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people's trust for endangered species

MAMMALS ON ROADS UPDATE

July 2013

Counting road kill is a straightforward enough idea, but there is a surprising amount of science behind it to monitor wild populations. And while the idea might be simple, its practice is a little trickier: your help and that of hundreds of other volunteers, recording routes and counting mammals on roads for twelve years, has been an extraordinary achievement. The data you have collected contributed to the *State of Nature* report that came out in May and has put hedgehogs at the centre of conservation.

That report, by twenty-five conservation and research organisations headed by the RSPB, also recognises the "unsung heroes of conservation", the volunteer wildlife recorders to whom "we owe most of our knowledge" of Britain's changing biodiversity. That band of heroes includes you – thank you for all your efforts and support!

Paul Bunyard

Changing counts

Central to the idea of using of road casualties to monitor populations is the question: how do counts correspond to actual numbers in the surrounding landscape? If the population increases, you might expect counts (for a given distance) to go up. Equally, if the volume of traffic increases, and the the population remains unchanged, counts would similarly be expected to go up. On the other hand, changes in traffic flow might also mean that animals change their behaviour, attempting to cross busier roads less frequently than they might do otherwise, for example. If that were so, counts would decrease with increasing traffic. (As an illustration of the sometimes unpredictable relationship, a study of amphibian road casualties in Canada a few years ago, found that counts of one species of frog increased with increasing traffic flow, while those of another, decreased, and counts of salamanders remained unchanged.)

So it's important to ask how traffic flow has changed over the twelve years of the survey. The total number of miles driven by vehicles in Great Britain on A- and minor roads in rural areas is shown below (Figure 1). Although the survey data from 2012 is still being 'crunched', the smoothed trends up to then can be compared. Counts of squirrels and rabbits show a similar rise and fall (Figure 2) to that of the amount of traffic, but those of foxes and hedgehogs show a different pattern (Figure 3). The change in traffic flow over the survey's lifetime means comparing counts between years is not straightforward and the plan is to analyse all the data with a model that takes changing traffic flow into account. When this is done, a full report will be available.

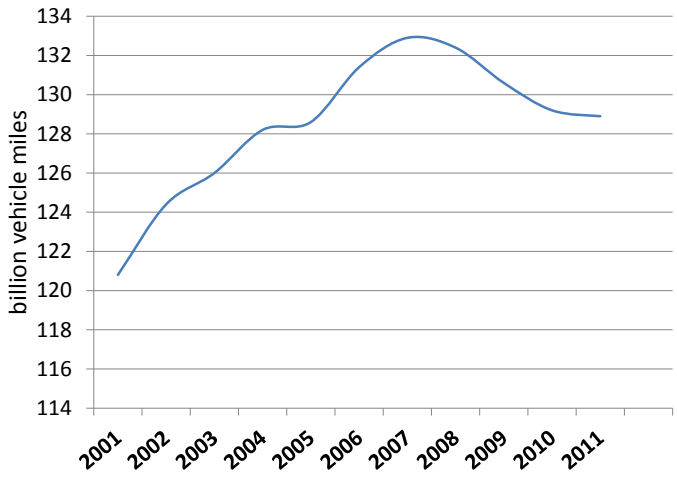


Figure 1 (*right*) Traffic flow (in billions of vehicle-miles) on A- and minor roads, excluding motorways and urban roads, in Great Britain each year since the start of the survey in 2001.

Species counts

One way of investigating the data in the meantime however is to compare two years when the amount of traffic was similar, such as 2005 and 2011. The change in records between the two years is shown in the table below.

species		change
badger	up	27%
fox	no change	-
hedgehog	down	-25%
rabbit	down	-42%

Table 1 The difference in smoothed population trend between 2005 and 2011, when traffic flow for the two years differed only slightly.

This is only a 'rough and ready' look at the data but is a useful measure while we await the results of a more sophisticated analysis. On average, hedgehog sightings have fallen by 3.4 per cent each year since the baseline in 2002, and decreased in the first few years of the survey even though traffic volume increased (the red line in the bottom graph, opposite). Comparing two years when traffic flow was similar – 2005 and 2011 – shows around a quarter fewer sightings of hedgehogs (Table 1).

Rabbits, however, show an even bigger difference, falling by about 40 per cent between the two years. Results of other surveys, such as that by the British Trust for Ornithology and that of gamebag records, similarly show declines (of 31-38 per cent between 1995 and 2008). While this seems dramatic, rabbits are still abundant and the population can recover quickly.

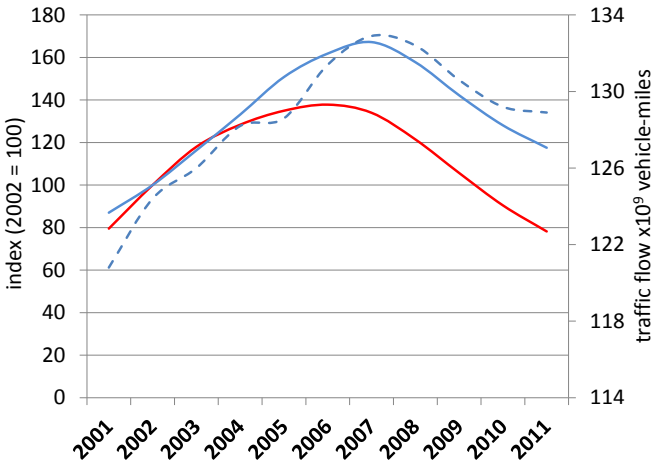
Monitoring wild populations on a national scale is no easy task and *Mammals on Roads* is one of the few surveys that has achieved it. As such, it is hugely important in understanding the changes taking place in the natural world. Without the heroic efforts of everyone involved, we would know a lot less.

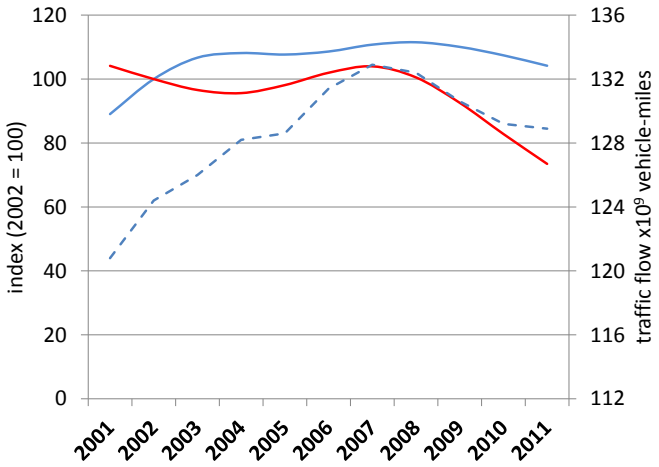
Mammals on your phone

Last year, over two-hundred journeys were recorded using the *Mammals on Roads* iPhone app. This year the app is available for Android smartphones as well, thanks to Mark Billinge, who very generously developed it for free after hearing about the iPhone version at a talk about hedgehogs.

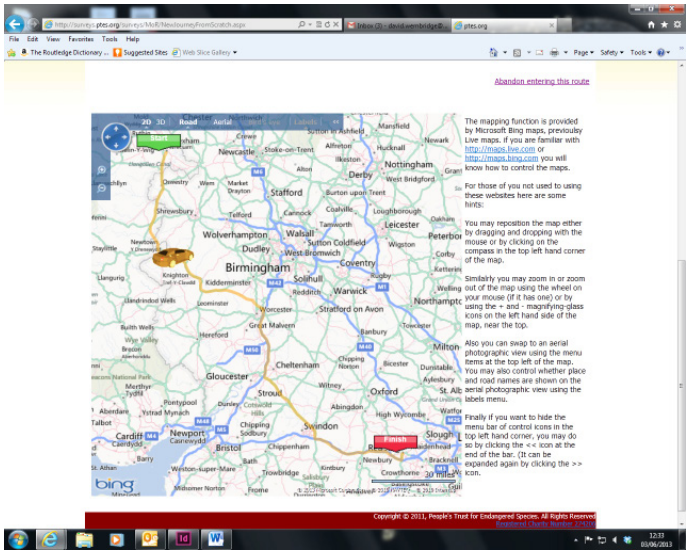
Recording your journeys with the app or on the website (opposite) is an enormous help to us, simplifying the handling of the data and, in turn, saving on running costs. Records – by whatever means – are the important thing, of course, but if you do have the opportunity, please give the website or the mobile phone apps a try. The apps are available to download free from the Apple Store and Google Play.

Happy counting and we look forward to receiving your records in 2013.





Figures 2 (*top*) and 3 (*bottom*) Changes in counts of squirrels (*blue line*) and rabbits (*red*), above; and of foxes (*blue*) and hedgehogs (*red*), below. The smoothed trends are shown as an 'index' relative to that in 2002, which is set to 100. Traffic flow is shown by the dashed blue line.



***Mammals on Roads* online (*below*). Journeys and sightings can be recorded on the survey website by simply clicking on a map.**