

Technical Guidance Series



Chartered
Institute of
Ecology and
Environmental
Management

In association with



Competencies for Species Survey: European Hedgehog



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1. Introduction

The purpose of this document is to set out the knowledge, skills and experience required to survey, disturb or to carry out research works (hereinafter referred to generically as 'survey') for the hedgehog *Erinaceus europaeus* in a professional capacity. To be undertaking such work, CIEEM would consider attainment of the criteria outlined in this guidance to be a minimum for an individual to competently survey for hedgehogs. The Institute aims to drive up standards in the ecological profession for the benefit not only of ecologists but also of the public.

This document does not provide guidance on the techniques to be employed in carrying out survey activities: references to published sources of guidance on survey methods are listed in Section 5.

2. Status

There are no reliable population estimates for hedgehogs in the UK. Harris *et al.* (1995) estimated there to be a total pre-breeding population of about 1,555,000 (1,100,000 in England, 310,000 in Scotland and 145,000 in Wales) but these figures are of low reliability and based on very limited information. There is no population estimate for the Republic of Ireland, but hedgehogs are widespread with records from every county and no evidence of a decline; considered to be of Least Concern in the Irish Red Data Book (Marnell *et al.* 2009).

Hedgehogs remain common and widespread in the UK, but there is nevertheless evidence of a long-term decline, mainly post-WWII, from sources such as gamekeepers' records, studies using road-kill statistics or presence/absence reports from the general public (reviews by Tapper 1993; Reeve 1994; Harris *et al.* 1995). There is still insufficient information about the extent, scale and the causes of this decline and the extent to which this is continuing. The 'Mammals on Roads' survey was based on road-kill statistics from 2001-2008 which, although suggesting a slight reduction in numbers, did not show a significant overall trend (PTES 2009). Counts of hedgehogs were added to the British Trust for Ornithology Breeding Birds Survey from 1996-2002, but although there was no evidence of decline hedgehogs were not counted in sufficient numbers to show reliable trends (Newson and Noble 2005).

Nevertheless, concerns about a continuing decline persist and in 2007 hedgehogs were made a UK Biodiversity Action Plan priority species. Various sources (e.g. Reeve and Huijser 1999; Morris 2006; Young *et al.* 2006; Hof and Bright 2009; Dowding *et al.* 2010) have identified a number of negative factors including habitat loss and fragmentation, road mortality, pesticides and other environmental contaminants, plus a range of anthropogenic hazards including disturbance. A key factor in the long term decline in the UK is likely to be the conversion of small scale permanent pasture and rough grazing to larger scale intensive arable production, coupled with growing urban development. The result is habitat loss and degradation with reduced availability of suitable safe nesting sites and invertebrate-rich foraging areas.

By contrast, on South Uist in the Outer Hebrides, the thriving introduced population of hedgehogs has become a threat to vulnerable ground nesting birds and may be benefitting from a warming climate as well as the absence of predators (Jackson 2007).

3. Legislation and Licensing

Legislation

Hedgehogs are protected under the following legislation. This outline of legislation is not comprehensive and the appropriate legislation should always be consulted for a definitive list of offences.

COUNTRY	LEGISLATION GIVING PROTECTION	SCHEDULE OR ANNEX LISTING
<i>England</i>	Wildlife and Countryside Act 1981 (as amended)	Schedule 6
<i>Wales</i>	Wildlife and Countryside Act 1981 (as amended)	Schedule 6
<i>Scotland</i>	Wildlife and Countryside Act 1981 (as amended)	Schedule 6
<i>Northern Ireland</i>	Wildlife (Northern Ireland) Order 1985 (as amended)	Schedules 6 & 7 (& 9 (part I) wrt islands in territorial waters only)
<i>Republic of Ireland</i>	Wildlife Act 1976 (as amended)	Schedule 5

Licensing

The following Statutory Nature Conservation Organisations (SNCOs) are responsible for issuing survey licences to permit actions that would otherwise be illegal under the relevant legislation:

COUNTRY	SNCO
England	Natural England
Wales	Natural Resources Wales
Scotland	Scottish Natural Heritage
Northern Ireland	Northern Ireland Environment Agency
Republic of Ireland	National Parks & Wildlife Service

A survey licence *is* required: for work on hedgehogs if the animals are to be trapped or taken with the use of an artificial light, such as a torch or spotlight.

A survey licence is *not* required: for surveys of hedgehog field signs, for direct observation or for presence/absence surveys where hedgehogs are observed or detected without 'taking' (such as trapping or handling) e.g. for the use of footprint tunnels, remote camera traps, or for habitat appraisal or general ecological survey purposes.

It is the role of the appropriate licensing authority to define the criteria for issuing such licences as may be required for survey work, therefore, attainment of the skills set out is no guarantee that a licence will be obtained; other criteria will need to be considered.

4. Knowledge, Skills and Experience

To plan, undertake and interpret surveys for hedgehogs independently and competently, an individual would be expected to possess all of the following knowledge, skills and experience.

A surveyor needs to recognise their level of attainment along a continuum. Those without the breadth and depth of the knowledge, skills and experience that CIEEM consider a minimum, should always work with, or seek advice from, an adequately experienced individual.

Knowledge

Individuals should have a knowledge and understanding of:

- conservation status;
- distribution;
- threats to populations, species range (including introduced populations) and species survival;
- hedgehog ecology, breeding biology and behaviour;
- known ecological requirements;
- legal protection;
- licensing and permissions;
- appropriate survey seasons;
- survey methods used to survey for hedgehogs (including trapping, marking/tagging, field searching and using footprint tunnels and camera traps) and the strengths, weaknesses and limitations of these methods;
- appropriate equipment, methods and licensing requirements for humane live-capture, handling and sedation¹ of hedgehogs (if intending to use these techniques) and the legal issues surrounding potential by-catch;
- range of factors that might lead to bias in the survey results, and false negatives;
- sources of information on known occurrence and distribution of hedgehogs (including NBN Gateway, local biological/environmental records and local contacts);
- metadata standards / data sharing; and
- health and safety and welfare issues commonly associated with surveying for hedgehogs (including live-trapping and handling of wild animals if relevant).

Skills

Individuals should have skills and experience enabling them to confidently:

- identify field signs for hedgehogs;
- assess habitat potential for hedgehogs;
- scope fieldwork appropriately;
- plan and implement sound scientific surveys (appreciating the effect of season and habitat on survey methods);
- use relevant non-invasive survey methods for hedgehogs;
- analyse and interpret survey data; and
- take appropriate health and safety precautions.

If trapping is used, individuals should also be able to:

- deploy and monitor live traps effectively;
- legally and humanely handle live hedgehogs;
- effectively record biometric data from live hedgehogs;

¹ Anyone applying sedatives to animals for research purposes must be a vet or licensed under the Animals (Scientific Procedures) Act 1986

- d. legally and humanely mark/tag hedgehogs (if using this technique); and
- e. correctly handle a range of potential by-catch from live-traps (with due regard to relevant legislation).

Practical Experience

Whilst some of the knowledge and skills set out in this guidance can effectively be gained from personal study, vocational training and structured education, applicants for hedgehog survey licences would also be expected to have gained the following practical experience, under the direct supervision of a suitably experienced hedgehog surveyor:

- a. to have attended an appropriate training course, or received an equivalent level of training from an existing experienced person/licensee (such as through employers' in-house training programmes);
- b. to have field work experience, documented in a log book, of at least 3 supervised field visits which must involve direct experience of the methods to be used, including handling of hedgehogs, taking of biometric data, data recording and, if relevant, the application of identification tags or radio transmitters (see c below); and
- c. if any invasive handling procedure is planned to be administered e.g. sedation to facilitate radio transmitter attachment, the individual must have received suitable training by a veterinary surgeon with documentary evidence of competence provided.

5. Reading

The following references are essential reading for those wishing to gain the necessary knowledge, skills and experience to survey for hedgehogs.

Dowding CV, Harris S, Poulton S and Baker PJ (2010) Nocturnal ranging behaviour of urban hedgehogs, *Erinaceus europaeus*, in relation to risk and reward. *Animal Behaviour* **80**: 13-21.

Harris S, Morris P, Wray S and Yalden D (1995) A review of *British Mammals: population estimates and conservation status of British Mammals other than cetaceans*. Joint Nature Conservation Committee, Peterborough.

Hof AR and Bright PW (2009) The value of green-spaces in built-up areas for western hedgehogs. *Lutra* **52**: 69-82.

Jackson DB (2007) Factors affecting the abundance of introduced hedgehogs (*Erinaceus europaeus*) to the Hebridean island of South Uist in the absence of natural predators and implications for nesting birds. *Journal of Zoology* **271**: 210-217.

Marnell F, Kingston N and Looney D (2009) *Ireland Red List No. 3: Terrestrial Mammals*. National Parks and Wildlife Service, Dublin.

Morris PA (2006) *The New Hedgehog Book*. Whittet Book, Stowmarket.

Newson S and Noble D (2005) *Analyses of Breeding Bird Survey mammal data 1995-2002*, BTO Research Report No. 367. British Trust for Ornithology, Thetford.

People's Trust for Endangered Species (2009) *Mammals on Roads Update*. People's Trust for Endangered Species, London.

Reeve NJ (1994) *Hedgehogs*. T and AD Poyser, London.

Reeve NJ and MP Huijser (1999) Mortality factors affecting wild hedgehogs: a study of records from wildlife rescue centres. *Lutra*, **42**: 6-23.

Tapper SC (1993) *The Hedgehog (Erinaceus europaeus)* in: Morris P (1993) *Red Data book for British Mammals*, 8-13. Mammal Society, Southampton.

Young RP, Davison J, Trewby ID, Wilson GJ, Delahay RJ and Doncaster CP (2006) Abundance of hedgehogs (*Erinaceus europaeus*) in relation to the density and distribution of badgers (*Meles meles*). *Journal of Zoology* **269**: 349-356.

6. Acknowledgements

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