The Distribution of European Protected Species in South Somerset

Guidance for Spatial Planning

November 2009

2007-2008
Neighbourhood and Community Champions: The Role of Elected Members
2006-2007
Improving Rural Services Empowering Communities
2005-2006
Getting Closer to Communities

Further Information

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1. Purpose

1.1 The purpose of this document is to make planners aware of the requirements of the Conservation (Habitats &c.) (Amendment) Regulations 2009 (Habitat Regulations) in respect of populations of European Protected Species.

1.2 The aim is to avoid impacts and provide an evidence base for Local Development Framework documents. Another aim is to alert development or planning control officers to potential impacts on species not necessarily present in ecological statements accompanying planning applications.

1.3 The document provides background information on legislation and policy, as well as the ecological requirements of European Protected Species and the methodology used in mapping them.

1.4 Both Annex II species, for which a Special Area of Conservation can be designated, and hence subjects of Habitats Regulations Assessment under the Habitat Regulations, and Annex IV species, species in need of strict protection, which by the amendments to the Habitat Regulations require populations and local distribution to be maintained at 'Favourable Conservation Status', as set out in the Regulations and by Article 2 of the EC Habitats Directive.

1.5 The mapping provides a means of preventing impacts, by avoiding areas, which require either a Habitats Regulations Assessment or a license accompanied by statement showing how 'Favourable Conservation Status' is maintained. The good practice guide to Planning Policy Statement 9: Biodiversity and Geological Conservation, promotes the use of mapping and diagrams of protected and BAP species in Local Development Documents. This is also recommended in the Habitat Regulations Assessment of the draft Regional Spatial Strategy for the South West.

2. Introduction

2.1 This report is intended to support planners with guidance on the distribution of European Protected Species (EPS) in the South Somerset District Council administrative area. EPS represent some of the rarest and most vulnerable species in the Britain and as such have been afforded enhanced protection under European and U.K. legislation. Part of this legislation requires the maintenance of, and aims at enhancing, the population and distribution of a species. Furthermore, the UK legislation for European Protected Species, listed under Annex IV of the Directive, was amended in August 2007 and in January 2009, following a European Court of Justice ruling in 2005, and now provides for a much stricter adherence to the EC Habitats Directive. Therefore, it is important for forward planning to have an understanding what and where EPS are present in the District in order to avoid potential conflicts with development and allocating key sites.

2.2 This report considers the legislative requirements for EPS and sets out the likely distribution for each EPS including maps showing areas where appropriate habitat is essential for maintenance of that population. This can then act as a guide to the allocation of sites for development, whereby those that potentially affect EPS can be avoided, thus avoiding issues subsequently in the planning process. The information can also be used in Strategic Environmental Assessments or Sustainability Appraisals. However, this guidance is not intended to replace protected species surveys, either as a stand alone report or as part of an environmental impact assessment. EPS may occur outside of the areas illustrated and legislative obligations would still need to be met.

3. Legislative Background

'Habitats Directive'

3.1 The Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora under Article 2 set out the requirements for the protection of species of Community interest, listed under Annex II and/or IV.

3.2 Annex II species are those for whose conservation require the designation of Special Areas of Conservation (SAC). Any potential impacts affecting the integrity of a SAC, including those designated for Annex II species, are required to undergo an 'Appropriate Assessment'[1].

3.3 Annex IV species are defined as '*animal and plant species in need of strict protection.*'

3.4 Under Article 2 Annex II and IV species are required to be maintained at 'favourable conservation status' (FCS), which is defined as when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

3.5 Article 12 states that '*Member States shall take the requisite measures to establish a system of strict protection for the animal species listed in Annex IV in their natural range, prohibiting:*

(a) all forms of deliberate capture or killing of specimens of these species in the wild;

(b) deliberate disturbance of these species, particularly during the period of breeding, rearing, hibernation and migration;

(c) deliberate destruction or taking of eggs from the wild;

(d) deterioration or destruction of breeding sites or resting places.

3.6 Under Article 16 avoidance of impacts should be sought and lists the circumstances for where derogation may be applied. In planning development may only be progressed if in circumstances of over riding public interest, including those of a social and economic nature and beneficial consequences of primary importance to the environment among other reasons.

[1] See DCLG, 2006; Dodd *et al*, 2007

3.7 Article 10 of the Directive requires that land use planning and development policies encourages the management of features of the landscape which are of major importance for wild fauna and flora. '*Such features are those which, by virtue of their linear and continuous structures (such as rivers with their banks or traditional systems for marking field boundaries) or their function as stepping stones (such as ponds and small woods), are essential for migration, dispersal and genetic exchange of wild species*.'

3.8 The goals of the Habitats Directive for species conservation requires two basic conditions:

- Quality of habitat (allowing enough for reproduction)
- Habitat area (to prevent extinction by accident)

(Opdam *et al*, 2002)

'Habitats Regulations' 1994

3.9 The Conservation (Natural Habitats, &c.) Regulations 1994 (the 'Habitats Regulations') transposed the Habitats Directive into U.K. law. Regulation 3(4) of the prives that local planning authoritites must '…*have regard to the requirements of the Habitats Directive so far as they may be affected by the exercise of those functions*'. Regulation 3(4) concerns the requirements to be met before any derogation can take place at all. Reference to the Regulations in a planning permission and the need for a licence does not discharge the Council's duty (e.g. see Wooley vs Cheshire East Borough Council and Millennium Estates, 2009).

3.10 The Regulations make it an offence (subject to exceptions) to deliberately capture, kill or disturb the animals listed in Schedule 2. However, these actions can be made lawful through the granting of licenses by the appropriate authorities. Licenses may be granted for a number of purposes (such as science and education, conservation, preserving public health and safety), but only after the appropriate authority is satisfied that there are no satisfactory alternatives and that such actions will have no detrimental effect on wild populations of the species concerned.

3.11 Regulation 37 enacts Article 10 of the Habitats Directive and repeats its wording in that, '…*policies encouraging the management of features of the landscape which are of major importance to wild flora and fauna*…' should be included in planning enactments.

'Habitats Regulations' amendments 2007 and 2009

3.12 Amendments to the Habitats Regulations came into force on 21 August 2007 as a result of a European Court of Justice ruling in October 2005. There are two significant changes to bring the Regulations in line with the Habitats Directive. The 2009 amendment revised the 2007 amendment regarding the protection of European Protected Species.

3.13 The 2007 amendments to the Regulations has revised:

a) the '*incidental result defence*'; and
b) the definition of disturbance of European Protected Species (EPS).

3.14 The 2009 amendment removed the '*significant group of animals*' from the

Regulations covering European Protected Species.

Incidental Result Defence

3.15 As a result of the 2005 judgment, the majority of the defences originally put into the 1994 Regulations have been removed. This includes the '*incidental result defence*' which applies to acts which could constitute an offence but were the incidental result of an otherwise lawful activity and could not reasonably have been avoided. In the absence of such a defence, the offence prohibiting disturbance of EPS has been amended to better reflect the terms of the Directive and to allow trivial acts of disturbance to continue without constituting an offence and therefore requiring a licence.

3.16 This implies, for forward planning, that there should be a sound knowledge of the distribution of an EPS within a geographic area. Those carrying out activities that may affect EPS will now have to give even more careful consideration to their presence and also their breeding sites and resting places. With this knowledge planners may choose an option that avoids affecting the EPS, if that is possible. Otherwise, the developer may have to apply for a licence to carry out an activity that would otherwise now be unlawful. Potentially this may cause delays or stop implementation of site allocations.

Disturbance

3.17 Under regulation 39 of the 2009 amendment it is now an offence to deliberately disturb wild animals of EPS in such a way as to be likely to:

a) impair their ability—

(i) to survive, to breed or reproduce, or to rear or nurture their young; or

(ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate; or

(b) affect significantly the local distribution or abundance of the species to which they belong.

3.18 In addition, the amended Habitats Regulations (HR) does not contain the 'incidental result' defence for activities that disturb EPS – a defence against the charge of deliberate disturbance was available under the HR if the disturbance occurred as an incidental result of an otherwise lawful activity and could not have reasonably have been avoided.

3.19 This definition of 'disturbance' incorporates two elements adapted from the Habitats Directive Article 12 guidance document produced by the European Commission (European Commission, 2007). The first element is that disturbance must be likely to significantly affect the ability of a European Protected Species ('any significant group of animals' was removed following the 2009 amendment) to survive, breed, or rear or nurture their young. The second element is that the disturbance must be likely to significantly affect the local distribution or abundance of the species. For disturbance to occur, either of these conditions must be met.

3.20 If there were risk of disturbance a licence would be required. When assessing the risk of an activity disturbing an EPS and whether a wildlife licence might be needed, the following points should be considered:

- The likelihood that EPS occur in the area of potential disturbance impact of the activity;

- The likelihood that the local distribution or abundance of a EPS will be significantly affected by the activity;

- The characteristics of the activity and potential factors of disturbance;

- The mitigation measures in place to avoid committing an offence.

3.21 If there is a risk, which cannot be removed or sufficiently reduced by the taking of mitigation measures, then a wildlife licence may be granted by the regulatory authorities. Licences are available for a number of categories of activities or "purposes", as set out in Regulation 44(2) of the HR, such as of over riding public interest. Licences can only be issued, however, where there is no satisfactory alternative and where the activity will not be detrimental to the maintenance of the populations of the species concerned at a FCS in their natural range (Regulations 44(3)).

3.22 The Habitats Directive Article 12 guidance (European Commission, 2007) states that '*…it would also seem logical that for disturbance of a protected species to occur a certain level of negative impact which is likely to be detrimental must be involved*'. Disturbance covers a whole range of activities. At the lower end of the scale is the disturbance of a single individual outside the most sensitive seasons (breeding, rearing, hibernation and migration). At the upper end might be disturbance of large groups that would cause the permanent disappearance of a local population of a rare species.

3.23 The Commission's guidance further states that '...*any disturbing activity that affects the survival chances, the breeding success or the reproductive ability of a protected species or leads to a reduction in the occupied area should be regarded as a 'disturbance' in terms of Article 12*'.

3.24 Disturbance is therefore interpreted as an action that has a significant effect on the ability of a European Protected Species to survive, breed, rear or nurture young; or as having a significant effect on a species' local distribution or abundance. Loss of or changes to habitat is considered one of the main factors to cause disturbance (JNCC, 2007). Disturbance can also be indirect, such as from noise and sources of artificial light. It is also recognized that different species have different sensitivities to disturbance. (European Commission, 2007)

3.25 To assess disturbance consideration must also be given to its effect on the FCS of the population as defined under the Habitats Directive (see above).

'Environmental Liability Directive'

3.26 The EC Directive 2004/35/CE on environmental liability with regard to the prevention and remedying of environmental damage includes provision for damage to protected species and habitats designated under the 'Habitats Directive'. Damage to species is defined as a significant adverse effect on reaching or maintaining Favourable Conservation Status.

3.27 Activities for which liability for damage is incurred are listed in Annex III

and include waste management operations and discharges into inland surface water. The responsible operator can include environmental damage resulting from instruction by a public authority.

3.28 The Directive will be transposed into UK law through 'The Environmental Damage (Prevention and Remediation) Regulations.

Other Legislation

3.29 All European Protected Species are also afforded protection under the Wildlife & Countryside Act 1981 (as amended) [WCA]. Whereas the Habitat Regulations is concerned with populations, their distribution and abundance, the WCA is concerned with impacts on individuals. The WCA 1981 sets out the protection afforded to certain wild animals and to wild birds. Section 9 prohibits the intentional killing and injuring of wild animals listed in Schedule 5, and protects from 'intentional' damage places used for shelter. In addition, animals must not intentionally be disturbed whilst occupying those places.

3.30 *'The presence of a protected species is a material consideration when a planning authority is considering a development proposal that, if carried out, would be likely to result in harm to the species or its habitat* ' (ODPM, 2005).

3.31 The Countryside and Rights of Way Act 2000 Act strengthens the protection afforded species afforded protection under the WCA 1981 by adding the term 'reckless' to that of 'intentional' killing, injuring or damage to places used for shelter. This makes it necessary to know what is on or makes use of a site before any development can take place.

3.32 Under s40 of the Natural Environment and Rural Communities Act (NERC), South Somerset District Council is legally required to '*…in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity.'* This report considers this duty at a population level.

3.33 The NERC Act 2006 extends the legal obligation to have regard for species of importance for biodiversity conservation, listed in Section 74 of the CRoW Act, to local authorities. Section 41 of the NERC Act likewise lists those habitats and species of principal importance for the purpose of conserving biodiversity in England, which are also a material consideration in planning for local authorities.

4. Policy Background

4.1 The Guide to Good Practice circular that accompanies Planning Policy Statement 9: Biodiversity and Geological Conservation (PPS9) promotes that Core Strategies should embrace an integrated approach to biodiversity and suggests two ways in which this might be achieved.

4.2 Firstly, development control policies and allocations relating to all sectors of land use should be consistent with strategic objectives for biodiversity. This should apply to the objectives of the Habitats Directive.

4.3 Secondly, Local Development Frameworks (LDF) should promote a spatial planning approach to biodiversity. The Core Strategy should provide a spatial strategy for the authority's area which incorporates objectives for biodiversity, including those of the Habitats Directive for Community species, i.e. European Protected Species. Key diagrams can be included for the protection and enhancement of biodiversity. The distributional mapping accompanying this document may be adopted to provide this.

4.4 As a matter of good practice, the status and distribution of protected and Biodiversity Action Plan (BAP) priority species should form part of the evidence gathering required for the production of the LDF. The good practice guidance also considers that LDFs should include, where necessary, protection for areas where legally protected and BAP species occur. They can also develop guidelines for protecting and enhancing populations of protected species to assist in determining the location and design of development.

4.5 PPS9 also state that the aim of planning decisions should be to prevent harm to biodiversity. '*Where granting planning permission would result in harm local authorities will need to be statisfied that the development cannot reasonably be located on any alternative sites that would result in less or no harm*.' Information on the consideration of alternatives is required by Natural England with respect of issuning licences under Regulation 44. Where alternatives are absent adequate mitigation should be ensured before granting planning permission. '*If significant harm cannot be prevented, adequately mitigated against, or compensated for, then planning permission should be refused.*'

5. European Protected Species Present in South Somerset

Introduction

5.1 This section gives information on European Protected Species present in the administative area of South Somerset District Council generally. Planners should be aware that the species descirbed could be present in areas of favourable habitat conditions anywhere in the District.

Annex II Species

5.2 There are no Special Areas of Conservation (SAC) designated in the geographic area of South Somerset District Council. However, its considered that Bechstein's bats, listed as a feature of Bracket's Coppice SAC in Dorset, may use habitat in South Somerset around the Ashland Hill area, east of Crewkerne.

Annex IV Species

5.3 The following terrestrial fauna species, present in South Somerset, are afforded protection under Annex IV of the Habitats Directive and Schedule 2 of the Habitats Regulations:

- Bats, Horseshoe (all species) Rhinolophidae
- Bats, Typical (all species) Vespertilionidae
- Butterfly, Large Blue *Maculinea arion*
- Dormouse, Common *Muscardinus avellanarius*
- Newt, Great Crested (or Warty) *Triturus cristatus*
- Otter, Common *Lutra lutra*

5.4 The following sections consider the ecology of each species present in South Somerset, and then consider threats that could affect the FCS of each.

Bats, Horseshoe and Typical

Ecology

5.5 Bats are nocturnal and emerge from their roosts at dusk to feed. In the UK all bat species feed on insects. A number of feeding sites are needed throughout the year as insect availability changes. They can forage several kilometres away from their roost site and often rely on hedgerows, woodland edge, tree lines, copses and watercourses to reach feeding areas. For successful foraging, bats require:

- Suitable Habitat Structures;
- High Densities of Insects; and
- Habitat Corridors between roost sites and feeding areas.

5.6 Bats roost during the daytime in trees, a variety of buildings and structures, such as pillboxes, or in caves and tunnels. All roost sites have an integral role in the functioning of a bat colony. Roost sites can vary during the year and between males and females.

5.7 Bats are social animals that can live up to thirty years. A mature female may produce one offspring every year or so. During the summer months, female bats form maternity colonies to have their young. These roosts may be in a variety of natural or artificial structures, such as houses, trees or bridges depending on the species, and tend to be the same site every year. Maternity roosts usually disperse in September/October depending on species and weather conditions.

5.8 Night roosts are particularly important for some bat species and are used for resting, grooming, eating or sheltering in bad weather. Some bats, especially pregnant females, can extend their foraging range from the maternity roost by using such roosts.

5.9 Mating roosts have a vital function and are set up in autumn. In some species a single male often holds a roost and females visit to mate. Other species swarm at underground sites or quarries, with females joining males from over a wide area.

5.10 Many bats hibernate in an alternative site to their summer roost sites, some species using caves, tunnels, bridges or mines or alternative tree sites. Some bat species can use transitory roosts to gain weight prior to entering their hibernation roost site. However, some bat species will use the same roost site all year round. If the weather is warm enough some bat species will forage during the winter months.

5.11 Table 2 sets out the types of roost site used, what the habitat requirements are for each species present in South Somerset and an indication of their distribution in the District.

Table 2: A Summary of Roost Sites and Habitat Requirements of Bat Species present in South Somerset

Common Name	Roost site	Habitat Requirements	General Locality
Greater Horseshoe	Summer - Old buildings, undisturbed buildings with unrestricted access points, caves, disused mines, cellars and tunnels Winter – Underground in caves, mines, tunnels and cellars	Pasture and meadows with broadleaved woodland and scrub. Flight path corridors between roost and feeding areas of woodland edge, large hedgerows, tree lines, vegetated stream banks. Night roosts (These can be open sided barns)	North of Langport; around Hinton St. George; east of Chard

Table 2: A Summary of Roost Sites and Habitat Requirements of Bat Species present in South Somerset

Common Name	Roost site	Habitat Requirements	General Locality
Lesser Horseshoe	Summer – Lofts of old buildings, occasionally unused rooms and warm cellars. Winter –Undisturbed caves, cellars and mines	Woodland, parkland and large hedgerows over 5 metres high, with permanent pasture, also bankside vegetation. Flight path corridors between roost and feeding areas of large continuous hedgerows, tree lines, woodland edge, vegetated stream banks. Night roosts.	Widespread across the District; east of Compton Dundon and Somerton; east of Langport; west of Shepton Montague; West of South Brewham; Montacute; west of East Coker; Hardington Mandeville; south and west of Hinton St George; south of Cricket St Thomas; Dillington; east of Chard; and Wambrook
Daubenton's	Summer – predominately holes and fissures in trees but also buildings, tunnels and bridges. May use bat and bird boxes. Winter - caves, mines and cellars.	Smooth water sheltered by trees on both banks. Rivers, canals, lakes, reservoirs, also ponds, pools and ditches. Seasonally in broadleaved woodland. Corridors between roost and feeding areas of hedgerows and watercourses.	North and east of Langport; north of A378 Fivehead; Westport to Midelney; Yeovil; and west of Ilminster to Chard
Natterer's	Summer - Old buildings, bridges, tree crevices, cattle sheds. May use bat and bird boxes. Winter - Caves, mines, cellars, tunnels and bare rock	Broadleaved and wet woodland. Found along woodland edges, tree lines, inside large hedgerows, over water and around single trees - alongside agricultural land. Corridors between roost and feeding areas of large hedgerows, tree lines, woodland edge, vegetated stream banks. Field borders with mature trees to provide suitable night roosts.	North and South Brewham to Bruton; Sparkford / North Cadbury; east of Charlton Horethorne; Barrington; and hibernation sites east of Chard, Ilminster and south of Cricket St Thomas
Whiskered	Summer - Buildings and probably tree holes and crevices. May use bat and bird boxes. Winter - Caves, mines, cellars and tunnels.	Narrow rivers, bankside vegetation, also woodland rides, parks and hedgerows. Corridors between roost and feeding areas of hedgerows, tree lines, woodland edge, vegetated stream banks.	North of A378 Fivehead; hibernation sites north east of Ilminster

Table 2: A Summary of Roost Sites and Habitat Requirements of Bat Species present in South Somerset

Common Name	Roost site	Habitat Requirements	General Locality
Bechstein's	Summer - Tree holes and crevices. May use bat boxes. Winter - Caves, mines, cellars and tunnels. Possibly tree holes and crevices.	Mainly deciduous and wet woodland, occasionally parkland. Mature coppice. Corridors between woodland blocks of tree lines and hedgerows. Retention of old trees.	Dorset border south of Hardington Marsh. A feature of the Beckett's Coppice SAC
Common Pipistrelle	Summer - Buildings including houses in semi urban areas, dead and decaying trees with ivy and loose bark. May use bat boxes. Winter - Stonewalls, wall cavities, caves, mines, cellars and tunnels.	Bankside habitats (particularly lakes, wide rivers and large ponds), parks, broadleaved woodland, hedgerows, tree lines. Will feed around white street lighting. Corridors between roost and feeding areas of hedgerows and tree lines but may cross gaps of up to 200 metres.	Widespread across the district
Soprano Pipistrelle		As Common Pipistrelle but more often lakes and rivers.	
Serotine	Summer - Buildings in rural and semi rural areas. Especially fond of roof spaces with a chimneybreast. May use bat boxes. Winter - Caves, mines, cellars and tunnels. Occasionally in summer roost site.	Unimproved cattle pasture, unimproved grassland such as meadows, parkland, cemeteries, village greens, golf courses, and playing fields. Also woodland edge, hedgerow, tree lines, single trees, and areas of calm water. Night roosts. Will feed around white streetlights and sewage treatment works.	Widespread across the district
Noctule	Summer - Tree holes, especially woodpecker holes in fungal infected trees. May use bat boxes. Winter - Tree holes, especially woodpecker holes in fungal infected tress, occasionally buildings or rock crevices.	Over open areas such as open water and wetlands. Cattle pasture, open woodland, woodland edge, parks and open farmland near lakes. Mature trees. Dead wood with woodpecker holes. Freshwater habitat with good water quality. Will feed around white street lighting.	Beer; Montacute

Table 2: A Summary of Roost Sites and Habitat Requirements of Bat Species present in South Somerset			
Common Name	**Roost site**	**Habitat Requirements**	**General Locality**
Brown Long-eared	Summer – Tree holes, crevices and behind loose bark. Houses, other buildings. May use bat boxes. Winter - Caves, mines and cellars. Tree holes.	Broadleaved woodland. Also wet woodland, small groups of trees, woodland edge, orchards, garden shrubs, bankside vegetation, parkland with scattered trees and coniferous woodland. Corridors between roost and feeding areas of large hedgerows, tree lines, woodland edge, vegetated stream banks.	Widespread across the district

Threats

Loss of Feeding Habitat

5.12 Habitats, such as woodland, pasture, hedgerows and ponds, supporting bat populations can be lost due to landtake required for development but also through changes in agricultural management or intensification. Impacts may also be caused through hydrological change resulting in loss of wetland or ponds. Both rural and urban streams support insect communities, which are affected by the state of vegetation on the riverbank and within the watercourse. These insects provide a valuable source of food for bats.

Loss or Alteration of Roost Site

5.13 The loss of any roost or hibernation site would also have a significant effect on a bat population as each has an integral role in supporting a colony. Roost sites can be lost due to alterations to old buildings, barn conversions, and use of timber treatments, the felling of mature trees, tidying up trees or tree surgery. The conversion of barns to dwelling places has also resulted in major loss of roost sites. Due to their construction, modern buildings are often unsuitable as roost sites.

Loss or Fragmentation of Flight Lines

5.14 Most bat species are reliant on linear features traditionally used to commute between roost sites and feeding areas. Any severance of these features could cause disruption to commuting patterns and threaten the viability of a colony. As bats fly some distance from their roost site severance could affect bats several kilometres from the development.

Installation of Street and Other Artificial Lighting

5.15 Bat roosts may be disturbed and abandoned following the installation of lighting on streets or individual buildings (e.g. floodlighting of churches). Artificial lighting can also affect the commuting and feeding behaviour of bats. Studies have shown that, although some species of bat swarm around white mercury streetlights, others, such as *Rhinolophus*, *Plecotus* and *Myotis* species, will avoid artificial lighting. Street lighting can therefore cause habitat fragmentation and prevent bats from reaching

feeding areas. Street lighting will also draw prey away from feeding areas that would otherwise be available to species averse to artificial lighting and would prevent safe exit from roost sites.

Disturbance

5.16 Development near roost sites may cause disturbance, such as from increased noise. Disturbance to bat behaviour may also occur during the construction phase of a scheme. Tree roosting bats are particularly sensitive to works a couple of hundred metres from a roost and may result in it being deserted.

Pipistrelle Bat (Courtesy: Natural England)

Road Mortality

5.17 Bats are affected by road mortality. Lesser horseshoe and whiskered bats often fly 0.5-3 metres above road level across 20-40 metre gaps in hedgerows where they have been created by a road scheme. One road scheme in North Wales is reporting the loss of two lesser horseshoe bats per night and has resulted in on-going costs of over £1 million in corrective mitigation, which could have been avoided if measures had been included at the design stage.

Wind Farms and Turbines

5.18 A number of dead bats have been found under wind turbines on sites in Europe and in the USA. Bats suffer from collision from rotor blades and from barotrauma. Turbines may also have negative effects on prey availability and cause disruption or disturbance to feeding habitats and flight lines. Natural England guidelines give noctule and Leisler's bats as being of high risk. The same guidelines also state that sites under 200 metres AOD as being of high risk. Research is on going.

Large Blue Butterfly

Ecology

5.19 Large blue butterflies are found on warm well-drained unimproved grassland, predominately acidic coastal grassland or limestone grassland (as is the case in Somerset). Breeding grounds consist of steep south facing hillsides. It requires a short turf of 2-5cm high, with an abundance of wild thyme and the presence of a host red ant *Myrmica sabuleti* colony. Red ants (*Myrmica*) protect its caterpillars, as they do for one of their own grubs. However, the caterpillars only survive in the nests of *Myrmica sabuleti*.

5.20 Large blue butterflies form discrete colonies on small patches (typically 2-5 ha) from which the adults rarely stray. However, re-established adults (all large blue colonies in Somerset are re-introductions) have some dispersal capability and have been found in new colonies 2 - 3 kilometres away, covering numerous small patches of suitable habitat.

Threats

5.21 The large blue butterfly depends on a number of factors, but especially management of the grassland with the presence of wild thyme and red ants *Myrmica sabuleti* is essential. The required turf height is mainly maintained through grazing, especially by rabbits.

5.22 Droughts are a potential threat, as this will affect the flowering of thyme and the size of ant populations.

5.23 Visitor pressure is a potential threat on some sites.

Distribution in South Somerset

5.24 Following extinction in the UK during the 1970s, large blue butterflies have successfully been re-introduced into South Somerset north of Somerton.

Common (or Hazel) Dormouse

Ecology

5.25 The common dormouse is nocturnal. It lives and feeds among the branches of trees and shrubs and rarely descends to ground level except when hibernating. It is found in woodland, scrub and hedgerows. It is important that it can easily move from tree to tree and be able to climb in the understorey and canopy without difficulty and without coming to the ground. A dormouse can live up to six years in the wild but two or three years is more usual.

5.26 Dormice may travel up to 70 metres from their nests when feeding. They have been found in habitat patches of little as 1.7 hectares in size along road verges in Somerset (Garland & Woods, 2005) but it is considered that 20 hectares is required for a sustainable population in the long term (Bright *et al*, 1996).

5.27 Dormice are found in a range of habitats including both deciduous and coniferous woodland, scrub and hedgerows. Although dormice have been found in managed hedgerows as little as 1 metre wide and 1.5 metes tall they are more likely to occur in large, less frequently cut hedgerows.

5.28 Dormice nests are round, about 15 centimetres in diameter, and woven of honeysuckle, clematis and leaves and are grey coloured. They also use hollow tree branches and old birds nests.

5.29 Common dormice hibernate on the ground in a tightly woven nest the size of tennis ball where conditions are damp, with high humidity and temperatures remain cool. This is usually under moss or fallen leaves, occasionally among logs, tree roots or the base of a hedgerow. Hibernation starts when nights become cool, usually at the time of the first frost and animals will remain in hibernation until May the following year. They also go into torpor during cool, windy or wet periods during the rest of the year.

Threats

Loss of Habitat

5.30 Dormouse habitat can be lost due to the construction of new transport infrastructure or maintenance operations carried out on the highway.

Habitat Fragmentation

5.31 New road and other development schemes and loss of trees, hedgerows and shrub due to maintenance operations can potentially result in fragmentation of dormouse habitat.

Mortality

5.32 Removal of trees, hedgerows and shrub due to routine maintenance operations can potentially result in disturbance and fatalities to dormice.

Installation of Street Lighting

5.33 The installation of streetlamps will make any habitat lit up by the artificial lighting untenable to dormice and thereby reduce the effective area available to support a population.

Distribution in South Somerset

5.34 Populations of common dormouse have been recorded on the urban edge of Yeovil at Houndstone and at locations westward to Crewkerne and Chard and the district boundary. Other population are found from west of Somerton, Aller to Langport and Fivehead

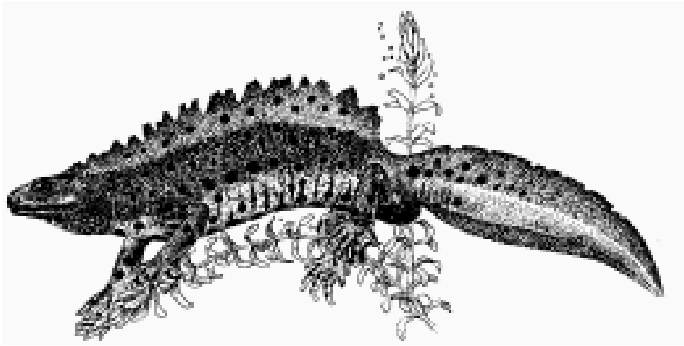
Great Crested (or Warty) Newt

Ecology

5.35 Great crested newts can be found in a wide range of habitats, including farmland, woods, grasslands, dunes, quarries, industrial and 'brown-field' sites, within which it favours large ponds with abundant weeds and no fish in

which to breed. The habitat structure within the site such as hedgerows, varied topography and the availability of refuges in which the individuals can hide is very important and can determine whether the species can occupy a site or not. Occasionally they will use garden ponds and commonly occur near natural springs[2].

5.36 The condition of land between occupied sites is also an important factor, as many newt populations persist as metapopulations, a series of local populations between which individuals migrate. If there is little connectivity between patches of suitable habitat, migration will be unlikely. These corridors of land need to be rich in ponds to allow individuals to move between areas. These corridors prevent populations becoming genetically isolated. Fragmentation may reduce the number of suitable ponds and restrict movement. This can lead to inbreeding and to the extinction of populations, even where suitable ponds still exist.



5.37 Adult great crested newts move towards ponds, following hibernation, from February to May, in order to breed and lay eggs. They then immigrate back to terrestrial habitats from June to July. The larvae grow over the summer and juvenile great crested newts leave for terrestrial habitat from August to September. The species hibernates between late October and February.

Threats

Loss of Habitat

5.38 Great crested newts are reliant on a combination of habitats, terrestrial or land habitats, such as hedgerows, and aquatic habitats, such as ponds, being within migratory distance of each other. If either one is lost the other will be rendered untenable resulting in loss of the local population potentially over a large area.

Habitat Fragmentation

5.39 Great crested newts are vulnerable to severance of their breeding habitat from terrestrial habitat and will case the population to decline. They will continue to use traditional routes and may incur mortality from road traffic or from exposure to predators whilst crossing the new road or other infrastructure.

[2] http://www.arkive.org/species/ARK/amphibians/Triturus_cristatus/more_info.html

Mortality

5.40 Great crested newts are very susceptible to road mortality, especially where new roads cross migration routes. This is most obvious in March. They can also be affected by routine maintenance operations, especially during periods of migration between terrestrial and aquatic habitats.

Barrier

5.41 The installation of new kerbs can potentially trap great crested newts within the carriageway leading to them becoming road casualties. Road gullies are also death traps to migrating great crested newts.

Changes in Hydrology

5.42 Changes to hydrology may occur as result of new road infrastructure or from maintenance operations resulting in the raising or lowering of water levels in breeding ponds that may be critical.

Distribution in South Somerset

5.43 Great crested newt populations are scattered across the district with significant occurrences at Dimmer and Foddington.

Common Otter

Ecology

5.44 Otters give birth throughout the year to a litter of between 2 and 3 cubs. After 12 to 13 months cubs become independent and will disperse over many kilometres. A female otter in Somerset may have a territory of up to 20 kilometres of watercourse (Pers. comm. Karen Coxon) or the length of three riverside parishes (Pers. comm. James Williams)

5.45 Otters are found on all types of watercourse including canals, ponds, lakes and reservoirs. They use tiny ditches and streams including dry watercourses as regular commuting routes. They may also cross overland between watersheds and will shortcut across bends in rivers. The Environment Agency reported a road casualty on the A361 north of Pilton, and has also been reported from the area of Wellington Road within the urban area of Taunton.

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(Courtesy of Darin Smith)

5.46 The presence of ash or sycamore trees along river banks is particularly important to otters as the roots of these species provide the majority of den sites. Other species used include rhododendron bushes, oak and elm trees. Bankside vegetation, such as woodland and scrub, can provide cover for

otters. They also use reedbeds and islands as rest sites and marshy areas to forage for frogs.

5.47 Holts or dens are found in the roots of trees, heaps of sticks or rocks, drains, badger setts, rabbit burrows, etc., where the chance of physical disturbance is low. Man-made features such as pipes and buildings may also provide shelter. These are usually within 10 metres of the watercourse but can be up to 50 metres away. Natal holts seem to be located away from main watercourses and from water altogether even being found up to 500 metres away.

Threats

Loss of Habitat

5.48 Otters need natural riverbanks so that can easily clamber out. Loss of bankside habitat along watercourses can mean loss of resting places and holt sites leading to a decline in favourable habitat supporting a population. In addition removal of scrub or materials piled on the ground, such as dead wood and rubble, near a watercourses can have similar effects.

5.49 Construction of new transport infrastructure can incur loss of otter habitat and lead to otters crossing roads to access other areas within their territory.

Road Mortality

5.50 Road mortality is one of the biggest threats to the Somerset otter population. This commonly occurs when a stream is in spate and/or there is lack of headroom. In fact if the road runs beside a river, an otter may run along the road when the water is in spate, as the easier option. Weirs and dams also obstruct the passage of otters and they are forced to leave the watercourse and cross the highway. Elsewhere it may occur when an otter is crossing from one watershed to the next and has to traverse a road *en route*.

Disturbance

5.51 Although otters will habituate to human disturbance there is evidence to suggest that female otters with cubs require more stringent conditions. The use of holt site or resting places will be affected by the presence of dogs. Continual use of watercourses by boats will push otters away, such as happened on the Norfolk Broads.

Pollution

5.52 One off pollution events due to spillage of chemicals, etc by road transport incidents can have serious effects on watercourse species wiping out whole populations of fish and thereby indirectly affecting the ability of otters to use that watercourse.

Distribution in South Somerset

5.53 Otters are found on all main watercourse and their tributary streams in the District, including within urban areas.

6. Distribution Around South Somerset Towns

Introduction

6.1 This chapter gives more detailed information on the presence of European Protected Species round the main towns in the administrative area of South Somerset District Council and therefore are more likely to be affected by development. It also gives an opportunity to avoid impacts in the first instance and could guide enhancement measures for these species.

Mapping

6.2 The maps displayed in this section are derived from the Somerset Econet/ Animal Occurrence mapping and are produced by Somerset County Council in partnership with Somerset Environmental Records Centre (SERC).

6.3 Mapping is based on species records held by SERC supplemented with data from other sources. Selected areas of Mastermap polygons show where a species is likely to occur following analysis of aerial photographs, and survey information and radio-tracking data where available. Extent of habitat use is based on home and, where appropriate, dispersal ranges from the literature. These form the core commuting and foraging areas for the species mapped. Some species, bats, also have areas adjacent to the core areas mapped in a diagonal stripe. These areas show areas of habitat that are support prey species that are likely to be available to the species mapped. Other symbolism is described under the species mapped. (Somerset Econet 2009: draft Somerset Animal Occurrence Mapping, 2009)

6.4 Planners should give consideration to the areas showing likely species presence and the adjacent areas as there may be boundary effects, such as removal of vegetation or increases in artificial lighting, that can result in impacts on the species affected.

Overview

6.5 Table 3 lists European Protected Species populations likely to be present around the likely to be present around the main towns.

6.6 Note that ecology is dynamic and populations fluctuate naturally. The table below and the following descriptions refer to recorded presence between 2005 and 2008. Bat roosts and otter holts will continue to be used over many years if environmental conditions are favourable. On the other hand, some species are known to leave suitable habitat empty and return after spells of several years away. The habitat is nonetheless important in the ecological functioning of the population. (Hanski, 1999)

Table 3: European Protected Species Presence

Common Name	Scientific Name	Yeovil	Chard	Crewkerne	Ilminster	Castle Cary	Somerton	Langport	Wincanton
Otter	*Lutra lutra*	√	√	√	√	√	√	√	√
Common Dormouse	*Muscardinus avellanarius*	√	√	√					
Greater Horseshoe Bat	*Rhinolophus ferrumequinum*		√						
Lesser Horseshoe Bat	*Rhinolophus hipposideros*	√	√		√		√	√	
Daubenton's Bat	*Myotis daubentonii*	√			√			√	
Natterer's Bat	*Myotis nattereri*		√		√				
Whiskered Bat	*Myotis mystacinus*			√	√				
Serotine Bat	*Eptesicus serotinus*	√			√	√			√
Noctule Bat	*Nyctalus noctula*	√							
Pipistrelle Bats	*Pipistrellus* spp.	√	√	√	√		√		
Brown Long-eared Bat	*Plecotus auritus*	√	√		√				
Great Crested Newt	*Triturus cristatus*	√							

Otter

6.7 Otters are present on all main watercourses in Somerset and have been recorded on the Rivers Parrett, Yeo and Isle.

6.8 Otters need natural riverbanks so that can easily clamber out, including through urban areas. Loss of bankside habitat along watercourses can mean loss of resting places and holt sites leading to a decline in favourable habitat supporting a population. In addition removal of scrub or materials piled on the ground, such as dead wood and rubble, near watercourses can have similar effects. (Liles, 2003; Chanin, 2003) This needs to be a consideration when developing alongside watercourses in urban areas in South Somerset.

6.9 Otter holts or dens are found in the roots of trees, heaps of sticks or rocks, drains, badger setts, rabbit burrows, etc., where the chance of physical disturbance is low. These are usually within 10 metres of the watercourse but can be up to 50 metres away. Natal holts seem to be located away from main watercourses and from water altogether, even being found up to 500 metres away. Man-made features such as culverts, pipes and buildings, such as found within Yeovil or other built areas in South Somerset, can also provide shelter for otters. (Chanin, 2003)

6.10 The presence of ash or sycamore trees along river banks is particularly important to otters as the roots of these species provide the majority of den sites. Other species used include rhododendron bushes, oak and elm trees. Bankside vegetation, such as woodland and scrub, can provide cover for otters. They also use reedbeds and islands as rest sites and marshy areas to forage for frogs. (Liles, 2003; Chanin, 2003)

6.11 Although otters will habituate to human disturbance there is evidence to suggest that female otters with cubs require more stringent conditions. The use of holt site or resting places will be affected by the presence of dogs. (Liles, 2003; Chanin, 2003)

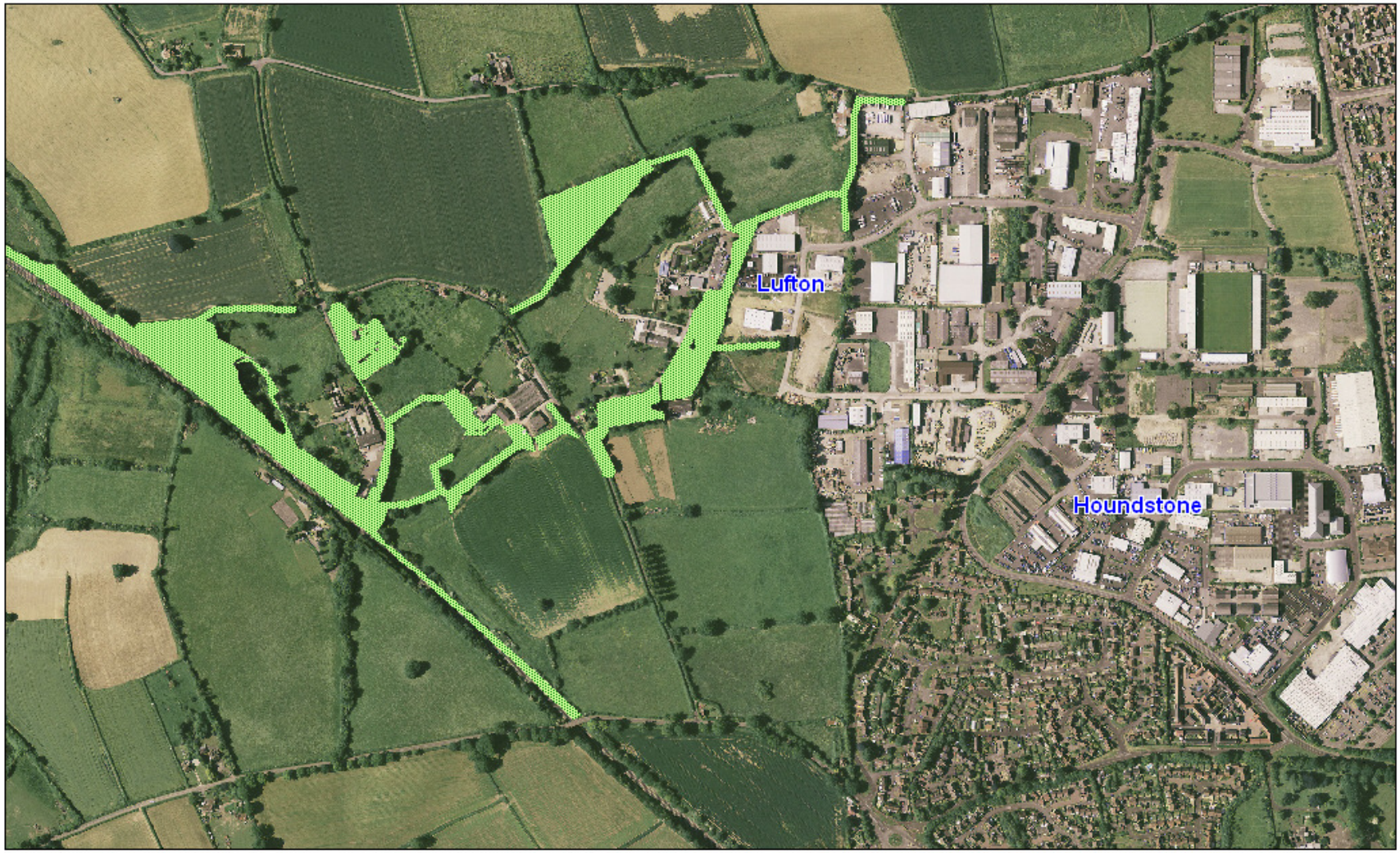
Common Dormouse

6.12 Common dormouse occurs to the west of Yeovil at Lufton where they have been recorded from surveys of hedgerows on the proposed key site. It is assumed from aerial photographic interpretation that they are potentially present to the north of the site on the western edge of the urban area. These areas are shown in green on Map1.

6.13 Dormice also occur to the east of Crewkerne south of the A30 where again they were recorded during surveys of a proposed development site. This is shown in green on Map 2. Common dormouse may be present in wooded areas north of the A30 provided there is a sufficient area of suitable habitat to support a viable population. Due to no records and the A30 potentially forming a barrier from the recorded presence this area has not been mapped.

6.14 A population of common dormouse is present to the east of Chard south of the A30 as shown in green on Map 3. This colony extends east from Millfield

Map 1: Landscape Use by Common Dormouse - Yeovil



Map 2: Landscape Use by Common Dormouse – Crewkerne

Map 3: Landscape Use by Common Dormouse – Chard

Industrial Estate. The whole network of hedgerows would support the viability of the colony.

Greater Horseshoe Bat

6.15 Greater horseshoe bats are present in the winter period to the west of Chard as shown in Map 4 in a hibernation roost. The roost site is also used by hibernating bats of other species and is therefore very important to local populations. The core commuting and foraging routes are shown in grey/green and areas adjacent to the core areas mapped in a diagonal stripe. These areas show areas of habitat that are support prey species that are likely to be available to greater horseshoe bats.

6.16 In winter greater horseshoe bats are found exclusively in underground caves, mines and cellars with a temperature between 5-12ºC. (Ransome, 1996)

6.17 Greater horseshoe bats feed through the winter when prey species become active, e.g. *Ophian* wasps swarm in woodlands above 5ºC. (Ransome, 1996)

6.18 Greater horseshoe bats travel away from the roosts towards foraging grounds do so along distinct flight paths. The majority of flight paths (about 70%) run along the edges of woods, woodland rides or tall hedges, only rarely crossing open fields. Open fields are crossed after dusk on dark nights. They travel about 1 metre away from vegetation edges. (Ransome, 1996)

6.19 The top five feeding areas for greater horseshoe bats include:

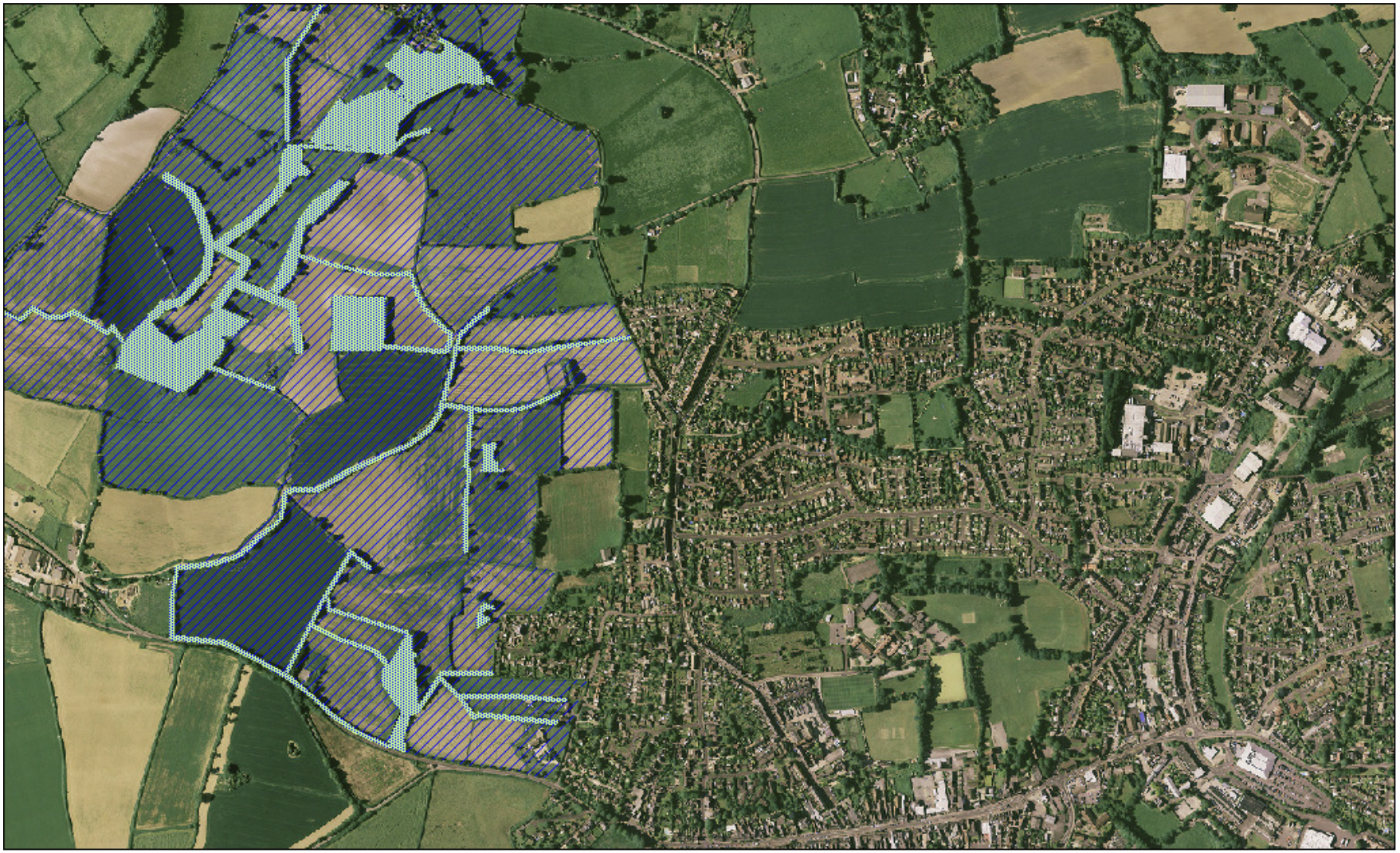
- pasture with cattle as single stock or part of mixed stock (38.6%);
- ancient semi natural woodland (16.6%);
- pastures with stock other than cattle (10.3%);
- meadows grazed by cattle in the autumn (9.4%); and
- other meadows and broadleaved woodland (4.9%).

6.20 These habitats are not used according to the afore listed proportions throughout the year but change with the seasons. Woodlands and pasture adjoining wood are used in spring and early summer. As summer progresses, feeding switches to areas further away and tends to be fields used for grazing cattle and other types of stock. Meadows that have been cut and where animals are grazing are also used. (Ransome, 1996)

6.21 Greater horseshoe bats are averse to streetlights and artificial lighting. Gaps in flight lines are not crossed unless dark. (Outen, 2002; Bat Conservation Trust/Institute of Lighting Engineers n/d). Therefore, there is potential for development to sever access by greater horseshoe bats to large areas of foraging habitat and threaten the viability of the colony.

6.22 In accessing foraging areas greater horseshoe bats use night roosts, where they rest before continuing to forage. These roosts play a vital role in the viability of feeding areas (Knight & Jones, 2009).

Map 4: Landscape Use by Greater Horseshoe Bat - Chard



Lesser Horseshoe Bat

6.23 Lesser horseshoe bat roosts were originally located in caves but are now commonly found in old country houses with large attic or loft spaces, which are easily accessible. These sites can also be found in farm buildings and derelict/disused cottages and houses. In this case the roost is in a barn. Lesser horseshoe bat roosts are situated close to woodland or parkland or are linked by linear landscape elements, such as hedgerows to foraging areas. (Bat Conservation Trust, 2003; Kelleher, 2004; Schofield, 2003)

6.24 There is some evidence that lesser horseshoe bats may be present on the western edge of Yeovil at Lufton Manor College, with recorded occurrences at Montacute, a maternity colony; Brympton D'Evercy, where a hibernation roost is present; and the country park to the south of the town. Significant landscape use is shown on Map 5. Although no records apart from droppings have been recorded at Lufton Manor College the supporting habitat is mapped as from the amount of droppings this is obviously an important site for bats[3] and has opportunities for lesser (and greater) horseshoe bat occupancy.

6.25 In Maps 5 to 9 showing lesser horseshoe bat habitat use the core commuting and foraging routes are shown in grey/green and areas adjacent to the core areas mapped in a diagonal stripe. These areas show areas of habitat that are support prey species that are likely to be available to lesser horseshoe bats.

6.26 Lesser horseshoe bats are present in winter to the west of Chard north of the A30 where there is a hibernation roost. The use of the landscape during this period is shown on Map 6. Many lesser horseshoe bats hibernate in an alternative site to their summer roost sites, using caves, tunnels, mines or cellars where temperatures are below 11°C and with high humidity. Hibernation sites often contain few in number.

6.27 Lesser horseshoe bats also feed throughout the winter, depending on temperature (Williams 2001: in Bat Conservation Trust/BMT Cordah, 2005). The winter foraging range appears to be approximately half the area covered in the summer months. (Bat Conservation Trust/BMT Cordah, 2005)

6.28 Lesser horseshoe bats are present to the north of the Blackdown Hill Estate and Bay Hill on the urban edge of Ilminster towards Dillington House. They have also been recorded in small numbers west of the B3168 north of Station Road. There is also a hibernation roost in Station Road. The significantly used area is shown on Map 7.

6.29 Around Somerton lesser horseshoe bats are present to the east of the town north and south of The Milllands area and are shown on Map 8.

6.30 Lesser horseshoe bats are also present in Langport where there is a maternity roost on the Hamdown estate. The landscape use of this colony is shown on Map 9.

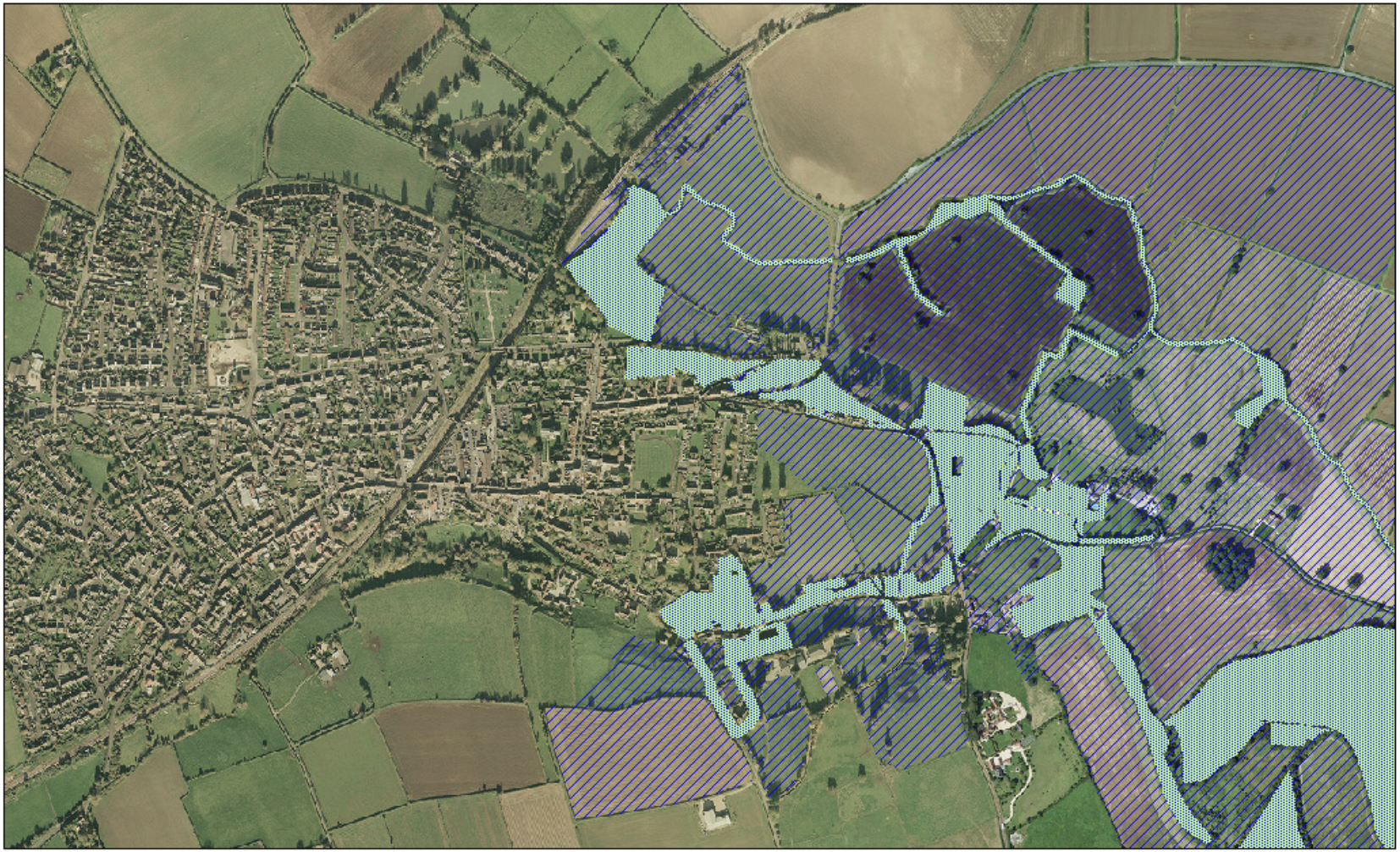
[3] Bat survey - Lufton Manor College - 4.12.2004, T. Marlow, MCMA, AIEEM

Map 5: Landscape use by Lesser Horseshoe Bats – Yeovil

Map 6: Landscape use by Lesser Horseshoe Bats – Chard

Map 7: Landscape use by Lesser Horseshoe Bats – Ilminster

Map 8: Landscape use by Lesser Horseshoe Bats – Somerton



Map 9: Landscape use by Lesser Horseshoe Bats – Langport

6.31 '*The primary foraging habitat for lesser horseshoe bats is broadleaf woodland where they often hunt high in the canopy. However, they will also forage along hedgerows, tree-lines and well-wooded riverbanks*.' (Schofield, 2008)

6.32 Lesser horseshoe bats are susceptible to loss of linear features, such as mature hedgerows, which act as commuting routes between roost sites and foraging areas and indeed to other roost sites. They can cross short breaks in linear structures, but do so by flying very close to the ground (approx. 1 metre).

6.33 Mathews & Jones (2008) found that the presence of artificial lighting disrupted the flight activity and foraging ecology of lesser horseshoe bats. A PhD study (Stone, 2009) carried out at the University of Bristol has shown that lesser horseshoe bats are disrupted from flying along hedgerows by artificial light levels above 0.5 Lux. It was also found that continued disruption increased the effect, i.e. lesser horseshoe bats do not become habituated to the presence of artificial lighting and would therefore cause permanent disruption to their behaviour.

6.34 Artificial lighting also attracts prey species, such as moths and beetles, from the surrounding countryside thereby redcuing prey availabilty to lesser horseshoe bats (Outen, 2002; Chinery, 2007).

Daubenton's Bat

6.35 Daubeton's bats are a riverine species feeding off invertebrates, particularly chironomid midges, caddis flies and mayflies, close to the water's surface. They are recorded making use of the Ninesprings Ponds and Stream south of Yeovil and would also be foraging along the River Yeo to the east. Map 10 shows the landscape use by the species south of the town. This is shown using OS Mastermap polygons so that main habitat of watercourses can be distinguished.

6.35 Daubenton's bats are also present on the River Isle to the west of Ilminster as shown in Map 11 and the east of Langport and Huish Episcopi as shown on Map 12. Habitat use is shown by use of Mastermap symbology.

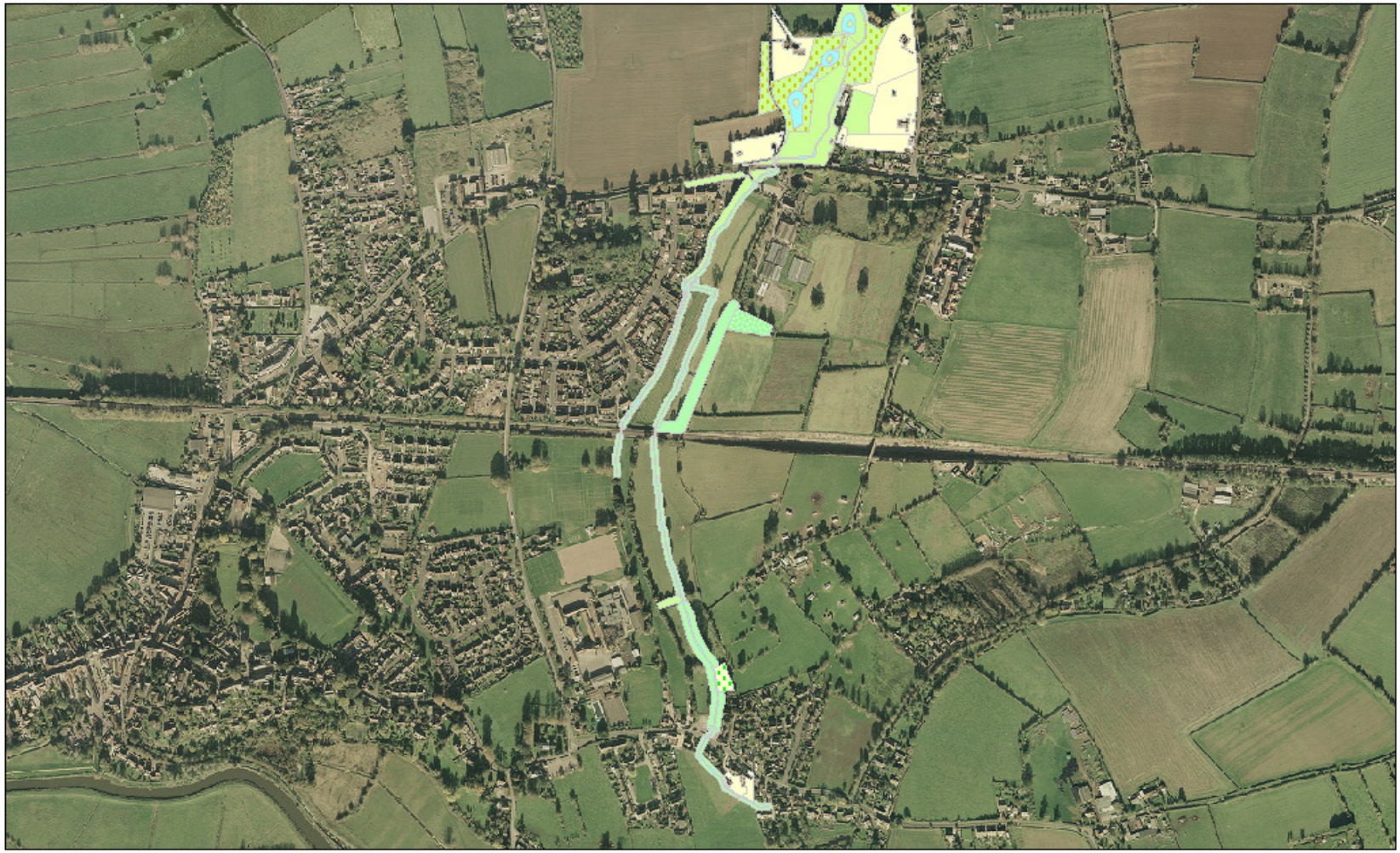
6.36 During the summer the majority of Daubenton's bat roost sites are in humid, more or less underground sites near water. These sites may be crevices in tunnels or underneath bridges over water or in caves, mines or cellars. They are occasionally found in buildings, mostly old stone buildings such as waterworks and castles with moats. Summer roost sites may be changed frequently. (Bat Conservation Trust, 2003; Boye & Dietz, 2005) Night roosts are important.

6.37 Daubenton's Bats use these roosts for resting, grooming, eating or sheltering in bad weather. Importantly some bats, especially pregnant females, can extend their foraging range from the maternity roost by using such roosts. These are often in trees or tunnels close to feeding sites. (Bat Conservation Trust, 2003)

Map 10: Landscape Use by Daubenton's Bats – Yeovil

Map 11: Landscape Use by Daubenton's Bats – Ilminster

Map 12: Landscape Use by Daubenton's Bats – Langport



6.38 Daubenton's bats forage almost exclusively over water within 3 kilometres of roost, but may travel up to 15 kilometres to forage. 90% of breeding females have home ranges within a radius of 4 kilometres around the roost. Core areas within home ranges are dependent on the size of the water bodies and have sizes between 100 square metres (0.1ha) and 7,500 square metres (0.75ha) (Boye& Dietz, 2005)

6.39 Hedgerows, overgrown bankside vegetation and linear watercourses are used to move between roosts and feeding areas. In Holland, Helmer (1983) found that Daubenton's bats used regular flyways of lanes, wood edges, hedgerows and watercourses. A fringe of reeds will suffice as cover when commuting. (Entwhistle et al, 2001; Verboom & Huitema, 1997; Limpens et al, 2005)

6.40 Daubenton's bats will forage over water habitats in towns. Within other urban habitats activity levels were very low with commuting and foraging activity being in gardens at the end of the night. (Bartonička, & Zukal, 2003)

6.41 Daubenton's bats are averse to artificial lighting along commuting routes and would be affected by any increases of light levels along watercourses alongside new development sites in Yeovil, Ilminster or Langport. Potentially they can be cut off from feeding areas, which would then threaten the viability of the roost and population. (Outen, 2002; Bat Conservation Trust/Institute of Lighting Engineers n/d) There may also be potential for loss of roosts through structural alterations to buildings or removal of trees.

Natterer's Bat

6.42 Numbers of Natterer's bats in the area appear to be low and presence around towns appears to be in the winter period. A Natterer's bat has been recorded in winter in Ilminster and there are two important hibernation sites at Chard, one to the west of the town and other on the north west of the Chard Reservoir. A blue circle outlined in red on Map 13 shows the general location of these roosts.

6.43 There are no records for summer presence Natterer's bats around Chard but they are nonetheless potentially present. They hunt mainly in deciduous, mixed and coniferous woodlands, but also along woodland edges, in rows of trees along hedgerows and in scrub. They sometimes hunt in open country, over green spaces and arable land. (Simon *et al*, 2004).

6.44 Natterer's may also be present in the summer roosting in trees. In springtime most foraging activity of Natterer's bats is in open habitats such as orchards, fields and pastures with hedgerows and trees or near waters. However, in the summer, foraging activity is concentrated in woodlands and the species even uses dense coniferous forests. A speciality is foraging sites in cattle stables where the bats roost and feed on flies, so they do not have to leave the stable during the summer. (Boye & Dietz, 2005; Smith & Racey, 2005)

6.45 Natterer's bats would be susceptible to loss of hedgerows or lines of trees used as flight lines, the introduction of artificial lighting, and possibly barn conversions. The loss of woodland foraging habitat is unlikely but open habitats used in the springtime may be lost to development. (Limpens &

Map 13: Landscape Use by Natterer's Bats – Chard

Kapteyn, 1991; Bat Conservation Trust/ BMT Cordah Limited. 2005; Outen, 2002)

Whiskered Bat

6.46 Whiskered bats have been recorded foraging on northern edge of the Crewkerne urban area but not in significant numbers. They have also been recorded in West Street, Ilminster but only as a single bat. A single whiskered bat was also recorded in the hibernation period in a factory in Winterhay Lane in 1993.

Serotine Bat

6.47 Serotine bats are well adapted to man-made roosting sites, so much so that it is now only rarely found in natural sites. In summer they roost in buildings that have high gables and cavity walls, they are thought to typically remain in the same building to hibernate during winter. Some hibernating serotine bats have been found in caves, but this is rare.

6.48 A serotine bat colony uses at least 10 different roosts and exhibits roost switching behaviour. In Germany the distances between these roosts was between 110 metres and 260 metres. (Simon *et al*, 2004)

6.49 There is also a significant maternity colony located in the Helena Road area in the south west of Yeovil. Map 14 shows the potential roost switching area of the maternity colony in blue outlined in red. Members of this colony are probably foraging to the south of the town around Constitution Hill, in the urban area around Sampsons Wood and over pasture to the west of the roost, particularly adjacent to woodland, such as at Camp Hill. Purple spotting indicates likely foraging areas. There is a further roost site in Westfield Road, although recorded in the winter may also support a summer population of serotine bats. A red circle around purple spotting shows these roosting areas.

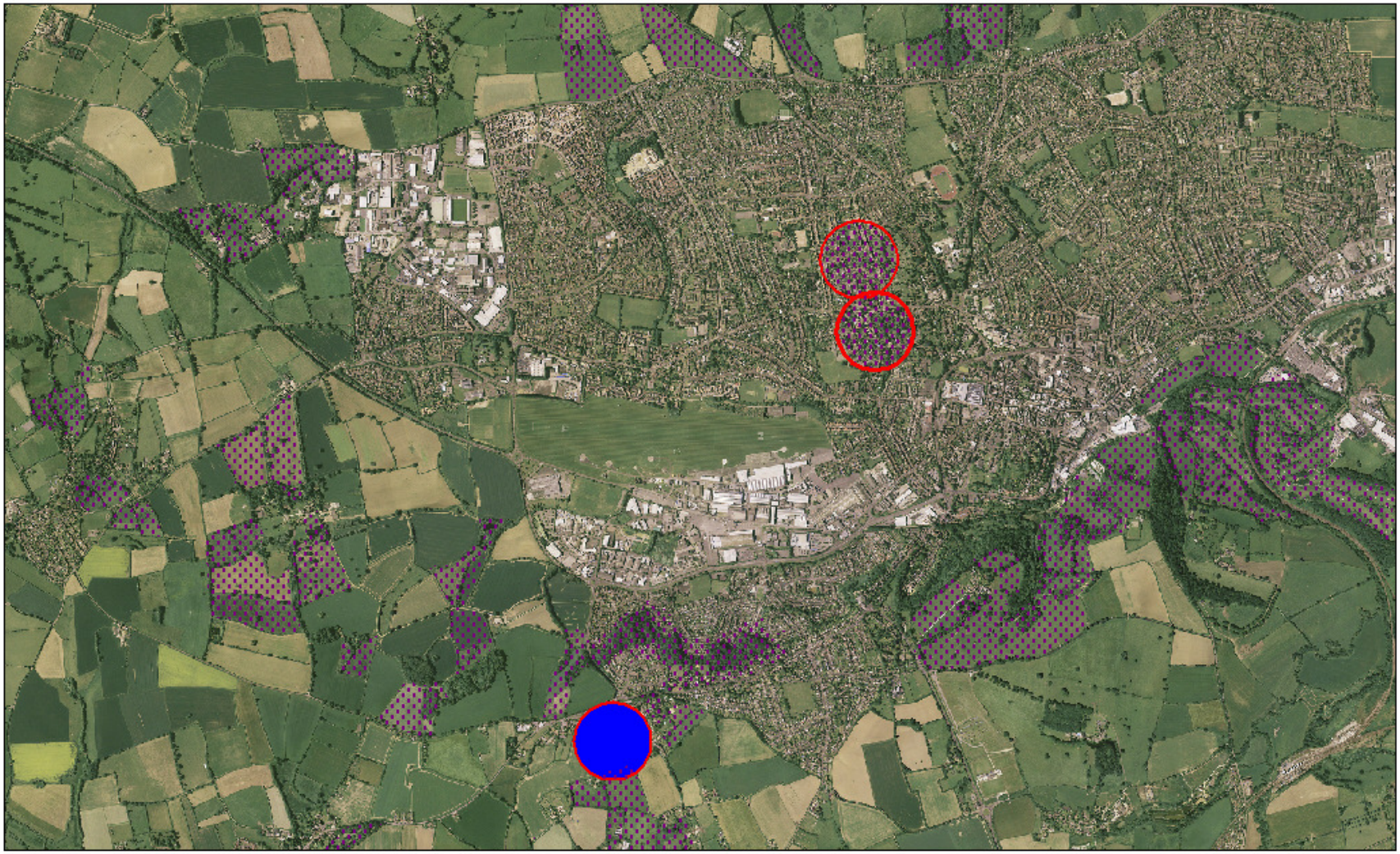
6.50 There is some recorded serotine bat activity around Ilminster but no roost site has been recorded and therefore is not considered significant.

6.51 There are two maternity colonies of serotine bats in Castle Cary. One of these is located in South Street and the other in at Ansford Hill. A further roost has been recorded in South Cary Lane. Bats from these colonies are probably feeding over pasture and hay fields to the south, east and north of the town as indicated in Map 15 by purple spotting.

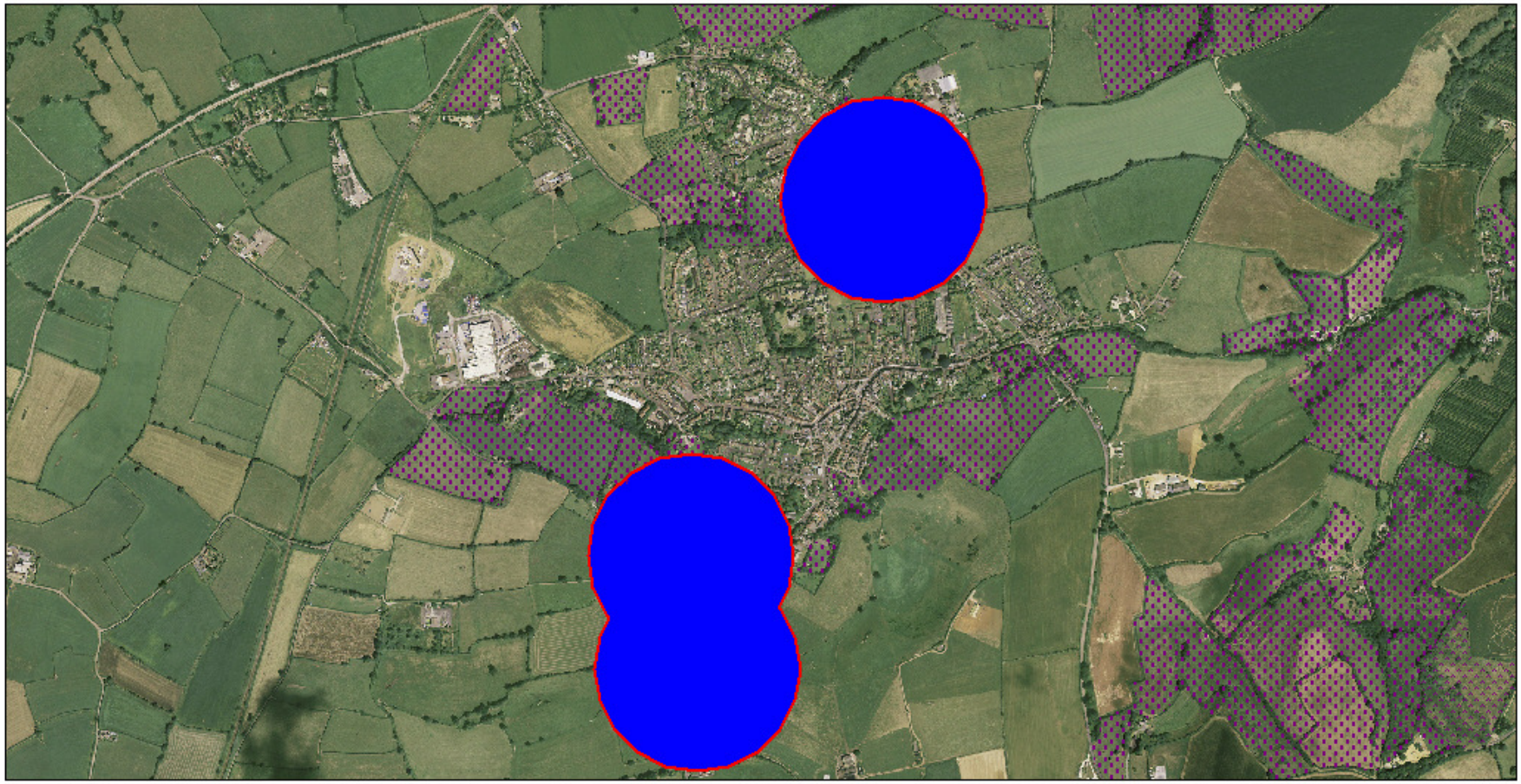
6.52 Serotine bats are also present in the urban area of Wincanton and there is a maternity colony in the council offices. There is a record of a single male roosting in the High Street. Foraging probably takes place to the east, north and west of the town, as indicated on Map 16 by purple spotting.

6.53 Serotine bats fly at about tree-top height (to about 10 m) often close to vegetation, and will sometimes flop, wings outstretched, onto the foliage to catch large insects. The serotine will even catch prey from the ground. Serotine bats feed over grassland especially cattle pasture; over rivers and lakes; and around white street lights. In most cases foraging areas are open fields with some woods on the edge. In agricultural landscapes they prefer

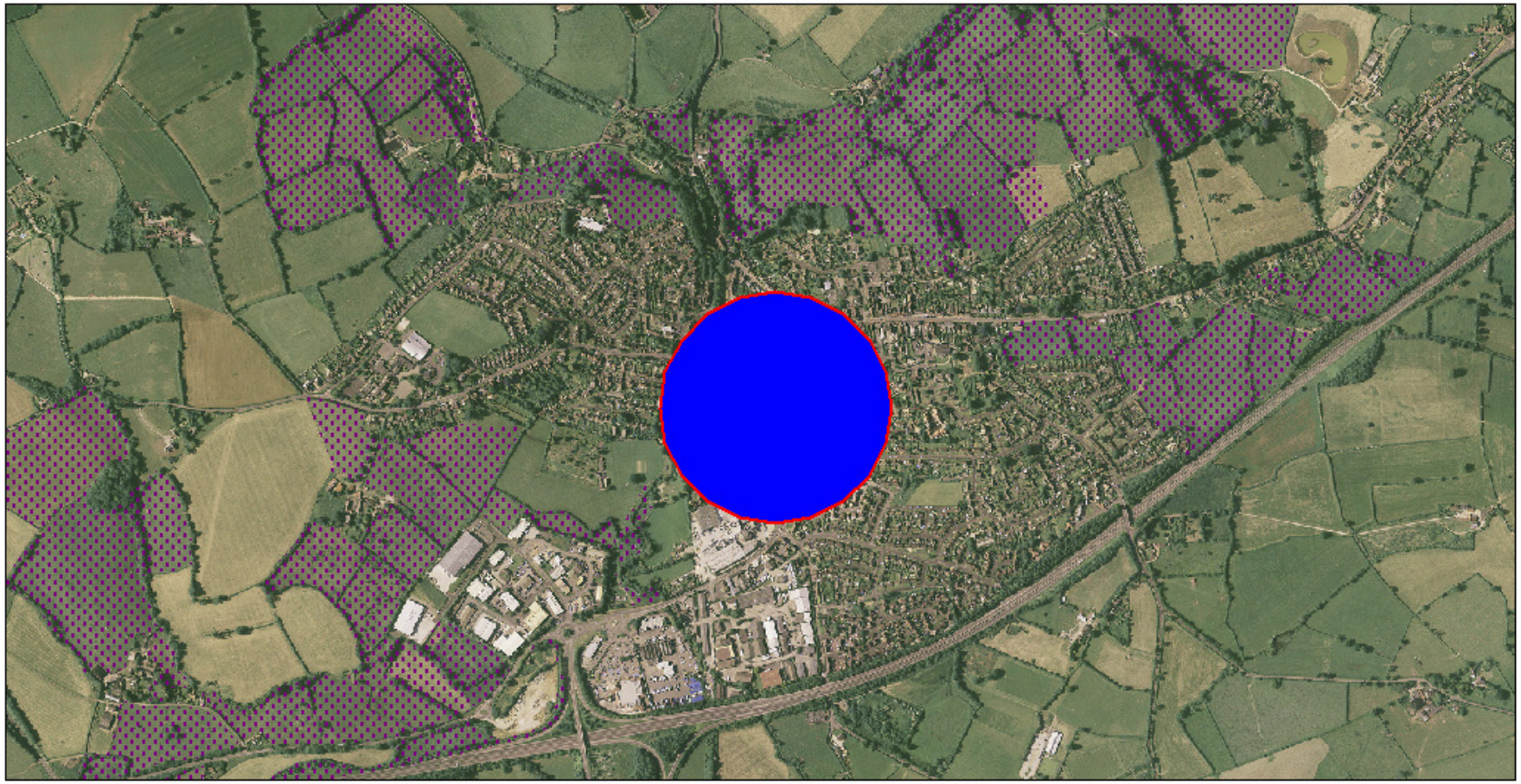
Map 14: Landscape Use by Serotine Bats – Yeovil



Map 15: Landscape Use by Serotine Bats – Castle Cary



Map 16: Landscape Use by Serotine Bats – Wincanton



pasture with tree rows for protection from winds.
(Boye & Dietz, 2005; Entwhistle *et al*, 2001; http://www.bio.bris.ac.uk/research/bats/britishbats/batpages/serotine.htm#Roost)

6.54 Serotine foraging follows the seasonal availability of its prey. Cockchafers, summer chafers, crane flies and ichneumonids are present from May to June along broad-leaved woodland edges, in orchards and over hay meadows and pastures. Moths are found in the same habitats and around streetlights. Aphodius beetles are associated with cow dung and eaten in the autumn. Swarms of midges and caddis flies attract serotine bats to streams and water. (Kervyn & Libois, 2008)

6.55 Serotine bats usually commute along lines of trees and hedges and over pastures (Robertson & Stebbings, 1997). Serotine activity in open areas is negatively related to the distance to a landscape element. There is a positive relationship between the density of serotine bats and the density of linear landscape features (Verboom & Huitema, 1997).

6.56 Serotine bats occur mainly in lowland areas, where there are human settlements. In 37 passes 19 were recorded on river or lake shores, 12 in grassland (of which 7 were improved cattle pasture), 4 in arable land, 1 in a village and 1 in ancient semi-natural woodland (Vaughan *et al*, 1997). Robinson & Stebbings (1993) investigated the diet of the serotine and found that in 96.1% of the faeces they examined Coleoptera were present and in 14.7% Lepidoptera were present. The beetle species found were from habitats such as hay meadows or grazed pasture indicating that this population of serotine bats foraged mainly over these habitat types.

6.57 The maximum distance serotine bats travelled to a foraging area in Cambridgeshire were 7.4 kilometres. Another study found that although individuals forged up to 14 kilometres away from maternity roosts most foraging occurred within 5 kilometres. Each individual visits 2 to 8 different foraging areas per night. In maternity colonies the foraging areas are at an average of 1.25 kilometres from the roost, and a maximum of 5.7 kilometres or 4.5 kilometres. In the towns serotine rarely forages further than 1 kilometre from the roost. (Boye & Dietz, 2005)

6.58 Robinson & Stebbings (1997) found that the nursery roosts of serotine bats that contained less than 20 individuals had home ranges of 24-77 square kilometres, with central areas of high activity of 13-33 square kilometres. Individual home ranges varied between from 0.16 to 47.58 square kilometers but were not used exclusively by one individual. There was an average density of one bat per 120 hectares, although this density would be higher had the non-breeding and juvenile bats been included in the calculation. Serotine travelled an average of 8 kilometres a night between their foraging sites. They visit between 0 and 10 feeding sites per night.

6.59 Serotine bats would be affected by loss of suitable foraging habitats (Bat Conservation Trust/ BMT Cordah Limited. 2005). This could be the loss of cattle pasture to housing development, especially close to maternity roosts.

Noctule Bat

6.60 Noctule bats are Britain's largest bat species. There is one recorded noctule bat in flight around Lufton Manor. There is a possible breeding colony to the west near Montacute House. It should be noted that noctule bats are capable of foraging up to 20 kilometres from a roost site.

6.61 In summer noctule bats roost in trees holes either made by woodpeckers, caused by rot or in the splits in tree trunks (Boye & Dietz, 2005). They also prefer to roost near the edges of woodland, perhaps to limit energy expenditure in flying to their feeding site (Boonman, M. 2000). It has also been found roosting in hollow streetlights, bridges and in gaps between slabs in new houses.

6.62 Noctule bats are found over water early evening, in urban areas around streetlights and along woodland edges. It forages above meadows, lakes, refuse tips and above the tops of trees (Boye & Dietz, 2005). Noctule bats are known to actively hunt in the winter (Kanuch *et al*, 2005).

6.63 The noctule bat flies to its foraging area in straight lines and hunts at 10 to 40 metres, and up to 70 metres above the ground. As noctule bats are a highflying species, foraging over pasture and water, they would be at risk to collision with wind turbines (Hötker *et al*, 2006). The guidelines for bats and wind farms set out in Cathrine & Spray (2009) states that wind turbines present a high risk of impact on noctule bats.

Pipistrelle Bats

6.64 There are two species of pipistrelle bat recorded as being present and breeding in Somerset. These are the common pipistrelle (*Pipistrellus pipistrellus*) and the soprano pipistrelle (*Pipistrellus pygmaeus*).

6.65 Pipistrelle roosts mainly occur in settlements and are even present in city centres. Summer roosts are predominately crevices in buildings, especially between tiles and the underlying roofing or behind boards on the gable. (Boye & Dietz, 2005)

6.66 Pipistrelles exhibit roost switching behaviour at maternity roosts during pregnancy, whilst lactating and post lactating. In Germany the distances between the roost sites varied between 144.8 and 158 metres apart. Due to the mobility of colonies a large number of suitable roosts are necessary to maintain each social group (Simon *et al*, 2004).

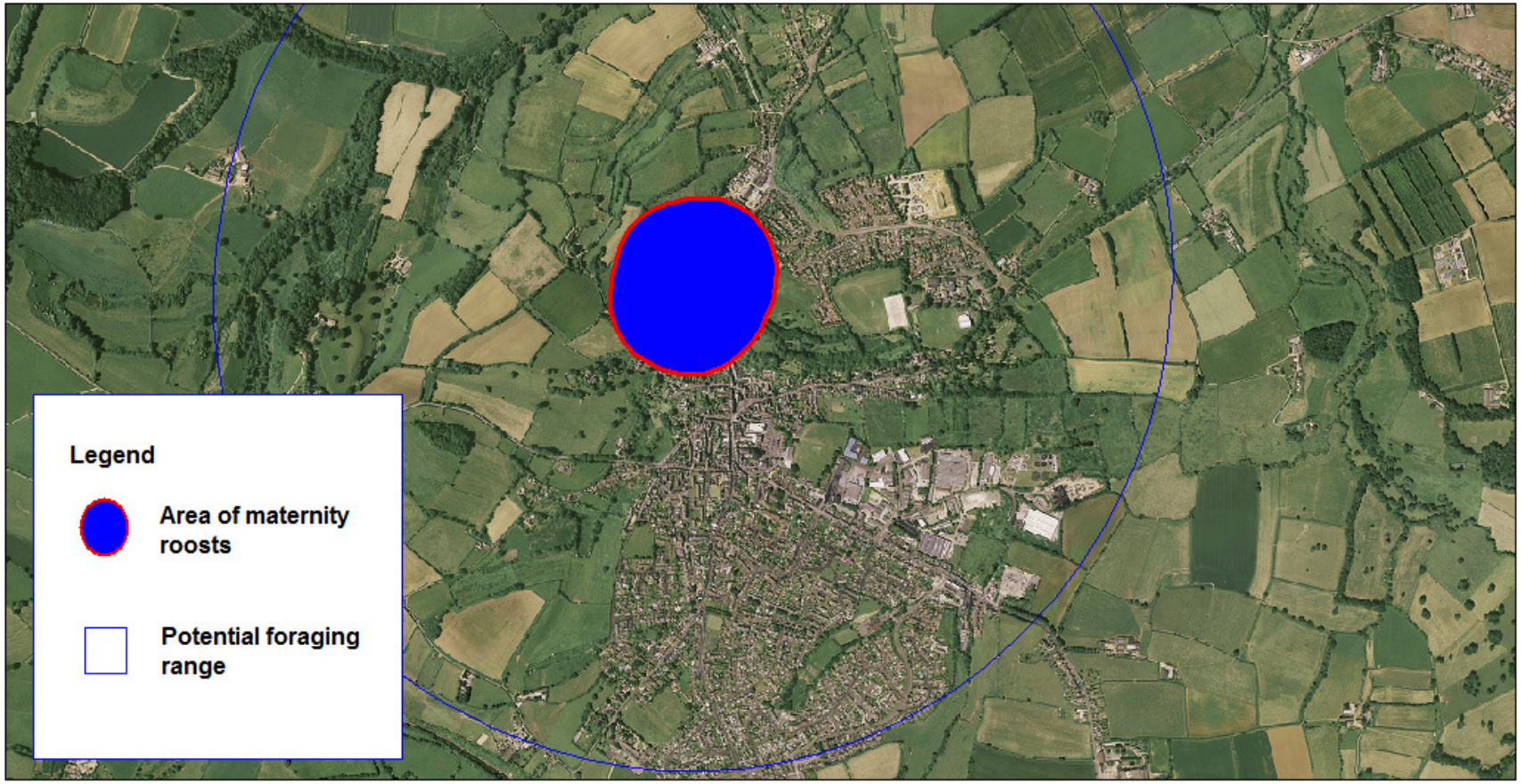
6.67 Common pipistrelle bats travel short distances (up to 1.5 kilometres on average) to foraging sites but uses a greater number of sites for foraging than sopranos, which travel greater distances (up to 1.75 kilometres) to fewer sites (Bat Conservation Trust, 2005).

6.68 Individual common pipistrelles can have home ranges of more than 50 hectares, depending on prey availability (Boye & Dietz, 2005). A study of pipistrelles around two colonies revealed bats moved between fixed foraging sites on regular flight routes (Verboom & Huitema, 1997). Pipistrelles are confined to linear elements, and infrequently cross open areas but will cross

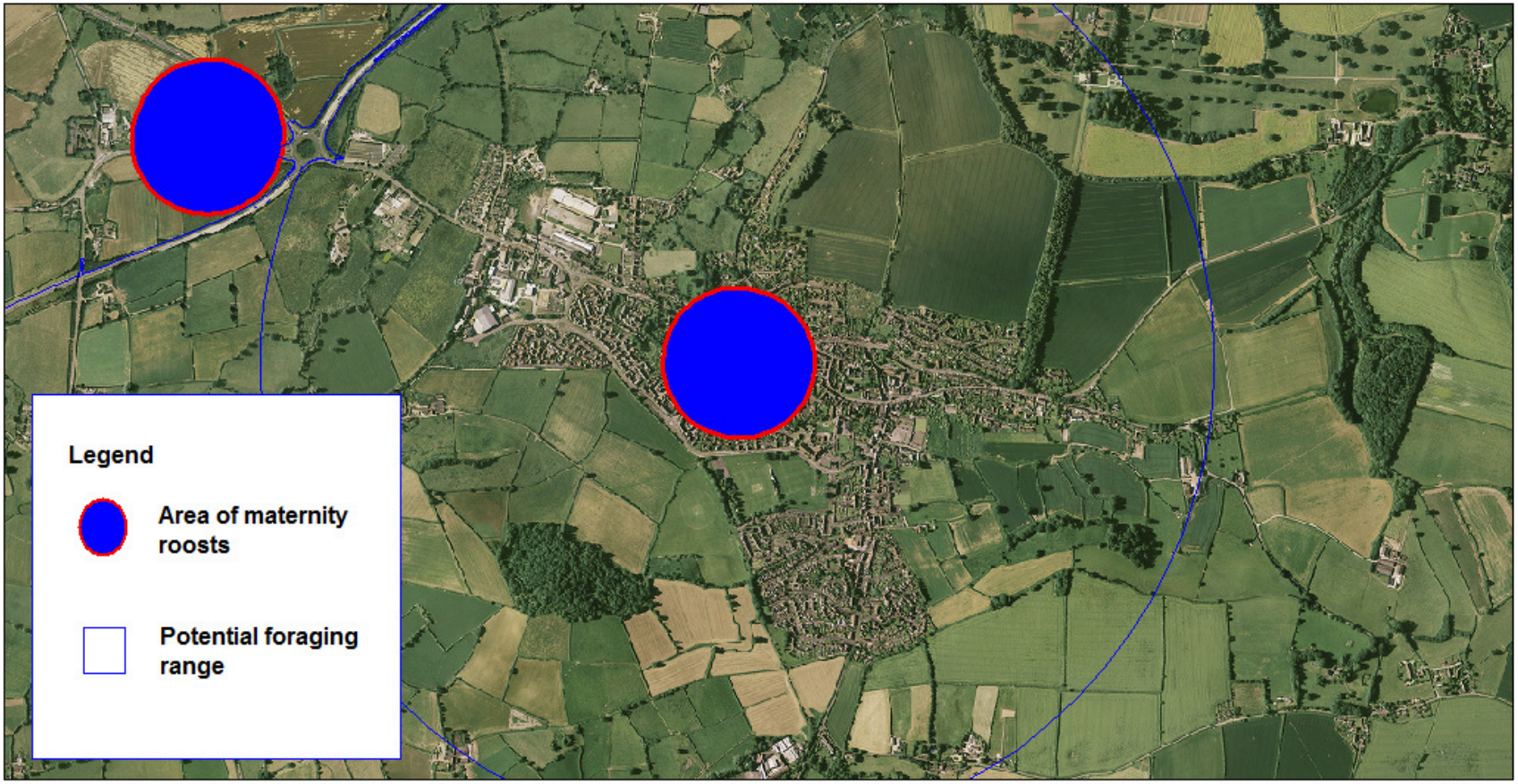
Map 17: Pipistrelle Bats - Yeovil

Map 18: Pipistrelle Bats – Chard

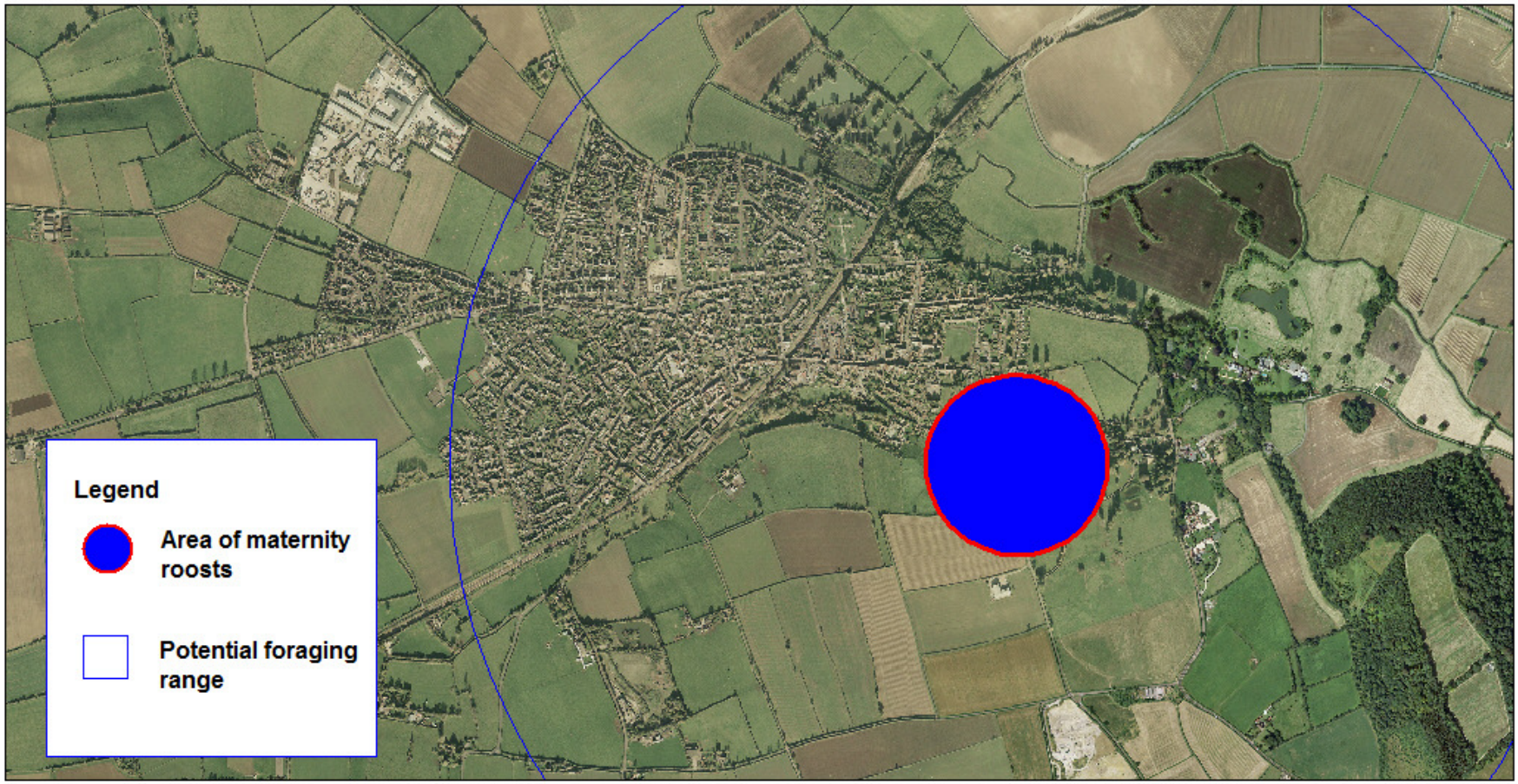
Map 19: Pipistrelle Bats – Crewkerne



Map 20: Pipistrelle Bats – Ilminster



Map 21: Pipistrelle Bats – Somerton



open areas of 100-150metres wide (up to 200 metres observed) (Verboom & Huitema, 1997).

6.69 Pipistrelle bats hunt in farmland, open woodland, gardens and large hedgerows. They also use rivers, lakes, unimproved grassland, amenity grassland, improved cattle pasture, arable land, villages, ancient semi-natural woodland, conifer and mixed plantation, trees in parkland, trees in pasture, woodland blocks, and mature trees overhanging arable fields. They tend to avoid very open habitat such as moorland and grassland where linear features are comparatively rare. Streetlights also attract pipistrelle bats that feed on the insects attracted by the light.

6.70 Two significant maternity colonies of common pipistrelle bats are located within the urban area of Yeovil; both of these are in the Southwoods area and and may be one colony which uses alternative roost sites (see Map 17). The mapping shows the roost switching area of a maternity colony in blue outlined in red and an outer foraging range. Bats from these colonies are likely foraging mainly around Constitution Hill, Ninesprings and towards the River Yeo. There is a record for Ninesprings Wood.

6.71 Elsewhere in Yeovil pipistrelle bats have been recorded in small numbers at Preston Road, Quedam and West Henford. There is a significant maternity roost at Lufton Manor College, and pipistrelle bats from this colony are likely to be foraging around hedgerows and trees to the south of the college and towards Lufton Bridge and Monacute, and to the north east towards Thorne.

6.72 There two significant maternity colonies within the urban area of Chard. These are located around Nursery Gardens and Glanvill Avenue areas of the town. These are shown on Map 18. Bats from the Nursery Gardens roost area are probably foraging to the east of the town along mature hedgerows and wooded areas towards Chard Reservoir. The Glanvill Avenue colony is probably feeding in the Holyrood School area as well as out to the north of the town. There is also a record of a hibernation roost to the south of Chard Reservoir.

6.73 The is a maternity roost of pipistrelle bats on the north west of the Crewkerne urban area in a cash and carry, which is shown on Map 19. This colony is likely to be feeding along the wooded areas to the east of the roost around Bincombe Hill and to the west towards Mancombe. There is also a hibernation record for Church Street.

6.74 In Ilminster there is a maternity roost in Summerlands Park Avenue in the centre of the urban area. This is illustrated on Map 20. Bats from this roost would probably be foraging to the west of the town towards the River Isle (They have been recorded in flight at Rosemill) and towards the north. As well as this roost there also several other roosts where single pipistrelle bats have been recorded in the urban area, such as along properties in Station Road and St Mary's Church. Outside of the town there is a maternity colony at Horton Cross.

6.75 A pipistrelle bat maternity roost is present in Lower Somerton as shown in Map 21. A further single pipistrelle bat has been recorded roosting in the

urban area on the western edge of the urban area in Parklands Way and Behind Berry.

6.76 The viability of pipistrelle bat populations would be threatened by loss of foraging habitat, and flight lines, particularly due to loss of wetlands and hedgerows, reduction in food availability through change of land use or riparian management and loss of roost sites. (Bat Conservation Trust/ BMT Cordah Limited. 2005)

Brown Long-eared Bat

6.76 Brown long-eared bats appear to select roosting sites according to the houses available. Preferences for older buildings with partitioned roofs that are within 0.5 km of woodland and water have been recorded. Brown long-eared bats also exhibit a preference for warmer houses for summer roost sites. Summer roosts are also found in holes in trees, in attics and bat and bird boxes and also cracks in buildings.

6.27 In Maps 22 to 24, showing brown long-eared bat habitat use, the core commuting and foraging routes are shown in grey/green and areas adjacent to the core areas mapped in a diagonal stripe. These areas show areas of habitat that are support prey species that are likely to be available to brown long-eared bats.

6.78 There is a significant maternity colony of brown long-eared bats at Brympton D'Evercy west of Yeovil. Bats from this colony are likely to be foraging around the settlement and towards Yeovil, which is illustrated on Map 22. There are other records of brown long-eared bats in the urban area of Yeovil. These are shown on the mapping although no information on the status of the roosts is known. Therefore they are included following the 'precautionary principle'.

6.79 There are a number of important roost sites, maternity and hibernation east of Chard from Millfield. There is also a hibernation roost to the west of the town. Brown long-eared bats are active winter feeders when temperatures are warm (Hays *et al*, 1992). The landscape use is shown on Map 23.

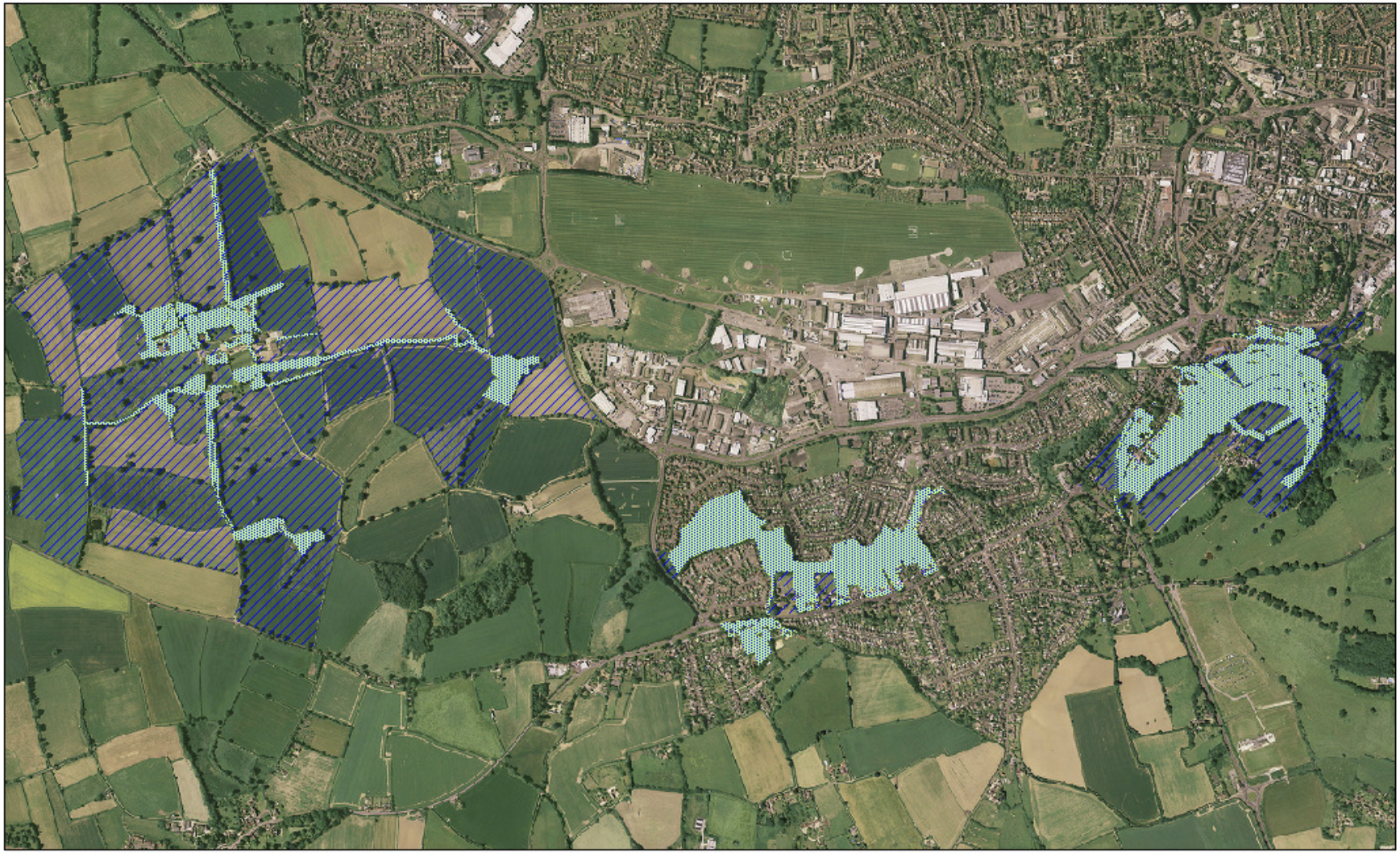
6.80 There are maternity colonies of brown long-eared bats around the eastern end of Ilminster, which are shown on Map 24.

6.81 Brown long-eared bats use landscape features such as hedgerows and tree lines between roost sites and foraging and feeding areas. Such features as banks, fences, woodland rides and streams lined with vegetation are also used to commute. (Swift, 1998; Entwhistle et al, 2005; Boye & Dietz, 2005)

6.82 The average foraging range for brown long-eared bats is 1.5 kilometres, of which 60% fly less than 500 metres to feed, whilst 8% travel up to 2.8 kilometres (Swift, 1998). Brown long-eared bats have known to commute up to 7.4 kilometres in Yorkshire (Daymond, 2002).

6.83 The home range of an individual is related to habitat structures and prey abundance and has a size between 1 and 40 hectares. It is estimated that the home range of a maternity colony during rearing is 1 square kilometre and

Map 22: Brown Long-eared Bats – Yeovil



Map 23: Brown Long-eared Bats – Chard

Map 24: Brown Long-eared Bats – Ilminster

during dissolution 10 square kilometres. Within in this each long-eared bat has a core area has a size of 0.75 - 1.5 hectares which is less than 1.5 kilometres from the roost. (Boye & Dietz, 2005)

6.84 Brown long-eared bats are primarily a woodland species foraging in deciduous woods, forest edges, birch scrub, gardens with mature conifer and/or deciduous trees, orchards and parkland. Deciduous woodland with different ages of trees are preferred as foraging habitats, but less standard woodlands including native non-plantation conifers, birch woodland and the edges of non-native conifer stands are used for hunting. Seventeen percent of foraging sites are trees adjoining pasture, 42% of foraging sites are in broad-leaved woodland. They use arable and open land the least. (Swift, 1998; Entwhistle et al, 2005; Boye & Dietz, 2005)

Great Crested Newt

6.85 There are two records from the 1980s of great crested newts from Yeovil at Yew tree Wood in the south west of the urban area. No further information on the records is available and from the aerial photographic images it appears that the area of the ponds is overshadowed by woodland and therefore sub optimal habitat for great crested newts.

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