

Rodent infestations in domestic properties in England, 2003-2004. An Interim report arising from the 2003 and 2004 English House Condition Survey data

Prepared for Wildlife and Species Conservation Division, Defra by the
Central Science Laboratory, York

1 May 2008

1. Overview

The 1996 and 2001 English House Condition Surveys (EHCS) each reported on data collected during a single year once every 5 years. From 2002 onwards the EHCS is being carried out on a rolling programme that surveys a representative random sample of domestic properties in England over successive two year periods. This report considers the datasets collected for the two year periods April 2002 to March 2004 and April 2003 to March 2005. These therefore provide an 'average' position for each of the two periods, nominally presented as '2003' and '2004' respectively. Analyses of the information on rodent presence in these two EHCS survey datasets are summarised in Table 1. There were no differences between the two datasets in the prevalences of mice inside, rats inside, or rats outside occupied dwellings. This is perhaps not unexpected since data collected between April 2003 and March 2004 are common to both datasets. However, when the next dataset becomes available it will be possible to make a comparison between fully independent two year datasets.

The prevalence of mice inside dwellings was 2.14% and 2.02% in the '2003' and '2004' datasets respectively, which are both significantly higher than the 2001 figure of 1.43%.

The prevalence of rats inside was 0.31% and 0.24% in the '2003' and '2004' datasets respectively, which do not differ significantly from the 2001 figure of 0.26%.

The prevalence of rats outside was 3.24% and 3.04% in the '2003' and '2004' datasets respectively, which do not differ significantly from the 2001 figure of 2.94%.

Table 1. Summary of estimates.

Year	Percent of occupied dwellings (weighted)		
	Mice inside	Rats inside	Rats outside
'2004'	2.02	0.24	3.04
'2003'	2.14	0.31	3.24

2001*	1.43	0.26	2.94
1996*	1.8	0.4	1.7

*Previous published estimates from EHCS data

2. The data

From 2002 onwards the English House Condition Survey (EHCS) is being carried out on a rolling programme that surveys a representative random sample of domestic properties in England over successive two year periods. Properties to be surveyed are selected at random but as some types of housing are likely to be under represented, a weighting is applied to each property category to correct this. Depending on how the random survey falls, the weighting applied to any particular property category will vary between survey periods. As each survey period covers two years it is difficult to extract suitably weighted annual data. The analyses included in this report are of the datasets collected for the two year periods April 2002 to March 2004 and April 2003 to March 2005. These therefore provide an average position for each of the two periods, nominally presented as '2003' and '2004' respectively. Data collected between April 2003 and March 2004 are common to both datasets. The weights applied to these common data differ between the two datasets and thus they cannot be excluded from either dataset without compromising weighted comparisons. This means that correctly weighted annual datasets cannot be extracted from the 2-year data sets.

3. Estimation of occurrence

The criteria for rodent presence (mice inside, rats inside, and rats outside) were the same as used in the analyses of the 1996 and 2001 EHCS rodent data:

- a) Mice inside: if either of the following two conditions were met:
 - i) Occupier said there was a 'current problem' and it was 'in the home'
 - ii) Surveyor saw evidence of mice in living room, kitchen, bedroom, bathroom or circulation.

- b) Rats inside: – same as for mice inside above.

- c) Rats outside: if either of the following two conditions were met:
- i) Occupier said there was a 'current problem' and it was 'in the garden'
 - ii) Surveyor saw evidence of rats in the garden.

Mice and rats inside in communal areas and mice outside were not included in the analyses.

Percentages were based on occupied dwellings and those for rats outside were further limited to properties with gardens (front or rear plots).

The quoted standard errors (S.E.) were calculated as previously: $S.E. = \sqrt{(p*q/n)}$, where p is the proportional presence, q is the proportional absence, and n is the sample size.

The prevalence estimates of rodent occurrence in 2002/3 and 2003/4 are shown in Table 2 while those found in the 1996 and 2001 surveys are given in Table 3 for comparative purposes.

Table 2. Prevalence of rodents in and around occupied dwellings in the '2003' and '2004' datasets, sample size, weighted percentage presence, standard error, and lower and upper limits of 95% confidence interval.

'2004'	Sample	%(weighted)	S.E.	Low 95%	High 95%
Mice inside	15874	2.02	0.112	1.80	2.24
Rats inside	15874	0.24	0.039	0.17	0.32
Rats outside	13202	3.04	0.149	2.75	3.33

'2003'	Sample	%(weighted)	S.E.	Low 95%	High 95%
Mice inside	15950	2.14	0.115	1.91	2.36
Rats inside	15950	0.31	0.044	0.22	0.40
Rats outside	13530	3.24	0.152	2.94	3.54

Table 3. Prevalence of rodents in and around occupied dwellings previously estimated for 2001 and 1996.

2001*	Sample	%(weighted)	S.E.	Low 95%	High 95%
Mice inside	17532	1.43	0.090	1.25	1.61
Rats inside	17532	0.26	0.038	0.19	0.34
Rats outside	14344	2.94	0.141	2.66	3.22

*From Defra report

1996*	Sample	%(weighted)	S.E.	Low 95%	High 95%
Mice inside	12127	1.8	0.12	1.56	2.04
Rats inside	12127	0.4	0.06	0.29	0.51
Rats outside	9799	1.7	0.13	1.44	1.96

*From MAFF report

4. Conclusions

The prevalence of mice inside dwellings showed no statistically significant difference between the '2003' ($2.14 \pm 0.23\%$) and '2004' ($2.02 \pm 0.22\%$) datasets, which is perhaps not surprising given that approximately half the data are common to both. There was a statistically significant increase since the previous survey in 2001 when the prevalence was $1.43 \pm 0.18\%$. However, the prevalences in the '2003' and '2004' datasets were not significantly different to the 1996 level of $1.8 \pm 0.24\%$.

Rats inside showed similar prevalences of $0.31 \pm 0.09\%$ and $0.24 \pm 0.08\%$ for the '2003' and '2004' datasets respectively and these values did not differ significantly from that of $0.26 \pm 0.08\%$ for 2001.

Rats outside, which had significantly increased in prevalence from $1.7 \pm 0.26\%$ in 1996 to $2.94 \pm 0.28\%$ in 2001, were not significantly different from 2001 for either the '2003' ($3.24 \pm 0.30\%$) or '2004' ($3.04 \pm 0.29\%$) datasets.

Once the next EHCS rolling survey dataset becomes available it will be possible to make a comparison between fully independent two year datasets. An

assessment will also be made as to whether a full analysis of the factors influencing rodent presence can be carried out that would be comparable to those previously reported for the single year 1996 and 2001 datasets.

5. References

MAFF (1999) Rodent infestations in domestic properties in England – a report arising from the 1996 English House Condition Survey. London: Ministry of Agriculture Fisheries and Food (MAFF)

Defra (2005) Rodent infestations in domestic properties in England, 2001. A report arising from the 2001 English House Condition Survey. Prepared for European Wildlife Division, Defra, by Central Science Laboratory, York. July 2005.