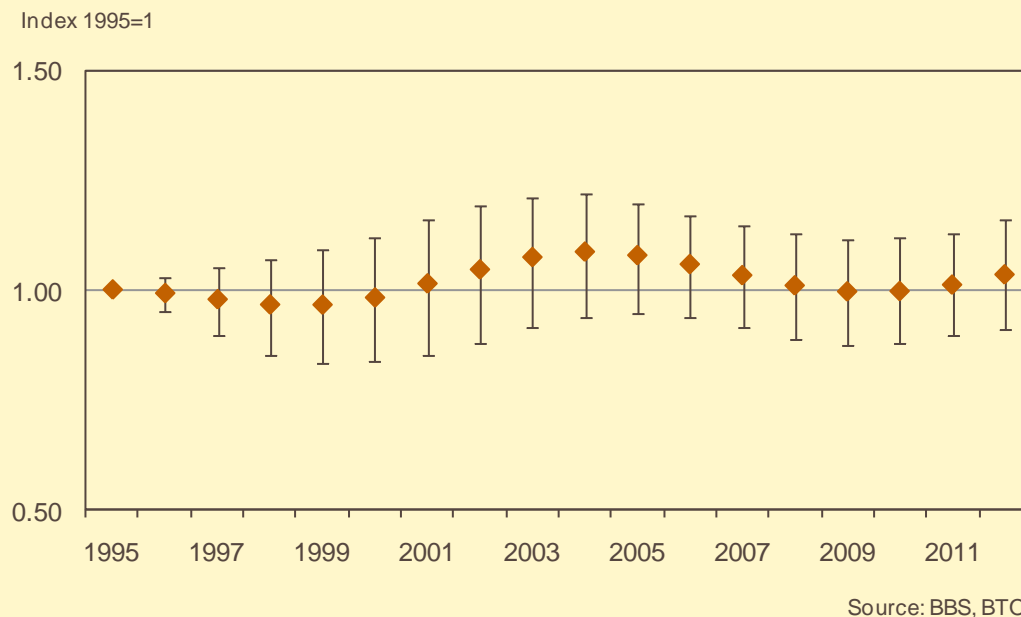


Observatory monitoring framework – indicator data sheet

Environmental impact: Biodiversity

Indicator DE4: Population trends for brown hares

DE4 Relative abundance of brown hares: England



This indicator measures the annual change in relative abundance of brown hares in England since 1995, the first year for which data on mammals were collected within the British Trust for Ornithology's Breeding Bird Survey.

- The abundance of brown hares in England in 2012 is similar to 1995.
- Regionally, brown hares have declined significantly in the North West and significantly increased in the East Midlands compared to 1995. Regional data can be found in the accompanying data series.

[NB data for 2001 were interpolated because Foot and Mouth restrictions limited surveying]

This indicator was updated in October 2013. It will next be updated when data becomes available.

Further information and contact

Background information can be found in the accompanying fact sheet.

For further queries or information on this indicator contact Defra's Observatory team on +44 (0) 1904 455229 or email Observatory@defra.gsi.gov.uk

Observatory monitoring framework – indicator fact sheet

Environmental impact: Biodiversity

Indicator DE4: Population trends for brown hares

<i>Indicator</i>	Population trends for brown hares
<i>Data</i>	Relative abundance of brown hares
<i>Geographic coverage</i>	England
<i>Years</i>	1995 – 2012
<i>Source</i>	Breeding Bird Survey
<i>Origin of data</i>	Breeding Bird Survey, British Trust for Ornithology
<i>Updates</i>	This indicator will next be updated when data becomes available.
<i>Background</i>	<p>Brown hares are characteristic animals of agricultural land which are widespread across England and sensitive to agricultural management, particularly type and diversity of cropping. Hares are relatively short-lived and have a high potential reproductive rate meaning that population levels can change quickly in response to changes in limiting factors.</p> <p>Brown Hares are a Biodiversity 2020 species. The UK BAP was replaced with a UK framework in 2011, with priorities set at Country level. In England this is implemented through Biodiversity 2020: a strategy for England's wildlife and ecosystem services.</p> <p>Biodiversity 2020 includes plans to develop and publish a compact set of indicators to assess progress with delivery of the strategy. They are to be outcome-focused with an emphasis on indicators showing the status of components of biodiversity and with additional response and pressure indicators to show progress with the priority actions set out in the strategy.</p>
<i>Statistical & methodological information</i>	<p>Data on mammals have been collected as part of the British Trust for Ornithology (BTO) Breeding Bird survey (BBS) since 1995. The survey is primarily concerned with birds, but the annual collection, large number of participants and statistically robust design mean that the mammal data are the most reliable, regular survey data available for some species.</p> <p>Each surveyor covers a randomly selected square kilometre, which is surveyed twice each summer. Mammals sighted during the survey are counted and recorded. The survey is well suited to monitoring the brown hare as it is active during daylight hours and easily seen when the surveys are carried out. The BTO use generalised linear models with Poisson regression to model each species, with fixed site and year effects, where the year effect is an index of the change in numbers relative to 1995, the first year of the survey.</p> <p>Data for 2001 were interpolated because Foot and Mouth restrictions limited surveying in that year.</p>

*Further
information*

Further information on the Breeding Bird Survey can be found at:
<http://www.bto.org/bbs/index.htm>

BTO Research Report No. 462, "The production of population trends for UK mammals using BBS mammal data: 1995-2005 update" can be found at:
<http://www.jncc.gov.uk/page-4309>

"The value of a random sampling design for annual monitoring of national populations of larger British terrestrial mammals" paper as reported recently in The European Journal of Wildlife Research can be found at:
<http://dx.doi.org/10.1007/s10344-013-0768-x>

Information on the Tracking Mammals Partnership can be found at:
<http://www.trackingmammals.org/>