Mortality factors affecting wild hedgehogs: A study of records from wildlife rescue centres

T Amory, BWRC Steering Committee, May 2008

N.J. Reeve & M.P. Huijser (1999) Lutra, vol. 42 pages 7- 24.

AIM

This paper aimed to describe the factors which cause death in hedgehogs using a large amount of data collected over a six year period from three wildlife rescue centres, and via the British Wildlife Rehabilitation Council (BWRC) Casualty Recording Scheme.

CONCLUSION

Just over 40% of hedgehog mortalities were thought to be caused by 'man-made' factors such as road traffic accidents, garden and pet related injuries, disturbance and poisoning, with the remaining 59% of deaths resulting from 'natural causes' such as disease.

MATERIALS AND METHODS

Two UK and one Dutch wildlife rescue centre provided details of a total of 856 hedgehog deaths recorded between 1992 and 1998. Data from individuals who survived to be released were not included. The BWRC casualty recording scheme also provided data on 11,541 hedgehog casualties from 20-30 rescue centres across the UK. However, 35% of these animals survived and were released, but could not be separated from the summarized data collected.

The data was split into eight categories of illness or injury:

Categories used for study	Equivalent BWRC category
1. Natural causes	4
2. Injuries from man-made causes (except RTAs)	1
3. Road traffic accidents (RTAs)	1
4. Orphaned dependant young	3
5. Drowned (in man-made ponds & ditches etc)	-

Categories used for study	Equivalent BWRC category
6. Domestic pet injuries	6
7. Poisoned or polluted	2
8. Other	5

The following table shows other data available from the four sources:

Other information:	BWRC data	Three rescue centres
Sex (male, female, unknown)	✓	✓
Age class	Immature/adult/unknown	juvenile/sub-adult*/adult
Number surviving 48 hours	✓	
Number released	✓	✓
Month or quarter of admission		✓
Presence of endoparasite infestations		✓

*subadult = independent young

The data available from the four sources varied considerably as no standard data collection system is used across different organizations. The above summary is a simplified explanation of the data available.

RESULTS

Seasonal variation

Over the five years of BWRC data, hedgehogs accounted for 54% of all mammal casualties admitted to contributing centres (16% of all casualties). Nearly three-quarters of admissions occurred between July and December. On average, more males than females were admitted throughout the year, although the proportion of males decreased as the year progressed.

Age structure

The three rescue centres admitted different proportions of juveniles, subadults and adult hedgehogs, but when the data were combined each age group represented approximately one-third of the total. The BWRC data showed a similar pattern with almost 60% of immature (juvenile and subadult) animals, 33% adult and 9% unknown age.

During the first six months of the year most casualties admitted to the three rescue centres were adults and sub-adults (in roughly equal numbers) with less than 5% juvenile admissions between April and June. From July to September, 33% of casualties were juvenile, rising to 40% from October to December. Although the BWRC data did not distinguish between juvenile and subadults animals, this data showed a similar trend to the three centres.

Causes of death

Data from the three centres attributed 59% of deaths to natural causes and the remaining 41% to human activity. The BWRC data showed only 28% of admissions resulting from natural causes but, unlike the data from the three centres, these figures included animals that recovered.

Data from the three centres showed that more sub-adult animals succumbed to death from natural causes, with juvenile animals being the least susceptible, while adult

males were most likely to die from unnatural injuries and road accidents. Natural causes were most likely to strike in the second half of the year; unnatural injuries and road accident admissions were most likely from July to September, and all orphans were admitted from July onwards.

Mortality data from two of the centres showed that, of animals that eventually died, half died within two days, and 25% survived beyond ten days.

Parasites

64% of 498 fatalities at the rescue centres tested positive for endoparasite infestation by faecal analysis or autopsy. There was no difference between the sexes but 85% of sub-adults, 67% of adults and 49% of dependant young were affected. In one centre, 87% of 315 animals examined had ectoparasites. 7.5% of 664 animals across the three centres had maggots or fly eggs.

DISCUSSION

The results of the study conformed to expectations based on field studies and knowledge of the life cycle of the species in the areas studied. The authors felt that 41% of deaths resulting from human activities should be cause for concern, particularly as previous studies have shown built-up areas to be an important 'refuge habitat' for hedgehogs in the UK and the Netherlands.

Differences in results between the three centres and the BWRC data could have been due to different recording systems, suggesting that the widespread use of more precise standardized criteria could help improve data consistency in future. Practical difficulties, such as the expense of obtaining laboratory confirmation of poisoning/pollution, are likely to result in under-reporting of this problem.

The high proportion of deaths of adult males by unnatural injuries or road accidents is likely to be due to their wider ranging behaviour and therefore increased likelihood of encountering these threats.

The lower infection rate for juveniles concurs with previous studies, probably due to the limited exposure of young animals to sources of infestation. The 85% infestation rate for sub-adults may partially explain the high death rate of these animals from 'natural causes'. The infestation rates by different parasite species were not dissimilar to those published from previous studies. Many of the studies have used animals from rescue centres, and so these results should not be considered to be representative of the wild hedgehog population.

The authors recommend that a more detailed, standardised scheme be developed for the recording of hedgehog casualty data. The BWRC scheme had limitations in the detail of data collected but was relatively simple to take part in and collate. Any new scheme would have to be "a trade-off between the complexity of the scheme, the level of participation and the ability of participating centres to comply."