

Priority Natural Areas for mammals, reptiles and amphibians

No. 242 - English Nature Research Reports



working today
for nature tomorrow

English Nature Research Reports

Number 242

Priority Natural Areas for mammals, reptiles and amphibians

A.J. Mitchell-Jones & A.H. Gent

ISSN 0967-876X

© Copyright English Nature 1997

Contents

Introduction	3
Red squirrel <i>Sciurus vulgaris</i>	7
Otter <i>Lutra lutra</i>	9
Greater horseshoe bat <i>Rhinolophus ferrumequinum</i>	14
Lesser horseshoe bat <i>Rhinolophus hipposideros</i>	17
Water vole <i>Arvicola terrestris</i>	20
Dormouse <i>Muscardinus avellanarius</i>	24
Pipistrelle <i>Pipistrellus pipistrellus</i>	27
Brown hare <i>Lepus europaeus</i>	32
Barbastelle <i>Barbastella barbastellus</i>	36
Bechstein's bat <i>Myotis bechsteini</i>	38
Natterjack toad <i>Bufo calamita</i>	40
Great crested newt <i>Triturus cristatus</i>	43
Sand lizard <i>Lacerta agilis</i>	48
Pool frog <i>Rana lessonae</i>	51
Marine turtles	54
Common seal <i>Phoca vitulina</i>	57
Grey seal <i>Halichoerus grypus</i>	59
Lesser white-toothed shrew <i>Crocidura suaveolens</i>	61
Serotine <i>Eptesicus serotinus</i>	62
Smooth snake <i>Coronella austriaca</i>	65

Introduction

This objectives of this review are to:

- Describe the distribution of selected amphibians, reptiles and mammals relative to Natural Areas.
- Identify species that are characteristic of particular Natural Areas
- Identify Natural Areas that are important for particular species and prioritise these on a high/medium/low scale.

Species were selected on the basis of:

- Presence on BAP short or middle lists
- or
- Having a restricted or discontinuous distribution which may be related to Natural Areas

This resulted in the list of species in Table 1

Data for the analysis were obtained from a variety of sources, including the Biological Records Centre, English Nature data, recent single-species surveys and Action Plans and other published material, including, in particular, the recent JNCC *Review of British Mammals (RBM)* (Harris, Morris, Wray & Yalden, 1995). These data were then superimposed on the Natural Areas outlines using a MapInfo GIS system and the natural areas were shaded in .

For virtually all species, detailed knowledge of numbers, distribution and habitat associations are insufficient to quantify the proportion of national populations held by particular Natural Areas. In addition, the task of prioritising Natural Areas could be approached in a number of ways, for example

- Giving Natural Areas with existing high populations a high priority on the basis that these are the core areas for the species and that maintaining these secure populations is the highest priority.
- Giving Natural Areas with fragmented or declining populations a high priority on the basis that conservation action is most likely to be required in these areas.
- Giving Natural Areas which have potential reintroduction sites or sites requiring active management a high priority as these will require the majority of English Nature's resources for these species.

The varying conservation status of the species involved in the review, coupled with differences in the quality of data available have meant that a consistent approach to prioritisation has not always been possible or appropriate. We have, therefore, included a section for each species explaining the rationale behind the prioritisation, though in general we have taken the view that maintaining existing good populations should be the highest priority.

Table 1. Summary of coverage of prioritisation

Marsupialia		Mapped?	Notes
Red-necked wallaby	<i>Macropus rufogriseus</i>	No	Recent introduction
Insectivora			
Hedgehog	<i>Erinaceus europaeus</i>	No	Widespread almost everywhere. No NA focus
Mole	<i>Talpa europaea</i>	No	Widespread almost everywhere. No NA focus
Common shrew	<i>Sorex araneus</i>	No	Widespread almost everywhere. No NA focus
Pygmy shrew	<i>Sorex minutus</i>	No	Widespread almost everywhere. No NA focus
Water shrew	<i>Neomys fodiens</i>	No	Widespread almost everywhere. No NA focus
Lesser white-toothed shrew	<i>Crocidura suaveolens</i>	Yes	Only on Isles of Scilly, where it is High Priority.
Chiroptera			
Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>	Yes	BAP + EN SRP, restricted distribution
Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>	Yes	BAP (middle list), restricted distribution
Whiskered bat	<i>Myotis mystacinus</i>	No	Widespread, though predominantly western
Brandt's bat	<i>Myotis brandtii</i>	No	Widespread, though predominantly western
Natterer's bat	<i>Myotis nattereri</i>	No	Widespread, but associated with woodland
Bechstein's bat	<i>Myotis bechsteini</i>	Yes	EN SAP + SRP
Daubenton's bat	<i>Myotis daubentoni</i>	No	Widespread, associated with water everywhere
Scroline	<i>Eptesicus serotinus</i>	Yes	Restricted distribution
Leisler's bat	<i>Nyctalus leisleri</i>	No	Apparently widely distributed, though relatively rare
Noctule	<i>Nyctalus noctula</i>	No	Widespread, no clear associations
Pipistrelle	<i>Pipistrellus pipistrellus</i>	Yes	Very widespread, but a BAP species
Barbastelle	<i>Barbastella barbastellus</i>	Yes	EN SAP + SRP, though difficult to prioritise
Brown long-eared bat	<i>Plecotus auritus</i>	No	Very widespread; associated with woodland
Grey long-eared bat	<i>Plecotus austriacus</i>	No	Very rare
Lagomorpha			
Rabbit	<i>Oryctolagus cuniculus</i>	No	Very widespread
Brown hare	<i>Lepus europaeus</i>	Yes	Widespread, though particularly associated with arable farming systems
Mountain hare	<i>Lepus timidus</i>	No	Introduced to the Peak District, native to Britain
Rodentia			
Red squirrel	<i>Sciurus vulgaris</i>	Yes	BAP + EN SRP
Grey squirrel	<i>Sciurus carolinensis</i>	No	Recent introduction, widespread
Bank vole	<i>Clethrionomys glareolus</i>	No	Ubiquitous in woodland
Field vole	<i>Microtus agrestis</i>	No	Ubiquitous in grassland
Water vole	<i>Arvicola terrestris</i>	Yes	BAP + EN SRP
Wood mouse	<i>Apodemus sylvaticus</i>	No	Ubiquitous in woodland

Marsupialia		Mapped?	Notes
Yellow-necked mouse	<i>Apodemus flavicollis</i>	No	Inadequate dataset
Harvest mouse	<i>Micromys minutus</i>	No	Inadequate dataset
House mouse	<i>Mus domesticus</i>	No	Ubiquitous, commensal
Ship rat	<i>Rattus rattus</i>	No	Fairly recent introduction. Maintained by inadvertant reintroduction
Brown rat	<i>Rattus norvegicus</i>	No	Fairly recent introduction; ubiquitous
Fat dormouse	<i>Glis glis</i>	No	Recent introduction
Common dormouse	<i>Muscardinus avellanarius</i>	Yes	BAP + EN SRP
Carnivora			
Fox	<i>Vulpes vulpes</i>	No	Ubiquitous; no relationship to Natural Areas
Pine marten	<i>Martes martes</i>	No	EN SRP. May be functionally extinct in England
Stoat	<i>Mustela erminea</i>	No	Widespread; poor database; no apparent relationship with Natural Areas
Weasel	<i>Mustela nivalis</i>	No	Widespread; poor database; no apparent relationship with Natural Areas
Polecat	<i>Mustela putorius</i>	No	Spreading rapidly from west; likely to colonise most of England
Badger	<i>Meles meles</i>	No	
Otter	<i>Lutra lutra</i>	Yes	BAP; population recovering after severe crash
Mink	<i>Mustela vison</i>	No	Recent introduction
Pinnipeda			
Common seal	<i>Phoca vitulina</i>	Yes	Breeding restricted to particular areas
Grey seal	<i>Halichoerus grypus</i>	Yes	Breeding restricted to particular areas
Artiodactyla			
Red deer	<i>Cervus elaphus</i>	No	
Sika deer	<i>Cervus nippon</i>	No	Recent introduction
Fallow deer	<i>Dama dama</i>	No	Distribution largely dictated by presence of deer parks
Roe deer	<i>Capreolus capreolus</i>	No	Widespread, continuing to spread
Muntjac	<i>Muntiacus reevesi</i>	No	Recent introduction
Chinese water deer	<i>Hydropotes inermis</i>	No	Recent introduction
Reptilia			
Common lizard	<i>Lacerta vivipara</i>	No	Widespread. No obvious fit to Natural Areas
Sand lizard	<i>Lacerta agilis</i>	Yes	EN SRP and SAP; localised; heath and coastal dunes
Slow worm	<i>Anguis fragilis</i>	No	Widespread; information on status poor. No obvious fit to Natural Areas
Wall lizard	<i>Podarcis muralis</i>	No	Isolated introduced populations. Long established on Isle of Wight where presumed introduced. Local interest.
Adder	<i>Vipera berus</i>	No	Widespread. No obvious fit to Natural Areas

Marsupialia		Mapped?	Notes
Grass snake	<i>Natrix natrix</i>	No	Widespread; information on status poor. No obvious fit to Natural Areas
Smooth snake	<i>Coronella austriaca</i>	Yes	EN SRP projects; localised to southern heathlands
Leatherback turtle	<i>Dermochelys coriacea</i>	Yes	BAP 'middle list'; frequent visitor to GB waters
Loggerhead turtle	<i>Caretta caretta</i>	Yes	BAP 'middle list'; regular visitor to GB waters
Kemps Ridley turtle	<i>Lepidochelys kempii</i>	No	BAP 'middle list'; probably only vagrant to GB waters
Hawksbill turtle	<i>Eretmochelys imbricata</i>	No	BAP 'middle list'; probably only vagrant to GB waters
Green turtle	<i>Chelonia mydas</i>	No	BAP 'middle list'; probably only vagrant to GB waters
Eurocean pond tortoise	<i>Emys orbicularis</i>	No	Presumed isolated introduced population; no information on status. Species was native post last Ice Age but presumed to have become extinct
Amphibia			
Common frog	<i>Rana temporaria</i>	No	Widespread and common
Pool frog	<i>Rana lessonae</i>	Yes	EN SRP and BAP 'middle list'. Single possible native population may be functionally extinct. Other scattered populations of non-native origin.
Common toad	<i>Bufo bufo</i>	No	Widespread and common
Natterjack toad	<i>Bufo calamita</i>	Yes	EN SRP now competed phase 1; SAP. Localised on heaths, coastal dunes, saltmarshes and moorland sites.
Smooth newt	<i>Triturus vulgaris</i>	No	Widespread and common
Palmate newt	<i>Triturus helveticus</i>	No	Widespread and common
Great crested newt	<i>Triturus cristatus</i>	Yes	EN SRP projects and SAP. Widespread and may be locally abundant; declining

Section 1: BAP short and middle list species

Red squirrel *Sciurus vulgaris*

Status

Once widely distributed throughout Britain. Populations now greatly reduced in area largely because of apparent competitive superiority of the introduced grey squirrel. The total English population is about 30,000 individuals (RBM).

Habitat preferences

Occurs in both broadleaved and coniferous woodland, but best adapted to coniferous woodland as it is a specialist pine-seed feeder. In broadleaved woodland it is at a serious competitive disadvantage to the grey squirrel, but the balance is much closer in coniferous woodland. It is considered that the species will only survive in large areas of conifers (more than 2000 hectares) or on islands, unless active management of grey squirrels is undertaken.

Legal protection & listing

Wildlife & Countryside Act Schedule 5
Biodiversity Action Plan short list
English Nature Species Recovery Programme species

BAP Lead Partners

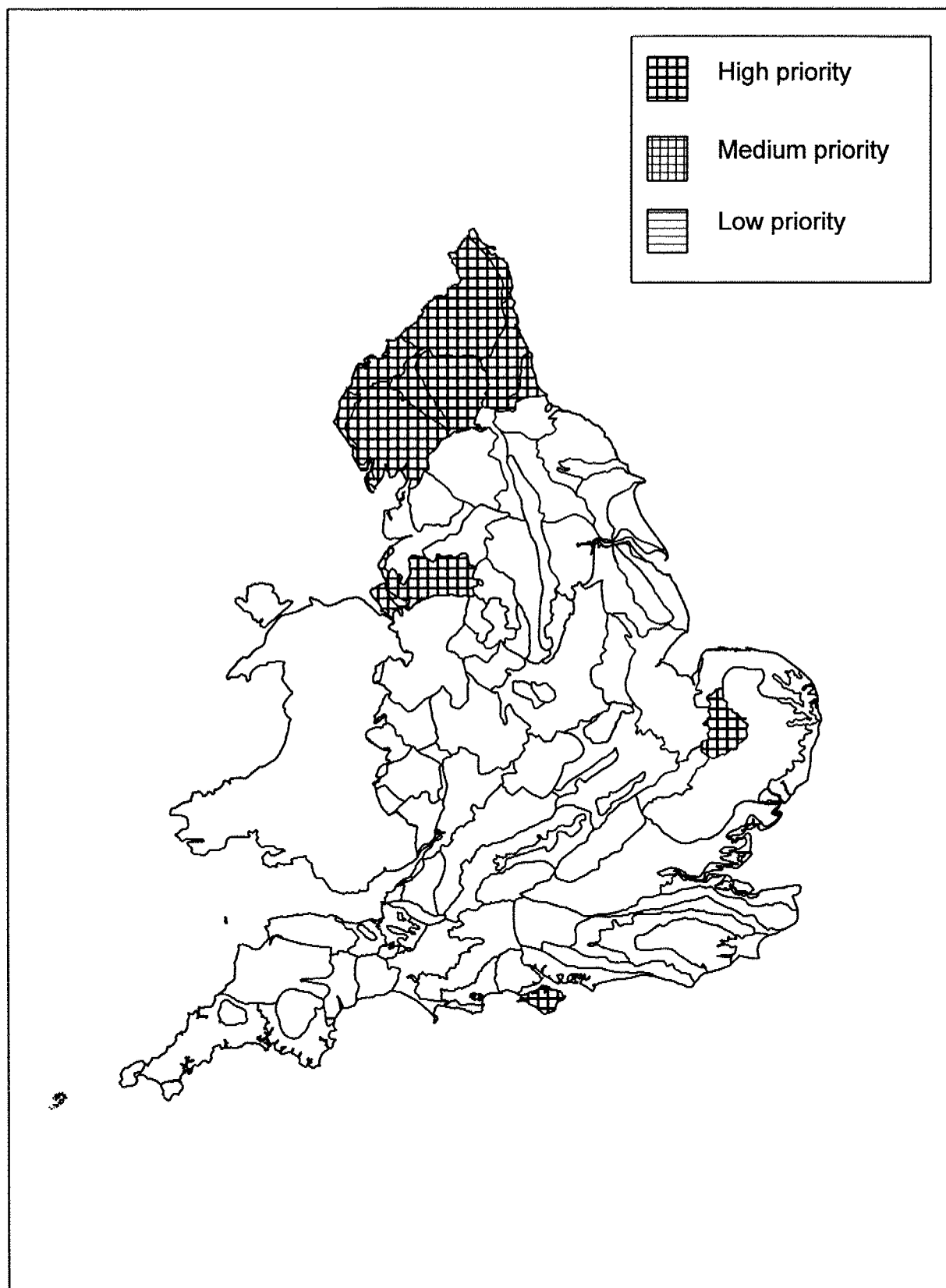
UK Red Squirrel Group

Natural areas prioritisation rationale

Data from Forestry Commission red squirrel map (1997), including data from Red Alert projects in northern England. High priority natural areas are those with significant remaining populations of the red squirrel. Other natural areas are not prioritised. At present, there seems little scope for reintroducing the red squirrel to other areas.

Code	Natural area	Priority
1	North Northumberland Coast	High
2	Border Uplands	High
3	Solway Basin	High
4	North Pennines	High
5	Northumbria Coal Measures	High
9	Eden Valley	High
10	Cumbria Fells and Dales	High
11	West Cumbria Coastal Plain	High
26	Urban Mersey Basin	High
46	Breckland	High
76	Isle of Wight	High

Sciurus vulgaris



Otter *Lutra lutra*

Status

Currently recovering from a major population crash with a nadir in about 1980. At this time, populations were largely restricted to the south-west, the north, the Welsh borders and parts of East Anglia. Otters are now expected to recolonise most parts of England, though full recovery will take many years. The total English population has been estimated as about 350 individuals (RBM), though this is certainly now a considerable underestimate.

Habitat preferences

A riparian species. Uses all sorts of water bodies, including rivers, lakes ditches and streams. Distribution currently expanding and should eventually occur right across England. The highest populations would probably occur in the most productive lowland rivers.

Legal protection and listing

Wildlife & Countryside Act Schedule 5
Conservation (Natural Habitats &c.) Regulations Schedule 2
Habitats & Species Directive Annex II
Biodiversity Action Plan short list

BAP lead partners

Environment Agency & the Wildlife Trusts

Natural areas prioritisation rationale

Data from 3 national otter surveys (NCC/VWT). These were based on extensive surveys for otter signs in alternate 50 km squares of the OS national grid.

The otter is a wide-ranging species that is currently extending its distribution to formerly occupied areas. It is unlikely to benefit from isolated site-related conservation measures unless sites are very extensive, so prioritisation is based largely on the size and extent of core populations.

High priority natural areas are defined as the core areas from which otters never disappeared during the crash of the 1970s and 1980s. Medium priority areas are contiguous with these, but are likely to hold lower populations of otters. Other natural areas are classified as low priority, as otter conservation is likely to be achieved through general landscape-scale habitat improvement, perhaps using the otter as a high-profile key species.

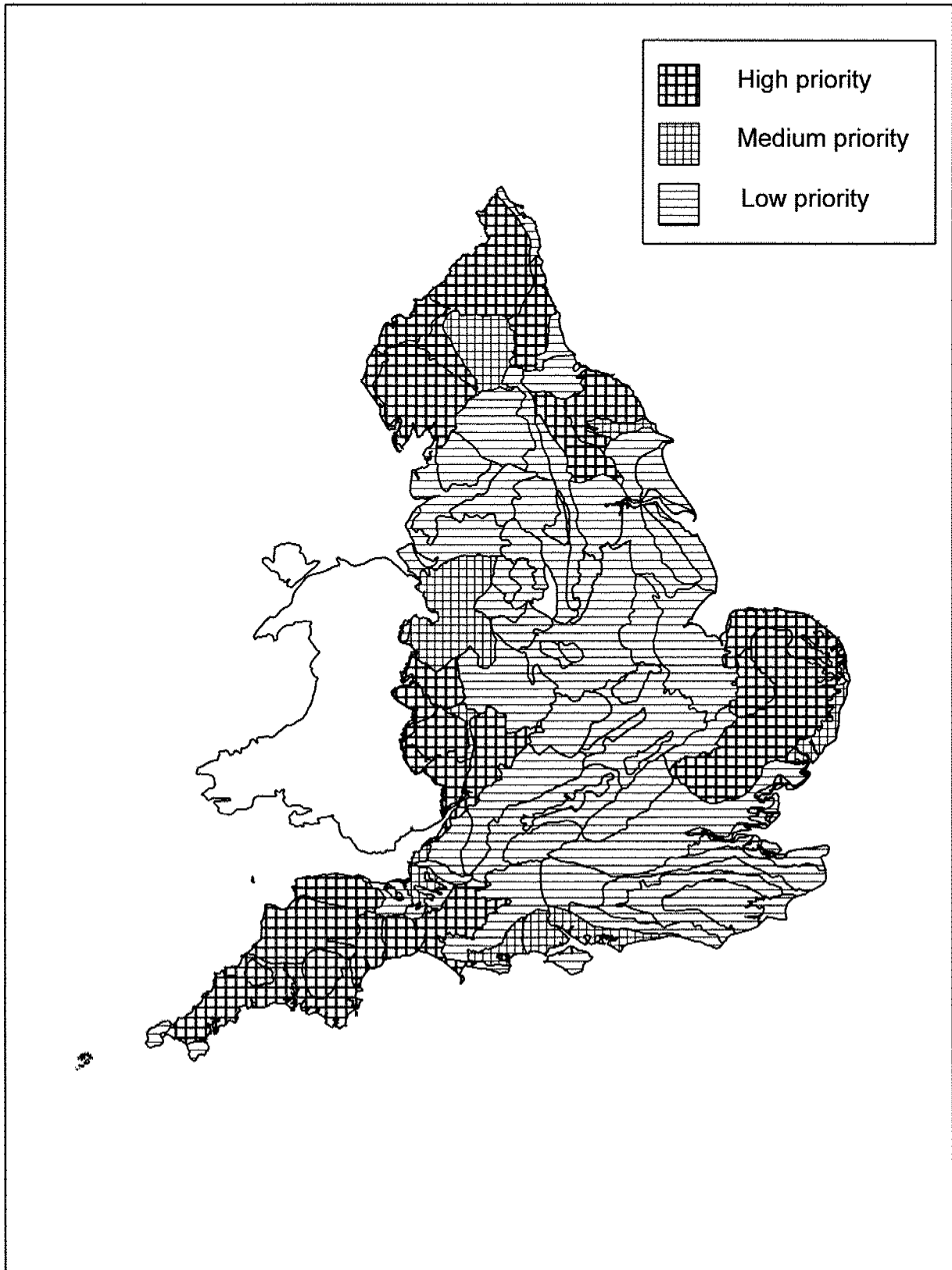
Code	Natural area	Priority
1	North Northumberland Coastal Plain	Low
2	Border Uplands	High
3	Solway Basin	High
4	North Pennines	Medium
5	Northumbria Coal Measures	High
6	Durham Magnesian Limestone Plateau	Low
7	Tees Lowlands	Low
8	Yorkshire Dales	Low

Code	Natural area	Priority
9	Eden Valley	High
10	Cumbria Fells and Dales	High
11	West Cumbria Coastal Plain	High
12	Forest of Bowland	Low
13	Lancashire Plain and Valleys	Low
14	Southern Pennines	Low
15	Pennine Dales Fringe	Low
16	Vale of York and Mowbray	High
17	North York Moors and Hills	High
18	Vale of Pickering	Medium
19	Yorkshire Wolds	Low
20	Holderness	Low
21	Humber Estuary	Low
22	Humberhead Levels	Low
23	Southern Magnesian Limestone	Low
24	Coal Measures	Low
25	Dark Peak	Low
26	Urban Mersey Basin	Low
27	Mosses and Meres	Medium
28	Potteries and Churnet Valley	Low
29	South West Peak	Low
30	White Peak	Low
31	Derbyshire Peak Fringe and Lower Derwent	Low
32	Sherwood	Low
33	Trent Valley and Rises	Low
34	North Lincolnshire Coversands and Clay Vales	Low
35	Lincolnshire Wolds	Low
36	Lincolnshire Coast and Marshes	Low
37	The Fens	Low
38	Lincolnshire and Rutland Limestone	Low
39	Charnwood	Low
40	Needwood and South Derbyshire Claylands	Low
41	Oswestry Uplands	Low
42	Shropshire Hills	High
43	Midlands Plateau	Low
44	Midland Clay Pastures	Low
45	Rockingham Forest	Low
46	Breckland	High
47	North Norfolk	High
48	The Broads	High
49	Suffolk Coast and Heaths	Medium

Code	Natural area	Priority
50	East Anglian Plain	High
51	East Anglian Chalk	Low
52	West Anglian Plain	Low
53	Bedfordshire Greensand Ridge	Low
54	Yardley-Whittlewood Ridge	Low
55	Cotswolds	Low
56	Severn and Avon Vales	High
57	Malvern Hills and Teme Valley	Medium
58	Clun and North West Herefordshire Hills	High
59	Central Herefordshire	High
60	Black Mountains and Golden Valley	High
61	Dean Plateau and Wye Valley	High
62	Bristol, Avon Valleys and Ridges	Low
63	Thames and Avon Vales	Low
64	Midvale Ridge	Low
65	Chilterns	Low
66	London Basin	Low
67	Greater Thames Estuary	Low
68	North Kent Plain	Low
69	North Downs	Low
70	Wealden Greensand	Low
71	Romney Marshes	Low
72	High Weald	Low
73	Low Weald	Low
74	South Downs	Low
75	South Coast Plain and Hampshire Lowlands	Medium
76	Isle of Wight	Low
77	New Forest	Medium
78	Hampshire Downs	Low
79	Berkshire and Marlborough Downs	Low
80	South Wessex Downs	Low
81	Dorset Heaths	Medium
82	Isles of Portland and Purbeck	Low
83	Wessex Vales	High
84	Mendip Hills	Low
85	Somerset Levels and Moors	Medium
86	Mid Somerset Hills	Low
87	Exmoor and the Quantocks	High
88	Vale of Taunton and Quantock Fringes	Low
89	Blackdowns	High
90	Devon Redlands	High

Code	Natural area	Priority
91	South Devon	High
92	Dartmoor	High
93	The Culm	High
94	Bodmin Moor	High
95	Cornish Killas and Granites	High
96	West Penwith	Low
97	The Lizard	Low
113	Isles of Scilly	Low
114	Lundy	Low

Lutra lutra



Greater horseshoe bat *Rhinolophus ferrumequinum*

Status

A rare species with distribution restricted to the south-west. Only 14 populations are known in the UK (11 in England), centred on traditional maternity sites. The total English population is about 3500 individuals (RBM).

Habitat requirements

In summer, females gather in maternity roosts and require a mixture of grazed pasture and woodland within 4 km of the roost. Winter sites are in caves, mines or other underground places.

Legal protection and listing

Wildlife & Countryside Act Schedule 5
 Conservation (Natural Habitats &c.) Regulations Schedule 2
 Habitats & Species Directive Annex II
 Biodiversity Action Plan short list
 English Nature Species Recovery Programme

BAP lead partners

English Nature and Countryside Council for Wales

Natural areas prioritisation rationale

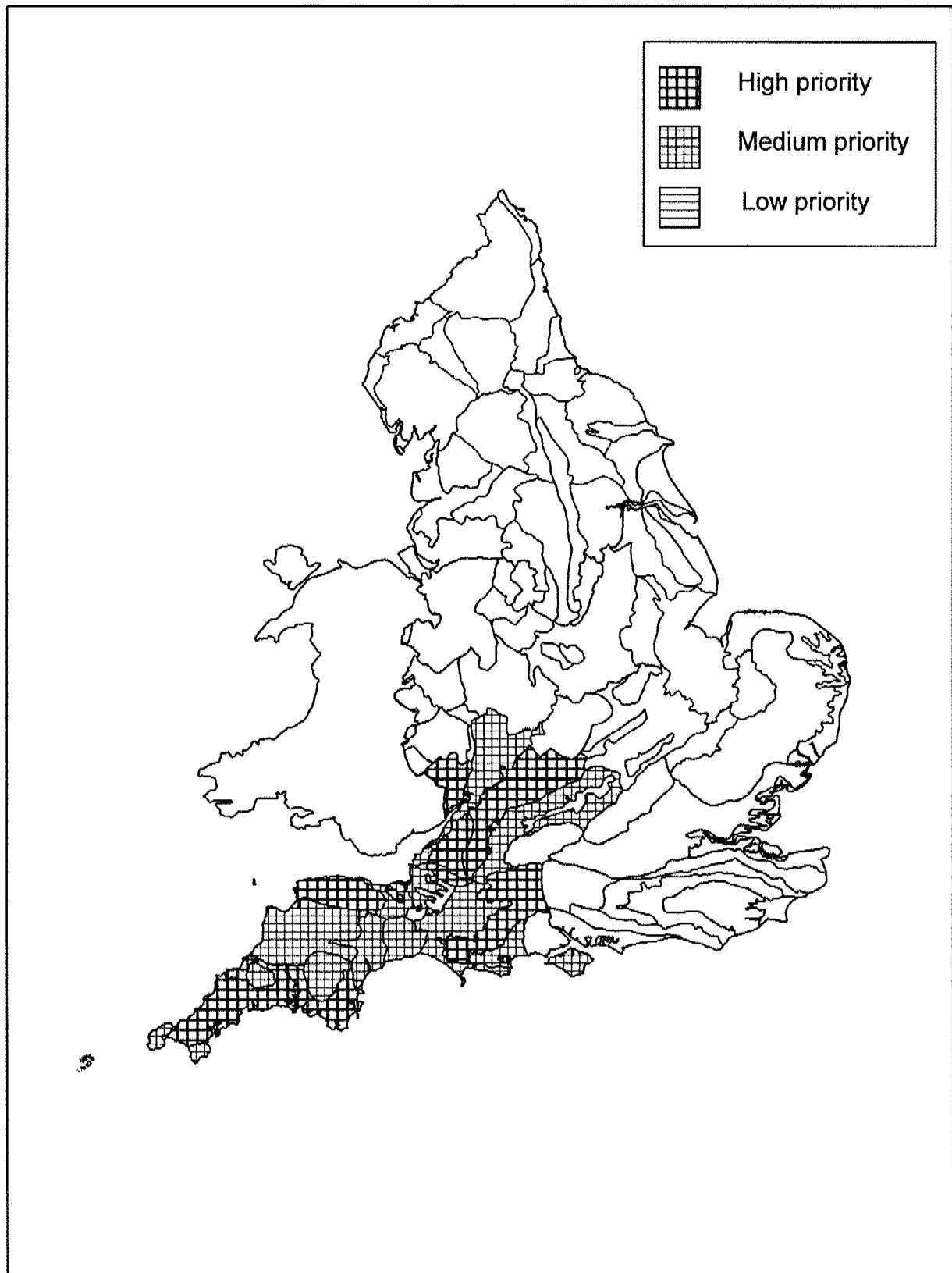
Data from English Nature database BATSITES, containing details of roosts and numbers recorded. This is a relatively complete record of current distribution.

High priority natural areas are those containing maternity sites, with the exception of The Culm. The maternity site in The Culm is only 250 metres from the border with Cornish Killas and Granites and is considered to belong to the latter natural area, as this is where the majority of hibernation sites are located. Medium priority natural areas are those containing hibernation sites only. Other natural areas are unclassified as populations not occur in them.

Code	Natural area	Priority	Rationale
55	Cotswolds	High	Maternity site(s)
61	Dean Plateau and Wye Valley	High	Maternity site(s)
62	Bristol, Avon Valleys and Ridges	High	Maternity site(s)
80	South Wessex Downs	High	Maternity site(s)
84	Mendip Hills	High	Maternity site(s)
87	Exmoor and the Quantocks	High	Maternity site(s)
91	South Devon	High	Maternity site(s)
95	Cornish Killas and Granites	High	Maternity site(s)
56	Severn and Avon Vales	Medium	Hibernation sites
63	Thames and Avon Vales	Medium	Hibernation sites
76	Isle of Wight	Medium	Hibernation sites
81	Dorset Heaths	Medium	Hibernation sites
82	Isles of Portland and Purbeck	Medium	Hibernation sites

Code	Natural area	Priority	Rationale
83	Wessex Vales	Medium	Hibernation sites
85	Somerset Levels and Moors	Medium	Hibernation sites
88	Vale of Taunton and Quantock Fringes	Medium	Hibernation sites
89	Blackdowns	Medium	Hibernation sites
90	Devon Redlands	Medium	Hibernation sites
92	Dartmoor	Medium	Hibernation sites
93	The Culm	Medium	Hibernation sites
94	Bodmin Moor	Medium	Hibernation sites
96	West Penwith	Medium	Hibernation sites
97	The Lizard	Medium	Hibernation sites

Rhinolophus ferrumequinum



Lesser horseshoe bat *Rhinolophus hipposideros*

Status

Distributed across south-western England and Wales, extending as far east as the West Midlands. The species range has declined this century as it was formerly recorded in North Yorkshire and occasionally as far east as Sussex. Estimated English population is 7,000 (RBM), with some evidence that numbers are currently increasing.

Habitat preferences

A woodland species, never hunting more than a few metres from vegetation. Maternity roosts are almost always in buildings and hibernation sites are underground in caves, mines, cellars, ice houses and other structures providing a subterranean environment.

Legal protection and listing

Wildlife & Countryside Act Schedule 5
Habitats & Species Directive Annex II
Biodiversity Action Plan middle list

Natural areas prioritisation rationale

Data from English Nature's BATSITES database, which contains a relatively complete record of all known roosts. Natural areas have been prioritised on the basis of an interpretation of the density of roosts (number per square km.), areas with a high density of roosts being considered a high priority. The species is considered a low priority in natural areas with few records of roosts, though clearly individual roosts have a value because of their position on the edge of the species range.

Code	Natural areas	Priority
94	Bodmin Moor	High
55	Cotswolds	High
92	Dartmoor	High
61	Dean Plateau and Wye Valley	High
84	Mendip Hills	High
91	South Devon	High
88	Vale of Taunton and Quantock Fringes	High
60	Black Mountains and Golden Valley	Medium
89	Blackdowns	Medium
62	Bristol, Avon Valleys and Ridges	Medium
95	Cornish Killas and Granites	Medium
90	Devon Redlands	Medium
57	Malvern Hills and Teme Valley	Medium
86	Mid Somerset Hills	Medium
56	Severn and Avon Vales	Medium
97	The Lizard	Medium
83	Wessex Vales	Medium
59	Central Herefordshire	Low

Code	Natural areas	Priority
58	Clun and North West Herefordshire Hills	Low
87	Exmoor and the Quantocks	Low
44	Midland Clay Pastures	Low
43	Midlands Plateau	Low
41	Oswestry Uplands	Low
42	Shropshire Hills	Low
85	Somerset Levels and Moors	Low
80	South Wessex Downs	Low
63	Thames and Avon Vales	Low
93	The Culm	Low

Rhinolophus hipposideros

